SIEMENS



HVAC products and building automation systems

Product Catalog 2014

Answers for infrastructure and cities.



Content

1	**Standard controllers**	– Autonomous heating controllers – Communicating heating controllers – Autonomous district heating controllers – Communicating district heating controllers – Autonomous HVAC controllers – Communicating HVAC controllers – Various electrical accessories
2	**Software and central communication units**	– Operating, service and alarm software – Central communication units
3	**Room automation**	– Communicating controllers - RXL (Bus) – Communicating controllers - RXB (KNX) – Communicating central control unit (KNX) – Room units
4	**Home Automation System Synco living**	– Synco™ living
5	**Thermostats**	– Autonomous room thermostats – Communicating room thermostats – Capillary and clamp-on thermostats
6	**Sensors**	– Temperature sensors – Humidity sensors – Air quality sensors – Pressure sensors – Flow sensors – Solar sensors
7	**Valves and actuators**	– Actuators for globe and pressure independent combi valves – Globe and pressure independent combi valves – Actuators for rotary valves – Rotary valves – Refrigerant valves
8	**Damper actuators**	– Actuators for HVAC applications – Actuators for air volume control – Actuators for fire and smoke protection dampers
9	**Variable speed drives**	– Variable speed drives for pumps and fan motors
10	**Metering**	– Electronic heat cost allocators – Mechanical water meters – Impeller type heating/cooling energy meters – Ultrasonic heating/cooling meters – Systems for remote readout: AMR, walk-by, M-bus
A	**Practical Tips**	



Can old buildings be just as energy-efficient as new ones?

Intelligent and energy-efficient building technologies from Siemens reduce emissions and costs, in any building.

Intelligent building and room automation with the user in mind

Dear Customers and Partners,

Energy efficiency is a constant topic of discussion in business, politics and society. Some European countries have already decided to phase out nuclear energy, while others have placed the transition to the new energy policy high on their political agendas. But switching to renewable energy alone will not protect our climate. It is vital that we use existing resources more efficiently in order to maintain or even improve productivity and quality of life.

With innovative and environmentally friendly technologies, Siemens Ltd has been promoting environmental protection and the conscientious use of energy in buildings and rooms. All products and systems are designed for maximum climatic conditions and minimum energy consumption. This includes the new flush-mounted Symaro™ sensors, which increase efficiency and room comfort thanks to their accurate measuring technology.

To continuously ensure quality and control accuracy, all applications are tested and optimized in our 800 m^2 in-house laboratory. These applications network the HVAC building technology from the basement to the individual rooms and smoothly coordinate the entire system. Integrating room users makes it possible to achieve additional energy savings. Energy consumption is monitored with the energy indicator, and a red leaf symbol on the room controller alerts users to inefficient settings. The HomeControl app lets users access the HVAC installation remotely and check the settings or change the room parameters.

Siemens provides comprehensive support through tools and new apps for smart phones and tablet PCs so that you can quickly find the right product from our extensive product range. A wide selection of brochures and technical materials is also available.

Benefit from our comprehensive range of innovative products, systems and tried-and-tested applications to enhance energy efficiency in rooms and to protect the environment.

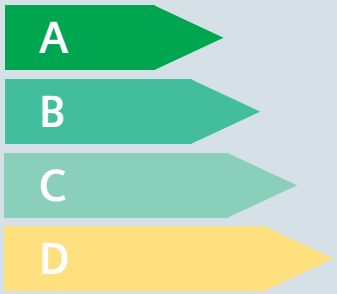
BACS efficiency classes – EN 15232

High energy performance
BACS and TBM

Advanced
BACS and TBM

Standard
BACS

Non-energy-efficient
BACS



BACS Building Automation and Control System
TBM Technical Building Management System



Building automation and control – impact on energy efficiency

About 40 percent of the world's energy is consumed by buildings. Worldwide, buildings also account for 21 percent of the greenhouse gas emissions. Building owners now face growing pressure globally to reduce energy consumption and minimize impact that such consumption has on the environment.

Energy savings of up to 30 percent thanks to intelligent building automation

Siemens as a leading company and specialist for energy efficiency of buildings offers a comprehensive portfolio of products, systems and solutions for increased energy efficiency. The key is intelligent and integrated building and room automation solutions that lead to significant and measurable energy savings without loss of comfort, thus generating cost savings. When installing an optimized building automation and control system, the energy efficiency of heating, ventilation and air conditioning plants in commercial buildings, for instance, can be increased by up to 30 percent.

This corresponds to efficiency class A according to the European Standard EN 15232, "Building Automation – Influence of Building Automation and Control and Building Management", which defines the standard for the effectiveness of building automation and control systems. It distinguishes between four efficiency classes (A through D) in building automation. The systems supplied by Siemens deliver all prerequisites needed to attain efficiency class A. The flexible and energy-efficient systems provide all important building functions from lighting to shading and from heating and ventilation to air conditioning and cooling plants. The constant logging of energy consumption data enables building owners and facility managers to find potential saving opportunities and to check the success of the measures taken so far.





Significant energy savings thanks to eu.bac-certified room controllers

The installation of demand-based electronic individual room control in connection with radiator heating systems, fan coil units, VAV systems or chilled ceilings represents a considerable saving potential. Thanks to their high control accuracy, the Desigo™ RX individual room controllers, for example, are certified by the European Building Automation and Controls Association (eu.bac). Excellent control accuracy optimizes the room climate and enhances comfort. A difference in setpoint of only 1 °C results in energy savings of up to 6 percent. This means that the energy savings achieved by individual room controllers are 8 percent higher than those reached by "lowest in class" eu.bac-certified controllers.

For more information, visit www.siemens.com/energyefficiency

	Saving potential (thermal)					
	D-A	D-B	D-C	C-A	C-B	B-A
Offices	54%	47%	34%	30%	20%	13%
Lecture halls	60%	40%	19%	50%	25%	33%
Educational buildings (schools)	33%	27%	17%	20%	12%	9%
Hospitals	34%	31%	24%	14%	9%	5%
Hotels	48%	35%	24%	32%	15%	20%
Restaurants	45%	37%	19%	32%	23%	12%
Commercial and retail buildings	62%	53%	36%	40%	27%	18%
Residential buildings	26%	20%	9%	19%	12%	8%

	Saving potential (electric)					
	D-A	D-B	D-C	C-A	C-B	B-A
Offices	21%	15%	9%	13%	7%	6%
Lecture halls	16%	11%	6%	11%	6%	5%
Educational buildings (schools)	20%	13%	7%	14%	7%	8%
Hospitals	9%	7%	5%	4%	2%	2%
Hotels	16%	11%	7%	10%	5%	5%
Restaurants	12%	8%	4%	8%	4%	4%
Commercial and retail buildings	16%	12%	7%	9%	5%	4%
Residential buildings	15%	14%	7%	8%	7%	1%

Saving potential according to efficiency classes



Communicating HVAC control for the entire building

Synco supports the entire life cycle of small to medium-size buildings. The controllers can be extended and adapted at any time, thanks to their modular design and backward compatible communication. This way, investments can also be made in steps.

Synco™ offers suitable solutions for all requirements

Synco offers matching solutions for all kinds of requirements: From simple temperature control to comprehensive control of HVAC plants, from the control of heat and cooling energy production to their distribution including individual room control. The product range offers both stand-alone and communicating controllers, which control and monitor plant via KNX® communication. The communicating controllers exchange energy-related information, meaning that aggregates, such as heating boilers, chillers or pumps, are switched on only when required to maintain the required comfort level. This approach increases energy efficiency and helps attain efficiency class A as per EN 15232.

Thanks to Synco's easy-to-understand and efficient operation, the system excels in user and service friendliness. Pretested applications and energy saving functions are integrated. These save time and lower costs during the planning, engineering and commissioning phases.

Flexibility during modernization thanks to modular system components

Owing to its modular design, the system can be easily extended via additional controllers, allowing Synco to be straightforwardly adapted when usage of the building changes.



Energy-efficient room automation without sacrificing comfort

Room users and facility managers can considerably influence the consumption of energy, e.g. by shutting down the plant when not in use, or by matching room temperatures and scheduler programs to current occupancy times. The communicating room controllers RXB and RXL and communicating room thermostats RDG and RDF enable room users to straightforwardly adjust the comfort temperature in the individual rooms. The RDG and RDF room thermostats excel in elegant, modern design and innovative functions. The built-in scheduler programs help save additional energy.

Energy indicator enhances the usability

What's more, Synco supports room users with its intelligent functions, such as the energy indicator. This facility monitors the settings made by the end user, shows when limit values are crossed and – via e-mails or apps – sends the respective information to the occupants at regular intervals. A leaf symbol indicates the room's energy status depending on the settings made: Green means that the settings are correct from the point of view of energy efficiency, when the leaf symbol changes to orange, the settings are unfavorable. Hence, deviations are transparent and visible at any time. Using a PC or smartphone, access via the Web or Home-Control app enable users to check their settings from any location, any time.

For more detailed information, please visit: www.siemens.com/synco

Highlights

- Efficient installation thanks to flexibly applicable and modular HVAC controller range
- Energy efficiency thanks to energy saving functions and exchange of energy-related information via KNX
- Enhanced comfort owing to individual room climate
- Higher energy efficiency as a result of reminder function and reporting of energetically unfavorable conditions



Efficient technology for a comfortable room climate

Complete portfolio for efficient building automation

Many heating, ventilation and air conditioning products – from variable speed drives and sensors to damper actuators – help users enjoy a comfortable room climate and also save energy.

A complete range of top quality products

Our complete range of energy-efficient building automation products covers everything you need for a comfortable "green" building. The products are coordinated with standard HVAC applications.

All products feature high quality and reliability. The components are systematically tested under real-life conditions in our own HVAC lab. A long product life cycle helps protect your investments.

Optimum operation at minimum cost

All products are designed for easy installation, which speeds up commissioning. Simplified handling also facilitates maintenance, and modifications can be carried out faster and more cost-effectively.

Highlights

- Fully coordinated products ensure the best possible energy efficiency
- High quality and reliability and a long life cycle protect your investment
- High flexibility permits the integration of third-party devices, step-by-step installation and backward compatibility
- Easy installation minimizes maintenance costs

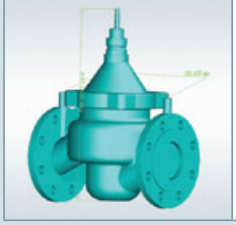






Tool support facilitates installation design

CAD data



- Ideal for facility planning
- True to scale for any DN level
- Available for all products
- The following formats are available: stp and .dwg
- Can be downloaded free of charge

G120P speed adjuster



- Easy and fast conversion of frequency into speed and vice versa
- Conversion takes place according to the number of poles
- User-friendly and very easy to read
- High quality and long service life thanks to laminated surfaces



Acvatix™ valve sizer



- Simplifies dimensioning
- Customers such as planners and installers have appreciated and used the valve sizer for decades
- Excellent overview of all valve series (threaded and flanged valves)

OpenAir product selection guide



- Well-organized selection tool for damper actuators
- Compact format, robust quality
- Detailed competitor comparison
- User-friendly and easy to read

Please contact your local Siemens representative to order these tools.

Tools and apps

The Siemens tools and apps support users not only when planning new projects, but also when calculating potential energy savings through modernization of the building automation and control system. Using the Siemens applications, the matching product can be easily found and the building's potential energy savings can be calculated, either online or via smartphone. This relieves you of routine work and saves time when it comes to finding the right products.

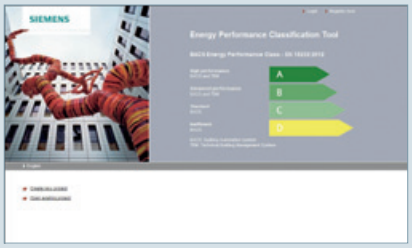
> All Siemens apps can also be found under www.siemens.com/bt/apps

HIT – HVAC Integrated Tool



HIT supports energy performance standard EN 15232. The tool offers more than 300 preconfigured HVAC standard applications, classified according to potential energy savings. This allows users to select the application that best meets the requirements. The documents are linked to the applications and also show the prerequisites required to achieve the relevant efficiency class as per EN 15232.
For more information, visit **www.siemens.com/hit**

EPC – Energy Performance Classification Tool



The EPC Tool supports the user when determining the current state of an existing building automation and control system and then assigns it to one of the four efficiency classes A through D. When upgraded, the tool also determines the new state of the plant.

Other functions of the EPC Tool are considerations regarding the profitability of modernization and fast production of customized documentation.

Siemens Building Technologies Download Center – iPhone app

In the download center, all brochures, instructions, specifications and data sheets produced by the Building Technologies Division of Siemens can be conveniently downloaded to your iPhone/iPad.

Old2New replacement guide for HVAC products – iOS app



Old2New is a database containing a list of all former HVAC products produced by Landis+Gyr, Staefa Control System and Landis & Staefa, together with pictures and detailed information about the successor products. This app supports you when selecting replacement products, also presenting the respective data sheets.
For more information, visit **www.siemens.com/bt/old2new**

Combi Valve Sizer – iOS app



With the Combi Valve Sizer app from Siemens, it's easy to select a matching Acvatix combi valve and actuator. By entering the required maximum volumetric flow and other features, such as type of threaded connection or DN class, the ideal combi valve is recommended. The selection of actuator is just as easy. What's more, all data sheets are made available.

The app also works the other way: If you want to find the maximum volumetric flow resulting from a certain presetting, the calculation is made.

SINAMICS Support – app for smart phones



The app converts the frequency (Hz) of a variable speed drive to the speed (rpm) to be set on the motor. The conversion also works the other way: revolutions per minute become hertz.

HomeControl for Room Automation – app for smart phones



The HomeControl app from Siemens offers you intuitive and straightforward operation of your heating, ventilation and air conditioning plants, including control of lighting and shading systems.

Type Overview

Product Number	Description	Datasheet	Page
2WR605-MBE	Ultrasonic heat meter 0.6 m3/h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-20
2WR605-MBG	Ultrasonic heat meter 0.6 m3/h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR605-MHE	Ultrasonic heat meter 0.6 m3/h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR605-MHG	Ultrasonic heat meter 0.6 m3/h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR621-MBE	Ultrasonic heat meter 1.5 m3/h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-21
2WR621-MBG	Ultrasonic heat meter 1.5 m3/h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR621-MHE	Ultrasonic heat meter 1.5 m3/h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR621-MHG	Ultrasonic heat meter 1.5 m3/h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR636-MBE	Ultrasonic heat meter 2.5 m3/h, M-bus, DS M10x1 mm, G 3/4", battery life 11 years	N5378	10-21
2WR636-MBG	Ultrasonic heat meter 2.5 m3/h, M-bus, DS M10x1 mm, G 3/4", AC/DC 24 V	N5378	10-20
2WR636-MHE	Ultrasonic heat meter 2.5 m3/h, M-bus, Ø5,2x45 mm, G 3/4", battery life 11 years	N5378	10-21
2WR636-MHG	Ultrasonic heat meter 2.5 m3/h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
421314160	Cable holder for protection pocket mounting	N1831	6-20
428488060	Sealing gland complete, stem diameter 10 mm, sealing material EPDM		7-72
428616520	Water trap pipe	N1915	6-48
5TC9 220	Cover plates for room thermostat, NC/CO, electro white		5-13
5TC9 222	Cover plates for room thermostat, 3-position switch, electro white		5-13
5TC9 224	Cover plates for room thermostat, direct floor heating, electro white		5-13
5TC9 251	Cover plates for room thermostat, NC/CO, carbon metallic		5-13
5TC9 253	Cover plates for room thermostat, 3-position switch, carbon metallic		5-13
5TC9 255	Cover plates for room thermostat, direct floor heating, carbon metallic		5-13
5TC9200	Room thermostat 1 NC contact		5-11
5TC9201	Room thermostat, 1 NO contact		5-11
5TC9202	Room thermostat, 3-position switch		5-12
5TC9203	Room thermostat, direct floor heating		5-12
5TC9221	Cover plates for room temperature controllers, NC/CO, titanium white		5-13
5TC9223	Cover plates for room temperature controllers, 3-position switch, i-system, titanium white		5-13
5TC9225	Cover plates for room temperature controllers, direct floor heating, titanium white		5-13
5TC9250	Cover plates for room temperature controllers, NC/CO, i-system, aluminum metallic		5-13
5TC9252	Cover plates for room temperature controllers, 3-position switch, i-system, aluminum metallic		5-13
5TC9254	Cover plates for room temperature controllers, direct floor heating, aluminum metallic		5-13
7411100280	Terminal covers		2-11
7424200000	Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5		7-72
7428400610	Replacement sealing gland, stem diameter 10 mm, sealing material FEPM		7-72
9060944001	Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm		10-22
9060944002	Sealing disk G ¾", for threaded connection R ½"		10-19
9060944003	Sealing disk G 1", for threaded connection R ¾"		10-19
9060944004	Sealing disk G 1¼", for threaded connection R 1"	N5324	10-27
9060944024	Sealing disk for flange DN 40	N5324	10-27
9060944025	Sealing disk for flange DN 50	N5324	10-27
9060944026	Sealing disk for flange DN 65	N5324	10-27
9060944027	Sealing disk for flange DN 80	N5324	10-27
9060944028	Sealing disk for flange DN 100	N5324	10-27
9060948	Sealing disc ½" made of copper		10-22
9089885	Service-key for calibration modus	N5324	10-28
9930127002	Mounting kit for sensor Ø 5.2x45 mm		10-22
9930128002	Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm		10-21
9956186001	Self-lock seal with sealing wire	N5324	10-28
9956230	Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings		10-19
99T01130	Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets		10-21
99T34110	Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets		10-21
ACS26	Readout software	N2870	10-31
ACS790	Commissioning and plant operating software	N5649	2-7
ACT20	Parameterizing and diagnostics software		10-33
ACT21	Parameterization software	N2870	10-31

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
ACT26	Setup and service software	N2870	10-31
ACT50-HCA	Parameterization and diagnostic software for heat cost allocators		10-10
ACT50-HEAT	Parameterization and diagnostics software for heating energy meters		10-17
ADN10	Two-port seat lockshield valve, PN10, DN10, 0..1.8	N2107	7-98
ADN15	Two-port seat lockshield valve, PN10, DN15, kvs 0..2.5	N2107	7-98
ADN20	Two-port seat lockshield valve, PN10, DN20, kvs 0..3.0	N2107	7-98
AEN10	Angle lockshield valve, PN10, DN10, kvs 0..1.8	N2107	7-98
AEN15	Angle lockshield valve, PN10, DN15, kvs 0..2.5	N2107	7-98
AEN20	Angle lockshield valve, PN10, DN20, kvs 0..3.0	N2107	7-98
AEW310.2	M-bus pulse adapter	N5383	10-33
AEW36.2	Siemeca™ AMR pulse adapter	N2873	10-30
AEW36.2	AMR pulse adapter	N2873	10-30
AFK914/C01	Handheld control	N2731	4-16
AGS2S.200/109	Conduit box with surge protection for solar panel sensor	N2488	1-25
AL100	Retrofit adapter for installed 2W..., 3W..., 4W... valves	N4878	7-41
AL40	Adapter for tamper-proof fitting for SSA.. actuators	N4893	7-35
AL41	Adapter for tamper-proof fitting for STA.., STP.. actuators	N4878	7-35
AL431	Theft protection	N4884	7-30
ALE10	Electronic manometer for Siemens combi valves		7-165
ALE11	Measuring lines and tips for Siemens combi valves		7-165
ALF41B100	Bypass extension, flanged connections, DN100	N4404	7-129
ALF41B125	Bypass extension, flanged connections, DN125	N4404	7-129
ALF41B15	Bypass extension, flanged connections, DN15	N4404	7-132
ALF41B150	Bypass extension, flanged connections, DN150	N4404	7-129
ALF41B25	Bypass extension, flanged connections, DN25	N4404	7-132
ALF41B40	Bypass extension, flanged connections, DN40	N4404	7-132
ALF41B50	Bypass extension, flanged connections, DN50	N4404	7-132
ALF41B65	Bypass extension, flanged connections, DN65	N4404	7-129
ALF41B80	Bypass extension, flanged connections, DN80	N4404	7-129
ALG122	Malleable cast iron fitting G ¾" / Rp ⅜", set of 2		7-118
ALG123	Malleable cast iron fitting G ¾" / Rp ⅜", set of 3		7-119
ALG132	Brass fitting G ½" / R ⅜", set of 2		7-118
ALG133	Brass fitting G ½" / R ⅜", set of 3		7-119
ALG142	Brass fitting G ¾" / R ½", set of 2		7-118
ALG143	Brass fitting G ¾" / R ½", set of 3		7-119
ALG152	Malleable cast iron fitting G 1" / Rp ½", set of 2		7-118
ALG152B	Brass fitting G 1" / Rp ½", 100°C, set of 2		7-118
ALG153	Malleable cast iron fitting G 1" / Rp ½", set of 3		7-119
ALG153B	Brass fitting G 1" / Rp ½", 100 °C, set of 3		7-119
ALG202	Malleable cast iron fitting G 1¼" / Rp ¾", set of 2		7-118
ALG202B	Brass fitting G 1¼" / Rp ¾", 100 °C, set of 2		7-118
ALG203	Malleable cast iron fitting G 1¼" / Rp ¾", set of 3		7-119
ALG203B	Brass fitting G 1¼" / Rp ¾", 100 °C, set of 3		7-119
ALG252	Malleable cast iron fitting G 1½" / Rp 1", set of 2		7-118
ALG252B	Brass fitting G 1½" / Rp 1", 100 °C, set of 2		7-118
ALG253	Malleable cast iron fitting G 1½" / Rp 1", set of 3		7-119
ALG253B	Brass fitting G 1½" / Rp 1", 100 °C, set of 3		7-119
ALG322	Malleable cast iron fitting G 2" / Rp 1¼", set of 2		7-118
ALG322B	Brass fitting G 2" / Rp 1¼", 100 °C, set of 2		7-118
ALG323	Malleable cast iron fitting G 2" / Rp 1¼", set of 3		7-119
ALG323B	Brass fitting G 2" / Rp 1¼", 100 °C, set of 3		7-119
ALG402	Malleable cast iron fitting G 2¼" / Rp 1½", set of 2		7-118
ALG402B	Brass fitting G 2¼" / Rp 1½", 100 °C, set of 2		7-118
ALG403	Malleable cast iron fitting G 2¼" / Rp 1½", set of 3		7-119
ALG403B	Brass fitting G 2¼" / Rp 1½", 100 °C, set of 3		7-119
ALG502	Malleable cast iron fitting G 2¾" / Rp 2", set of 2		7-118
ALG502B	Brass fitting G 2 ¾" / Rp 2", 100 °C, set of 2		7-118

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
ALG503	Malleable cast iron fitting G 2¾" / Rp 2", set of 3		7-119
ALG503B	Brass fitting G 2 ¾" / Rp 2", 100 °C, set of 3		7-119
ALI15VAI60/61	Insulation cover for VAI60/61, DN15		7-197
ALI15VBI60/61	Insulation cover for VBI60/61, DN15		7-194
ALI20VAI60/61	Insulation cover for VAI60/61, DN20		7-197
ALI20VBI60	Insulation cover for VBI60, DN20		7-198
ALI20VBI61	Insulation cover for VBI61, DN20		7-194
ALI25VAI60/61	Insulation cover for VAI60/61, DN25		7-197
ALI25VBI60/61	Insulation cover for VBI60/61, DN25		7-194
ALI32VAI60/61	Insulation cover for VAI60/61, DN32		7-197
ALI32VBI60/61	Insulation cover for VBI60/61, DN32		7-194
ALI40VAI60/61	Insulation cover for VAI60/61, DN40		7-197
ALI40VBI60/61	Insulation cover for VBI60/61, DN40		7-194
ALI50VAI60/61	Insulation cover for VAI60/61, DN50		7-197
ALI50VBI60/61	Insulation cover for VBI60/61, DN50		7-194
ALP45	Spare nipples for VPI45.., set of 2, for VPI45..		7-165
ALP46	Blanking plug for P/T ports		7-165
ALP47	Drain ball valve inclusive O-ring		7-165
ALP48	Combined P/T port and drain ball valve with red ribbon		7-165
ALP49	Long P/T ports (set of 2 pieces)		7-165
ALP50	Black spare valve protection cap (set of 2 pieces)		7-165
ALP52	Pre-setting key for VPI45..		7-175
ALS152	Steel fitting G ¾", d=21.3 mm, set of 2		7-118
ALS202	Steel fitting G 1", d=26.8 mm, set of 2		7-118
ALS252	Steel fitting G 1¼", d=33.7 mm, set of 2		7-118
ALT-AB200	Protection pocket, perforated, 200 mm	N1193	5-54
ALT-C001	Mounting kit for RAK../RAZ..	N1193	5-54
ALT-DB100J	Protection pocket 100 mm, MS63 nickel-plated, G½", PN10, 2xLW7	N1194	5-56
ALT-DB150J	Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, 2xLW7	N1194	5-56
ALT-DB280J	Protection pocket 280 mm, MS63 nickel-plated, G½", PN10, 2xLW7	N1194	5-56
ALT-DB450J	Protection pocket 450 mm, MS63 nickel-plated, G½", PN10, 2xLW7	N1194	5-56
ALT-DS100J	Protection pocket, 100 mm, G½" LW15, stainless steel V4A	N1194	5-56
ALT-DS150J	Protection pocket, 150 mm, G½" LW15, stainless steel V4A	N1194	5-56
ALT-DS280J	Protection pocket, 280 mm, G½" LW15, stainless steel V4A	N1194	5-56
ALT-DS450J	Protection pocket, 450 mm, G½" LW15, stainless steel V4A	N1194	5-56
ALT-SB100	Protection pocket, 100 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	5-54
ALT-SB150	Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	5-54
ALT-SB200	Protection pocket 200 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	5-54
ALT-SB280	Protection pocket 280 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	5-54
ALT-SB450	Protection pocket 450 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	5-54
ALT-SS100	Protection pocket, 100 mm, G½" LW7, stainless steel V4A	N1194	5-54
ALT-SS150	Protection pocket 150 mm, stainless steel V4A, G½", PN16, LW7	N1194	5-54
ALT-SS280	Protection pocket 280 mm, stainless steel V4A, G½", PN16, LW7	N1194	5-54
ALT-SS450	Protection pocket 450 mm, stainless steel V4A, G½", PN16, LW7	N1194	5-54
ALT-SSF100	Protection pocket 100 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
ALT-SSF150	Protection pocket 150 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
ALT-SSF200	Protection pocket 200 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
ALT-SSF280	Protection pocket 280 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
ALT-SSF450	Protection pocket 450 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
ALT-SSF600	Protection pocket 600 mm, stainless steel V4A, G½", PN40, LW7	N1194	5-54
AMR	AMR wireless system 868 MHz	N2870	10-29
AP 260/11	Door/window contact wave with battery, titanium white	TPI: Door/window contact wave AP 260	4-18
AQB2000	Mounting bracket for differenential pressure sensor for air	N1590	6-44
AQB2001	Connection kit to mount QBE2002-P...	N1909	6-47
AQB2002	Connection kit to mount QBE63../64.., QBE3..	N1922	6-50

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
AQB21.2	Top hat rail adapter for differential pressure sensor for air	N1590	6-44
AQB22.1	Mounting bracket for pressure sensor QBE2002	N1909	6-47
AQE2102	Compression fitting with threaded nipple ½"	N1781	6-14
AQF3100	Radiation shield for exterior wall mounting	N1858	6-24
AQF3101	Filter cap for humidity sensor	N1858	6-24
AQF3150	Exchangeable measuring tip	N1858	6-24
AQF3153	Service-Set		6-24
AQF4150	Exchangeable measuring tip, with calibration certificate	N1859	6-24
AQM63.0	Mounting flange, adjustable depth	N1193	5-60
AQM63.2	3 capillary supports and 3 spacers for QAF.. Mounting	N1821	5-61
AQM63.3	6 Capillary tube clamps for QAF../QAM.. mounting	N1284	5-61
AQR2500NF	Mounting plate EU (CEE/VDE)	N1408	6-8
AQR2500NG	Mounting plate IT (3 modular)	N1408	6-8
AQR2500NH	Mounting plate UK (British Standard)	N1408	6-8
AQR2500NJ	Mounting plate US (UL)	N1408	6-8
AQR2510NFW	Frame DELTA line for front module	N1410	6-9
AQR2510NGW	Frame DELTA azio for front module	N1410	6-9
AQR2510NHW	Frame DELTA miro for front module	N1410	6-9
AQR2530NNW	Front module for base module, without sensor	N1410	6-37
AQR2531ANW	Front module with passiv temperature measurement, LG-Ni1000	N1408	6-8
AQR2531BNW	Front module with passiv temperature measurement, Pt1000	N1408	6-8
AQR2531FNW	Front module with passiv temperature measurement, NTC 10k	N1408	6-8
AQR2532NNW	Front module for base module, temperature (active)	N1410	6-9
AQR2533NNW	Front module for base module, humidity	N1410	6-26
AQR2534ANW	Front module for base module, humidity and temperature (active, LG-Ni1000)	N1410	6-26
AQR2534FNW	Front module for base module, humidity and temperature (active, NTC 10k)	N1410	6-26
AQR2535NNW	Front module for base module, humidity and temperature (active)	N1410	6-26
AQR2535NNWQ	Front module for base module, humidity and temperature, with LED	N1410	6-39
AQR2540NF	Base module for temperature and humidity measurement, 70.8 x 70.8 mm	N1410	6-8
AQR2540NG	Base module for temperature and humidity measurement, 110 x 64 mm	N1410	6-8
AQR2540NH	Base module for temperature and humidity measurement, 83 x 83 mm	N1410	6-8
AQR2540NJ	Base module for temperature and humidity measurement, 64 x 110 mm	N1410	6-8
AQR2546NF	Base module with integrated [CO2/] measurement , 70.8 x 70.8 mm	N1410	6-38
AQR2546NG	Base module with integrated [CO2/] measurement , 110 x 64 mm	N1410	6-38
AQR2546NH	Base module with integrated [CO2/] measurement , 83 x 83 mm	N1410	6-38
AQR2546NJ	Base module with integrated [CO2/] measurement , 64 x 110 mm	N1410	6-38
AQR2547NF	Base module with integrated VOC measurement , 70.8 x 70.8 mm	N1410	6-37
AQR2547NG	Base module with integrated VOC measurement , 110 x 64 mm	N1410	6-37
AQR2547NH	Base module with integrated VOC measurement , 83 x 83 mm	N1410	6-37
AQR2547NJ	Base module with integrated VOC measurement , 64 x 110 mm	N1410	6-37
AQR2548NF	Base module with integrated [CO2/] and VOC measurement , 70.8 x 70.8 mm	N1410	6-39
AQR2548NG	Base module with integrated [CO2/] and VOC measurement , 110 x 64 mm	N1410	6-39
AQR2548NH	Base module with integrated [CO2/] and VOC measurement , 83 x 83 mm	N1410	6-39
AQR2548NJ	Base module with integrated [CO2/] and VOC measurement , 64 x 110 mm	N1410	6-39
AQR2570NF	Base module for temperature and / or humidity measurement, with KNX / PL-Link, 70.8 x 70.8	N1411	6-9
AQR2570NG	Base module for temperature and / or humidity measurement, with KNX / PL-Link, 110 x 64	N1411	6-9
AQR2570NH	Base module for temperature and / or humidity measurement, with KNX / PL-Link, 83 x 83	N1411	6-9
AQR2570NJ	Base module for temperature and / or humidity measurement, with KNX / PL-Link, 64 x 110	N1411	6-9
AQR2576NF	Base module for CO_2 measurement, with KNX / PL-Link, 70.8 x 70.8 mm	N1411	6-38
AQR2576NG	Base module for CO_2 measurement, with KNX / PL-Link, 110 x 64 mm	N1411	6-38
AQR2576NH	Base module for CO_2 measurement, with KNX / PL-Link, 83 x 83 mm	N1411	6-38
AQR2576NJ	Base module for CO_2 measurement, with KNX / PL-Link, 64 x 110 mm	N1411	6-38
AQY2010	Remote sensing cable 3 m for sensor tip.	N1859	6-24
ARG22.1	Changeover cable holder for QAP..	N1831	6-20

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
ARG22.2	Aluminium bar attachment for QAP..	N1831	6-20
ARG62.201	Front panel mounting frame	N3101	1-52
ARG70	Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	5-9
ARG70.1	Mounting plate 96 x 120 mm for 2 x 4" housing	N3009	5-9
ARG70.2	Mounting plate 112 x 130 mm for surface wiring	N3009	5-9
ARG70.3	Mounting bracket 10 mm thick	N3009	5-40
ARG71	Conduit box 75 x 75 x 51 mm	N3009	5-15
ARG86.3	Changeover cable holder for QAH11..	N3009	5-27
ASA23U10	Cable with auxiliary switch, Type 7, 1 m		7-29
ASA23U20	Cable with auxiliary switch, Type 7, 2 m		7-29
ASC1.6	Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	7-62
ASC10.20	Double auxiliary switch	N4520	7-189
ASC10.21	Double auxiliary switch	N4520	7-189
ASC10.42	Double auxiliary switch for SQV..P..	N4833	7-54
ASC10.51	Auxiliary switch for SA..31../SA..61../SA..81..	N4501	7-51
ASC2.1/18	Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	7-37
ASC36	Double auxiliary switch for SQL36E	N4505	7-188
ASC77.1E	External auxiliary switch assembly 1 switch	N4615	8-11
ASC77.2E	External auxiliary switch assembly 2 switches	N4615	8-11
ASC9.3	Double auxiliary switch for SKB/ C/ D32../82..	N4561	7-62
ASC9.4	Double auxiliary switch for SQL33../83../35../85.., SQX32../82..	N4554	7-186
ASC9.5	Auxiliary switch for SQK33.., SQL33../83../35../85.., SQX32../82..	N4554	7-186
ASC9.6	Auxiliary switch for SQS35../85.., SQD35../85..	N4573	7-49
ASC9.7	Auxiliary switch for SQK34../84..	N4508	7-186
ASE1	Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	7-137
ASE12	Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		7-81
ASE2	Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	7-137
ASK30	Adapter to upgrade older Landis&Gyr valves	N4573	7-48
ASK31	Mounting set for SQL33.. / 83.. / 35.. / 85.. and slipper valves VBF21..from DN65	N4506	7-186
ASK31N	Mounting set for SAL.. onto VBF21..	N4502	7-185
ASK32	Mounting set for SQK33.. / SQL33.. / 83.. and slipper valves VBI31.. / VBG31.. / VCI31.. / VBF21.. up to DN50	N4506	7-186
ASK33	Mounting set for SQK33.. / SQL33.. / 83.. and butterfly valves VKF41..	N4506	7-186
ASK33N	Mounting set for SAL.. onto VKF41..	N4502	7-185
ASK35.1	Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN40 to DN65	N4136	7-186
ASK35.2	Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN80 to DN125	N4136	7-186
ASK39.1	Weathershield for SAX../SAL..	N4501	7-51
ASK40	Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices	N4291	7-187
ASK41	Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices	N4291	7-187
ASK46.1	Manual adjuster for VKF46.., DN40 to DN65	N4136	7-210
ASK46.2	Manual adjuster for VKF46.., DN80 to DN125	N4136	7-210
ASK46.3	Manual adjuster for VKF46.., DN150 to DN200	N4136	7-210
ASK46.4	Manual adjuster for VKF46.., DN250 to DN400	N4136	7-210
ASK50	Stroke inverter for SKD..	N4561	7-62
ASK51	Stroke inverter for SKB..	N4564	7-62
ASK55.2	Clamp for linkage (5...8 mm dia.)	N4698	8-26
ASK71.1	Rotary/linear mounting kit for duct mounting	N4699	8-11
ASK71.11	Rotary/linear mounting kit for duct or frame mounting	N4697	8-11
ASK71.13	Rotary/linear mounting kit with lever and bracket	N4697	8-11
ASK71.14	Rotary/linear mounting kit with lever	N4697	8-11
ASK71.2	Rotary/linear mounting kit for frame mounting	N4699	8-11
ASK71.3	Rotary/linear mounting kit with lever	N4699	8-11
ASK71.4	Rotary/linear mounting kit with lever and bracket	N4699	8-11
ASK71.5	Rotary/linear mounting kit	N4698	8-18
ASK71.6	Rotary/linear mounting kit with bracket	N4698	8-18
ASK71.9	Universal lever	N4697	8-11
ASK72.1	Linear/rotary mounting kit with cardan joint	N4699	8-26

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
ASK72.2	Linear/rotary mounting kit with bracket	N4699	8-26
ASK72.3	Linear/rotary mounting kit with bracket	N4697	8-26
ASK73.1	Bracket for power pack	N4699	8-11
ASK73.2	Flexible bracket for power pack	N4699	8-11
ASK73.3	Bracket for power pack	N4697	8-11
ASK74.1	Special shaft adapter	N4699	8-11
ASK74.7	Shaft extension	N4699	8-11
ASK75.1	Weather shield for rotary actuator	N4699	8-11
ASK75.2	Weather shield for linear actuator	N4699	8-26
ASK75.3	Weather shield	N4697	8-11
ASK75.4	Weather shield for rotarytype actuator GBB/GCA/GIB...1E	N4699	8-11
ASK75.5	Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	8-18
ASK75.6	Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	8-11
ASK77.2	Mounting kit for rotary actuators GMA..1E with spring-return		7-192
ASK77.3	Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return		7-192
ASK77.4	Mounting kits for rotary actuators GQD..1A with spring-return		7-192
ASK77.6	Ball valve mounting set, DN65, DN80, DN100	N4120	7-190
ASK77.7	Ball valve mounting set, DN125	N4120	7-190
ASK77.8	Ball valve mounting set, DN150	N4120	7-190
ASK78.10	Centering insert 12 mm dia.	N4698	8-18
ASK78.12	Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	8-18
ASK78.14	Centering insert 8 mm square	N4698	8-18
ASK78.3	Insert for small shaft dia.	N4698	8-18
ASK78.5	Centering insert 12.7 mm dia. (½")	N4698	8-18
ASK78.6	Centering insert 8 mm square	N4698	8-18
ASK78.7	Centering insert 10 mm square	N4698	8-18
ASK78.9	Centering insert 10 mm dia.	N4698	8-18
ASK79.165	OpenAir Electronic Fusible Link.	155-746	8-37
ASK79.250	OpenAir Electronic Fusible Link.	155-746	8-37
ASK79.350	OpenAir Electronic Fusible Link.	155-746	8-37
ASK79.4	Duct tip for temperature monitor unit (72 °C)	N4697	8-31
ASK79.5	Duct tip for temperature monitor unit (95 °C)	N4697	8-31
ASP1.1	AC 230 V Adapter für SQV..P..	N4833	7-54
ASP23U10	Connecting cable with auxiliary switch, Type 8, 1 m		7-32
ASP23U20	Connecting cable with auxiliary switch, Type 8, 2 m		7-32
AST10	Manual operator unit	N5851	8-29
AST11	Interface converter	N5852	8-29
ASV181.1E/3	VAV modular controller	N3545	8-29
ASY100	Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	N4864	7-35
ASY23L08	Connecting cable, 0.8 m, Type 1		7-29
ASY23L10	Connecting cable, 1 m, Type 1		7-29
ASY23L100	Connecting cable, 10 m, Type 1		7-29
ASY23L100B	Connecting cable, 10 m, Type 4, black		7-29
ASY23L100HF	Connecting cable, 10 m, Type 1, HF		7-29
ASY23L150	Connecting cable, 15 m, Type 1		7-29
ASY23L20	Connecting cable, 2 m, Type 1		7-29
ASY23L20HF	Connecting cable, 2 m, Type 1, HF		7-29
ASY23L20LD	Connecting cable, 2 m, Type 1, LED		7-29
ASY23L30	Connecting cable, 3 m, Type 1		7-29
ASY23L30B	Connecting cable, 3 m, Type 4, black		7-29
ASY23L40	Connecting cable, 4 m, Type 1		7-29
ASY23L50	Connecting cable, 5 m, Type 1		7-29
ASY23L50B	Connecting cable, 5 m, Type 4, black		7-29
ASY23L50HF	Connecting cable, 5 m, Type 1, HF		7-29
ASY23L50LD	Connecting cable, 5 m, Type 1, LED		7-29
ASY23L60	Connecting cable, 6 m, Type 1		7-29
ASY23L70	Connecting cable, 7 m Type 1		7-29

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
ASY3L15	Connecting cable 1.5 m, 3-position, AC 230 V		7-35
ASY3L25	Connecting cable 2.5 m, 3-position, AC 230 V		7-35
ASY3L45	Connecting cable 4.5 m, 3-position, AC 230 V		7-35
ASY6AL20	Connecting cable, 0...10 V, Type 2, 2 m		7-29
ASY6AL50	Connecting cable, 0...10 V, Type 2, 5 m		7-29
ASY6AL70	Connecting cable, 0...10 V, Type 2, 7 m		7-29
ASY6L15	Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V		7-35
ASY6L25	Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V		7-35
ASY6L45	Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V		7-35
ASY6L45HF	Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24		7-35
ASY6PL20	Connecting cable, 0...10 V, Type 3, 2 m		7-29
ASY6PL20B	Connecting cable, 0...10 V, Type 6, 2 m, black		7-29
ASY6PL20HF	Connecting cable, 0...10 V Type 3, 2 m, HF		7-29
ASY6PL50	Connecting cable, 0...10 V, Type 3, 5 m		7-29
ASY6PL50HF	Connecting cable, 0...10 V, Type 3, 5 m, HF		7-29
ASY6PL70	Connecting cable, 0...10 V, Type 3, 7 m		7-29
ASY6PL70HF	Connecting cable, 0...10 V, Type 3, 7 m, HF		7-29
ASY8L15	Connecting cable 1.5 m, 3-position, AC 24 V		7-35
ASY8L25	Connecting cable 2.5 m, 3-position, AC 24 V		7-35
ASY8L25B	Connecting cable 2.5 m, 3-position, AC 24 V, with Batigyr connector		7-46
ASY8L45	Connecting cable 4.5 m, 3-position, AC 24 V		7-35
ASY8L45HF	Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24		7-35
ASY98	Retaining screw for cable connector		7-38
ASY99	Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..		7-35
ASZ10.20	Potentiometer for SQL321B50	N4520	7-189
ASZ10.21	Potentiometer for SQL321B50/SQL321B150	N4520	7-189
ASZ10.22	Potentiometer for SQL321B270/SQL321B570	N4520	7-189
ASZ10.23	Potentiometer for SQL321B1400/SQL321B2650	N4520	7-189
ASZ36	Potentiometer 1000 Ohm for SQL36E..	N4505	7-188
ASZ6.5	Stem heating element for media < 0 °C		7-62
ASZ6.6	Stem heating element for media < 0 °C	N4501	7-51
ASZ7.3	Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	7-62
ASZ7.31	Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	7-62
ASZ7.32	Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	7-62
ASZ7.4	1 auxiliary switch and 1 potentiometer for SQX32../SQX82../SQL33../SQL83../SQL35../SQL85..	N4554	7-186
ASZ7.5/1000	Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	7-51
ASZ7.5/135	Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	7-51
ASZ7.5/200	Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	7-51
ASZ7.6/1000	Potentiometer 0...1000 Ohm for SQV..P..	N4833	7-54
ATN3	Manual knob, white, RAL9016, for VDN../VEN../VUN../VPD../VPE..	N2100	7-97
ATN4	Manual knob, white, for VDN../VEN../VUN../VPD../VPE..	N2100	7-97
AUD3	Digital time switch	N2464	1-12
AUZ3.1	Analog 24-hour time switch	N2464	1-12
AUZ3.7	Analog 7-day time switch	N2464	1-12
AV100-VP1	Seal insertion for VPD.. and VPE.. MiniCombiValves (MCV)	N2100	7-170
AV301	Adapter for valves with M30 x 1.5	N2179	7-30
AV302	Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	N4884	7-30
AV303	Adapter for valves with M30 x 1, TA	N4884	7-30
AV304	Adapter various (5 pieces)	N4884	7-30
AV51	Third-party valve adapter on Beulco valve	N2100	7-36
AV52	Third-party valve adapter on Comap valve	N2100	7-36
AV53	Third-party valve adapter on Danfoss RA-N (RA2000)	N2100	7-36
AV533	Adapter for Danfoss RA2000, Plastic	N4884	7-30
AV54	Third-party valve adapter on Danfoss RAVL	N2100	7-36
AV55	Third-party valve adapter on Danfoss RAV	N2100	7-36
AV56	Third-party valve adapter on Giacomini valve	N2100	7-36

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
AV57	Third-party valve adapter on Herz valve	N2100	7-36
AV58	Third-party valve adapter on Oventrop M30x1	N2100	7-36
AV59	Adapter for Vaillant	N2100	7-30
AV60	Third-party valve adapter on TA to 2002	N2100	7-36
AV61	Third-party valve adapter on MMA Markaryd	N2100	7-36
AV63	Adapter for Giacomini	N4884	7-30
AV64	Adapter for Pettinaroli M28 x 1.5	N4884	7-30
AVN1	Valve insert for VDN../VEN.. und VUN..	N2100	7-97
AVN15-15	Compression fitting ½“, for 15 mm copper and soft steel pipes	N2100	7-101
AVN15A16	Compression fitting ½“, for 16x2 mm plastic pipes with aluminum foil	N2100	7-101
AZX420	Function module 4...20 mA for SBX61, SBV61	N4519	7-53
AZX61.1	Funtion module for SA..61.., sequence control/changeover of acting direction	N4501	7-51
BAU200	Universal digital indicator	N5312	1-82
BBV4003	Remote sensor 1.5 m	N2886	10-10
BBV4004	Remote sensor 2.5 m	N2886	10-10
BBV4005	Remote sensor 5 m	N2886	10-10
BOZ4002	Square bolt 4.5 mm with cross pin	N2886	10-9
BOZ4003	Square bolt 6 mm with cross pin	N2886	10-9
BOZ4004	Square bolt 12 mm with cross pin	N2886	10-9
BSG-Z	Complete range of scales for BSG..	N1991	1-80
BSG21.1	Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	1-80
BSG21.2	Setpoint adjuster, passive, scale 0...50 °C	N1991	1-80
BSG21.3	Setpoint adjuster, passive, scale 10...30 °C	N1991	1-80
BSG21.5	Setpoint adjuster, passive, temperature ranges: -20...20 °C; 20...60 °C; -3...3 K	N1991	1-80
BSG61	Active setpoint adjuster 0...100 %, for flush panel mounting	N1992	1-80
C/VVF31.100-160	2-port seat valve, flanged, PN10, DN100, kvs 160	N4320	7-66
C/VVF31.125-250	2-port seat valve, flanged, PN10, DN125, kvs 250	N4320	7-66
C/VVF31.15-2.5	2-port seat valve, flanged, PN10, DN15, kvs 2.5	N4320	7-66
C/VVF31.150-315	2-port seat valve, flanged, PN10, DN150, kvs 315	N4320	7-66
C/VVF31.24	2-port seat valve, flanged, PN10, DN25, kvs 5	N4320	7-66
C/VVF31.25	2-port seat valve, flanged, PN10, DN25, kvs 7.5	N4320	7-66
C/VVF31.25-10	2-port seat valve, flanged, PN10, DN25, kvs 10	N4320	7-66
C/VVF31.25-6.3	2-port seat valve, flanged, PN10, DN25, kvs 6.3	N4320	7-66
C/VVF31.39	2-port seat valve, flanged, PN10, DN40, kvs 12	N4320	7-66
C/VVF31.40	2-port seat valve, flanged, PN10, DN40, kvs 19	N4320	7-66
C/VVF31.40-16	2-port seat valve, flanged, PN10, DN40, kvs 16	N4320	7-66
C/VVF31.40-25	2-port seat valve, flanged, PN10, DN40, kvs 25	N4320	7-66
C/VVF31.50	2-port seat valve, flanged, PN10, DN50, kvs 31	N4320	7-66
C/VVF31.50-40	2-port seat valve, flanged, PN10, DN50, kvs 40	N4320	7-66
C/VVF31.65	2-port seat valve, flanged, PN10, DN65, kvs 49	N4320	7-66
C/VVF31.65-63	2-port seat valve, flanged, PN10, DN65, kvs 63	N4320	7-66
C/VVF31.80	2-port seat valve, flanged, PN10, DN80, kvs 78	N4320	7-66
C/VVF31.80-100	2-port seat valve, flanged, PN10, DN80, kvs 100	N4320	7-66
C/VVF31.90	2-port seat valve, flanged, PN10, DN100, kvs 124	N4320	7-66
C/VVF31.91	2-port seat valve, flanged, PN10, DN125, kvs 200	N4320	7-66
C/VVF31.92	2-port seat valve, flanged, PN10, DN150, kvs 300	N4320	7-66
C/VVF40.100-124	2-port seat valve, flanged, PN16, DN100, kvs 124	N4330	7-69
C/VVF40.100-160	2-port seat valve, flanged, PN16, DN100, kvs 100	N4330	7-69
C/VVF40.125-200	2-port seat valve, flanged, PN16, DN125, kvs 200	N4330	7-69
C/VVF40.125-250	2-port seat valve, flanged, PN16, DN125, kvs 250	N4330	7-69
C/VVF40.15-1.9	2-port seat valve, flanged, PN16, DN15, kvs 1.9	N4330	7-69
C/VVF40.150-300	2-port seat valve, flanged, PN16, DN150, kvs 300	N4330	7-69
C/VVF40.150-315	2-port seat valve, flanged, PN16, DN150, kvs 315	N4330	7-69
C/VVF40.25-10	2-port seat valve, flanged, PN16, DN25, kvs 10	N4330	7-69
C/VVF40.25-5	2-port seat valve, flanged, PN16, DN25, kvs 5	N4330	7-69
C/VVF40.25-6.3	2-port seat valve, flanged, PN16, DN25, kvs 6.3	N4330	7-69
C/VVF40.25-7.5	2-port seat valve, flanged, PN16, DN25, kvs 7.5	N4330	7-69

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
C/VVF40.40-12	2-port seat valve, flanged, PN16, DN40, kvs 12	N4330	7-69
C/VVF40.40-16	2-port seat valve, flanged, PN16, DN40, kvs 16	N4330	7-69
C/VVF40.40-19	2-port seat valve, flanged, PN16, DN40, kvs 19	N4330	7-69
C/VVF40.40-25	2-port seat valve, flanged, PN16, DN40, kvs 25	N4330	7-69
C/VVF40.50-31	2-port seat valve, flanged, PN16, DN50, kvs 31	N4330	7-69
C/VVF40.50-40	2-port seat valve, flanged, PN16, DN50, kvs 40	N4330	7-69
C/VVF40.65-49	2-port seat valve, flanged, PN16, DN65, kvs 49	N4330	7-69
C/VVF40.65-63	2-port seat valve, flanged, PN16, DN65, kvs 63	N4330	7-69
C/VVF40.80-100	2-port seat valve, flanged, PN16, DN80, kvs 100	N4330	7-69
C/VVF40.80-78	2-port seat valve, flanged, PN16, DN80, kvs 78	N4330	7-69
C/VVI41.15-2.5	2-port valve, internal thread, PN16, DN15, kvs 2.5	N4362	7-110
C/VVI41.15-4	2-port valve, internal thread, PN16, DN15, kvs 4	N4362	7-110
C/VVI41.20-6.3	2-port valve, internal thread, PN16, DN20, kvs 6.3	N4362	7-110
C/VVI41.25-10	2-port valve, internal thread, PN16, DN25, kvs 10	N4362	7-110
C/VVI41.32-16	2-port valve, internal thread, PN16, DN32, kvs 16	N4362	7-110
C/VVI41.40-25	2-port valve, internal thread, PN16, DN40, kvs 25	N4362	7-110
C/VVI41.50-40	2-port valve, internal thread, PN16, DN50, kvs 40	N4362	7-110
C/VXF31.100-160	3-port seat valve, flanged, PN10, DN100, kvs 160	N4420	7-123
C/VXF31.125-250	3-port seat valve, flanged, PN10, DN125, kvs 250	N4420	7-123
C/VXF31.150-315	3-port seat valve, flanged, PN10, DN150, kvs 315	N4420	7-123
C/VXF31.24	3-port seat valve, flanged, PN10, DN25, kvs 5	N4420	7-123
C/VXF31.25	3-port seat valve, flanged, PN10, DN25, kvs 7.5	N4420	7-123
C/VXF31.25-10	3-port seat valve, flanged, PN10, DN25, kvs 10	N4420	7-123
C/VXF31.25-6.3	3-port seat valve, flanged, PN10, DN25, kvs 6.3	N4420	7-123
C/VXF31.39	3-port seat valve, flanged, PN10, DN40, kvs 12	N4420	7-123
C/VXF31.40	3-port seat valve, flanged, PN10, DN40, kvs 19	N4420	7-123
C/VXF31.40-16	3-port seat valve, flanged, PN10, DN40, kvs 16	N4420	7-123
C/VXF31.40-25	3-port seat valve, flanged, PN10, DN40, kvs 25	N4420	7-123
C/VXF31.50	3-port seat valve, flanged, PN10, DN50, kvs 31	N4420	7-123
C/VXF31.50-40	3-port seat valve, flanged, PN10, DN50, kvs 40	N4420	7-123
C/VXF31.65	3-port seat valve, flanged, PN10, DN65, kvs 49	N4420	7-123
C/VXF31.65-63	3-port seat valve, flanged, PN10, DN65, kvs 63	N4420	7-123
C/VXF31.80	3-port seat valve, flanged, PN10, DN80, kvs 78	N4420	7-123
C/VXF31.80-100	3-port seat valve, flanged, PN10, DN80, kvs 100	N4420	7-123
C/VXF31.90	3-port seat valve, flanged, PN10, DN100, kvs 124	N4420	7-123
C/VXF31.91	3-port seat valve, flanged, PN10, DN125, kvs 200	N4420	7-123
C/VXF31.92	3-port seat valve, flanged, PN10, DN150, kvs 300	N4420	7-123
C/VXF40.100-124	3-port seat valve, flanged, PN16, DN100, kvs 124	N4430	7-126
C/VXF40.100-160	3-port seat valve, flanged, PN16, DN100, kvs 160	N4430	7-126
C/VXF40.125-200	3-port seat valve, flanged, PN16, DN125, kvs 200	N4430	7-126
C/VXF40.125-250	3-port seat valve, flanged, PN16, DN125, kvs 250	N4430	7-126
C/VXF40.15-1.9	3-port seat valve, flanged, PN16, DN15, kvs 1.9	N4430	7-126
C/VXF40.150-300	3-port seat valve, flanged, PN16, DN150, kvs 300	N4430	7-126
C/VXF40.150-315	3-port seat valve, flanged, PN16, DN150, kvs 315	N4430	7-126
C/VXF40.25-10	3-port seat valve, flanged, PN16, DN25, kvs 10	N4430	7-126
C/VXF40.25-5	3-port seat valve, flanged, PN16, DN25, kvs 5	N4430	7-126
C/VXF40.25-6.3	3-port seat valve, flanged, PN16, DN25, kvs 6.3	N4430	7-126
C/VXF40.25-7.5	3-port seat valve, flanged, PN16, DN25, kvs 7.5	N4430	7-126
C/VXF40.40-12	3-port seat valve, flanged, PN16, DN40, kvs 12	N4430	7-126
C/VXF40.40-16	3-port seat valve, flanged, PN16, DN40, kvs 16	N4430	7-126
C/VXF40.40-19	3-port seat valve, flanged, PN16, DN40, kvs 19	N4430	7-126
C/VXF40.40-25	3-port seat valve, flanged, PN16, DN40, kvs 25	N4430	7-126
C/VXF40.50-31	3-port seat valve, flanged, PN16, DN50, kvs 31	N4430	7-126
C/VXF40.50-40	3-port seat valve, flanged, PN16, DN50, kvs 40	N4430	7-126
C/VXF40.65-49	3-port seat valve, flanged, PN16, DN65, kvs 49	N4430	7-126
C/VXF40.65-63	3-port seat valve, flanged, PN16, DN65, kvs 63	N4430	7-126
C/VXF40.80-100	3-port seat valve, flanged, PN16, DN80, kvs 100	N4430	7-126

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
C/VXF40.80-78	3-port seat valve, flanged, PN16, DN80, kvs 78	N4430	7-126
C/VXI41.15-2.5	3-port valve, internal thread, PN16, DN15, kvs 2.5	N4362	7-151
C/VXI41.15-4	3-port valve, internal thread, PN16, DN15, kvs 4	N4362	7-151
C/VXI41.20-6.3	3-port valve, internal thread, PN16, DN20, kvs 6.3	N4362	7-151
C/VXI41.25-10	3-port valve, internal thread, PN16, DN25, kvs 10	N4362	7-151
C/VXI41.32-16	3-port valve, internal thread, PN16, DN32, kvs 16	N4362	7-151
C/VXI41.40-25	3-port valve, internal thread, PN16, DN40, kvs 25	N4362	7-151
C/VXI41.50-40	3-port valve, internal thread, PN16, DN50, kvs 40	N4362	7-151
CU230P-2 BT	G120P Control Unit, USS, Modb, BacNet		9-11
CU230P-2 CAN	G120P Control Unit, CanOpen		9-11
CU230P-2 DP	G120P Control Unit, Profibus		9-11
ERF910	RF repeater	N2704	4-17
FBCRAA/KS	Backup battery for WT..16..	N2870	10-31
FGT-PT1000	Flue gas temperature sensor Pt1000	N1846	6-19
FK-PZ1	Air duct probe for simple, quick and airtight mounting	N1589	6-44
FK-PZ2	Air duct probe for accurate measurements	N1589	6-44
FK-PZ3	Air duct probe for differential pressure sensor, fixed length	N1589	6-44
FK-TP/200	Duct temperature sensor Pt100, for high temperature	N1778	6-11
FKA0003	Clamping piece (threaded hoop 17 mm)	N2886	10-9
FKA0004	Expanding bracket of lamella-type radiator	N2886	10-9
FKA0008	Clamping piece (threaded hoop 18...30 mm)	N2886	10-9
FKA0009	Installation plate for remote sensor	N2886	10-9
FKA0010	Contact screw	N2886	10-9
FKA0011	Contact screw long	N2886	10-9
FKA0012	Threaded bushing	N2886	10-9
FKA0013	Spacer	N2886	10-9
FKA0017	Mounting plate (P3)	N2886	10-9
FKA0022	Mounting plate wide	N2886	10-9
FKK0029	Sensor housing	N2886	10-9
FKK0034	Snap-on panel	N2886	10-10
FKK0041	Lead seal blue	N2886	10-10
FKK0044	Wall bracket (P3)	N2886	10-9
FKK0045	Safety cap for sensor housing	N2886	10-9
FKM0002	Clamping sleeve special radiator	N2886	10-9
FKT0004	Threaded hoop (pipe up to 17 mm)	N2886	10-9
FKT0009	Clamping bracket shortened	N2886	10-9
FKT0010	Spacer sleeve	N2886	10-9
FKT0011	Welding stud M3 x 12 mm	N2886	10-10
FKT0012	Welding stud M3 x 15 mm	N2886	10-10
FKT0013	Welding stud M3 x 8 mm	N2886	10-10
FKT0014	Threaded hoop (pipe 18...30 mm)	N2886	10-9
FKT0015	Clamping bracket (pipes TE 36 mm)	N2886	10-9
FKT0016	Clamping bracket (pipes TE 46 mm)	N2886	10-9
FKT0017	Installation aid (convector)	N2886	10-10
FKT0018	Clamping bracket trapezoidal 35 mm	N2886	10-9
FKT0019	Clamping bracket trapezoidal 50 mm	N2886	10-9
FKT0020	Clamping bracket trapezoidal 65 mm	N2886	10-9
FNM0001	Shank nut M3 x 9.5 mm	N2886	10-9
FNM0002	Shank nut M3 x 3 mm	N2886	10-9
FNM0003	Shank nut M3 x 6 mm	N2886	10-9
FNM0004	Hexagon nut M4	N2886	10-10
FNM0005	Self-locking nut with serrated bearing M3	N2886	10-10
FNR0003	Cross-slot screw M4 x 30 mm	N2886	10-10
FNR0004	Cross-slot screw M4 x 40 mm	N2886	10-10
FNR0005	Cross-slot screw M4 x 50 mm	N2886	10-10
FNR0006	Cross-slot screw M4 x 70 mm	N2886	10-10
FNR0007	Screw B 3.9 x 45 mm	N2886	10-10

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
FNR0008	Self-tapping screw B 2.9 x 13 mm	N2886	10-10
FNU0001	Dowel 6 mm	N2886	10-10
FOZ0001	Cable duct white	N2886	10-10
FSS0007	ERGO universal instant glue 3g	N2886	10-10
FT-PZ1	Connection set, thread ½" for pressure sensor for refrigerant	N1907	6-52
FT-TP/100	Immersion temperature sensor 100 mm, Pt100, -100...450°C, direct immersion	N1797	6-16
FT-TP/400	Immersion temperature sensor 400 mm, Pt100, direct immersion	N1797	6-16
FZ201-009	Torque Screwdriver, Torx Plus™		10-29
G120P-0.37/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 0.37 kW	N5111	9-9
G120P-0.37/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 0.37 kW	N5111	9-8
G120P-0.37/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 0.37 kW	N5111	9-7
G120P-0.37/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 0.37 kW	N5111	9-6
G120P-0.55/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 0.55 kW	N5111	9-9
G120P-0.55/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 0.55 kW	N5111	9-8
G120P-0.55/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 0.55 kW	N5111	9-7
G120P-0.55/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 0.55 kW	N5111	9-6
G120P-0.75/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 0.75 kW	N5111	9-9
G120P-0.75/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 0.75 kW	N5111	9-8
G120P-0.75/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 0.75 kW	N5111	9-7
G120P-0.75/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 0.75 kW	N5111	9-6
G120P-1.1/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 1.1 kW	N5111	9-9
G120P-1.1/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 1.1 kW	N5111	9-8
G120P-1.1/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 1.1 kW	N5111	9-7
G120P-1.1/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 1.1 kW	N5111	9-6
G120P-1.5/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 1.5 kW	N5111	9-9
G120P-1.5/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 1.5 kW	N5111	9-8
G120P-1.5/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 1.5 kW	N5111	9-7
G120P-1.5/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 1.5 kW	N5111	9-6
G120P-11/32A	Variable Speed Drive G120P, FSC, IP20, Filter A, 11 kW	N5111	9-9
G120P-11/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 11 kW	N5111	9-8
G120P-11/35A	Variable Speed Drive G120P, FSC, IP55, Filter A, 11 kW	N5111	9-7
G120P-11/35B	Variable Speed Drive G120P, FSC, IP55, Filter B, 11 kW	N5111	9-6
G120P-15/32A	Variable Speed Drive G120P, FSC, IP20, Filter A, 15 kW	N5111	9-9
G120P-15/32B	Variable Speed Drive G120P, FSC, IP20, Filter B, 15 kW	N5111	9-8
G120P-15/35A	Variable Speed Drive G120P, FSC, IP55, Filter A, 15 kW	N5111	9-7
G120P-15/35B	Variable Speed Drive G120P, FSC, IP55, Filter B, 15 kW	N5111	9-6
G120P-18.5/32A	Variable Speed Drive G120P, FSC, IP20, Filter A, 18.5 kW	N5111	9-9
G120P-18.5/32B	Variable Speed Drive G120P, FSD, IP20, Filter B, 18.5 kW	N5111	9-8
G120P-18.5/35A	Variable Speed Drive G120P, FSC, IP55, Filter A, 18.5 kW	N5111	9-7
G120P-18.5/35B	Variable Speed Drive G120P, FSD, IP55, Filter B, 18.5 kW	N5111	9-6
G120P-2.2/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 2.2 kW	N5111	9-9
G120P-2.2/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 2.2 kW	N5111	9-8
G120P-2.2/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 2.2 kW	N5111	9-7
G120P-2.2/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 2.2 kW	N5111	9-6
G120P-22/32A	Variable Speed Drive G120P, FSD, IP20, Filter A, 22 kW	N5111	9-9
G120P-22/32B	Variable Speed Drive G120P, FSD, IP20, Filter B, 22 kW	N5111	9-8
G120P-22/35A	Variable Speed Drive G120P, FSD, IP55, Filter A, 22 kW	N5111	9-7
G120P-22/35B	Variable Speed Drive G120P, FSD, IP55, Filter B, 22 kW	N5111	9-6
G120P-3/32A	Variable Speed Drive G120P, FSA, IP20, Filter A, 3 kW	N5111	9-9
G120P-3/32B	Variable Speed Drive G120P, FSA, IP20, Filter B, 3 kW	N5111	9-8
G120P-3/35A	Variable Speed Drive G120P, FSA, IP55, Filter A, 3 kW	N5111	9-7
G120P-3/35B	Variable Speed Drive G120P, FSA, IP55, Filter B, 3 kW	N5111	9-6
G120P-30/32A	Variable Speed Drive G120P, FSD, IP20, Filter A, 30 kW	N5111	9-9
G120P-30/32B	Variable Speed Drive G120P, FSD, IP20, Filter B, 30 kW	N5111	9-8
G120P-30/35A	Variable Speed Drive G120P, FSD, IP55, Filter A, 30 kW	N5111	9-7
G120P-30/35B	Variable Speed Drive G120P, FSD, IP55, Filter B, 30 kW	N5111	9-6
G120P-37/32A	Variable Speed Drive G120P, FSE, IP20, Filter A, 37 kW	N5111	9-9

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
G120P-37/32B	Variable Speed Drive G120P, FSE, IP20, Filter B, 37 kW	N5111	9-8
G120P-37/35A	Variable Speed Drive G120P, FSE, IP55, Filter A, 37 kW	N5111	9-7
G120P-37/35B	Variable Speed Drive G120P, FSE, IP55, Filter B, 37 kW	N5111	9-6
G120P-4/32A	Variable Speed Drive G120P, FSB, IP20, Filter A, 4 kW	N5111	9-9
G120P-4/32B	Variable Speed Drive G120P, FSB, IP20, Filter B, 4 kW	N5111	9-8
G120P-4/35A	Variable Speed Drive G120P, FSB, IP55, Filter A, 4 kW	N5111	9-7
G120P-4/35B	Variable Speed Drive G120P, FSB, IP55, Filter B, 4 kW	N5111	9-6
G120P-45/32A	Variable Speed Drive G120P, FSE, IP20, Filter A, 45 kW	N5111	9-9
G120P-45/32B	Variable Speed Drive G120P, FSE, IP20, Filter B, 45 kW	N5111	9-8
G120P-45/35A	Variable Speed Drive G120P, FSE, IP55, Filter A, 45 kW	N5111	9-7
G120P-45/35B	Variable Speed Drive G120P, FSE, IP55, Filter B, 45 kW	N5111	9-6
G120P-5.5/32A	Variable Speed Drive G120P, FSB, IP20, Filter A, 5.5 kW	N5111	9-9
G120P-5.5/32B	Variable Speed Drive G120P, FSB, IP20, Filter B, 5.5 kW	N5111	9-8
G120P-5.5/35A	Variable Speed Drive G120P, FSB, IP55, Filter A, 5.5 kW	N5111	9-7
G120P-5.5/35B	Variable Speed Drive G120P, FSB, IP55, Filter B, 5.5 kW	N5111	9-6
G120P-55/32A	Variable Speed Drive G120P, FSF, IP20, Filter A, 55 kW	N5111	9-9
G120P-55/32B	Variable Speed Drive G120P, FSF, IP20, Filter B, 55 kW	N5111	9-8
G120P-55/35A	Variable Speed Drive G120P, FSF, IP55, Filter A, 55 kW	N5111	9-7
G120P-55/35B	Variable Speed Drive G120P, FSF, IP55, Filter B, 55 kW	N5111	9-6
G120P-7.5/32A	Variable Speed Drive G120P, FSB, IP20, Filter A, 7.5 kW	N5111	9-9
G120P-7.5/32B	Variable Speed Drive G120P, FSB, IP20, Filter B, 7.5 kW	N5111	9-8
G120P-7.5/35A	Variable Speed Drive G120P, FSB, IP55, Filter A, 7.5 kW	N5111	9-7
G120P-7.5/35B	Variable Speed Drive G120P, FSB, IP55, Filter B, 7.5 kW	N5111	9-6
G120P-75/32A	Variable Speed Drive G120P, FSF, IP20, Filter A, 75 kW	N5111	9-9
G120P-75/32B	Variable Speed Drive G120P, FSF, IP20, Filter B, 75 kW	N5111	9-8
G120P-75/35A	Variable Speed Drive G120P, FSF, IP55, Filter A, 75 kW	N5111	9-7
G120P-75/35B	Variable Speed Drive G120P, FSF, IP55, Filter B, 75 kW	N5111	9-6
G120P-90/35A	Variable Speed Drive G120P, FSF, IP55, Filter A, 90 kW	N5111	9-7
G120P-90/35B	Variable Speed Drive G120P, FSF, IP55, Filter B, 90 kW	N5111	9-6
G120P-AIRSHEET-FSA	G120P air guide sheet PM230, IP55, FSA	N5111	9-10
G120P-AIRSHEET-FSB	G120P air guide sheet PM230, IP55, FSB	N5111	9-10
G120P-AIRSHEET-FSC	G120P air guide sheet PM230, IP55, FSC	N5111	9-10
G120P-BCOVER	G120P blanking cover, IP55		9-9
G120P-BOP-2	G120P basic operator panel BOP-2, IP55	N5116	9-9
G120P-CUScreen	G120P CU230P-2 Screening Kit		9-11
G120P-DOOR-KIT	G120P Door mounting kit for IOP or BOP-2		9-11
G120P-FExtFSA	G120P PM Fan IP20/IP55, external, FSA		9-11
G120P-FExtFSB	G120P PM Fan IP20/IP55, external, FSB		9-11
G120P-FExtFSC	G120P PM Fan IP20/IP55, external, FSC		9-11
G120P-FExtFSDE-IP20	G120P PM Fan IP20, external, FSD-FSE		9-10
G120P-FExtFSDE-IP55	G120P PM Fan IP55, external, FSD-FSE		9-10
G120P-FExtFSF-IP20	G120P PM Fan IP20, external, FSF		9-10
G120P-FExtFSF-IP55	G120P PM Fan IP55, external, FSF		9-10
G120P-FIntFSAC-IP55	G120P PM Fan IP55, internal, FSA-FSC		9-10
G120P-FIntFSDF-IP55	G120P PM Fan IP55, internal, FSD-FSF		9-10
G120P-INS-KIT-FSA	G120P installation kit PM230, IP55, FSA	N5111	9-10
G120P-INS-KIT-FSB	G120P installation kit PM230, IP55, FSB	N5111	9-10
G120P-INS-KIT-FSC	G120P installation kit PM230, IP55, FSC	N5111	9-10
G120P-INS-KIT-FSD	G120P installation kit PM230, IP55, FSD	N5111	9-10
G120P-INS-KIT-FSE	G120P installation kit PM230, IP55, FSE	N5111	9-10
G120P-INS-KIT-FSF	G120P installation kit PM230, IP55, FSF	N5111	9-10
G120P-IOP-2	G120P intelligent operator panel IOP-2, IP54	N5116	9-9
G120P-MMC-Card	Sinamics Micro Memory Card (MMC)		9-11
G120P-MSetFSA-IP55	G120P mounting parts set, PM230, IP55, FSA		9-10
G120P-MSetFSB-IP55	G120P mounting parts set, PM230, IP55, FSB		9-10
G120P-MSetFSC-IP55	G120P mounting parts set, PM230, IP55, FSC		9-10
G120P-MSetFSD-IP55	G120P mounting parts set, PM230, IP55, FSD		9-10

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
G120P-MSetFSE-IP55	G120P mounting parts set, PM230, IP55, FSE		9-10
G120P-MSetFSF-IP55	G120P mounting parts set, PM230, IP55, FSF		9-10
G120P-PC-Kit	G120P PC-Inverter Connection Kit-2		9-11
G120P-Screen-FSA	G120P Screening-Kit, PM230 IP20 FSA		9-10
G120P-Screen-FSB	G120P Screening-Kit, PM230 IP20 FSB		9-10
G120P-Screen-FSC	G120P Screening-Kit, PM230 IP20 FSC		9-10
G120P-Screen-FSDE	G120P Screening-Kit, PM230 IP20 FSD-FSE		9-10
G120P-Screen-FSF	G120P Screening-Kit, PM230 IP20 FSF		9-10
G120P-Starter	STARTER Commissioning Tool for Sinamics and Micromaster Drives		9-11
GAP191.1E	Rotary air damper actuator, AC/DC 24 V, 6 Nm, DC 0(2)...10 V / 0(4)...20 mA, without electronic fail-save function	N4608	8-21
GAP196.1E	Rotary air damper actuator, AC/DC 24 V, 6 Nm, DC 0(2)...10 V / 0(4)...20 mA, with electronic fail-save function, 2 switches	N4608	8-21
GBB131.1E	Damper actuator 3-position, 24 V, rotary actuator 25 Nm, 150 s	N4626	7-190
GBB131.2E	Damper actuator 3-position, 24 V, stroke actuator 550 N, 150 s	N4656	8-25
GBB135.1E	Rotary air damper actuator 3-position, 24 V, 25 Nm, 150 s, 2 switches, potentiometer	N4626	8-16
GBB136.1E	Rotary air damper actuator 3-position, 24 V, 25 Nm, 150 s, 2 switches	N4626	8-16
GBB136.2E	Damper actuator 3-position, 24 V, stroke actuator 550 N, 150 s, 2 switches	N4656	8-25
GBB161.1E	Rotary air damper actuator 24 V / DC 0...10 V, 25 Nm, 150 s	N4626	7-190
GBB161.2E	Damper actuator 24 V / 0...10 V, stroke actuator 550 N, 150 s, potentiometer	N4656	8-25
GBB163.1E	Rotary air damper actuator 24 V / DC 0...35 V, adjustable, 25 Nm, 150 s	N4626	8-16
GBB163.2E	Damper actuator 24 V / 0...35 V, adjustable, stroke actuator 550 N, 150 s, potentiometer	N4656	8-25
GBB164.1E	Rotary air damper actuator 24 V / DC 0...35 V, adjustable, 25 Nm, 150 s, 2 switches	N4626	8-16
GBB166.1E	Rotary air damper actuator 24 V / DC 0...10 V, 25 Nm, 150 s, 2 switches	N4626	8-16
GBB331.1E	Rotary air damper actuator 3-position, 230 V, 25 Nm, 150 s	N4626	7-190
GBB331.2E	Damper actuator 3-position, 230 V, stroke actuator 550 N, 150 s	N4656	8-25
GBB335.1E	Rotary air damper actuator 3-position, 230 V, 25 Nm, 150 s, 2 switches, potentiometer	N4626	8-16
GBB336.1E	Rotary air damper actuator 3-position, 230 V, 25 Nm, 150 s, 2 switches	N4626	8-16
GBB336.2E	Damper actuator 3-position, 230 V, stroke actuator 550 N, 150 s, 2 switches	N4656	8-25
GCA121.1E	Rotary air damper actuator 2-position, AC/DC 24 V, 18 Nm, spring return 90/15 s	N4613	8-10
GCA126.1E	Rotary air damper actuator 2-position, AC/DC 24 V, 18 Nm, spring return 90/15 s, 2 switches	N4613	8-10
GCA131.1E	Rotary air damper actuator 3-position, AC/DC 24 V, 18 Nm, spring return 90/15 s	N4613	8-10
GCA135.1E	Rotary air damper actuator 3-position, AC/DC 24 V, 18 Nm, spring return 90/15 s, 2 switches, potentiometer	N4613	8-10
GCA161.1E	Rotary air damper actuator AC/DC 24 V / DC 0...10 V, 18 Nm, spring return 90/15 s, potentiometer	N4613	8-10
GCA163.1E	Rotary air damper actuator AC/DC 24 V / DC 0...35 V adjustable, 18 Nm, spring return 90/15 s, potentiometer	N4613	8-10
GCA164.1E	Rotary air damper actuator AC/DC 24 V / DC 0...35 V adjustable, 18 Nm, spring return 90/15 s, 2 switches, potentiometer	N4613	8-10
GCA166.1E	Rotary air damper actuator AC/DC 24 V / DC 0...10 V, 18 Nm, spring return 90/15 s, 2 switches, potentiometer	N4613	8-10
GCA321.1E	Rotary air damper actuator 2-position, 230 V, 18 Nm, spring return 90/15 s	N4613	8-10
GCA326.1E	Rotary air damper actuator 2-position, 230 V, 18 Nm, spring return 90/15 s, 2 switches	N4613	8-10
GDB131.1E	Rotary air damper actuator 3-position, 24 V, 5 Nm, 150 s	N4634	8-13
GDB131.2E	Damper actuator 3-position, 24 V, stroke actuator 125 Nm, 150 s	N4664	8-22
GDB131.9E	Rotary actuator for ball valves, non-spring return, AC 24 V, 3-position, 5 Nm, 150 s	N4657	7-179
GDB132.1E	Rotary air damper actuator 3-position, AC 24 V, 5 Nm, 150 s, potentiometer	N4634	8-13
GDB136.1E	Rotary air damper actuator 3-position, 24 V, 5 Nm, 150 s, 2 switches	N4634	8-13
GDB136.2E	Damper actuator 3-position, 24 V, stroke actuator 125 N, 150 s, 2 switches	N4664	8-22
GDB161.1E	Rotary air damper actuator 24 V / DC 0...10 V, 5 Nm, 150 s	N4634	8-13
GDB161.2E	Damper actuator 24 V / 0...10 V, stroke actuator 125 N, 150 s, potentiometer	N4664	8-22
GDB161.9E	Rotary actuator for ball valves, non-spring return, AC 24 V, DC 0...10 V, 5 Nm, 150 s	N4657	7-179
GDB163.1E	Rotary air damper actuator 24 V / DC 0...35 V adjustable, 5 Nm, 150 s	N4634	8-13
GDB163.2E	Damper actuator 24 V / DC 0...35 V adjustable, stroke actuator 125 N, 150 s, potentiometer	N4664	8-22
GDB164.1E	Rotary air damper actuator 24 V / DC 0...35 V adjustable, 5 Nm, 150 s, 2 switches	N4634	8-13

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
GDB166.1E	Rotary air damper actuator 24 V / DC 0...10 V, 5 Nm, 150 s, 2 switches	N4634	8-13
GDB181.1E/3	VAV compact controller, 24 V, 5 Nm, 150 s, 300 Pa, 0...10 V / 3-position	N3544	8-28
GDB181.1E/KN	VAV compact controller KNX, 24 V, 5 Nm, 150 s, 300 Pa	N3547	8-27
GDB331.1E	Rotary air damper actuator 3-position , 230 V, 5 Nm, 150 s	N4634	8-13
GDB331.2E	Damper actuator 3-position, 230 V, stroke actuator 125 N, 150 s	N4664	8-22
GDB331.9E	Rotary actuator for ball valves, non-spring return, AC 230 V, 3-position, 5 Nm, 150 s	N4657	7-179
GDB332.1E	Rotary air damper actuator 3-position, 230 V, 5 Nm, 150 s, potentiometer	N4634	8-13
GDB336.1E	Rotary air damper actuator 3-position, 230 V, 5 Nm, 150 s, 2 switches	N4634	8-13
GDB336.2E	Damper actuator 3-position, 230 V, stroke actuator 125 N, 150 s, 2 switches	N4664	8-22
GEB131.1E	Damper actuator 3-position, 24 V, rotary actuator 15 Nm, 150 s	N4621	8-15
GEB131.2E	Damper actuator 3-position, 24 V, stroke actuator 400 N, 150 s	N4653	8-24
GEB132.1E	Rotary air damper actuator 3-position, 24 V, 15 Nm, 150 s, potentiometer	N4621	8-15
GEB136.1E	Rotary air damper actuator 3-position, 24 V, 15 Nm, 2 switches	N4621	8-15
GEB136.2E	Damper actuator 3-position, 24 V, stroke actuator 400 N, 150 s, 2 switches	N4653	8-24
GEB161.1E	Rotary air damper actuator 24 V / DC 0...10 V, 15 Nm, 150 s	N4621	8-15
GEB161.2E	Damper actuator 24 V / 0...10 V, stroke actuator 400 N, 150 s, potentiometer	N4653	8-24
GEB163.1E	Rotary air damper actuator 24 V / DC 0...35 V, adjustable, 15 Nm, 150 s	N4621	8-15
GEB163.2E	Damper actuator 24 V / DC 0...35 V, adjustable, stroke actuator 400 N, 150 s, potentiometer	N4653	8-24
GEB164.1E	Rotary air damper actuator 24 V / DC 0...35 V, 15 Nm, 150 s, 2 switches	N4621	8-15
GEB166.1E	Rotary air damper actuator 24 V / DC 0...10 V, 15 Nm, 150 s, 2 switches	N4621	8-15
GEB331.1E	Rotary air damper actuator 3-position, 230 V, 15 Nm, 150 s	N4621	8-15
GEB331.2E	Damper actuator 3-position, 230 V, stroke actuator 400 N, 150 s	N4653	8-24
GEB332.1E	Damper actuator 3-position, 230 V, rotary actuator 15 Nm, 150 s, potentiometer	N4621	8-15
GEB336.1E	Damper actuator 3-position, 230 V, rotary actuator 15 Nm, 150 s, 2 switches	N4621	8-15
GEB336.2E	Damper actuator 3-position, 230 V, stroke actuator 400 N, 150 s, 2 switches	N4653	8-24
GGA126.1E/10	Actuator for fire protection dampers 2-position, AC 24 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm	N4617	8-32
GGA126.1E/12	Actuator for fire protection dampers 2-position, AC 24 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm	N4617	8-32
GGA126.1E/T10	Actuator for fire protection dampers 2-position, AC 24 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm, with thermoelement	N4617	8-32
GGA126.1E/T12	Actuator for fire protection dampers 2-position, AC 24 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm, with thermoelement	N4617	8-32
GGA326.1E/10	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm	N4617	8-33
GGA326.1E/12	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm	N4617	8-33
GGA326.1E/T10	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm, with thermoelement	N4617	8-33
GGA326.1E/T12	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 18 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm, with thermoelement	N4617	8-33
GGD121.1U	Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke	152-046P25	8-38
GGD126.1U	Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches	152-046P25	8-38
GGD321.1U	Spring Return, 142 lb-in (16 Nm), 230 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke	152-046P25	8-39
GGD326.1U	Spring Return, 142 lb-in (16 Nm), 120 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches	152-046P25	8-39
GIB131.1E	Rotary air damper actuator 3-position, 24 V, 35 Nm, 150 s	N4626	7-190
GIB135.1E	Rotary air damper actuator 3-position, 24 V, 35 Nm, 150 s, 2 switches, potentiometer	N4626	8-17
GIB136.1E	Rotary air damper actuator 3-position, 24 V, 35 Nm, 150 s, 2 switches	N4626	8-17
GIB161.1E	Rotary air damper actuator 24 V / DC 0...10 V, 35 Nm, 150 s	N4626	7-190
GIB163.1E	Rotary air damper actuator AC 24 V / DC 0...35 V adjustable, 35 Nm, 150 s	N4626	8-17
GIB164.1E	Rotary air damper actuator 24 V / DC 0...35 V adjustable, 35 Nm, 150 s, 2 switches	N4626	8-17
GIB166.1E	Rotary air damper actuator AC 24 V / DC 0...10 V, 35 Nm, 150 s, 2 switches, potentiometer	N4626	8-17
GIB331.1E	Rotary air damper actuator 3-position, 230 V, 35 Nm, 150 s	N4626	7-190

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
GIB335.1E	Rotary air damper actuator 3-position , 230 V, 35 Nm, 150 s, 2 switches potentiometer	N4626	8-17
GIB336.1E	Rotary air damper actuator 3-position, 230 V, 35 Nm, 150 s, 2 switches	N4626	8-17
GLB131.1E	Damper actuator 3-position, 24 V, rotary actuator 10 Nm, 150 s	N4634	8-14
GLB131.2E	Damper actuator 3-position, 24 V, stroke actuator 250 Nm, 150 s	N4664	8-23
GLB131.9E	Rotary actuator for ball valves, non-spring return, AC 24 V, 3-position, 10 Nm, 150 s	N4657	7-181
GLB132.1E	Rotary air damper actuator 3-position, 24 V, 10 Nm, 150 s, potentiometer	N4634	8-14
GLB136.1E	Rotary air damper actuator 3-position, 24 V, 10 Nm, 150 s, 2 switches	N4634	8-14
GLB136.2E	Damper actuator 3-position, 24 V, stroke actuator 250 N, 150 s, 2 switches	N4664	8-23
GLB161.1E	Rotary air damper actuator 24 V / DC 0...10 V, 10 Nm, 150 s	N4634	8-14
GLB161.2E	Damper actuator 24 V / 0...10 V, stroke actuator 250 N, 150 s, potentiometer	N4664	8-23
GLB161.9E	Rotary actuator for ball valves, non-spring return, AC 24 V, DC 0...10 V, 10 Nm, 150 s	N4657	7-181
GLB163.1E	Rotary air damper actuator 24 V / DC 0...35 V adjustable, 10 Nm, 150 s	N4634	8-14
GLB163.2E	Damper actuator 24 V / DC 0...35 V adjustable, stroke actuator 250 N, 150 s, potentiometer	N4664	8-23
GLB164.1E	Rotary air damper actuator 24 V / DC 0...35 V adjustable, 10 N, 150 s, 2 switches	N4634	8-14
GLB166.1E	Rotary air damper actuator 24 V / DC 0...10 V, 10 Nm, 150 s, 2 switches	N4634	8-14
GLB181.1E/3	VAV compact controller, 24 V, 10 Nm, 150 s, 300 Pa, 0...10 V / 3-position	N3544	8-27
GLB181.1E/KN	VAV compact controller KNX, 24 V, 10 Nm, 150 s, 300 Pa	N3547	8-27
GLB331.1E	Rotary air damper actuator 3-position, 230 V, 10 Nm, 150 s	N4634	8-14
GLB331.2E	Damper actuator 3-position, 230 V, stroke actuator 250 N, 150 s	N4664	8-23
GLB331.9E	Rotary actuator for ball valves, non-spring return, AC 230 V, 3-position, 10 Nm, 150 s	N4657	7-181
GLB332.1E	Rotary air damper actuator 3-position, 230 V, 10 Nm, 150 s, potentiometer	N4634	8-14
GLB336.1E	Rotary air damper actuator 3-position, 230 V, 10 Nm, 150 s, 2 switches	N4634	8-14
GLB336.2E	Damper actuator 3-position, 230 V, stroke actuator 250 N, 150 s, 2 switches	N4664	8-23
GMA121.1E	Rotary air damper actuator 2-position, AC/DC 24 V, 7 Nm with spring return 90/15 s	N4614	8-9
GMA121.9E	Rotary actuator for ball valves with spring-return, AC/DC 24 V, 2-position, 7 Nm, 90/15 s	N4658	7-197
GMA126.1E	Rotary air damper actuator 2-position, AC/DC 24 V, 7 Nm with spring return 90/15 s, 2 switches	N4614	8-9
GMA131.1E	Rotary air damper actuator 3-position, AC/DC 24 V, 7 Nm with spring return 90/15 s	N4614	8-9
GMA131.9E	Rotary actuator for ball valves with spring-return, AC/DC 24 V, 3-position, 7 Nm, 90/15 s	N4658	7-180
GMA132.1E	Rotary air damper actuator 3-position, AC/DC 24 V, 7 Nm with spring return 90/15 s, potentiometer	N4614	8-9
GMA136.1E	Air damper rotary actuator 3-position, AC/DC 24 V, 7 Nm with spring return 90/15 s, 2 switches	N4614	8-9
GMA161.1E	Rotary air damper actuator AC/DC 24 V / DC 0...10 V, 7 Nm with spring return 90/15 s	N4614	8-9
GMA161.9E	Rotary actuator for ball valves with spring-return, AC/DC 24 V, DC 0...10 V, 7 Nm, 90/15 s	N4658	7-180
GMA163.1E	Rotary air damper actuator AC/DC 24 V / DC 0...35 V, 7 Nm with spring return 90/15 s, adjustable	N4614	8-9
GMA164.1E	Rotary air damper actuator AC/DC 24 V / DC 0...35 V, 7 Nm with spring return 90/15 s, adjustable, 2 switches	N4614	8-9
GMA166.1E	Rotary air damper actuator AC/DC 24 V / DC 0...10 V, 7 Nm with spring return 90/15 s, 2 switches	N4614	8-9
GMA321.1E	Rotary air damper actuator 2-position, AC 230 V, 7 Nm with spring return 90/15 s	N4614	8-9
GMA321.9E	Rotary actuator for ball valves with spring-return, AC 230 V, 2-position, 7 Nm, 90/15 s	N4658	7-197
GMA326.1E	Rotary air damper actuator 2-position, AC 230 V, 7 Nm with spring return 90/15 s, 2 switches	N4614	8-9
GNA126.1E/10	Actuator for fire protection dampers 2-position, AC/DC 24 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm	N4620	8-30
GNA126.1E/12	Actuator for fire protection dampers 2-position, AC/DC 24 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm	N4620	8-30
GNA126.1E/T10	Actuator for fire protection dampers 2-position, AC/DC 24 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm, with thermoelement	N4620	8-30
GNA126.1E/T12	Actuator for fire protection dampers 2-position, AC/DC 24 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm, with thermoelement	N4620	8-30
GNA326.1E/10	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm	N4620	8-31
GNA326.1E/12	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm	N4620	8-31

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
GNA326.1E/T10	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 10x10 mm, with thermoelement	N4620	8-31
GNA326.1E/T12	Actuator for fire protection dampers 2-position, AC 230 V, rotary actuator 7 Nm with spring return 90/15 s, 2 switches, Axis 12x12 mm, with thermoelement	N4620	8-31
GND121.1U	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run	155-746	8-34
GND121.1U/F	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, Elect. fuse link capable	155-746	8-34
GND126.1U	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux	155-746	8-36
GND126.1U/F	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable	155-746	8-36
GND321.1U	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run	155-746	8-35
GND321.1U/F	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, Elect. fuse link capable	155-746	8-35
GND326.1U	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux	155-746	8-37
GND326.1U/F	Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable	155-746	8-37
GNP191.1E	Rotary air damper actuator, AC/DC 24 V, DC 0(2)...10 V/ 0(4)...20 mA, 6 Nm, with electronic fail-save function	N4609	8-20
GNP196.1E	Rotary air damper actuator, AC/DC 24 V, DC 0(2)...10 V/ 0(4)...20 mA, 6 Nm, with electronic fail-save function, 2 switches	N4609	8-20
GQD121.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, 2-position, with spring return	N4604	8-7
GQD121.6A	Rotary damper actuator with spring return, AC/DC 24 V, 2-position, 2 Nm, 30/15 s	N4606	8-8
GQD121.9A	Rotary actuator for ball valves with spring-return, AC/DC 24 V, 2-position, 2 Nm, 30/15 s	N4659	7-177
GQD126.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, 2-position, with spring return, 2 switches	N4604	8-7
GQD131.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, 3-position, with spring return	N4604	8-7
GQD131.9A	Rotary actuator for ball valves with spring-return, AC/DC 24 V, 3-position, 2 Nm, 30/15 s	N4659	7-177
GQD136.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, 3-position, with spring return, 2 switches	N4604	8-7
GQD161.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, DC 0...10 V, with spring return	N4604	8-7
GQD161.9A	Rotary actuator for ball valves with spring-return, AC/DC 24 V, DC 0...10 V, 2 Nm, 30/15 s	N4659	7-177
GQD166.1A	Rotary air damper actuator, AC/DC 24 V, 2 Nm, DC 0...10 V, with spring return, 2 switches	N4604	8-7
GQD321.1A	Rotary air damper actuator, AC 230 V, 2 Nm, 2-position, with spring return	N4604	8-7
GQD321.6A	Rotary damper actuator with spring return, AC 230 V, 2-position, 2 Nm, 30/15 s	N4606	8-8
GQD321.9A	Rotary actuator for ball valves with spring-return, AC 230 V, 2-position, 2 Nm, 30/15 s	N4659	7-177
GQD326.1A	Rotary air damper actuator, AC 230 V, 2 Nm, 2-position, with spring return, 2 switches	N4604	8-7
GSD121.1A	Rotary air damper actuator, AC/DC 24 V, SPST, 2 Nm, without spring return	N4603	8-12
GSD126.1A	Rotary air damper actuator, AC/DC 24 V, SPST, 2 Nm, without spring return, 2 auxilary switches	N4603	8-12
GSD141.9A	Rotary actuators 2 Nm without spring return, AC 24 V / DC 24 V	N4655	7-178
GSD321.1A	Rotary air damper actuator, AC 230 V, SPST, 2 Nm, without spring return	N4603	8-12
GSD326.1A	Rotary air damper actuator, AC 230 V, SPST, 2 Nm, without spring return, 2 auxilary switches	N4603	8-12
GSD341.9A	Rotary actuators 2 Nm without spring return, AC 230 V	N4655	7-178
HCAIP001001	Installation template	N2886	10-10
HCAPH001001	Programming adapter	N2886	10-10
IRA211	Infrared Remote Control for room thermostats	N3060	5-32
KIT911	Starter kit with room unit and 1 radiator control actuator	N2720	4-19
KIT914	Starter kit with room unit and 4 radiator control actuators	N2720	4-19
M-Bus	M-bus metering system	N5361	10-33
M2FP03GX	2-port modulating pilot valve with magnetic actuator, PN32, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs to control main valves	N4731	7-213
M3FB15LX/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN15, kvs 3, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
M3FB15LX06/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN15, kvs 0.6, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB15LX15/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN15, kvs 1.5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB20LX/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN20, kvs 5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB25LX/A	Diverting/2-port refrigerant valve, solder connection, PN32, DN25, kvs 8, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FB32LX	Diverting/2-port refrigerant valve, solder connection, PN32, DN32, kvs 12, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4721	7-214
M3FK15LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN15, kvs 3, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK15LX06	Mixing/2-port refrigerant valve, solder connection, PN32, DN15, kvs 0.6, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK15LX15	Mixing/2-port refrigerant valve, solder connection, PN32, DN15, kvs 1.5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK20LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN20, kvs 5, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK25LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN25, kvs 8, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK32LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN32, kvs 12, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK40LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN40, kvs 20, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3FK50LX	Mixing/2-port refrigerant valve, solder connection, PN32, DN50, kvs 30, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs	N4722	7-215
M3P100FY	Mixing/2-port magnetic control valve, flange, PN16, DN100, kvs 130, AC 24 V, DC 0/2...10 V / 4...20 mA	N4454	7-138
M3P80FY	Mixing/2-port magnetic control valve, flange, PN16, DN80, kvs 80, AC 24 V, DC 0/2...10 V / 4...20 mA	N4454	7-138
MKB532.15-0.16	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.16, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-1.6	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-1.6G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-2.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-2.5G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 230 V, 3P, steam	N4389	7-88

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MKB532.15-2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-3.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-3.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.15-4G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-10G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-5G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-6.3G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.25-8	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.25-8G	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.40-12	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.40-12G	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.40-16	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.40-16G	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.40-20	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.40-20G	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB532.40-25	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 2800 N, AC 230 V, 3P	N4387	7-85
MKB532.40-25G	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 2800 N, AC 230 V, 3P, steam	N4389	7-88
MKB562.15-0.16	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.16, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MKB562.15-1.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.16, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-1.6	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-1.6G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-2.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-2.5G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-3.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-3.2G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.15-4G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-10G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-5G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-6.3G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.25-8	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.25-8G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-12	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-12G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-16	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-16G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-20	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-20G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB562.40-25	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-86
MKB562.40-25G	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA, steam	N4389	7-88
MKB632.15-0.19	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.19, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.3, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.45	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.45, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-0.7	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.7, 2800 N, AC 230 V, 3P	N4388	7-90

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MKB632.15-1.2	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.2, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-1.9	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.9, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.15-3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 3, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.25-5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 5, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.25-7.5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 7.5, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.40-12	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 12, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.40-19	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 19, 2800 N, AC 230 V, 3P	N4388	7-90
MKB632.50-31	Control device, safety function DIN EN 14597, flanged, PN40, DN50, kvs 31, 2800 N, AC 230 V, 3P	N4388	7-90
MKB662.15-0.19	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.19, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.45	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.45, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-0.7	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 0.7, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-1.2	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.2, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-1.9	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 1.9, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.15-3	Control device, safety function DIN EN 14597, flanged, PN40, DN15, kvs 3, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.25-5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.25-7.5	Control device, safety function DIN EN 14597, flanged, PN40, DN25, kvs 7.5, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.40-12	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 12, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.40-19	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 19, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKB662.50-31	Control device, safety function DIN EN 14597, flanged, PN40, DN40, kvs 31, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC632.100-124	Control device, safety function DIN EN 14597, flanged, PN40, DN100, kvs 124, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.125-200	Control device, safety function DIN EN 14597, flanged, PN40, DN125, kvs 200, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.150-300	Control device, safety function DIN EN 14597, flanged, PN40, DN150, kvs 300, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.65-49	Control device, safety function DIN EN 14597, flanged, PN40, DN65, kvs 49, 2800 N, AC 230 V, 3P	N4388	7-91
MKC632.80-78	Control device, safety function DIN EN 14597, flanged, PN40, DN80, kvs 78, 2800 N, AC 230 V, 3P	N4388	7-91
MKC662.100-124	Control device, safety function DIN EN 14597, flanged, PN40, DN100, kvs 124, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.125-200	Control device, safety function DIN EN 14597, flanged, PN40, DN125, kvs 200, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.150-300	Control device, safety function DIN EN 14597, flanged, PN40, DN150, kvs 300, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.65-49	Control device, safety function DIN EN 14597, flanged, PN40, DN65, kvs 49, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKC662.80-78	Control device, safety function DIN EN 14597, flanged, PN40, DN80, kvs 78, 2800 N, AC 24 V, DC 0...10 V/4...20 mA	N4388	7-91
MKD532.15-0.16	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.16, 1000 N, AC 230 V, 3P	N4387	7-83

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MKD532.15-0.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-1.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.25, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-1.6	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-2.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-3.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.25-8	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.40-12.5	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12.5, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.40-16	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.40-20	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 1000 N, AC 230 V, 3P	N4387	7-83
MKD532.40-25	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 1000 N, AC 230 V, 3P	N4387	7-83
MKD562.15-0.16	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.16, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.2, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.25, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.32	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.32, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.4, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.5, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.63	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.63, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-0.8	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 0.8, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-1	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MKD562.15-1.25	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.25, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-1.6	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 1.6, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-2.5	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 2.5, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-3.2	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 3.2, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.15-4	Control device, safety function DIN EN 14597, flanged, PN25, DN15, kvs 4, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.25-10	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 10, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.25-5	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 5, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.25-6.3	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 6.3, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.25-8	Control device, safety function DIN EN 14597, flanged, PN25, DN25, kvs 8, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.40-12.5	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 12.5, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.40-16	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 16, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.40-20	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 20, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MKD562.40-25	Control device, safety function DIN EN 14597, flanged, PN25, DN40, kvs 25, 1000 N, AC 24 V, DC 0...10 V/4...20 mA	N4387	7-84
MVF461H15-0.6	2-port magnetic control valve, flange, PN16, DN15, kvs 0.6, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H15-1.5	2-port magnetic control valve, flange, PN16, DN15, kvs 1.5, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H15-3	2-port seat magnetic control valve, flange, PN16, DN15, kvs 3, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H20-5	2-port seat magnetic control valve, flange, PN16 DN20, kvs 5, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H25-8	2-port seat magnetic control valve, flange, PN16 DN25, kvs 8, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H32-12	2-port seat magnetic control valve, flange, PN16 DN32, kvs 12, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H40-20	2-port seat magnetic control valve, flange, PN16 DN40, kvs 20, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVF461H50-30	2-port seat magnetic control valve, flange, PN16 DN50, kvs 30, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4361	7-81
MVI421.15	On/off 2-port valve with spring return, 15 DN	N4867	7-109
MVI421.20	On/off 2-port valve with spring return, 20 DN	N4867	7-109
MVI421.25	On/off 2-port valve with spring return, 25 DN	N4867	7-109
MVL661.15-0.4	2-port refrigerant valve, internal solder connection, DN15, kvs 0.4, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4714	7-211
MVL661.15-1.0	2-port refrigerant valve, internal solder connection, DN15, kvs 1.0, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4714	7-211
MVL661.20-2.5	2-port refrigerant valve, internal solder connection, DN20, kvs 2.5, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4714	7-211
MVL661.25-6.3	2-port refrigerant valve, internal solder connection, DN25, kvs 6.3, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4714	7-211
MVL661.32-12	2-port refrigerant valve, internal solder connection, DN32, kvs 12, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4714	7-211
MVS661.25-0.4N	2-port refrigerant valve, solder connection, PS 53, DN25, kvs 0.4, AC/DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4717	7-212
MVS661.25-016N	2-port refrigerant valve, solder connection, PS 53, DN25, kvs 0.16, AC/DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4717	7-212

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MVS661.25-1.0N	2-port refrigerant valve, solder connection, PS 53, DN25, kvs 1.0, AC/DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4717	7-212
MVS661.25-2.5N	2-port refrigerant valve, solder connection, PS 53, DN25, kvs 2.5, AC/DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4717	7-212
MVS661.25-6.3N	2-port refrigerant valve, solder connection, PS 53, DN25, kvs 6.3, AC/DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4717	7-212
MXF461.15-0.6	Mixing/2-port magnetic control valve, flange, PN16, DN15, kvs 0.6, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.15-1.5	Mixing/2-port magnetic control valve, flange, PN16, DN15, kvs 1.5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.15-3.0	Mixing/2-port magnetic control valve, flange, PN16, DN15, kvs 3, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.20-5.0	Mixing/2-port magnetic control valve, flange, PN16, DN20, kvs 5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.25-8.0	Mixing/2-port magnetic control valve, flange, PN16, DN25, kvs 8, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.32-12	Mixing/2-port magnetic control valve, flange, PN16, DN32, kvs 12, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.40-20	Mixing/2-port magnetic control valve, flange, PN16, DN40, kvs 20, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.50-30	Mixing/2-port magnetic control valve, flange, PN16, DN50, kvs 30, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXF461.65-50	Mixing/2-port magnetic control valve, flange, PN16, DN65, kvs 50, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-136
MXG461.15-0.6	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 0.6, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.15-1.5	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 1.5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.15-3.0	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 3, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.20-5.0	Mixing/2-port magnetic control valve, external thread, PN16, DN20, kvs 5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.25-8.0	Mixing/2-port magnetic control valve, external thread, PN16, DN25, kvs 8, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.32-12	Mixing/2-port magnetic control valve, external thread, PN16, DN32, kvs 12, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.40-20	Mixing/2-port magnetic control valve, external thread, PN16, DN40, kvs 20, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461.50-30	Mixing/2-port magnetic control valve, external thread, PN16, DN50, kvs 30, AC 24 V, DC 0/2...10 V / 4...20 mA	N4455	7-157
MXG461B15-0.6	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 0.6, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B15-1.5	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 1.5, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B15-3	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 3, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B20-5	Mixing/2-port magnetic control valve, external thread, PN16, DN20, kvs 5, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B25-8	Mixing/2-port magnetic control valve, external thread, PN16, DN25, kvs 8, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B32-12	Mixing/2-port magnetic control valve, external thread, PN16, DN32, kvs 12, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B40-20	Mixing/2-port magnetic control valve, external thread, PN16, DN40, kvs 20, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461B50-30	Mixing/2-port magnetic control valve, external thread, PN16, DN50, kvs 30, AC / DC 24 V, DC 0/2...10 V / 4...20 mA	N4461	7-159
MXG461S15-1.5	Mixing/2-port magnetic control valve, external thread, PN16, DN15, kvs 1.5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4465	7-161
MXG461S20-5.0	Mixing/2-port magnetic control valve, external thread, PN16, DN20, kvs 5, AC 24 V, DC 0/2...10 V / 4...20 mA	N4465	7-161
MXG461S25-8.0	Mixing/2-port magnetic control valve, external thread, PN16, DN25, kvs 8, AC 24 V, DC 0/2...10 V / 4...20 mA	N4465	7-161

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
MXG461S32-12	Mixing/2-port magnetic control valve, external thread, PN16, DN32, kvs 12, AC 24 V, DC 0/2...10 V / 4...20 mA	N4465	7-161
MXG462S50-30	Mixing/2-port magnetic control valve, external thread, PN16, DN50, kvs 30, AC / DC 24 V, DC 0/2...10 V / 0/4...20 mA	N4466	7-162
MXI421.15	On/off 3-port valve with spring return, 15 DN	N4867	7-150
MXI421.20	On/off 3-port valve with spring return, 20 DN	N4867	7-150
MXI421.25	On/off 3-port valve with spring return, 25 DN	N4867	7-150
OCI611.01	Central communication unit, max. 1 controller	N2533	2-13
OCI611.05	Central communication unit, max. 5 controllers	N2533	2-13
OCI611.16	Central communication unit, max. 16 controllers	N2533	2-13
OCI700.1	Service tool for KNX / LPB	N5655	2-8
OZW672.01	Web Server for 1 LPB/BSB device	N5712	2-15
OZW672.04	Web Server for 4 LPB devices	N5712	2-15
OZW672.16	Web Server for 16 LPB devices	N5712	2-15
OZW771.04	Central communication unit, max. 4 controllers	N3117	2-11
OZW771.10	Central communication unit, max. 10 controllers	N3117	2-11
OZW771.64	Central communication unit, max. 64 controllers	N3117	2-11
OZW772.01	Web server for 1 KNX device	N5701	2-12
OZW772.04	Web server for 4 KNX devices	N5701	2-12
OZW772.16	Web server for 16 KNX devices	N5701	2-12
OZW772.250	Web server for 250 KNX devices	N5701	2-12
PPM-1U32.MPR	Remote I/O expansion module	140-1138	1-81
QAA2010	Room temperature sensor Pt100	N1745	6-5
QAA2012	Room temperature sensor Pt1000	N1745	6-5
QAA2030	Room temperature sensor NTC10k	N1745	6-5
QAA2061	Room temperature sensor DC 0...10 V	N1749	6-6
QAA2061D	Room temperature sensor DC 0...10 V, with display	N1749	6-6
QAA2071	Room temperature sensor 4..20mA	N1749	6-6
QAA24	Room temperature sensor LG-Ni1000	N1721	6-5
QAA25	Room unit with room temperature sensor and setpoint adjuster	N1721	6-5
QAA26	Room unit with room temperature sensor and setpoint adjuster 5..30 °C	N1721	6-5
QAA27	Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	6-6
QAA32	Room temperature sensor NTC 3 kOhm	N1747	6-7
QAA64	Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	6-6
QAA910	Room temperature sensor	N2701	4-10
QAC2010	Outside sensor Pt100	N1811	6-18
QAC2012	Outside sensor Pt1000	N1811	6-18
QAC2030	Outside sensor NTC10k	N1811	6-18
QAC22	Outside sensor LG-Ni1000	N1811	6-18
QAC3161	Outside / room temperature sensor DC 0..10V	N1814	6-18
QAC3171	Outside/ room temperature sensor HQ 4..20mA	N1814	6-18
QAC32	Outside sensor NTC 575 Ohm	N1811	6-18
QAC910	Meteo sensor	N2702	4-17
QAD2010	Strap-on temperature sensor Pt100	N1801	6-17
QAD2012	Strap-on temperature sensor Pt1000	N1801	6-17
QAD2030	Strap-on temperature sensor NTC10k	N1801	6-17
QAD22	Strap-on temperature sensor LG-Ni1000	N1801	6-17
QAD26.220	Strap-on temperature sensor with cable LG-Ni1000	N1802	6-17
QAE1020.024	Immersion temperature sensor 4 x 240 mm, LG-Ni1000, -5...105°C	N1790	6-15
QAE1612.010	Immersion temperature sensor	Q3730	6-12
QAE2111.010	Immersion temperature sensor 100 mm Pt100, without protection pocket	N1781	6-13
QAE2111.015	Immersion temperature sensor 150 mm Pt100 without protection pocket	N1781	6-13
QAE2112.010	Immersion temperature sensor 100 mm Pt1000 without protection pocket	N1781	6-13
QAE2112.015	Immersion temperature sensor 150 mm Pt1000 without protection pocket	N1781	6-13
QAE2120.010	Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	6-12
QAE2120.015	Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	6-12
QAE2121.010	Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	6-13

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
QAE2121.015	Immersion temperature sensor 150 mm LG-Ni1000, without protection pocket	N1781	6-13
QAE2130.010	Immersion temperature sensor 100 mm NTC 10k without protection pocket	N1781	6-13
QAE2130.015	Immersion temperature sensor 150 mm NTC 10k without protection pocket	N1781	6-13
QAE2164.010	Immersion temperature sensor 100 mm DC 0...10 V	N1782	6-13
QAE2164.015	Immersion temperature sensor 150 mm DC 0...10 V	N1782	6-13
QAE2174.010	Immersion temperature sensor 100 mm DC 4...20 mA	N1782	6-13
QAE2174.015	Immersion temperature sensor 150 mm DC 4...20 mA	N1782	6-13
QAE26.9	Immersion temperature sensor Ø 6 mm with cable and fitting	N1790	6-14
QAE26.90	Immersion temperature sensor 4 x 65 mm, LG-Ni1000, -50...180°C	N1790	6-15
QAE26.91	Immersion temperature sensor 4 x 125 mm, LG-Ni1000, -50...180°C	N1790	6-15
QAE26.93	Immersion temperature sensor 4 x 240 mm, LG-Ni1000, -50...180°C	N1790	6-15
QAE26.95	Immersion temperature sensor 4 x 465 mm, LG-Ni1000, -50...180°C	N1790	6-15
QAE3010.010	Immersion temperature sensor 100 mm, Pt100, direct immersion	N1794	6-15
QAE3010.016	Immersion temperature sensor 160 mm, Pt100, direct immersion	N1794	6-15
QAE3075.010	Immersion temperature sensor 100 mm, DC 4...20 mA, direct immersion	N1794	6-15
QAE3075.016	Immersion temperature sensor 160 mm, DC 4...20 mA, direct immersion	N1794	6-15
QAF63.2	Frost sensor, modulating, capillary tube 2000 mm	N1821	5-59
QAF63.6	Frost sensor, modulating, capillary tube 6000 mm	N1821	5-59
QAF64.2	Frost monitor, modulating and 2-point, capillary tube 2000 mm	N1283	5-60
QAF64.6	Frost monitor, modulating and 2-point, capillary tube 6000 mm	N1283	5-60
QAF65.3-J	Frost monitor, 2-point, capillary tube 3000 mm, -10...15 °C	N1286	5-61
QAF81.3	Frost monitor, 2-point, capillary tube 3000 mm, -5...15 °C	N1284	5-62
QAF81.6	Frost monitor, 2-point, capillary tube 6000 mm	N1284	5-62
QAF81.6M	Frost monitor, 2-point, with manual reset, capillary tube 6000 mm	N1284	5-62
QAH11	Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, with connectors 2.8 x 0.8 mm	N1840	6-21
QAH11.1	Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	6-21
QAM2110.040	Duct temperature sensor 400 mm, Pt100	N1761	6-10
QAM2112.040	Duct temperature sensor 400 mm, Pt1000	N1761	6-10
QAM2112.200	Duct temperature sensor 2000 mm, Pt1000	N1761	6-10
QAM2120.040	Duct temperature sensor 400 mm, LG-Ni1000	N1761	6-10
QAM2120.200	Duct temperature sensor 2000 mm, LG-Ni1000	N1761	6-10
QAM2120.600	Duct temperature sensor 6000 mm, LG-Ni1000	N1761	6-10
QAM2130.040	Duct temperature sensor 400 mm, NTC 10k	N1761	6-10
QAM2161.040	Duct temperature sensor 400 mm, DC 0...10 V	N1762	6-10
QAM2171.040	Duct temperature sensor 400 mm, DC 4...20 mA	N1762	6-10
QAP1030.200	Cable temperature sensor PVC 2 m, NTC 10k	N1831	6-20
QAP2010.150	Cable temperature sensor silicone 1.5 m, Pt100	N1831	6-20
QAP2012.150	Cable temperature sensor silicone 1.5 m, Pt1000	N1831	6-20
QAP21.2	Cable temperature sensor for high-temperature applications (180°C)	N1833	6-20
QAP21.3	Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	6-20
QAP21.3/8000	Cable temperature sensor silicone 8 m, LG-Ni1000	N1831	6-20
QAP22	Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	6-20
QAT22	Window pane temperature sensor	N1830	6-19
QAW50	Digital room unit	N1635	1-26
QAW50.03	Digital room unit with address selector	N1635	1-26
QAW70-A	Multifunctional room unit, instructions in en, de, fr, it	N1637	1-26
QAW70-B	Multifunctional room unit, instructions in nl, sv, el, pl	N1637	1-26
QAW740	Room unit with KNX bus	N1633	1-36
QAW910	Room unit	N2703	4-9
QAW912	Room unit with KNX RF for 2 heating zones	N2720	4-20
QAX160	Touch Panel	N3974	1-81
QAX30.1	Room unit with sensor and PPS2 interface	N1741	3-11
QAX31.1	Room unit with sensor, setpoint adjuster and PPS2 interface	N1741	3-11
QAX32.1	Room unit with sensor, setpoint and operating mode selector and PPS2 interface	N1641	3-11
QAX33.1	Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface	N1642	3-11

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
QAX34.1	Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1645	3-11
QAX34.3	Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	3-11
QAX39.1	Universal setpoint adjuster with PPS2 interface	N1646	3-11
QAX84.1/PPS2	Flush-mounted room unit complete with PPS2 interface and design frame	N1649	3-11
QAX903-9	Central apartment unit for HVAC and energy consumption data collection, without instructions; plain text output in 23 languages	N2741	4-8
QAX903-CS	Central apartment unit for HVAC and energy consumption data collection	N2741	4-8
QAX903-DE	Central apartment unit for HVAC and energy consumption data collection in German	N2741	4-8
QAX903-FR	Central apartment unit for HVAC and energy consumption data collection in French	N2741	4-8
QAX903-IT	Central apartment unit for HVAC and energy consumption data collection in Italian	N2741	4-8
QAX903-NL	Central apartment unit for HVAC and energy consumption data collection	N2741	4-8
QAX903-PL	Central apartment unit for HVAC and energy consumption data collection	N2741	4-8
QAX913-9	Central apartment unit with energy consumption data collection, without instructions; plain text output in 23 languages	N2740	4-6
QAX913-CS	Central apartment unit with energy consumption data collection in Czech	N2740	4-6
QAX913-DE	Central apartment unit with energy consumption data collection in German	N2740	4-6
QAX913-FR	Central apartment unit with energy consumption data collection in French	N2740	4-6
QAX913-IT	Central apartment unit with energy consumption data collection	N2740	4-6
QAX913-NL	Central apartment unit with energy consumption data collection in Dutch	N2740	4-6
QAX913-PL	Central apartment unit with energy consumption data collection in Polish	N2740	4-6
QAX95.4	Room unit with EnOcean interface	N1663	3-19
QAX96.4	Room unit with EnOcean interface, setpoint adjuster	N1663	3-19
QAX97.4	Room unit with EnOcean interface, setpoint adjuster, button and switch	N1663	3-20
QAX98.4	Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages	N1663	3-20
QAZ21.682/101	Temperature sensor with silicone cable 2 m, LG-Ni1000	N1848	6-21
QAZ21.685/101	Temperature sensor with silicone cable 5 m, LG-Ni1000	N1848	6-21
QBE2001-P10U	Pressure sensor for refrigerants (0...10 V) -1...9 bar	N1907	6-51
QBE2001-P25U	Pressure sensor for refrigerants (0...10 V) -1...24 bar	N1907	6-51
QBE2001-P30U	Pressure sensor for refrigerants (0...10 V) -1...29 bar	N1907	6-51
QBE2001-P60U	Pressure sensor for refrigerants (0...10 V) -1...59 bar	N1907	6-51
QBE2002-P1	Pressure sensor for liquids and gases (0...10 V) 0...1 bar	N1909	6-46
QBE2002-P10	Pressure sensor for liquids and gases (0...10 V) 0...10 bar	N1909	6-46
QBE2002-P16	Pressure sensor for liquids and gases (0...10 V) 0...16 bar	N1909	6-46
QBE2002-P2	Pressure sensor for liquids and gases (0...10 V) 0...2 bar	N1909	6-46
QBE2002-P20	Pressure sensor for liquids and gases (0...10 V) 0...20 bar	N1909	6-46
QBE2002-P25	Pressure sensor for liquids and gases (0...10 V) 0...25 bar	N1909	6-46
QBE2002-P4	Pressure sensor for liquids and gases (0...10 V) 0...4 bar	N1909	6-46
QBE2002-P40	Pressure sensor for liquids and gases (0...10 V) 0...40 bar	N1909	6-46
QBE2002-P5	Pressure sensor for liquids and gases (0...10 V) 0...5 bar	N1909	6-46
QBE2002-P60	Pressure sensor for liquids and gases (0...10 V) 0...60 bar	N1909	6-46
QBE2101-P10U	Pressure sensor for refrigerants (4...20 mA) -1...9 bar	N1907	6-52
QBE2101-P25U	Pressure sensor for refrigerants (4...20 mA) -1...24 bar	N1907	6-52
QBE2101-P30U	Pressure sensor for refrigerants (4...20 mA) -1...29 bar	N1907	6-52
QBE2101-P60U	Pressure sensor for refrigerants (4...20 mA) -1...59 bar	N1907	6-52
QBE2102-P10	Pressure sensor for liquids and gases (0...20 mA) 0...10 bar	N1909	6-47
QBE2102-P16	Pressure sensor for liquids and gases (0...20 mA) 0...16 bar	N1909	6-47
QBE2102-P20	Pressure sensor for liquids and gases (0...20 mA) 0...20 bar	N1909	6-47
QBE2102-P4	Pressure sensor for liquids and gases (0...20 mA) 0...4 bar	N1909	6-47
QBE2102-P5	Pressure sensor for liquids and gases (0...20 mA) 0...5 bar	N1909	6-47
QBE3000-D1	Differential pressure sensor for liquids and gase (0...10 V) 0...1 bar	N1922	6-49
QBE3000-D1.6	Differential pressure sensor for liquids and gase (0...10 V) 0...1.6 bar	N1922	6-49
QBE3000-D10	Differential pressure sensor for liquids and gase (0...10 V) 0...10 bar	N1922	6-49
QBE3000-D16	Differential pressure sensor for liquids and gase (0...10 V) 0...16 bar	N1922	6-49
QBE3000-D2.5	Differential pressure sensor for liquids and gase (0...10 V) 0...2.5 bar	N1922	6-49
QBE3000-D4	Differential pressure sensor for liquids and gase (0...10 V) 0...4 bar	N1922	6-49
QBE3000-D6	Differential pressure sensor for liquids and gase (0...10 V) 0...6 bar	N1922	6-49

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
QBE3100-D1	Differential pressure sensor for liquids and gase (4...20 mA) 0...1 bar	N1922	6-50
QBE3100-D1.6	Differential pressure sensor for liquids and gase (4...20 mA) 0...1.6 bar	N1922	6-50
QBE3100-D10	Differential pressure sensor for liquids and gase (4...20 mA) 0...10 bar	N1922	6-50
QBE3100-D16	Differential pressure sensor for liquids and gase (4...20 mA) 0...16 bar	N1922	6-50
QBE3100-D2.5	Differential pressure sensor for liquids and gase (4...20 mA) 0...2.5 bar	N1922	6-50
QBE3100-D4	Differential pressure sensor for liquids and gase (4...20 mA) 0...4 bar	N1922	6-50
QBE3100-D6	Differential pressure sensor for liquids and gase (4...20 mA) 0...6 bar	N1922	6-50
QBE61.3-DP10	Differential pressure sensor for liquids and gases 0...10 bar	N1923	6-48
QBE61.3-DP2	Differential pressure sensor for liquids and gases 0...2 bar	N1923	6-48
QBE61.3-DP5	Differential pressure sensor for liquids and gases 0...5 bar	N1923	6-48
QBE63-DP01	Differential pressure sensor for liquids and gases (DC 0...10 V) 0...10 kPa	N1920	6-49
QBE63-DP02	Differential pressure sensor for liquids and gases (DC 0...10 V) 0...20 kPa	N1920	6-49
QBE63-DP05	Differential pressure sensor for liquids and gases (DC 0...10 V) 0...50 kPa	N1920	6-49
QBE63-DP1	Differential pressure sensor for liquids and gases (DC 0...10 V) 0...100 kPa	N1920	6-49
QBE64-DP4	Differential pressure sensor for liquids and gases (DC 0...10 V) 0...400 kPa	N1921	1-54
QBM2030-1U	Differential pressure sensor, -50...50 Pa, -100...100 Pa, 0...100 Pa	N1910_01	6-43
QBM2030-30	Differential pressure sensor, 0...1000 Pa, 0...1500 Pa, 0...3000 Pa	N1910_01	6-43
QBM2030-5	Differential pressure sensor, 0...200 Pa, 0...250 Pa, 0...500 Pa	N1910_01	6-43
QBM3020-1	Air duct differential pressure sensor, 0...100 Pa	N1916_01	6-42
QBM3020-10	Air duct differential pressure sensor, 0...1000 Pa	N1916_01	6-42
QBM3020-10D	Air duct differential pressure sensor with display, 0...1000 Pa	N1916_01	6-42
QBM3020-1D	Air duct differential pressure sensor with display, 0...100 Pa	N1916_01	6-42
QBM3020-1U	Air duct differential pressure sensor, -50...50 Pa	N1916_01	6-42
QBM3020-25	Air duct differential pressure sensor, 0...2500 Pa	N1916_01	6-42
QBM3020-25D	Air duct differential pressure sensor with display, 0...2500 Pa	N1916_01	6-42
QBM3020-3	Air duct differential pressure sensor, 0...300 Pa	N1916_01	6-42
QBM3020-3D	Air duct differential pressure sensor with display, 0...300 Pa	N1916_01	6-42
QBM3020-5	Air duct differential pressure sensor, 0...500 Pa	N1916_01	6-42
QBM3020-5D	Air duct differential pressure sensor with display, 0...500 Pa	N1916_01	6-42
QBM4000-1	Air duct differential pressure sensor 0...100 Pa, with calibration certificate	N1919_01	6-43
QBM4000-10	Air duct differential pressure sensor 0...1000 Pa, with calibration certificate	N1919_01	6-43
QBM4000-25	Air duct differential pressure sensor 0...2500 Pa, with calibration certificate	N1919_01	6-43
QBM4000-3	Air duct differential pressure sensor 0...300 Pa, with calibration certificate	N1919_01	6-43
QBM4100-1D	Air duct differential pressure sensor with display, 0...100 Pa, calibration certificate	N1919_01	6-44
QBM4100-1U	Air duct differential pressure sensor, with calibration certificate	N1919_01	6-44
QBM65-1/C	Air duct differential pressure sensor, 0...100 Pa, with calibration certificate	N1919	6-43
QBM65.1-1	Air duct differential pressure sensor, 0...100 Pa, with display	N1916	6-42
QBM66.201	Air duct differential pressure sensor, 0...100 Pa / 0...200 Pa	N1910	6-43
QBM75-1U/C	Air duct differential pressure sensor -50...50 Pa, with calibration certificate	N1919	6-44
QBM81-10	Differential pressure monitor, 100...1000 Pa	N1552	6-45
QBM81-20	Differential pressure monitor, 200...2000 Pa	N1552	6-45
QBM81-3	Differential pressure monitor, 20...300 Pa	N1552	6-45
QBM81-5	Differential pressure monitor, 50...500 Pa	N1552	6-45
QBM81-50	Differential pressure monitor, 500...5000 Pa	N1552	6-45
QFA1000	Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	6-27
QFA1001	Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	6-27
QFA2000	Room sensor for humidity (DC 0...10 V)	N1857	6-22
QFA2001	Room sensor for humidity (DC 4...20mA)	N1857	6-22
QFA2020	Room sensor for humidity (DC 0...10 V) and temperature (LG-Ni1000)	N1857	6-22
QFA2060	Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	6-22
QFA2060D	Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V), with Display	N1857	6-22
QFA2060N	Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V), without Logo	N1857	6-22
QFA2071	Room sensor for humidity (DC 4...20mA) and temperature (DC 4...20mA)	N1857	6-22
QFA3100	Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	6-23
QFA3101	Room sensor for humidity (4...20 mA) for demanding requirements	N1858	6-23
QFA3160	Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	6-23

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
QFA3160D	Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements, with display	N1858	6-23
QFA3171	Room sensor for humidity (4...20 mA) and temperature (4...20 mA) for demanding requirements	N1858	6-23
QFA3171D	Room sensor for humidity (4...20 mA) and temperature (4...20 mA) for demanding requirements, with display	N1858	6-23
QFA4160	Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	6-23
QFA4160D	Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate, with display	N1859	6-23
QFA4171	Room sensor for humidity (4..20mA) and temperature (4..20mA) with calibration certificate	N1859	6-23
QFA4171D	Room sensor for humidity (4..20mA) and temperature (4..20mA) with calibration certificate, with display	N1859	6-23
QFM1660	Duct sensor for humidity (0...10 V) and temperature (0...10 V)	Q3731	6-28
QFM2100	Duct sensor for humidity (DC 0...10 V)	N1864	6-28
QFM2101	Duct sensor for humidity (DC 4...20 mA)	N1864	6-28
QFM2120	Duct sensor for humidity (0...10 V) and temperature (Ni1000)	N1864	6-28
QFM2160	Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1864	6-28
QFM2171	Duct sensor for humidity (DC 4...20 mA) and temperature (DC 0...20 mA)	N1864	6-28
QFM3100	Duct sensor for humidity (DC 0...10 V) for demanding requirements	N1882	6-29
QFM3101	Duct sensor for humidity (4...20 mA) for demanding requirements	N1882	6-29
QFM3160	Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1882	6-29
QFM3160D	Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements, with display	N1882	6-29
QFM3171	Duct sensor for humidity (4...20 mA) and temperature (0...20 mA) for demanding requirements	N1882	6-29
QFM3171D	Duct sensor for humidity (4...20 mA) and temperature (0...20 mA) for demanding requirements, with display	N1882	6-29
QFM4101	Duct sensor for humidity (4...20mA) with calibration certificate	N1883	6-30
QFM4160	Duct sensor for humidity (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	6-30
QFM4171	Duct sensor for humidity (4...20 mA) and temperature (4...20 mA) with calibration certificate	N1883	6-30
QFM81.2	Duct hygrostat, setpoint setting range 15...95 % r.h.	N1514	6-32
QFM81.21	Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device	N1514	6-32
QFP910	Water monitor	N2732	4-16
QLS60	Solar sensor	N1943	6-58
QMX3.P30	Room sensor KNX for temperature	N1602	2-10
QMX3.P70	Room sensor KNX for temperature, humidity, CO2	N1602	2-10
QPA1000	Room air quality sensor VOC	N1961	6-35
QPA2000	Room air quality sensor CO_2	N1961	6-35
QPA2002	Room air quality sensor CO_2+VOC	N1961	6-35
QPA2002D	Room air quality sensor CO_2+VOC with display	N1961	6-35
QPA2060	Room air quality sensor CO_2+temperature	N1961	6-35
QPA2060D	Room air quality sensor CO_2+temperature with display	N1961	6-35
QPA2062	Room air quality sensor CO_2+temperature+rel. air humidity	N1961	6-35
QPA2062D	Room air quality sensor CO_2+temperature+rel. air humidity with display	N1961	6-35
QPA2080	Room air quality sensor CO_2+temperature (passiv)	N1961	6-35
QPA2080D	Room air quality sensor CO_2+temperature (passiv) with display	N1961	6-35
QPA84	Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	6-36
QPM1100	Duct air quality sensor VOC	N1962	6-41
QPM2100	Duct air quality sensor CO_2	N1962	6-41
QPM2102	Duct air quality sensor CO_2+VOC	N1962	6-41
QPM2102D	Duct air quality sensor CO_2+VOC with display	N1962	6-41
QPM2160	Duct air quality sensor CO_2+temperature	N1962	6-41
QPM2160D	Duct air quality sensor CO_2+temperature with display	N1962	6-41
QPM2162	Duct air quality sensor CO_2+temperature+rel. air humidity	N1962	6-41

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
QPM2162D	Duct air quality sensor CO_2+temperature+rel. air humidity with d isplay	N1962	6-41
QPM2180	Duct air quality sensor CO_2+temperature (passiv)	N1962	6-41
QVE1900	Flow switch for use in hydraulic systems, PN10, DN32...200	N1592	6-55
QVE1901	Flow switch for use in hydraulic systems, PN25, DN20...200	N1594	6-55
QVE1902.010	Flow switch for liquids in piping DN 10	N1596	6-56
QVE1902.015	Flow switch for liquids in piping DN 15	N1596	6-56
QVE1902.020	Flow switch for liquids in piping DN 20	N1596	6-56
QVE1902.025	Flow switch for liquids in piping DN 25	N1596	6-56
QVE2000.010	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 10 pipes, DC Output: 0...10 V	N1597	6-53
QVE2000.015	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 15 pipes, DC Output: 0...10 V	N1597	6-53
QVE2000.020	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 20 pipes, DC Output: 0...10 V	N1597	6-53
QVE2000.025	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 25 pipes, DC Output: 0...10 V	N1597	6-53
QVE2100.010	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 10 pipes, DC Output: 4...20 mA	N1597	6-53
QVE2100.015	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 15 pipes, DC Output: 4...20 mA	N1597	6-53
QVE2100.020	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 20 pipes, DC Output: 4...20 mA	N1597	6-53
QVE2100.025	Flow sensor made from fiber-glass reinforced plastic for liquids in DN 25 pipes, DC Output: 4...20 mA	N1597	6-53
QVE3000.010	Flow sensor made from red brass for liquids in DN 10 pipes, DC Output: 0...10 V	N1598	6-54
QVE3000.015	Flow sensor made from red brass for liquids in DN 15 pipes, DC Output: 0...10 V	N1598	6-54
QVE3000.020	Flow sensor made from red brass for liquids in DN 20 pipes, DC Output: 0...10 V	N1598	6-54
QVE3000.025	Flow sensor made from red brass for liquids in DN 25 pipes, DC Output: 0...10 V	N1598	6-54
QVE3100.010	Flow sensor made from red brass for liquids in DN 10 pipes, DC Output: 4...20 mA	N1598	6-54
QVE3100.015	Flow sensor made from red brass for liquids in DN 15 pipes, DC Output: 4...20 mA	N1598	6-54
QVE3100.020	Flow sensor made from red brass for liquids in DN 20 pipes, DC Output: 4...20 mA	N1598	6-54
QVE3100.025	Flow sensor made from red brass for liquids in DN 25 pipes, DC Output: 4...20 mA	N1598	6-54
QVM62.1	Duct sensor for air velocity	N1932	6-57
QXA2601	Condensation monitor, AC/DC 24 V	N3302	6-33
QXA2602	Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	6-33
QXA2603	Condensation monitor, AC 230 V	N3302	6-34
QXA2604	Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)	N3302	6-34
RAA11	Electromechanical room thermostat, public sector model	N3561	5-7
RAA200	Electromechanical room thermostat with large setpoint knob	N3002	5-7
RAA21	Electromechanical room thermostat, basic model	N3562	5-7
RAA31	Electromechanical room thermostat with on/off switch	N3563	5-8
RAA31.16	Electromechanical room thermostat with on/off switch and LED	N3563	5-8
RAA31.26	Electromechanical room thermostat with on/off switch and LED, auxillary switch and LED	N3563	5-8
RAA41	Electromechanical room thermostat with selector heating/off/cooling, 1 output	N3564	5-8
RAB11	Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling	N3015	5-23
RAB11.1	Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling/fan only	N3015	5-23
RAB21	Electromechanical room thermostat for 2-pipe fan coils, basic model	N3016	5-23
RAB21.1	Electromechanical room thermostat for 2-pipe fan coils, selector heating-cooling/fan only	N3016	5-24
RAB31	Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling	N3017	5-24
RAB31.1	Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling/fan only	N3017	5-24
RAB91	Fan speed switch, 3-stage	N3018	5-24
RAK-H-M	Terminal housing	N1207	5-54
RAK-ST.010FP-M	Safety temperature limiter fixed 95 °C, pocket 100 mm, capillary 700 mm	N1204	5-53
RAK-ST.020FP-M	Safety temperature limiter fixed 100 °C, pocket 100 mm, capillary 700 mm	N1204	5-53

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
RAK-ST.030FP-M	Safety temperature limiter fixed 110 °C, pocket 100 mm, capillary 700 mm	N1204	5-53
RAK-ST.1300P-M	Safety temperature limiter fixed 120...130 °C, pocket 100 mm, capillary 700 mm	N1204	5-53
RAK-ST.1310P-M	Safety temperature limiter fixed 90...110 °C, pocket 100 mm, capillary 700 mm	N1204	5-53
RAK-ST.1385M	Safety limit thermostat, 40...70 °C, capillary length 700 mm	N1204	5-53
RAK-ST.1430S-M	Safety temperature limiter fixed 80...100 °C, pocket 100 mm, capillary 700 mm	N1204	5-53
RAK-ST.1600MP	Safety limit thermostat, 95...130 °C, protection pocket 100 mm, capillary length 700 mm	N1204	5-53
RAK-TB.1400S-M	Temperature limiter, 45...60 °C, capillary 1600 mm, clamping band	N1206	5-52
RAK-TB.1410B-M	Temperature limiter, 50...70 °C, pocked 100 mm, capillary 700 mm, clamping band	N1206	5-52
RAK-TB.1420S-M	Temperature limiter, 65...80 °C, capillary 700 mm, clamping band	N1206	5-52
RAK-TR.1000B-H	Temperature controller 15...95 °C, protection pocket 100 mm, capillary 700 mm, clamp on band	N1205	5-51
RAK-TR.1000S-H	Thermal reset limit thermostat, 15..95 °C, capillary tube 700 mm, clamping band	N1205	5-51
RAK-TR.1210B-H	Thermal reset limit thermostat, 15..82 °C, protective pocket 100 mm, capillary tube 700 mm, clamping band	N1205	5-51
RAK-TW.1000B-H	Thermal reset limit thermostat, 15...95 °C, protective pocket 100 mm, capillary tube 700 mm, clamping band	N1202	5-51
RAK-TW.1000HB	Thermal reset limit thermostat, 15...95 °C, protection pocket 100 mm, capillary length 700 mm	N1202	5-52
RAK-TW.1000S-H	Thermal reset limit thermostat, 15...95 °C, capillary tube 700 mm, clamping band	N1202	5-51
RAK-TW.1200B-H	Thermal reset limit thermostat, 40...120 °C, protective pocket 100 mm, capillary tube 700 mm, clamping band	N1202	5-51
RAK-TW.1200HP	Thermal reset limit thermostat, 40...120 °C, protection pocket 100 mm, capillary length 700 mm	N1202	5-52
RAK-TW.1200S-H	Thermal reset limit thermostat, 40...120 °C, capillary tube 700 mm, clamping band	N1202	5-51
RAK-TW.5000HS	Frost protection monitor, 5...65 °C, capillary length 1600 mm	N1203	5-63
RAK-TW.5000S-H	Frost protection monitor 5...65 °C, capillary tube 1600 mm, clamping band	N1203	5-62
RAK-TW.5010S-H	Frost protection monitor 10...50 °C, capillary tube 1600 mm, clamping band	N1203	5-62
RAM-TR.2000M	Strap-on temperature controller, 20...90 °C, fixing spring, setpoint adjuster externally	N1198	5-57
RAM-TW.2000M	Strap-on temperature limitation, 20...90 °C, fixing spring, setpoint adjuster internally	N1198	5-57
RAV11.1	Room thermostat with 24-hour time switch	N2224	5-21
RAV11.7	Room thermostat with 7-day time switch	N2224	5-21
RAZ-ST.011FP-J	Temperature controller/ safety temperature limiter, TR 15...95 °C/ STB 100 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1214	5-56
RAZ-ST.030FP-J	Temperature controller/ safety temperature limiter, TR 15...95 °C/ STB 110 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1214	5-56
RAZ-ST.1500P-J	Temperature controller/ safety temperature limiter, TR 15...95 °C/ STB 110...130 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1214	5-56
RAZ-ST.1510P-J	Temperature controller/ safety temperature limiter, TR 15...95 °C/ STB 90...110 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1214	5-56
RAZ-TW.1000P-J	Temperature controller/ thermal limit reset thermostat, TR 15...95 °C/ TW 15...95 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1212	5-55
RAZ-TW.1200P-J	Temperature controller/ thermal limit reset thermostat, TR 40...120 °C/ TW 40...120 °C, dual protection pocket 100 mm, capillary tube each 700 mm	N1212	5-55
RCC10	Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor	N3021	5-26
RCC20	Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor, el. heater	N3022	5-27
RCC30	Room thermostat for 4-pipe fan coils, AC 230 V, positioning signal 2 2 pt, return air sensor	N3023	5-27
RCU10	Universal room thermostat for 4-pipe systems, AC 230 V, positioning signal 2 pt or PWM	N3041	5-9
RCU15	Universal room thermostat for 4-pipe systems, AC 24 V, positioning signal 2 pt or PWM	N3048	5-9
RCU20	Universal room thermostat for 2-pipe systems, AC 230 V, positioning signal 3 pt	N3042	5-10
RCU50	Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V	N3045	5-41
RCU50.2	Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V, manual changeover heating/cooling/off	N3045	5-41
RDD100	Room thermostat with LCD, AV 230 V	N1420	5-14
RDD100.1	Room thermostat with LCD, battery	N1420	5-14
RDD100.1DHW	Room thermostat with LCD, battery, Auto Timer, independent DHW	N1421	5-14

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
RDD310	Semi flush-mounted room thermostat with LCD	N3077	5-15
RDE100	Room thermostat with 7-day time switch and LCD, AC 230 V	N1422	5-19
RDE100.1	Room thermostat with 7-day time switch and LCD, battery	N1422	5-20
RDE100.1DHW	Room thermostat with 7-day time switch and LCD, battery, Auto Timer, independent DHW	N1423	5-20
RDE410	Semi flush-mounted room thermostat with 7-day time switch and LCD	N3077	5-20
RDF110	Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor	N3057	5-33
RDF110.2	Room thermostat for 2-pipe fan coils or DX-type equipment	N3057	5-33
RDF210/IR	Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor, infrared remote control, 7-day time switch	N3058	5-34
RDF300	Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment	N3076	5-36
RDF300.02	Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment, backlit LCD	N3076	5-36
RDF301	Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	5-47
RDF301.50	Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment, four buttons for switching lights and blinds	N3171	5-47
RDF301.50H	Hotel Semi Flush-mount room thermostat with KNX, 2-/4-pipe fan coils or DX type equipment, four buttons hotel functions	N3171	5-47
RDF302	Semi Flush-mount room thermostat for rectangular conduit box with Modbus communications, 2-/4-pipe fan coils or DX type equipment	N3079	5-50
RDF310.2	Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment	N3067	5-37
RDF310.21	Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, backlit LCD	N3067	5-37
RDF340	Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils	N3076	5-38
RDF410.21	Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD	N3067	5-39
RDF510.2	Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, DELTA lavie design	N3064	5-40
RDF600	Semi Flush-mount room thermostat for round conduit box for 2-/4-pipe fan coils or DX type equipment, backlit LCD	N3076	5-35
RDF600KN	Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	5-47
RDF600T	Semi Flush-mount room thermostat for round conduit box, for 2-/4-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD	N3076	5-35
RDG100	Room thermostat, AC 230 V, for fan coil units and universal applications	N3181	5-30
RDG100KN	Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications	N3191	5-45
RDG100T	Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, vertical	N3181	5-31
RDG100T/H	Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, horizontal	N3181	5-32
RDG110	Room thermostat, AC 230 V, for fan coil units and heat pump applications	N3181	5-31
RDG160KN	Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, fan (1-/ 3-speed, DC), valves (2-point, DC)	N3191	5-46
RDG400	Room thermostat, AC 24 V, VAV heating and cooling systems	N3182	5-42
RDG400KN	Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems	N3192	5-48
RDH10	Room thermostat, LCD, setting knob	N3069	5-15
RDH10RF/SET	Room thermostat radio frequency set (transmitter and receiver), LCD, setting knob	N3070	5-15
RDJ10	Room thermostat with 24-hour time switch, LCD, setting knob	N3071	5-19
RDJ10RF/SET	Room thermostat radio frequency set (transmitter and receiver) with 24-hour time switch, LCD, setting knob	N3072	5-19
RDU340	Semi Flush-mount room thermostat for rectangular conduit box with LCD for VAV application	N3078	5-43
RDU341	Semi Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application	N3172	5-49

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
REV13	Room thermostat with 2-point control and 24-hour time switch, batteries, only heating	N2201	5-18
REV13DC	Room thermostat with 2-point control and 24-hour time switch, batteries, only heating, receive time signal DCF77	N2201	5-18
REV17	Room thermostat with 2-point control and 7-day time switch, batteries, only heating	N2203	5-18
REV17DC	Room thermostat with 2-point control and 7-day time switch, batteries, only heating, receive time signal DCF77	N2203	5-18
REV24	Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling	N2205	5-18
REV24DC	Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling, receive time signal DCF77	N2205	5-18
REV24RF/SET	Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling	N2206	5-18
REV24RFDC/SET	Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling, receive time signal DCF77	N2206	5-18
REV34	Room thermostat with 3-point control and with 7-day time switch, batteries, only heating	N2208	5-18
REV34DC	Room thermostat with 3-point control and with 7-day time switch, batteries, only heating, receive time signal DCF77	N2208	5-18
RLA162	Room temperature controller, AC 24 V, 2 outputs DC 0...10 V	N3331	1-50
RLA162.1	Room temperature controller, AC 24 V, 2 outputs DC 0...10 V, operating mode selector	N3336	1-51
RLE127	Differential temperature controller, AC 230 V, 2-position output	N3337	1-5
RLE127.QAZ	Differential temperature controller, AC 230 V, 2-position output, with additional temperature sensor	N3337	1-5
RLE132	Immersion temperature controller, AC 230 V, 3-position output	N3334	1-6
RLE162	Immersion temperature controller, AC 24 V, DC 0...10 V output	N3333	1-7
RLM162	Air duct temperature controller, AC 24 V, 2 outputs DC 0...10 V	N3332	1-48
RLU202	Universal controller, 1 control loop, 2 relay outputs	N3101	1-52
RLU220	Universal controller, 1 control loop, 2 analog outputs	N3101	1-52
RLU222	Universal controller, 2 control loops, 2 analog and 2 relay outputs	N3101	1-52
RLU232	Universal controller, 2 control loops, 3 analog and 2 relay outputs	N3101	1-52
RLU236	Universal controller, 2 control loops, 3 analog and 6 relay outputs	N3101	1-52
RMB795B-1	Central control unit RMB795B-1 with languages de, fr, it, es, pt	N3122	3-18
RMB795B-2	Central control unit RMB795B-2 with languages de, fr, nl, en	N3122	3-18
RMB795B-3	Central control unit RMB795B-3 with languages da, fi, no, sv	N3122	3-18
RMB795B-4	Central control unit RMB795B-4 with languages cs, sk, pl, hu, ru, bg	N3122	3-18
RMB795B-5	Central control unit RMB795B-5 with languages ro, sl, sr, hr, el, tr	N3122	3-18
RMB795B-6	Central control unit RMB795B-6 with language zh	N3122	3-18
RMH760B-1	Heating controller with languages de, fr, it, es	N3133	1-29
RMH760B-2	Heating controller with languages de, en, fr, nl	N3133	1-29
RMH760B-3	Heating controller with languages da, fi, sv, no	N3133	1-29
RMH760B-4	Heating controller with languages pl, cs, sk, hu, ru, bg	N3133	1-29
RMH760B-5	Heating controller with languages sr, hr, sl, ro, el, tr	N3133	1-29
RMK770-1	Boiler sequence controller with languages de, fr, it, es	N3132	1-31
RMK770-2	Boiler sequence controller with languages de, fr, en, nl	N3132	1-31
RMK770-3	Boiler sequence controller with languages da, fi, sv, no	N3132	1-31
RMK770-4	Boiler sequence controller with languages pl, cs, sk, hu, ru, bg	N3132	1-31
RMK770-5	Boiler sequence controller with languages sr, hr, sl, ro, el, tr	N3132	1-31
RMS705B-1	Switching and monitoring device with languages de, fr, it, es, pt	N3124	1-72
RMS705B-2	Switching and monitoring device with languages de, fr, nl, en	N3124	1-72
RMS705B-3	Switching and monitoring device with languages da, fi, no, sv	N3124	1-72
RMS705B-4	Switching and monitoring device with languages pl, cs, hu, ru, sk, bg	N3124	1-72
RMS705B-5	Switching and monitoring device with languages el, ro, sl, sr, hr, tr	N3124	1-72
RMS705B-6	Switching and monitoring device with language zh	N3124	1-72
RMU710B-1	Universal controller, 1 control loop, with languages de, fr, it, es	N3150	1-61
RMU710B-2	Universal controller, 1 control loop, with languages de, en, fr, nl	N3150	1-61
RMU710B-3	Universal controller, 1 control loop, with languages da, fi, sv, no	N3150	1-61
RMU710B-4	Universal controller, 1 control loop, with languages cs, hu, pl, sk, ru, bg	N3150	1-61
RMU710B-5	Universal controller, 1 control loop, with languages sr, hr, sl, ro, el, tr	N3150	1-61

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
RMU710B-6	Universal controller, 1 control loop, with language zh	N3150	1-61
RMU720B-1	Universal controller, 2 control loops, with languages de, fr, it, es	N3150	1-61
RMU720B-2	Universal controller, 2 control loops, with languages de, en, fr, nl	N3150	1-61
RMU720B-3	Universal controller, 2 control loops, with languages da, fi, sv, no	N3150	1-61
RMU720B-4	Universal controller, 2 control loops, with languages cs, hu, pl, sk, ru, bg	N3150	1-61
RMU720B-5	Universal controller, 2 control loops, with languages sr, hr, sl, ro, el, tr	N3150	1-61
RMU720B-6	Universal controller, 2 control loops, with language zh	N3150	1-61
RMU730B-1	Universal controller, 3 control loops, with languages de, fr, it, es	N3150	1-61
RMU730B-2	Universal controller, 3 control loops, with languages de, en, fr, nl	N3150	1-61
RMU730B-3	Universal controller, 3 control loops, with languages da, fi, sv, no	N3150	1-61
RMU730B-4	Universal controller, 3 control loops, with languages cs, hu, pl, sk, ru, bg	N3150	1-61
RMU730B-5	Universal controller, 3 control loops, with languages sr, hr, sl, ro, el, tr	N3150	1-61
RMU730B-6	Universal controller, 3 control loops, with language zh	N3150	1-61
RMZ780	Module connector	N3138	1-38
RMZ782B	Heating circuit module	N3136	1-37
RMZ783B	DHW module	N3136	1-38
RMZ785	Universal module (8UI)	N3146	1-37
RMZ787	Universal module (4UI, 4DO)	N3146	1-37
RMZ788	Universal module (4UI, 2AO, 2DO)	N3146	1-37
RMZ789	Universal module (6UI, 2AO, 4DO)	N3146	1-37
RMZ790	Plug-in type operator unit	N3111	1-36
RMZ791	Detached operator unit with 3 m cable	N3112	1-36
RMZ792	Bus operator unit	N3113	1-36
RRV912	Heating circuit controller, 2 heating circuits	N2705	4-12
RRV918	Heating circuit controller, 8 heating circuits	N2706	4-13
RRV934	Multicontroller	N2709	4-14
RTN51	Thermostatic actuator, RAL 9016, matt	N2111	7-27
RTN51G	Thermostatic actuator, RAL 9016, glossy	N4211	7-27
RTN71	Thermostatic actuator with remote sensor	N2111	7-27
RTN81	Thermostatic actuator with remote adjuster	N2111	7-27
RVD120-A	Controller, 3 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	1-40
RVD120-C	Controller, 3 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	1-40
RVD140-A	Controller, 8 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	1-41
RVD140-C	Controller, 8 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	1-41
RVD250-A	Controller, 28 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2513	1-45
RVD250-C	Controller, 28 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2513	1-45
RVD260-A	Controller, 14 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2515	1-45
RVD260-C	Controller, 14 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2515	1-45
RVL479	Heating controller for a second heating circuit	N2543	1-24
RVL480	Heating controller for 1 heating circuit or boiler temperature control	N2540	1-21
RVL481	Heating controller for boiler temperature control and d.h.w. heating	N2541	1-22
RVL482	Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating	N2542	1-23
RVP201.0	Heating controller without time switch	N2464	1-11
RVP201.1	Heating controller with analog 24-hour time switch	N2464	1-11
RVP211.0	Heating controller without time switch, with d.h.w. heating	N2464	1-12
RVP211.1	Heating controller with analog 24-hour time switch, with d.h.w. heating	N2464	1-12
RVP340	Heating controller for 1 heating circuit	N2545	1-17
RVP350	Heating controller for 1 heating circuit and d.h.w.	N2545	1-18
RVP351	Heating controller for 1 heating circuit and d.h.w., without communication	N2545	1-15
RVP360	Heating controller for 2 heating circuits and d.h.w.	N2546	1-19
RVP361	Heating controller for 2 heating circuits and d.h.w., without communication	N2546	1-15
RWD32	Universal controller, AC 230 V, with 2 relay outputs	N3341	1-57
RWD32S	Differential temperature controller, AC 230 V, with 2 relay outputs	N3344	1-9
RWD34	Temperature controller, AC 230 V, heat pump 3-stage, heating and cooling 2-stage	N3346	1-59
RWD44	Temperature controller, AC 24 V, heat pump 3-stage, heating and cooling 2-stage	N3346	1-59
RWD62	Universal controller, AC 24 V, 2 modulating outputs	N3342	1-57

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
RWD68	Universal controller, AC 24 V, 1 modulating and 1 2-point output	N3343	1-57
RWD82	Universal controller, AC 24 V, with 2 relay outputs	N3341	1-57
RXB21.1/FC-10	Room controller for 3-speed fan	N3873	3-13
RXB21.1/FC-11	Room controller for 3-speed fan	N3873	3-13
RXB22.1/FC-12	Room controller with 3-speed fan and electric heating coil	N3873	3-13
RXB24.1/CC-02	Room controller for chilled ceilings and radiators	N3874	3-13
RXB39.1/FC-13	Room controller for fan-coil applications with KNX communication	N3875	3-14
RXL21.1/FC-10	Room controller for 3-speed fan	N3877	3-9
RXL21.1/FC-11	Room controller for 3-speed fan	N3877	3-9
RXL22.1/FC-12	Room controller with 3-speed fan and electric heating coil	N3877	3-9
RXL24.1/CC-02	Room controller for chilled ceilings and radiators	N3878	3-9
RXL39.1/FC-13	Communicating room controller for fan-coil applications with proprietary communication	N3876	3-10
RXT20.1	Service unit with LCD	N3851	3-12
RXZ20.1	Terminal cover for RXA2../ RXB2../ RXL2../ RXC2..	N3834	3-10
RXZ30.1	Terminal cover for RXB3.. / RXL3.. / RXC3..	N3840	3-10
RXZ97.1/KNX	Radio frequency receiver with Gateway EnOcean/KNX	N1662	3-21
RYT182	Changeover thermostat, changeover, 30 °C / 19 °C, IP54	N1295	5-58
SAL31.00T10	Electromotoric actuator 10 Nm, 90°, AC 230 V, 3P	N4502	7-184
SAL31.00T20	Electromotoric actuator 20 Nm, 90°, AC 230 V, 3P	N4502	7-184
SAL31.03T10	Electromotoric actuator 10 Nm, 90°, AC 230 V, 3P, 30 s	N4502	7-184
SAL61.00T10	Electromotoric actuator 10 Nm, 90°, AC/DC 24 V, DC 0...10 V / DC 4...20 mA	N4502	7-184
SAL61.00T20	Electromotoric actuator 20 Nm, 90°, AC/DC 24 V, DC 0...10 V / DC 4...20 mA	N4502	7-184
SAL61.03T10	Electromotoric actuator 10 Nm, 90°, AC/DC 24 V, DC 0...10 V / DC 4...20 mA, 30 s	N4502	7-184
SAL81.00T10	Electromotoric actuator 10 Nm, 90°, AC/DC 24 V, 3P	N4502	7-184
SAL81.00T20	Electromotoric actuator 20 Nm, 90°, AC/DC 24 V, 3P	N4502	7-184
SAL81.03T10	Electromotoric actuator 10 Nm, 90°, AC/DC 24 V, 3P, 30 s	N4502	7-184
SAX31.00	Electromotoric actuator, 800 N, 20 mm, AC 230 V, 3P	N4501	7-51
SAX31.03	Electromotoric actuator, 800 N, 20 mm, AC 230 V, 3P, 30 s	N4501	7-51
SAX31P03	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P, 30 s	N4509	7-52
SAX61.03	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, DC 0...10 V / DC 4...20 mA, 30 s	N4501	7-51
SAX61P03	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, DC 0...10 V / DC 4...20 mA, 30 s	N4509	7-52
SAX81.00	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P	N4501	7-51
SAX81.03	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P, 30 s	N4501	7-51
SAX81P03	Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P, 30 s	N4509	7-52
SBV31	Electromotoric actuator, AC 230 V, 3-position	N4519	7-55
SBV61	Electromotoric actuator, AC 24 V, DC 0...10 V	N4519	7-55
SBV81	Electromotoric actuator, AC 24 V, 3-position	N4519	7-55
SBX31	Electromotoric actuator, AC 230 V, 3-position	N4519	7-53
SBX61	Electromotoric actuator, AC 24 V, DC 0...10 V	N4519	7-53
SBX81	Electromotoric actuator, AC 24 V, 3-position	N4519	7-53
SEA45.1	Current valve	N4937	1-78
SED2-3/35X	Variable speed drive without B filter; 3 kW; 7.7 A; 3 x AC 400 V; IP54	N5192	9-7
SEH62.1	Digital time switch, 1-channel, with 7-day program	N5243	1-82
SEM61.4	Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V	N5102	1-78
SEM62.1	Transformer	N5536	1-83
SEM62.2	Transformer with switch and replaceable fuse	N5536	1-83
SEZ220	Signal converter with preprogrammed applications	N5146	1-79
SEZ31.1	Auxiliary module, variable positioning time for SQL36E..	N4505	7-188
SEZ50MB	Modbus interface for RWD	N3099	1-81
SEZ91.6	Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	1-78
SFA21	Electromotoric actuator, 200 N, 2.5 mm, AC 230 V, 2P		7-42
SFA21/18	Electromotoric actuator, 200 N, 2.5 mm, AC 230 V, 2P	N4863	7-42
SFA71/18	Electromotoric actuator, 200 N, 2.5 mm, AC 230 V, 2P	N4863	7-42
SFP21/18	Electromotoric actuator, 135 N, 2.5 mm, AC 230 V, 2P	N4865	7-37
SFP71/18	Electromotoric actuator, 135 N, 2.5 mm, AC 24 V, 2P	N4865	7-37
SKB32.50	Electrohydraulic actuator, 2800 N, 20 mm, AC 230 V, 3P	N4564	7-58

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
SKB32.51	Electrohydraulic actuator, 2800 N, 20 mm, AC 230 V, 3P, spring return	N4564	7-58
SKB60	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA	N4564	7-59
SKB62	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4564	7-59
SKB62U	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4564	7-59
SKB62UA	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4564	7-59
SKB82.50	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P	N4564	7-58
SKB82.50U	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P, UL	N4564	7-58
SKB82.51	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P, spring return	N4564	7-58
SKB82.51U	Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P, spring return, UL	N4564	7-58
SKC32.60	Electrohydraulic actuator, 2800 N, 40 mm, AC 230 V, 3P	N4566	7-60
SKC32.61	Electrohydraulic actuator, 2800 N, 40 mm, AC 230 V, 3P, spring return	N4566	7-60
SKC60	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA	N4566	7-61
SKC62	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4566	7-61
SKC62U	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4566	7-61
SKC62UA	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4566	7-61
SKC82.60	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P	N4566	7-60
SKC82.60U	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P, UL	N4566	7-60
SKC82.61	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P, spring return	N4566	7-60
SKC82.61U	Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P, spring return, UL	N4566	7-60
SKD32.21	Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P, spring return	N4561	7-56
SKD32.50	Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P	N4561	7-56
SKD32.51	Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P, spring return	N4561	7-56
SKD60	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10/V 4...20 mA	N4561	7-57
SKD60U	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10/V 4...20 mA, UL	N4561	7-57
SKD62	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4561	7-57
SKD62U	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4561	7-57
SKD62UA	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4561	7-57
SKD82.50	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P	N4561	7-56
SKD82.50U	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P, UL	N4561	7-56
SKD82.51	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P, spring return	N4561	7-56
SKD82.51U	Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P, spring return, UL	N4561	7-56
SQD35.00	Electromotoric actuators, > 400 N, 6.5 mm, AC 230 V, 3P	N4540	7-50
SQD65	Electromotoric actuators, > 400 N, 6.5 mm, AC 24 V, DC 0...10 V	N4540	7-50
SQD85.03	Electromotoric actuators, > 400 N, 6.5 mm, AC 24 V, 3P	N4540	7-50
SQK33.00	Electromotoric actuator, 5 Nm, 90°, AC 230 V, 3P	N4506	7-186
SQK34.00	Electromotoric actuator, 5 Nm, 90°, AC 230 V, 3P	N4508	7-186
SQK84.00	Electromotoric actuator, 5 Nm, 90°, AC 24 V, 3P	N4508	7-186
SQL321B1400	Electromotoric actuator, 2P, 1400 Nm	N4520	7-189
SQL321B150	Electromotoric actuator, 2P, 150 Nm	N4520	7-189
SQL321B25	Electromotoric actuator, 2P, 25 Nm	N4520	7-189
SQL321B2650	Electromotoric actuator, 2P, 2650 Nm	N4520	7-189
SQL321B270	Electromotoric actuator, 2P, 270 Nm	N4520	7-189
SQL321B50	Electromotoric actuator, 2P, 50 Nm	N4520	7-189
SQL321B570	Electromotoric actuator, 2P, 570 Nm	N4520	7-189
SQL35.00	Electromotoric actuator, 40 Nm, 90°, AC 230 V, 3P	N4505	7-186
SQL361B1400	Electromotoric actuator, DC 0...10 V, 1400 Nm	N4520	7-189
SQL361B150	Electromotoric actuator, DC 0...10 V, 150 Nm	N4520	7-189
SQL361B2650	Electromotoric actuator, DC 0...10 V, 2650 Nm	N4520	7-189
SQL361B270	Electromotoric actuator, DC 0...10 V, 270 Nm	N4520	7-189

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
SQL361B50	Electromotoric actuator, DC 0...10 V, 50 Nm	N4520	7-189
SQL361B570	Electromotoric actuator, DC 0...10 V, 570 Nm	N4520	7-189
SQL36E110	Electromotoric actuator 400 Nm, 90°, AC 230 V, 3P	N4505	7-188
SQL36E160	Electromotoric actuator, 1200 Nm, 90°, AC 230 V, 3P	N4505	7-188
SQL36E50F04	Electromotoric actuator, 40 Nm, 90°, AC 230 V, 3P, F04 connection	N4505	7-188
SQL36E50F05	Electromotoric actuator, 40 Nm, 90°, AC 230 V, 3P, F05 connection	N4505	7-188
SQL36E65	Electromotoric actuator 100 Nm, 90°, AC 230 V, 3P	N4505	7-188
SQL85.00	Electromotoric actuator, 20 Nm, 90°, AC 24 V, 3P	N4505	7-186
SQS35.00	Electromotoric actuator, 400 N, 5.5 mm, AC 230 V, 3P	N4573	7-49
SQS35.03	Electromotoric actuator, 400 N, 5.5 mm, AC 230 V, 3P	N4573	7-49
SQS35.50	Electromotoric actuator, 400 N, 5.5mm, AC 230 V, 3P, spring return	N4573	7-49
SQS35.53	Electromotoric actuator, 400 N, 5.5 mm, AC 230 V, 3P, spring return	N4573	7-49
SQS65	Electromotoric actuator, 400 N, 5.5 mm, AC 24 V, DC 0...10 V	N4573	7-49
SQS65.2	Electromotoric actuator, 400 N, 5.5 mm, AC 24 V, DC 2...10 V	N4573	7-49
SQS65.5	Electromotoric actuator, 400 N, 5.5 mm, AC 24 V, DC 0...10 V, spring return	N4573	7-49
SQS85.00	Electromotoric actuator, 400 N, 5.5 mm, AC 24 V, 3P	N4573	7-49
SQS85.03	Electromotoric actuator, 400 N, 5.5 mm, AC 24 V, 3P	N4573	7-49
SQV91P30	Electromotoric actuator, 1100 N, 20/40 mm, AC/DC 24 V, 3P / DC 0...10 V / DC 4...20 mA, spring return function, retracted, 120 s	N4833	7-54
SQV91P40	Electromotoric actuator, 1100 N, 20/40 mm, AC/DC 24 V, 3P / DC 0...10 V / DC 4...20 mA, spring return function, extended, 120 s	N4833	7-54
SSA31	Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 230 V, 3P	N4893	7-34
SSA31/00	Electromotoric actuator, 100 N, 2.5/5 mm, no cable, AC 230 V, 3P	N4893	7-34
SSA31.04	Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 230 V, 3P, SPDT	N4860	7-38
SSA31.1	Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 230 V, 3P, auxiliary switch	N4893	7-34
SSA61	Electromotoric actuator, 100 N, 2.5/5 mm, AC/DC 24 V, 1.5 m, DC 0...10 V	N4893	7-34
SSA61/00	Electromotoric actuator, 100 N, 2.5/5 mm, AC/DC 24 V, no cable, DC 0...10 V	N4893	7-34
SSA81	Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 24 V, 3P	N4893	7-34
SSA81/00	Electromotoric actuator, 100 N, 2.5/5 mm, no cable, AC 24 V, 3P	N4893	7-34
SSA81.1	Electromotoric actuator, 100 N, 2.5/5 mm, AC 24 V, no cable, 3P, auxiliary switch	N4893	7-34
SSA955	Radiator control actuator	N2700	4-11
SSB31	Electromotoric actuator, 200 N, 5.5 mm, AC 230 V, 1.5 m, 3P	N4891	7-43
SSB31/00	Electromotoric actuator, 200 N, 5.5 mm, AC 230 V, no cable, 3P	N4891	7-43
SSB31.1	Electromotoric actuator, 200 N, 5.5 mm, AC 230 V, 1.5 m, 3P, auxiliary switch	N4891	7-43
SSB61	Electromotoric actuator, 200 N, 5.5 mm, AC/DC 24 V, 1.5 m, DC 0...10 V	N4891	7-43
SSB61/00	Electromotoric actuator, 200 N, 5.5 mm, AC/DC 24 V, no cable, DC 0...10 V	N4891	7-43
SSB81	Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4891	7-43
SSB81/00	Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, no cable, 3P	N4891	7-43
SSB81.1	Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P, auxiliary switch	N4891	7-43
SSC31	Electromotoric actuator, 300 N, 5.5 mm, AC 230 V, 3P	N4895	7-48
SSC61	Electromotoric actuator, 300 N, 5.5 mm, AC/DC 24 V, DC 0...10 V	N4895	7-48
SSC61.5	Electromotoric actuator, 300 N, 5.5 mm, AC/DC 24 V, DC 0...10 V, fail-safe	N4895	7-48
SSC81	Electromotoric actuator, 300 N, 5.5 mm, AC 24 V, 3P	N4895	7-48
SSD31	Electromotoric actuator, 250 N, 5.5 mm, 1.5 m, AC 230 V, 3P	N4861	7-45
SSD31/00	Electromotoric actuator, 250 N, 5.5 mm, no cable, AC 230 V, 3P	N4861	7-45
SSD61	Electromotoric actuator, 250 N, 5.5 mm, 1.5 m, AC/DC 24 V, DC 0...10 V	N4861	7-45
SSD61/00	Electromotoric actuator, 250 N, 5.5 mm, no cable, AC/DC 24 V, DC 0...10 V	N4861	7-45
SSD61.2	Electromotoric actuators, 250 N, 5.5 mm, 1.5 m, AC/DC 24 V, DC 2...10 V	N4861	7-45
SSD61.2/00	Electromotoric actuators, 250 N, 5.5 mm, no cable, AC/DC 24 V, DC 2...10 V	N4861	7-45
SSD61EP	Electromotoric actuators, 250 N, 5.5 mm, 1.5 m, AC/DC 24 V, DC 0...10 V, equal-percentage characteristic	N4861	7-45
SSD61EP/00	Electromotoric actuators, 250 N, 5,5 mm, no cable, AC/DC 24 V, DC 0...10 V, equal-percentage characteristic	N4861	7-45
SSD81	Electromotoric actuator, 250 N, 5.5 mm, 1.5 m, AC 24 V, 3P	N4861	7-45
SSD81/00	Electromotoric actuator, 250 N, 5.5 mm, no cable, AC 24 V, 3P	N4861	7-45
SSP31	Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 230 V, 3P	N4864	7-39
SSP31/00	Electromotoric actuator, 160 N, 2.5 mm, no cable, AC 230 V, 1.5 m, 3P	N4864	7-40
SSP61	Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC/DC 24 V, DC 0...10 V	N4864	7-40

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
SSP61/00	Electromotoric actuator, 160 N, 2.5 mm, no cable, AC/DC 24 V, DC 0...10 V	N4864	7-40
SSP81	Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	7-40
SSP81/00	Electromotoric actuator, 160 N, 2.5 mm, no cable, AC 24 V, 3P	N4864	7-40
SSP81.04	Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	7-40
SSP81.04/00	Electromotoric actuator, 160 N, 2.5 mm, no cable, AC 24 V, 3P	N4864	7-40
SSY31	Electromotoric actuator, 250 N, 5.5 mm, AC 230 V, 1.5 m, 3P	N4894	7-47
SSY81	Electromotoric actuator, 250 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4894	7-47
STA21	Electrothermal actuator, 105 N, 1.2 m, AC 230 V, 2P	N4877	7-169
STA23	Electrothermal actuator, AC 230 V, NC, 2P, 1 m	N4884	7-28
STA23/00	Electrothermal actuator, AC 230 V, NC, 2P	N4884	7-28
STA23B/00	Electrothermal actuator, AC 230 V, NC, 2P, black	N4884	7-28
STA23HD	Electrothermal actuator, AC 230 V, HD, 2P, 0.8 m	N4884	7-28
STA23MP/00	Electrothermal actuator, AC 230 V, NC, 2P, MP	N4884	7-28
STA63	Electrothermal actuator, AC 24 V, NC, DC 0...10 V, 1 m	N4884	7-28
STA73	Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, 1 m	N4884	7-28
STA73/00	Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM	N4884	7-28
STA73B/00	Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, black	N4884	7-28
STA73HD	Electrothermal actuator, AC/DC 24 V, HD, 2P, 0.8 m	N4884	7-28
STA73MP/00	Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, MP	N4884	7-28
STA73PR/00	Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, PR	N4884	7-28
STP23	Electrothermal actuator, AC 230 V, NO, 2P, 1 m	N4884	7-31
STP23/00	Electrothermal actuator, AC 230 V, NO, 2P	N4884	7-31
STP23B/00	Electrothermal actuator, AC 230 V, NO, 2P, black	N4884	7-31
STP63	Electrothermal actuator, AC 24 V, NO, DC 0...10 V, 1 m	N4884	7-31
STP73	Electrothermal actuator, AC/DC 24 V, NO, 2P, 1 m	N4884	7-31
STP73/00	Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM	N4884	7-31
STP73B/00	Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, black	N4884	7-31
STP73PR/00	Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, PR	N4884	7-31
SUA21/1	Electromotoric actuator, 150 N, 1.5 m, AC 230 V, 2P	N4830	7-39
T23-1EPDM10	EPDM gaskets for mounting the flow measuring section 1"	N5372	10-19
T23-34EPDM10	EPDM gaskets for mounting the flow measuring section ¾"	N5372	10-19
T23-E1	Mounting kit, 2 coupling nuts G 1", 2 inserts R ¾", 2 EPDM packings	N5372	10-18
T23-E34	Mounting kit, 2 coupling nuts G ¾", 2 inserts R ½", 2 EPDM packings	N5372	10-18
T23-WA10	Wall adapter, incl. 2 screws and 2 dowels	N5372	10-19
TKM2	Thermal reset limit thermostat for air ducts, 20...110 °C; perforated protection pocket 200mm	N1291	5-58
TRG2	Room thermostat with helix sensor, TR -5..50 °C	N1329	5-64
TRG22	Room thermostat with helix sensor, TR -5..50 °C, 2 switches on 2 steps 2..12 K difference	N1329	5-64
UA1T	Power amplifier for thermal actuators AC 24 V, PWM	N3591	1-79
UH50-A05-00	Ultrasonic heat meter 0.6 m3/h, DS M10x1 mm, G 3/4"	N5324	10-23
UH50-A21-00	Ultrasonic heat meter 1.5 m3/h, DS M10x1 mm, G 3/4", 110 mm	N5324	10-23
UH50-A36-00	Ultrasonic heat meter 2.5 m3/h, DS M10x1 mm, G 1", 130 mm	N5324	10-23
UH50-A45-00	Ultrasonic heat meter 3.5 m3/h, DS M10x1 mm, G 11/4"	N5324	10-24
UH50-A50-00	Ultrasonic heat meter 6 m3/h, DS M10x1 mm, G 11/4"	N5324	10-24
UH50-A61-00	Ultrasonic heat meter 10 m3/h, Ø 6 mm L = 100 mm, DN40	N5324	10-24
UH50-A65-00	Ultrasonic heat meter 15 m3/h, Ø 6 mm L = 100 mm, DN50	N5324	10-24
UH50-A70-00	Ultrasonic heat meter 25 m3/h, Ø 6 mm L = 100 mm, DN65	N5324	10-24
UH50-A74-00	Ultrasonic heat meter 40 m3/h, Ø 6 mm L = 150 mm, DN80	N5324	10-25
UH50-A83-00	Ultrasonic heat meter 60 m3/h, Ø 6 mm L = 150 mm, DN100	N5324	10-25
UH50-C05-00	Ultrasonic heat and heating/cooling meter 0.6 m3/h, DS M10x1 mm, G 3/4"	N5324	10-23
UH50-C21-00	Ultrasonic heat and heating/cooling meter 1.5 m3/h, DS M10x1 mm, G 3/4"	N5324	10-23
UH50-C36-00	Ultrasonic heat and heating/cooling meter 2.5 m3/h, DS M10x1 mm, G 1"	N5324	10-23
UH50-C45-00	Ultrasonic heat and heating/cooling meter 3.5 m3/h, DS M10x1 mm, G 11/4"	N5324	10-24
UH50-C50-00	Ultrasonic heat and heating/cooling meter 6 m3/h, DS M10x1 mm, G 11/4"	N5324	10-24
UH50-C61-00	Ultrasonic heat and heating/cooling meter 10 m3/h, Ø 6 mm L = 100 mm, DN40	N5324	10-24
UH50-C65-00	Ultrasonic heat and heating/cooling meter 15 m3/h, Ø 6 mm L = 100 mm, DN50	N5324	10-24

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
UH50-C70-00	Ultrasonic heat and heating/cooling meter 25 m3/h, Ø 6 mm L = 100 mm, DN65	N5324	10-24
UH50-C74-00	Ultrasonic heat and heating/cooling meter 40 m3/h, Ø 6 mm L = 150 mm, DN80	N5324	10-25
UH50-C83-00	Ultrasonic heat and heating/cooling meter 60 m3/h, Ø 6 mm L = 150 mm, DN100	N5324	10-25
VAF51.100-160	2-port ball valve, flanged, PN25, DN100, kvs 160	N4120	7-190
VAF51.125-200	2-port ball valve, flanged, PN25, DN125, kvs 200	N4120	7-190
VAF51.150-360	2-port ball valve, flanged, PN25, DN150, kvs 360	N4120	7-190
VAF51.65-63	2-port ball valve, flanged, PN25, DN65, kvs 63	N4120	7-190
VAF51.80-100	2-port ball valve, flanged, PN25, DN80, kvs 100	N4120	7-190
VAI60.15-15	Open/close ball valve, 2-port, PN40, DN15, kvs 15	N4213	7-196
VAI60.20-22	Open/close ball valve, 2-port, PN40, DN20, kvs 22	N4213	7-196
VAI60.25-22	Open/close ball valve, 2-port, PN40, DN25, kvs 22	N4213	7-196
VAI60.32-35	Open/close ball valve, 2-port, PN40, DN32, kvs 35	N4213	7-196
VAI60.40-68	Open/close ball valve, 2-port, PN40, DN40, kvs 68	N4213	7-196
VAI60.50-96	Open/close ball valve, 2-port, PN40, DN50, kvs 96	N4213	7-196
VAI61.15-1	2-port ball valve, internal thread, PN40, DN15, kvs 1	N4211	7-191
VAI61.15-1.6	2-port ball valve, internal thread, PN40, DN15, kvs 1.6	N4211	7-191
VAI61.15-10	2-port ball valve, internal thread, PN40, DN15, kvs 10	N4211	7-191
VAI61.15-2.5	2-port ball valve, internal thread, PN40, DN15, kvs 2.5	N4211	7-191
VAI61.15-4	2-port ball valve, internal thread, PN40, DN15, kvs 4	N4211	7-191
VAI61.15-6.3	2-port ball valve, internal thread, PN40, DN15, kvs 6.3	N4211	7-191
VAI61.20-10	2-port ball valve, internal thread, PN40, DN20, kvs 10	N4211	7-191
VAI61.20-4	2-port ball valve, internal thread, PN40, DN20, kvs 4	N4211	7-191
VAI61.20-6.3	2-port ball valve, internal thread, PN40, DN20, kvs 6.3	N4211	7-191
VAI61.25-10	2-port ball valve, internal thread, PN40, DN25, kvs 10	N4211	7-191
VAI61.25-16	2-port ball valve, internal thread, PN40, DN25, kvs 16	N4211	7-191
VAI61.25-6.3	2-port ball valve, internal thread, PN40, DN25, kvs 6.3	N4211	7-191
VAI61.32-10	2-port ball valve, internal thread, PN40, DN32, kvs 10	N4211	7-191
VAI61.32-16	2-port ball valve, internal thread, PN40, DN32, kvs 16	N4211	7-191
VAI61.32-25	2-port ball valve, internal thread, PN40, DN32, kvs 25	N4211	7-191
VAI61.40-16	2-port ball valve, internal thread, PN40, DN40, kvs 16	N4211	7-191
VAI61.40-25	2-port ball valve, internal thread, PN40, DN40, kvs 25	N4211	7-191
VAI61.40-40	2-port ball valve, internal thread, PN40, DN40, kvs 40	N4211	7-191
VAI61.50-25	2-port ball valve, internal thread, PN40, DN50, kvs 25	N4211	7-191
VAI61.50-40	2-port ball valve, internal thread, PN40, DN50, kvs 40	N4211	7-191
VAI61.50-63	2-port ball valve, internal thread, PN40, DN50, kvs 63	N4211	7-191
VBF21.100	3-port slipper valve, flanged, PN6, DN100, kvs 160	N4241	7-200
VBF21.125	3-port slipper valve, flanged, PN6, DN125, kvs 550	N4241	7-200
VBF21.150	3-port slipper valve, flanged, PN6, DN150, kvs 820	N4241	7-200
VBF21.40	3-port slipper valve, flanged, PN6, DN40, kvs 25	N4241	7-200
VBF21.50	3-port slipper valve, flanged, PN6, DN50, kvs 40	N4241	7-200
VBF21.65	3-port slipper valve, flanged, PN6, DN65, kvs 63	N4241	7-200
VBF21.80	3-port slipper valve, flanged, PN6, DN80, kvs 100	N4241	7-200
VBG31.20	3-port slipper valve, external thread, PN10, DN20, kvs 6.3	N4233	7-202
VBG31.25	3-port slipper valve, external thread, PN10, DN25, kvs 10	N4233	7-202
VBG31.32	3-port slipper valve, external thread, PN10, DN32, kvs 16	N4233	7-202
VBG31.40	3-port slipper valve, external thread, PN10, DN40, kvs 25	N4233	7-202
VBI31.20	3-port slipper valve, internal thread, PN10, DN20, kvs 6.3	N4232	7-203
VBI31.25	3-port slipper valve, internal thread, PN10, DN25, kvs 10	N4232	7-203
VBI31.32	3-port slipper valve, internal thread, PN10, DN32, kvs 16	N4232	7-203
VBI31.40	3-port slipper valve, internal thread, PN10, DN40, kvs 25	N4232	7-203
VBI60.15-12T	Changeover ball valve, 3-port, PN40, DN15, kvs 12	N4213	7-198
VBI60.15-5L	Changeover ball valve, 3-port, PN40, DN15, kvs 5	N4213	7-198
VBI60.20-16T	Changeover ball valve, 3-port, PN40, DN20, kvs 16	N4213	7-198
VBI60.20-9L	Changeover ball valve, 3-port, PN40, DN20, kvs 9	N4213	7-198
VBI60.25-16T	Changeover ball valve, 3-port, PN40, DN25, kvs 16	N4213	7-198
VBI60.25-9L	Changeover ball valve, 3-port, PN40, DN25, kvs 9	N4213	7-198
VBI60.32-13L	Changeover ball valve, 3-port, PN40, DN32, kvs 13	N4213	7-198

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VBI60.32-25T	Changeover ball valve, 3-port, PN40, DN32, kvs 25	N4213	7-198
VBI60.40-25L	Changeover ball valve, 3-port, PN40, DN40, kvs 25	N4213	7-198
VBI60.40-49T	Changeover ball valve, 3-port, PN40, DN40, kvs 49	N4213	7-198
VBI60.50-37L	Changeover ball valve, 3-port, PN40, DN50, kvs 37	N4213	7-198
VBI60.50-73T	Changeover ball valve, 3-port, PN40, DN50, kvs 73	N4213	7-198
VBI61.15-1.6	3-port ball valve, internal thread, PN40, DN15, kvs 1	N4211	7-194
VBI61.15-2.5	3-port ball valve, internal thread, PN40, DN15, kvs 2.5	N4211	7-194
VBI61.15-4	3-port ball valve, internal thread, PN40, DN15, kvs 4	N4211	7-194
VBI61.15-6.3	3-port ball valve, internal thread, PN40, DN15, kvs 6.3	N4211	7-194
VBI61.20-4	3-port ball valve, internal thread, PN40, DN20, kvs 4	N4211	7-194
VBI61.20-6.3	3-port ball valve, internal thread, PN40, DN20, kvs 6.3	N4211	7-194
VBI61.25-10	3-port ball valve, internal thread, PN40, DN25, kvs 10	N4211	7-194
VBI61.32-16	3-port ball valve, internal thread, PN40, DN32, kvs 16	N4211	7-194
VBI61.40-25	3-port ball valve, internal thread, PN40, DN40, kvs 25	N4211	7-194
VBI61.50-40	3-port ball valve, internal thread, PN40, DN50, kvs 40	N4211	7-194
VBI61.50-63	3-port ball valve, internal thread, PN40, DN50, kvs 63	N4211	7-194
VCI31.20	4-port slipper valve, internal thread, PN10, DN20, kvs 6.3	N4252	7-204
VCI31.25	4-port slipper valve, internal thread, PN10, DN25, kvs 10	N4252	7-204
VCI31.32	4-port slipper valve, internal thread, PN10, DN32, kvs 16	N4252	7-204
VCI31.40	4-port slipper valve, internal thread, PN10, DN40, kvs 25	N4252	7-204
VD115CLC	2-port small valve, DIN, DN15, kv 0.25...1.9	N2103	7-99
VD120CLC	2-port small valve, DIN, DN20, kv 0.25...2.6	N2103	7-99
VD125CLC	2-port small valve, DIN, DN25, kv 0.25...2.6	N2103	7-99
VDN110	2-port radiator valve, DIN, 2-pipe system, PN10, DN10, kvs 0.09...0.63	N2105	7-93
VDN115	2-port radiator valve, DIN, 2-pipe system, PN10, DN15, kvs 0.10...0.89	N2105	7-93
VDN120	2-port radiator valve, DIN, 2-pipe system, PN10, DN20, kvs 0.31...1.41	N2105	7-93
VDN210	2-port radiator valve, NF, 2-pipe system, PN10, DN10, kvs 0.09...0.63	N2106	7-95
VDN215	2-port radiator valve, NF, 2-pipe system, PN10, DN15, kvs 0.10...0.89	N2106	7-95
VDN220	2-port radiator valve, NF, 2-pipe system, PN10, DN20, kvs 0.31...1.41	N2106	7-95
VEN110	Angle radiator valve, DIN, 2-pipe system, PN10, DN10, kv 0.09...0.63	N2106	7-93
VEN115	Angle radiator valve, DIN, 2-pipe system, PN10, DN15, kv 0.10...0.89	N2106	7-93
VEN120	Angle radiator valve, DIN, 2-pipe system, PN10, DN20, kv 0.31...1.41	N2106	7-93
VEN210	Angle radiator valve, NF, 2-pipe system, PN10, DN10, kvs 0.09...0.63	N2106	7-95
VEN215	Angle radiator valve, NF, 2-pipe system, PN10, DN15, kvs 0.10...0.89	N2106	7-95
VEN220	Angle radiator valve, NF, 2-pipe system, PN10, DN20, kvs 0.31...1.41	N2106	7-95
VKF41.100	Butterfly valve, flange, PN6/10/16, DN100, kvs 760	N4131	7-205
VKF41.125	Butterfly valve, flange, PN6/10/16, DN125, kvs 1000	N4131	7-205
VKF41.150	Butterfly valve, flange, PN6/10/16, DN150, kvs 2100	N4131	7-205
VKF41.200	Butterfly valve, flange, PN6/10/16, DN200, kvs 4000	N4131	7-205
VKF41.40	Butterfly valve, flange, PN6/10/16, DN40, kvs 50	N4131	7-205
VKF41.50	Butterfly valve, flange, PN6/10/16, DN50, kvs 80	N4131	7-205
VKF41.65	Butterfly valve, flange, PN6/10/16, DN65, kvs 200	N4131	7-205
VKF41.80	Butterfly valve, flange, PN6/10/16, DN80, kvs 400	N4131	7-205
VKF42.100	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.125	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.150	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.200	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.250	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.300	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.350	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.400	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.450	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.50	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.500	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.600	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.65	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207
VKF42.80	Butterfly valves PN16 for flanged connections, with tight shutoff	N4119	7-207

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VKF46.100	Butterfly valve, flange, PN6/10/16, DN100, kvs 800, tight shutoff	N4136	7-209
VKF46.125	Butterfly valve, flange, PN6/10/16, DN125, kvs 1010, tight shutoff	N4136	7-209
VKF46.150	Butterfly valve, flange, PN6/10/16, DN150, kvs 2100, tight shutoff	N4136	7-209
VKF46.200	Butterfly valve, flange, PN6/10/16, DN200, kvs 4000, tight shutoff	N4136	7-209
VKF46.250	Butterfly valve, flange, PN6/10/16, DN250, kvs 6400, tight shutoff	N4136	7-209
VKF46.300	Butterfly valve, flange, PN6/10/16, DN300, kvs 8500, tight shutoff	N4136	7-209
VKF46.350	Butterfly valve, flange, PN6/10/16, DN350, kvs 11500, tight shutoff	N4136	7-209
VKF46.40	Butterfly valve, flange, PN6/10/16, DN40, kvs 50, tight shutoff	N4136	7-209
VKF46.400	Butterfly valve, flange, PN6/10/16, DN400, kvs 14500, tight shutoff	N4136	7-209
VKF46.400TS	Butterfly valve, flange, PN6/10/16, DN400, kvs 14500, tight shutoff	N4136	7-209
VKF46.450	Butterfly valve, flange, PN6/10/16, DN450, kvs 20500, tight shutoff	N4136	7-209
VKF46.50	Butterfly valve, flange, PN6/10/16, DN50, kvs 85, tight shutoff	N4136	7-209
VKF46.500	Butterfly valve, flange, PN6/10/16, DN500, kvs 21000, tight shutoff	N4136	7-209
VKF46.600	Butterfly valve, flange, PN6/10/16, DN600, kvs 29300, tight shutoff	N4136	7-209
VKF46.65	Butterfly valve, flange, PN6/10/16, DN65, kvs 215, tight shutoff	N4136	7-209
VKF46.80	Butterfly valve, flange, PN6/10/16, DN80, kvs 420, tight shutoff	N4136	7-207
VMP45.10-0.25	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.25	N4845	7-142
VMP45.10-0.4	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.4	N4845	7-142
VMP45.10-0.63	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.63	N4845	7-142
VMP45.10-0.63S	3-port seat valve with bypass, external thread for Conex®, PN16, DN10, kvs 0.63	N4854	7-142
VMP45.10-1	3-port seat valve with bypass, external thread, PN16, DN10, kvs 1	N4845	7-142
VMP45.10-1.6	3-port seat valve with bypass, external thread, PN16, DN10, kvs 1.6	N4845	7-142
VMP45.10-1.6S	3-port seat valve with bypass, external thread for Conex®, PN16, DN10, kvs 1.6	N4854	7-142
VMP45.10-1S	3-port seat valve with bypass, external thread for Conex®, PN16, DN10, kvs 1	N4854	7-142
VMP45.15-2.5	3-port seat valve with bypass, external thread, PN16, DN15, kvs 2.5	N4845	7-142
VMP45.15-2.5S	3-port seat valve with bypass, external thread for Conex®, PN16, DN15, kvs 2.5	N4854	7-142
VMP45.20-4	3-port seat valve with bypass, external thread, PN16, DN20, kvs 4	N4845	7-142
VMP47.10-0.25	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.25	N4847	7-146
VMP47.10-0.4	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.4	N4847	7-146
VMP47.10-0.63	3-port seat valve with bypass, external thread, PN16, DN10, kvs 0.63	N4847	7-146
VMP47.10-0.63S	3-port seat valves with T-bypass, external thread, PN16, DN10, kvs 0.63	N4847	7-146
VMP47.10-1	3-port seat valve with bypass, external thread, PN16, DN10, kvs 1	N4847	7-146
VMP47.10-1.6	3-port seat valve with bypass, external thread, PN16, DN10, kvs 1.6	N4847	7-146
VMP47.10-1.6S	3-port seat valves with T-bypass, external thread, PN16, DN10, kvs 1.6	N4847	7-146
VMP47.10-1S	3-port seat valves with T-bypass, external thread, PN16, DN10, kvs 1	N4847	7-146
VMP47.15-2.5	3-port seat valve with bypass, external thread, PN16, DN15, kvs 2.5	N4847	7-146
VMP47.15-2.5S	3-port seat valves with bypass, external thread, PN16, DN15, kvs 2.5	N4847	7-146
VPD110A-145	2-port seat radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN10, 86...318 l/h	N2185	7-168
VPD110A-45	2-port seat radiator valve, DIN, pressure compensated, dpw 5 kPa, PN10, DN10, 25...104 l/h	N2185	7-168
VPD110A-90	2-port seat radiator valve, DIN, pressure compensated, dpw 5 kPa, PN10, DN10, 57...185 l/h	N2185	7-168
VPD110B-200	2-port seat radiator valve, DIN, pressure compensated, dpw 10 kPa, PN10, DN10, 95...483 l/h	N2185	7-168
VPD115A-145	2-port seat radiator valve, DIN, pressure compensated, dpw 5 kPa, PN10, DN15, 86...318 l/h	N2185	7-168
VPD115A-45	2-port seat radiator valve, DIN, pressure compensated, dpw 5 kPa, PN10, DN15, 25...104 l/h	N2185	7-168
VPD115A-90	2-port seat radiator valve, DIN, pressure compensated, dpw 5 kPa, PN10, DN15, 57...185 l/h	N2185	7-168
VPD115B-200	2-port seat radiator valve, DIN, pressure compensated, dpw 10 kPa, PN10, DN15, 95...483 l/h	N2185	7-168
VPE110A-145	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN10, 86....318 l/h	N2185	7-168
VPE110A-45	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN10, 25....104 l/h	N2185	7-168
VPE110A-90	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN10, 57....185 l/h	N2185	7-168
VPE110B-200	Angle radiator valve, DIN, pressure-compensated, dpw 10 kPa, PN10, DN10, 95....483 l/h	N2185	7-168

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VPE115A-145	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN15, 86....318 l/h	N2185	7-168
VPE115A-45	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN15, 25....104 l/h	N2185	7-168
VPE115A-90	Angle radiator valve, DIN, pressure-compensated, dpw 5 kPa, PN10, DN15, 57....185 l/h	N2185	7-168
VPE115B-200	Angle radiator valve, DIN, pressure-compensated, dpw 10 kPa, PN10, DN15, 95....483 l/h	N2185	7-168
VPF43.50F16	Combi valve, flanged, PN16, DN50, 3.2...16 m3/h	N4315	7-164
VPF43.50F25	Combi valve, flanged, PN16, DN50, 5...25 m3/h	N4315	7-164
VPF43.65F24	Combi valve, flanged, PN16, DN65, 5...24 m3/h	N4315	7-164
VPF43.65F35	Combi valve, flanged, PN16, DN65, 7...35 m3/h	N4315	7-164
VPF43.80F35	Combi valve, flanged, PN16, DN80, 7...35 m3/h	N4315	7-164
VPF43.80F45	Combi valve, flanged, PN16, DN80, 9...45 m3/h	N4315	7-164
VPF53.50F16	Combi valve, flanged, PN25, DN50, 3.2...16 m3/h	N4316	7-166
VPF53.50F25	Combi valve, flanged, PN25, DN50, 5...25 m3/h	N4316	7-166
VPF53.65F24	Combi valve, flanged, PN25, DN65, 5...24 m3/h	N4316	7-166
VPF53.65F35	Combi valve, flanged, PN25, DN65, 7...35 m3/h	N4316	7-166
VPF53.80F35	Combi valve, flanged, PN25, DN80, 7...35 m3/h	N4316	7-166
VPF53.80F45	Combi valve, flanged, PN25, DN80, 9...45 m3/h	N4316	7-166
VPI45.15F0.5	Combi valves, PN25, DN15, 90...620 l/h	N4853	7-174
VPI45.15F0.5Q	Combi valves, PN25, DN15, 90...620 l/h, pressure test points	N4853	7-174
VPI45.15F1.5	Combi valves, PN25, DN15, 290...1730 l/h	N4853	7-174
VPI45.15F1.5Q	Combi valves, PN25, DN15, 290...1730 l/h, pressure test points	N4853	7-174
VPI45.20F0.9	Combi valves, PN25, DN20, 160...1050 l/h	N4853	7-174
VPI45.20F0.9Q	Combi valves, PN25, DN20, 160...1050 l/h, pressure test points	N4853	7-174
VPI45.20F2	Combi valves, PN25, DN20, 350...2040 l/h	N4853	7-174
VPI45.20F2Q	Combi valves, PN25, DN20, 350...2040 l/h, pressure test points	N4853	7-174
VPI45.25F1.5	Combi valves, PN25, DN25, 280...1720 l/h	N4853	7-174
VPI45.25F1.5Q	Combi valves, PN25, DN25, 280...1720 l/h, pressure test points	N4853	7-174
VPI45.25F2	Combi valves, PN25, DN25, 350...2040 l/h	N4853	7-174
VPI45.25F2Q	Combi valves, PN25, DN25, 350...2040 l/h, pressure test points	N4853	7-174
VPI45.32F3	Combi valves, PN25, DN32, 560...3050 l/h	N4853	7-174
VPI45.32F3Q	Combi valves, PN25, DN32, 560...3050 l/h, pressure test points	N4853	7-174
VPI45.40F7	Combi valves, PN25, DN40, 2355...7105 l/h	N4853	7-174
VPI45.40F7Q	Combi valves, PN25, DN40, 2355...7105 l/h, pressure test points	N4853	7-174
VPI45.50F8.5	Combi valves, PN25, DN50, 2664...8586 l/h	N4853	7-174
VPI45.50F8.5Q	Combi valves, PN25, DN50, 2664...8586 l/h, pressure test points	N4853	7-174
VPI46.15L0.2	Combi valve, internally threaded, PN25, DN15, 80...240 l/h	N4855	7-172
VPI46.15L0.2Q	Combi valve, internally threaded, PN25, DN15, 80...240 l/h, pressure test points	N4855	7-172
VPI46.15L0.6	Combi valve, internally threaded, PN25, DN15, 80...650 l/h	N4855	7-172
VPI46.15L0.6Q	Combi valve, internally threaded, PN25, DN15, 80...650 l/h, pressure test points	N4855	7-172
VPI46.20F1.4	Combi valve, internally threaded, PN25, DN20, 125...1450 l/h	N4855	7-172
VPI46.20F1.4Q	Combi valve, internally threaded, PN25, DN20, 125...1450 l/h, pressure test points	N4855	7-172
VPP46.10L0.2	Combi valve, externally threaded, PN25, DN10, 80...240 l/h	N4855	7-171
VPP46.10L0.2Q	Combi valve, externally threaded, PN25, DN10, 80...240 l/h, pressure test points	N4855	7-171
VPP46.15L0.2	Combi valve, externally threaded, PN25, DN15, 80...240 l/h	N4855	7-171
VPP46.15L0.2Q	Combi valve, externally threaded, PN25, DN15, 80...240 l/h, pressure test points	N4855	7-171
VPP46.15L0.6	Combi valve, externally threaded, PN25, DN15, 90...650 l/h	N4855	7-171
VPP46.15L0.6Q	Combi valve, externally threaded, PN25, DN15, 90...650 l/h, pressure test points	N4855	7-171
VPP46.20F1.4	Combi valve, externally threaded, PN25, DN20, 125...1450 l/h	N4855	7-171
VPP46.20F1.4Q	Combi valve, externally threaded, PN25, DN20, 125...1450 l/h, pressure test points	N4855	7-171
VUN210	Reverse angle radiator valve, NF, 2-pipe system, PN10, DN10, kvs 0.14...0.60	N2106	7-95
VUN215	Reverse angle radiator valve, NF, 2-pipe system, PN10, DN15, kvs 0.13...0.77	N2106	7-95
VVF21.100-160	2-port seat valve, flanged, PN6, DN100, kvs 160	N4310	7-63
VVF21.22	2-port seat valve, flanged, PN6, DN25, kvs 1.9	N4310	7-63
VVF21.23	2-port seat valve, flanged, PN6, DN25, kvs 3	N4310	7-63
VVF21.24	2-port seat valve, flanged, PN6, DN25, kvs 5	N4310	7-63
VVF21.25	2-port seat valve, flanged, PN6, DN25, kvs 7.5	N4310	7-63
VVF21.25-10	2-port seat valve, flanged, PN6, DN25, kvs 10	N4310	7-63

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VVF21.25-2.5	2-port seat valve, flanged, PN6, DN25, kvs 2.5	N4310	7-63
VVF21.25-4	2-port seat valve, flanged, PN6, DN25, kvs 4	N4310	7-63
VVF21.25-6.3	2-port seat valve, flanged, PN6, DN25, kvs 6.3	N4310	7-63
VVF21.39	2-port seat valve, flanged, PN6, DN40, kvs 12	N4310	7-63
VVF21.40	2-port seat valve, flanged, PN6, DN40, kvs 19	N4310	7-63
VVF21.40-16	2-port seat valve, flanged, PN6, DN40, kvs 16	N4310	7-63
VVF21.40-25	2-port seat valve, flanged, PN6, DN40, kvs 25	N4310	7-63
VVF21.50	2-port seat valve, flanged, PN6, DN50, kvs 31	N4310	7-63
VVF21.50-40	2-port seat valve, flanged, PN6, DN50, kvs 40	N4310	7-63
VVF21.65	2-port seat valve, flanged, PN6, DN65, kvs 49	N4310	7-63
VVF21.65-63	2-port seat valve, flanged, PN6, DN65, kvs 63	N4310	7-63
VVF21.80	2-port seat valve, flanged, PN6, DN80, kvs 78	N4310	7-63
VVF21.80-100	2-port seat valve, flanged, PN6, DN80, kvs 100	N4310	7-63
VVF21.90	2-port seat valve, flanged, PN6, DN100, kvs 124	N4310	7-63
VVF31.100-160	2-port seat valve, flanged, PN10, DN100, kvs 160	N4320	7-65
VVF31.125-250	2-port seat valve, flanged, PN10, DN125, kvs 250	N4320	7-65
VVF31.15-2.5	2-port seat valve, flanged, PN10, DN15 kvs 2.5	N4320	7-65
VVF31.15-4	2-port seat valve, flanged, PN10, DN15, kvs 4	N4320	7-65
VVF31.150-315	2-port seat valve, flanged, PN10, DN150, kvs 315	N4320	7-65
VVF31.24	2-port seat valve, flanged, PN10, DN25, kvs 5	N4320	7-65
VVF31.25	2-port seat valve, flanged, PN10, DN25, kvs 7.5	N4320	7-65
VVF31.25-10	2-port seat valve, flanged, PN10, DN25, kvs 10	N4320	7-65
VVF31.25-6.3	2-port seat valve, flanged, PN10, DN25, kvs 6.3	N4320	7-65
VVF31.39	2-port seat valve, flanged, PN10, DN40, kvs 12	N4320	7-65
VVF31.40	2-port seat valve, flanged, PN10, DN40, kvs 19	N4320	7-65
VVF31.40-16	2-port seat valve, flanged, PN10, DN40, kvs 16	N4320	7-65
VVF31.40-25	2-port seat valve, flanged, PN10, DN40, kvs 25	N4320	7-65
VVF31.50	2-port seat valve, flanged, PN10, DN50, kvs 31	N4320	7-65
VVF31.50-40	2-port seat valve, flanged, PN10, DN50, kvs 40	N4320	7-65
VVF31.65	2-port seat valve, flanged, PN10, DN65, kvs 49	N4320	7-65
VVF31.65-63	2-port seat valve, flanged, PN10, DN65, kvs 63	N4320	7-65
VVF31.80	2-port seat valve, flanged, PN10, DN80, kvs 78	N4320	7-65
VVF31.80-100	2-port seat valve, flanged, PN10, DN80, kvs 100	N4320	7-65
VVF31.90	2-port seat valve, flanged, PN10, DN100, kvs 124	N4320	7-65
VVF31.91	2-port seat valve, flanged, PN10, DN125, kvs 200	N4320	7-65
VVF31.92	2-port seat valve, flanged, PN10, DN150, kvs 300	N4320	7-65
VVF40.100-124	2-port seat valve, flanged, PN16, DN100, kvs 124	N4330	7-68
VVF40.100-160	2-port seat valve, flanged, PN16, DN100, kvs 160	N4330	7-69
VVF40.125-200	2-port seat valve, flanged, PN16, DN125, kvs 200	N4330	7-69
VVF40.125-250	2-port seat valve, flanged, PN16, DN125, kvs 250	N4330	7-69
VVF40.15-1.9	2-port seat valve, flanged, PN16, DN15, kvs 1.9	N4330	7-68
VVF40.15-2.5	2-port seat valve, flanged, PN16, DN15, kvs 2.5	N4330	7-68
VVF40.15-3	2-port seat valve, flanged, PN16, DN15, kvs 3	N4330	7-68
VVF40.15-4	2-port seat valve, flanged, PN16, DN15, kvs 4	N4330	7-68
VVF40.150-300	2-port seat valve, flanged, PN16, DN150, kvs 300	N4330	7-69
VVF40.150-315	2-port seat valve, flanged, PN16, DN150, kvs 315	N4330	7-69
VVF40.25-10	2-port seat valve, flanged, PN16, DN25, kvs 10	N4330	7-68
VVF40.25-5	2-port seat valve, flanged, PN16, DN25, kvs 5	N4330	7-68
VVF40.25-6.3	2-port seat valve, flanged, PN16, DN25, kvs 6.3	N4330	7-68
VVF40.25-7.5	2-port seat valve, flanged, PN16, DN25, kvs 7.5	N4330	7-68
VVF40.40-12	2-port seat valve, flanged, PN16, DN40, kvs 12	N4330	7-68
VVF40.40-16	2-port seat valve, flanged, PN16, DN40, kvs 16	N4330	7-68
VVF40.40-19	2-port seat valve, flanged, PN16, DN40, kvs 19	N4330	7-68
VVF40.40-25	2-port seat valve, flanged, PN16, DN40, kvs 25	N4330	7-68
VVF40.50-31	2-port seat valve, flanged, PN16, DN50, kvs 31	N4330	7-68
VVF40.50-40	2-port seat valve, flanged, PN16, DN50, kvs 40	N4330	7-68
VVF40.65-49	2-port seat valve, flanged, PN16, DN65, kvs 49	N4330	7-69

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VVF40.65-63	2-port seat valve, flanged, PN16, DN65, kvs 63	N4330	7-69
VVF40.80-100	2-port seat valve, flanged, PN16, DN80, kvs 100	N4330	7-69
VVF40.80-78	2-port seat valve, flanged, PN16, DN80, kvs 78	N4330	7-69
VVF43.100-125	2-port seat valve, flanged, PN16, DN100, kvs 125	N4404	7-71
VVF43.100-160	2-port seat valve, flanged, PN16, DN100, kvs 160	N4404	7-71
VVF43.100-160K	2-port seat valve, flanged, PN16, DN100, kvs 160, pressure compensated	N4404	7-72
VVF43.125-200	2-port seat valve, flanged, PN16, DN125, kvs 200	N4404	7-71
VVF43.125-250	2-port seat valve, flanged, PN16, DN125, kvs 250	N4404	7-71
VVF43.125-250K	2-port seat valve, flanged, PN16, DN125, kvs 250, pressure compensated	N4404	7-72
VVF43.150-315	2-port seat valve, flanged, PN16, DN150, kvs 315	N4404	7-71
VVF43.150-360K	2-port seat valve, flanged, PN16, DN150, kvs 360, pressure compensated	N4404	7-72
VVF43.150-400	2-port seat valve, flanged, PN16, DN150, kvs 400	N4404	7-71
VVF43.65-50	2-port seat valve, flanged, PN16, DN65, kvs 50	N4404	7-71
VVF43.65-63	2-port seat valve, flanged, PN16, DN65, kvs 63	N4404	7-71
VVF43.65-63K	2-port seat valve, flanged, PN16, DN65, kvs 63, pressure compensated	N4404	7-72
VVF43.80-100	2-port seat valve, flanged, PN16, DN80, kvs 100	N4404	7-71
VVF43.80-100K	2-port seat valve, flanged, PN16, DN80, kvs 100, pressure compensated	N4404	7-72
VVF43.80-80	2-port seat valve, flanged, PN16, DN80, kvs 80	N4404	7-71
VVF47.100	2-port seat valve VVF47.100, DN100, kvs 160	N4419	7-73
VVF47.125	2-port seat valve VVF47.125, DN125, kvs 250	N4419	7-73
VVF47.150	2-port seat valve VVF47.150, DN150, kvs 315	N4419	7-73
VVF47.50	2-port seat valve VVF47.50, DN50, kvs 40	N4419	7-73
VVF47.65	2-port seat valve VVF47.65, DN65, kvs 63	N4419	7-73
VVF47.80	2-port seat valve VVF47.80, DN80, kvs 100	N4419	7-73
VVF53.100-160	2-port seat valve, flanged, PN25, DN100, kvs 160	N4405	7-75
VVF53.100-160K	2-port seat valve, flanged, PN25, DN100, kvs 160, pressure compensated	N4405	7-75
VVF53.125-250	2-port seat valve, flanged, PN25, DN125, kvs 250	N4405	7-75
VVF53.125-250K	2-port seat valve, flanged, PN25, DN125, kvs 250, pressure compensated	N4405	7-75
VVF53.15-0.16	2-port seat valve, flanged, PN25, DN15, kvs 0.16	N4405	7-74
VVF53.15-0.2	2-port seat valve, flanged, PN25, DN15, kvs 0.2	N4405	7-74
VVF53.15-0.25	2-port seat valve, flanged, PN25, DN15, kvs 0.25	N4405	7-74
VVF53.15-0.32	2-port seat valve, flanged, PN25, DN15, kvs 0.32	N4405	7-74
VVF53.15-0.4	2-port seat valve, flanged, PN25, DN15, kvs 0.4	N4405	7-74
VVF53.15-0.5	2-port seat valve, flanged, PN25, DN15, kvs 0.5	N4405	7-74
VVF53.15-0.63	2-port seat valve, flanged, PN25, DN15, kvs 0.63	N4405	7-74
VVF53.15-0.8	2-port seat valve, flanged, PN25, DN15, kvs 0.8	N4405	7-74
VVF53.15-1	2-port seat valve, flanged, PN25, DN15, kvs 1	N4405	7-74
VVF53.15-1.25	2-port seat valve, flanged, PN25, DN15, kvs 1.25	N4405	7-74
VVF53.15-1.6	2-port seat valve, flanged, PN25, DN15, kvs 1.6	N4405	7-74
VVF53.15-2	2-port seat valve, flanged, PN25, DN15, kvs 2	N4405	7-74
VVF53.15-2.5	2-port seat valve, flanged, PN25, DN15, kvs 2.5	N4405	7-74
VVF53.15-3.2	2-port seat valve, flanged, PN25, DN15, kvs 3.2	N4405	7-74
VVF53.15-4	2-port seat valve, flanged, PN25, DN15, kvs 4	N4405	7-74
VVF53.150-360K	2-port seat valve, flanged, PN25, DN150, kvs 360, pressure compensated	N4405	7-75
VVF53.150-400	2-port seat valve, flanged, PN25, DN150, kvs 360	N4405	7-75
VVF53.20-6.3	2-port seat valve, flanged, PN25, DN20, kvs 6.3	N4405	7-74
VVF53.25-10	2-port seat valve, flanged, PN25, DN25, kvs 10	N4405	7-74
VVF53.25-5	2-port seat valve, flanged, PN25, DN25, kvs 5	N4405	7-74
VVF53.25-6.3	2-port seat valve, flanged, PN25, DN25, kvs 6.3	N4405	7-74
VVF53.25-8	2-port seat valve, flanged, PN25, DN25, kvs 8	N4405	7-74
VVF53.32-16	2-port seat valve, flanged, PN25, DN32, kvs 16	N4405	7-75
VVF53.40-12.5	2-port seat valve, flanged, PN25, DN40, kvs 12.5	N4405	7-75
VVF53.40-16	2-port seat valve, flanged, PN25, DN40, kvs 16	N4405	7-75
VVF53.40-20	2-port seat valve, flanged, PN25, DN40, kvs 20	N4405	7-75
VVF53.40-25	2-port seat valve, flanged, PN25, DN40, kvs 25	N4405	7-75
VVF53.50-31.5	2-port seat valve, flanged, PN25, DN50, kvs 31.5	N4405	7-75
VVF53.50-40	2-port seat valve, flanged, PN25, DN50, kvs 40	N4405	7-75

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VVF53.50-40K	2-port seat valve, flanged, PN25, DN50, kvs 40, pressure compensated	N4405	7-75
VVF53.65-63	2-port seat valve, flanged, PN25, DN65, kvs 63	N4405	7-74
VVF53.65-63K	2-port seat valve, flanged, PN25, DN65, kvs 63, pressure compensated	N4405	7-75
VVF53.80-100	2-port seat valve, flanged, PN25, DN80, kvs 100	N4405	7-75
VVF53.80-100K	2-port seat valve, flanged, PN25, DN80, kvs 100, pressure compensated	N4405	7-75
VVF61.09	2-port seat valve, flanged, PN40, DN15, kvs 0.19	N4382	7-78
VVF61.10	2-port seat valve, flanged, PN40, DN15, kvs 0.3	N4382	7-78
VVF61.11	2-port seat valve, flanged, PN40, DN15, kvs 0.45	N4382	7-78
VVF61.12	2-port seat valve, flanged, PN40, DN15, kvs 0.7	N4382	7-78
VVF61.13	2-port seat valve, flanged, PN40, DN15, kvs 1.2	N4382	7-78
VVF61.14	2-port seat valve, flanged, PN40, DN15, kvs 1.9	N4382	7-78
VVF61.15	2-port seat valve, flanged, PN40, DN15, kvs 3	N4382	7-78
VVF61.23	2-port seat valve, flanged, PN40, DN25, kvs 3	N4382	7-78
VVF61.24	2-port seat valve, flanged, PN40, DN25, kvs 5	N4382	7-78
VVF61.25	2-port seat valve, flanged, PN40, DN25, kvs 7.5	N4382	7-78
VVF61.39	2-port seat valve, flanged, PN40, DN40, kvs 12	N4382	7-78
VVF61.40	2-port seat valve, flanged, PN40, DN40, kvs 19	N4382	7-78
VVF61.49	2-port seat valve, flanged, PN40, DN50, kvs 19	N4382	7-78
VVF61.50	2-port seat valve, flanged, PN40, DN50, kvs 31	N4382	7-78
VVF61.65	2-port seat valve, flanged, PN40, DN65, kvs 49	N4382	7-78
VVF61.80	2-port seat valve, flanged, PN40, DN80, kvs 78	N4382	7-78
VVF61.90	2-port seat valve, flanged, PN40, DN100, kvs 124	N4382	7-78
VVF61.91	2-port seat valve, flanged, PN40, DN125, kvs 200	N4382	7-78
VVF61.92	2-port seat valve, flanged, PN40, DN150, kvs 300	N4382	7-78
VVG41.11	2-port seat valve, external thread, PN16, DN15, kvs 0.63	N4363	7-112
VVG41.12	2-port seat valve, external thread, PN16, DN15, kvs 1	N4363	7-112
VVG41.13	2-port seat valve, external thread, PN16, DN15, kvs 1.6	N4363	7-112
VVG41.14	2-port seat valve, external thread, PN16, DN15, kvs 2.5	N4363	7-112
VVG41.15	2-port seat valve, external thread, PN16, DN15, kvs 4	N4363	7-112
VVG41.20	2-port seat valve, external thread, PN16, DN20, kvs 6.3	N4363	7-112
VVG41.25	2-port seat valve, external thread, PN16, DN25, kvs 10	N4363	7-112
VVG41.32	2-port seat valve, external thread, PN16, DN32, kvs 16	N4363	7-112
VVG41.40	2-port seat valve, external thread, PN16, DN40, kvs 25	N4363	7-112
VVG41.50	2-port seat valve, external thread, PN16, DN50, kvs 40	N4363	7-112
VVG44.15-0.25	2-port seat valve, external thread, PN16, DN15, kvs 0.25	N4364	7-114
VVG44.15-0.4	2-port seat valve, external thread, PN16, DN15, kvs 0.4	N4364	7-114
VVG44.15-0.63	2-port seat valve, external thread, PN16, DN15, kvs 0.63	N4364	7-114
VVG44.15-1	2-port seat valve, external thread, PN16, DN15, kvs 1	N4364	7-114
VVG44.15-1.6	2-port seat valve, external thread, PN16, DN15, kvs 1.6	N4364	7-114
VVG44.15-2.5	2-port seat valve, external thread, PN16, DN15, kvs 2.5	N4364	7-114
VVG44.15-4	2-port seat valve, external thread, PN16, DN15, kvs 4	N4364	7-114
VVG44.20-6.3	2-port seat valve, external thread, PN16, DN20, kvs 6.3	N4364	7-114
VVG44.25-10	2-port seat valve, external thread, PN16, DN25, kvs 10	N4364	7-114
VVG44.32-16	2-port seat valve, external thread, PN16, DN32, kvs 16	N4364	7-114
VVG44.40-25	2-port seat valve, external thread, PN16, DN40, kvs 25	N4364	7-114
VVG55.15-0.25	2-port seat valve, external thread, PN25, DN15, kvs 0.25	N4379	7-116
VVG55.15-0.4	2-port seat valve, external thread, PN25, DN15, kvs 0.4	N4379	7-116
VVG55.15-0.63	2-port seat valve, external thread, PN25, DN15, kvs 0.63	N4379	7-116
VVG55.15-1	2-port seat valve, external thread, PN25, DN15, kvs 1	N4379	7-116
VVG55.15-1.6	2-port seat valve, external thread, PN25, DN15, kvs 1.6	N4379	7-116
VVG55.15-2.5	2-port seat valve, external thread, PN25, DN15, kvs 2.5	N4379	7-116
VVG55.20-4	2-port seat valve, external thread, PN25, DN20, kvs 4	N4379	7-116
VVG55.25-6.3	2-port seat valve, external thread, PN25, DN25, kvs 6.3	N4379	7-116
VVI46.15	2-port zone valve, internally threaded, PN16, DN15, kvs 2	N4842	7-107
VVI46.15/1	2-port zone valve, internally threaded, PN16, DN15, kvs 2	N4842	7-107
VVI46.20	2-port zone valve, internally threaded, PN16, DN20, kvs 3.5	N4842	7-107
VVI46.20/1	2-port zone valve, internally threaded, PN16, DN20, kvs 3.5	N4842	7-107

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VVI46.25	2-port zone valve, internally threaded, PN16, DN25, kvs 5	N4842	7-107
VVI46.25/1	2-port zone valve, internally threaded, PN16, DN25, kvs 5	N4842	7-107
VVP45.10-0.25	2-port seat valve, external thread, PN16, DN10, kvs 0.25	N4845	7-102
VVP45.10-0.4	2-port seat valve, external thread, PN16, DN10, kvs 0.4	N4845	7-102
VVP45.10-0.63	2-port seat valve, external thread, PN16, DN10, kvs 0.63	N4845	7-102
VVP45.10-0.63S	2-port seat valve, external thread for Conex®, PN16, DN10, kvs 0.63	N4854	7-102
VVP45.10-1	2-port seat valve, external thread, PN16, DN10, kvs 1	N4845	7-102
VVP45.10-1.6	2-port seat valve, external thread, PN16, DN10, kvs 1.6	N4845	7-102
VVP45.10-1.6S	2-port seat valve, external thread for Conex®, PN16, DN10, kvs 1.6	N4854	7-102
VVP45.10-1S	2-port seat valve, external thread for Conex®, PN16, DN10, kvs 1	N4854	7-102
VVP45.15-2.5	2-port seat valve, external thread, PN16, DN15, kvs 2.5	N4845	7-102
VVP45.15-2.5N	2-port seat valve, external thread, PN16, DN15, kvs 2.5	N4840	7-104
VVP45.15-2.5S	2-port seat valve, external thread for Conex®, PN16, DN15, kvs 2.5	N4854	7-102
VVP45.20-4	2-port seat valve, external thread, PN16, DN20, kvs 4	N4845	7-102
VVP45.20-4N	2-port seat valve, external thread, PN16, DN20, kvs 4	N4840	7-104
VVP45.25-10	2-port seat valve, external thread, PN16, DN25, kvs 10	N4845	7-102
VVP45.25-6.3	2-port seat valve, external thread, PN16, DN25, kvs 6.3	N4845	7-102
VVP45.25-6.3N	2-port seat valve, external thread, PN16, DN25, kvs 6.3	N4840	7-104
VVP45.32-16	2-port seat valve, external thread, PN16, DN32, kvs 16	N4845	7-102
VVP45.40-25	2-port seat valve, external thread, PN16, DN40, kvs 25	N4845	7-102
VVP47.10-0.25	2-port seat valve, external thread, PN16, DN10, kvs 0.25	N4847	7-105
VVP47.10-0.4	2-port seat valve, external thread, PN16, DN10 kvs 0.4	N4847	7-105
VVP47.10-0.63	2-port seat valve, external thread, PN16, DN10, kvs 0.63	N4847	7-105
VVP47.10-0.63S	2-port seat valves, external thread, PN16, DN10, kvs 0.63	N4847	7-105
VVP47.10-1	2-port seat valve, external thread, PN16, DN10, kvs 1	N4847	7-105
VVP47.10-1.6	2-port seat valve, external thread, PN16, DN10, kvs 1.6	N4847	7-105
VVP47.10-1.6S	2-port seat valves, external thread, PN16, DN10, kvs 1.6	N4847	7-105
VVP47.10-1S	2-port seat valves, external thread, PN16, DN10, kvs 1	N4847	7-105
VVP47.15-2.5	2-port seat valve, external thread, PN16, DN15, kvs 2.5	N4847	7-105
VVP47.15-2.5S	2-port seat valves, external thread, PN16, DN15, kvs 2.5	N4847	7-105
VVP47.20-4	2-port seat valve, external thread, PN16, DN20, kvs 4	N4847	7-105
VXF21.100-160	3-port seat valve, flanged, PN6, DN100, kvs 160	N4410	7-120
VXF21.22	3-port seat valve, flanged, PN6, DN25, kvs 1.9	N4410	7-120
VXF21.23	3-port seat valve, flanged, PN6, DN25, kvs 3	N4410	7-120
VXF21.24	3-port seat valve, flanged, PN6, DN25, kvs 5	N4410	7-120
VXF21.25	3-port seat valve, flanged, PN6, DN25, kvs 7.5	N4410	7-120
VXF21.25-10	3-port seat valve, flanged, PN6, DN25, kvs 10	N4410	7-120
VXF21.25-2.5	3-port seat valve, flanged, PN6, DN25, kvs 2.5	N4410	7-120
VXF21.25-4	3-port seat valve, flanged, PN6, DN25, kvs 4	N4410	7-120
VXF21.25-6.3	3-port seat valve, flanged, PN6, DN25, kvs 6.3	N4410	7-120
VXF21.39	3-port seat valve, flanged, PN6, DN40, kvs 12	N4410	7-120
VXF21.40	3-port seat valve, flanged, PN6, DN40, kvs 19	N4410	7-120
VXF21.40-16	3-port seat valve, flanged, PN6, DN40, kvs 16	N4410	7-120
VXF21.40-25	3-port seat valve, flanged, PN6, DN40, kvs 25	N4410	7-120
VXF21.50	3-port seat valve, flanged, PN6, DN50, kvs 31	N4410	7-120
VXF21.50-40	3-port seat valve, flanged, PN6, DN50, kvs 40	N4410	7-120
VXF21.65	3-port seat valve, flanged, PN6, DN65, kvs 49	N4410	7-120
VXF21.65-63	3-port seat valve, flanged, PN6, DN65, kvs 63	N4410	7-120
VXF21.80	3-port seat valve, flanged, PN6, DN80, kvs 78	N4410	7-120
VXF21.80-100	3-port seat valve, flanged, PN6, DN80, kvs 100	N4410	7-120
VXF21.90	3-port seat valve, flanged, PN6, DN100, kvs 124	N4410	7-120
VXF31.100-160	3-port seat valve, flanged, PN10, DN100, kvs 160	N4420	7-122
VXF31.125-250	3-port seat valve, flanged, PN10, DN125, kvs 250	N4420	7-122
VXF31.15-2.5	3-port seat valve, flanged, PN10, DN15, kvs 2.5	N4420	7-122
VXF31.15-4	3-port seat valve, flanged, PN10, DN15, kvs 4	N4420	7-122
VXF31.150-315	3-port seat valve, flanged, PN10, DN150, kvs 315	N4420	7-122
VXF31.24	3-port seat valve, flanged, PN10, DN25, kvs 5	N4420	7-122

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VXF31.25	3-port seat valve, flanged, PN10, DN25, kvs 7.5	N4420	7-122
VXF31.25-10	3-port seat valve, flanged, PN10, DN25, kvs 10	N4420	7-122
VXF31.25-6.3	3-port seat valve, flanged, PN10, DN25, kvs 6.3	N4420	7-122
VXF31.39	3-port seat valve, flanged, PN10, DN40, kvs 12	N4420	7-122
VXF31.40	3-port seat valve, flanged, PN10, DN40, kvs 19	N4420	7-122
VXF31.40-16	3-port seat valve, flanged, PN10, DN40, kvs 16	N4420	7-122
VXF31.40-25	3-port seat valve, flanged, PN10, DN40, kvs 25	N4420	7-122
VXF31.50	3-port seat valve, flanged, PN10, DN50, kvs 31	N4420	7-122
VXF31.50-40	3-port seat valve, flanged, PN10, DN50, kvs 40	N4420	7-122
VXF31.65	3-port seat valve, flanged, PN10, DN65, kvs 49	N4420	7-122
VXF31.65-63	3-port seat valve, flanged, PN10, DN65, kvs 63	N4420	7-122
VXF31.80	3-port seat valve, flanged, PN10, DN80, kvs 78	N4420	7-122
VXF31.80-100	3-port seat valve, flanged, PN10, DN80, kvs 100	N4420	7-122
VXF31.90	3-port seat valve, flanged, PN10, DN100, kvs 124	N4420	7-122
VXF31.91	3-port seat valve, flanged, PN10, DN125, kvs 200	N4420	7-122
VXF31.92	3-port seat valve, flanged, PN10, DN150, kvs 300	N4420	7-122
VXF40.100-124	3-port seat valve, flanged, PN16, DN100, kvs 124	N4430	7-125
VXF40.100-160	3-port seat valve, flanged, PN16, DN100, kvs 160	N4430	7-126
VXF40.125-200	3-port seat valve, flanged, PN16, DN125, kvs 200	N4430	7-126
VXF40.125-250	3-port seat valve, flanged, PN16, DN125, kvs 250	N4430	7-126
VXF40.15-1.9	3-port seat valve, flanged, PN16, DN15, kvs 1.9	N4430	7-125
VXF40.15-2.5	3-port seat valve, flanged, PN16, DN15, kvs 2.5	N4430	7-125
VXF40.15-3	3-port seat valve, flanged, PN16, DN15, kvs 3	N4430	7-125
VXF40.15-4	3-port seat valve, flanged, PN16, DN15, kvs 4	N4430	7-125
VXF40.150-300	3-port seat valve, flanged, PN16, DN150, kvs 300	N4430	7-126
VXF40.150-315	3-port seat valve, flanged, PN16, DN150, kvs 315	N4430	7-126
VXF40.25-10	3-port seat valve, flanged, PN16, DN25, kvs 10	N4430	7-125
VXF40.25-5	3-port seat valve, flanged, PN16, DN25, kvs 5	N4430	7-125
VXF40.25-6.3	3-port seat valve, flanged, PN16, DN25, kvs 6.3	N4430	7-125
VXF40.25-7.5	3-port seat valve, flanged, PN16, DN25, kvs 7.5	N4430	7-125
VXF40.40-12	3-port seat valve, flanged, PN16, DN40, kvs 12	N4430	7-125
VXF40.40-16	3-port seat valve, flanged, PN16, DN40, kvs 16	N4430	7-125
VXF40.40-19	3-port seat valve, flanged, PN16, DN40, kvs 19	N4430	7-125
VXF40.40-25	3-port seat valve, flanged, PN16, DN40, kvs 25	N4430	7-125
VXF40.50-31	3-port seat valve, flanged, PN16, DN50, kvs 31	N4430	7-125
VXF40.50-40	3-port seat valve, flanged, PN16, DN50, kvs 40	N4430	7-125
VXF40.65-49	3-port seat valve, flanged, PN16, DN65, kvs 49	N4430	7-125
VXF40.65-63	3-port seat valve, flanged, PN16, DN65, kvs 63	N4430	7-125
VXF40.80-100	3-port seat valve, flanged, PN16, DN80, kvs 100	N4430	7-125
VXF40.80-78	3-port seat valve, flanged, PN16, DN80, kvs 78	N4430	7-125
VXF43.100-160	3-port seat valve, flanged, PN16, DN100, kvs 160	N4404	7-128
VXF43.125-250	3-port seat valve, flanged, PN16, DN125, kvs 250	N4404	7-128
VXF43.150-400	3-port seat valve, flanged, PN16, DN150, kvs 400	N4404	7-128
VXF43.65-63	3-port seat valve, flanged, PN16, DN65, kvs 63	N4404	7-128
VXF43.80-100	3-port seat valve, flanged, PN16, DN80, kvs 100	N4404	7-128
VXF47.100	3-port seat valve VXF47.100, DN100, kvs 160	N4419	7-130
VXF47.125	3-port seat valve VXF47.125, DN125, kvs 250	N4419	7-130
VXF47.150	3-port seat valve VXF47.150, DN150, kvs 315	N4419	7-130
VXF47.50	3-port seat valve VXF47.50, DN50, kvs 40	N4419	7-130
VXF47.65	3-port seat valve VXF47.65, DN65, kvs 63	N4419	7-130
VXF47.80	3-port seat valve VXF47.80, DN80, kvs 100	N4419	7-130
VXF53.100-160	3-port seat valve, flanged, PN25, DN100, kvs 160	N4405	7-131
VXF53.125-250	3-port seat valve, flanged, PN25, DN125, kvs 250	N4405	7-131
VXF53.15-1.6	3-port seat valve, flanged, PN25, DN15, kvs 1.6	N4405	7-131
VXF53.15-2.5	3-port seat valve, flanged, PN25, DN15, kvs 2.5	N4405	7-131
VXF53.15-4	3-port seat valve, flanged, PN25, DN15, kvs 4	N4405	7-131
VXF53.150-400	3-port seat valve, flanged, PN25, DN150, kvs 360	N4405	7-131

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VXF53.20-6.3	3-port seat valve, flanged, PN25, DN25, kvs 6.3	N4405	7-131
VXF53.25-10	3-port seat valve, flanged, PN25, DN25, kvs 10	N4405	7-131
VXF53.25-6.3	3-port seat valve, flanged, PN25, DN25, kvs 6.3	N4405	7-131
VXF53.32-16	3-port seat valve, flanged, PN25, DN32, kvs 16	N4405	7-131
VXF53.40-16	3-port seat valve, flanged, PN25, DN40, kvs 16	N4405	7-131
VXF53.40-25	3-port seat valve, flanged, PN25, DN40, kvs 25	N4405	7-131
VXF53.50-40	3-port seat valve, flanged, PN25, DN50, kvs 40	N4405	7-131
VXF53.65-63	3-port seat valve, flanged, PN25, DN65, kvs 63	N4405	7-131
VXF53.80-100	3-port seat valve, flanged, PN25, DN80, kvs 100	N4405	7-131
VXF61.14	3-port seat valve, flanged, PN40, DN15, kvs 1.9	N4482	7-134
VXF61.15	3-port seat valve, flanged, PN40, DN15, kvs 3	N4482	7-134
VXF61.24	3-port seat valve, flanged, PN40, DN25, kvs 5	N4482	7-134
VXF61.25	3-port seat valve, flanged, PN40, DN25, kvs 7.5	N4482	7-134
VXF61.39	3-port seat valve, flanged, PN40, DN40, kvs 12	N4482	7-134
VXF61.40	3-port seat valve, flanged, PN40, DN40, kvs 19	N4482	7-134
VXF61.49	3-port seat valve, flanged, PN40, DN40, kvs 19	N4482	7-134
VXF61.50	3-port seat valve, flanged, PN40, DN50, kvs 31	N4482	7-134
VXF61.65	3-port seat valve, flanged, PN40, DN65, kvs 49	N4482	7-134
VXF61.80	3-port seat valve, flanged, PN40, DN80, kvs 78	N4482	7-134
VXF61.90	3-port seat valve, flanged, PN40, DN100, kvs 124	N4482	7-134
VXF61.91	3-port seat valve, flanged, PN40, DN125, kvs 200	N4482	7-134
VXF61.92	3-port seat valve, flanged, PN40, DN150, kvs 300	N4482	7-134
VXG41.1301	3-port seat valve, external thread, PN16, DN15, kvs 1.6, tight bypass	N4463	7-110
VXG41.1401	3-port seat valve, external thread, PN16, DN15, kvs 2.5, tight bypass	N4463	7-153
VXG41.15	3-port seat valve, external thread, PN16, DN15, kvs 4	N4463	7-153
VXG41.1501	3-port seat valve, external thread, PN16, DN15, kvs 4, tight bypass	N4463	7-153
VXG41.20	3-port seat valve, external thread, PN16, DN20, kvs 6.3	N4463	7-153
VXG41.2001	3-port seat valve, external thread, PN16, DN20, kvs 6.3, tight bypass	N4463	7-153
VXG41.25	3-port seat valve, external thread, PN16, DN25, kvs 10	N4463	7-153
VXG41.2501	3-port seat valve, external thread, PN16, DN25, kvs 10, tight bypass	N4463	7-153
VXG41.32	3-port seat valve, external thread, PN16, DN32, kvs 16	N4463	7-153
VXG41.3201	3-port seat valve, external thread, PN16, DN32, kvs 16, tight bypass	N4463	7-153
VXG41.40	3-port seat valve, external thread, PN16, DN40, kvs 25	N4463	7-153
VXG41.4001	3-port seat valve, external thread, PN16, DN40, kvs 25, tight bypass	N4463	7-153
VXG41.50	3-port seat valve, external thread, PN16, DN50, kvs 40	N4463	7-153
VXG41.5001	3-port seat valve, external thread, PN16, DN50, kvs 40, tight bypass	N4463	7-153
VXG44.15-0.25	3-port seat valve, external thread, PN16, DN15, kvs 0.25	N4464	7-155
VXG44.15-0.4	3-port seat valve, external thread, PN16, DN15, kvs 0.4	N4464	7-155
VXG44.15-0.63	3-port seat valve, external thread, PN16, DN15, kvs 0.63	N4464	7-155
VXG44.15-1	3-port seat valve, external thread, PN16, DN15, kvs 1	N4464	7-155
VXG44.15-1.6	3-port seat valve, external thread, PN16, DN15, kvs 1.6	N4464	7-155
VXG44.15-2.5	3-port seat valve, external thread, PN16, DN15, kvs 2.5	N4464	7-155
VXG44.15-4	3-port seat valve, external thread, PN16, DN15, kvs 4	N4464	7-155
VXG44.20-6.3	3-port seat valve, external thread, PN16, DN20, kvs 6.3	N4464	7-155
VXG44.25-10	3-port seat valve, external thread, PN16, DN25, kvs 10	N4464	7-155
VXG44.32-16	3-port seat valve, external thread, PN16, DN32, kvs 16	N4464	7-155
VXG44.40-25	3-port seat valve, external thread, PN16, DN40, kvs 25	N4464	7-155
VXI46.15	3-port zone valve, internally threaded, PN16, DN15, kvs 2, kvs bypass 1.4	N4842	7-148
VXI46.15/1	3-port zone valve, internally threaded, PN16, DN15, kvs 2, kvs bypass 1.4	N4842	7-148
VXI46.20	3-port zone valve, internally threaded, PN16, DN20, kvs 3.5, kvs bypass 2.45	N4842	7-148
VXI46.20/1	3-port zone valve, internally threaded, PN16, DN20, kvs 3.5, kvs bypass 2.45	N4842	7-148
VXI46.25	3-port zone valve, internally threaded, PN16, DN25, kvs 5, kvs bypass 3	N4842	7-148
VXI46.25/1	3-port zone valve, internally threaded, PN16, DN25, kvs 5, kvs bypass 3	N4842	7-148
VXI46.25T	3-port zone valve, internally threaded, PN16, DN25, kvs 5, kvs bypass 5	N4842	7-148
VXP45.10-0.25	3-port seat valve, external thread, PN16, DN10, kvs 0.25	N4845	7-140
VXP45.10-0.4	3-port seat valve, external thread, PN16, DN10, kvs 0.4	N4845	7-102
VXP45.10-0.63	3-port seat valve, external thread, PN16, DN10, kvs 0.63	N4845	7-102

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
VXP45.10-1	3-port seat valve, external thread, PN16, DN10, kvs 1	N4845	7-102
VXP45.10-1.6	3-port seat valve, external thread, PN16, DN10, kvs 1.6	N4845	7-102
VXP45.15-2.5	3-port seat valve, external thread, PN16, DN15, kvs 2.5	N4845	7-102
VXP45.20-4	3-port seat valve, external thread, PN16, DN20, kvs 4	N4845	7-102
VXP45.25-10	3-port seat valve, external thread, PN16, DN25, kvs 10	N4845	7-140
VXP45.25-6.3	3-port seat valve, external thread, PN16, DN25, kvs 6.3	N4845	7-140
VXP45.32-16	3-port seat valve, external thread, PN16, DN32, kvs 16	N4845	7-140
VXP45.40-25	3-port seat valve, external thread, PN16, DN40, kvs 25	N4845	7-140
VXP47.10-0.25	3-port seat valve, external thread, PN16, DN10, kvs 0.25	N4847	7-144
VXP47.10-0.4	3-port seat valve, external thread, PN16, DN10, kvs 0.4	N4847	7-144
VXP47.10-0.63	3-port seat valve, external thread, PN16, DN10, kvs 0.63	N4847	7-144
VXP47.10-1	3-port seat valve, external thread, PN16, DN10, kvs 1	N4847	7-144
VXP47.10-1.6	3-port seat valve, external thread, PN16, DN10, kvs 1.6	N4847	7-144
VXP47.15-2.5	3-port seat valve, external thread, PN16, DN15, kvs 2.5	N4847	7-144
VXP47.20-4	3-port seat valve, external thread, PN16, DN20, kvs 4	N4847	7-144
walk-by	walk-by radio system 868 MHz		10-32
WFK30.D080	Mechanical water meter single-jet with module slot, 1.5 m³/h, 80 mm, G ¾ ", cold	N5326	10-11
WFK30.D110	Mechanical water meter single-jet with module slot, 1.5 m³/h, 110 mm, G ¾ ", cold	N5326	10-11
WFM21.B111	Electronic heat meter, wall mounted, nominal flow 0.6 m³/h	N5333	10-13
WFM21.D111	Electronic heat meter, wall mounted, nominal flow 1.5 m³/h	N5333	10-13
WFM21.E131	Electronic heat meter, wall mounted, nominal flow 2.5 m³/h	N5333	10-13
WFM26.B111	Electronic heat meter, wall mounted, nominal flow 0.6 m³/h	N5333	10-14
WFM26.D111	Electronic heat meter, wall mounted, nominal flow 1.5 m³/h	N5333	10-14
WFM26.E131	Electronic heat meter, wall mounted, nominal flow 2.5 m³/h	N5333	10-14
WFM407.B113	Electronic heat meter wall mounting, nominal flow rate 0.6 m³/h	N5331	10-12
WFM501-E000H0	Impeller type heat meter, wall-mounted, nominal flow rate 0.6 m3/h	N5323	10-12
WFM502-E000H0	Impeller type heat meter, wall-mounted, nominal flow rate 1.5 m3/h	N5323	10-12
WFM503-J000H0	Impeller type heat meter, wall-mounted, nominal flow rate 2.5 m3/h	N5323	10-12
WFN21.B111	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 0.6 m³/h	N5338	10-15
WFN21.D111	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 1.5 m³/h	N5338	10-15
WFN21.E131	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 2.5 m³/h	N5338	10-15
WFN26.B111	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 0.6 m³/h	N5338	10-16
WFN26.D111	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 1.5 m³/h	N5338	10-16
WFN26.E131	Electronic heat and cooling energy meter, wall mounted, Nominal flow rate 2.5 m³/h	N5338	10-16
WFW30.D080	Mechanical water meter single-jet with module slot, 1.5 m³/h, 80 mm, G ¾ ", hot	N5326	10-11
WFW30.D110	Mechanical water meter single-jet with module slot, 1.5 m³/h, 110 mm, G ¾ ", hot	N5326	10-11
WFZ.IRDA-USB	Infrared read head (with USB interface)	N2886	10-34
WFZ.MBM-USB	M-bus programming adapter (USB)		10-34
WFZ.MBUSSET	M-bus connection kit		10-17
WFZ.PS	Triggering tool for radio telegrams		10-11
WFZ.R110	Spacer ¾", length 110mm		10-11
WFZ.R2	Mounting set, pair of fittings G ¾" x R ½" with gaskets		10-11
WFZ.R80	Spacer ¾", length 80 mm		10-11
WFZ.USB-1	Special adapter RS232 to USB	N2886	10-11
WFZ.W	Mounting kit for washstand water meter		10-11
WFZ.Z	Mounting kit for tap water meter		10-11
WFZ16.MO	Radio adapter AMR Modularis		10-29
WFZ166.MO	Radio adapter walk-by Modularis		10-32
WFZ56.OK	AMR add-on module with integrated antenna	N5323	10-29
WFZ566.OK	Walk-by add-on module with integrated antenna	N5323	10-32
WHE501-D29	Electronic heat cost allocator with watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-5
WHE502-D10	Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	N2886	10-5
WHE502-D29	Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-5
WHE551-0000	Electronic heat cost allocator with walk-by radio interface, Single-sensor, due date 12/31, type of readout annual	N2886	10-7

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
WHE551-D291	Electronic heat cost allocator with walk-by radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	N2886	10-7
WHE552-0000	Electronic heat cost allocator with walk-by radio interface, Double sensor, due date 12/31, type of readout annual	N2886	10-7
WHE552-D100	Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31, type of readout annual	N2886	10-7
WHE552-D291	Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	N2886	10-7
WHE561-000	Electronic heat cost allocator with AMR radio interface, Single-sensor, due date 12/31	N2886	10-8
WHE561-D29	Electronic heat cost allocator with AMR radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-8
WHE562-000	Electronic heat cost allocator with AMR radio interface, Double sensor, due date 12/31	N2886	10-8
WHE562-D10	Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	N2886	10-8
WHE562-D29	Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-8
WHE571-D29	Electronic heat cost allocator with infrared interface, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-6
WHE572-D29	Electronic heat cost allocator with infrared interface, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	N2886	10-6
WRI982	Consumption data interface	N2735	4-15
WSM506-0A	Ultrasonic heat meter 0.6 m3/h, Ø5.2x45 mm, G 3/4", battery life 6 years	N5372	10-18
WSM506-0E	Ultrasonic heat meter 0.6 m3/h, Ø5.2x45 mm, G 3/4", battery life 11 years	N5372	10-18
WSM515-0A	Ultrasonic heat meter 1.5 m3/h, Ø5.2x45 mm, G 3/4", battery life 6 years	N5372	10-18
WSM515-0E	Ultrasonic heat meter 1.5 m3/h, Ø5.2x45 mm, G 3/4", battery life 11 years	N5372	10-18
WSM525-0A	Ultrasonic heat meter 2.5 m3/h, Ø5.2x45 mm, G 1", battery life 6 years	N5372	10-18
WSM525-0E	Ultrasonic heat meter 2.5 m3/h, Ø5.2x45 mm, G 1", battery life 11 years	N5372	10-18
WTT16	Battery-powered network node	N2874	10-30
WTT16.232	Battery-powered network node	N2874	10-30
WTX16.MOD-1	Network node and power supply	N2878	10-30
WTZ.BAT	Battery for WTT16..	N2870	10-31
WTZ.BAT	Battery for WTT16..	N2870	10-31
WTZ.K232	RS-232 cable	N2870	10-31
WTZ.RM	PC radio module	N2876	10-31
WTZ.WBSET-2/PC	Mobile data logger set		10-32
WZM-E1	Mounting kit, pair of fittings G 1" x R ¾" with gaskets		10-21
WZM-E2.1	Mounting kit, pair of fittings G 2" × R 1½" with gaskets	N5324	10-26
WZM-E34	Mounting kit, pair of fittings G ¾" x R ½" with gaskets		10-21
WZM-E54	Mounting kit, pair of fittings G 1¼ " x R 1" with gaskets	N5324	10-26
WZM-F270	Spacer DN 50, length 270 mm, PN 16, incl. 2 flat gaskets	N5324	10-27
WZM-F300	Spacer DN 40, length 300 mm, PN 16, incl. 2 flat gaskets	N5324	10-27
WZM-F300.65	Spacer DN 65, length 300 mm, PN 16, incl. 2 flat gaskets	N5324	10-27
WZM-F300.80	Spacer DN 80, length 300 mm, PN 16, incl. 2 flat gaskets	N5324	10-27
WZM-F360.100-25	Spacer DN 100, length 360 mm, PN 25, incl. 2 flat gaskets	N5324	10-27
WZM-G110	Spacer G ¾", length 110 mm, incl. 2 flat gaskets		10-19
WZM-G130	Spacer G 1", length 130 mm, incl. 2 flat gaskets		10-19
WZM-G190	Spacer G 1", length 190 mm, incl. 2 flat gaskets	N5324	10-22
WZM-G260	Spacer G 1¼", length 260 mm, incl. 2 flat gaskets	N5324	10-27
WZM-V110	Adapter from 80 mm G ¾B" to 110 mm G 1B", incl. gaskets		10-11
WZM-V130	Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets		10-11
WZM-V130.G1	Adapter from 110 mm G ¾B" to 130 mm G 1B", incl. 4 gaskets		10-21
WZM-V165	Adapter from 110 mm G ¾B" to 165 mm G ¾B", incl. 4 gaskets		10-21
WZM-V190	Adapter from 110 mm G ¾B" to 190 mm G 1B", incl. gaskets		10-21
WZR-NE	Power pack for analogue module	N5324	10-25
WZR-OP-USB	Optical reading head with USB plug for PC interface		10-19
WZT-A100	Mounting set G ½B" with threaded hole G ¼" for direct mounting of long sensors	N5324	10-28
WZT-A12	Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"		10-19
WZT-A34	Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"		10-19

NEW PRODUCT

Type Overview

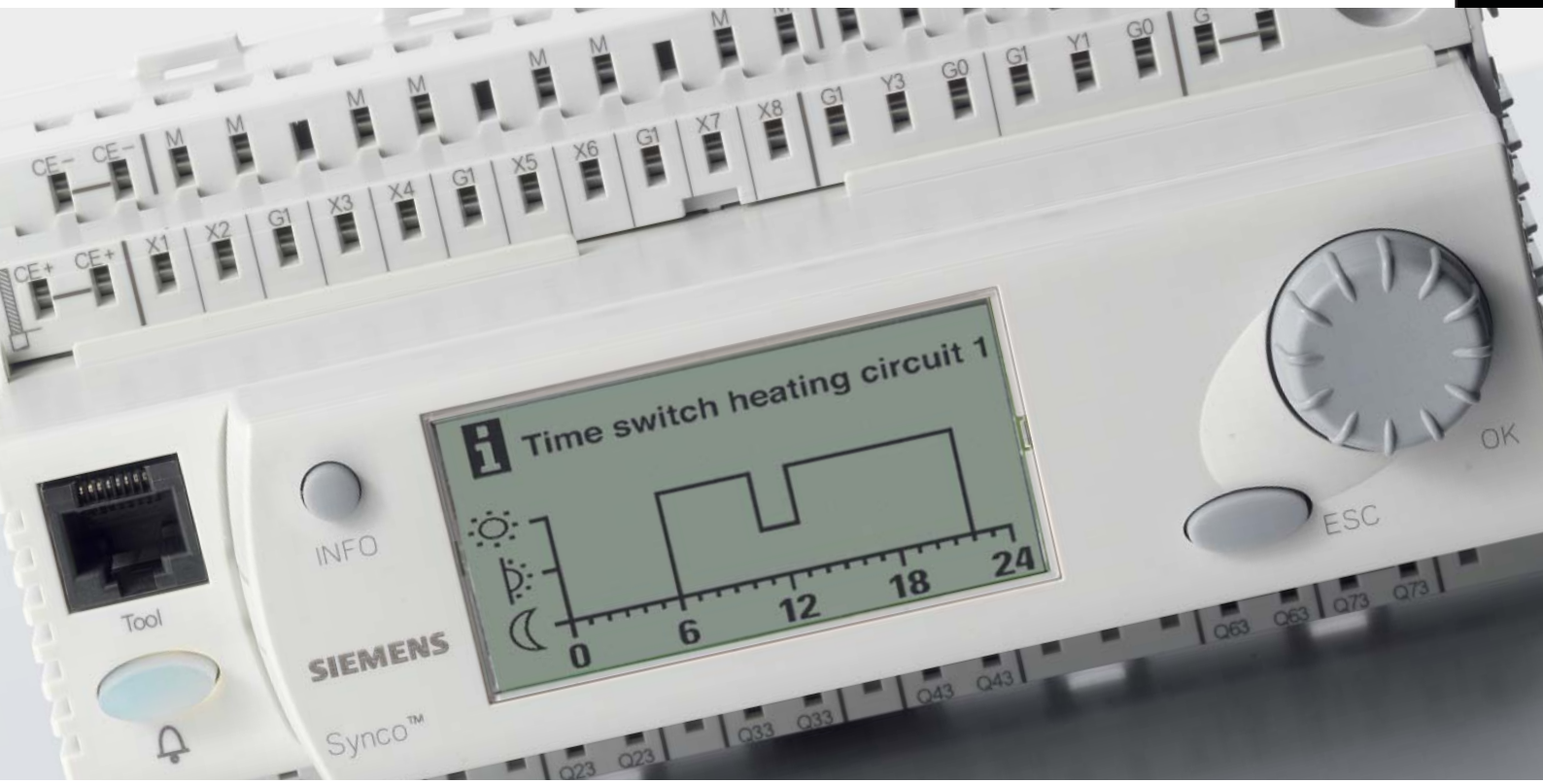
Product Number	Description	Datasheet	Page
WZT-A38	Adapter G 3/8 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/8"		10-19
WZT-G10	Welding sleeve with threaded hole for temperature sensor DS M10×1 mm		10-19
WZT-G12	Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"		10-22
WZT-GLG	Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"		10-22
WZT-K1	Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm		10-21
WZT-K1-1	Ball valve R 1" with union nut G 1"		10-19
WZT-K12	Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm		10-21
WZT-K12-34	Ball valve R ½" with union nut G ¾"		10-19
WZT-K34	Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm		10-21
WZT-K34-1	Ball valve R ¾" with union nut G 1"		10-19
WZT-K34-34	Ball valve R ¾" with union nut G ¾"		10-19
WZT-M35	Protection pocket G ½B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm		10-19
WZT-M50	Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm		10-22
WZT-R32	Adapter for protection pocket Ø 6 mm to install temperature sensor type Ø 5.2x45 mm	N5324	10-28
WZT-S100	Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 100 mm	N5324	10-28
WZT-S150	Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 150 mm	N5324	10-28
WZU-AC230-100	Power pack AC 230 V, cable length 10 m	N5324	10-26
WZU-AC230-15	Power pack AC 230 V, cable length 1.5 m	N5324	10-26
WZU-AC230-50	Power pack AC 230 V, cable length 5 m	N5324	10-26
WZU-ACDC24-00	Power pack AC/DC 24 V, with terminals	N5324	10-26
WZU-AM	Analog module	N5324	10-25
WZU-BA+GUM	Standard battery (2x AA) for 6 years, complete with fastener	N5324	10-26
WZU-BDS	Universal battery (D-cell), life 6 and 16 years respectively	N5324	10-26
WZU-CL	CL module, digital passive interface	N5324	10-25
WZU-GM	GSM module with two pulse inputs	N5324	10-25
WZU-GPRS	GPRS module with external antenna (magnetic attachment) and power pack 110...230 V	N5324	10-25
WZU-GPRS-ANT	GPRS module with external antenna (for screw mounting) and power pack 110...230 V	N5324	10-25
WZU-MB	M-bus module for heat and heat/cooling energy meters, generation 2	N5324	10-25
WZU-MB-G4	M-bus module for heat and heat/cooling energy meters, generation 4	N5324	10-25
WZU-MH	Mounting plate for top hat rail	N5324	10-28
WZU-MI	M-bus module with 2 pulse inputs for heat and heat/cooling energy meters, generation 4	N5324	10-25
WZU-P2	Pulse module with 2 channels	N5324	10-25
WZU-P2L	Pulse module with Opto-MOS output	N5324	10-25
WZU-RF	Radio module 868 MHz with integrated antenna	N5324	10-25
WZU-RF-EXT	Radio module 868 MHz with external antenna	N5324	10-25
WZU-RM	Radio module 433 MHz with integrated antenna and two pulse inputs	N5324	10-25
WZU-RM-EXT	Radio module 433 MHz with external antenna and two pulse inputs	N5324	10-25
WZU5-1020	Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 2 m	N5324	10-26
WZU5-1050	Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 5 m	N5324	10-26
WZU5-1520	Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 2 m	N5324	10-26
WZU5-1550	Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 5 m	N5324	10-26
WZU5-2815	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 1.5 m	N5324	10-26
WZU5-2825	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 2.5 m	N5324	10-26
WZU5-3815	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 1.5 m	N5324	10-26
WZU5-3825	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 2.5 m	N5324	10-26
WZU5-4515	Pair of temperature sensors Pt500, PS Ø5.2x45 mm, cable length 1.5 m	N5324	10-26
WZU5-4550	Pair of temperature sensors Pt500, PS Ø 5.2x45 mm, cable length 5 m	N5324	10-26
WZX-UA-SED	UltraAssist Standard, first license, CD with dongle for printer interface		10-19
WZX-UA-SEP	UltraAssist Standard, first license, CD with dongle as PCMCIA card		10-19
WZX-UA-SEU	UltraAssist Standard, first license, CD with dongle for USB interface		10-19

NEW PRODUCT

Type Overview

Product Number	Description	Datasheet	Page
WZX-UA-SFD	UltraAssist Standard, second license, with dongle for printer interface		10-19
WZX-UA-SFP	UltraAssist Standard, second license, dongle as PCMCIA card		10-19
WZX-UA-SFU	UltraAssist Standard, second license, with dongle for USB interface		10-19
Z155/100	Blanking flange, DN100		7-139
Z155/15F	Blanking flange, DN15		7-137
Z155/20F	Blanking flange, DN20		7-137
Z155/25F	Blanking flange, DN25		7-137
Z155/32F	Blanking flange, DN32		7-137
Z155/40	Blanking flange, DN40		7-137
Z155/50	Blanking flange, DN50		7-137
Z155/65	Blanking flange, DN65		7-137
Z155/80	Blanking flange, DN80		7-139
Z366	Stem heating element for media temperatures 0 °C, 30 W, AC 24 V		7-160
ZM101/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	7-213
ZM111	Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	7-213
ZM121/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	7-213
ZM250	Replacement electronic for M3P..FY..	N4454	7-138

Standard controllers



Overview and selection tools	Overview of product details	1-2
Autonomous heating controllers	Immersion temperature controller Synco 100	1-5
	Controllers for solar plants RWD..	1-9
	Heating controller RVP2..	1-11
	Heating controller RVP3..	1-15
Communicating heating controllers	Heating controller RVP3..	1-17
	Heating controller RVL4..	1-21
	Room units QAW..	1-26
	Heating controllers RMH..	1-28
	Boiler sequence controllers RMK..	1-30
	Extension modules and operator units Synco 700	1-36
	Field devices for RMH.. and RMK..	1-39
Autonomous district heating controllers	District heating controllers RDV1..	1-40
Communicating district heating controllers	District heating controllers RVD2..	1-44
Autonomous HVAC controllers	Duct temperature controllers RLM..	1-48
	Universal controllers RLA..	1-50
	Universal controller RLU..	1-52
	Field devices for RLU..	1-54
	Universal controllers RWD..	1-57
Communicating HVAC controllers	Heat Pump Controller RWD..	1-59
	Universal controllers RMU..	1-61
	Switching and monitoring device RMS..	1-72
	Extension modules and operator units for RMU.. and RMS..	1-74
Various electrical accessories	Interfaces SEA.. / SEM.. / SEZ..	1-76
	Setpoint adjuster BSG..	1-80
	System integration QAX160 / SEM50MB / PPM..	1-82
	Display/ Time switches/ Transformers BAU / SEH.. / SEM..	1-83
	KNX - System components	1-84
	KNX - Line Couplers	1-86
	KNX - Power Supply Units	1-88

Standard controllers

Overview and selection tools
Overview of product details

Overview of heating controllers product details








Preferential applications	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Heating group	■	■			■	■	■	■	■	■	■		■	■	■	■	■
Boiler control 1-stage					■	■											
2-stage								■	■	■	■		■	■	■	■	■
Multi-boiler system																	■
Domestic hot water	■	■	■	■		■		■	■	■	■			■	■	■	
Domestic water solar			■	■				■	■	■	■			■	■		
2nd heating group										■	■	■				■	
3rd heating group																■	

Operation system	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Type of operation analog	■	■	■		■	■											
digital				■			■	■	■	■	■	■	■	■	■	■	■
Heating curve bar												■	■	■	■		
Time switch analog					■	■											
digital					[1]	[1]	■	■	■	■	■	■	■	■	■	■	■
Programmed plant types	6	3	7	7			2	3	3	6	6	1	6	29	21	41	18
Yearly clock							■	■	■	■	■	■	■	■	■	■	■

[1] Variant

Communication	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Controller network							LPB	LPB		LPB		LPB	LPB	LPB	LPB	KNX	KNX
Web operation							OZW672..			OZW 672..		OZW672..				OZW772..	
Fax, SMS and pager function							OCI611..			OCI 611..		OCI611..				OZW771..	

Sensors	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Outside sensor QAC22	■	■			■	■	■	■	■	■	■	■	■	■	■	■	■
Outside sensor QAC32					■	■	■	■	■	■	■	■	■	■	■	■	
Strap-on temp. sensor QAD22			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Immersion temp. sensor QAE2..			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Cable temp. sensor QAP2..			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Room temp. sensor QAA24							■	■	■	■	■	■	■	■	■	■	■
Room temp. sensor [1]							■	■	■	■	■	■	■	■	■	■	■
Solar sensor QLS60															■	■	

[1] AQR2531..NW

Room units	RLE..			RWD..	RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	127	32S	201	211	340	350	351	360	361	479	480	481	482	760	770
Room unit analog QAW50					■	■	■	■	■	■	■	■	■	■	■		
Room unit analog QAW50.03										■	■						
Room unit digital QAW70					■	■	■	■	■	■	■	■	■	■	■		
Room unit digital QAW740																■	■

Overview of district heating controllers product details







Preferential applications	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Heating group	■	■	■	■	■	■	■	■
District heat exchanger	■	■	■	■	[1]	[1]	[1]	■
Domestic hot water	■	■	■	■			■	■
Domestic water solar		■	■	■			■	
2nd heating group				■				■
3rd heating group								■

[1] Variant: For the description of the controllers see chapter 1 „Communicative heating controllers".

Operation system		RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Type of operation	analog								
	digital	■	■	■	■	■	■	■	■
Heating curve bar							■	■	
Time switch	analog								
	digital	■	■	■	■	■	■	■	■
Programmed plant types		3	8	28	14	2	6	29	41
Yearly clock		■	■	■	■	■	■	■	■

Communication	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Controller network			LPB	LPB	LPB	LPB	LPB	KNX
M-bus slave			■	■				
Web operation	ext. Modbus-Interface	ext. Modbus-Interface	OZW672..		OZW672..	OZW672..		OZW772..
Fax, SMS and pager function			OCI611..		OCI611..	OCI611..		OZW771..

Sensors		RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Outside sensor	QAC22	■	■	■	■	■	■	■	■
Outside sensor	QAC32	■	■	■	■	■	■	■	■
Strap-on temp. sensor	QAD22	■	■	■	■	■	■	■	■
Immersion temp. sensor	QAE2..	■	■	■	■	■	■	■	■
Cable temp. sensor	QAP2..	■	■	■	■	■	■	■	■
Room temp. sensor	QAA24					■	■	■	■
Room temp. sensor	[1]					■	■	■	■
Solar sensor	QLS60								■
Pressure sensor	QBE2002..		■	■	■				

[1] AQR2531..NW

Room units		RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760
Room unit analog	QAW50	■	■	■	■	■	■	■	
Room unit analog	QAW50.03				■				
Room unit digital	QAW70	■	■	■	■	■	■	■	
Room unit digital	QAW740								■

Overview of HVAC controllers product details







	RLM..	RLA..	RWD..				RLU..					RMU..			RMS..		RMZ..	
	162	162	32	82	62	68	202	220	222	232	236	710	720	730	705	785	787	788
	Air duct temperature controller	Room temperature controller	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2AO	Universal controller, 1 control loop, 1AO, 1DO	Universal controller, 1 control loop, 2DO	Universal controller, 1 control loop, 2AO	Universal controller, 2 control loops, 2AO, 2DO	Universal controller, 2 control loops, 3AO, 2DO	Universal controller, 2 control loops, 3AO, 6DO	Modular universal controller, 1 control loop	Modular universal controller, 2 control loops	Modular universal controller, 3 control loops	Switching and Monitoring Device	Universal module, 8UI	Universal module, 4UI, 4DO	Universal module, 4UI, 2DO, 2AO
Option modules for RMU7.., RMS705												4[2]	4[2]	4[2]	4[2]	1[2]	2[2]	2[2]
Operation	■	■	■	■	■	■	■	■	■	■	■	■[1]	■[1]	■[1]	■[1]			
KNX communication												■	■	■	■			
7-day time switch and holiday/ special day program												■	■	■	■			
Supervision												■	■	■	■			
Logic functions												■	■	■	■			
Outputs																		
Step switch							■		■	■	■	■	■	■	■			
Relay	1	1[4]	2	2		1	2		2	2	6	2	4	6	6		4	2
3-position			1[3]	1[3]			1[3]		1[3]									
DC 0...10 V	2	2			2	1		2	2	3	3	2	3	4	4			2
Universal inputs																		
T1							■	■	■	■	■	■	■	■	■	■	■	■
Pt1000			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DC 0...10 V			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Digital							■	■	■	■	■	■	■	■	■	■	■	■
LG-Ni 1000			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Number of universal inputs	-	-	2	2	2	2	4	4	4	5	5	6	8	8	8	8	4	4
Fixed inputs																		
DC 0...10 V	1	1																
Digital	2	1	1	1	1	1	1	1	1	2	2							
LG-Ni 1000	1	1																
Integrated LG-Ni 1000 sensor	1	1																
Controlled variable																		
Universal			■	■	■	■	■	■	■	■	■	■	■	■	■			
Temperature °C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Control mode																		
PID							■	■	■	■	■	■	■	■	■			
P/PI	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Control loops																		
Cascade			■	■	■	■	■	■	■	■	■	■	■	■				
Number	1	1	1	1	1	1	1	1	2	2	2	1	2	3	3			

■ [1] Optional operation:
RMZ790: Plug-in operator unit
RMZ791: Detached operator unit
RMZ792: Bus operator unit

[2] Maximum number of option modules RMZ78x per controller

[3] 2 Relays or one 3-position

[4] RLA162.1 variant

AO Analog output
DO Digital output
UI Universal inputs

Differential temperature controllers

RLE127..



Compact electronic controllers with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for mains connection and controller out-put need to be laid. Supplied with protection pocket for indirect temperature sensing.

Application:
Differential temperature controller, with 2-position control signal and auxiliary relay. The RLE127 is ideally suited for control of the following heating plants:
- Solar energy plants with storage tanks
- Swimming pool heating systems with solar panels
- Heat storage plants with several storage tanks
- Multiboiler plants

Features:
- Pre-configured application types selected by DIP switch
- Changeover to a secondary heat source upon demand
- Minimum charging temperature option
- Absolute temperature setpoint
- Maximum temperature limitation
- Remote setpoint adjustment
- Test mode as commissioning aid
- Frost protection

Data sheet	N3337
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	4 VA
Analog input, signal	LG-Ni1000 0...1000 Ohm
Relay outputs	Changeover contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	0...30 K
Immersion length	150 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 × 152 × 78 mm

Range overview RLE127..

Product Title	Data sheet	Stock No.	Product No.
Differential temperature controller, AC 230 V, 2-position output	N3337	BPZ:RLE127	**RLE127**
Differential temperature controller, AC 230 V, 2-position output, with additional temperature sensor	N3337	BPZ:RLE127.QAZ	**RLE127.QAZ**

Field devices for RLE127..

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	**BSG-Z**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor, passive	N1781	BPZ:QAE21..	**QAE21..**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**

RLE132

Immersion temperature controller, AC 230 V, 3-position output



Compact electronic controller with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for mains connection and controller output need to be laid. Supplied with protection pocket for indirect temperature sensing.

Application:
Modulating temperature controller, with 3-position control signal and auxiliary relay. The RLE132 is ideally suited for control of the following heating plants:
- Domestic hot water temperature
- Flow temperature control
- Calorifiers or heat exchangers

Features:
- Values for both normal and reduced temperature can be set
- Setpoint changeover via external contact or time switch
- Optional legionella function
- Auxiliary digital output for heat demand
- Connection for remote setting unit
- Minimum limitation of boiler return temperature
- Minimum or maximum limitation of the return temperature
- PI control (selectable)
- Service mode

Data sheet	N3334
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	4 VA
Analog input, signal	LG-Ni1000 0...1000 Ohm
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	2 A
Setpoint setting range	0...130 °C
Setpoint readjustment range	0...50 K
Immersion length	150 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 × 152 × 78 mm

Stock No.	Product No.
BPZ:RLE132	**RLE132**

Field devices for RLE132

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	**BSG-Z**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**

Immersion temperature controller, AC 24 V, DC 0...10 V output — RLE162

Compact electronic controller with immersion type temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for power supply connection and controller output need to be laid. Supplied with threaded nipple for direct temperature sensing.



Applications:
Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals and auxiliary relay.
The RLE162 is used for control and limiting of temperature in hot water, heating or cooling plants:
- Domestic hot water temperature
- Heating flow temperature
- Closed circuit heat exchangers
- Water-side control of HVAC units
- Chilled water temperature

Features:
- High or low temperature limitation
- Auxiliary digital output
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Optional legionella function

Data sheet	N3333
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	-10...130 °C
Setpoint readjustment range	0...60 K
Immersion length	130 mm
PN class	PN 10
Degree of protection	IP65
Dimensions (W x H x D)	125 × 152 × 78 mm

Stock No.	Product No.
BPZ:RLE162	**RLE162**

Field devices for RLE162

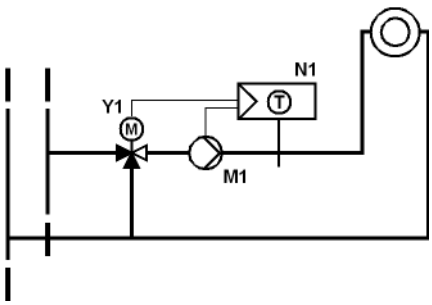
Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	**BSG-Z**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, LW7	N1194	BPZ:ALT-SB150	**ALT-SB150**

Application examples Synco™ 100

These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLA.. / RLE.. / RLM..
More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLA.. / RLE.. / RLM.. data sheet.

RLE132

H0C003 LE1 HQ

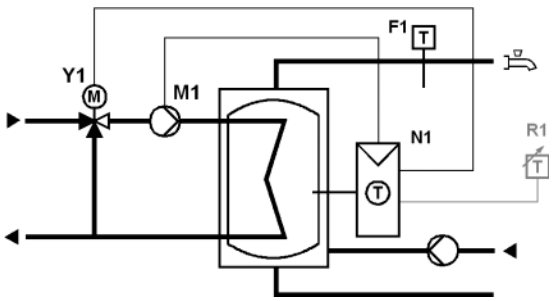


Heating Plant, Flow Temperature Control

- Controller (N1) with immersion built-in sensor to control the heating flow temperature via modulating control of the mixing valve (Y1)

RLE162

H00B01 LE1 HQ

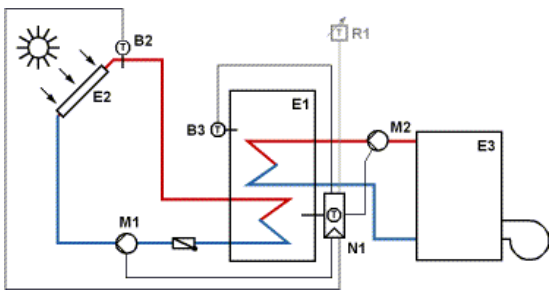


Domestic Hot Water Plant

- Controller (N1) with built-in immersion sensor to control the d.h.w. storage temperature via modulating control of the primary d.h.w. heating valve (Y1) and the circulating pump (M1).

RLE127

SA0002 LE1 HQ



Domestic Hot Water Plant

- Controller (N1) acquires the temperature in the hot water storage tank (E1) via its built-in immersion detector, and the temperature of the solar collector (E2) measured by the temperature detector B2.
- The measured temperature differential is compared with the desired Dt set-point set on the controller. If the measured differential exceeds the set value, the controller switches ON the circulating pump (M1) to load the storage tank.

Differential temperature controller, AC 230 V, with 2 relay outputs — RWD32S



Differential temperature controller, for use in solar heating applications, where water-side control takes place depending on a selected temperature differential.

Application
Differential temperature controller, with 2-position control signals. The RWD32S is ideally suited for control of the following heating plants:
- Solar energy plants with storage tanks
- Swimming pool heating systems with solar panels
- Heat storage plants with several storage tanks

Features
- Pre-configured applications
- Saving energy counter
- Changeover to a secondary heat source upon demand
- Minimum charging temperature option
- Absolute temperature setpoint
- Maximum temperature limitation
- Frost protection
- Relay output with delay time ajustable

Data sheet	N3344
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	6.5 VA
Digital input, contact query	DC 15 mA DC 15 V
Relay outputs	Changeover contacts, potential-free
Relay output, switching voltage	AC 24...230 V DC 5...30 V
Relay output, switching current	AC 0.02...4 (3) A DC 0.1...4 A
Degree of protection	IP20
Dimensions (W x H x D)	130 × 114 × 57 mm

	Stock No.	Product No.
	BPZ:RWD32S	**RWD32S**

Field devices for RWD32S

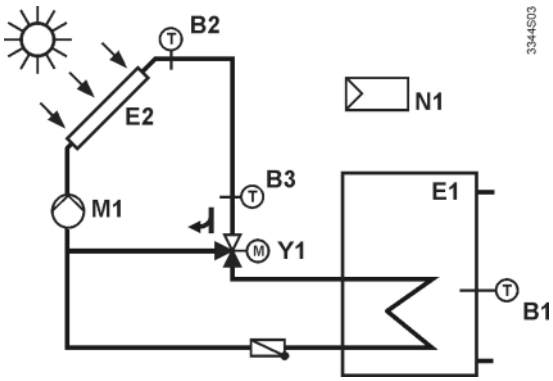
Product Title	Data sheet	Stock No.	Product No.
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor, passive	N1781	BPZ:QAE21..	**QAE21..**
Cable temperature sensor (6 x 40.5 mm) for HVAC applications	N1831	BPZ:QAP2..	**QAP..**

Application examples RWD..

These are only a few examples of many applications that can be done with the with controllers RWD..
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RWD.. data sheet.

RWD32S

SA0003 WD3 HQ

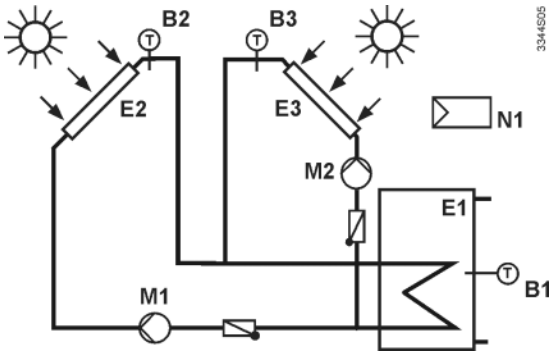


Solar System with Diverting Valve (Bypass)

- Differential temperature control of a storage tank with an additional sensor (B3) in the flow from the collector and a bypass valve (Y1).
- This application is used where the collector is a long way from the storage tank (e.g. on a high roof) and prevents cool water in the pipe work from being fed into the tank (typically on morning start up or after long periods without solar energy).

RWD32S

SA0005 WD3 HQ

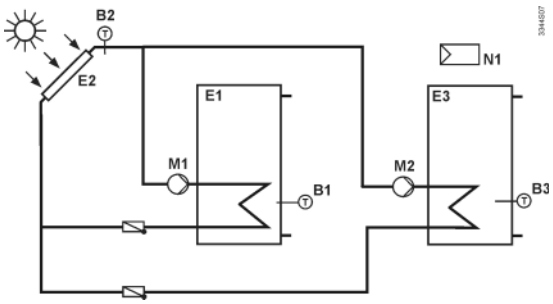


Hot water storage tank with solar heating, charging pump and non-return valve

- Basic differential temperature control of a hot water storage tank.
- This application allows differential temperature control of the storage tank by two different solar collectors (e.g. East and West facing) maximizing the solar energy throughout the day.

RWD32S

SA0007 WD3 HQ



Two independent hot water storage tanks and solar heating

- Basic differential temperature control of a hot water storage tank (each with charging pump and non-return valve).
- This application uses a single solar collector to charge two storage tanks. It is typically used where the sun's energy is very high or can be used for long periods

Heating controller with analog operating elements

RVP201..





Heating controllers for use in residential or smaller commercial buildings that have their own heat generation. Easy-to-understand analog operating elements for the enduser.

Key functions
Weather-compensated flow or boiler temperature control, with or without room influence or room temperature control. Control of 3- or 2-position actuators or direct control of a burner.

Additional settings
- Control of the heating pump
- Quick setback and boost heating
- Heating curve
- Room temperature influence
- Frost protection for the plant and the room
- Automatic ECO function for switching the heating system on and off depending on demand
- Maximum limitation of the flow or boiler temperature
- Pump overrun and pump kick
- Remote switching of operating mode via room unit or external switch

Operating modes
The following operating modes can be selected with the slider: Automatic/Protection, Automatic/Reduced, Setback, Normal operation and Protection.

Data sheet	N2464
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 × 96 × 115 mm

Range overview RVP201..

Product Title	Data sheet	Stock No.	Product No.
Heating controller without time switch	N2464	BPZ:RVP201.0	**RVP201.0**
Heating controller with analog 24-hour time switch	N2464	BPZ:RVP201.1	**RVP201.1**

RVP211..





Heating controller incl. DHW heating

Heating controller for use in residential or smaller commercial buildings that have their own heat generation and own DHW heating. Easy-to-understand analog operating elements for the enduser.

Key functions (same as RVP201)

Other settings (same as RVP201)

DHW heating functions
- Storage tank charging by control of a charging pump:
- Absolute priority: Heating circuit pump remains locked during DHW charging
- No priority (parallel): Heating circuit pump and DHW charging pump operate parallel
- Storage tank charging by control of a diverting valve
- Frost protection for DHW
- DHW temperature can be acquired via a temperature sensor or thermostat

Operating modes
The following operating modes can be selected with the slider: Automatic/Protection, Automatic/Reduced, Setback, Normal operation, Protection, or DHW heating only.

Data sheet	N2464
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 × 96 × 115 mm

Range overview RVP211..

Product Title	Stock No.	Product No.
Heating controller without time switch, with d.h.w. heating	BPZ:RVP211.0	**RVP211.0**
Heating controller with analog 24-hour time switch, with d.h.w. heating	BPZ:RVP211.1	**RVP211.1**

Accessories for RVP2..

Product Title	Data sheet	Stock No.	Product No.
Analog 24-hour time switch	N2464	BPZ:AUZ3.1	**AUZ3.1**
Analog 7-day time switch	N2464	BPZ:AUZ3.7	**AUZ3.7**
Digital time switch	N2464	BPZ:AUD3	**AUD3**

Field devices for RVP2..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**

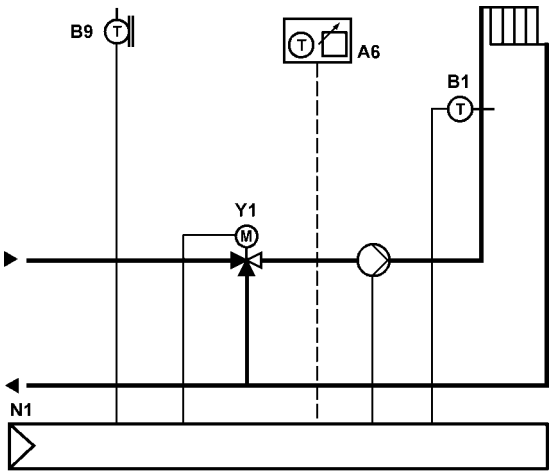
Application example RVP2..

These are only a few examples of many applications that can be done with the family of controllers: RVP2...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVP2.. data sheet.

RVP201.1

Weather-compensated heating system, one heating circuit

H0C001 VP2 HQ b

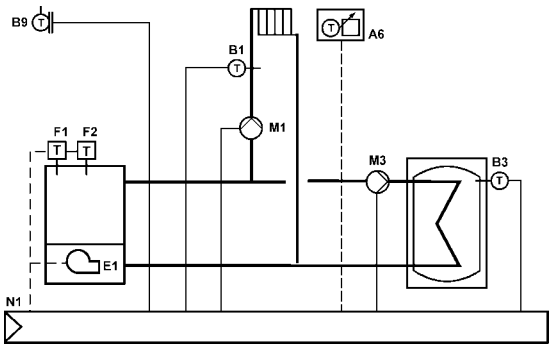


- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Time program with analog 24-hour time switch
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only)
- Maximum limitation of flow temperature

RVP211.1

Weather-compensated heating system, heat generation, one heating circuit, d.h.w.

HAAA01 VP2 HQ b



- Weather-compensated flow temperature control acting on boiler with single-stage burner
- Control of d.h.w. supply via pump-charged storage tank
- Frost protection for building and plant
- Time program with analog 24-hour time switch
- ECO function switches off heating depending on outside temperature

Heating controller for 1 heating circuit and d.h.w., without communication — RVP351



Weather-compensated flow temperature control of heating circuit with or without room influence, d.h.w. heating and demand based boiler temperature control (like RVP350).
RVP351 without LPB communication for standalone applications.

Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 7 x 1(1) A
Dimensions (W x H x D)	144 × 96 × 109 mm

Stock No.	Product No.
S55370-C138	**RVP351**

Heating controller for 2 heating circuits and d.h.w., without communication — RVP361



Weather-compensated flow temperature control of 2 independent heating circuits with or without room influence, d.h.w. heating and demand based boiler temperature control (like RVP360).
RVP361 without LPB communication for standalone applications.

Data sheet	N2546
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	8 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 9 x 1(1) A
Dimensions (W x H x D)	144 × 96 × 109 mm

Stock No.	Product No.
S55370-C140	**RVP361**

Field devices for RVP3..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Digital room unit with address selector	N1635	BPZ:QAW50.03	**QAW50.03**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**

Heating controller for 1 heating circuit

RVP340



Weather-compensated flow temperature control of heating circuit with or without room influence.

Key functions:
- 2 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Weather-compensated flow temperature control through control of valve (mixing) in a heating circuit
- Weather-compensated flow temperature control through control of the 2-port valve in the primary return of a heating circuit with district heat connection (substation)

Additional functions
The RVP340 provides the following functions (no submodules or extra devices required):
- Optimum start / stop
- Quick setback and boost heating
- Automatic ECO function, depending on the outside temperature and the type of building construction
- One 7-day program with 3 heating periods per day
- Yearly time program for holidays
- Digital setting of the heating curve
- Pump kick and pump overrun
- Minimum and maximum limitation of the flow temperature
- Multifunctional outputs
- Digital input for remote control of operating mode
- Communication with other controllers via LPB data bus (RVP3.., RVL4.. and RVD2..)

Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	4 x 2(2) A
Dimensions (W x H x D)	144 × 96 × 109 mm

Stock No.	Product No.
S55370-C136	**RVP340**

RVP350



Heating controller for 1 heating circuit and d.h.w.

Weather-compensated flow temperature control of heating circuit with or without room influence, d.h.w. heating and demand based boiler temperature control.

Key functions
In addition to the functions of the RVP340, the RVP350 provides the following:
- 3 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Weather-compensated flow temperature control through control of valve (mixing) in a heating circuit
- Demand based control of the boiler temperature through control of the burner
- D.h.w. heating with charging pump, electric immersion heater and solar collector

D.h.w. control
D.h.w. control independent of the heating circuit. Control can be enabled as follows:
- According to its own 7-day program
- According to the program of the heating circuit
- According to the programs of the zone controllers on the data bus
- Permanently (24 hours a day)

D.h.w. heating features a legionella function, which can be deactivated. Legionella protection is activated once a week. The d.h.w. temperature is acquired with sensors or thermostats.

Boiler temperature control
Boiler temperature control operates as demand-dependent 2-position control. The boiler temperature is controlled through cycling of a 1- or a 2-stage burner (direct burner control). When there is no heat request, the boiler will either be shut down or maintained at the minimum temperature (selectable). Both minimum and maximum limitation of the boiler temperature are adjustable.

Data sheet	N2545
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital inputs	Status contact
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 7 x 1(1) A
Dimensions (W x H x D)	144 × 96 × 109 mm

Stock No.	Product No.
S55370-C137	**RVP350**

Heating controller for 2 heating circuits and d.h.w.

RVP360



Weather-compensated flow temperature control of 2 independent heating circuits with or without room influence, d.h.w. heating and demand-dependent boiler control.

Key functions
In addition to the functions of the RVP350, the RVP360 provides the following:

- 6 preprogrammed plant types can be selected, with automatic assignment of the functions required for each plant type
- Control of 2 mixing heating circuits
- Control of 1 pump heating circuit and 1 mixing heating circuit

Data sheet	N2546
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	8 VA
Analog input, signal	LG-Ni1000 NTC 575
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 x 2(2) A 9 x 1(1) A
Dimensions (W x H x D)	144 × 96 × 109 mm

	Stock No.	Product No.
	S55370-C139	**RVP360**

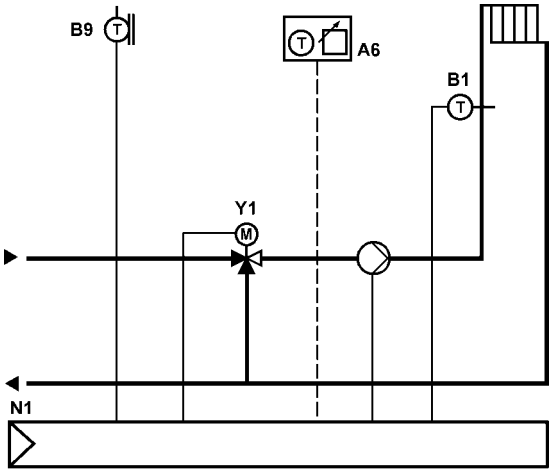
Field devices for RVP3..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Digital room unit with address selector	N1635	BPZ:QAW50.03	**QAW50.03**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**

Application examples RVP3..

These are only a few examples of many applications that can be done with the family of controllers: RVP3...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVP3.. data sheet.

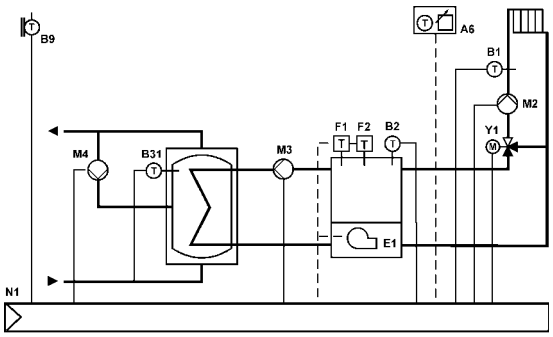
RVP340



Weather-compensated heating system, one heating circuit

- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- Time switch program with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

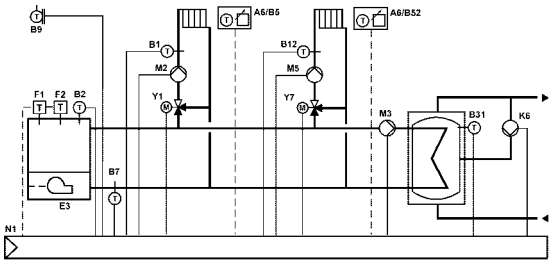
RVP35..



Weather-compensated heating system, heat generation, one heating circuit and d.h.w

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependend flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

RVP36..



Weather-compensated heating system, heat generation, two heating circuits and d.h.w.

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependend flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 2 time switch programs, each with 3 heating periods
- Separate time switch program for d.h.w.
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)

Multifunctional Heating Controllers

RVL4..

Multifunctional heating controller for use in all types of residential and nonresidential buildings, configured for all standard heating applications. The RVL controllers provide weather-compensated flow temperature control and preprogrammed plant types with automatic assignment of the functions required for each type of plant.
The RVL controllers are characterized by the easy-to-understand user interface, large display and setting features:
- Analog heating curve
- Room temperature setpoint knob
- Proven operating line principle
- Setting level fo the heating engineer
- Communication facilities
- Remote operation

Operating voltage	AC 230 V
Frequency	50 Hz
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Dimensions (W x H x D)	144 x 144 x 113 mm

Heating controller for 1 heating circuit or boiler temperature control

RVL480



Key functions
Weather-compensated flow temperature control, with or without room influence
6 preprogrammed plant types are provided

Plant system
- Control of a mixing valve serving a heating zone (space heating)
- Control of a burner (1- or 2-stage)
- Control of a valve in the primary return of a heating zone with district heat connection
- Demand-dependent control (precontrol) of a mixing valve / of the boiler temperature / of a heat exchanger (heat demand signal via data bus)

Additional functions
The RVL480 offers the following functions (no submodules or extra devices required):
- Display of parameters, actual values, operating states and fault status signals
- 7-day program with 3 heating periods per day
- 2 additional programs, each with 3 switching periods per day
- Automatic summer/winter changeover
- Holiday program (up to 8 holiday periods per year)
- Optimum start/stop in accordance with the heating program (with or without room influence)
- Automatic ECO function, depending on the outside temperature and the type of building construction
- Optional remote selection of operating modes (via room unit or external switch)
- Scalable DC 0...10 V output for passing on the heat request to other devices
- Quick setback and boost heating
- Preselection of flow temperature setpoint via external contact
- Minimum and maximum limitation of the flow temperature
- Minimum and maximum limitation of the return temperature (shifting / constant)
- Maximum limitation of the room temperature
- Communication with other devices via the data bus
- Limitation of the return temperature differential (DRT) for district heat applications
- Frost protection and pump protection
- Flow temperature alarm

Data sheet	N2540
Power consumption	7 VA

	Stock No.	Product No.
	BPZ:RVL480	**RVL480**

RVL481



Heating controller for boiler temperature control and d.h.w. heating

Key functions
Weather-compensated flow temperature control, with or without room influence, with simultaneous demand-compensated boiler and DHW control.
29 preprogrammed plant types can be selected from a combination of 6 heating applications and 5 DHW applications.

Heating circuit plant types
- Control of a mixing valve serving a heating circuit (space heating)
- Control of a burner (1- or 2-stage)
- Control of a valve in the primary return of a heating zone with district heat connection
- Demand-dependent control (precontrol) of a mixing valve / of the boiler temperature / of a heat exchanger (heat demand signal via data bus)

DHW plant types
- Charging of DHW storage tank through control of a charging pump.
- Charging of DHW storage tank through control of a mixing valve
- Charging of DHW storage tank through control of a diverting valve
- DHW heating via heat exchanger through control of a 2-port valve in the primary return
- DHW heating with electric immersion heater only
- DHW heating with solar collector

Additional functions
In addition to the functions of the RVL480, the RVL481 offers the following functions (no submodules or extra devices required):
- 2 programs for heating and DHW, each with 3 heating periods per day
- 1 multifunctional relay for switching on/off the plant according to various parameters and functions

Data sheet	N2541
Power consumption	9 VA

Stock No.	Product No.
BPZ:RVL481	**RVL481**

Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating

RVL482



Key functions
Weather-compensated flow temperature control, with or without room influence, with simultaneous demand-compensated boiler and DHW control.
21 preprogrammed plant types can be selected from a combination of 5 heating applications and 4 DHW applications.

Heating circuit plant types
- Control of space heating through control of a mixing valve in the heating circuit
- Control of space heating through control of a mixing valve with simultaneous demand-dependent control of the boiler temperature
- Control of space heating through control of mixing valve and boiler, plus minimum limitation of the boiler return temperature with own mixing valve
- Demand-dependent control (precontrol) of the boiler temperature (heat demand signal via bus)
- Demand-dependent control (precontrol) of the boiler temperature with minimum limitation of the boiler return temperature via mixing valve (heat demand signal via bus)

DHW plant types
- Charging of DHW storage tank through control of a charging pump.
- Charging of DHW storage tank through control of a mixing valve
- DHW heating via heat exchanger through control of a 2-port valve in the primary return
- DHW heating through electric immersion heater only
- DHW heating with solar collector

Additional functions
In addition to the functions of the RVL480 and RVL481, the RVL482 offers the following functions:
- 2 scalable DC 0...10 V inputs for heat demand signals from external consumers
- Connection facility for solar and wind sensor (refer to chapter "Sensors")
- Control of a boiler or circulating pump
- Optional selection of circulating pump/bypass pump
- Three 7-day programs, each with 3 heating periods per day

Data sheet	N2542
Power consumption	9 VA

Stock No.	Product No.
BPZ:RVL482	**RVL482**

RVL479



Heating controller for a second heating circuit

Application
Heating controller for use in all types of buildings that require specific control of a second heating zone at an attractive price.

Key functions
The RVL479 operates with a partner unit, for independent weather-compensated control of a second heating zone.
1 preprogrammed heating application: Space heating via control 3-position of a mixing valve.

Additional functions
- Dedicated control of the second heating zone makes it possible to use an independent user interface for diagnostics
- Separate 7-day program with 3 heating periods per day
- Separate holiday program
- Dedicated display of parameters for the second zone (operating state and fault status signals)
- Independent optimum start/stop for the second heating zone
- Minimum and maximum limitation of the flow temperature
- Minimum limitation of the return temperature
- Maximum limitation of the room temperature
- Communication with other devices via LPB data bus
- Transmission and common usage of data (outside temperature, heat demand, alarms, etc.)
- Frost protection and pump protection

Data sheet	N2543		
Power consumption	7 VA		
		Stock No.	Product No.
		BPZ:RVL479	**RVL479**

Suitable partner units for RVL479

Product Title	Data sheet	Stock No.	Product No.
Heating controller for 1 heating circuit or boiler temperature control	N2540	BPZ:RVL480	**RVL480**
Heating controller for boiler temperature control and d.h.w. heating	N2541	BPZ:RVL481	**RVL481**
Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating	N2542	BPZ:RVL482	**RVL482**

Field devices for RVL4..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Conduit box with surge protection for solar panel sensor	N2488	BPZ:AGS2S.200/1091	**AGS2S.200/109**

QAW50

Digital room unit



With 3 analog operating elements:
- Operating mode selector
- Occupancy button
- Knob for setpoint readjustments

Data sheet	N1635
Setpoint readjustment range	±3 K
Measuring range, temperature	0...32 °C
Degree of protection	IP30
Communication	PPS
Connection cable	2-wire

Stock No.	Product No.
BPZ:QAW50	**QAW50**

QAW50.03

Digital room unit with address selector



Same function as QAW50, but addressable

Data sheet	N1635

Stock No.	Product No.
BPZ:QAW50.03	**QAW50.03**

QAW70..

Multifunctional room operator unit



Programmable unit with display of date, time of day, room temperature, outside temperature, setting values and current 7-day program. With knob for manual setpoint readjustments and presence button for manually activating the savings program

Data sheet	N1637

Range overview QAW70..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room unit, instructions in en, de, fr, it	N1637	BPZ:QAW70-A	**QAW70-A**
Multifunctional room unit, instructions in nl, sv, el, pl	N1637	BPZ:QAW70-B	**QAW70-B**

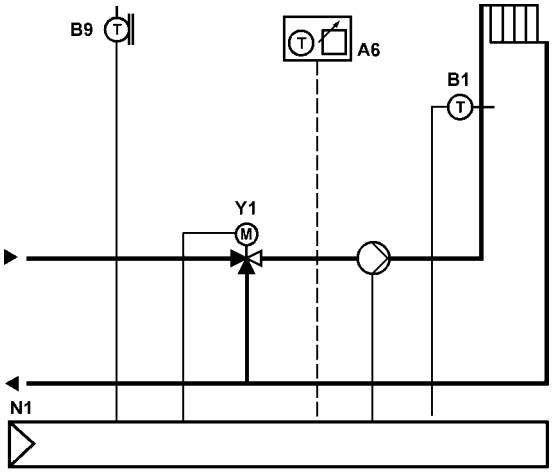
Application examples RVL4..

These are only a few examples of many applications that can be done with the family of controllers: RVL4...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVL4.. data sheet.

Weather-compensated heating system, one heating circuit

RVL480

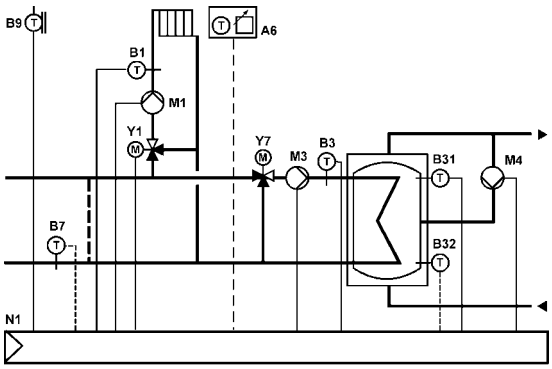
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- Time switch program with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve



Weather-compensated heating system, one heating circuit and d.h.w

RVL481

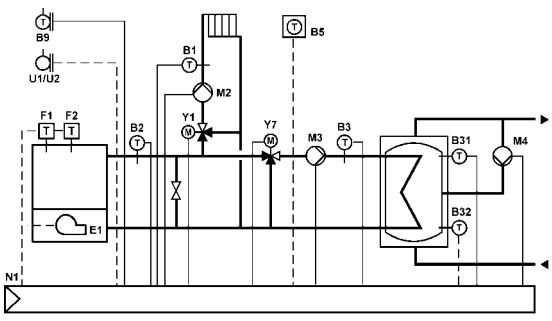
- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Frost protection for building and plant
- Digital yearly time switch
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve and room temperature setpoint



Weather-compensated heating system, heat generation, one heating circuit, d.h.w.

RVL482

- Weather-compensated flow temperature control with 3-point actuator acting on mixing valve
- Demand-dependend flow temperature control acting on boiler with single- or two-stage burner
- Frost protection for building and plant
- Digital yearly time switch
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick setback (with room unit only or with building model)
- Analog setting of heating curve and room temperature setpoint



RMH760B..



Heating controller

- Heating controller as primary controller or main controller (district heat) or heating circuit controller
- Boiler temperature control
- Control of max. 3 heating circuits and DHW heating (7 variants available) with optional extension modules
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 heating controller and offer extra functions. Controller and extension modules are interconnected via plug-in connectors. The extension modules are attached to the controller and do not operate autonomously. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:
2 heating circuit modules RMZ782B
1 DHW module RMZ783B
1 universal module RMZ787
2 universal modules RMZ789
A total of 4 extension modules can simultaneously be used with the Synco 700 heating controller.

Available operator units:
- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791
- Bus operator unit RMZ792

Data sheet	N3133
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	6
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 NTC 575 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	5
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)

Range overview RMH760B..

Product Title	Data sheet	Stock No.	Product No.
Heating controller with languages de, fr, it, es	N3133	BPZ:RMH760B-1	**RMH760B-1**
Heating controller with languages de, en, fr, nl	N3133	BPZ:RMH760B-2	**RMH760B-2**
Heating controller with languages da, fi, sv, no	N3133	BPZ:RMH760B-3	**RMH760B-3**
Heating controller with languages pl, cs, sk, hu, ru, bg	N3133	BPZ:RMH760B-4	**RMH760B-4**
Heating controller with languages sr, hr, sl, ro, el, tr	N3133	BPZ:RMH760B-5	**RMH760B-5**

RMK770..



Boiler sequence controller

Modular heating controller with integrated control and supervisory functions for:
- Up to 6 boilers
- Multistage or modulating burners
- Precontrol
- Heating circuit
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 boiler sequence controller and offer extra functions. The extension modules are attached to the controller. They do not operate autonomously. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:
3 universal modules RMZ785
3 universal modules RMZ787
3 universal modules RMZ788
3 universal modules RMZ789

A total of 3 extension modules can simultaneously be used with the Synco 700 boiler sequence controller.

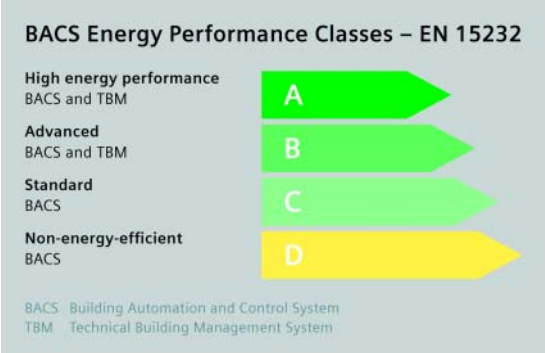
Available operator units:
- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791
- Bus operator unit RMZ792

Data sheet	N3132
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	8
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Digital inputs, number	2
Digital inputs	Potential-free input signal
Digital input, contact query	5 mA DC 15 V
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	7
Relay outputs	AC 19...265 V, max. 4(3) A Potential-free switching contact
Communication	KNX (KNX TP1)

Range overview RMK770..

Product Title	Data sheet	Stock No.	Product No.
Boiler sequence controller with languages de, fr, it, es	N3132	BPZ:RMK770-1	**RMK770-1**
Boiler sequence controller with languages de, fr, en, nl	N3132	BPZ:RMK770-2	**RMK770-2**
Boiler sequence controller with languages da, fi, sv, no	N3132	BPZ:RMK770-3	**RMK770-3**
Boiler sequence controller with languages pl, cs, sk, hu, ru, bg	N3132	BPZ:RMK770-4	**RMK770-4**
Boiler sequence controller with languages sr, hr, sl, ro, el, tr	N3132	BPZ:RMK770-5	**RMK770-5**

Application examples RMH760B.. and RMK770..

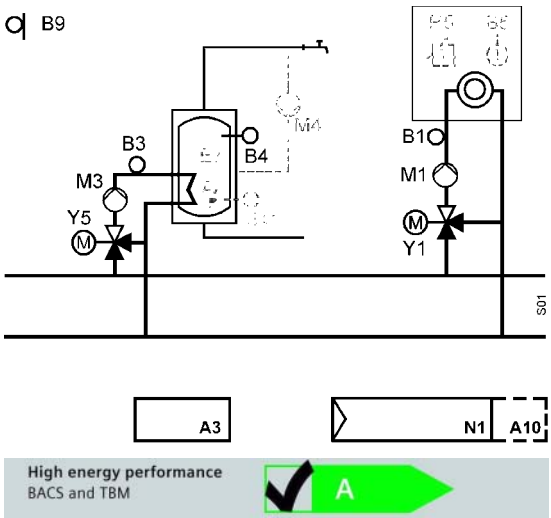


These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMH760B.. / RMK770..
More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMH760B.. / RMK770.. data sheet.

The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".
Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.
www.siemens.com/hit

RMH760B..

H0CB02 H6B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Weather-compensated heating control, one heating circuit, d.h.w

- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Econo-my and Protective Mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to 16 periods
- 7-day program (maximum six switching points per day)
- Time switch program for the heating circuit
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Control of the storage tank charging temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating

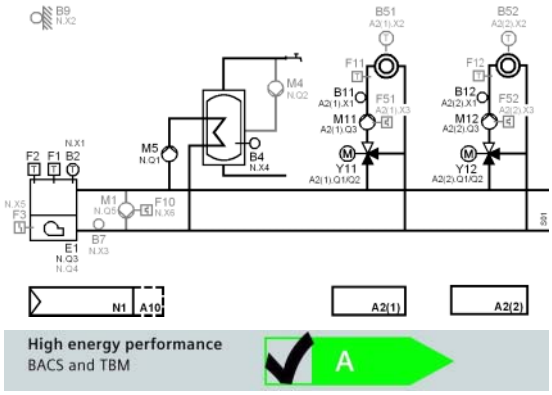
The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control "by occupancy, air quality, etc." (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- Variable temperature depending on the load (Heat demand signal required)

Weather-compensated heating control, heat generation, 2 heating circuits, d.h.w.

RMH760B..

HCDA01 H6B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

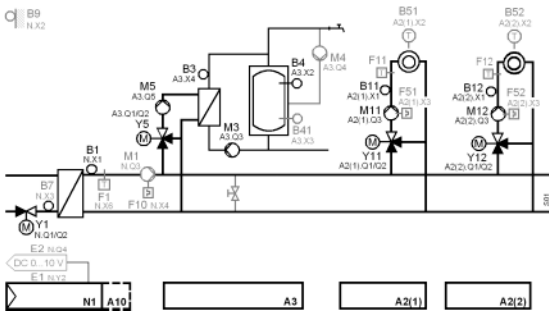
- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Economy and Protective Mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to 16 periods
- 7-day program (maximum six switching points per day)
- Time switch programs for heating circuits 1 and 2
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Control of the storage tank temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating
- Demand-compensated boiler temperature control
- Protective boiler startup by reducing the consumer setpoints
- Control of a single-stage or 2-stage burner
- Control of the boiler temperature via modulating burner with DC 0...10 V control
- Burner fault contact

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control “by occupancy, air quality, etc.” (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- enerator; Variable temperature depending on the load

RMH760B..

DADC04 H6B HQ





To fulfill the classification, the plant must be equipped with all indicated functions.

Weather-compensated heating system, district heating connection, 2 heating circuits, d.h.w

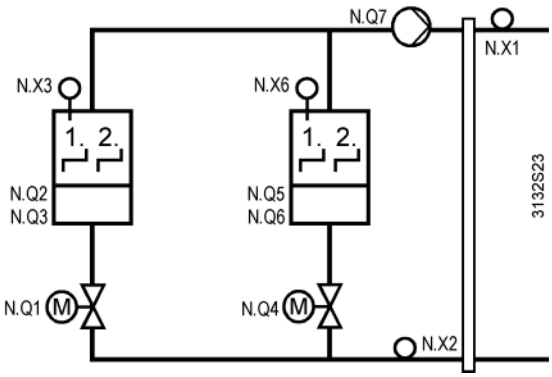
- Weather-compensated flow temperature control with adjustable setpoints for Comfort, Precomfort, Economy and Protective mode
- Frost protection for the building and the plant
- Changeover between 3 room temperature setpoints according to the time switch program
- Yearly clock
- Holiday and special day program with up to [SoftReturn]16 periods
- 7-day program (maximum six switching points [SoftReturn]per day)
- Time switch programs for the heating circuits
- Control of the storage tank charging temperature with adjustable setpoints for Normal, Reduced, Legionella and Protective mode
- Time switch program for DHW heating
- Limitation of the flow temperature
- Automatic heating limit with adjustable limits
- Optimum start control
- Quick setback
- Demand-compensated primary control

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Integrated individual room control including demand control “by occupancy, air quality, etc.” (Heating circuits for precontrol in individual room control)
- Indoor temperature control (Room temperature in individual room control via KNX requires extra configuration)
- Variable speed pump control with constant Δp (The pump must have integrated output control)
- Intermittent control of emission and/or distribution, automatic control with optimum start/stop
- Generator; Variable temperature depending on the load

RMK770..

K2.2



Boiler cascade, 2 boilers with 2-stage burners

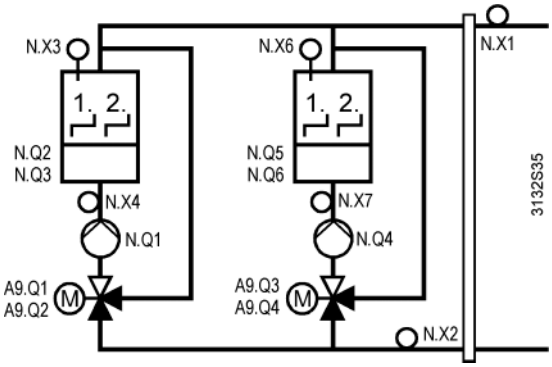
- Control of the boiler temperature via 2-stage burner
- Control of the shutoff valves
- Common flow and return temperature control
- Control of the main pump

Boiler cascade, 2 boilers with 2-stage burners

RMK770..

K6.2

- Control of the boiler temperature via 2-stage burner
- Controlled boiler return temperature with 3-port valve and 3-position or DC 0...10 V actuator
- Control of the boiler pumps
- Common flow and return temperature control
- Extension module RMZ789 needed

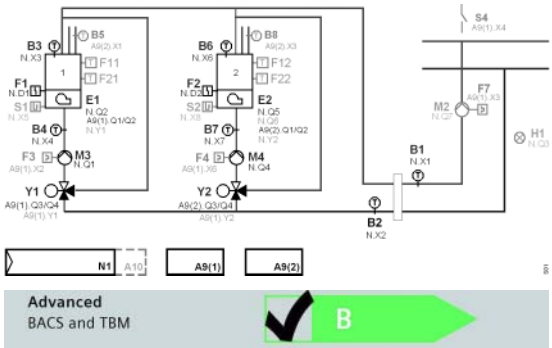


Dual-boiler plant, boiler pumps, boiler return with 3-port valve

RMK770..

HFF003 MK7 HQ

- Control of the boiler sequence
- Automatic changeover of lead boiler depending on the number of boiler operating hours
- Control of the boiler pumps
- Control of the boiler temperature via modulating burner with 3-position or DC 0...10 V control
- Burner fault contact
- Limitation of the burner's minimum on time
- Controlled maintained boiler return temperature with 3-port valve and 3-position or DC 0...10 V actuator
- Protective boiler startup
- Maximum and minimum limitation of the boiler tempe-rature
- Selection of boiler operating mode
- Flue gas measuring mode, boiler testing mode
- Burner hours run and burner startup counter
- Minimum and maximum limitation of the flow tempera-ture
- Automatic changeover to summer operation
- (heating OFF)
- Pump overrun, pump kick
- Valve overrun, valve kick
- Acquisition and evaluation of heat requisition signals via Konnex bus



To fulfill the classification, the plant must be equipped with all indicated functions.

The indicated energy efficiency classification can be attained only if the following functions are implemented:

In connection with an application that fulfils the energy efficiency class B, necessary for:

- Emission control
- Control of distribution network hot watertemperature (supply or return)
- Control of distribution pumps
- Intermittent control of emission and/or distribution

RMZ790

Plug-in type operator unit



- Operator unit plugs into the Synco™ 700 controllers
- For displaying and changing plant data for service staff and enduser
- Clear-text operation
- Can be plugged in and removed during operation
- Power supply via the controller

Data sheet N3111

	Stock No.	Product No.
	BPZ:RMZ790	**RMZ790**

RMZ791

Detached operator unit with 3 m cable



Like plug-in type operator unit, but:
- Other mounting choices (typically for control panel door or wall mounting)
- Larger display
- Connection via a prefabricated 3 m cable, supplied as standard

Data sheet N3112

	Stock No.	Product No.
	BPZ:RMZ791	**RMZ791**

RMZ792

Bus operator unit



Communicating operator unit for operating up to 150 controllers, room units and central units from the Synco™ 700 range via KNX bus.
Favorite pages can be freely defined. Designed for fixed installation or mobile use.

Data sheet N3113

	Stock No.	Product No.
	BPZ:RMZ792	**RMZ792**

QAW740

Room unit with KNX bus



Configurable unit with display of operating mode, timer, temperatures and fault.

With 3 operating elements:
- Knob for setpoint readjustments
- Operating mode button
- Timer button

Data sheet N1633

Setpoint readjustment range	±3 K
Measuring range, temperature	0...50 °C
Degree of protection	IP20
Communication	KNX TP1 EE
Connection cable	2-wire

	Stock No.	Product No.
	BPZ:QAW740	**QAW740**

Universal modules

RMZ78..



Additional inputs and outputs required by the Synco™ 700 controllers can be provided by these modules. A description of the functions is given with the relevant controller module.

Data sheet	N3146
Power consumption	2 VA
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A

Range overview RMZ78..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Stock No.	Product No.
8	0	0	BPZ:RMZ785	**RMZ785**
4	0	4	BPZ:RMZ787	**RMZ787**
4	2	2	BPZ:RMZ788	**RMZ788**
6	2	4	BPZ:RMZ789	**RMZ789**

Heating circuit module

RMZ782B



- Weather-compensated flow temperature control via heating circuit's mixing valve
- Control of heating circuit pump

The available heating circuit control and supervisory functions are the same as those of the RMH760B

Data sheet	N3136
Voltage supply	Supply from controller module
Power consumption	2 VA
Universal inputs, number	3
Universal input, signal	LG-Ni1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Pt1000 NTC 575 T1 (PTC)
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	3
Relay outputs	Switching contact, potential-free
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A

	Stock No.	Product No.
	BPZ:RMZ782B	**RMZ782B**

RMZ783B

DHW module



- Control of the storage tank temperature
- Storage tank charging with integrated coil, with pump or mixing valve
- Storage tank charging with detached heat exchanger, with pump and mixing valve
- Storage tank charging according to a time program
- Control of the circulating pump according to a time program

The technical data correspond to the heating circuit module RMZ782B, except:

Data sheet	N3136
Universal inputs, number	4
Analog outputs, number	1
Relay outputs, number	5

Stock No.	Product No.
BPZ:RMZ783B	**RMZ783B**

RMZ780

Module connector



Module connector for detached mounting of extension modules within the control panel.
Distance for detached mounting: Maximum 10 m.

Data sheet	N3138

Stock No.	Product No.
BPZ:RMZ780	**RMZ780**

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	**QAD26.220**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Immersion temperature sensor Ø 6 mm with cable and fitting	N1790	BPZ:QAE26.9	**QAE26.9**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	**FGT-PT1000**

Monitors

Product Title	Data sheet	Stock No.	Product No.
Flow switch for use in hydraulic systems, PN10, DN32...200	N1592	BPZ:QVE1900	**QVE1900**
Thermal reset limit thermostat	N1202	BPZ:RAK-TW.1..H	**RAK-TW.1..H**
Temperature limiter	N1206	BPZ:RAK-TB.1..M	**RAK-TB.1..M**
Safety limit thermostat	N1204	BPZ:RAK-ST..M	**RAK-ST..M**

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	**QAA27**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	**AQR2531BNW**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**

Transformers

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	**SEM62..**

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	**OCI700.1**

RVD12..



District heating controller

Control of district heat substations, space heating and d.h.w. heating.
Optimized for low return temperatures in district heating networks.

- 3 ready programmed and preselected plant types
- Straightforward, easy-to-understand operation
- Analog adjustment of room temperature setpoint, other adjustments with operating lines
- Display of time of day, time program, setpoints, actual values, limitations, errors, etc.
- Optional remote operation via room unit
- 2 independent switching programs each with 3 occupancy times per day
- Holiday function (via room unit)
- DRT limitation for the reduction of peak loads
- Maximum limitation of the return temperature on the primary side
- Minimum and maximum limitation of the flow temperature
- Automatic summer / winter changeover
- Automatic ECO function
- Pump protection
- Legionella function
- Frost protection function
- Automatic monitoring of sensors with alarm indication
- Relay and sensor tests, manual operation
- Locking function for district heat parameters
- Communication via Modbus
- Display with background lighting

Plant-specific
- 1 pump heating circuit, control of the flow temperature, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating:
- Storage system with integrated heat exchanger and 1 storage tank sensor
- Charging pump

Data sheet	N2510
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	5.5 VA
Analog input, signal	LG-Ni1000 NTC 575
Digital outputs	3 × AC 230 V 1(1) A 1 × AC 230 V 2(2) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD12..

Product Title	Data sheet	Stock No.	Product No.
Controller, 3 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	S55370-C109	**RVD120-A**
Controller, 3 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	S55370-C110	**RVD120-C**

District heating controller

RVD14..



Same functionality as the RVD120, but with the following extra features:
- 8 ready programmed and preselected plant types
- Solar d.h.w. heating
- D.h.w. heating with electric immersion heater
- Refill function

Plant-specific
- Precontrol of internal control loops
- 1 pump or mixing heating circuit, flow temperature control, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating:
- Instantaneous system
- Storage tank charging system with 1 or 2 storage tank sensors
- Storage system with integrated heat exchanger
- 2 charging pumps
- Circulating pump
- Solar d.h.w. heating

Data sheet	N2510
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	LG-Ni1000 NTC 575 DC 0...10 V
Digital inputs, number	1
Digital inputs	Flow switch
Digital outputs	5 × AC 230 V 1(1) A 4 × AC 230 V 2(2) A
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD14..

Product Title	Data sheet	Stock No.	Product No.
Controller, 8 programmed plant types, instructions in da, de, en, fi, fr, it, sv	N2510	S55370-C113	**RVD140-A**
Controller, 8 programmed plant types, instructions in bg, cs, el, pl, ro, ru	N2510	S55370-C114	**RVD140-C**

Field devices for RVD..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Digital room unit with address selector	N1635	BPZ:QAW50.03	**QAW50.03**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	**QBE2002-P..**

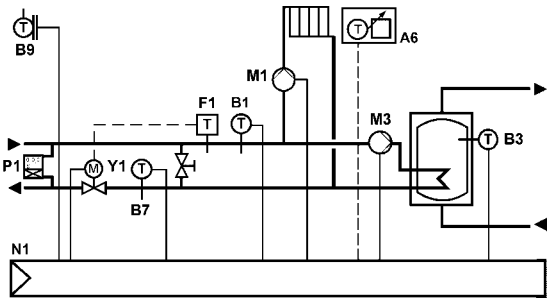
Application examples RVD1..

These are a few examples of applications that can be done with the controllers RVD1..
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVD1.. data sheet.

Direct system, weather-compensated heating and d.h.w. — RVD12..

DAAA01 VD1 HQ

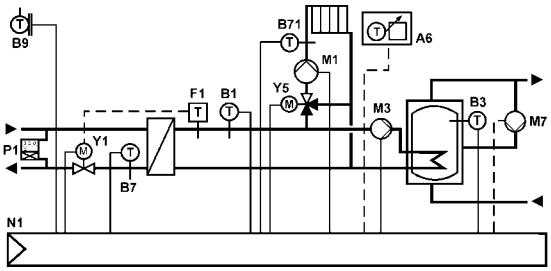
- Weather-compensated flow temperature control with pump heating circuit
- Demand-dependend flow temperature control with 3-position actuator acting on two-port valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- Digital 7-day time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent quick setback (with room sensor or with building model)
- Optional remote operation via room unit



Indirect system, weather-compensated heating and d.h.w. — RVD14..

DACA01 VD1 HQ

- Demand-dependent flow temperature control with 3-position actuator acting on primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- Digital 7-day time switch
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor or with building model)
- Optional remote operation via room unit



RVD25..



District heating controller

Multifunctional heating controller for use in district heating substations and district heating plants with LPB and M-bus communication. Suited for one heating circuit with d.h.w. heating in instantaneous systems or with storage tank. 28 programmed plant types. Operating voltage AC 230 V.

Key features:
- Optimized for low return temperatures in district heating networks.
- Display of time of day, time program, setpoints, actual values, limitations, errors, etc.
- Optional remote operation via room unit
- 2 independent switching programs each with 3 occupancy times per day
- Yearly clock with automatic summer- / wintertime changeover
- Power and / or volumetric flow limitation in combination with heat meter
- Pump and valve protection
- Automatic monitoring of sensors with display of alarm
- Locking function for district heat parameters
- Optional suppression of hydraulic creep
- Frost protection function
- DRT limitation for the reduction of peak loads and of idle heat
- Maximum limitation of the return temperature on the primary side
- Minimum and maximum limitation of the flow temperature
- Optimum start / stop control of the heating system
- Automatic ECO function
- Legionella function
- Forced charging function for plant with storage tank
- Cooling down protection for the primary supply lines
- Solar d.h.w. heating
- D.h.w. heating with electric immersion heater
- Refill function
- Selectable heating period

Plant-specific:
- Precontrol internal and interconnected
- 1 mixing or pump heating circuit
- D.h.w. heating with selectable priority:
  - Instantaneous systems
  - Storage charging system
  - Storage system with integrated heat exchanger
  - 2 charging pumps
  - Circulating pump

Data sheet	N2513
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	5.5 VA
Analog input, signal	DC 0...10 V LG-Ni1000 NTC 575
Digital inputs, number	1
Digital inputs	Pulse transmitter Status contact
Digital outputs	1 × PWM, DC 12 V 2 × AC 230 V 2(2) A 8 × AC 230 V 1(1) A
Communication	LPB (interconnected controller) M-bus (slave)
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD25..

Product Title	Data sheet	Stock No.	Product No.
Controller, 28 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2513	S55370-C125	**RVD250-A**
Controller, 28 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2513	S55370-C126	**RVD250-C**

District heating controller

RVD26..



Multifunctional heating controller for use in district heating substations and district heating plants with LPB and M-bus communication. Suited for 2 heating circuits with d.h.w. heating in instantaneous systems or with storage tank. 14 programmed plant types. Operating voltage AC 230 V.

Same functionality as RVD250, but with the following extra features:
- 2 heating circuits
- Without precontrol in interconnected systems
- 3 independent switching programs each with 3 occupancy times per day

Plant-specific:
- Precontrol internal control loops
- 2 heating circuits (mixing and / or pump heating circuit): Control of flow temperature, optionally weather-compensated / weather- and room temperature-compensated / room temperature-compensated
- D.h.w. heating with selectable priority:
- Instantaneous systems
- Storage charging system
- Storage system with integrated heat exchanger
- Charging pump
- Circulating pump

Data sheet	N2515
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	6 VA
Analog input, signal	DC 0...10 V LG-Ni1000 NTC 575
Digital inputs, number	1
Digital inputs	Pulse transmitter Status contact
Digital outputs	1 × PWM, DC 12 V 2 × AC 230 V 2(2) A 8 × AC 230 V 1(1) A
Communication	LPB (interconnected controller) M-bus (slave)
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD26..

Product Title	Data sheet	Stock No.	Product No.
Controller, 14 programmed plant types, instructions in de, en, fr, it, da, fi, sv	N2515	S55370-C129	**RVD260-A**
Controller, 14 programmed plant types, instructions in pl, cs, el, ru, bg, ro	N2515	S55370-C130	**RVD260-C**

Field devices for RVD..

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Digital room unit	N1635	BPZ:QAW50	**QAW50**
Digital room unit with address selector	N1635	BPZ:QAW50.03	**QAW50.03**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	**QBE2002-P..**

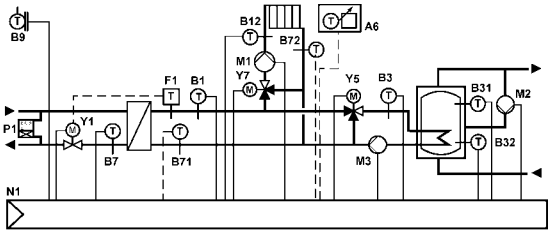
Application examples RVD2..

These are a few examples of applications that can be done with the controllers RVD2...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVD2.. data sheet.

Indirect system, weather-compensated heating with mixing circuit and d.h.w

RVD25..

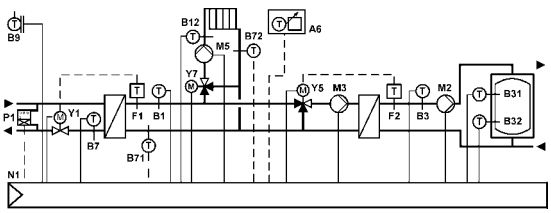
- Demand-dependent flow temperature control acting on 3-position actuator with primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank with mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)
- Control of d.h.w. circulation pump



Indirect system, weather-compensated heating with mixing circuit and d.h.w

RVD25..

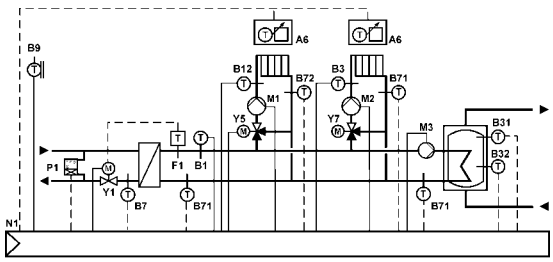
- Demand-dependent flow temperature control acting on 3-position actuator with primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank with exchanger and mixing valve
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 2 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)



Indirect system, weather-compensated heating with 2 mixing circuits and d.h.w

RVD26..

- Demand-dependent flow temperature control with 3-position actuator acting on primary two-port valve
- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- D.h.w. temperature control - storage tank
- Maximum limitation of primary return temperature depending on the outside temperature
- Frost protection for building and plant
- 3 time switch programs, each with 3 heating periods
- Flow temperature limit control
- ECO function switches off heating depending on the outside temperature
- Room temperature-dependent quick setback (with room sensor only or with building model)



RLM162

Air duct temperature controller, AC 24 V, 2 outputs DC 0...10 V



Compact electronic controller with integral duct mounted temperature sensor and setting unit combined in one device. It is designed for installation directly onto the plant. Only the wires for power supply connection and controller output need to be laid. Supplied complete with mounting flange.

Application:
Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLM162 is used for control and limiting of extract or supply air temperatures in small HVAC plants:
- Restaurants, conference rooms, store rooms
- Lecture theatres, classrooms
- In conjunction with central air handling units

The following units can be controlled:
- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters
- DX cooling units

Features:
- Auxiliary digital output
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Heating/cooling changeover via external contact

Data sheet	N3332
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	0...50 °C
Setpoint readjustment range	0...10 K
Probe length	400 mm
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	125 × 152 × 78 mm

Stock No.	Product No.
BPZ:RLM162	**RLM162**

Field devices for RLM162

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**

Application examples Synco™ 100

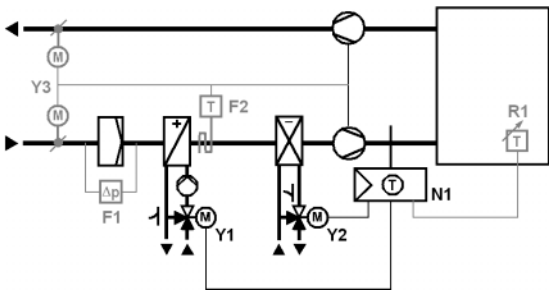
These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLA.. / RLE.. / RLM..
More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLA.. / RLE.. / RLM.. data sheet.

Supply air temperature control

RLM162

ADC001 LM1 HQ

- Controller (N1) with built-in sensor to control the room temperature via sequential control of the heat-ing valve (Y1) or the cooling valve (Y2)
- Frost protection with frost thermostat F2 (indepen-dent of controller) to open the heating valve (Y1), close the outside air dampers (Y3) and deactivate the fans
- Air damper actuator with spring return (Y3) to control the fans with an auxiliary switch

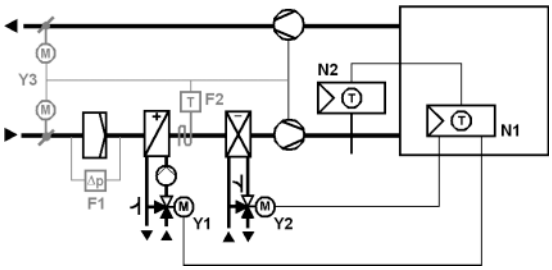


Room temperature control with limitation of supply air temperature

RLM162

ADC002 LA1 HQ

- Room temperature control via control of the heating valve and the cooling valve
- Limitation of supply air temperature
- Outside temperature compensation



RLA162

Room temperature controller, AC 24 V, 2 outputs DC 0...10 V



Electronic controller designed for room mounting applications. It is configurable for heating and/or cooling applications and can operate as a single controller or together with duct mounted units (RLM) for limiting.

Application:
Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLA162 is used for control and limiting of room temperatures in small HVAC plants.

The following units can be controlled:
- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters

Features:
- Low limitation input (supply air temperature)
- Compensation via outside sensor
- Connection for remote setting unit
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch

Data sheet	N3331
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Setpoint setting range	8...30 °C
Setpoint readjustment range	0...10 K
Degree of protection	IP30
Dimensions (W x H x D)	97 × 114 × 43 mm

	Stock No.	Product No.
	BPZ:RLA162	**RLA162**

Field devices for RLA162

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Air duct temperature controller, AC 24 V, 2 outputs DC 0...10 V	N3332	BPZ:RLM162	**RLM162**

Room temperature controller, AC 24 V, 2 outputs DC 0...10 V, operating mode selector

RLA162.1



Electronic controller designed for room mounting applications. It is configurable for heating and/or cooling applications with or without separate LG-Ni 1000 sensor.

Application:
Modulating temperature controller, with 1 or 2 continuous DC 0...10 V output signals. The RLA162.1 is used for control and limiting of room temperatures in small HVAC plants.

The following units can be controlled:
- Heating (or cooling) valve actuators
- Air damper actuators
- Step controllers or current valves for electric heating
- Signal converters

Features:
- Compensation via active outside sensor
- P or PI control (selectable)
- Service modes
- Heating and cooling modes available
- Setpoint changeover via external contact or time switch
- Operating mode selector
- External temperature sensor input (LG-Ni 1000)

Data sheet	N3336
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	2 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog outputs, number	2
Analog input, signal	LG-Ni1000 DC 0...10 V
Digital input, contact query	DC 3...6 mA DC 6...15 V
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	2 A
Setpoint setting range	8...30 °C
Setpoint readjustment range	0...10 K
Degree of protection	IP30
Dimensions (W x H x D)	97 × 114 × 43 mm

Stock No.	Product No.
BPZ:RLA162.1	**RLA162.1**

Field devices for RLA162.1

Product Title	Data sheet	Stock No.	Product No.
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	**QAC3161**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**

RLU..



Universal controllers

- Tested, predefined applications
- Flexible configuration
- Suited for the controlled variables temperature, relative / absolute humidity, pressure / differential pressure, air flow rate, indoor air quality, etc.
- Autonomous sequence controllers with P, PI or PID mode
- Integrated operation
- No commissioning tool required (optional)

Data sheet	N3101
Operating voltage	AC 24 V
Frequency	50/60 Hz
Digital inputs	Potential-free input signal
Digital input, contact query	5 mA DC 15 V
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20

Range overview RLU..

Digital inputs, number	Universal inputs, number	Analog outputs, number	Relay outputs, number	Control loops, number	Stock No.	Product No.
1	4	0	2	1	BPZ:RLU202	**RLU202**
1	4	2	0	1	BPZ:RLU220	**RLU220**
1	4	2	2	2	BPZ:RLU222	**RLU222**
2	5	3	2	2	BPZ:RLU232	**RLU232**
2	5	3	6	2	BPZ:RLU236	**RLU236**

Accessories for RLU..

Product Title	Data sheet	Stock No.	Product No.
Front panel mounting frame	N3101	BPZ:ARG62.201	**ARG62.201**

Application examples Synco™ 200

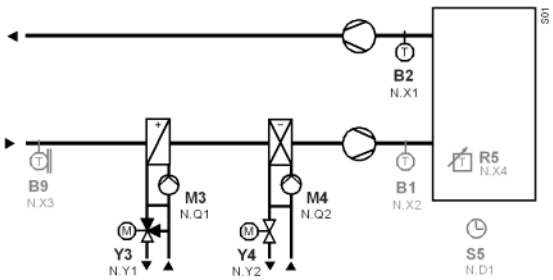
These are only a few examples of many applications that can be done with the with Synco™200 controllers: RLU..
More Synco™200 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLU.. data sheet..

Extract air (room) temperature control

RLU222

ADC002 LU2 HQ

- Extract air (room) temperature control via the heating coil valve and cooling coil valve in sequence
- Control of the heating coil and cooling coil pumps
- Operating mode selection Comfort / Protection

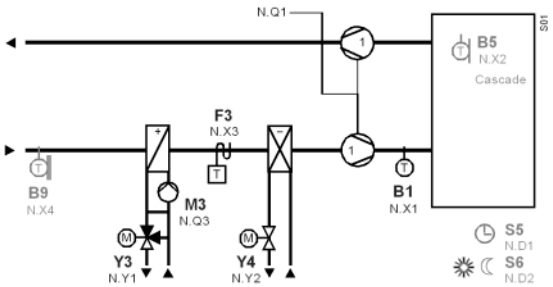


Supply air temperature control with frost protection and release of fan

RLU232

ADC015 LU3 HQ

- Supply air temperature control via the heating coil valve and cooling coil valve in sequence
- Control of the heating coil and cooling coil pumps
- Fan release via relay output
- Frost protection with frost protection monitor
- Operating mode selection Comfort / Protection
- Operating mode selection Comfort/Economy

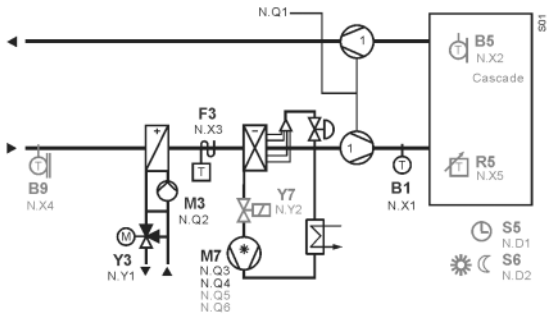


Supply air (room) temperature control with frost protection and release of fan

RLU236

ADC017 LU3 HQ

- Supply air temperature control via the heating coil valve and the direct expansion evaporator in sequence
- Control of the heating coil pump
- Fan release via relay output
- Frost protection with frost protection monitor
- Operating mode selection Comfort / Protection
- Operating mode selection Comfort/Economy



Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	**QAC3161**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	**QAD26.220**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.015	**QAE2120.015**
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	**QAE2121.010**
Immersion temperature sensor 100 mm DC 0...10 V	N1782	BPZ:QAE2164.010	**QAE2164.010**
Immersion temperature sensor 150 mm DC 0...10 V	N1782	BPZ:QAE2164.015	**QAE2164.015**
Immersion temperature sensur Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	**QAE26.9..**
Duct temperature sensor 400 mm, Pt1000	N1761	BPZ:QAM2112.040	**QAM2112.040**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**
Duct temperature sensor 2000 mm, LG-Ni1000	N1761	BPZ:QAM2120.200	**QAM2120.200**
Duct temperature sensor 6000 mm, LG-Ni1000	N1761	BPZ:QAM2120.600	**QAM2120.600**
Frost sensor, modulating, capillary tube 2000 mm	N1821	BPZ:QAF63.2	**QAF63.2**
Frost sensor, modulating, capillary tube 6000 mm	N1821	BPZ:QAF63.6	**QAF63.6**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
Window pane temperature sensor	N1830	BPZ:QAT22	**QAT22**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	**QBE61.3-DP..**
Differential pressure sensors for liquids and gase (DC 0...10 V)	N1920	BPZ:QBE63-DP..	**QBE63-DP..**
Differential pressure sensor for liquids and gases (DC 0...10 V) 0...400 kPa	N1921	BPZ:QBE64-DP4	**QBE64-DP4**
Pressure sensor for refrigerants (0...10 V)	N1907	BPZ:QBE2001-P..U	**QBE2001-P..U**
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	**QBE2002-P..**
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	**QBM3020..**
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	**QBM2030..**

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Duct sensor for humidity (DC 0...10 V)	N1864	BPZ:QFM2100	**QFM2100**
Duct sensor for humidity (0...10 V) and temperature (Ni1000)	N1864	BPZ:QFM2120	**QFM2120**
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1864	BPZ:QFM2160	**QFM2160**
Duct sensor for humidity (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3100	**QFM3100**
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3160	**QFM3160**
Duct sensor for humidity (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	**QFM4160**
Duct air quality sensor CO_2/ temperature / rel. Humidity / VOC	N1962	BPZ:QPM21..	**QPM..**
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Setpoint adjuster, passive, temperature ranges: -20...20 °C; 20...60 °C; -3...3 K	N1991	BPZ:BSG21.5	**BSG21.5**
Active setpoint adjuster 0...100 %, for flush panel mounting	N1992	BPZ:BSG61	**BSG61**
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	**FGT-PT1000**
Duct sensor for air velocity	N1932	BPZ:QVM62.1	**QVM62.1**

Monitors

Product Title	Data sheet	Stock No.	Product No.
Frost monitor, air side, 2-point	N1283	BPZ:QAF64..	**QAF64..**
Frost monitor, 2-point	N1284	BPZ:QAF81..	**QAF81..**
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	**QFA1000**
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	**QFA1001**
Duct hygrostat, setpoint setting range 15...95 % r.h.	N1514	BPZ:QFM81.2	**QFM81.2**
Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device	N1514	BPZ:QFM81.21	**QFM81.21**
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	QXA2601
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	QXA2602
Differential pressure monitor	N1552	BPZ:QBM81..	**QBM81..**
Changeover thermostat, changeover, 30 °C / 19 °C, IP54	N1295	BPZ:RYT182	**RYT182**

NEW PRODUCT

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	**AQR2531BNW**
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	**QAA25**
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	**QAA27**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Room sensor for humidity (DC 0...10 V)	N1857	BPZ:QFA2000	**QFA2000**
Room sensor for humidity (DC 0...10 V) and temperature (LG-Ni1000)	N1857	BPZ:QFA2020	**QFA2020**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	**QFA2060**
Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	**QFA3100**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	**QFA3160**
Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	BPZ:QFA4160	**QFA4160**
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	**QPA84**
Room air quality sensor CO_2 / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	**QPA..**

Step switches, signal converters, transformers and display

Product Title	Data sheet	Stock No.	Product No.
Digital time switch, 1-channel, with 7-day program	N5243	BPZ:SEH62.1	**SEH62.1**
Variable Speed Drive for pumps and fans	N5111	BPZ:G120P..	**G120P..**
Transformers	N5536	BPZ:SEM62..	**SEM62..**
Current valve	N4937	BPZ:SEA45.1	**SEA45.1**
Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V	N5102	BPZ:SEM61.4	**SEM61.4**
Signal converter with preprogrammed applications	N5146	BPZ:SEZ220	**SEZ220**
Universal digital indicator	N5312	BPZ:BAU200	**BAU200**

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	**OCI700.1**

Universal controller for HVAC systems

RWD Universal..

Universal controller with P or PI action for heating, ventilation and air conditioning.



Auxiliary functions
- PI limiter function (absolute and relative limit)
- Remote setpoint
- Setpoint compensation
- Winter/summer mode changeover (analogue or digital input)
- Cascade control
- Maximum priority for cooling / dehumidifying

Frequency	50/60 Hz
Digital inputs	Potential-free input signal
Digital input, contact query	DC 15 mA DC 15 V
Digital inputs, number	1
Universal inputs, number	2
Universal input, signal	LG-Ni1000 DC 0...10 V Pt1000
Degree of protection	IP20

Range overview RWD..

Operating voltage [V]	Analog outputs, number	Relay outputs, number	Control loops, number	Data sheet	Stock No.	Product No.
AC 230		2	1	N3341	BPZ:RWD32	**RWD32**
AC 24		2	1	N3341	BPZ:RWD82	**RWD82**
AC 24	2		1	N3342	BPZ:RWD62	**RWD62**
AC 24	1	1	1	N3343	BPZ:RWD68	**RWD68**

Accessories for RWD..

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	**SEM62..**
Touch Panel	N3974	S55620-H100	**QAX160**
Modbus interface for RWD	N3099	S55370-C120	**SEZ50MB**
Remote I/O expansion module	140-1138	S55664-J111	**PPM-1U32.MPR**

Field devices for RWD..

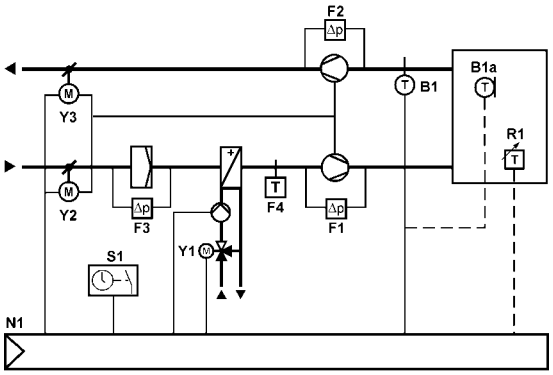
Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**

Application examples RWD..

These are only a few examples of many applications that can be done with the with controllers RWD..
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RWD.. data sheet.

RWD62

ADA002 WC6 HQ a

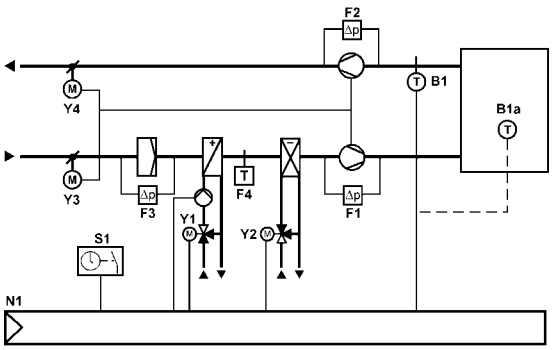


Return air temperature control

- Room temperature control by modulating the heater battery valve
- Frost protection with frost protection thermostat (independent of controller) when tripped, heater battery valve fully opens, dampers close, fan switches off

RWD62

ADC003 WC6 HQ a



Return air temperature control

- Return air temperature control by modulating the heater battery valve and the cooler battery valve in sequence
- Frost protection with frost protection thermostat (independent of controller): when tripped, heater battery valve fully opens, supply and extract fans switch off, outside air and extract air dampers close
- Use of an external time switch to provide day/night settings
- Summer compensation

Temperature controllers for heat pump, heating and cooling applications

RWD Heat Pump..



- Multistage heating and cooling temperature controllers
- Programmable controllers with standard pre-configured applications
- Programmable via push buttons or a software tool
- Suitable for 1, 2 or 3 compressor units
- Heat/cool or reversing valve output configuration
- Adjustable compressor time delays
- Selectable alarm inputs
- Economizer "Open Air" control for improved comfort and energy savings
- LED indicators for heat/cool

Auxiliary functions

The second analog input is used for the following functions:
- Standby (on/off)
- Remote setpoint adjustement
- Alarm
- Filter alarm
- Sepoint compensation
- Sensor averaging
- Winter/summer setpoint changeover (analog or digital input)
- Sensor select
- Active sensor

Digital functions
- Day/night changeover
- Standby
- Alarm
- Filter alarm

Frequency	50/60 Hz
Relay outputs, number	4
Relay outputs	potential-free switching contact AC 24...230 V 4(3) A
Mounting location	Panel mounting
Degree of protection	IP20
Dimensions (W x H x D)	130 x 106 x 56.5 mm

Range overview Heat Pump controller RWD..

Operating voltage	Universal inputs, number	Digital inputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
AC 230	2	1	4	N3346	BPZ:RWD34	**RWD34**
AC 24	2	1	4	N3346	BPZ:RWD44	**RWD44**

Accessories for RWD..

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	**SEM62..**
Touch Panel	N3974	S55620-H100	**QAX160**
Modbus interface for RWD	N3099	S55370-C120	**SEZ50MB**
Remote I/O expansion module	140-1138	S55664-J111	**PPM-1U32.MPR**

RMUB..



Universal controller

- Universal controllers with integrated control and supervisory functions
- Tested, predefined applications (refer to Application Catalog)
- Flexible configuration
- Suited for the controlled variables temperature, relative / absolute humidity, pressure / differential, air flow rate, indoor air quality, etc.
- Autonomous sequence controllers with P, PI or PID mode
- Functions can be extended (extension modules)
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the Synco 700 universal controllers and offer extra functions. The extension modules are attached to the controller. Full operation from commissioning to enduser operation via the operator unit.

Available extension modules:
- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

Total maximal 4 extension modules per RMU7..B can be connected.

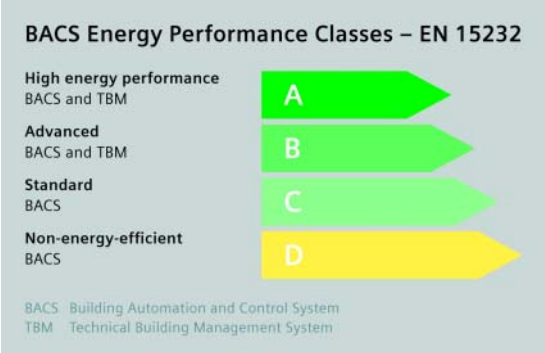
Available operator units:
- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791
- Bus operating unit RMZ792

Data sheet	N3150
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)
Dimensions (W x H x D)	173 x 90 x 80 mm

Range overview RMU7..B..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Control loops, number	Loaded languages	Stock No.	Product No.
6	2	2	1	de, fr, it, es	BPZ:RMU710B-1	**RMU710B-1**
6	2	2	1	de, en, fr, nl	BPZ:RMU710B-2	**RMU710B-2**
6	2	2	1	da, fi, sv, no	BPZ:RMU710B-3	**RMU710B-3**
6	2	2	1	cs, hu, pl, sk, ru, bg	BPZ:RMU710B-4	**RMU710B-4**
6	2	2	1	sr, hr, sl, ro, el, tr	BPZ:RMU710B-5	**RMU710B-5**
6	2	2	1	zh	S55370-C159	**RMU710B-6**
8	3	4	2	de, fr, it, es	BPZ:RMU720B-1	**RMU720B-1**
8	3	4	2	de, en, fr, nl	BPZ:RMU720B-2	**RMU720B-2**
8	3	4	2	da, fi, sv, no	BPZ:RMU720B-3	**RMU720B-3**
8	3	4	2	cs, hu, pl, sk, ru, bg	BPZ:RMU720B-4	**RMU720B-4**
8	3	4	2	sr, hr, sl, ro, el, tr	BPZ:RMU720B-5	**RMU720B-5**
8	3	4	2	zh	S55370-C160	**RMU720B-6**
8	4	6	3	de, fr, it, es	BPZ:RMU730B-1	**RMU730B-1**
8	4	6	3	de, en, fr, nl	BPZ:RMU730B-2	**RMU730B-2**
8	4	6	3	da, fi, sv, no	BPZ:RMU730B-3	**RMU730B-3**
8	4	6	3	cs, hu, pl, sk, ru, bg	BPZ:RMU730B-4	**RMU730B-4**
8	4	6	3	sr, hr, sl, ro, el, tr	BPZ:RMU730B-5	**RMU730B-5**
8	4	6	3	zh	S55370-C161	**RMU730B-6**

Application examples RMU710B..

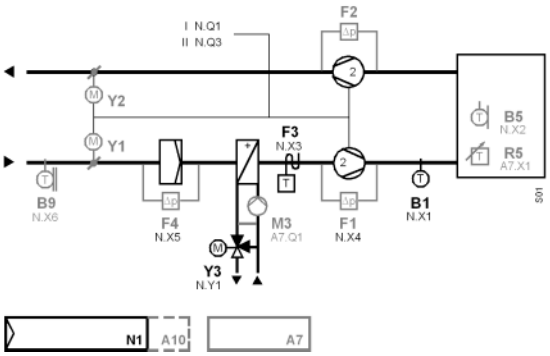


These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMU710B..
More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU710B.. data sheet.

The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".
Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.
www.siemens.com/hit

RMU710B..

ADA001 U1B HQ

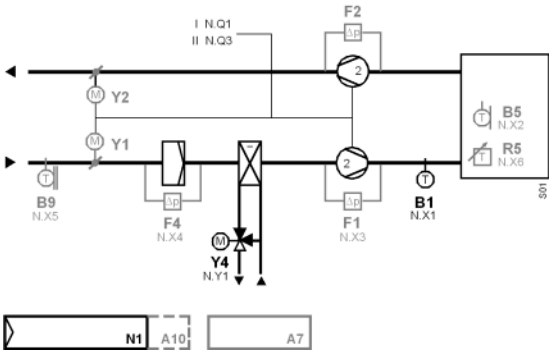


Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

RMU710B..

ADB001 U1B HQ





To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the cooling coil valve
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

The indicated energy efficiency classification can be attained only if the following functions are implemented:

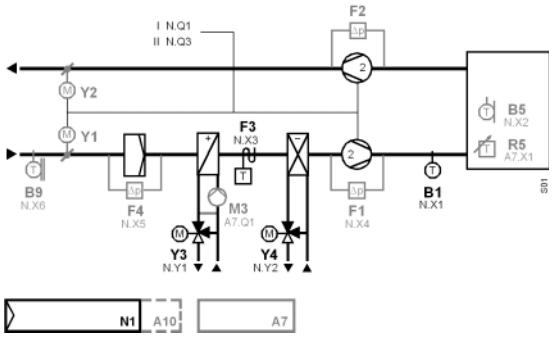
- Air flow control at the room level on demand (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply temperature control, variable set point with load dependant compensation
- Humidity control (Not applicable, as no humidity control)

Room-supply air temperature cascade control

RMU710B..

ADC001 U1B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and the cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor



Room-supply air temperature cascade control

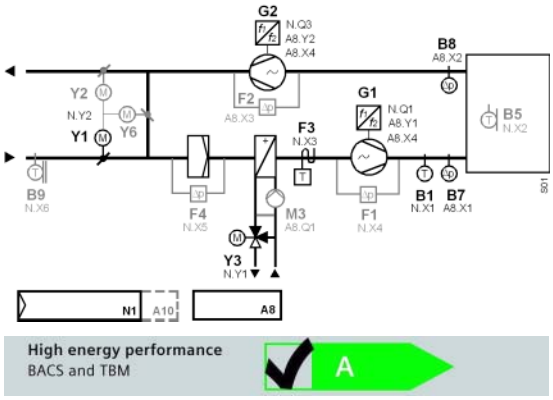
RMU710B..

AEA001 U1B DE

- 7-day time switch with holiday / special day program
- Control of a variable-speed fan
- Control of the supply air temperature via the mixed air dampers and the heating coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor

The indicated energy efficiency classification can be attained only if the following functions are implemented:

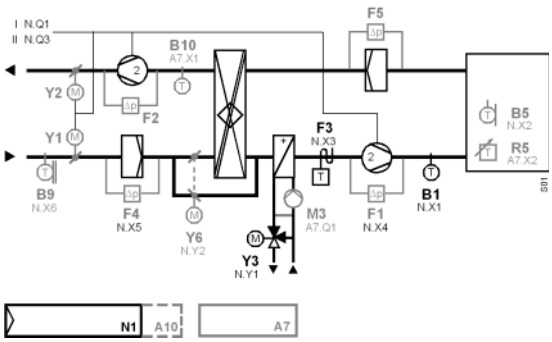
- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling (Not applicable due to lack of cooling sequence)
- Humidity control (Not applicable, as no humidity control)
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A



To fulfill the classification, the plant must be equipped with all indicated functions.

RMU710B..

ADAE01 U1B HQ





To fulfill the classification, the plant must be equipped with all indicated functions.

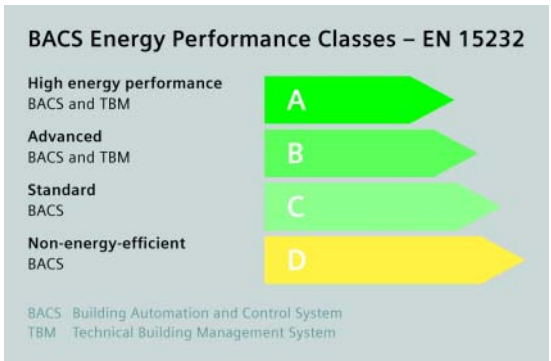
Room-supply air temperature cascade control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system and the heating coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- Heat exchanger overheating control
- Supply Temperature control (Variable set point with load dependant compensation)

Application examples RMU720B..



These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMU720B..
More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU720B.. data sheet.

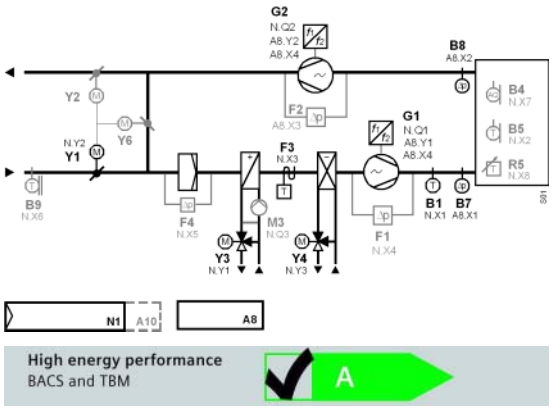
The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".
Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.
www.siemens.com/hit

Room-supply air temperature cascade control

RMU720B..

AEC001 U2B DE

- 7-day time switch with holiday / special day program
- Control of a variable-speed fan
- Control of the supply air temperature via the mixed air dampers, the heating coil valve and cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A



The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply temperature control, variable set point with load dependant compensation

High energy performance
BACS and TBM

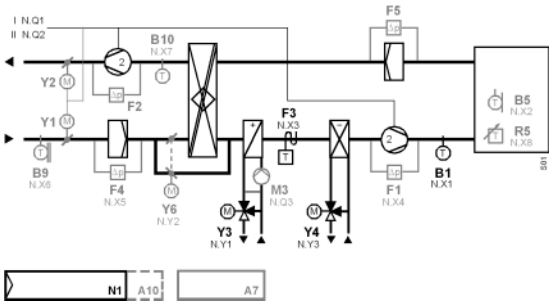
To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade control

RMU720B..

ADCE01 U2B HQ

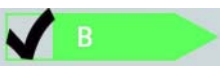
- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and the cooling coil valve in sequence
- Frost protection with the frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filter with a differential pressure sensor



The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation

Advanced
BACS and TBM

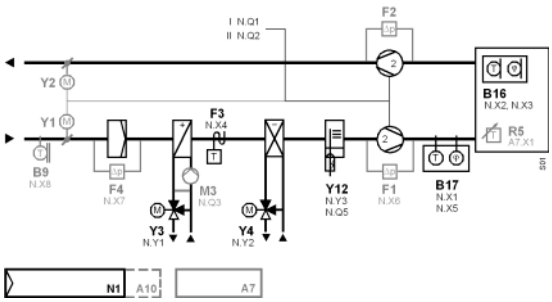


To fulfill the classification, the plant must be equipped with all indicated functions.

RMU720B..

Room-supply air temperature cascade and humidity control

ADFB01 U2B HQ

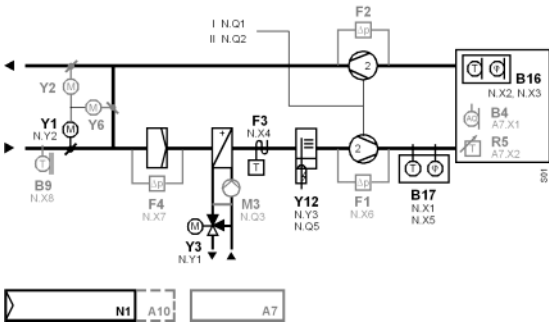


- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with differential pressure sensors
- Limitation of supply air humidity

RMU720B..

Room-supply air temperature cascade and humidity control

AEDB01 U2B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

The indicated energy efficiency classification can be attained only if the following functions are implemented:

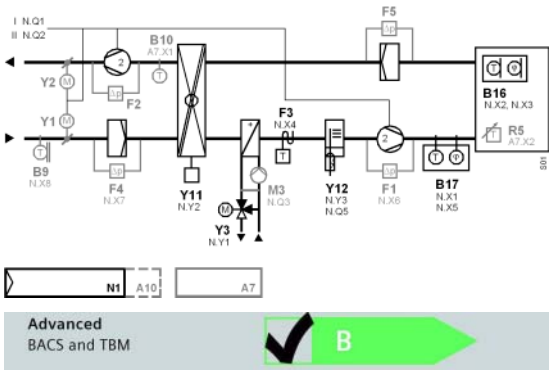
- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

Room-supply air temperature cascade and humidity control

RMU720B..

ADDP01 U2B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system and the heating coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors
- Limitation of supply air humidity



To fulfill the classification, the plant must be equipped with all indicated functions.

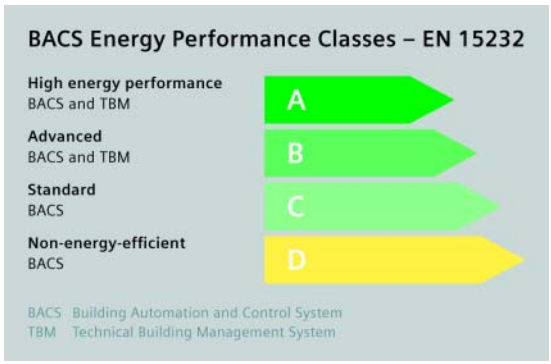
The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

Application examples RMU730B..

These are only a few examples of many applications that can be done with the with Synco™700 controllers: RMU730B..
More Synco™700 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RMU730B.. data sheet.

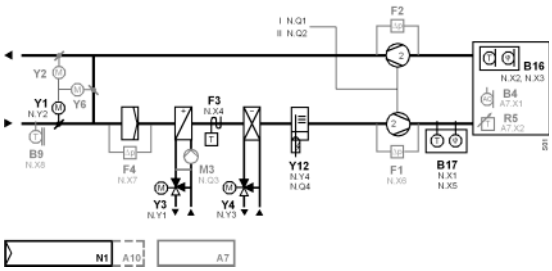
The evaluation of the energy efficiency classification is based on EN15232:2007. For a determination of the energy efficiency classification of the application, please use the "HIT Tool".
Further details are available in the manual "Building automation - impact on energy efficiency" in our HIT Online.
www.siemens.com/hit



RMU730B..

Room-supply air temperature cascade and humidity control

AEFB01 U3B HQ



Advanced
BACS and TBM

B

To fulfill the classification, the plant must be equipped with all indicated functions.

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the mixed air dampers, the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

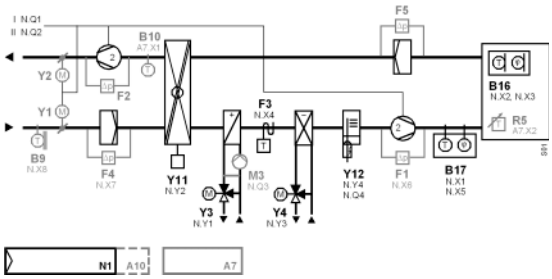
The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

RMU730B..

Room-supply air temperature cascade and humidity control

ADFP01 U3B HQ



Advanced
BACS and TBM

B

To fulfill the classification, the plant must be equipped with all indicated functions.

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Control of the supply air temperature via the heat recovery system, the heating coil valve and cooling coil valve in sequence
- Control of room humidity via the air humidifier (on command and modulating positioning signal)
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply and extract air filters with differential pressure sensors
- Limitation of the supply air humidity

The indicated energy efficiency classification can be attained only if the following functions are implemented:

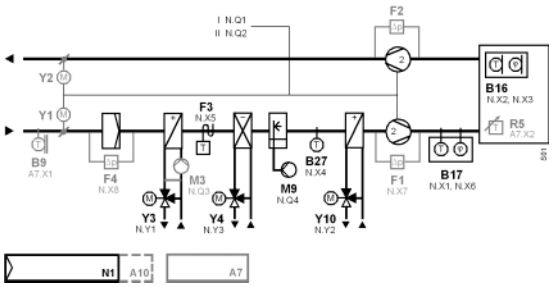
- Air flow control at the room level, demand control (Air quality sensor must be integrated as an additional feature)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- Heat exchanger defrost control (Exhaust air temperature sensor required)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

Room-supply air temperature cascade and humidity control

RMU730B..

ADZA01 U3B HQ

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the reheater valve and the cooling coil valve in sequence
- Control of the dewpoint temperature via the preheater valve and the cooling coil valve in sequence
- Control of room humidification via the air humidifier (on command)
- Control of room dehumidification by changing the outputs of dewpoint temperature control
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity by shutting down the preheater and by switching off the air humidifier in sequence



Room-supply air temperature cascade and humidity control

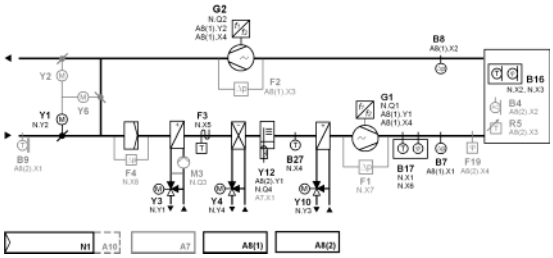
RMU730B..

AEZH01 U3B DE

- 7-day time switch with holiday / special day program
- Control of variable speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the mixed air dampers, the reheater valve and cooling coil valve in sequence
- Control of the dewpoint temperature via the mixed air dampers, the preheater valve and cooling coil valve in sequence
- Control of room humidification via the air humidifier (on command)
- Control of room dehumidification by changing the outputs of dewpoint temperature control
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset
- With heat exchanger overheating control
- Free mechanical cooling
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control
- Home automation / building automation and control system and technical home/building management required satisfying Efficiency Class A



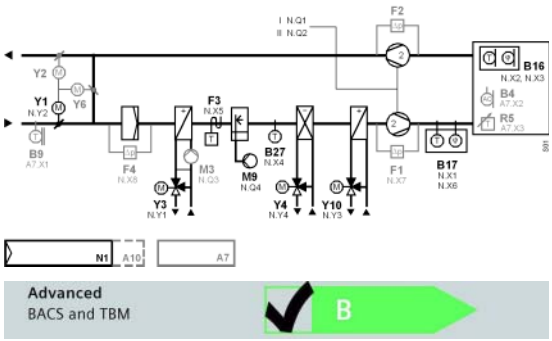
High energy performance
BACS and TBM

A

To fulfill the classification, the plant must be equipped with all indicated functions.

RMU730B..

AEZH02 U3B HQ



To fulfill the classification, the plant must be equipped with all indicated functions.

Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
- Control of a 2-speed fan
- Room (extract air)-supply air temperature cascade control with minimum and maximum limitation of the supply air temperature
- Control of the supply air temperature via the mixed air dampers, the reheater valve and the cooling coil valve in sequence
- Control of the dewpoint temperature via the mixed air dampers and the pre-heater valve in sequence
- Control of room humidification via the air humidifier (on command) and the cooling coil valve in sequence
- Frost protection with frost protection monitor
- Supervision of the supply and extract air fans with differential pressure sensors
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity by switching off the air humidifier in sequence

The indicated energy efficiency classification can be attained only if the following functions are implemented:

- Air flow control at the room level, demand control (Air quality sensor required)
- Air flow control at the air handler level, automatic flow or pressure control with or without pressure reset (Automatic fan step switching corresponds to Efficiency Class B / Step 2 must be switched based on air quality)
- With heat exchanger overheating control
- Free mechanical cooling (Outside air temperature and room temperature sensor required)
- Supply Temperature control, variable set point with load dependant compensation
- With supply air humidity control

Switching and monitoring device

RMS705B..



In connection with the function blocks, the RMS705B complements the range of Synco700 products as a freely configurable unit for
- control and supervisory functions in heating, ventilation and refrigeration plant
- non-standard applications

and, for this reason, offers no predefined standard applications.

The RMS705B is especially suited for the following functions:
- Connection of additional universal alarm inputs
- Adding free inputs for display and supervision
- Event logging (e.g. legionella function)
- Additional time programs (ON / OFF) for basic functions
- Maximum and minimum selection
- Calculation of average
- Calculation of enthalpy, enthalpy differential, absolute humidity, dewpoint and wet bulb temperature
- Logic function blocks for switching on / off depending on different conditions
- Lead / lag control of pumps, fans, motors, chillers, etc., with automatic changeover
- Step switch with linear, binary or flexible functionality
- Autonomous sequence controllers with P, PI or PID mode

Available extension modules:
- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

Total maximal 4 extension modules per RMS705B can be connected.

Suitable types of operator units:
- Plug-in operator unit type RMZ790
- Detached operator unit type RMZ791
- Bus operating unit type RMZ792

Data sheet	N3124
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	8
Universal input, signal	LG-Ni1000 2 x LG-Ni1000 T1 (PTC) Pt1000 0...1000 Ohm DC 0...10 V Digital pulse contact Potential-free digital status contact
Analog outputs, number	4
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs, number	6
Relay outputs	Potential-free switching contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)
Degree of protection	IP20
Dimensions (W x H x D)	173 x 90 x 80 mm

Range overview RMS705B..

Product Title	Data sheet	Stock No.	Product No.
Switching and monitoring device with languages de, fr, it, es, pt	N3124	S55370-C100	**RMS705B-1**
Switching and monitoring device with languages de, fr, nl, en	N3124	S55370-C101	**RMS705B-2**
Switching and monitoring device with languages da, fi, no, sv	N3124	S55370-C102	**RMS705B-3**
Switching and monitoring device with languages pl, cs, hu, ru, sk, bg	N3124	S55370-C103	**RMS705B-4**
Switching and monitoring device with languages el, ro, sl, sr, hr, tr	N3124	S55370-C104	**RMS705B-5**
Switching and monitoring device with language zh	N3124	S55370-C105	**RMS705B-6**

Plug-in type operator unit — RMZ790

- Operator unit plugs into the Synco™ 700 controllers
- For displaying and changing plant data for service staff and enduser
- Clear-text operation
- Can be plugged in and removed during operation
- Power supply via the controller



Data sheet N3111

	Stock No.	Product No.
	BPZ:RMZ790	**RMZ790**

Detached operator unit with 3 m cable — RMZ791

Like plug-in type operator unit, but:
- Other mounting choices (typically for control panel door or wall mounting)
- Larger display
- Connection via a prefabricated 3 m cable, supplied as standard



Data sheet N3112

	Stock No.	Product No.
	BPZ:RMZ791	**RMZ791**

Bus operator unit — RMZ792

Communicating operator unit for operating up to 150 controllers, room units and central units from the Synco™ 700 range via KNX bus.
Favorite pages can be freely defined. Designed for fixed installation or mobile use.



Data sheet N3113

	Stock No.	Product No.
	BPZ:RMZ792	**RMZ792**

Room unit with KNX bus — QAW740

Configurable unit with display of operating mode, timer, temperatures and fault.

With 3 operating elements:
- Knob for setpoint readjustments
- Operating mode button
- Timer button



Data sheet N1633

Setpoint readjustment range	±3 K
Measuring range, temperature	0…50 °C
Degree of protection	IP20
Communication	KNX TP1 EE
Connection cable	2-wire

	Stock No.	Product No.
	BPZ:QAW740	**QAW740**

RMZ78..



Universal modules

Additional inputs and outputs required by the Synco™ 700 controllers can be provided by these modules. A description of the functions is given with the relevant controller module.

Data sheet	N3146
Voltage supply	Supply from controller module
Power consumption	2 VA
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A

Range overview RMZ78..

Universal inputs, number	Analog outputs, number	Relay outputs, number	Stock No.	Product No.
8	0	0	BPZ:RMZ785	**RMZ785**
4	0	4	BPZ:RMZ787	**RMZ787**
4	2	2	BPZ:RMZ788	**RMZ788**

RMZ780



Module connector

Module connector for detached mounting of extension modules within the control panel.
Distance for detached mounting: Maximum 10 m.

Data sheet	N3138

Stock No.	Product No.
BPZ:RMZ780	**RMZ780**

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	**QAC3161**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	**QAD26.220**
Immersion temperature sensor 100 mm LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.010	**QAE2120.010**
Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.015	**QAE2120.015**
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	**QAE2121.010**
Immersion temperature sensor 150 mm LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.015	**QAE2121.015**
Immersion temperature sensor 100 mm DC 0...10 V	N1782	BPZ:QAE2164.010	**QAE2164.010**
Immersion temperature sensor 150 mm DC 0...10 V	N1782	BPZ:QAE2164.015	**QAE2164.015**
Immersion temperature sensur Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	**QAE26.9..**
Duct temperature sensor 400 mm, Pt1000	N1761	BPZ:QAM2112.040	**QAM2112.040**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**
Duct temperature sensor 2000 mm, LG-Ni1000	N1761	BPZ:QAM2120.200	**QAM2120.200**
Duct temperature sensor 6000 mm, LG-Ni1000	N1761	BPZ:QAM2120.600	**QAM2120.600**
Frost sensor, modulating, capillary tube 2000 mm	N1821	BPZ:QAF63.2	**QAF63.2**
Frost sensor, modulating, capillary tube 6000 mm	N1821	BPZ:QAF63.6	**QAF63.6**
Cable temperature sensor for high-temperature applications (180°C)	N1833	BPZ:QAP21.2	**QAP21.2**
Cable temperature sensor silicone 1.5 m, LG-Ni1000	N1831	BPZ:QAP21.3	**QAP21.3**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
Window pane temperature sensor	N1830	BPZ:QAT22	**QAT22**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	**QBE61.3-DP..**
Differential pressure sensors for liquids and gase (DC 0...10 V)	N1920	BPZ:QBE63-DP..	**QBE63-DP..**
Differential pressure sensor for liquids and gases (DC 0...10 V) 0...400 kPa	N1921	BPZ:QBE64-DP4	**QBE64-DP4**
Pressure sensor for refrigerants (0...10 V)	N1907	BPZ:QBE2001-P..U	**QBE2001-P..U**
Pressure sensor for liquids and gases (0...10 V)	N1909	BPZ:QBE2002-P..	**QBE2002-P..**

Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	**QBM3020..**
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	**QBM2030..**
Duct sensor for humidity (DC 0...10 V)	N1864	BPZ:QFM2100	**QFM2100**
Duct sensor for humidity (0...10 V) and temperature (Ni1000)	N1864	BPZ:QFM2120	**QFM2120**
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1864	BPZ:QFM2160	**QFM2160**
Duct sensor for humidity (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3100	**QFM3100**
Duct sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1882	BPZ:QFM3160	**QFM3160**
Duct sensor for humidity (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	**QFM4160**
Duct air quality sensor CO_2/ temperature / rel. Humidity / VOC	N1962	BPZ:QPM21..	**QPM..**
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Setpoint adjuster, passive, temperature ranges: -20...20 °C; 20...60 °C; -3...3 K	N1991	BPZ:BSG21.5	**BSG21.5**
Active setpoint adjuster 0...100 %, for flush panel mounting	N1992	BPZ:BSG61	**BSG61**
Flue gas temperature sensor Pt1000	N1846	BPZ:FGT-PT1000	**FGT-PT1000**
Duct sensor for air velocity	N1932	BPZ:QVM62.1	**QVM62.1**

Monitors

Product Title	Data sheet	Stock No.	Product No.
Frost monitor, air side, 2-point	N1283	BPZ:QAF64..	**QAF64..**
Frost monitor, 2-point	N1284	BPZ:QAF81..	**QAF81..**
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	**QFA1000**
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	**QFA1001**
Duct hygrostat, setpoint setting range 15...95 % r.h.	N1514	BPZ:QFM81.2	**QFM81.2**
Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device	N1514	BPZ:QFM81.21	**QFM81.21**
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	**QXA2601**
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	**QXA2602**
Differential pressure monitor	N1552	BPZ:QBM81..	**QBM81..**
Temperature controller	N1205	BPZ:RAK-TR.1..H	**RAK-TR.1..H**
Thermal reset limit thermostat	N1202	BPZ:RAK-TW.1..H	**RAK-TW.1..H**
Temperature limiter	N1206	BPZ:RAK-TB.1..M	**RAK-TB.1..M**
Safety limit thermostat	N1204	BPZ:RAK-ST..M	**RAK-ST..M**
Temperature controller / thermal reset limit thermostat	N1191	BPZ:RAZ-TW.1..	**RAZ-TW.1..**
Temperature controller / safety limit thermostat	N1192	BPZ:RAZ-ST..	**RAZ-ST..**
Changeover thermostat, changeover, 30 °C / 19 °C, IP54	N1295	BPZ:RYT182	**RYT182**

Room units

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Front module with passiv temperature measurement, Pt1000	N1408	S55720-S134	**AQR2531BNW**
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	**QAA25**
Room unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	**QAA27**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**
Room sensor for humidity (DC 0...10 V)	N1857	BPZ:QFA2000	**QFA2000**
Room sensor for humidity (DC 0...10 V) and temperature (LG-Ni1000)	N1857	BPZ:QFA2020	**QFA2020**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	**QFA2060**
Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	**QFA3100**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	**QFA3160**
Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	BPZ:QFA4160	**QFA4160**
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	**QPA84**
Room air quality sensor CO_2 / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	**QPA..**

Step switches, signal converters and transformers

Product Title	Data sheet	Stock No.	Product No.
Variable Speed Drive for pumps and fans	N5111	BPZ:G120P..	**G120P..**
Transformers	N5536	BPZ:SEM62..	**SEM62..**
Current valve	N4937	BPZ:SEA45.1	**SEA45.1**
Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V	N5102	BPZ:SEM61.4	**SEM61.4**
Signal converter with preprogrammed applications	N5146	BPZ:SEZ220	**SEZ220**
Universal digital indicator	N5312	BPZ:BAU200	**BAU200**

Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	**OCI700.1**

SEA45.1

Current valve



For modulating output control of electric air heater batteries or triac control with zero-point switching. Galvanic separation. Control panel mounting, DIN rail mounting.

Data sheet	N4937
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	0.5 VA
Positioning signal	AC 24 V (pulse / pause)
Triac outputs	Potential-free
Triac output, switching voltage	AC 42...660 V
Triac output, switching current	Max. 25 A
Triac output, switching output	0.04...10 kW
Degree of protection	IP20
Dimensions (W x H x D)	45 x 103 x 103 mm

Stock No.	Product No.
BPZ:SEA45.1	**SEA45.1**

SEM61.4

Signal converter DC 0...10 V or DC 0 / 10 V in AC 0 / 24 V



For converting a DC 0...10 V or DC 0 / 10 V input signal to a pulse-width modulated output signal AC 24 V for the control of maximum 20 current valves

Data sheet	N5102
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	1 VA
Analog input, signal	DC 0...10 V
Digital input, contact query	DC 0/10 V
Triac output, switching voltage	AC 24 V
Dimensions (W x H x D)	36 × 90 × 60 mm

Stock No.	Product No.
BPZ:SEM61.4	**SEM61.4**

SEZ91.6

Signal converter DC 0...20 V Phs to DC 0...10 V



For the conversion of DC 0...20 VPh signals
to DC 0...10 V signals

Data sheet	N5143
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	0.5 VA
Analog output, signal	DC 0...10 V
Analog input, signal	DC 0...20 V Phs
Dimensions (W x H x D)	57 x 22 x 18 mm

Note: Use type SEZ91.PU-K4 for signals from RDE2, RDN2, PU-K4!

Stock No.	Product No.
BPZ:SEZ91.6	**SEZ91.6**

Power amplifier for thermal actuators AC 24 V, PWM — UA1T

The UA1T power amplifier is used to allow the connection of additional valve actuators to controllers with an AC 24 V output signal.



Data sheet	N3591
Operating voltage	AC 24 V
Dimensions (W x H x D)	55 x 18 x 22 mm

Stock No.	Product No.
BPZ:UA1T	**UA1T**

Signal converter with preprogrammed applications — SEZ220

- Maximum and minimum selection
- Calculation of average
- Calculation of enthalpy, enthalpy differential, absolute humidity, dewpoint
- Flexible adaptation, limitation, inversion and conversion of input signal
- Tested preselected applications
- Flexible configuration



Data sheet	N5146
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	5 VA
Universal inputs, number	5
Universal input, signal	0...1000 Ohm DC 0...10 V LG-Ni1000 Pt1000 T1 (PTC)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Dimensions (W x H x D)	123 x 90 x 86 mm

Stock No.	Product No.
BPZ:SEZ220	**SEZ220**

BSG21..

Passive setpoint adjusters, for flush panel mounting



Setpoint adjuster for flush panel mounting 48 x 48 mm, with 2 adjustable stops for setpoint limitation. With transparent plastic cover and scales according to the temperature ranges.

Data sheet	N1991
Degree of protection	IP42
Dimensions (W x H x D)	48 × 48 × 46 mm

Range overview BSG21..

Temperature range	Analog output, signal	Data sheet	Stock No.	Product No.
**Various	0...1000	N1991	BPZ:BSG21.1	**BSG21.1**
0...50 °C	LG-Ni1000	N1991	BPZ:BSG21.2	**BSG21.2**
10...30 °C	LG-Ni1000	N1991	BPZ:BSG21.3	**BSG21.3**
-20...20 °C 20...60 °C -3...3 K	LG-Ni1000	N1991	BPZ:BSG21.5	**BSG21.5**

For BSG21.1: Scale 0...50 °C included as standard. Additional scales are available as BSG-Z accessories

BSG61

Active setpoint adjuster 0...100 %, for flush panel mounting



Setpoint adjuster for flush panel mounting 48 x 48 mm, with 2 adjustable stops, for setting or limiting a setpoint or positioning signal. With transparent front cover and exchangeable scales, depending on requirements. Supplied with 0...100 % scale (other scales availables as accessories under BSG-Z).

Data sheet	N1992
Operating voltage	AC 24 V DC 15...24 V
Power consumption	0.3 W
Analog output, signal	DC 0...10 V
Connection cable	Max. 2.5 mm^2 4-wire
Degree of protection	IP42
Dimensions (W x H x D)	48 × 48 × 46 mm

Stock No.	Product No.
BPZ:BSG61	**BSG61**

Accessories for setpoint adjusters BSG21.1 and BSG61

Product Title	Data sheet	Stock No.	Product No.
Complete range of scales for BSG..	N1991	BPZ:BSG-Z	**BSG-Z**

Touch Panel

QAX160



Central device in mini standard system
- Colorful LCD display and touch screen for easy operation
- Offer in-built standard application to connect with RWD62/68+SEZ50MB, RDF302, PPM-1U32.MPR as a system

Data sheet	N3974
Operating voltage	DC 24 V
Power consumption	15 W
Ambient temperature, operation	0...45 °C
Communication	Modbus RTU
Display	TFT LCD, LED backlight
Display size	10.2"
Keyboard	Resistive touch screen
Degree of protection	IP65
Mounting	Panel
Dimensions (W x H x D)	274 mm x 40 mm x 193 mm

Stock No.	Product No.
S55620-H100	**QAX160**

Modbus interface for RWD

SEZ50MB



Adaptor to equip all standalone RWD primary control products with communicative functions via Modbus

Data sheet	N3099
Operating voltage	AC 24 V
Power consumption	3 A
Ambient temperature, operation	0...50 °C
Communication	Modbus
Degree of protection	IP20
Dimensions (W x H x D)	113.8 mm x 56.4 mm x 106 mm

Stock No.	Product No.
S55370-C120	**SEZ50MB**

Remote I/O expansion module

PPM-1U32.MPR



Remote device to extend the quantity of I/Os in system via Modbus.
AC 24 V power supply, 1 universal input, 3 digital inputs and 2 relay digital outputs, Modbus interface

Data sheet	140-1138
Operating voltage	AC 24 V
Power consumption	7 VA
Digital outputs	2 normally open relays
Digital inputs, number	3
Relay output, switching current	AC 230V
Relay output, switching voltage	5 (2) A
Universal inputs	1...10 kΩ Type II NTC Thermistor or dry contact
Universal inputs, number	1
Summary	Communicating expansion I/O module
Dimensions (W x H x D)	154 mm x 40 mm x 114 mm

Stock No.	Product No.
S55664-J111	**PPM-1U32.MPR**

BAU200

Universal digital indicator



Universal single point digital indicator
- Suitable for front-mounting in control panel
- With LED display
- Input signal (type of signal and measuring range) can be set with buttons
- For all Siemens Building Technologies sensors (LG-Ni 1000, T1, PT100, PT 1000, 0 ... 10 V)

Data sheet	N5312
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	<8 VA
Analog output, signal	DC 0...10 V
Analog input, signal	DC 0...10 V LG-Ni1000 Pt100 Pt1000 T1 (PTC)
Degree of protection	IP50
Dimensions (W x H x D)	96 x 48 x 83 mm

Stock No.	Product No.
BPZ:BAU200	**BAU200**

SEH62.1

Digital time switch, 1-channel, with 7-day program



Programmable as 24-hour or 7-day time switch. Wall or DIN rail mounting.

Data sheet	N5243
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	3 VA
Buffer time	72 h
Display	LCD
Degree of protection	IP20
Dimensions (W x H x D)	79 × 106 × 56 mm
Digital input, contact query	8 mA DC 24 V
Digital input, application	Countdown timer

Stock No.	Product No.
BPZ:SEH62.1	**SEH62.1**

Transformers

SEM62..



Transformer with housing, providing a reduction in voltage from AC 230 V to AC 24 V (output power 30 VA)

- Self-resetting fuse integrated on the primary side
- Secondary On/Off switch and replaceable fuse (SEM62.2 only)
- Plug-in screw terminals
- Two secondary output plug-in terminals

Data sheet	N5536
Frequency	50/60 Hz
Primary voltage	AC 230 V
Secondary voltage	AC 24 V
Power output	30 VA
Degree of protection	IP20
Dimensions (W x H x D)	114 × 106 × 57 mm
Mounting	On DIN rail With screws

Range overview SEM62..

Product Title	Stock No.	Product No.
Standard version	BPZ:SEM62.1	**SEM62.1**
Standard version incl. switch and exchangeable fuse on the secondary side	BPZ:SEM62.2	**SEM62.2**

N 146/02

IP router



- LEDs for indicating that the device is ready-to-run, KNX communication, IP communication
- Electronics powered via an external nominal 24 V AC/DC power supply unit
- Power consumption at 24 V DC 57 mA
- Power supply for the electronics via "Power over Ethernet" according to IEEE 802.3af
- Integrated bus coupling units
- Bus connection via bus terminal
- Ethernet connection via RJ45 socket
- Plug-in terminal block for the connection of an external power supply unit
- Supports KNXnet/IP
- Line coupler function (Routing)
- 4 Interface functions (Tunneling)
- 1 Interface functions (object server)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Data sheet	2.11.1.13
Voltage supply	Power over Ethernet or external SELV power supply AC/DC 24 V nominal
Operating voltage	AC 12...24 V DC 12...30 V
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated bus coupling units Via bus terminal
Communication	Bus: KNX (S-mode and LTE mode) Ethernet, RJ45 socket

Stock No.	Product No.
5WG1146-1AB02	**N 146/02**

N 148/22

IP interface



- LEDs for indicating that the device is ready-to-run, KNX communication, IP communication
- Electronics powered via an external nominal 24 V AC/DC power supply unit
- Power consumption at 24 V DC, 57 mA
- Power supply for the electronics via "Power over Ethernet" according to IEEE 802.3af
- Integrated bus coupling units, Bus connection via bus terminal
- Ethernet connection via RJ45 socket
- Plug-in terminal block for the connection of an external power supply unit
- Supports KNXnet/IP
- 4 Interface functions (Tunneling)
- 1 Interface functions (object server)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Data sheet	2.11.1.14
Voltage supply	Power over Ethernet
Operating voltage	AC 12...24 V DC 12...30 V
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated bus coupling units Via bus terminal
Communication	Bus: KNX Ethernet, RJ45 socket

Stock No.	Product No.
5WG1148-1AB22	**N 148/22**

USB interface

N 148/11

- Electronics powered via bus voltage or via USB by a connected PC
- Integrated bus coupling units
- Bus connection via bus terminal or contact system to data rail
- Transmission PC – USB USB 1.1 or higher
- Electrically isolated access to the bus line via integrated socket USB (Typ B)
- Access to all bus devices in the system
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.11.1.12
Voltage supply	USB KNX bus
Dimension width (1 MW = 18 mm)	1 MW
Bus connection	Integrated bus coupling units Via bus terminal Via data rail
Communication	Bus: KNX (S-mode and LTE mode) USB1.1

Stock No.	Product No.
5WG1148-1AB11	**N 148/11**

N 140/..3

Line/backbone coupler

- For data exchange between two KNX bus lines with telegrams of up to 64 byte
- For use as line coupler for connecting a line to the main line or as backbone coupler for connecting a main line to the backbone line or as repeater for connecting two segments of the same line, with electrical isolation of the two bus lines
- Loadable filter table for control of the data exchange between the two bus lines
- Additional loadable filter table for telegrams with LTE addressing
- Detection of a communication fault on the lower-level line and signaling to the higher-level line
- 3 LEDs for display of availability and receipt of a telegram per line
- Power supply from the main line
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

Voltage supply	KNX bus
Communication	Bus: KNX (S-mode and LTE mode)

N 140/03

Line/backbone coupler for data rail



Bus connection to the line and to the main line via bus terminal

Data sheet	2.11.1.12
Dimension width (1 MW = 18 mm)	1 MW
Bus connection	Via bus terminal Via data rail

Stock No.	Product No.
5WG1140-1AB03	**N 140/03**

N 140/13

Line/backbone coupler



With bus connection to the line via contact system for data rail and to the main line via bus terminal

Data sheet	2.14.3.3
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Via bus terminal

Stock No.	Product No.
5WG1140-1AB13	**N 140/13**

Power supply unit

N 125/..2

- Integrated chokes
- Bus connection via bus terminal or contact system to data rail
- Rated operational voltage 120...230 V AC 50...60 Hz, 220 V DC
- Output voltage 29 V DC
- Additional unchoked output for 29 V DC, for powering a second bus line via an external choke (e. g. N 120/02)
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.14.4.4
Operating voltage	AC 120...230 V DC 220 V
Dimension width (1 MW = 18 mm)	4 MW
Bus connection	Integrated choke Via bus terminal Via data rail

Range overview power supply units instabus EIB N 125/..2

Product Title	Stock No.	Product No.
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	5WG1125-1AB02	**N 125/02**
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	5WG1125-1AB12	**N 125/12**
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	5WG1125-1AB22	**N 125/22**

Choke, 640 mA

N 120/02

- For operation with a KNX power supply without integrated choke or for connection to the unchoked output of the KNX N 125/x2 power supplies
- Contact system for data rail
- Low-voltage terminal for unchoked voltage and bus
- Modular installation devices for mounting on TH35 EN 60715 mounting rail



Data sheet	2.14.2.2
Dimension width (1 MW = 18 mm)	2 MW
Bus connection	Integrated choke Via bus terminal Via data rail

	Stock No.	Product No.
	5WG1120-1AB02	**N 120/02**

Software and central communication units



Overview and selection tools	Overview of product details	2-2
Operating, service and alarm software	For HVAC plants: ACS790 / OCI700.1	2-7
Central communication units	For remote control via KNX: OZW7..	2-9
	For remote control via LPB: OCI611..	2-13
	For remote control via LPB: OZW672..	2-15

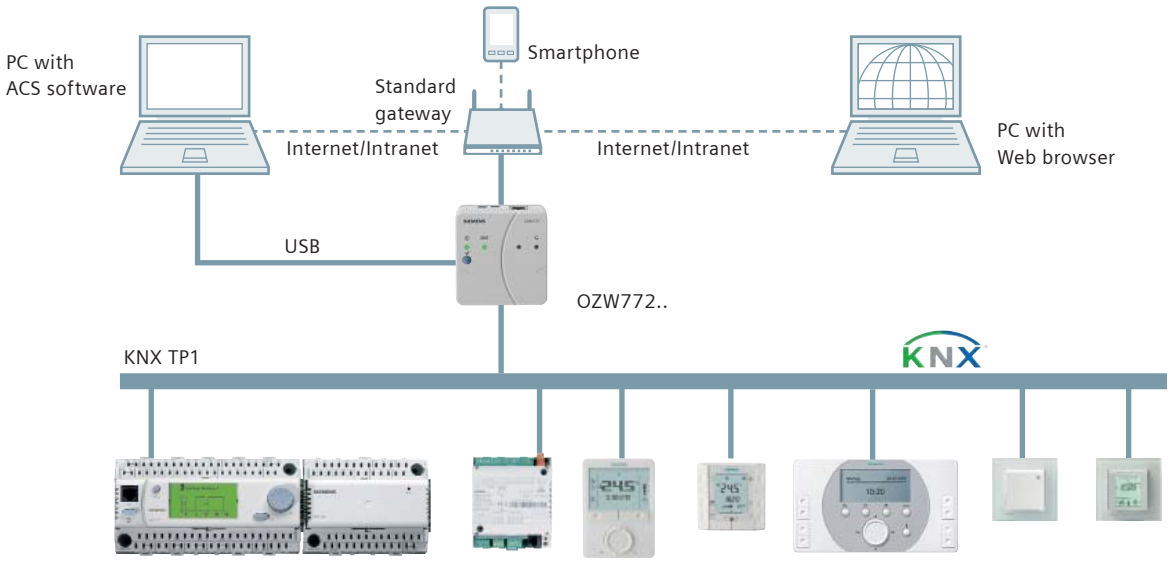
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Overview standard systems

Communication	KNX (Konnex)	LPB (Local process bus)
Standard systems for:	**Heating, ventilation or air conditioning**	**Heating plants**
Communication central unit	OZW771.. OZW772..	OCI611... OZW672..
Software	ACS790	ACS790
Service Tool	OCI700.1	OCI700.1
Heating controllers	Synco™ ■ RMH760 Heating controllers ■ RMK770 Boiler sequence controllers	■ RVL4.. Heating controllers ■ RVP3.. Heating controllers ■ RVD2.. District heating controllers
Ventilation and air conditioning controllers	Synco™ series ■ RMU700 Universal controllers	
Switching and Monitoring Device	Synco™ ■ RMS705	
Room controllers	Synco™ ■ RMB795 Control center ■ RXB / RXL Room controllers	
Home Automation System	Synco™ living ■ QAX903, QAX913	
Thermostats	Synco™ ■ RDF301, RDF301.50, RDF600KN ■ RDG100KN, RDG160KN, RDG400KN ■ RDU341	
Flush-mount room thermostat	■ AQR253.. ■ AQR257..	
Wall-mount room thermostat	■ QMX3.P30 ■ QMX3.P70	

KNX system

Standard systems for heating, ventilation or air conditioning Synco™ (KNX)
Low engineering system to easily build complex applications with flexible and modular combinations of standard controllers Synco™ 700. Standard Systems for HVAC plants are capable to be remote operated and can generate alarms to service centers. Full control without extensive engineering.



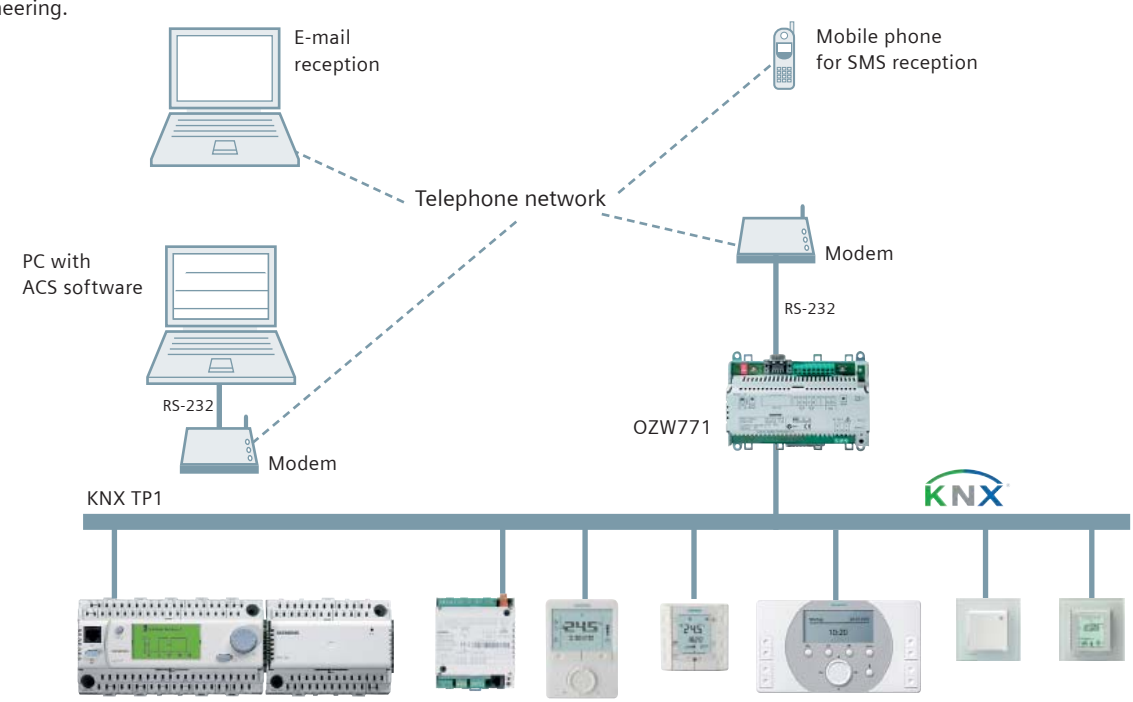
Communication central units	OZW772			
Device versions	OZW772.01	OZW772.04	OZW772.16	OZW772.250
No. of comm. devices [1]	1	4	16	250
Plant operation				
ACS software	Yes			
Web Browser	Yes			
Interface	Ethernet, USB			
Alarming				
Max. message receivers	4			
ACS alarm via PC	No			
Fax	No			
Pager	No			
SMS	No			
e-Mail	Yes (Ethernet)			
Offline trend function	Yes			
Digital inputs (potential free)	None			
Universal inputs (UI)	None			
As alarm input	No			
As pulse counter	No			
As counter (operating hours)	No			
Digital output	None			
Local device operation	Button / Switch			
Bus power supply	No			
General device data				
Operating voltage	AC 230 V ±10 %			
Frequency	50/60 Hz			
Power consumption	3 VA			
Degree of protection	IP30			

[1] Synco™ controller series 700, QAW740, RXB.. / RXL.., RDG.., RDF.., RDU.., Synco™ living QAX9..

2

KNX system

Standard systems for heating, ventilation or air conditioning Synco™ (KNX)
Low engineering system to easily build complex applications with flexible and modular combinations of standard controllers Synco™ 700. Standard Systems for HVAC plants are capable to be remote operated and can generate alarms to service centers. Full control without extensive engineering.

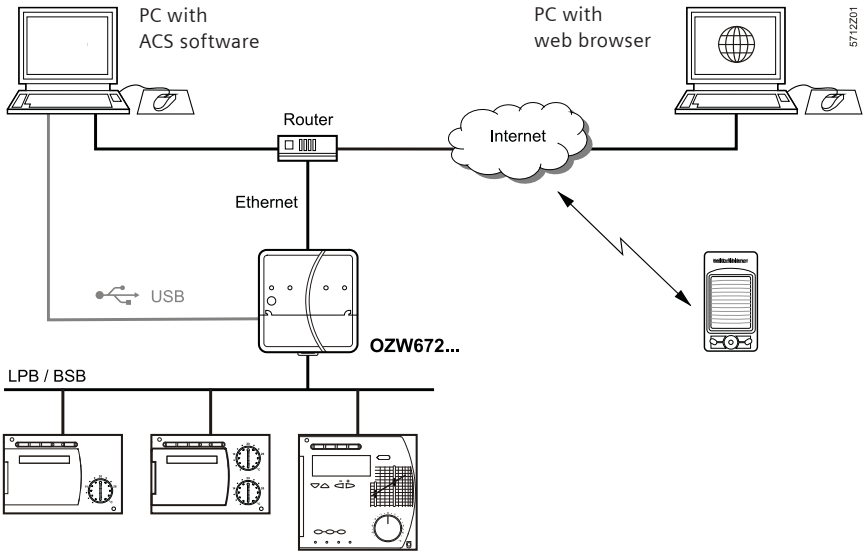


Communication central units	OZW771		
Device versions	OZW771.04	OZW771.10	OZW771.64
No. of comm. devices [1]	4	10	64
Plant operation			
ACS software		Yes	
Web Browser		No	
Interface		RS232	
Alarming			
Max. message receivers		2	
ACS alarm via PC		Yes	
Fax		with SMS via GSM	
Pager		Yes	
SMS		Yes	
e-Mail		with SMS via GSM	
Offline trend function		No	
Digital inputs (potential free)		2	
Universal inputs (UI)			
As alarm input		Yes	
As pulse counter		No	
As counter (operating hours)		No	
Digital output		None	
Local device operation		Button / Switch	
Bus power supply		No	
General device data			
Operating voltage		AC 230 V ±10 %	
Frequency		50/60 Hz	
Power consumption		5 VA	
Degree of protection		IP20 [2]	

[1] Synco™ controller series 700, QAW740, RXB.. / RXL.., RDG.., RDF.., RDU.., Synco™ living QAX9..
[2] IP30 with terminal covers

Web-Server

Standard system for heating plants (LPB)
Low engineering system to easily build complex applications with flexible combinations of standard controllers Series RVL4.., RVP3.., and RVD2... Standard Systems for heating plants are capable to be remote operated and can generate alarms to service centres: Full control without extensive engineering.



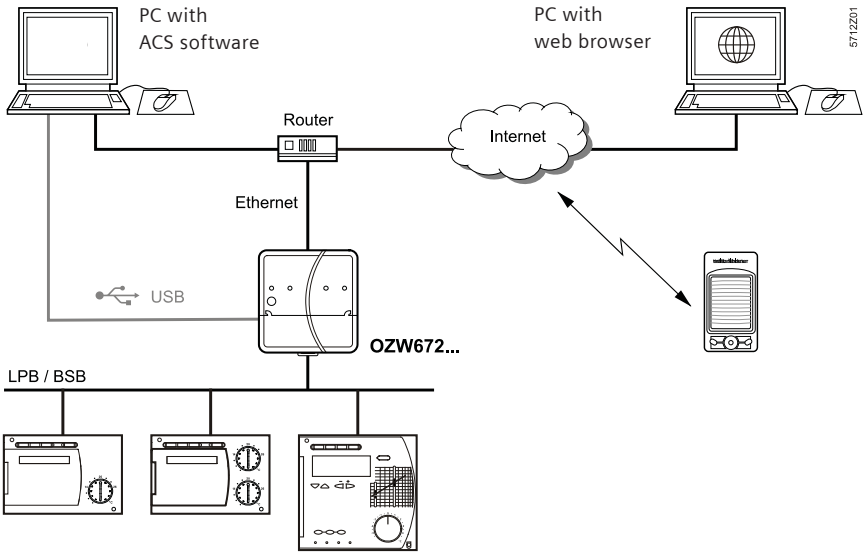
Communication central units	OZW672		
Device versions	OZW672.01	OZW672.04	OZW672.16
No. of comm. devices [1]	1	4	16
Plant operation			
ACS software		Yes	
Web Browser		Yes	
Interface		Ethernet, USB	
Alarming			
Max. message receivers		4	
ACS alarm via PC		No	
Fax		No	
Pager		No	
SMS		No	
e-Mail		Yes (Ethernet)	
Offline trend function		Yes	
Digital inputs (potential free)		2	
Universal inputs (UI)		None	
As alarm input		2	
As pulse counter		No	
As counter (operating hours)		No	
Digital output		None	
Local device operation		Button / Switch	
Bus power supply		No	
General device data			
Operating voltage		AC 230 V ±10 %	
Frequency		50/60 Hz	
Power consumption		3 VA	
Degree of protection		IP30	

[1] RVL4..,RVP3..,RVD2..,RVP5..

2

LPB system

Standard system for heating plants (LPB)
Low engineering system to easily build complex applications with flexible combinations of standard controllers Series RVL4.., RVP3.., and RVD2... Standard Systems for heating plants are capable to be remote operated and can generate alarms to service centres: Full control without extensive engineering.



Communication central units	OCI611		
Device versions	OCI611.01	OCI611.05	OCI611.16
No. of communication contollers	1	5	16
No. of external meter modules			
No. of ext. temperature sensor adapters			
Plant operation			
ACS software		Yes	
Interface		RS232	
Alarming			
Max. message receivers		2	
ACS alarm via PC		Yes	
Fax		mit SMS via GSM	
Pager		mit SMS via GSM	
SMS		Yes	
Printer		No	
e-Mail		with SMS via GSM	
Offline trend funktion		No	
Digital inputs (potential free)		2	
As alarm input		Yes	
As counter (operating hours)		No	
Digital outputs		None	
Local device operation		Button / Switch	
Bus power supply		No	
General device data			
Operation voltage		AC 230 V ±10 %	
Frequency		50/60 Hz	
Power consumption		5 VA	
Degree of protection		IP20 [1]	

[1] IP30 with terminal covers

Commissioning and plant operating software

ACS790



PC software for commissioning, operating and supervision of HVAC plants.
Consists of 2 programs: ACS-Tool and ACS-Alarm.

ACS-Tool:

for plant commissioning, operating and service
- Popcard (standard and customized)
- Plant diagram (standard and customized)
- Plant view (standard and customized)
- Trend functions (online and offline)
- File transfer
- Parameter settings
- Commissioning protocol

ACS-Alarm:
- For receiving and managing alarms

Commissioning and service via OCI700 service interface

Compatible devices see OCI700.1.

Plant operation and supervision for

KNX systems
- Central units: OZW771, OZW772
- Synco™ living: QAX9...
- Controllers: Synco™700, Synco RXB/RXL
- Thermostats: RDF..., RDG..., RDU341
- Sensors: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB systems
- Central units: OCI611, OZW672
- Controllers: RVD2.., RVL4.., RVP3..

Data sheet N5649

	Stock No.	Product No.
	S55800-Y100	**ACS790**

2

OCI700.1



Service tool for KNX / LPB

The service tool consists of:
- ACS790 CD-ROM
- OCI700 service interface
- USB cable
- Service cable for Synco™ controllers
- Service cable for SIGMAGYR® and ALBATROS controllers

Commissioning and diagnostics of the following devices:

KNX devices:
- Central communication units OZW771, OZW772
- Heating controllers RMH of the 700-series
- Boiler sequence controllers RMK of the 700-series
- Universal controllers RMU of the 700-series
- Universal controllers RLU of the 200-series
- Switching and monitoring devices RMS of the 700-series
- Room unit QAW740
- Central control units RMB of the 700-series
- Individual room controllers RXB.. / RXL..
- Signal converter SEZ220
- Synco™ living central apartment unit QAX9..
- Synco™ thermostats RDF.., RDG.., RDU341
- Sensores: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB devices:
- Central communication units OCI611 and OZW672
- Heating controllers RVL of the 4..-series
- Heating controllers RVP of the 3..-series
- District heating controllers RVD of the 2..-series

Data sheet N5655

	Stock No.	Product No.
	BPZ:OCI700.1	**OCI700.1**

KNX standard systems main components

The KNX standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	**ACS790**
Central communication unit OZW771..	N3117	BPZ:OZW771..	**OZW771..**
Web server for KNX devices	N5701	BPZ:OZW772..	**OZW772..**
Heating controller	N3133	BPZ:RMH760B..	**RMH760B..**
Boiler sequence controller	N3132	BPZ:RMK770..	**RMK770..**
Universal controller	N3150	BPZ:RMUB..	**RMUB..**
Switching and monitoring device	N3124	BPZ:RMS705B..	**RMS705B..**
Central control unit RMB795B for RXB/RXL room controllers and room thermostats RDG/RDF/RDU	N3122	BPZ:RMB795B..	**RMB795B..**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**
Room controller for 3-speed fan	N3873	BPZ:RXB21.1/FC-10	**RXB21.1/FC-10**
Room controller for 3-speed fan	N3873	BPZ:RXB21.1/FC-11	**RXB21.1/FC-11**
Room controller with 3-speed fan and electric heating coil	N3873	BPZ:RXB22.1/FC-12	**RXB22.1/FC-12**
Room controller for chilled ceilings and radiators	N3874	BPZ:RXB24.1/CC-02	**RXB24.1/CC-02**
Room controller for fan-coil applications with KNX communication	N3875	S55373-C121	**RXB39.1/FC-13**

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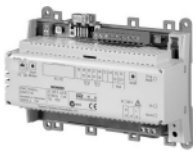
KNX standard systems main components

The KNX standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	N3877	BPZ:RXL21.1/FC-10	**RXL21.1/FC-10**
Room controller for 3-speed fan	N3877	BPZ:RXL21.1/FC-11	**RXL21.1/FC-11**
Room controller with 3-speed fan and electric heating coil	N3877	BPZ:RXL22.1/FC-12	**RXL22.1/FC-12**
Room controller for chilled ceilings and radiators	N3878	BPZ:RXL24.1/CC-02	**RXL24.1/CC-02**
Communicating room controller for fan-coil applications with proprietary communication	N3876	S55373-C122	**RXL39.1/FC-13**
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	S55770-T104	**RDF301**
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment, four buttons for switching lights and blinds	N3171	S55770-T105	**RDF301.50**
Hotel Semi Flush-mount room thermostat with KNX, 2-/4-pipe fan coils or DX type equipment, four buttons hotel functions	N3171	S55770-T334	**RDF301.50H**
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	S55770-T293	**RDF600KN**
Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications	N3191	S55770-T163	**RDG100KN**
Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, fan (1-/ 3-speed, DC), valves (2-point, DC)	N3191	S55770-T297	**RDG160KN**
Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems	N3192	S55770-T165	**RDG400KN**
Semi Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application	N3172	S55770-T106	**RDU341**
VAV compact controller KNX, 24 V, 5 Nm, 150 s, 300 Pa	N3547	S55499-D134	**GDB181.1E/KN**
VAV compact controller KNX, 24 V, 10 Nm, 150 s, 300 Pa	N3547	S55499-D135	**GLB181.1E/KN**
Base module with KNX for temperature and humidity measurement	N1411	BPZ:AQR2570..	**AQR2570..**
Base modules with KNX for CO_2 measurement	N1411	BPZ:AQR2576..	**AQR2576..**
Front modules for base modules	N1410	BPZ:AQR253..	**AQR253..**
Room sensor KNX for temperature	N1602	S55624-H103	**QMX3.P30**
Room sensor KNX for temperature, humidity, CO2	N1602	S55624-H104	**QMX3.P70**

Central communication unit OZW771..

OZW771..



The OZW771... central communication unit is a component of the Synco™ system. It is used for the remote operation and supervision of plants with Synco™ 700 Synco™ RXB... and Synco™ living units in KNX network systems.
Alarm messages can be delivered to
- ACS operating station (ACS alarm)
- SMS receivers
- Fax machines*
- Pagers
- E-mail receivers*

* Only possible with GSM modem, depending also on the telephone provider

Data sheet	N3117
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	5 VA
Digital inputs, number	2
Degree of protection	IP20
Dimensions (W x H x D)	161 x 110 x 62 mm

Range overview OZW771..

Product Title	Data sheet	Stock No.	Product No.
Central communication unit, max. 4 controllers	N3117	BPZ:OZW771.04	**OZW771.04**
Central communication unit, max. 10 controllers	N3117	BPZ:OZW771.10	**OZW771.10**
Central communication unit, max. 64 controllers	N3117	BPZ:OZW771.64	**OZW771.64**

Accessory for OZW771..

Product Title	Stock No.	Product No.
Terminal covers	BPZ:7411100280	**7411100280**

Refer to the central unit data sheet for details

Central communication units
For remote control via KNX: OZW7..

OZW772..



Web server for KNX devices

Web server OZW772 allows for remote plant control and monitoring via the web.

- Operate web browser via PC/laptop and Smartphone
- Operate ACS (PC/laptop with ACS plant operating software)
- Connections: USB and Ethernet
- Display fault messages in the web browser
- Send fault messages to a maximum of 4 e-mail recipients
- Periodically send system reports to e-mail recipients
- Visualize the plants in the web browser based on standard plant diagrams and customized plant web pages
- Acquire and display consumption data
- Send consumption data file to 2 email recipients
- Function "Energy indicator" to monitor data points for energy-related limit values, or "Green limits"
- Web services for external applications via Web API (Web Application Programming Interface)
- Encrypted with https and TLS for emails
- Trend function with ACS790
- Direct commissioning with web browser or ACS service tool

Data sheet	N5701
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Communication	KNX TP1 (wire-Bus) Ethernet, RJ45 plug socket (shielded) USB V2.0 (universal serial bus)
Mounting	On DIN rails With Screws
Degree of protection	IP30
Dimensions (W x H x D)	87.5 x 90 x 40 mm

Range overview OZW772..

Product Title	Stock No.	Product No.
Web server for 1 KNX device	BPZ:OZW772.01	**OZW772.01**
Web server for 4 KNX devices	BPZ:OZW772.04	**OZW772.04**
Web server for 16 KNX devices	BPZ:OZW772.16	**OZW772.16**
Web server for 250 KNX devices	BPZ:OZW772.250	**OZW772.250**

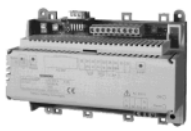
LPB standard system main components

The LPB standard system consists of the following main components:

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	**ACS790**
Central communication unit	N2533	BPZ:OCI611..	**OCI611..**
Web Server for LPB devices	N5712	BPZ:OZW672..	**OZW672..**
Heating controller for a second heating circuit	N2543	BPZ:RVL479	**RVL479**
Heating controller for 1 heating circuit or boiler temperature control	N2540	BPZ:RVL480	**RVL480**
Heating controller for boiler temperature control and d.h.w. heating	N2541	BPZ:RVL481	**RVL481**
Heating controller for boiler temperature control for modulating or 2-stage burners with d.h.w. heating	N2542	BPZ:RVL482	**RVL482**
Heating controller for 1 heating circuit	N2545	S55370-C136	**RVP340**
Heating controller for 1 heating circuit and d.h.w.	N2545	S55370-C137	**RVP350**
Heating controller for 2 heating circuits and d.h.w.	N2546	S55370-C139	**RVP360**
District heating controller	N2513	BPZ:RVD25..	**RVD25..**
District heating controller	N2515	BPZ:RVD26..	**RVD26..**

Central communication unit

OCI611..



Interface for the communication between the devices connected to the bus and the operator PC with ACS790 software.

- Alarm messages can be delivered to
  - ACS operating station (ACS alarm)
  - SMS receivers
  - Fax machines*
  - Pagers*
  - E-mail receivers*

  * Only possible with GSM modem, depending also on the telephone provider
- 2 digital inputs
- Connected to:
  - RVL heating controllers of the 4..-series
  - RVP heating controllers of the 3..-series
  - RVP energy managers of the 5..-series
  - RVD district heating controllers of the 2..-series

Data sheet	N2533
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	5 VA
Degree of protection	IP20

Range overview OCI611..

Product Title	Data sheet	Stock No.	Product No.
Central communication unit, max. 1 controller	N2533	BPZ:OCI611.01	**OCI611.01**
Central communication unit, max. 5 controllers	N2533	BPZ:OCI611.05	**OCI611.05**
Central communication unit, max. 16 controllers	N2533	BPZ:OCI611.16	**OCI611.16**

2

Accessory for OCI611..

Product Title	Stock No.	Product No.
Terminal covers	BPZ:7411100280	**7411100280**

Refer to the central unit data sheet for details

Web Server for LPB devices

OZW672..



Web server OZW672 allows for remote plant control and monitoring via the web

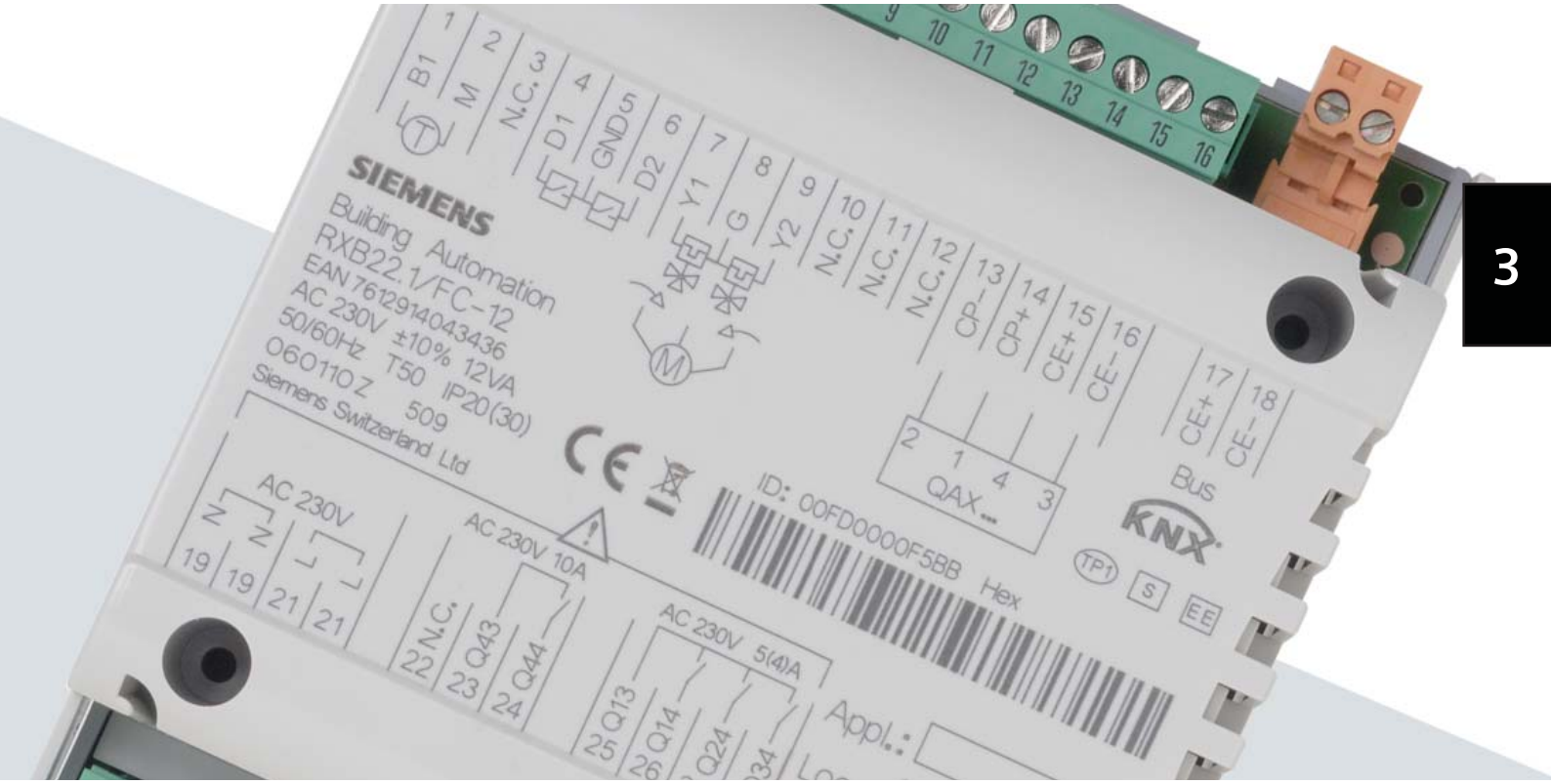
- Operate web browser via PC/laptop and Smartphone
- Operate via ACS790 PC tool
- Connections: USB and Ethernet
- 2 digital inputs for fault messages
- Display fault messages in the web browser
- Send fault messages to a maximum of 4 email recipients
- Periodically send system reports to email recipients
- Visualize the plants in the web browser based on standard plant diagrams and customized plant web pages
- Function "Energy indicator" to monitor data points for energy-related limit values, or "Green limits"
- Web services for external applications via Web API (Web Application Programming Interface)
- Encrypted with https and TLS for emails
- Trend function with ACS790

Data sheet	N5712
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Digital inputs, number	2
Communication	LPB/BSB (wire-Bus) Ethernet, RJ45 plug socket (shielded) USB V2.0 (universal serial bus)
Mounting	On DIN rails With Screws
Degree of protection	IP30
Dimensions (W x H x D)	87.5 x 90 x 40 mm

Range overview OZW672..

Product Title	Stock No.	Product No.
Web Server for 1 LPB/BSB device	BPZ:OZW672.01	**OZW672.01**
Web Server for 4 LPB devices	BPZ:OZW672.04	**OZW672.04**
Web Server for 16 LPB devices	BPZ:OZW672.16	**OZW672.16**

Room automation



Overview and selection guides	Product overviews and application recommendations	3-2
Communicating controllers - RXL (Bus)	For fan coil, radiator, chilled ceiling	3-9
Communicating controllers - RXB (KNX)	For fan coil, radiator, chilled ceiling	3-13
Communicating central control unit (KNX)	Central control unit RMB.. for room controllers	3-17
Room operating units	For controllers RX.. (EnOcean): QAX9.. / RXZ9..	3-19





Room Controller	RXL..	RXB..
Communication	Bus	KNX
Peripheral bus	PPS2	PPS2
Fan coil systems		
2-pipe system with changeover	■	■
2-pipe system with changeover and electric air heater battery	■	■
4-pipe system	■	■
4-pipe system with electric air heater battery	■	■
4-pipe system with supply air temperature limit	■	■
2-pipe system with changeover and outside air damper	■	■
4-pipe system with outside air damper	■	■
2-pipe system and radiator	■	■
4-pipe system, with one air damper	■	■
Heated/chilled ceilings and radiators		
Chilled ceiling with dewpoint monitoring	■	■
Chilled ceiling with dewpoint monitoring	■	■
Radiator with downdraft compensation	■	■

Room operation



Features	QAX..								AQR...	
	30.1	31.1	32.1	33.1	34.1	34.3	39.1	84.1	2570.. & 253..	2576.. & 253..
Display					■	■		■		■ [1]
Mode selection			■	■	■	■		■		
Fan switch				■	■	■		■		
Setpoint adjuster		■	■	■	■	■	■	■		
Temperature sensor	■	■	■	■	■	■		■	■	■
Humidity sensor									■	■
Air quality sensor										■
Mounting										
Flush-mounted							■	■	■	■
Directly on wall	■	■	■	■	■	■				
Control panel(door)							■			
Communication										
PPS2	■	■	■	■	■	■	■	■		
KNX									■	■
Controller										
RXL..	■	■	■	■	■	■	■	■	■	■
RXB..	■	■	■	■	■	■	■	■	■	■

Wireless room operation



Features	95.4	96.4	97.4	98.4
Mode selection			■	■
Fan switch				■
Setpoint adjuster		■	■	■
Temperature sensor	■	■	■	■
Mounting				
Flush-mounted	■	■	■	■
Directly on wall	■	■	■	■
Communication				
□ n□ cean	■	■	■	■
KNX	■ [2]	■ [2]	■ [2]	■ [2]
Controller				
RXL..				
RXB..	■	■	■	■

[1] L□D □ or air quality indicator

[2] **Suitable receiver:** RX□97.1/□□X

RXL applications

RXL – Powerful room controllers for temperature control in individual rooms
RXL ensures individual demand-based comfort in public buildings, offices, schools, hotels, etc. Flexible control of all types of equipment in individual rooms calls for economical and convenient solutions that can be integrated into existing or new systems and will retain their compatibility long into the future.

Communicating controllers for individual rooms
The communicating room controllers RXL21.1, RXL22.1 and RXL24.1 are used for temperature control in individual rooms. RXL39.1 support energy efficient EC fan-coils. Siemens actuator and sensor technology can be connected.

Easy commissioning with room operator unit
Commissioning and parameter-setting for RXL controllers is carried out directly on the controller, with the QAX34.3 room operator unit. There is no need for a network connection or a software tool. Mounting on a DIN rail is quick and simple.

User-friendly commissioning and service
The Service LED shows the operational status of the room controller at all times. For example, a flashing green LED is used to indicate normal, trouble-free operation, a continuous red LED for addressing mode and a flashing red LED to indicate a fault. With the service pin, all controllers can be easily identified for commissioning or maintenance purposes. As soon as the service pin is pressed, the red service LED on the controller lights up and the controller is displayed on a graphic of the building at the management station.

Complete range of standard room operating units
The extensive range of room operator units is available for direct operation and monitoring of setpoints and measured values in individual rooms. The range extends from very simple room temperature sensors to versatile room operator units with parameter-setting functions.

Integration into Synco™
The Synco™ central control unit RMB795 is used for controlling and monitoring the RXL controllers in a Synco™ system.

Connection to the Desigo building automation and control system
Desigo PX KNX allow for flexibly connecting RXL controllers to the Desigo building automation and control system, and hence acts as a gateway to BACnet. The connection provides access to other functions such as time schedules and central control of setpoints.
RXL thus fits into the overall expandable modular system, and ensures long-term cost-efficiency.

HVAC

	Room units	Compact
Chilled ceiling Radiator-type systems		
Fan coil units	**QAX30** **QAX31** **QAX32** **QAX33** **QAX34** **QAX39** **QAX84** **AQR2531..**	**RXL21.1** **RXL22.1** **RXL24.1** **RXL39.1**

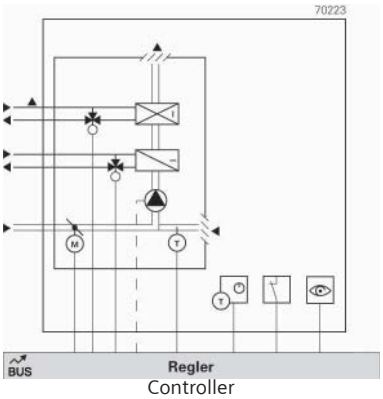
3

Fields of application
The scope of RXL is defined by the preprogrammed application software. The following pages provide an overview of the options and the corresponding devices. The devices are supplied preprogrammed with the applications. The required application can be selected by means of the Handy tool QAX34.3.

Due to the fact that the applications are predefined, engineering simply involves the definition of a small number of parameters, e. g.:
- ON / OFF or 3-point control of the valves and actuators
- Temperature setpoints
- Manual or automatic fan control

Fan coil systems

Application	Description	Devices
FNC02	2-pipe system with changeover	RXL21.1/FC-10
FNC03	2-pipe system with changeover and electrical reheater	RXL22.1/FC-12
FNC04	4-pipe system	RXL21.1/FC-10
FNC05	4-pipe system with electrical reheater	RXL22.1/FC-12
FNC08	4-pipe system with supply air temperature limitation	RXL21.1/FC-10
FNC10	2-pipe system with change over and outside air damper	RXL21.1/FC-11
FNC12	4-pipe system with outside damper	RXL21.1/FC-11
FNC18	2-pipe system with change over and radiator	RXL21.1/FC-11
FNC20	4-pipe system with air-side control	RXL21.1/FC-10
FNC02/03/04/08	2-pipe/4-pipe system with EC fan-coil support	RXL39.1/FC-13

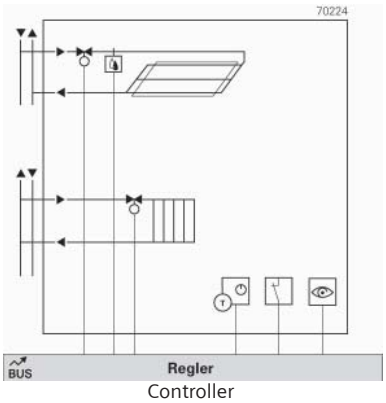


Controller

Common functions
- Window contact, occupancy detector, 4 operating modes
- Manual fan control with room unit
- Automatic fan control (RXL21.1/RXL22.1 three speed; RXL39.1 continous speed 0...10 V)
- Options for 2-pipe systems: heating only, cooling only or changeover

Heated/chilled ceilings and radiators

Application	Description	Devices
CLC01	Chilled ceiling with dewpoint monitoring	RXL24.1/CC-02
CLC02	Chilled ceiling with dewpoint monitoring, radiator with downdraft compensation	RXL24.1/CC-02
RAD01	Radiator with downdraft compensation	RXL24.1/CC-02



Controller

Common functions
- Window contact, occupancy detector, 4 operating modes

3

RXB applications

RXB hardware
The product range comprises compact controllers and corresponding room units for comfortable control. The compact room controllers are optimized to the respective application with regard to input/output configuration. HVAC functions are operated via standard room units.
Communication is based on KNX S-mode. The fan coil room controllers communicate also in KNX LTE mode. KNX LTE mode is used to communicate with control equipment from the Synco™ 700 product range.

RXB software
Each RXB unit comes with preloaded application software featuring one or several applications (see next page).
The ETS software helps engineer and commission a network with RXB units.
In addition, the Synco™ tool and room unit QAX34.3 by Siemens can be used for commissioning and parameterization.

Integration into Synco™
The Synco™ central control unit RMB795 is used for controlling and monitoring the RXB controllers in a Synco™ system.

Connection to the Desigo building automation and control system
Desigo PX KNX allow for flexibly connecting RXB controllers to the Desigo building automation and control system, and hence acts as a gateway to BACnet.
The connection provides access to other functions such as time schedules and central control of setpoints.
RXB thus fits into the overall expandable modular system, and ensures long-term cost-efficiency.

HVAC			
	Chilled ceiling Radiator-type systems		KNX
	Fan coil units	QAX30 QAX31 QAX32 QAX33 QAX34 QAX39 QAX84 QAX95 QAX96 QAX97 QAX98 AQR2531..	RXB21.1 RXB22.1 RXB24.1 RXB39.1





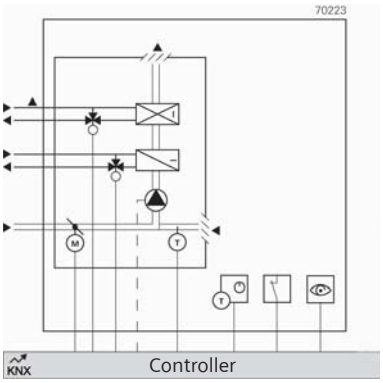
Room units ◄——► Compact

Fields of application
The scope of RXB is defined by the preprogrammed application software. The following pages provide an overview of the options and the corresponding devices, divided into different areas of application. The devices are supplied preprogrammed with the applications. The required application can be selected by means of the ETS, Synco™ tool or the Handy tool QAX34.3.

Due to the fact that the applications are predefined, engineering simply involves the definition of a small number of parameters, e. g.:
- ON / OFF or 3-point control of the valves and actuators
- Temperature setpoints
- Manual or automatic fan control

Fan coil systems

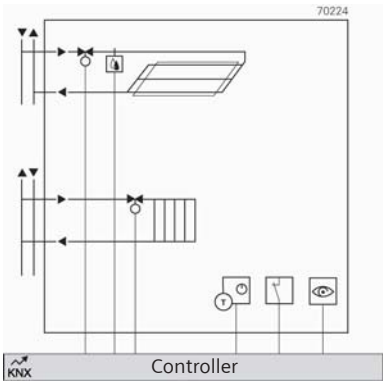
Application	Description	Devices
FNC02	2-pipe system with changeover	RXB21.1/FC-10
FNC03	2-pipe system with changeover and electrical reheater	RXB22.1/FC-12
FNC04	4-pipe system	RXB21.1/FC-10
FNC05	4-pipe system with electrical reheater	RXB22.1/FC-12
FNC08	4-pipe system with supply air temperature limitation	RXB21.1/FC-10
FNC10	2-pipe system with changeover and outside air damper	RXB21.1/FC-11
FNC12	4-pipe system with outside damper	RXB21.1/FC-11
FNC18	2-pipe system with change over and radiator	RXB21.1/FC-11
FNC20	4-pipe system with air-side control	RXB21.1/FC-10
FNC02/03/04/08	2-pipe/4-pipe system with EC fan-coil support	RXB39.1/FC13



Common functions
- Window contact, occupancy detector, 4 operating modes
- Manual fan control with room unit
- Automatic fan control (RXB21.1/RXB22.1 three speed; RXB39.1 continous speed 0...10 V)
- Options for 2-pipe systems: heating only, cooling only or change-over, via KNX bus

Heated/chilled ceilings and radiators

Application	Description	Devices
CLC01	Chilled ceiling with dewpoint monitoring	RXB24.1/CC-02
CLC02	Chilled ceiling with dewpoint monitoring and radiator	RXB24.1/CC-02
RAD01	Radiator with downdraft compensation	RXB24.1/CC-02



Common functions
- Window contact, occupancy detector, 4 operating modes

Room controller with bus communication

RXL2..



The controllers RXL2.. are used for temperature control in individual rooms.
- For 2-pipe with changeover or 4-pipe fan coil systems
- Control of thermic valve actuators AC 24 V, PDM, valve and damper actuators AC 24 V (3-position)
- Volt-free relay contacts for fan speed control
- Relay for electric heating (RXL22.1 only)
- Bus communication
- Connection to Desigo building automation and control system via PX KNX
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Application description fan coil: CM110677
Application description RAD/CLC: CM110676

Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	15 VA
Control algorithm	PI
Digital inputs, number	2
Triac outputs	ON/OFF PWM 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.5 A
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus Room unit: PPS2
Service plug	RXT20.1
Mounting location	Ceiling voids with cover Fan coil Panel
Mounting	On DIN rail With screws
Dimensions (W x H x D)	113 x 167 x 62 mm

Range overview RXL2..

Product Title	Triac outputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	4	3	N3877	BPZ:RXL21.1/FC-10	**RXL21.1/FC-10**
Room controller for 3-speed fan	4	3	N3877	BPZ:RXL21.1/FC-11	**RXL21.1/FC-11**
Room controller with 3-speed fan and electric heating coil	2	4	N3877	BPZ:RXL22.1/FC-12	**RXL22.1/FC-12**
Room controller for chilled ceilings and radiators	4	0	N3878	BPZ:RXL24.1/CC-02	**RXL24.1/CC-02**

The application determines the usable actuator (2-position /3-position) with the triac output

3

RXL39.1/FC-13



Communicating room controller for fan-coil applications with proprietary communication

The RXL39.1 room controller is used for temperature control in individual rooms.
- For 2-pipe and 4-pipe fan coil systems with or without changeover
- PI control
- Proprietary bus communication
- Connection to Desigo building automation and control system via PX KNX
- DC 0...10 V control of valve and actuators, fan (ECM), and electric heater
- Potential-free relay contacts to release fan and electric heating
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Data sheet	N3876
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	12 VA
Control algorithm	PI
Digital inputs, number	4
Digital outputs, number	0
Analog inputs, number	2
Analog outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: Proprietär Raumgerät: PPS2
Service plug	ACS, HandyTool
Mounting	On DIN rail
Degree of protection	IP20
Dimensions (W x H x D)	152 x 120 x 62 mm

Stock No.	Product No.
S55373-C122	**RXL39.1/FC-13**

Accessories for RXL..

Product Title	Data sheet	Stock No.	Product No.
Power amplifier for thermal actuators AC 24 V, PWM	N3591	BPZ:UA1T	**UA1T**
Terminal cover for RXA2../ RXB2../ RXL2../ RXC2..	N3834	BPZ:RXZ20.1	**RXZ20.1**
Terminal cover for RXB3.. / RXL3.. / RXC3..	N3840	BPZ:RXZ30.1	**RXZ30.1**
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	2.14.4.4	5WG1125-1AB02	**N 125/02**
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	2.14.4.4	5WG1125-1AB12	**N 125/12**
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	2.14.4.4	5WG1125-1AB22	**N 125/22**

Room units for RXL..

Product Title	Data sheet	Stock No.	Product No.
Room unit with sensor and PPS2 interface	N1741	BPZ:QAX30.1	**QAX30.1**
Room unit with sensor, setpoint adjuster and PPS2 interface	N1741	BPZ:QAX31.1	**QAX31.1**
Room unit with sensor, setpoint and operating mode selector and PPS2 interface	N1641	BPZ:QAX32.1	**QAX32.1**
Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface	N1642	BPZ:QAX33.1	**QAX33.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1645	BPZ:QAX34.1	**QAX34.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	**QAX34.3**
Flush-mounted room unit complete with PPS2 interface and design frame	N1649	BPZ:QAX84.1/PPS2	**QAX84.1/PPS2**
Universal setpoint adjuster with PPS2 interface	N1646	BPZ:QAX39.1	**QAX39.1**

Temperature sensors for RXL..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**

For the complete flush mounting sensor offering including mounting plates and frames, see chapter 6

Dewpoint sensor for RXL..

Product Title	Data sheet	Stock No.	Product No.
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	**QXA2601**
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	**QXA2602**
Condensation monitor, AC 230 V	N3302	S55770-T327	**QXA2603**
Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T328	**QXA2604**

Valve actuators for RXL..

Product Title	Data sheet	Stock No.	Product No.
Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, PR	N4884	S55174-A115	**STA73PR/00**
Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, PR	N4884	S55174-A116	**STP73PR/00**
Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 24 V, 3P	N4893	BPZ:SSA81	**SSA81**
Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4891	BPZ:SSB81	**SSB81**
Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	BPZ:SSP81	**SSP81**

NEW PRODUCT

Damper actuators for RXL..

Product Title	Data sheet	Stock No.	Product No.
Rotary air damper actuators 5 Nm, without spring return	N4634	BPZ:GDB..1E	**GDB..1E**
Linear air damper actuators 125 N, without spring return	N4664	BPZ:GDB..2E	**GDB..2E**
Rotary air damper actuators 10 Nm, without spring return	N4634	BPZ:GLB..1E	**GLB..1E**
Linear air damper actuators 250 N, without spring return	N4664	BPZ:GLB..2E	**GLB..2E**

Interfaces and tools RXB and RXL

Product Title	Data sheet	Stock No.	Product No.
Service unit with LCD	N3851	BPZ:RXT20.1	**RXT20.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	**QAX34.3**

Room controller with KNX communication

RXB2..



The controllers are used for temperature control in individual rooms.
- For 2-pipe with changeover or 4-pipe fan coil systems
- For radiator and chilled ceiling (RXB24.1 only)
- Control of thermal valve actuators AC 24 V, PDM, valve and damper actuators AC 24 V (3-position) as well as KNX bus actuators
- Potential-free relay contacts for fan speed control
- Relay for electric heating (RXB22.1 only)
- KNX bus communication
- Connection to Desigo building automation and control system via PX KNX
- Commissioning with "Handy Tool" QAX34.3 or Synco ACS

Application description fan coil: CM110672
Application description RAD/CLC: CM110671

Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	Max. 12 VA
Control algorithm	PI
Digital inputs, number	2
Triac outputs	ON/OFF PWM 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.5 A
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: KNX (S-mode and LTE mode) Room unit: PPS2
Service plug	RXT20.1
Mounting location	Ceiling voids with cover Fan coil Panel
Mounting	On DIN rail With screws
Dimensions (W x H x D)	113 x 167 x 62 mm

Range overview RXB2..

Product Title	Triac outputs, number	Relay outputs, number	Data sheet	Stock No.	Product No.
Room controller for 3-speed fan	4	3	N3873	BPZ:RXB21.1/FC-10	**RXB21.1/FC-10**
Room controller for 3-speed fan	4	3	N3873	BPZ:RXB21.1/FC-11	**RXB21.1/FC-11**
Room controller with 3-speed fan and electric heating coil	2	4	N3873	BPZ:RXB22.1/FC-12	**RXB22.1/FC-12**
Room controller for chilled ceilings and radiators	4	0	N3874	BPZ:RXB24.1/CC-02	**RXB24.1/CC-02**

The application determines the usable actuator (2-position /3-position) with the triac output

3

RXB39.1/FC-13



Room controller for fan-coil applications with KNX communication

The RXB39.1 room controller is used for temperature control in individual rooms.
- For 2-pipe and 4-pipe fan coil systems with or without changeover
- PI control
- KNX bus communication
- Connection to Desigo building automation and control system via PX KNX
- DC 0...10 V control of valve and actuators, fan (ECM), and electric heater
- 2 Potential-free relay contacts to release fan and electric heating
- Commissioning with ETS Professional, "Handy Tool" QAX34.3 or Synco ACS
- Operating voltage AC 230 V
- Plug-in screw terminals

Data sheet	N3875
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	12 VA
Control algorithm	PI
Digital inputs, number	4
Digital outputs, number	0
Analog inputs, number	2
Analog outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Communication	Bus: KNX Room unit: PPS2
Service plug	ETS Professional, ACS, HandyTool
Mounting	On DIN rail
Degree of protection	IP20
Dimensions (W x H x D)	152 x 120 x 62 mm

Stock No.	Product No.
S55373-C121	**RXB39.1/FC-13**

Accessories for RXB..

Product Title	Data sheet	Stock No.	Product No.
Power amplifier for thermal actuators AC 24 V, PWM	N3591	BPZ:UA1T	**UA1T**
Terminal cover for RXA2../ RXB2../ RXL2../ RXC2..	N3834	BPZ:RXZ20.1	**RXZ20.1**
Terminal cover for RXB3.. / RXL3.. / RXC3..	N3840	BPZ:RXZ30.1	**RXZ30.1**
Power supply unit DC 29 V, 160 mA with additional unchoked output, N 125/02	2.14.4.4	5WG1125-1AB02	**N 125/02**
Power supply unit DC 29 V, 320 mA with additional unchoked output, N 125/12	2.14.4.4	5WG1125-1AB12	**N 125/12**
Power supply unit DC 29 V, 640 mA with additional unchoked output, N 125/22	2.14.4.4	5WG1125-1AB22	**N 125/22**

Room units for RXB..

Product Title	Data sheet	Stock No.	Product No.
Room unit with sensor and PPS2 interface	N1741	BPZ:QAX30.1	**QAX30.1**
Room unit with sensor, setpoint adjuster and PPS2 interface	N1741	BPZ:QAX31.1	**QAX31.1**
Room unit with sensor, setpoint and operating mode selector and PPS2 interface	N1641	BPZ:QAX32.1	**QAX32.1**
Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface	N1642	BPZ:QAX33.1	**QAX33.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1645	BPZ:QAX34.1	**QAX34.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	**QAX34.3**
Flush-mounted room unit complete with PPS2 interface and design frame	N1649	BPZ:QAX84.1/PPS2	**QAX84.1/PPS2**
Room unit with EnOcean interface	N1663	S55623-H104	**QAX95.4**
Room unit with EnOcean interface, setpoint adjuster	N1663	S55623-H105	**QAX96.4**
Room unit with EnOcean interface, setpoint adjuster, button and switch	N1663	S55623-H106	**QAX97.4**
Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages	N1663	S55623-H107	**QAX98.4**
Radio frequency receiver with Gateway EnOcean/KNX	N1662	S55842-Z101	**RXZ97.1/KNX**
Universal setpoint adjuster with PPS2 interface	N1646	BPZ:QAX39.1	**QAX39.1**

Temperature sensors for RXB..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**

For the complete flush mounting sensor offering including mounting plates and frames, see chapter 6

Dewpoint sensors for RXB..

Product Title	Data sheet	Stock No.	Product No.
Condensation monitor, AC/DC 24 V	N3302	S55770-T325	**QXA2601**
Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T326	**QXA2602**
Condensation monitor, AC 230 V	N3302	S55770-T327	**QXA2603**
Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)	N3302	S55770-T328	**QXA2604**

NEW PRODUCT

Valve actuators for RXB..

Product Title	Data sheet	Stock No.	Product No.
Electrothermal actuator, AC/DC 24 V, NC, 2P, PDM, PR	N4884	S55174-A115	**STA73PR/00**
Electrothermal actuator, AC/DC 24 V, NO, 2P, PDM, PR	N4884	S55174-A116	**STP73PR/00**
Electromotoric actuator, 100 N, 2.5/5 mm, 1.5 m, AC 24 V, 3P	N4893	BPZ:SSA81	**SSA81**
Electromotoric actuator, 200 N, 5.5 mm, AC 24 V, 1.5 m, 3P	N4891	BPZ:SSB81	**SSB81**
Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 24 V, 3P	N4864	BPZ:SSP81	**SSP81**

Damper actuators for RXB..

Product Title	Data sheet	Stock No.	Product No.
Rotary air damper actuators 5 Nm, without spring return	N4634	BPZ:GDB..1E	**GDB..1E**
Linear air damper actuators 125 N, without spring return	N4664	BPZ:GDB..2E	**GDB..2E**
Rotary air damper actuators 10 Nm, without spring return	N4634	BPZ:GLB..1E	**GLB..1E**
Linear air damper actuators 250 N, without spring return	N4664	BPZ:GLB..2E	**GLB..2E**

Interfaces and tools RXB and RXL

Product Title	Data sheet	Stock No.	Product No.
Service unit with LCD	N3851	BPZ:RXT20.1	**RXT20.1**
Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface	N1640	BPZ:QAX34.3	**QAX34.3**

Central control unit RMB795B for RXB/RXL room controllers and room thermostats RDG/RDF/RDU

RMB795B..



- Central control unit with integrated control and supervisory functions for individual room control with RXB and RXL room controllers and room thermostats RDG/RDF/RDU
- Individual time programs for room groups with RXB/RXL room controllers and room thermostats RDG/RDF/RDU
- Preselected operating modes and setpoints, minimum / maximum temperature supervision and supervision of RXB/RXL room controllers and room thermostats RDG/RDF/RDU
- Operation and monitoring of individual RXB/RXL room controllers
- Trend and fault reporting functions for the input variables temperature, relative / absolute humidity, pressure / differential pressure, volumetric air flow, indoor air quality, etc.
- Heating / cooling changeover function for operation with 2-pipe systems
- Flexible configuration
- Functionality can be extended (extension modules)
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No commissioning tool required

Extension modules complement the RMB795B central control unit and offer extra functions. The extension modules are attached to the RMB795B central control unit. Full operation from commissioning to enduser operation via operator unit.

Available extension modules:
- max. 1 universal module RMZ785
- max. 2 universal modules RMZ787

Available operator units:
- Plug-in type operator unit RMZ790
- Detached operator unit RMZ791

Data sheet	N3122
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Universal inputs, number	6
Universal input, signal	0...1000 Ohm 1000...1175 Ohm 2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Relay outputs	Potential-free switching contact
Relay outputs, number	4
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Communication	KNX (KNX TP1)

Communicating central control unit (KNX)
Central control unit RMB.. for room controllers

Range overview RMB795B..

Product Title	Stock No.	Product No.
Central control unit RMB795B-1 with languages de, fr, it, es, pt	S55370-C162	**RMB795B-1**
Central control unit RMB795B-2 with languages de, fr, nl, en	S55370-C163	**RMB795B-2**
Central control unit RMB795B-3 with languages da, fi, no, sv	S55370-C164	**RMB795B-3**
Central control unit RMB795B-4 with languages cs, sk, pl, hu, ru, bg	S55370-C165	**RMB795B-4**
Central control unit RMB795B-5 with languages ro, sl, sr, hr, el, tr	S55370-C166	**RMB795B-5**
Central control unit RMB795B-6 with language zh	S55370-C167	**RMB795B-6**

Operator units for RMB..

Product Title	Data sheet	Stock No.	Product No.
Plug-in type operator unit	N3111	BPZ:RMZ790	**RMZ790**
Detached operator unit with 3 m cable	N3112	BPZ:RMZ791	**RMZ791**

Extension modules for RMB..

Product Title	Data sheet	Stock No.	Product No.
Universal module (8UI)	N3146	BPZ:RMZ785	**RMZ785**
Universal module (4UI, 4DO)	N3146	BPZ:RMZ787	**RMZ787**
Module connector	N3138	BPZ:RMZ780	**RMZ780**

Room unit with EnOcean interface

QAX95.4



- Acquisition of the room temperature
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:
- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet N1663

Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 19 mm
Weight	0.05 kg

Stock No.	Product No.
S55623-H104	**QAX95.4**

Room unit with EnOcean interface, setpoint adjuster

QAX96.4



- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:
- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet N1663

Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No.	Product No.
S55623-H105	**QAX96.4**

3

QAX97.4

Room unit with EnOcean interface, setpoint adjuster, button and switch



- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Freely-programmable button
- Step switch (2 stages)
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:
- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No.	Product No.
S55623-H106	**QAX97.4**

QAX98.4

Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages



- Acquisition of the room temperature
- Room temperature setpoint adjustment
- Freely-programmable button
- Step switch (5 stages)
- Powered by solar cell
- A gateway is mandatory (EnOcean / KNX)
- Optional use of battery if light conditions are insufficient
- Including design frame DELTA line, titan white

For use with units from the following product ranges:
- RXB (together with gateway EnOcean/KNX, RXZ97.1/KNX)
- Devices with KNX Communication

Data sheet	N1663
Voltage supply	Solar cell
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
Time constant	≤16 min
Setpoint readjustment range	±10 K
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 28 mm
Weight	0.05 kg

Stock No.	Product No.
S55623-H107	**QAX98.4**

Radio frequency receiver with Gateway EnOcean/KNX

RXZ97.1/KNX

- Evaluation of up to 32 EnOcean channels
- With RXB, other EnOcean functions may also be integrated: switches, window contacts, motion detectors
- Other EnOcean functions (dimming, blinds, light sensors) can be realized in KNX systems
- Powered via KNX bus
- With internal antenna



Data sheet	N1662
Operating voltage	DC 24 V
Voltage supply	KNX bus
Power consumption	0.6 VA
Ambient temperature, operation	-5...45 °C
Ambient humidity, operation	5...93 % r.H.
Degree of protection	IP20
Dimensions (W x H x D)	71 x 71 x 27 mm
Weight	0.07 kg

Stock No.	Product No.
S55842-Z101	**RXZ97.1/KNX**

Home automation – Synco living



4

Overview and selection tools	Overview of product details	4-2
Synco™ living	Central apartment unit QAX9..	4-5
	Room unit QAW91.. and room sensor QAA91..	4-9
	Radiator control actuator SSA95..	4-11
	Heating circuit controller RRV91..	4-12
	Multi controller RRV93..	4-14
	Consumption data interface WRI982	4-15
	Water monitor QFP910 and handheld control AFK914/C01	4-16
	Meteo sensor QAC91..and RF repeater ERF91	4-17
	Door/window contact wave AP 260	4-18
	Starter Kit 91..	4-19

Overview and selection tools
Product range overview Synco living

Central apartment unit (1)



The heart and brain of the system. From here you can control all different functions for up to 12 rooms quickly and easily and monitor them via the display.

Room unit / room temperature sensor (2)



The room unit measures the room temperature and allows the settings entered into the central apartment unit, such as temperature and operating parameters, to be adjusted for individual rooms. The comfort settings can be extended at the push of a button.

The room temperature sensor measures the room temperature and communicates this by radio to the central apartment unit.

Radiator control actuator (3)



Receives the pre-set desired temperature for this room by radio signal from the central apartment unit and regulates room temperature by adjusting the radiator valve. It can also be regulate up to 5 additional radiators per room, thereby ensuring an even temperature between radiators.

Heating circuit controller / Multicontroller / Consumption data interface (4)



Compares the actual values and setpoints for each room communicated to the central apartment unit via RF and regulates the temperature by adjusting the valve settings of the heat distributer.
For precontrol of up to 2 independent hydraulic room groups (e.g. radiators, floor heating) or control of ventilation plant with up to 3 stages.
The consumption data interface collects consumption meter data of heat/cool, electicity, water and gas

Web server (5)



The web server connects the home automation system to the internet. It allows you to access and operate the system from a remote location via Smartphone, tablet or PC.

Alarm messages, reports and consumption data can be sent to email recipients as required.

Socket outlet switche (6)



For remote control of electrical appliances. Operated via central apartment unit, a handheld remote control unit or external button, all via KNX RF.

Meteo sensor (7)



Acquires the outside temperature and atmospheric pressure and communicates this via RF to the central apartment unit.

Lighting and blind control (8)



Wireless and therefore convenient control of lighting and blinds – centrally, locally in the room, or as a scene. Naturally, the components can also be operated automatically, e.g. via time programs or simulation of presence.

Door / window contact (9)



Monitors the status of windows, doors and gates and transmits the relevant data to the central apartment unit. In the case of deviations from the norm, the system can alert you in a variety of ways, increases comfort.

Water monitor (10)



Supervision of laundry machine, dish washer, aquarium or any other potential source of water damage.
The water monitor with detached sensor for detecting water leaks sends its status by radio to the central apartment unit in the event of a water leakage.

Use Synco™ living – and technology becomes your valued companion in the house

Synco™ living is the new modular Homeautomation system from Siemens. It offers central operation and adapts all parameters for comfortable living, such as optimum room temperatures, air and light conditions, safety and security, plus economical use of energy and financial resources, to individual needs. The system can be dynamically matched to changing living conditions. Information within the system is transmitted either wire-bound (KNX TP1) or via radio (KNX RF).

To be able to satisfy all kinds of requirements in the residential sector, today's Homeautomation systems must be compatible with a large number of systems on the market. Synco™ living offers absolute openness. This means that – now or later – you can integrate almost any type of system into your Synco™ living configuration conforming to European standards.



4

Synco™ living starter kit

The Synco living starter kit is a wireless room temperature control system for heating plants comprising up to 2 individual zones. A maximum of 6 radiator control actuators can be integrated in the system and the collected heat requests can be forwarded to heat generation.

KIT911



KIT914



Room unit (1)



Managed room heating control of up to 2 heating zones (rooms) and 6 SSA955 radiator control actuators. The unit ensures full control of the room heating functions and all data are clearly shown on the display. Furthermore, the QAW912 acquires the room temperature in the relevant room.

Radiator control actuator (2)



Receives the preset desired temperature for this room via radio signal from the room unit and regulates the room temperature by adjusting the radiator valve. It can also regulate up to 5 additional radiators per room, thereby ensuring even temperatures between radiators.

RF adapter plugs, switching (3) Heating circuit controller (3)



Receives the heat request from the room unit via radio signal and switches heat generation.



Central apartment unit with energy consumption data collection

QAX913..



The central apartment unit serves as an operator and display unit for an apartment.
It manages individual room control (heating/cooling) of up to 12 rooms, comfort ventilation, precontrol and DHW control, control of air conditioning equipment, and acquires the consumption data of heat, water, electricity and gas. Additional functions include the control of lights and blinds. Door and window contacts plus smoke detectors and water monitors can be integrated for monitoring purposes.

- Management of heating and cooling control for one apartment
  - Suited for heating and cooling plants with central distribution (e.g. underfloor heating) and radiators with decentral connections
  - Selection of operating mode, timer and holidays / special day function for the apartment
  - Independent time switches and operating modes for 12 rooms
  - Flow temperature control of 2 independent room groups including limitation (min. / max.) and maintained return temperature (high / low)
  - Increase of economy room temperature setpoint and minimum flow temperature setpoint depending on the composite outside temperature
  - Collection of heat / cooling requests from the individual rooms and forwarding the requests to the heat/cooling sources via wired bus, heat/cooling demand relay or DC 0...10 V output to the RRV912 or RRV934
- Absence function (heating, cooling, ventilation, lights) with simulation of presence (lights)
- DHW heating with time switch and selection of operating mode
- Management of 3-stage ventilation plant via RRV934 multicontroller, incl. night cooling
- Control of air conditioners (split units) via universal outputs (locally and RRV91x) or via S-Mode (KNX TP1)
- Operation of lights and blinds via 4 softkeys, time switch and events
- Monitoring door contacts, window contacts and smoke detectors
- Display of meteorological data
- Presentation of key data on info pages
- Wireless communication with the devices of GAMMA wave and Hager tebis TX product ranges
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing

Data sheet	N2740
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP1 (wired bus)
Indoor wireless range	30 m
Display	Full graphic backlit display
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	1
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Synco™ living
Central apartment unit QAX9..

Range overview QAX913..

Product Title	Data sheet	Stock No.	Product No.
Central apartment unit with energy consumption data collection, without instructions; plain text output in 23 languages Without instructions; Plain text output in bg, cs, de, dk, el, en, es, fi, fr, hr, hu, it, nl, no, pl, pt, ro, ru, sk, sl, sr, sv, tr	N2740	S55621-H126	**QAX913-9**
Central apartment unit with energy consumption data collection in German Instructions in de; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H111	**QAX913-DE**
Central apartment unit with energy consumption data collection in French Instructions in fr; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H114	**QAX913-FR**
Central apartment unit with energy consumption data collection Instructions in it; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H116	**QAX913-IT**
Central apartment unit with energy consumption data collection in Dutch Instructions in nl; plain text output in de, en, es, fr, it, nl, pt	N2740	S55621-H120	**QAX913-NL**
Central apartment unit with energy consumption data collection in Polish Instructions in pl; plain text output in bg, cs, en, hu, pl, ru, sk	N2740	S55621-H122	**QAX913-PL**
Central apartment unit with energy consumption data collection in Czech Instructions in cs; plain text output in bg, cs, en, hu, pl, ru, sk	N2740	S55621-H124	**QAX913-CS**

Central apartment unit for HVAC and energy consumption data collection

QAX903..



The central apartment unit serves as an operator and display unit for an apartment.
It manages individual room control (heating/cooling) of up to 12 rooms, comfort ventilation, precontrol, control of air conditioning equipment, and acquires the consumption data of heat, water, electricity and gas.

- Management of heating and cooling control for one apartment
- Suited for heating and cooling plants with central distribution (e.g. underfloor heating) and radiators with decentral connections
- Selection of operating mode, timer and holidays / special day function for the apartment
- Independent time switches and operating modes for 12 rooms
- Flow temperature control of 2 independent room groups including limitation (min. / max.) and maintained return temperature (high / low)
- Increase of economy room temperature setpoint and minimum flow temperature setpoint depending on the composite outside temperature
- Collection of heat / cooling requests from the individual rooms and forwarding the requests to the heat/cooling sources via wired bus, heat/cooling demand relay or DC 0...10 V output to the RRV912 or RRV934

- Absence function (heating, cooling, ventilation)
- Management of 3-stage ventilation plant via RRV934 multicontroller, incl. night cooling
- Control of air conditioners (split units) via universal outputs (locally and RRV91x) or via S-Mode (KNX TP1)
- Display of meteorological data
- Presentation of key data on info pages
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing

Data sheet	N2741
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP1 (wired bus)
Indoor wireless range	30 m
Display	Full graphic backlit display
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	1
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Synco™ living
Central apartment unit QAX9..

Range overview QAX903..

Product Title	Data sheet	Stock No.	Product No.
Central apartment unit for HVAC and energy consumption data collection, without instructions; plain text output in 23 languages Without instructions; plain text output in bg, cs, de, dk, el, en, es, fi, fr, hr, hu, it, nl, no, pl, pt, ro, ru, sk, sl, sr, sv, tr	N2741	S55621-H125	**QAX903-9**
Central apartment unit for HVAC and energy consumption data collection in German Instructions in de; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H110	**QAX903-DE**
Central apartment unit for HVAC and energy consumption data collection in French Instructions in fr; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H113	**QAX903-FR**
Central apartment unit for HVAC and energy consumption data collection in Italian Instructions in it; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H115	**QAX903-IT**
Central apartment unit for HVAC and energy consumption data collection Instructions in nl; plain text output in de, en, es, fr, it, nl, pt	N2741	S55621-H119	**QAX903-NL**
Central apartment unit for HVAC and energy consumption data collection Instructions in pl; plain text output in bg, cs, en, hu, pl, ru, sk	N2741	S55621-H121	**QAX903-PL**
Central apartment unit for HVAC and energy consumption data collection Instructions in cs; plain text output in bg, cs, en, hu, pl, ru, sk	N2741	S55621-H123	**QAX903-CS**

Web-Server for QAX9..

Product Title	Stock No.	Product No.
Web server for 1 KNX device	BPZ:OZW772.01	**OZW772.01**
Web server for 4 KNX devices	BPZ:OZW772.04	**OZW772.04**
Web server for 16 KNX devices	BPZ:OZW772.16	**OZW772.16**
Web server for 250 KNX devices	BPZ:OZW772.250	**OZW772.250**

Room unit

QAW910



Wireless room unit.
The QAW910 is used for the operation and display of basic space heating functions. It also forwards the acquired room temperature to the central apartment unit QAX9.., either periodically or when changes occur. The room temperature is shown on the display of the QAW910.

- Operation and display of space heating functions
- Selection of room operating mode, timer function and room temperature setpoint readjustment
- Display of space heating function and status messages
- Acquisition of the room temperature
- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
- Renovation projects (old buildings, museums, churches, historical buildings, etc.)
- Difficult wall-mounting situations (sandstone, glass, etc.)
- Variable floor plans (different décors, furniture changes)
- New houses and buildings
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2703
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	0...50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 130 x 23.6 mm

	Stock No.	Product No.
	BPZ:QAW910	**QAW910**

Synco™ living
Room unit QAW91.. and room sensor QAA91..

QAA910

Room temperature sensor



Wireless room temperature sensor for acquiring the room temperature.
During operation, the QAA910 forwards the acquired room temperature to the central apartment unit QAX9.., either periodically or in the case of changes.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
- Renovation projects (old buildings, museums, churches, historical buildings, etc.)
- Difficult wall-mounting situations (sanddstone, glass, etc.)
- Variable floor plans (different décors, furniture changes)
- New construction projects
- RF communication based on KNX standard (868 MHz, unidirectional)

Data sheet	N2701
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	0...50 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 23 mm

Stock No.	Product No.
BPZ:QAA910	**QAA910**

Radiator control actuator

SSA955



RF-based actuator for radiator valves.
The SSA955 controls the room temperature based on the data forwarded by the central apartment unit QAX9...

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Silent mode (e.g. for use in sleeping rooms)
- Automatic identification of valve stroke
- Parallel connection of multiple actuators possible
- Integrated temperature sensor
- For direct mounting with coupling nut (no tools required)
- Manual adjustment
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2700
Voltage supply	Mignon (3xAA) LR6
Battery life	3 years (2 years in silent mode)
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Sound power level	Silent mode: <25 dB (A) Normal mode: <30 dB (A)
Stroke	2.5 mm
Positioning force	110 N
Medium temperature	1...110 °C
Measuring range, temperature	0...50 °C
Ambient temperature, operation	1...50 °C
Connecting thread	M30 x 1.5
Degree of protection	IP40
Mounting position	Upright to 90° inclined
Dimensions (W x H x D)	48 x 95 x 80.6 mm

Suitable adaptors for valves of other manufacturers types AV5 . and AV6 ., see chapter " Valves and actuators for room- and zone applications"

	Stock No.	Product No.
	BPZ:SSA955	**SSA955**

Synco™ living
Heating circuit controller RRV91..

RRV912



Heating circuit controller, 2 heating circuits

RF-based heating circuit controller for up to 2 heating circuits and DHW heating.
In operation, the RRV912 maintains the required room temperature of the individual heating circuits.
The central apartment unit QAX9.. forwards the relevant data via RF.

- Suited for use in heating and cooling plants
- With central distributors (e.g. underfloor heating or soft steel piping system)
- For use with motorized radiator valves (e.g. with sill covers)
- Heating circuit control with 2- or 3-position actuators
- 2 universal relay outputs, e.g. for control of the room group pump and DHW heating
- 1 universal input, e.g. for connection of a DHW temperature sensor or an alarm
- 1 universal output DC 0...10 V for forwarding the heat / cooling demand signal
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2705
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	2-position: PID, 3-position: PID
Triac output, switching voltage	AC 230 V
Triac output, switching current	30 mA
Triac outputs, number	2
Universal output, signal	DC 0...10 V
Universal output, current	max. DC 1 mA
Universal outputs, number	1
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Relay outputs, number	2
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	180 x 98 x 50 mm

Stock No.	Product No.
BPZ:RRV912	**RRV912**

Heating circuit controller, 8 heating circuits

RRV918



RF-based heating circuit controller for up to 8 heating circuits.
In operation, the RRV918 maintains the required room temperature of the individual heating circuits.
The central apartment unit QAX9.. forwards the relevant data via RF.

- Suited for use in heating and cooling plants
- With central distributors (e.g. underfloor heating or soft steel piping system)
- For use with motorized radiator valves (e.g. with sill covers)
- Connection facility for up to eight 2-position actuators
- 1 Universal relay output, e.g. for control of the room group pump and DHW heating
- 1 Universal input, e.g. for connection of a DHW temperature sensor or an alarm
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2706
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	2-position PID
Triac output, switching voltage	AC 230 V
Triac output, switching current	30 mA
Triac outputs, number	8
Universal input, signal	Digital 0/1 LG-Ni1000
Universal inputs, number	1
Measuring range, temperature	0…120 °C
Relay output, switching voltage	AC 24…230 V NO - contact
Relay output, switching current	AC 0.02…2 (2) A
Relay outputs, number	1
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	245 x 98 x 50 mm

Stock No.	Product No.
BPZ:RRV918	**RRV918**

Synco™ living
Multi controller RRV93..

RRV934



Multicontroller

RF-based multicontroller for precontrol of up to 2 room groups or control of ventilation plant with up to 3 stages. All inputs and outputs are also suited for universal use. The relevant data are forwarded wirelessly by the central apartment unit QAX9...

- Suited for use in heating and cooling plants for precontrol of up to 2 room groups
- 2 primary controllers each with a DC 0...10 V actuator
- 1 primary controller with a DC 0...10 V actuator and 1 primary controller with a 3-position actuator
  Flow and return temperature limitation, optional control of room group pumps and DHW heating
- Suited for control of 3-stage ventilation plant incl. HR bypass, with impact from humidity, indoor air quality or CO_2- level, incl. fault monitoring
- Forwarding the heat / cooling demand signal to primary energy plant
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2709
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Control algorithm	Precontroller: PI
Universal output, signal	DC 0...10 V
Universal output, current	max. DC 1 mA
Universal outputs, number	2
Universal input, signal	Digital 0/1 LG-Ni1000 DC 0...10 V
Universal inputs, number	4
Measuring range, temperature	0...120 °C
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0,02...2 (2) A
Relay outputs, number	4
Degree of protection	IP30
Mounting	On DIN rail With screws
Dimensions (W x H x D)	245 x 98 x 50 mm

Stock No.	Product No.
BPZ:RRV934	**RRV934**

Consumption data interface

WRI982



The consumption data interface collects consumption (meter) data and communicates these data using KNX RF directly to the central apartment unit (QAX913 or QAX903). Meters may be connected either via Impulse inputs or via M-Bus (wired). There is an additional interface for communication with the Synergyr central communication device, OW30, for the purpose system migration.

- M-Bus MiniMaster for up to 3 M-Bus meters
- 2 Impulse inputs for impulse meters
- BatiBus communication to Synergyr OZW30
- KNX RF communication to QAX913 or QAX903

Data sheet	N2735
Operating voltage	AC 230 V
Power consumption	7 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) BatiBus communication to Synergyr OZW30
Indoor wireless range	30 m
Degree of protection	IP30
Mounting	On DIN rail or with screws
Dimensions (W x H x D)	120 x 90 x 50 mm

Stock No.	Product No.
S55621-H112	**WRI982**

Synco™ living
Water monitor QFP910 and handheld control AFK914/C01

QFP910



Water monitor

Wireless sensor for detecting water leaks.
The QFP910 sends its status (dry / water leak) to the Central Apartment Unit QAX913 periodically or if there is a change in status.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- External water leak sensor
- RF communication based on KNX standard (868 MHz, unidirectional)

Data sheet	N2732
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x23 mm

Stock No.	Product No.
S55371-C100	**QFP910**

AFK914/C01



Handheld control

Handheld device for remotely operating predifined functions of the Central Apartment Unit QAX913

- Up to 4 different functions may be initiated, one for each of the four buttons
- The function of each button may be individually configured on the Central Apartment Unit
- Battery powered by commercially available lithium batteries, type CR2032 (contained in the scope of delivery)
- RF communication based on the KNX standard (868 MHz, bidirectional)
- Colored LEDs to indicate status and confirmation from the Central Apartment Unit

Data sheet	N2731
Voltage supply	Lithium button cell (1xCR2032)
Battery life	≥3 years (when operated 2.5 times per day)
Battery capacity	0.230 mAh
Communication	KNX RF-compatible, 868.3 MHz, bidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP41
Dimensions (W x H x D)	55 x 28 x 12 mm

Stock No.	Product No.
S55621-H105-C901	**AFK914/C01**

Meteo sensor

QAC910



Wireless sensor for acquiring outside temperature and atmospheric pressure.
In operation, the QAC910 forwards the acquired outside temperature and atmospheric pressure to the central apartment unit QAX9.., either periodically or when changes occur.

- Battery-powered by commercially available 1.5 V batteries (contained in the scope of delivery)
- Especially suited for:
  - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
  - Difficult wall-mounting situations (sandstone, glass, etc.)
  - Variable floor plans (different décors, other furniture)
  - New houses or buildings
- RF communication based on KNX standard (868 MHz, unidirectional)
  2-Wire cable between meteo sensor and transmitter required

Data sheet	N2702
Voltage supply	Mignon (2xAA) LR6
Battery life	3 years
Battery capacity	2.5 Ah
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Measuring range, temperature	-50...50 °C
Degree of protection	IP40
Additional info	Dimensions (W x H x D): Outside sensor: 80 X 92 x 50 mm RF transmitter: 84 x 84 x 23 mm

Stock No.	Product No.
BPZ:QAC910	**QAC910**

RF repeater

ERF910



Wireless RF repeater for extending plant.
In operation, the ERF910 repeats the RF telegrams from the devices attuned to it.

- Extending and ensuring RF coverage in the Siemens Synco living system
- Especially suited for:
  - Renovation projects (old buildings, museums, churches, historical buildings, etc.)
  - Difficult wall-mounting situations (sandstone, glass, etc.)
  - Variable floor plans (different décors, furniture changes)
  - New houses and buildings
- External power pack
- RF communication based on KNX standard (868 MHz, bidirectional)

Data sheet	N2704
Operating voltage	AC 230 V
Power consumption	0.2 VA
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 23 mm

Stock No.	Product No.
BPZ:ERF910	**ERF910**

Synco™ living
Door/window contact wave AP 260

AP 260/11



Door/window contact wave with battery, titanium white

- For detecting the state (closed/open) of a door or window via the reed contact integrated in the device, with actuation of the reed contact through the supplied magnet for attachment to the moving part of the door or window
- Connection for an external floating contact
- 4 plug-in terminals for wire cross-sections (solid or finely stranded) of 0.14…0.5 mm2 for connection of the external contact and to allow setting via a wire jumper, whether monitoring is to cover internal contact only, external contact only, or both contacts
- KNX-RF transmitter for 868.3 MHz
- Electronics powered by a lithium battery (1/2 AA 3.6 V), with a battery service life of approx. 5 years, with signaling of battery status every 24 hours, and with an LED that flashes every 10 seconds to indicate that the battery needs replacing
- Commissioning using a pushbutton located on the front of the sensor – no additional aids required
- Surface mounting
- Comprising one mounting plate for screw or adhesive fastening, clip-on radio sensor with integrated reed contact and trigger solenoid

Data sheet	TPI: Door/window contact wave AP 260
Dimensions (W x H x D)	87 x 36 x 27 mm

Battery included in delivery.

Stock No.	Product No.
5WG3260-3AB11	**AP 260/11**

4

Starter kit

KIT91..

Wireless starter kit for radiator application, consisting of:
- One QAW912 room unit - 2 heating zones
- One or 4 SSA955 radiator control actuators

The starter kit can be complemented by additional SSA955 - up to a total of 6

Data sheet	N2720
Communication	KNX RF-compatible, bidirectional, 868.3 MHz
Indoor wireless range	30 m





Range overview KIT91..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Starter kit with room unit and 1 radiator control actuator	1 x QAW912 + 1 x SSA955	N2720	S55621-H103	**KIT911**
Starter kit with room unit and 4 radiator control actuators	1 x QAW912 + 4 x SSA955	N2720	S55621-H104	**KIT914**

Synco™ living
Starter Kit 91..

QAW912



Room unit with KNX RF for 2 heating zones

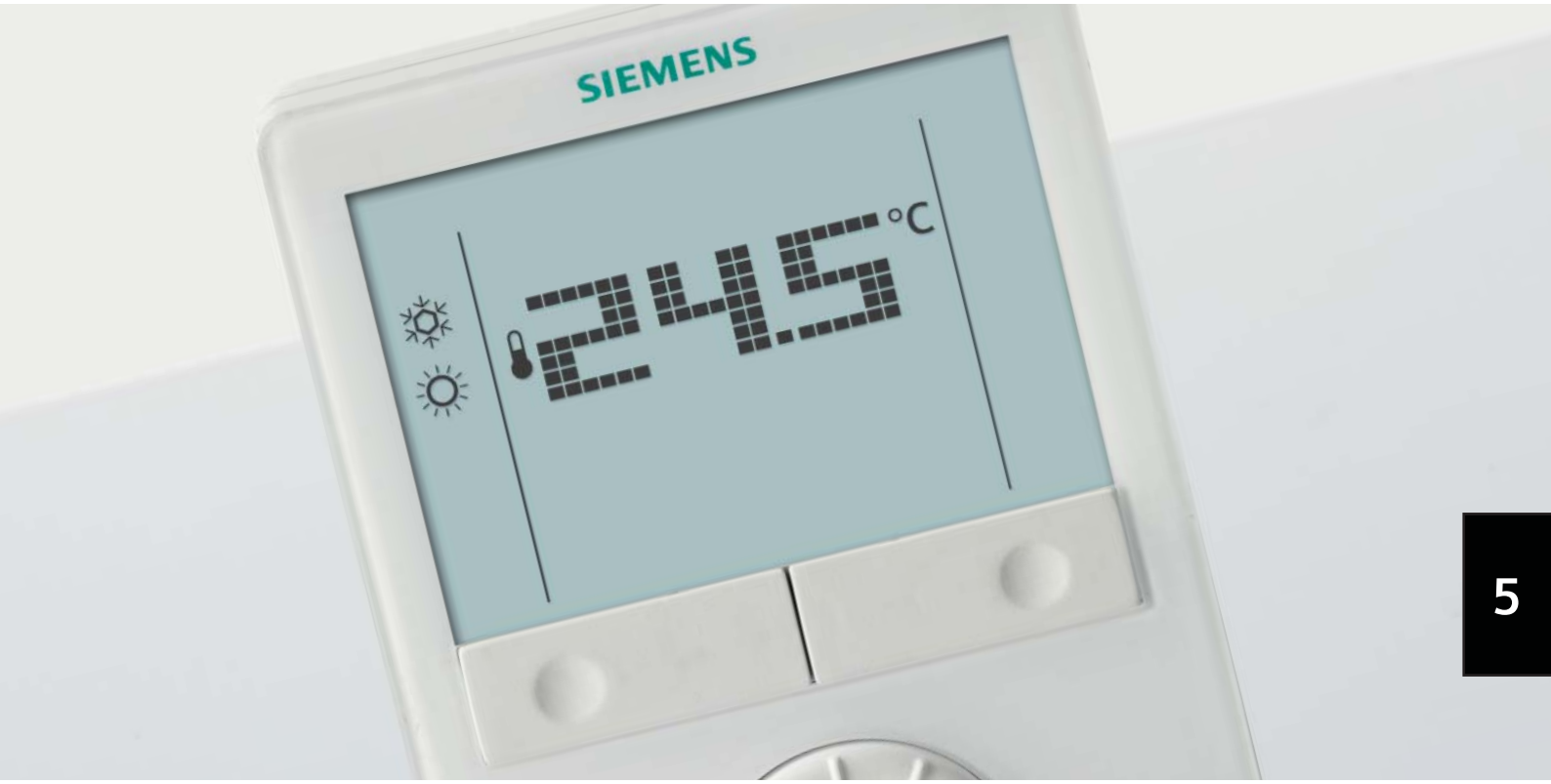
Wireless room unit
The QAW912 manages room heating control of up to 2 heating zones (rooms) and 6 SSA955 radiator control actuators. The unit facilitates full control of the room heating functions. All data are clearly shown on the display. Furthermore, the QAW912 acquires the room temperature in the relevant room.

- Operation and display of the room heating functions of both heating zones:
  - Selection of room operating mode
  - Activation of comfort timer / absence timer
  - Setting of 7-day time switch, holiday period and room temperature setpoints
  - Display of room heating funtion and status messages (incl. all SSA955 connected via radio link)
- Acquisition of the room temperature in one room
- Battery-powered by commercially available 1.5 V batteries (supplied with the unit)
- Collection of heat requests from both rooms and forwarding them to heat generation via the RRV912
- Specifically suited:
  - For renovation projects (old building, museums, churches, historical building, etc)
  - When wall mounting is difficult (sandstone, glass, etc.)
  - If flexible floor plans are required (changing decor, different furniture)
  - For new buildings
- Radio communication based on KNX standard (868 MHz bidirectional)
- Commissioning via operating buttons - no tools required

Data sheet	N2720
Voltage supply	Mignon (2xAA) LR6
Battery life	Typically 2 years (with battery capacity ≥2.5 Ah)
Communication	KNX RF-compatible, bidirectional, 868.3 MHz
Indoor wireless range	30 m
Measuring range, temperature	0…50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
Degree of protection	IP40
Dimensions (W x H x D)	84 x 130 x 23.6 mm

Stock No.	Product No.
S55621-H102	**QAW912**

Thermostats



5

Overview and selection tools	Overview of product details	5-2
Autonomous room thermostats	For heating and/or cooling systems - Standard RAA.. / RCU..	5-7
	For heating and/or cooling systems - Standard 5TC92..	5-11
	For heating and/or cooling systems - with display: RDD.. / RDH..	5-14
	For heating and/or cooling systems - with time clock: REV.. / RDJ.. / RDE.. / RAV..	5-17
	For fan coil units RAB..	5-23
	For fan coil units RCC..	5-26
	For fan coil units RDG1..	5-30
	For fan coil units RDF..	5-33
	For fan coil units RDF.. Semi Flush Mount	5-35
	For VAV systems: RCU.. / RDG.. / RDU..	5-41
Communicating room thermostats	For fan coil units - Communicating KNX thermostat	5-45
	For VAV systems - Communicating KNX thermostat	5-49
	For fan coil units - Communicating Modbus thermostat	5-50
Capillary and clamp-on thermostats	Temperature RAK.. / RAZ.. / RAM..	5-51
	Frost protection units: QAF.. / RAK.. / TKM..	5-60
	Coild probe thermostats TRG..	5-64

5

Room thermostats

Siemens is a leading supplier of room temperature controllers for a wide range of heating, ventilation and cooling applications in residential buildings, hotels, office and commercial buildings.

Siemens solutions meet every budget: Basic electromechanical on/off units, OpenTherm, RF-based or with infrared remote control, as well as thermostats with modulating outputs. Programmable thermostats with 24-hour or 7-day programs and non-programmable room temperature thermostats are available as analog or digital products with displays.

Quality, reliability, outstanding functionality, ease of installation and use: Our room controls satisfy your needs. The unique and acclaimed Siemens design is an additional stylish feature.

Proudly made around the world.

- Quality really is the issue
- Standards are not negotiable
- Product lifecycles and environment in partnership

Heating / Colling applications											
	Basic		With display		With time switch						
											
	RAA	RCU	RDD	RDH	RDE	RDG	RDG100T/H	RDJ	RAV	REV
Housing										
Setpoint knob	□	■		✪		■	■	✪	■	
Setpoint buttons			■		■					■
Mechanical clock									✪	
LED indicators	□								■	
Digital display			✪	■	■	✪	✪	■		■
Programming slider								■		✪
Wiring										
Mains-independet	✪									
Battery-powered			□	■	□			■	■	■
Mains-powered	□	■	□	*	□	□	■	*		*
OpenTherm bus				□						
Radio frequency transmission				□				□		□
Modulating heating valve control		✪				□	■			□
Remote control input										■
Analog output	□	□								
Relay output	■		■	■	■	□		■	■	■
Functionalities										
Heating plants	■	■	■	■	■	■	■	■	■	■
Cooling plants	■	■	■	■		■	■			□
Domestic hot water control			□		□					
Time switch Daily					✪			■	□	□
Time switch Weekly					✪	□	■		□	□
Operating mode Comf. mode	■	■	■	■	■	■	■	■	■	■
Operating mode Eco mode		■	■		■	■	■	■	■	■
Operating mode Standby.		■			■	■	■			
Operating mode Frost protect.			■		■	■	■	■	■	■
Operating mode Holidays					■		■			□
Control loop	2-point	2-point/PI	2-point	2-point	2-point	2-point/PI	2-point/PI	2-point	2-point PID	2-point/PID or PI

■ Valid for all variants □ Depending on variants ✪ **Main feature** *Radio frequency receiver only

Fan-coils applications

	Basic		With display		With time switch			
								
	RAB	RCC	RDG1xx	RDF3xx RDF600..	RDG100T	RDG100T/H	RDF210/IR	RDF4xx RDF600T
Housing								
Setpoint knob	■	■	■		■			
LED indicators	□	✪						
Digital display			✪	■	■		■	■
Auto fan speed			■	■	■		■	■
Semi-flush mounting				✪				✪
Wiring								
Mains-independet	✪							
Mains-powered		■	□	□	■		■	■
Multifunctional input			■	□	■			□
Sensor input		□	■	□	■		■	□
Changeover input		■	■	□	■		■	□
Analog output		□	□	□				
Relay output (on/off)	■	□	□	□			■	■
Triac 2-p/3-p/PWM			□		■			
ECM-Fan			□					
Functionalities								
2-pipe-system	□	□	■	■	■		■	■
4-pipe system	□	□	■	□	■			□
Electric heater		□	□	□	■			□
Radiator			■		■			
Time switch weekly					✪		✪	✪
Operating mode Comfort	■	■	■	■	■		■	■
Operating mode Economy		■	■	■	■		■	■
Operating mode Standby/Prot.	□	■	■	■	■		■	■
Operating mode Frost protect.		□	■	■	■		■	■
Control loop	2-point	2-point/PI	2-point/PI	2-point	2-point/PI		2-point	2-point
Infrared remote control				□	■		■	□
KNX-Communication			□	□				

Heat Pumps applications

	Whit Display		With time switch	
				
	RDG110 / RDG160KN	RDF3xx / RDF600..	RDF4xx / RDF600T	RDF210/IR
Housing				
Digital display	■	■	■	■
Fan speed command	- / 1 / 3 / DC	1 / 3	1 / 3	3
Wiring				
Mains-powered	■	■	■	■
Sensor input	■	■	■	■
Relay output	■	■	■	■
Functionalities				
Electric heater	■	■	■	
DX compressor	■	□	□	■
Manuel Heat / Cool changeover	■	■	■	
Weekly time clock			■	■
Operating mode Comf. mode	■	■	■	■
Operating mode Eco mode	■	■	■	■
Operating mode Standby.	■	■	■	■
Operating mode Frost protect.	■	■	■	■
Control loop	2-point	2-point	2-point	2-point
KNX-communication	□	□		

■ Valid for all variants □ Depending on variants ✪ **Main feature** *Radio frequency receiver only [1)]suppress

Overview

VAV applications			
	Basic	With display	
			
	RCU5x	RDU34..	RDG400..
Housing			
Setpoint knob	■		■
Digital display		■	■
Semi-flush mounting		■	
Wiring			
Mains-powered	■	■	■
Senor input		■	■
Changeover input	□	■	■
Analog output	■	■	■
Relay output		■	
Functionalities			
Manuel Heat / Cool changeover	□	■	■
External setpoint shift	□		
Vmin Cooling	■	■	■
Operating mode: Comf. mode	■	■	■
Operating mode: Eco mode	■	■	■
Operating mode: Sandby/Prot.	■	■	■
Operating mode: Frost protect.	■	■	■
Control loop	2-point	P/PI	P/PI
KNX-communication		□	□

■ Valid for all variants □ Depending on variants ✪ **Main feature**

5

Overview

Type	Function				Setting range	Capillary length [mm]	Switching cap. AC 24...250 V		Approvals						IP	Set				Sensor element / mounting			Applications [4]								
	Control thermostat (TR)	Thermal reset limit thermostat (TW)	Limit thermostat (TB)	Safety limit thermostat (STB)	TR /TW: Set point [°C] TB / STB: Setpoint cut-out temperature [°C]		1 - 2: 10 (2,5) A 1 - 3: 6 (2,5) A [TB / STB: 0,5 A]	1 - 2: 16 (2,5) A 1 - 3: 6 (2,5) A [STB: 2 (0,5) A]	CE (73/23/EEC, 89/336/EEC, EN60730)	ENEC (European Norms Elec. Certif.)	PED (Pressure Equipment Directive)	EN14597 (old approval: DIN3440)	ISPESL	C-Tick	Degree of protection (IP)	Pocket ALT-SB100 / ALT-DB100 (length mm)	Clamping band for piping up to Ø 105 mm	Clamping spring for piping Ø 9,5...16 mm	Remote line – Sensor with capillary line	Surface thermostat – Sensor attached to housing	Ductwork – The entire capillary as sensor (at least 30 cm for detection)	Immersion – immersion sensor	Room thermostat – Helix sensor	Temperature control	Temperature limitation	Frost protection	Air conditioning	Heating boilers	Domestic hot water heating	Heat exchangers	Floor heating
RAK-ST.010FP-M				■	95	700	■		■	■	■	■	■	■	43	100			■	■		■			■			■			
RAK-ST.020FP-M				■	100	700	■		■	■	■	■		■	43	100			■	■		■			■			■			
RAK-ST.030FP-M				■	110	700	■		■	■	■	■		■	43	100			■	■		■			■			■			
RAK-ST.1430S-M				■	80...100	1600	■		■	■	■	■		■	43		■		■	■		■			■			■			
RAK-ST.1310P-M				■	90...110	700	■		■	■	■	■		■	43	100			■	■		■			■			■			
RAK-ST.1300P-M				■	120...130	700	■		■	■	■	■		■	43	100			■	■		■			■			■			
RAK-TB.1400S-M			■		45...60	700	■		■	■	■			■	43		■		■	■		■			■			■			■
RAK-TB.1410B-M			■		50...70	700	■		■	■	■			■	43	100	■		■	■		■			■			■			
RAK-TB.1420S-M			■		65...80	700	■		■	■	■			■	43		■		■	■		■			■			■			
RAK-TR.1000B-H	■				15...95	700	■		■	■	■	■		■	43	100	■		■	■		■	■			■	■	■	■		
RAK-TR.1000S-H	■				15...95	700	■		■	■	■	■		■	43		■		■	■		■	■			■	■	■	■		
RAK-TR.1210B-H	■				15...82	700	■		■	■	■	■	■	■	43	100	■		■	■		■	■			■	■	■	■		
RAK-TW.1000B-H		■			15...95	700	■		■	■	■	■		■	43	100	■		■	■		■	■			■	■	■	■		
RAK-TW.1000S-H		■			15...95	700	■		■	■	■	■		■	43		■		■	■		■	■			■	■	■	■		
RAK-TW.1200B-H		■			40...120	700	■		■	■	■	■		■	43	100	■		■	■		■	■				■	■	■		
RAK-TW.1200S-H		■			40...120	700	■		■	■	■	■		■	43		■		■	■		■	■				■	■	■		
RAK-TW.5000S-H [3]		■			65...5	1600	■		■	■	■	nr	nr	■	43		■		■	■		■	■			■	■				
RAK-TW.5010S-H [3]		■			50...-10	1600	■		■	■	■	nr	nr	■	43		■		■	■		■	■			■	■				
RAK-TW.5000HS [3]		■			65...5	1600		■	■		■	nr	nr		65		■		■	■		■	■			■	■				
RAK-TW.1200HP		■			40...120	700		■	■		■	■			65	100	■		■	■		■	■					■	■	■	
RAK-TW.1000HB		■			15...95	700		■	■		■	■			65	100	■		■	■		■	■				■	■	■	■	
RAK-ST.1600MP				■	95...130	700		■	■		■	■			65	100			■	■		■		■				■			
RAK-ST.1385M				■	40...70	700		■	■		■	■			65				■	■		■		■				■			
RAZ-ST.011FP-J	■			■	TR: 15...95 STB: 100	700	■		■	■	■	■	■	■	40	100			■			■	■	■				■			
RAZ-ST.030FP-J	■				TR: 15...95 STB: 90...110	700		■	■					■	40			■		■			■	■				■	■		
RAM-TR.2000M		■			20...90			■	■					■	20			■		■				■				■	■		
RAM-TW.2000M	■			■	20...90		■		■	■	■	■		■	20	100			■			■	■	■				■			
RAZ-ST.1510P-J	■			■	TR: 15...95 STB: 90...110	700	■		■	■	■	■		■	40	100			■			■	■	■				■			
RAZ-ST.1500P-J	■			■	TR: 15...95 STB: 110...130	700	■		■	■	■	■		■	40	100			■			■	■	■				■			
RAZ-TW.1000P-J	■	■			TR: 15...95 TW: 15...95	700	■		■	■	■	■		■	40	100			■			■	■					■			
RAZ-TW.1200P-J	■	■			TR: 40...120 TW: 40...120	700	■		■	■	■	■		■	40	100			■			■	■					■			
TKM2		■			20...110	-	10 (2) A		■						54	200			■				■			■					
RYT182	Change-over Thermostat 30 °C, 19 °C					-	3 A		■						54			■					■								
QAF63.2 [1]	Sensor				0...15	2000	see Data sheet		■	nr	nr	nr	nr		42						■				■						
QAF63.6 [1]	Sensor				0...15	6000	see Data sheet		■	nr	nr	nr	nr		42						■				■						
QAF64.2 [1]		■	■		0...15	2000	see Data sheet		■	nr	nr	nr	nr		42						■			■	■	■	■				
QAF64.6 [1]		■	■		0...15	6000	see Data sheet		■	nr	nr	nr	nr		42						■			■	■	■	■				
QAF81.3		■			-5...15	3000	10 (2) A		■	nr	nr	nr	nr		54						■			■		■	■				
QAF81.6		■			-5...15	6000	10 (2) A		■	nr	nr	nr	nr		54						■			■		■	■				
QAF81.6M			■		-5...15	6000	10 (2) A		■	nr	nr	nr	nr		54						■				■	■					
QAF65.3-J		■			-5...15	3000	16 (4) A		■		nr	nr	nr		43						■		■	■							
TRG2 [2]	■				-5...50	-	10 (2) A		■						54								■	■			■				
TRG22	■				-5...50	-	10 (2) A		■						54								■	■			■				

[1] Electronic frost protection unit with 0...10 V (0...15 °C) output signal / manual or automatic reset function
[2] With variable switching differential TRG2: 0,7..6 K
[3] An ALT-AB200 protection pocket is generally used for ductwork
[4] This field should not be considered complete or all encompassing. Various other applications are possible.
nr) not required

Electromechanical room thermostats — RAA..1..

2-position controller for controlling the room temperature. The required temperature is adjusted with the setting knob on the front of the unit.
- Gas-filled diaphragm
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	8...30 °C
Switching differential	≤1 K
Switching voltage	AC 24...250 V
Switching current	0.2...6 (2) A

Electromechanical room thermostat, public sector model — RAA11

- Heating only or cooling only
- No operating elements on the front of the unit

Data sheet	N3561
Dimensions (W x H x D)	96 x 97 x 36 mm



	Stock No.	Product No.
	S55770-T219	**RAA11**

Electromechanical room thermostat, basic model — RAA21

- Heating only or cooling only
- Setpoint adjustment with knob

Data sheet	N3562
Dimensions (W x H x D)	96 x 97 x 35.3 mm



	Stock No.	Product No.
	S55770-T220	**RAA21**

Electromechanical room thermostat with large setpoint knob — RAA200

- Heating or cooling
- Specific large housing and setpoint knob

Data sheet	N3002
Dimensions (W x H x D)	105 x 124 x 44 mm



	Stock No.	Product No.
	BPZ:RAA200	**RAA200**

Autonomous room thermostats
For heating and/or cooling systems - Standard RAA.. / RCU..

RAA31



Electromechanical room thermostat with on/off switch

- Heating only or cooling only
- Setpoint adjustment with knob
- On / off switch

Data sheet	N3563
Dimensions (W x H x D)	96 x 97 x 35.3 mm

Stock No.	Product No.
S55770-T221	**RAA31**

RAA31.16



Electromechanical room thermostat with on/off switch and LED

Same functionality as RAA31 plus mode indication (red LED, needed AC 230 V)

Data sheet	N3563
Operating voltage	AC 230 V
Power consumption	0.5 VA
Dimensions (W x H x D)	98 x 97 x 35.3 mm

Stock No.	Product No.
S55770-T222	**RAA31.16**

RAA31.26



Electromechanical room thermostat with on/off switch and LED, auxillary switch and LED

Same functionality as RAA31 plus 2 mode indications (red LED, needed AC 230 V) and additional independent on / off switch.

Data sheet	N3563
Operating voltage	AC 230 V
Power consumption	0.5 VA
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T223	**RAA31.26**

RAA41



Electromechanical room thermostat with selector heating/off/cooling, 1 output

- Heating or cooling
- Setpoint adjustment with knob
- Switch for cooling / off / heating

Data sheet	N3564
Dimensions (W x H x D)	98 x 97 x 35.3 mm

Stock No.	Product No.
S55770-T224	**RAA41**

Accessories for RAA..1..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	**ARG70.1**
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	**ARG70.2**

Universal room thermostat for heating and cooling systems — RCU.. Universal

- Electronic room temperature controller for heating and cooling operation
- PI control
- Operating mode changeover input for remote control
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range	8...30 °C
Dimensions (W x H x D)	97 x 114 x 43 mm

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Universal room thermostat for 4-pipe systems, AC 230 V, positioning signal 2 pt or PWM — RCU10



- Heating and cooling sequence
- 2nd heating sequence
- Selectable P-band
  (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Selectable dead zone (2 K or 5 K)
- Frost protection function

Data sheet	N3041
Operating voltage	AC 230 V
Triac outputs	PWM or ON/OFF
Triac output, switching voltage	AC 230 V
Triac output, switching current	0.02...1 A

	Stock No.	Product No.
	BPZ:RCU10	**RCU10**

Universal room thermostat for 4-pipe systems, AC 24 V, positioning signal 2 pt or PWM — RCU15



Same functionality and technical data as RCU10

In addition:
- Optional control depending on the room or return air temperature (with sensor QAH11.1)

Data sheet	N3048
Operating voltage	AC 24 V
Triac outputs	PWM or ON/OFF
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.02...1 A

	Stock No.	Product No.
	BPZ:RCU15	**RCU15**

Autonomous room thermostats
For heating and/or cooling systems - Standard RAA.. / RCU..

RCU20

Universal room thermostat for 2-pipe systems, AC 230 V, positioning signal 3 pt



- Heating or cooling sequence
- Automatic heating / cooling changeover (with sensor QAH11.1)
- Fixed P-band (4 K heating, 2 K cooling)
- 3-position positioning signal output

Data sheet	N3042
Operating voltage	AC 230 V
Triac output, switching voltage	AC 230 V
Triac output, switching current	0.02...1 A
Triac outputs	3-position

	Stock No.	Product No.
	BPZ:RCU20	**RCU20**

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Accessories for RCU..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	**ARG70.1**
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	**ARG70.2**

Room thermostat 1 NC contact

5TC9200



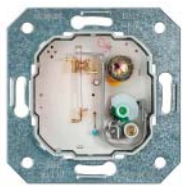
- Standard version with nighttime reduction
- For electric and warm water convectors, pumps and tank control
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- The temperature range is shifted downward by approx. 5 K during temperature reduction control
- Screwless connecting terminals

Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NC contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

	Stock No.	Product No.
	5TC9200	**5TC9200**

Room thermostat, 1 NO contact

5TC9201



- Standard version
- For electric and warm water convectors, pumps and tank control
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off and the NO contact (cooling contact) will close
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- Screwless connecting terminals

Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free CO contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

	Stock No.	Product No.
	5TC9201	**5TC9201**

Autonomous room thermostats
For heating and/or cooling systems - Standard 5TC92..

5TC9202

Room thermostat, 3-position switch



- 3-position switch: automatic timing, constant day temperature, constant nighttime reduction
- For electric and warm water convectors, pumps and tank control
- The switch S1 can be used to preselect the temperature reduction between clock/day and night
- Operates as two-position controller with thermal feedback
- If the temperature at the bimetal increases and the setpoint value is reached, the NC contact (heating contact) will switch off
- If the temperature at the bimetal drops below the selected setpoint value minus the hysteresis, the NC contact will switch on again
- The temperature range is shifted downward by approx. 5 K during temperature reduction control
- Screwless connecting terminals

Setpoint setting range	5...30 °C
Switch-off point	5...30 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NC contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.	Product No.
5TC9202	**5TC9202**

5TC9203

Room thermostat, direct floor heating



- With remote sensor
- NO switching contact
- For regulating floor storage heating systems and electric floor heating systems with heating mats
- Comprising two parts: Controller (for setting the desired floor temperature) and remote sensor (in the floor for monitoring the set temperature)
- Rotary knob for setting the floor temperature
- If the temperature drops below this value, the controller will request heat; this is indicated optically by a red LED
- A nighttime reduction can be be activated via the connection (time switch); this is indicated by a green LED
- Temperature reduction approx. 5 K
- Screwless connecting terminals

Setpoint setting range	10...50 °C
Switch-off point	10...50 °C
Sensing element, temperature	Bimetal
Digital outputs	1-pin Potential-free NO contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (4) A
Mounting	For screw fixing Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	70 x 70 x 39 mm

Stock No.	Product No.
5TC9203	**5TC9203**

Cover plates for room thermostat, NC/CO

5TC9 2..01

Cover plates for room temperature controllers:
- With rotary button to set the temperature

Degree of protection	IP20
Dimensions (W x H x D)	55 x 55 x 13 mm



Range overview 5TC92..01

Color	Stock No.	Product No.
Electro white	5TC9220	**5TC9 220**
Titanium white	5TC9221	**5TC9221**
Aluminum metallic	5TC9250	**5TC9250**
Carbon metallic	5TC9251	**5TC9 251**

Cover plates for room thermostat, 3-position switch

5TC9 2..02

Cover plates for room temperature controllers:
- With rotary button to set the temperature
- With 3-position switch, possible positions: Automatic timing, Constant day temperature, Constant nighttime reduction

Degree of protection	IP20
Dimensions (W x H x D)	55 x 55 x 13 mm



Range overview 5TC92..02

Color	Stock No.	Product No.
Titanium white	5TC9223	**5TC9223**
Aluminum metallic	5TC9252	**5TC9252**
Carbon metallic	5TC9253	**5TC9 253**
Electro white	5TC9222	**5TC9 222**

Cover plates for room thermostat, direct floor heating

5TC9 2..03

Cover plates for room temperature controllers:
- With rotary button to set the temperature
- With On/Off switch
- Nighttime reduction indicated by a green LED
- Heating indicated by a red LED

Degree of protection	IP20
Dimensions (W x H x D)	55 x 55 x 13 mm



Range overview 5TC92..03

Color	Stock No.	Product No.
Titanium white	5TC9225	**5TC9225**
Aluminum metallic	5TC9254	**5TC9254**
Carbon metallic	5TC9255	**5TC9 255**
Electro white	5TC9224	**5TC9 224**

Autonomous room thermostats
For heating and/or cooling systems - with display: RDD.. / RDH..

RDD100..

Room thermostats with LCD

- 2-position control with on / off positioning signal output for heating
- Operating modes: Normal operation and energy saving mode
- Automatic operating mode changeover as an option
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range	5...35 °C
Switching differential	1 K
Relay outputs	Change-over contact, potential-free
Relay output, switching current	5 (2) A

RDD100

Room thermostat with LCD, AV 230 V



Data sheet	N1420
Operating voltage	AC 230 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.	Product No.
S55770-T275	RDD100

RDD100.1

Room thermostat with LCD, battery



Data sheet	N1420
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.	Product No.
S55770-T276	RDD100.1

RDD100.1DHW

Room thermostat with LCD, battery, Auto Timer, independent DHW



- 2-position control with on / off positioning signal output for heating
- Operating modes: Normal operation, energy saving mode and frostprotection
- Independent ON / OFF control for "Domestic Hot Water" boiler or equipment

Data sheet	N1421
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Stock No.	Product No.
S55770-T277	RDD100.1DHW

Semi flush-mounted room thermostat with LCD

RDD310



- Operating voltage AC 230 V
- 2-position control with On / Off control output
- Input for an external temperature sensor (QAH11.1 / QAA32)
- Temperature limitation function for heating, controlled by external temperature sensor (optional)
- Operating modes: Comfort, Energy Saving and Frost Protection
- Manual changeover of current operating mode
- Maximum and minimum setpoint limitation
- Backlit LCD
- Mounting on recessed rectangular conduit box, fixing center at 60.3mm (ARG71)

Data sheet	N3077
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Dimensions (W x H x D)	96 x 119 x 24 mm

Stock No.	Product No.
S55770-T107	**RDD310**

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Accessories for RDD310

Product Title	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	S55770-T137	**ARG71**

Electronic room thermostat, LCD, setting knob

RDH..



Mains independent, battery powered electronic room temperature controller with 2-position output.
The required temperature is adjusted with the large setting knob on the front of the unit.
- Easy operation by large setting knob and large display
- for heating or cooling
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Voltage supply	Mignon (2xAA)
Operating voltage	DC 3 V
Battery life	1 year
Setpoint setting range	5...30 °C
Relay outputs, number	1
Relay outputs	Change-over contact, potential-free
Relay output, switching voltage	24...250 V
Relay output, switching current	0.2...5 (2) A
Switching differential	1 K
Dimensions (W x H x D)	120 x 90 x 35 mm

Range overview RDH..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat, LCD, setting knob	N3069	BPZ:RDH10	**RDH10**
Room thermostat radio frequency set (transmitter and receiver), LCD, setting knob	N3070	BPZ:RDH10RF/SET	**RDH10RF/SET**

Accessories for RDH..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	**ARG70.1**
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	**ARG70.2**

Electronic room thermostat with time switch, LCD and selection slider — REV..



Mains-independent, battery-operated room temperature controllers featuring user-friendly operation, easy-to-read display and large numbers
- Self-learning two-position controller with PID response (REV13.., REV17.., REV24..)
- 3-position controller with PI response (for REV34..)
- Remote operation (REV13.., REV17.., REV24, REV24DC, REV34..)
- Override button
- Sensor calibration and reset function
- Frost protection function and minimum limitation of setpoint
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: grey RAL7038

Operating mode selection:
- Automatic modes with time switch program
- Automatic mode with one or two heating phases (REV13..)
- Automatic mode with up to three comfort phases (REV17.., REV24.., REV34..)
- Exception day mode with up to three comfort phases (REV17.., REV24.., REV34..)
- Continuous comfort mode
- Continuous energy saving mode
- Frost protection

Operating voltage	DC 3 V
Battery life	2 years
Setpoint setting range	3...35 °C
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	0.1...6 (2.5) A For RF versions: 0.2...16 (2) A

Autonomous room thermostats
For heating and/or cooling systems - with time clock: REV.. / RDJ.. / RDE.. / RAV..

Range overview REV.. Slider

Product Title	Dimensions (H x W x D) [mm]	Data sheet	Stock No.	Product No.
Room thermostat with 2-point control and 24-hour time switch, batteries, only heating	130 x 94 x 30	N2201	BPZ:REV13	**REV13**
Room thermostat with 2-point control and 24-hour time switch, batteries, only heating, receive time signal DCF77	130 x 94 x 30	N2201	BPZ:REV13DC	**REV13DC**
Room thermostat with 2-point control and 7-day time switch, batteries, only heating	134.5 x 94 x 30	N2203	BPZ:REV17	**REV17**
Room thermostat with 2-point control and 7-day time switch, batteries, only heating, receive time signal DCF77	134.5 x 94 x 30	N2203	BPZ:REV17DC	**REV17DC**
Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling	134.5 x 94 x 30	N2205	BPZ:REV24	**REV24**
Room thermostat with 2-point control and 7-day time switch, batteries, heating and cooling, receive time signal DCF77	134.5 x 94 x 30	N2205	BPZ:REV24DC	**REV24DC**
Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling, receive time signal DCF77	134.5 x 94 x 30	N2206	BPZ:REV24RFDC/SET	**REV24RFDC/SET**
Room thermostat with 2-point control and 7-day time switch, receiver with relay outputs (RF set), batteries, heating or cooling	134.5 x 94 x 30	N2206	BPZ:REV24RF/SET	**REV24RF/SET**
Room thermostat with 3-point control and with 7-day time switch, batteries, only heating	134.5 x 94 x 30	N2208	BPZ:REV34	**REV34**
Room thermostat with 3-point control and with 7-day time switch, batteries, only heating, receive time signal DCF77	134.5 x 94 x 30	N2208	BPZ:REV34DC	**REV34DC**

Electronic room thermostats with 24-hour time switch, LCD, setting knob — RDJ..



Mains independent, battery powered electronic room temperature controller with 2-position output.
The required temperature is adjusted with the large setting knob on the front of the unit.
- Easy operation by large setting knob and large display
- for heating or cooling
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Voltage supply	Mignon (2xAA)
Operating voltage	DC 3 V
Battery life	1 year
Setpoint setting range	5...30 °C
Relay outputs	Change-over contact, potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	0.2...5 (2) A
Relay outputs, number	1
Switching differential	1 K
Dimensions (W x H x D)	120 x 90 x 35 mm

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Range overview RDJ..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat with 24-hour time switch, LCD, setting knob	N3071	BPZ:RDJ10	**RDJ10**
Room thermostat radio frequency set (transmitter and receiver) with 24-hour time switch, LCD, setting knob	N3072	BPZ:RDJ10RF/SET	**RDJ10RF/SET**

Accessories for RDJ..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**

Room thermostats with 7-day time switch and LCD — RDE100..

- 2-position control with on/off output for heating
- Operating modes: Normal and energy-saving mode
- Programmable 7-day time switch and manual operation
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Setpoint setting range	5...35 °C
Switching differential	1 K
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Room thermostat with 7-day time switch and LCD, AC 230 V — RDE100



Data sheet	N1422
Operating voltage	AC 230 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free

Stock No.	Product No.
S55770-T278	RDE100

NEW PRODUCT

Autonomous room thermostats
For heating and/or cooling systems - with time clock: REV.. / RDJ.. / RDE.. / RAV..

RDE100.1

Room thermostat with 7-day time switch and LCD, battery



Data sheet	N1422
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free

Stock No.	Product No.
S55770-T279	RDE100.1

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RDE100.1DHW

Room thermostat with 7-day time switch and LCD, battery, Auto Timer, independent DHW



- 2-position control with ON / OFF output for heating
- Independent ON / OFF control of DHW
- Operating modes: Auto, normal operation, energy saving and frost protection
- 7-day time switch and manual control

Data sheet	N1423
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	2-5AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free
Switching differential	1 K

Stock No.	Product No.
S55770-T280	RDE100.1DHW

RDE410

Semi flush-mounted room thermostat with 7-day time switch and LCD



- Operating voltage AC 230 V
- 2-position control with On / Off control output
- Input for an external temperature sensor (QAH11.1 / QAA32)
- Temperature limitation function for heating, controlled by external temperature sensor (optional)
- Operating modes: Comfort, Energy Saving and Frost Protection
- Manual changeover of current operating mode
- Maximum and minimum setpoint limitation
- Backlit LCD
- Mounting on recessed rectangular conduit box, fixing center at 60.3mm (ARG71)
- Auto Timer mode with 8 programmable timers
-

Data sheet	N3077
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Dimensions (W x H x D)	96 x 119 x 24 mm

Stock No.	Product No.
S55770-T108	**RDE410**

Accessories for RDE410

Product Title	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	S55770-T137	**ARG71**

room thermostat with 24-hour or 7-day time switch

RAV11..



- Mains-independent, electronic PID controller with 2-position output, battery-powered
- With analog 24-hour time switch
- Self-learning 2-position controller with PID control (patented)
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Operating modes:
- 24-hour or 7-day mode with heating periods according to the analog time switch
- Continuous Comfort mode
- Continuous Economy mode
- Stanby with frost protection

Data sheet	N2224
Operating voltage	DC 3 V
Battery life	2.5 years
Setpoint setting range	5...30 °C
Relay outputs	N.O. contact, Potential-free
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	8 (3.5) A
Relay outputs, number	1
Dimensions (W x H x D)	128 x 104 x 37 mm

Range overview RAV11..

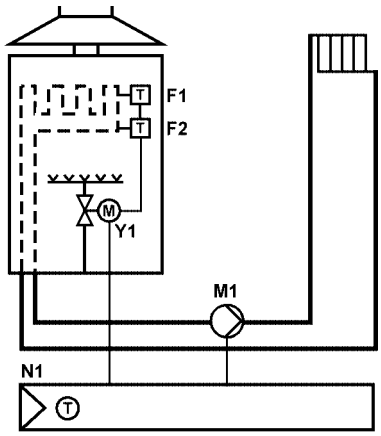
Product Title	Data sheet	Stock No.	Product No.
Room thermostat with 24-hour time switch	N2224	BPZ:RAV11.1	**RAV11.1**
Room thermostat with 7-day time switch	N2224	BPZ:RAV11.7	**RAV11.7**

Application examples REV..

These are only a few examples of many applications that can be done with the thermostat REV...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the REV.. data sheet..

REV24

HAA001 EV2 HQ



Application examples REV..

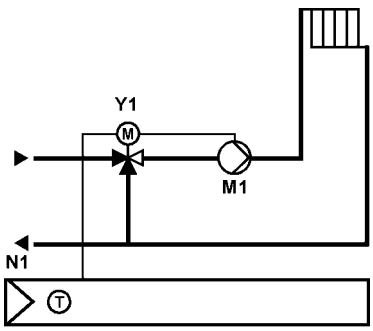
Room temperature controller with 7-day time switch, acting on on/off device

These are only a few examples of many applications that can be done with the thermostat REV...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the REV.. data sheet..

- 7-day time switch programme
- Three different 24-hour operating modes
- Continuous normal temperature mode
- Continuous economy temperature mode
- Standby with frost protection mode
- Holiday mode
- Override mode button
- Sensor calibration
- Installer parameter setting for pump kick and cooling
- Installer parameter setting for optimum start control in the morning
- Installer parameter setting for minimum limitation of set point
- Digital user interface
- Installer choice of algorithm: PID self learning; PID 12; PID 6; or 2-point

REV34

H0C002 EV3 HQ



Room temperature controller with 7-day time switch, acting on 3-position valve actuator

- 3-position controller with PI control
- 7-day time switch programme
- Three different 24-hour operating modes
- Continuous comfort temperature mode
- Continuous economy temperature mode
- Standby with frost protection mode
- Holiday mode
- Override mode button
- Digital user interface
- Sensor calibration
- Installer parameter setting for optimum start control in he morning
- Installer parameter setting for minimum limitation of set point
- Installer parameter setting for room size and heating capacity

Electromechanical room thermostats for fan coils — RAB..1..

Electromechanical room temperature controllers for fan coil for heating and/or cooling applications. Manual three-speed fan control. The required room temperature is adjusted with the setpoint knob on the front of the unit.

- Gas-filled diaphragm
- 2-position control
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	8...30 °C
Switching differential	≤1 K
Switching voltage	AC 250 V
Switching current	0.2...6 (2) A
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling — RAB11



- Heating or cooling applications
- Selector for heating or cooling mode
- Selector for manual 3-speed fan operation
- Manual fan operation or automatic fan operation parallel with the valve can be configured inside the unit

Data sheet N3015

Stock No.	Product No.
S55770-T225	**RAB11**

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling/fan only — RAB11.1



Same functionality and technical data as RAB11. Additional selector position for ventilation (heating and cooling inactive).

Data sheet N3015

Stock No.	Product No.
S55770-T226	**RAB11.1**

Electromechanical room thermostat for 2-pipe fan coils, basic model — RAB21



- Heating or cooling applications
- Selector for manual 3-speed fan operation
- Changeover function, heating or cooling (with external automatic aquastat)
- Manual fan operation or automatic fan operation parallel with cooling / heating mode can be configured inside the unit

Data sheet N3016

Stock No.	Product No.
S55770-T227	**RAB21**

Autonomous room thermostats
For fan coil units RAB..

RAB21.1



Electromechanical room thermostat for 2-pipe fan coils, selector heating-cooling/fan only

Same functionality and technical data as RAB21. Additional selector for changeover between heating / cooling and ventilation.

Data sheet N3016

	Stock No.	Product No.
	S55770-T228	**RAB21.1**

RAB31



Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling

- Heating or cooling applications
- Selector for heating or cooling mode
- Selector for 3-speed fan operation
- Manual fan operation or automatic fan operation parallel with heating / cooling mode (depending on the selector's position) can be configured inside the unit

Data sheet N3017

	Stock No.	Product No.
	S55770-T229	**RAB31**

RAB31.1



Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling/fan only

Same functionality and technical data as RAB31. Additional selector position for ventilation (heating and cooling inactive).

Data sheet N3017

	Stock No.	Product No.
	S55770-T230	**RAB31.1**

RAB91



Fan speed switch, 3-stage

Selector for 3-speed fan operation

Data sheet N3018

Switching voltage AC 24...250 V

	Stock No.	Product No.
	S55770-T231	**RAB91**

Accessories for RAB..1..

Product Title	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	**ARG70.1**
Mounting plate 112 x 130 mm for surface wiring	BPZ:ARG70.2	**ARG70.2**

Autonomous room thermostats
For fan coil units RCC..

RCC..

Electronic room thermostats for fan coils

- For heating and cooling applications
- Operating mode selector
- LEDs for indicating the operating state
- Setting knob for room temperature adjustment
- External operating mode changeover contact
- Various operating modes (normal and energy saving mode, etc.)

Setpoint setting range	8...30 °C
Relay output, switching voltage	AC 230 V
Dimensions (W x H x D)	97 x 114 x 43 mm

RCC10



Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor

- Heating or cooling sequence
- Automatic heating/cooling changeover (with sensor QAH11.1)
- Operating mode changeover input for remote control
- Outputs for 3-speed fan (0 / I / II / III)
- 2-position control
- Selectable switching differential
  (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Input for return temperature sensor (QAH11.1)
- Frost protection mode

Data sheet	N3021
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A
Relay outputs	Fan: 3-position switch with N.O. contacts, non-floating Valve: change-over contact, non-floating

Stock No.	Product No.
BPZ:RCC10	**RCC10**

Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor, el. heater

RCC20



- Heating or cooling sequence
- Automatic heating/cooling changeover (with sensor QAH11.1)
- Operating mode changeover input for remote control
- Output for electrical heater
- 2-position control
- Selectable switching differential (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Selectable dead zone (2 K or 5 K)
- Input for return air temperature sensor (QAH11.1)
- Frost protection mode
- Outputs for 3-speed fan (0 / I / II / III)

Data sheet	N3022
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A Electric heater: 0.1...5.4 A
Relay outputs	Fan: 3-position switch with N.O. contacts, non-floating Valve and electric heater: NO contacts, non-floating

	Stock No.	Product No.
	BPZ:RCC20	**RCC20**

Room thermostat for 4-pipe fan coils, AC 230 V, positioning signal 2 2 pt, return air sensor

RCC30



- Heating and cooling sequence
- Operating mode changeover input for remote control
- 2-position control
- Selectable switching differential (1 K heating, 0.5 K cooling, or 4 K heating, 2 K cooling)
- Input for return air temperature sensor (QAH11.1)
- Frost protection mode
- Selectable dead zone (2 K or 5 K)
- Outputs for 3-speed fan (0 / I / II / III)

Data sheet	N3023
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	Fan: 0.1...2.6 A Valve: 0.1...1.3 A
Relay outputs	Fan: 3-position switch with N.O. contacts Valve: N.O. contacts, non-floating

	Stock No.	Product No.
	BPZ:RCC30	**RCC30**

Field devices for RCC..

Product Title	Data sheet	Stock No.	Product No.
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**
Changeover cable holder for QAH11..	N3009	BPZ:ARG86.3	**ARG86.3**

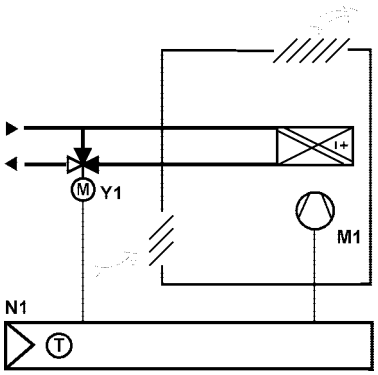
Application examples RAB..

These are only a few examples of many applications that can be done with the thermostat RAB...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RAB.. data sheet.

RAB11

2-pipe fan coil, manual heating / cooling changeover

TAAE01 AB1 HQ

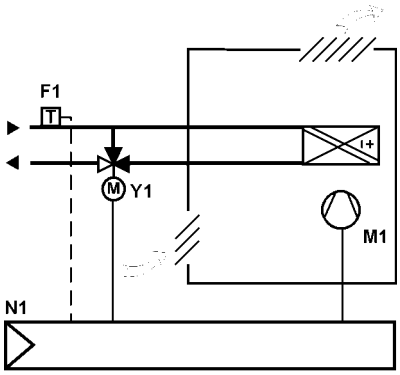


- 2-position control algorithm for heating or cooling systems
- Setting range of setpoint knob can be limited
- Operating mode selector for heating and cooling
- 4-position fan speed selector (I/II/III/off)

RAB21

2-pipe fan coil, automatic heating / cooling changeover

TAAE01 AB2 HQ



- 2-position control for heating or cooling systems
- Setting range of setpoint knob can be limited
- 4-position fan speed selector (I/II/III/off)
- Heating/cooling changeover (aquastat)

Application examples RCC..

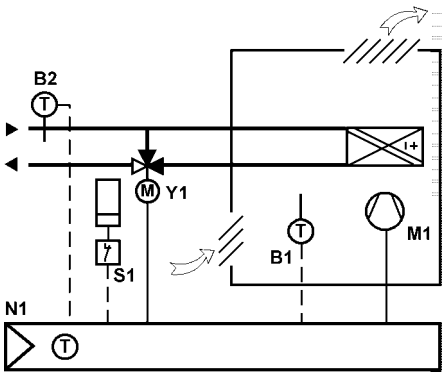
These are only a few examples of many applications that can be done with the thermostat RCC...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RCC.. data sheet.

2-pipe fan coil, automatic heating / cooling changeover on/off output

RCC10

TAAE01 CC1 HQ

- 2-position control algorithm for heating or cooling systems
- Output for ON/OFF valve actuator
- 4-position fan speed selector (I/II/III/standby)
- Status LED for heating, cooling and fan
- Setting range of setpoint knob can be limited
- Parameter setting by installer for: Fan control, operating mode changeover operating mode switch condition, frost protection, switching differential for heating or cooling
- Automatic heating/cooling changeover with external temperature sensor (QAH11.1)
- Operating mode changeover for remote control with external switch
- Temperature control according to integrated sensor or external temperature sensor QAH11.1 or QAA32)

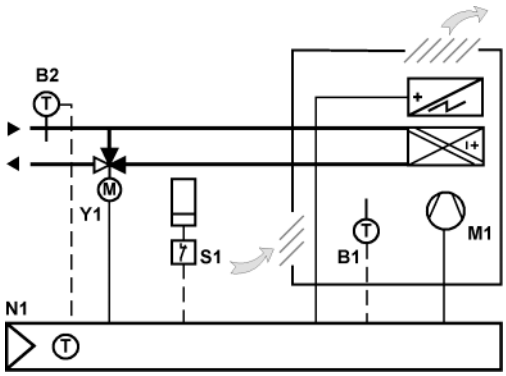


2-pipe fan coil, automatic heating / cooling changeover and electrical heater

RCC20

TAAZ01 CC2 HQ

- 2-position control algorithm for heating or cooling systems
- Outputs for ON/OFF valve actuator and electrical heater
- 4-position fan speed selector (I/II/III/standby)
- Status LED for heating, cooling and fan
- Setting range of setpoint knob can be limited
- Parameter setting by installer for: Fan control, operating mode changeover operating mode switch condition, frost protection, switching differential for heating or cooling, dead zone, setpoint differential, operation of electrical heater in cooling or heating mode
- Automatic heating/cooling changeover with external temperature sensor (QAH11.1)
- Operating mode changeover for remote control withexternal switch
- Temperature control according to integrated sensor or external temperature sensor (QAH11.1 or QAA32)



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RDG1..

Room thermostats for fan coil units, universal applications and heat pump applications

- Operating modes: Comfort, Energy Saving and Protection
- 2-position, 3-position, PWM or DC 0...10V control outputs
- Automatic or manual fan speed
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater (only RDG100..)
- 2-stage heating or cooling system

Data sheet	N3181
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Digital inputs, number	1
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm

RDG100

Room thermostat, AC 230 V, for fan coil units and universal applications



Operating voltage	AC 230 V
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Triac output, switching current	Max. 1 A

Stock No.	Product No.
S55770-T158	**RDG100**

Room thermostat, AC 230 V, for fan coil units and heat pump applications — RDG110



Operating voltage	AC 230 V
Relay outputs, number	5
Relay outputs	Valve, compressor or el. heater: 2 outputs (SPDT), 2-position Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	Valve, compressor or el. heater: 5 (3) A Fan: 5 (4) A

Stock No.	Product No.
S55770-T160	**RDG110**

Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch — RDG100T..



- Operating modes: Auto timer, Comfort, Energy Saving and Protection
- Auto Timer mode with 8 programmable timers
- 2-position, 3-position or PWM control outputs
- Automatic or manual fan speed for 1-speed or 3-speed fan
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Infrared remote control receiver
- Backlit display
- Auto timer can be disabled (RDG100T/H)

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater
- 2-stage heating or cooling system

Data sheet	N3181
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching current	Max. 1 A
Triac output, switching voltage	AC 230 V
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Autonomous room thermostats
For fan coil units RDG1..

Range overview RDG100T..

Product Title	Data sheet	Stock No.	Product No.
Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, vertical	N3181	S55770-T159	**RDG100T**
Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, horizontal	N3181	S55770-T235	**RDG100T/H**

Accessories for RDG1..

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	**IRA211**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	**QAA32**

Room thermostat — RDF..

- Electronic room temperature controller with LCD for fan coil units for compressors in DX-type equipment
- For heating and/or cooling applications
- ON/OFF
- Operating mode changeover input for remote control
- Various operating modes (normal, energy saving and stand-by)
- Outputs for 3-speed fan
- Selectable installation and control parameters
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: change-over contact, non-floating
Dimensions (W x H x D)	102 x 128 x 30 mm

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Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor — RDF110



- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- Sensor input either for automatic heating / cooling changeover or return air temperature (with sensor QAH11.1)
- Automatic or manual three-speed fan control
- Operating modes: normal, energy-saving and standby
- Operating mode changeover input for remote control

Data sheet N3057

Stock No.	Product No.
BPZ:RDF110	**RDF110**

Room thermostat for 2-pipe fan coils or DX-type equipment — RDF110.2



- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- Manual heating/Cooling change-over
- Automatic or manual three-speed fan control
- Operating modes: normal, energy-saving and standby

Data sheet N3057

Stock No.	Product No.
BPZ:RDF110.2	**RDF110.2**

Autonomous room thermostats
For fan coil units RDF..

RDF210/IR



Room thermostat for 2-pipe fan coils or DX-type equipment, return air temperature sensor, infrared remote control, 7-day time switch

- Output for an on / off valve actuator or compressor
- Outputs for a 3-speed fan
- Sensor input either for automatic heating / cooling changeover or return air temperature (with sensor QAH11.1)
- Operating modes: normal, energy-saving and standby
- Automatic or manual three-speed fan control
- Control depending on the room or return air temperature (with sensor QAH11.1)
- 2-position control
- 8 Timers with a 7-day programmable schedule
- With infrared receiver for remote control; remote control not included

Data sheet N3058

	Stock No.	Product No.
	BPZ:RDF210/IR	**RDF210/IR**

5

Accessories for RDF..

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	**IRA211**
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**
Mounting plate 96 x 120 mm for 2 x 4" housing	N3009	BPZ:ARG70.1	**ARG70.1**
Mounting plate 112 x 130 mm for surface wiring	N3009	BPZ:ARG70.2	**ARG70.2**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**

Semi Flush-mount room thermostat

RDF..Semi Flush Mount

Semi Flush Mount room thermostat with LCD for 2-/4-pipe fan coil units and compressors in DX-type equipment
- For heating and/or cooling applications
- Outputs for 3-speed fan
- Selectable installation and control parameters

Setpoint setting range	5...40 °C
Degree of protection	IP30
Additional info	Infrared remote IRA211 not included. Order separatly.

Semi Flush-mount room thermostat for round conduit box for 2-/4-pipe fan coils or DX type equipment, backlit LCD

RDF600



Semi Flush Mount room thermostat for round conduit box with LCD for fan coil units and compressors in DX-type equipment
- Output for 1-speed or 3-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed round conduit box diameter min. 60 mm
Dimensions (W x H x D)	86 x 86 x 46 mm

	Stock No.	Product No.
	S55770-T291	RDF600

NEW PRODUCT

RDF300



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment
- Output for 3-speed or 1-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
BPZ:RDF300	**RDF300**

RDF300.02



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment, backlit LCD

Same functionality and technical data as RDF300 and:
- Backlit display

Data sheet	N3076
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
BPZ:RDF300.02	**RDF300.02**

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment

RDF310.2



Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment
- 2-position control outputs
- 3-speed fan control: Automatic or manual
- Operation modes: Comfort and Protection
- Manual heating / cooling changeover or continuous Cooling only / Heating only
- Adjustable commissioning and control parameters
- Optional display of room temperature or setpoint
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Data sheet	N3067
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF310.2	**RDF310.2**

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, backlit LCD

RDF310.21



Same functionality and technical data as RDF310.2 and:
- Backlit display
- With infrared receiver for remote control, remote control not included

Data sheet	N3067
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF310.21	**RDF310.21**

Autonomous room thermostats
For fan coil units RDF.. Semi Flush Mount

RDF340



Semi Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils

Semi Flush Mount room thermostat for rectangular conduit box, with LCD for fan coil units
- Output for 3-speed or 1-speed fan
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 24 V
Analog output, signal	DC 0...10 V
Analog outputs	Heating/Cooling
Analog output, current	Max. ±1 mA
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
BPZ:RDF340	**RDF340**

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Semi Flush-mount room thermostat for round conduit box, for 2-/4-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD

RDF600T



Semi Flush Mount room thermostat for round conduit box with LCD for fan coil units and compressors in DX-type equipment
- Output for 1-speed or 3-speed fan
- 2 or 3-position control outputs
- Two multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- With infrared receiver for remote control, remote control not included.
- Color of housing: signal white (RAL 9003)
- 8 Timers with a 7-day programmable schedule
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3076
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Type of fixing	Recessed round conduit box diameter min. 60 mm
Dimensions (W x H x D)	86 x 86 x 46 mm

Stock No.	Product No.
S55770-T292	RDF600T

Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, infrared remote control, 7-day time switch, backlit LCD

RDF410.21



Same functionality and technical data as RDF310.2 and:
- Backlit display
- With infrared receiver for remote control, remote control not included.
- 8 Timers with a 7-day programmable schedule

Data sheet	N3067
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contact, non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 39 mm

Stock No.	Product No.
BPZ:RDF410.21	**RDF410.21**

NEW PRODUCT

Autonomous room thermostats
For fan coil units RDF.. Semi Flush Mount

RDF510.2



Semi Flush-mount room thermostat for rectangular conduit box, for 2-pipe fan coils or DX type equipment, DELTA lavie design

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment
- 2-position control outputs
- 3-speed fan control: Automatic or manual
- Operation modes: Comfort and Protection
- Manual heating / cooling changeover or continuous Cooling only / Heating only
- Adjustable commissioning and control parameters
- Optional display of room temperature or setpoint
- Minimum and maximum setpoint limitation
- Keypad lock function
- Color of housing: signal white (RAL 9003)

Data sheet	N3064
Operating voltage	AC 230 V
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Relay outputs	Fan: N.O contacts, non-floating Valve: 1 x changeover contact (SPDT), non-floating
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 42 mm

Stock No.	Product No.
S55770-T189	**RDF510.2**

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Accessories for RDF..Semi Flush Mount

Product Title	Data sheet	Stock No.	Product No.
Infrared Remote Control for room thermostats	N3060	S55770-T166	**IRA211**
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	**ARG70.3**
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	**ARG71**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	**QAA32**

Flush-mounting box ARG71 for RDF3.., RDF4.., RDF5..

Electronic room thermostat for VAV and CAV systems — RCU..VAV

- Electronic room thermostat for heating and cooling operation
- P control
- Setpoint shifting
- On/off, 3-position or modulating outputs
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Operating voltage	AC 24 V
Setpoint setting range	8...30 °C
Analog outputs	Heating or cooling
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Dimensions (W x H x D)	97 x 114 x 43 mm

Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V — RCU50



- Heating and cooling sequence
- Automatic heating / cooling changeover (with sensor QAH11.1)
- DC 0...10 V output (max. ±1 mA)
- Operating mode changeover input for remote control
- Adjustable minimum limitation for cooling output
- Active input for setpoint shift
- Normal, energy saving and frost protection mode

Data sheet N3045

Stock No.	Product No.
BPZ:RCU50	**RCU50**

Room thermostat for VAV and CAV systems, AC 24 V, positioning signal DC 0...10 V, manual changeover heating/cooling/off — RCU50.2



Same functionality and technical data as RCU50
- Manual heating / cooling changeover and OFF position
- Signal inversion of output signal
- No setpoint shift
- No operating mode changeover input for remote control
- No adjustable minimum limitation for cooling output
- No frost protection

Data sheet N3045

Stock No.	Product No.
BPZ:RCU50.2	**RCU50.2**

RDG400

Room thermostat, AC 24 V, VAV heating and cooling systems



- KNX communications
- Output DC 0...10 V for VAV actuator and auxiliary output ON/OFF, PWM or 3-position or 3-position for VAV actuator and auxiliary output DC 0...10 V
- 3 multifunctional inputs for keycard contact, external room / return air temperature (1x, QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/oQAH11.1ff, dew-point monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Minimum and maximum limitation of air flow signal
- Output signal inversion (DC 0...10 V) as an option
- Backlit display

5

Application selectable:
- Single-duct system
- Single-duct system with electrical heater
- Single-duct system and radiator / floor heating
- Single-duct system with heating / cooling coil

Data sheet	N3182
Operating voltage	AC 24 V
Control algorithm	P / PI
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Analog outputs, number	1
Analog outputs	VAV actuator, electric heater, valve
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Triac outputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.	Product No.
S55770-T164	**RDG400**

Semi Flush-mount room thermostat for rectangular conduit box with LCD for VAV application

RDU340



- Output for a DC 0...10 V actuator and AC 230V electrical heater (ON-OFF)
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Adjustable minimum and maximum limitation for air flow signal DC 0...10V
- Output signal inversion as an option
- Mounting on recessed rectangular conduit box, 60.3 mm fixing centers

Application selectable:
- Single-duct system
- Single-duct system with electrical heater

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Data sheet	N3078
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Relay outputs, number	1
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 230 V
Relay output, switching current	Max. 5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm

	Stock No.	Product No.
	BPZ:RDU340	**RDU340**

Accessories for RDU340

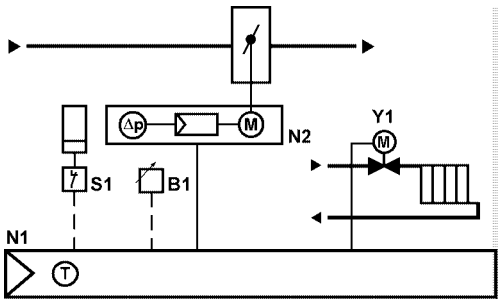
Product Title	Data sheet	Stock No.	Product No.
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	**ARG71**
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	**ARG70.3**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	**QAA32**

Application examples RDG..

These are only a few examples of many applications that can be done with the room thermostats RDG...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RDG.. data sheet

RDG400

TCCE01 DG4 HQ



VAV box, automatic heating/cooling changeover with radiator, mod. PI-control, DC 0...10 V for cooling

- Modulating PI control algorithm for heating and cooling systems
- Outputs for DC 0...10 V and ON/OFF, PWM, 3-postion
- Setting range of setpoint knob can be limited
- Manual operating mode button
- Parameter setting by installer
- Temperature control according to integrated sensor
- Adjustable minimum limitation of cooling output (air flow)
- Operating mode changeover for remote control with external switch/sensor
- Operating voltage AC 24 V
- Backlit display

Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications

RDG100KN



- KNX communications
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- 2-position, 3-position or PWM control outputs
- Automatic or manual fan speed for 1-speed, 3-speed fan
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electrical heater
- 2-stage heating or cooling system

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Data sheet	N3191
Operating voltage	AC 230 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Fan: 1- or 3-speed
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs, number	3
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)

Stock No.	Product No.
S55770-T163	**RDG100KN**

Communicating room thermostats
For fan coil units - Communicating KNX thermostat

RDG160KN



Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, fan (1-/ 3-speed, DC), valves (2-point, DC)

- KNX communications
- For applications with DC control outputs and DC or 3-speed fan output
- For applications with 2-position control output with DC fan output
- 3 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Energy Saving and Protection
- Automatic or manual EC fan or 1-/3-speed
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 2-stage heating or cooling system

Data sheet	N3191
Operating voltage	AC 24 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Setpoint setting range	5...40 °C
Analog inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay outputs	Valve, compressor or el. heater: 2 outputs, 2-position Fan: 1- or 3-speed
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (4) A
Analog outputs, number	3
Analog outputs	Valve, el. heater: 2 Fan: 1 (ECM)
Analog output, signal	DC 0...10 V
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)

Stock No.	Product No.
S55770-T297	RDG160KN

Semi Flush-mount room thermostats with KNX communications, 2-/4-pipe fan coils or DX type equipment

Semi Flush Mount room thermostat with LCD for fan coil units and compressors in DX-type equipment
- KNX communications
- Operating modes: Comfort, Economy and Protection
- For heating and/or cooling applications
- 2 or 3-position control outputs
- Output for 1-speed or 3-speed fan
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

RDF..KNX Semi Flush Mount





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Data sheet	N3171
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Relay outputs, number	5
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Degree of protection	IP30
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Range overview RDF..KNX Semi Flush Mount

Product Title	Type of fixing	Dimensions (W x H x D) [mm]	Stock No.	Product No.
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	Recessed round conduit box diameter min. 60 mm	86 x 86 x 46	S55770-T293	**RDF600KN**
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T104	**RDF301**
Semi Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment, four buttons for switching lights and blinds	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T105	**RDF301.50**
Hotel Semi Flush-mount room thermostat with KNX, 2-/4-pipe fan coils or DX type equipment, four buttons hotel functions	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm (ARG71)	86 x 86 x 57	S55770-T334	RDF301.50H

NEW PRODUCT

RDG400KN



Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems

- KNX communications
- Output DC 0...10 V for VAV actuator and auxiliary output ON/OFF, PWM or 3-position or 3-position for VAV actuator and auxiliary output DC 0...10 V
- 2 multifunctional inputs for keycard contact, external room / return air temperature (1x, QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- 1 input DC 0...10 V for damper position feedback
- Operating modes: Comfort, Economy and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating / cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Minimum and maximum limitation of air flow signal
- Output signal inversion (DC 0...10 V) as an option
- Backlit display

Application selectable:
- Single-duct system
- Single-duct system with electrical heater
- Single-duct system and radiator / floor heating
- Single-duct system with heating / cooling coil

Data sheet	N3192
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog input, signal	NTC 3k DC 0...10 V
Digital inputs, number	1
Analog outputs, number	1
Analog outputs	VAV actuator, electric heater, valve
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Triac outputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	Max. 1 A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	93 x 128 x 30.8 mm
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Stock No.	Product No.
S55770-T165	**RDG400KN**

Semi Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application

RDU341



Semi Flush-mount room thermostat for VAV application
- KNX communications
- Output for a DC 0...10 V actuator and AC 230V electrical heater (ON-OFF)
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- Modulating PI control
- Control depending on the room or the return air temperature
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Adjustable minimum and maximum limitation for air flow signal DC 0...10V
- Output signal inversion as an option

Application selectable:
- Single-duct system
- Single-duct system with electrical heater

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Data sheet	N3172
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Relay outputs, number	1
Relay outputs	N.O. contact, potential-free
Relay output, switching voltage	AC 230 V
Relay output, switching current	Max. 5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 57 mm
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)

Stock No.	Product No.
S55770-T106	**RDU341**

RDF302



Semi Flush-mount room thermostat for rectangular conduit box with Modbus communications, 2-/4-pipe fan coils or DX type equipment

Semi Flush Mount room thermostat for rectangular conduit box with LCD for fan coil units and compressors in DX-type equipment
- For heating and/or cooling applications
- Modbus communications
- 2 or 3-position control outputs
- Output for 1-speed or 3-speed fan
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), heat / cool changeover, operation mode changeover, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy and Protection
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: signal white (RAL 9003)
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3079
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Analog inputs, number	2
Relay outputs, number	5
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 (ARG71) with fixing centres of 60.3 mm
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 57 mm
Communication	Bus: Modbus RTU (RS 485)

Stock No.	Product No.
S55770-T238	**RDF302**

Accessories for RDU.. / RDF302

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket 10 mm thick	N3009	BPZ:ARG70.3	**ARG70.3**
Conduit box 75 x 75 x 51 mm	N3009	S55770-T137	**ARG71**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	**QAA32**

Temperature controller

RAK-TR.1..H

External scale, 1 changeover contact, immersion and strap-on thermostat in one.



Data sheet	N1205
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (2.5) A
Switching differential	6 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 72 mm

Range overview RAK-TR.1..H

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
15...95	PN 10, 100 mm, G ½"	700	S55700-P111	**RAK-TR.1000B-H**
15...95		700	S55700-P112	**RAK-TR.1000S-H**
15...82	PN 10, 100 mm, G ½"	700	S55700-P113	**RAK-TR.1210B-H**

Note to protection pocket: Brass, nickel-plated

Thermal reset limit thermostat

RAK-TW.1..H

Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.



Data sheet	N1202
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 1-2: 0.1...16 (2.5) A Contact 1-3: 0.1...6 (2.5) A
Switching differential	6 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 64 mm

Range overview RAK-TW.1..H

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
15...95	PN 10, 100 mm, G ½"	700	S55700-P114	**RAK-TW.1000B-H**
15...95		700	S55700-P116	**RAK-TW.1000S-H**
40...120	PN 10, 100 mm, G ½"	700	S55700-P117	**RAK-TW.1200B-H**
40...120		700	S55700-P119	**RAK-TW.1200S-H**

Note to protection pocket: Brass, nickel-plated

RAK-TW.1..H..

Thermal reset limit thermostat



Immersion, strap-on and remote thermostat in one

Data sheet	N1202
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact connection 1-2: 0.1...16 (2.5) A Contact connection 1-3: 0.1...6(2.5) A
Switching differential	6 K
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 64 mm

5

Range overview RAK-TW.1..H..

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
40...120	PN 10, 100 mm, G½"	700	S55700-P118	**RAK-TW.1200HP**
15...95	PN 10, 100 mm, G½"	700	S55700-P115	**RAK-TW.1000HB**

Note to protection pocket: Brass, nickel-plated

RAK-TB.1..M

Temperature limiter



Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1206
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 0.1...16 (2.5) A Contact 11-13: 2 (0.4) A
Reset temperature	Min. 15 K under the switch-off point
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 67 mm

Range overview RAK-TB.1..M

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
45...60		700	S55700-P108	**RAK-TB.1400S-M**
50...70	PN 10, 100 mm, G½"	700	S55700-P109	**RAK-TB.1410B-M**
65...80		700	S55700-P110	**RAK-TB.1420S-M**

Note to protection pocket: Brass, nickel-plated

Safety limit thermostat

RAK-ST..M

Internal scale, 1 changeover contact, failsafe capillary, immersion and strap-on thermostat in one, with ambient temperature compensation.



Data sheet	N1204
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 0.1...16 (2.5) A Contact 11-13: 2 (0.4) A
Reset temperature	Min. 15 K under the switch-off point
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 67 mm

Range overview RAK-ST..M

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
95	PN 10, 100 mm, G ½"	700	S55700-P100	**RAK-ST.010FP-M**
100	PN 10, 100 mm, G ½"	700	S55700-P101	**RAK-ST.020FP-M**
110	PN 10, 100 mm, G ½"	700	S55700-P102	**RAK-ST.030FP-M**
120...130	PN 10, 100 mm, G ½"	700	S55700-P103	**RAK-ST.1300P-M**
90...110	PN 10, 100 mm, G ½"	700	S55700-P104	**RAK-ST.1310P-M**
80...100		1600	S55700-P106	**RAK-ST.1430S-M**

Note to protection pocket: Brass, nickel-plated

Safety limit thermostat

RAK-ST.1..M..

Immersion, strap-on and remote thermostat in one



Data sheet	N1204
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 11-12: 16 (2,5) A Contact 11-13: 2 (0,4) A
Reset temperature	~7 K under the switch-off point
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 67 mm

Range overview RAK-ST.1..M..

Switch-off point [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
Adjustable: 95...130	PN 10, 100 mm, G ½"	700	S55700-P107	**RAK-ST.1600MP**
Adjustable: 40...70		700	S55700-P105	**RAK-ST.1385M**

Note to protection pocket: Brass, nickel-plated

5

Protection pockets for RAK-T and RAK-S

Packaging unit	Protection pocket [LW7]	Material	PN class	Data sheet	Stock No.	Product No.
1 pc	100 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB100	**ALT-SB100**
1 pc	150 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB150	**ALT-SB150**
1 pc	200 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB200	**ALT-SB200**
1 pc	280 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB280	**ALT-SB280**
1 pc	450 mm, G½"	Brass, nickel-plated	PN 10	N1194	BPZ:ALT-SB450	**ALT-SB450**
1 pc	100 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS100	**ALT-SS100**
1 pc	150 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS150	**ALT-SS150**
1 pc	280 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS280	**ALT-SS280**
1 pc	450 mm, G½"	Stainless steel V4A	PN 16	N1194	BPZ:ALT-SS450	**ALT-SS450**
1 pc	100 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF100	**ALT-SSF100**
1 pc	150 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF150	**ALT-SSF150**
1 pc	200 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF200	**ALT-SSF200**
1 pc	280 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF280	**ALT-SSF280**
1 pc	450 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF450	**ALT-SSF450**
1 pc	600 mm, G½" (with flange)	Stainless steel V4A	PN 40	N1194	BPZ:ALT-SSF600	**ALT-SSF600**

Accessories for RAK-T and RAK-S

Packaging unit	Product Title	Material	Data sheet	Stock No.	Product No.
1 pc	Protection pocket, perforated, 200 mm	Steel, galvanized	N1193	BPZ:ALT-AB200	**ALT-AB200**
1 bag	Mounting kit for RAK../RAZ..		N1193	BPZ:ALT-C001	**ALT-C001**
1 pcs.	Mounting flange, adjustable depth	PA66GF35	N1193	BPZ:AQM63.0	**AQM63.0**
1 box	Terminal housing		N1207	S55700-P131	**RAK-H-M**

Temperature controller/ thermal reset limit thermostat

RAZ-TW.1..J



Combination of control thermostat (TR) and thermal reset limit thermostat (TW). Inernal scale (TR), internal scale (TW), 2 changeover contacts. Immersion thermostat and wall mounting.

Data sheet	N1212
Sensing element	Liquid expansion sensor
Reset temperature	Min. 15 Kelvin under the switch-off point
Switching differential	6 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (4) A
Degree of protection	IP40
Dimensions (W x H x D)	120 x 106 x 70 mm

Range overview RAZ-TW.1..J

Setpoint setting range [°C]	Protection pocket [LW7]	Capillary length [mm]	Stock No.	Product No.
TR: 15...95 TW: 15...95	PN 10, 100 mm, G ½" 2x	700	S55700-P140	**RAZ-TW.1000P-J**
TR: 40...120 TW: 40...120	PN 10, 100 mm, G ½" 2x	700	S55700-P141	**RAZ-TW.1200P-J**

Double protection pocket 2x inner dia.7mm, brass nickel plated

Temperature controller/ safety limit thermostat

RAZ-ST..J



Combination of control thermostat (TR) and safety limit thermostat (STB). Internal scale (TR), internal scale (STB), 2 changeover contacts, failsafe capillary, STB with ambient temperature compensation. Immersion thermostat and wall mounting.

Data sheet	N1214
Sensing element	Liquid expansion sensor
Capillary length	700 mm
Reset temperature	Min. 20 Kelvin under the switch-off point
Switching differential	TR: 6 K STB: ±5 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	TR: 0.1...16 (4) A STB: Contact 1-2 0.1...16 (1) A Contact 1-4 max. 0.5 A (alarm contact)
Degree of protection	IP40
Dimensions (W x H x D)	120 x 106 x 70 mm

Range overview RAZ-ST..J

Setpoint setting range [°C]	Switch-off point [°C]	Protection pocket [LW7]	Stock No.	Product No.
TR: 15...95 STB: 100	100	PN 10, 100 mm, G ½"	S55700-P136	**RAZ-ST.011FP-J**
TR: 15...95 STB: 110	110	PN 10, 100 mm, G ½"	S55700-P137	**RAZ-ST.030FP-J**
TR: 15...95 STB: 110...130	110...130	PN 10, 100 mm, G ½"	S55700-P138	**RAZ-ST.1500P-J**
TR: 15...95 STB: 90...110	90...110	PN 10, 100 mm, G ½"	S55700-P139	**RAZ-ST.1510P-J**

Double protection pocket 2x inner dia.7mm, brass nickel plated

Accessories for RAZ-..

Product Title	Material	PN class	Data sheet	Stock No.	Product No.
Protection pocket 100 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P142	**ALT-DB100J**
Protection pocket 150 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P143	**ALT-DB150J**
Protection pocket 280 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P144	**ALT-DB280J**
Protection pocket 450 mm, MS63 nickel-plated, G½", PN10, 2xLW7	Brass, nickel-plated	PN 10	N1194	S55700-P145	**ALT-DB450J**
Protection pocket, 100 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P146	**ALT-DS100J**
Protection pocket, 150 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P147	**ALT-DS150J**
Protection pocket, 280 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P148	**ALT-DS280J**
Protection pocket, 450 mm, G½" LW15, stainless steel V4A	Stainless steel V4A	PN 16	N1194	S55700-P149	**ALT-DS450J**
Mounting kit for RAK../RAZ..			N1193	BPZ:ALT-C001	**ALT-C001**

Strap-on temperature controller, 20...90 °C, fixing spring, setpoint adjuster externally

RAM-TR.2000M



Electromechanical temperature control (TR) with single-pole changeover microswitch:
- Set point externally adjustable
- Controlled medium: water, oil

Data sheet	N1198
Sensing element	Bimetall
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Setpoint setting range	20...90 °C
Mounting location	Surface-mounted on pipes or storage tanks
Degree of protection	IP20
Dimensions (W x H x D)	38 x 105 x 42 mm

Stock No.	Product No.
BPZ:RAM-TR.2000M	**RAM-TR.2000M**

Strap-on temperature limitation, 20...90 °C, fixing spring, setpoint adjuster internally

RAM-TW.2000M



Electromechanical temperature limitation (TW) with single-pole changeover microswitch:
- Set point internally adjustable
- Controlled medium: water, oil

Data sheet	N1198
Sensing element	Bimetal
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Setpoint setting range	20...90 °C
Mounting location	Surface-mounted on pipes or storage tanks
Degree of protection	IP20
Dimensions (W x H x D)	38 x 105 x 42 mm

Stock No.	Product No.
BPZ:RAM-TW.2000M	**RAM-TW.2000M**

RYT182

Changeover thermostat, changeover, 30 °C / 19 °C, IP54



For changeover of controller's operating action (heating / cooling) depending on the flow temperature.

Data sheet	N1295
Cooling mode *1)	t_{VI} < 19 °C
Heating mode *2)	t_{VI} > 30 °C
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	0.1...3 A
Degree of protection	IP54

Stock No.	Product No.
BPZ:RYT182	**RYT182**

Cooling mode: closed contact between white-blue
Heating mode: closed contact between white-black

5

TKM2

Thermal reset limit thermostat for air ducts, 20...110 °C; perforated protection pocket 200mm



Data sheet	N1291
Setpoint setting range	20...110 °C
Switching differential	2 K
Digital outputs	1-pin Potential-free Changover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	Any
Ambient temperature head	Max. 100 °C
Ambient temperature, operation	120 °C
Ambient temperature sensor	Max. 10 % above setpoint setting range
Degree of protection	IP54
Dimensions (W x H x D)	60 x 120 x 55 mm

Stock No.	Product No.
BPZ:TKM2	**TKM2**

Accessory for TKM2

Product Title	Material	Packaging unit	Data sheet	Stock No.	Product No.
Protection pocket, perforated, 200 mm	Steel, galvanized	1 pc	N1193	BPZ:ALT-AB200	**ALT-AB200**

Frost sensor, modulating

QAF63..



- For fitting to the air duct
- Fully active capillary tube sensor
- With capillary tube entry

Data sheet	N1821
Operating voltage	AC 24 V
Power consumption	5 VA
Analog output, signal	DC 0...10 V
Measuring range, temperature	0...15 °C
Min. active length	250 mm
Ambient temperature, operation	-15...60 °C
Connection cable	3-wire
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

In addition to direct mounting, the frost sensor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

5

Range overview QAF63..

Capillary length [mm]	Data sheet	Stock No.	Product No.
2000	N1821	BPZ:QAF63.2	**QAF63.2**
6000	N1821	BPZ:QAF63.6	**QAF63.6**

QAF64..

Frost monitor, air side, 2-point



- Modulating and 2-position
- Fully active capillary type sensing element
- Indication of frost with red LED
- Test switch for simulation of frost
- Selector for automatic or manual reset function
- Modulating P-controller for startup
- Limit value contact for plant control

Data sheet	N1283
Operating voltage	AC 24 V
Power consumption	6 VA
Analog inputs	Control input
Analog output, signal	DC 0...10 V
Analog input, signal	0.1 mA DC 0...10 V
Setpoint setting range	1...10 °C
Measuring range, temperature	0...15 °C
Min. active length	250 mm
Digital outputs	Potential-free Switchover contact
Digital output, switching voltage	DC 5 V / AC 5...250 V
Digital output, switching current	6 (4) A
Ambient temperature, operation	-15...60 °C
Connection cable	6 (8)-wire
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

In addition to direct mounting, the frost monitor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

Range overview QAF64..

Capillary length [mm]	Data sheet	Stock No.	Product No.
2000	N1283	BPZ:QAF64.2	**QAF64.2**
6000	N1283	BPZ:QAF64.6	**QAF64.6**

Accessories for QAF63.. and QAF64..

AQM63.0

Mounting flange, adjustable depth



Data sheet	N1193
Packaging unit	1 pcs.

Accessories for QAM21.., QAF63.. and QAF64..

Stock No.	Product No.
BPZ:AQM63.0	**AQM63.0**

3 capillary supports and 3 spacers for QAF.. Mounting **AQM63.2**

3 capillary tube clamps and 3 spacers
With 2 m capillary tube: Use 1 AQM63.2
With 6 m capillary tube: Use 2 AQM63.2

Data sheet N1821

	Stock No.	Product No.
	BPZ:AQM63.2	**AQM63.2**

Frost monitor, 2-point, capillary tube 3000 mm, -10...15 °C **QAF65.3-J**



Internal scale, 1 changeover contact, capillary tube for fitting on air heating coils

Data sheet N1286

Setpoint setting range	-10...15 °C
Switching differential	2 K
Digital output, switching voltage	AC 24...250 V
Digital outputs	Switchover contact Potential-free
Digital output, switching current	Contact 1-2: 0.1...16 (2.5) A Contact 1-3: 0.1...16 (2.5) A
Degree of protection	IP43
Dimensions (W x H x D)	56 x 156 x 64 mm

For fixing the capillary, accessory AQM63.2 (2 x 3 capillary tube clamps and 2 x 3 spacers) or capillary clamps type FK-TZ1 is required.

	Stock No.	Product No.
	S55700-P150	**QAF65.3-J**

Accessories for QFA65.3-J

Product Title	Data sheet	Stock No.	Product No.
Mounting flange, adjustable depth	N1193	BPZ:AQM63.0	**AQM63.0**
3 capillary supports and 3 spacers for QAF.. Mounting	N1821	BPZ:AQM63.2	**AQM63.2**
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	**AQM63.3**

Frost monitor, 2-point **QAF81..**



For temperature supervision on the air side of air heating coils in ventilation and air conditioning plants to provide protection against frost.

Data sheet N1284

Setpoint setting range	-5...+15 °C
Switching differential	2 K
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (2) A
Mounting position	Any
Min. active length	300 mm
Degree of protection	IP54
Dimensions (W x H x D)	106 x 113 x 37 mm

Capillary and clamp-on thermostats
Frost protection units: QAF.. / RAK.. / TKM..

Range overview QAF81..

Capillary length [mm]	Data sheet	Stock No.	Product No.
3000	N1284	BPZ:QAF81.3	**QAF81.3**
6000	N1284	BPZ:QAF81.6	**QAF81.6**
6000	N1284	BPZ:QAF81.6M	**QAF81.6M**

QAF81.6M, with lock-out and manual reset

Accessories for QAF81..

Product Title	Data sheet	Stock No.	Product No.
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	**AQM63.3**

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RAK-TW.5..H

Frost protection monitor



Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Data sheet	N1203
Sensing element	Liquid expansion sensor
Digital outputs	1-pin Potential-free Switching contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact 1-2: 0.1...16 (2.5) A Contact 1-3: 0.1...6 (2.5) A
Switching differential	5 K
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 64 mm

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Range overview RAK-TW.5..H

Setpoint setting range [°C]	Capillary length [mm]	Stock No.	Product No.
5...65	1600	S55700-P121	**RAK-TW.5000S-H**
-10...50	1600	S55700-P122	**RAK-TW.5010S-H**

RAK-TW.5..H..

Frost protection monitor



Immersion, strap-on and remote thermostat in one

Data sheet	N1203
Sensing element	Liquid expansion sensor
Digital outputs	1-pole Potential-free Changeover contact
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	Contact connection 1-2: 0.1...16 (2.5) A Contact connection 1-3: 0.1...6 (2.5) A
Switching differential	5 K
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 64 mm

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Range overview RAK-TW.5..H..

Setpoint setting range [°C]	Capillary length [mm]	Stock No.	Product No.
5...65	1600	S55700-P120	**RAK-TW.5000HS**

Accessories for RAK-TW.5.. and RAK-TW.5..H..

Product Title	Material	Packaging unit	Data sheet	Stock No.	Product No.
Protection pocket, perforated, 200 mm	Steel, galvanized	1 pc	N1193	BPZ:ALT-AB200	**ALT-AB200**

Capillary and clamp-on thermostats
Coild probe thermostats TRG..

TRG2

Room thermostat with helix sensor, TR -5..50 °C



For commercial and industrial applications.

Data sheet	N1329
Setpoint setting range	-5...50 °C
Switching differential	Adjustable: 0.7...6 K
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	Horizontal
Degree of protection	IP54
Dimensions (W x H x D)	98 x 95 x 63 mm

Stock No.	Product No.
BPZ:TRG2	**TRG2**

TRG22

Room thermostat with helix sensor, TR -5..50 °C, 2 switches on 2 steps 2..12 K difference



For commercial and industrial applications.

Data sheet	N1329
Setpoint setting range	-5...50 °C
Switching differential	2 K
Switching interval	2...12 K
Digital outputs	2 Changeover contacts, 1-pole Potential-free
Digital output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Mounting position	horizontal
Degree of protection	IP54
Dimensions (W x H x D)	98 x 135 x 67 mm

Note on switching interval:
Adjustable temperature difference between step 1 and step 2.

Stock No.	Product No.
BPZ:TRG22	**TRG22**

Sensors



6

Overview and selection tools	Overview of product details	6-2
Temperature sensors	Room sensors - wall mounting QAA..	6-5
	Room sensors - flush mounting AQR..	6-8
	Duct sensors: QAM.. / FK-TP..	6-10
	Immersion sensors: QAE.. / FT-TP..	6-12
	Strap-on sensors QAD..	6-17
	Outside sensors QAC..	6-18
	Window pan / flue gas: QAT.. / FGT..	6-19
	Cable sensors: QAP.. / QAZ.. / QAH..	6-20
Humidity sensors	Room sensors - wall mounting QFA..	6-22
	Accessories for room sensors - wall mounting	6-24
	Room sensors - flush mounting AQR25..	6-25
	Room hygrostats QFA1..	6-27
	Duct sensors QFM..	6-28
	Accessories for duct sensors	6-31
	Duct hygrostats QFM81..	6-32
	Condensation monitor QXA..	6-33
Air quality sensors	Room sensors - wall mounting QPA..	6-36
	Room sensors - flush mounting AQR25..	6-37
	Duct sensors QPM..	6-41
Pressure sensors	Differential pressure sensor air and non-aggressive gas QBM..	6-42
	Differential pressure switches QBM81	6-45
	Pressure sensors for liquids and gases QBE..	6-46
	Pressure sensors refrigerant QBE..	6-51
Flow sensors	Flow sensors QVE..	6-53
	Flow switches QVE1..	6-55
	Velocity sensors QVM..	6-57
Solar sensors..	Solar sensors QLS..	6-58

Overview sensors

Temperature









Model		Room sensors	Duct sensors	Immersion sensors	Outside sensors		Strap-on sensors	Cable sensors
Type reference		QAA	QAM	QAE	QAC	QAC	QAD	QAP
Category:	Standard	■	■	■		■	■	■
	High Quality				■			

Humidity










Model		Room sensors				Duct sensors			Outside sensors
Type reference		QFA	QFA..D	QFA	QFA..D	QFM	QFM	QFM..D	QFA
Category	Standard	■	■			■			
	High Quality			■	■		■	■	■
	Certified			■	■		■		

Air quality






Model		Room sensors			Air duct sensors		
Type reference		QPA		QPA..D	QPM		QPM..D
Measured value	VOC	■			■		
	CO_2		■			■	
	CO_2 / VOC		■	■		■	■
	CO_2 / T		■	■		■	■
	CO_2 / H / T		■	■		■	■
Display				■			■
Category	Basic	■			■		
	Standard		■	■		■	■

Pressure








Model		Differential pressure sensors				Absolute pressure sensors	
Medium		Air	Air	Liquids / gases	Liquids / gases	Liquids / gases	Refrigeration
Type reference		QBM3../4..	QBM2030	QBE63	QBE3x00-D	QBE2x02-P	QBE2x01-P
Category	Standard		■	■		■	■
	High Quality	■			■		
	Certified	■					

Flow








Model		Flow switch			Flow sensor		Air velocity sensor
Medium		Liquids	Liquids	Liquids	Liquids	Liquids	Air
Type reference		QVE1900	QVE1901	QVE1902	QVE2x00	QVE3x00	QVM62.1
Category	Basic	■	■	■			
	Standard				■		■
	High Quality					■	

Xtra			
Model		Solar sensors	Flue gas temperature sensors
Type reference		QLS60	FGT-PT1000
Medium			Air
Measured value		Intensity of radiation	Flue gas temperature
Category	Standard	■	
	High Quality		■

Overview module combinations - room sensors for flush mounting

Active sensors			Measuring variables					Dis-play	Selection tool controller range						
Basic module	+	Front module	CO_2	VOC	Relative humidity	Active temp.	Pas-sive temp.	CO_2 -indicator	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2540Nx	+	AQR2532NNW				■			■					■	■
AQR2540Nx	+	AQR2533NNW			■				■					■	■
AQR2540Nx	+	AQR2535NNW			■	■			■					■	■
AQR2540Nx	+	AQR2534ANW			■	■	LG-Ni1000		■	■	■	■	■	■	■
AQR2540Nx	+	AQR2534FNW			■	■	NTC 10k [3]		■						
AQR2546Nx	+	AQR2530NNW	■						■					■	■
AQR2546Nx	+	AQR2532NNW	■			■			■					■	■
AQR2546Nx	+	AQR2533NNW	■		■				■					■	■
AQR2546Nx	+	AQR2535NNW	■		■	■ [2]			■					■	■
AQR2546Nx	+	AQR2535NNWQ	■		■	■ [2]		■	■					■	■
AQR2546Nx	+	AQR2534ANW	■		■	■ [2]	LG-Ni1000		■	■	■	■	■	■	■
AQR2546Nx	+	AQR2534FNW	■		■	■ [2]	NTC 10k [3]		■						
AQR2547Nx	+	AQR2530NNW		■					■					■	■
AQR2547Nx	+	AQR2532NNW		■		■			■					■	■
AQR2547Nx	+	AQR2533NNW		■	■				■					■	■
AQR2547Nx	+	AQR2535NNW		■	■	■ [2]			■					■	■
AQR2547Nx	+	AQR2534ANW		■	■	■ [2]	LG-Ni1000		■	■	■	■	■	■	■
AQR2547Nx	+	AQR2534FNW		■	■	■ [2]	NTC 10k [3]		■						
AQR2548Nx	+	AQR2530NNW	■	■ [1]					■					■	■
AQR2548Nx	+	AQR2532NNW	■	■ [1]		■			■					■	■
AQR2548Nx	+	AQR2533NNW	■	■ [1]	■				■					■	■
AQR2548Nx	+	AQR2535NNW	■	■ [1]	■	■ [2]			■					■	■
AQR2548Nx	+	AQR2535NNWQ	■	■ [1]	■	■ [2]		■	■					■	■
AQR2548Nx	+	AQR2534ANW	■	■ [1]	■	■ [2]	LG-Ni1000		■	■	■	■	■	■	■
AQR2548Nx	+	AQR2534FNW	■	■ [1]	■	■ [2]	NTC 10k [3]		■						

For passive sensors see page **6-4**

[1] Here, the in-door air quality is calculated from the CO_2 and VOC measuring variables. VOC is not available as direct measuring variable.
[2] The measuring variable is solely available as switch output.
[3] The Desigo PX does not accept NTC 10k signal. The Desigo TX module need to be used for the NTC 10k signal.

Overview and selection tools
Overview of product details

Passive sensors			Measuring variables					Selection tool controller range						
Mounting plate	+	Front module	CO_2	VOC	Relative humidity	Active temp.	Passive temp.	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2500Nx	+	AQR2531ANW					LG-Ni1000	■	■	■	■	■	■	■
AQR2500Nx	+	AQR2531BNW					PT1000	■					■	■
AQR2500Nx	+	AQR2531FNW					NTC 10k [3)]	■						

Replace x with:
– **F** for VDE/CEE (70x70 mm)
– **H** for British Standard (83x83 mm)
– **G** for Italian Standard 3 modular (110x64 mm)
– **J** for UL Standard 2″ x 4″ (64x110 mm)

Power supply: AC 24 V, DC 15...36 V
Signal range active sensor: DC 0...5 V, DC 2...10 V, DC 0...10 V, DC 0...20 mA, DC 4...20 mA, and DC 0...10 mA
A freely selectable switching contact is available for every measuring variable.

Communicating sensors			Measuring variables			Display	Inputs	
Base modul	+	Front module	CO_2	Relative humidity	Temperature	CO_2-indicator	Passive temperature NTC 10k	Two potential-free contacts
AQR2570Nx	+	AQR2532NNW			■		■	■
AQR2570Nx	+	AQR2533NNW		■			■	■
AQR2570Nx	+	AQR2535NNW		■	■		■	■
AQR2576Nx	+	AQR2530NNW	■				■	■
AQR2576Nx	+	AQR2532NNW	■		■		■	■
AQR2576Nx	+	AQR2533NNW	■	■			■	■
AQR2576Nx	+	AQR2535NNW	■	■	■		■	■
AQR2576Nx	+	AQR2535NNWQ	■	■	■	■	■	■

Replace x with:
– F for VDE/CEE (70x70 mm)
– **H** for British Standard (83x83 mm)
– **G** for Italian Standard 3 modular (110x64 mm)
– **J** for UL Standard 2″ x 4″ (64x110 mm)

The room sensors are KNX certified and can be used in conjunction with all devices capable of communicating over KNX.

Furthermore the sensors can be used with the following Siemens building automation systems:
– Desigo TRA (PL-Link)
– Synco 700 (KNX LTE-Mode)
– GAMMA (KNX S-Mode)

Room temperature sensor, passive — QAA2..

Measuring range, temperature	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 32 mm



Range overview QAA2..

Sensing element, temperature	Time constant [min]	Measurement accuracy [°C]	Data sheet	Stock No.	Product No.
LG-Ni1000	7	At 0...50 °C: ±0.8	N1721	BPZ:QAA24	**QAA24**
Pt100	7	At 0...50 °C: ±0.6	N1745	BPZ:QAA2010	**QAA2010**
Pt1000	7	At 0...50 °C: ±0.6	N1745	BPZ:QAA2012	**QAA2012**
NTC 10k	7	At 0...50 °C: ±0.8	N1745	BPZ:QAA2030	**QAA2030**

Room unit with room temperature sensor and setpoint adjuster — QAA25

Data sheet	N1721
Setpoint setting range	5...35 °C
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm



For Synco™ and Desigo™ PX applications

Stock No.	Product No.
BPZ:QAA25	**QAA25**

Room unit with room temperature sensor and setpoint adjuster 5..30 °C — QAA26

Data sheet	N1721
Setpoint setting range	5...30 °C
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm



For Desigo™ PX applications

Stock No.	Product No.
BPZ:QAA26	**QAA26**

QAA27

Room unit with room temperature sensor and setpoint readjuster -3...3 K



Data sheet	N1721
Setpoint readjustment range	-3...3 K
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

For Synco™, Desigo™ PX and Desigo™ RXA applications

Stock No.	Product No.
BPZ:QAA27	**QAA27**

QAA20..1

Room temperature sensor, active



Data sheet	N1749
Measuring range	0...50 °C
Measurement accuracy	at AC 24 V in the range of -25 °C...+25 °C ± 0.75 K -50 °C...+50 °C ±0.9 K
Time constant	7 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

Range overview QAA20..1

Analog output, signal	Operating voltage	Display	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V		BPZ:QAA2061	**QAA2061**
DC 4...20 mA	DC 13.5...35 V		BPZ:QAA2071	**QAA2071**
DC 0...10 V	AC 24 V DC 13.5...35 V	LCD	BPZ:QAA2061D	**QAA2061D**

QAA64

Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes



For mounting on recessed conduit boxes.
Not suited for cooling in VAV installations.

Data sheet	N1722
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Measurement accuracy	At 0...50 °C: ±0.8 K
Time constant	6.5 min
Connection, electrical	Screw terminals
Degree of protection	IP40
Dimensions (W x H x D)	84 x 84 x 25 mm

Stock No.	Product No.
BPZ:QAA64	**QAA64**

Room temperature sensor NTC 3 kOhm

QAA32



Data sheet	N1747
Measuring range, temperature	0...40 °C
Sensing element, temperature	NTC 3k
Measurement accuracy	At 25 °C: ±0.3 K
Time constant	6 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	97 × 100 × 36 mm

	Stock No.	Product No.
	BPZ:QAA32	**QAA32**

Accessories for QAA32

Product Title	Stock No.	Product No.
Mounting plate 96 x 120 mm for 2 x 4" housing	BPZ:ARG70.1	**ARG70.1**
Mounting plate 120 x 120 mm for 4 x 4" housing	BPZ:ARG70	**ARG70**

AQR2531..

Front modules with passiv temperature measurement



Data sheet	N1408
Measuring range, temperature	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Color	Titanium white
Dimensions (W x H)	55 x 55 mm

Range overview AQR2531..

Sensing element, temperature	Stock No.	Product No.
LG-Ni1000	S55720-S133	**AQR2531ANW**
Pt1000	S55720-S134	**AQR2531BNW**
NTC 10k	S55720-S135	**AQR2531FNW**

Mounting plates for front modules AQR2531..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S161	**AQR2500NF**
UK (British Standard)	83 x 83 mm	S55720-S162	**AQR2500NH**
IT (3 modular)	110 x 64 mm	S55720-S163	**AQR2500NG**
US (UL)	64 x 110 mm	S55720-S164	**AQR2500NJ**

6

AQR2540..

Base modules for temperature and humidity measurement



Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Connection, electrical	Screw terminals

Range overview AQR2540..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S142	**AQR2540NF**
UK (British Standard)	83 x 83 mm	S55720-S143	**AQR2540NH**
IT (3 modular)	110 x 64 mm	S55720-S144	**AQR2540NG**
US (UL)	64 x 110 mm	S55720-S145	**AQR2540NJ**

Base module with KNX for temperature and humidity measurement — AQR2570..



Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals

Range overview AQR2570..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S203	**AQR2570NF**
UK (British Standard)	83 x 83 mm	S55720-S204	**AQR2570NH**
IT (3 Modular)	110 x 64 mm	S55720-S205	**AQR2570NG**
US (UL)	64 x 110 mm	S55720-S206	**AQR2570NJ**

Front modules for base modules — AQR253..



Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Stock No.	Product No.
0...50 °C	Active	S55720-S136	**AQR2532NNW**

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	**AQR2510NFW**
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	**AQR2510NHW**
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	**AQR2510NGW**

QAM21..

Duct temperature sensor, passive



Fully active, flexible probe for averaging.

Data sheet	N1761
Time constant	At v = 2 m/s: 30 s
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP42

Note on fixing:
Supplied complete with mounting flange.

Range overview QAM21..

Probe length [mm]	Sensing element, temperature	Measuring range, temperature [°C]	Measurement accuracy [K]	Stock No.	Product No.
400	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.040	**QAM2120.040**
2000	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.200	**QAM2120.200**
6000	LG-Ni1000	-50...80	At -50...80 °C: ±1.8	BPZ:QAM2120.600	**QAM2120.600**
400	Pt100	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2110.040	**QAM2110.040**
400	Pt1000	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2112.040	**QAM2112.040**
2000	Pt1000	-50...80	At -50...80 °C: ±0.7	BPZ:QAM2112.200	**QAM2112.200**
400	NTC 10k	-40...80	At -40...80 °C: ±1.2	BPZ:QAM2130.040	**QAM2130.040**

QAM21..1..

Duct temperature sensor active



Fully active, flexible probe for averaging.

Data sheet	N1762
Measuring range, temperature	-50...50 °C
Measurement accuracy	At -50...50 °C: ±0.9 K
Time constant	30 s at v = 2 m/s
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP54
Power consumption	≤ 1 VA

Note on fixing:
Supplied complete with mounting flange.

Range overview QAM21..1..

Analog output, signal	Operating voltage	Probe length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	400	BPZ:QAM2161.040	**QAM2161.040**
DC 4...20 mA	DC 13.5...35 V	400	BPZ:QAM2171.040	**QAM2171.040**

Accessories for QAM21.. and QAM21..1..

Product Title	Data sheet	Stock No.	Product No.
Mounting flange, adjustable depth	N1193	BPZ:AQM63.0	**AQM63.0**
3 capillary supports and 3 spacers for QAF.. Mounting	N1821	BPZ:AQM63.2	**AQM63.2**
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	**AQM63.3**

Duct temperature sensor Pt100, for high temperature — FK-TP/200

With connecting head to DIN.
No protection pocket required.



Data sheet	N1778
Measuring range, temperature	-60...300 °C
Sensing element, temperature	Pt100
Time constant	<100 s at v = 1 m/s
Connection, electrical	Screw terminals
Type of fixing	Flange
Material, immersion pocket	Stainless steel
Immersion length	200 mm
Degree of protection	IP54
Dimensions (W x H x D)	60 x 80 x 83 mm

Supplied complete with mounting flange.

	Stock No.	Product No.
	BPZ:FK-TP/200	**FK-TP/200**

QAE1612.010

Immersion temperature sensor



Passive sensor for acquiring the water temperature in pipes and tanks

Data sheet	Q3730
Measuring range, temperature	0...100 °C
Sensing element	Pt1000
Immersion length	100 mm
Connection cable	Screw terminal / cable entry via cable entry gland
Degree of protection	IP42
Dimensions (W x H x D)	151 x 56 x 72 mm

Stock No.	Product No.
S55720-S197	**QAE1612.010**

QAE21..

Immersion temperature sensor, passive



Data sheet	N1781
Time constant	With protection pocket: 30 s Without protection pocket: 8 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Dimensions (W x H x D)	80 x 60 x 31 mm

Fixing is made by protection pocket or compression fitting. If for the nominal pressure no entry can be found in the table, no protection pocket is included as standard and the nominal pressure depends on the protection pocket used (see accessories). By using the compression fitting AQE2102 the nominal pressure is 16 bar (PN16).

Range overview QAE21.. Immersion temperature sensor with protection pocket:

Sensing element, temperature	Measuring range, temperature [°C]	Immersion length [mm]	Measurement accuracy [K]	Degree of protection	PN class	Stock No.	Product No.
LG-Ni1000	-30...130	100	At -30...130 °C: ±1.3	IP42	PN 10	BPZ:QAE2120.010	**QAE2120.010**
LG-Ni1000	-30...130	150	At -30...130 °C: ±1.3	IP42	PN 10	BPZ:QAE2120.015	**QAE2120.015**

Range overview QAE21.. Immersion temperature sensor without protection pocket:

Sensing element, temperature	Measuring range, temperature [°C]	Immersion length [mm]	Measurement accuracy [K]	Degree of protection	PN class	Stock No.	Product No.
Pt100	-30...130	100	At -30...130 °C: ±0,95	IP42		BPZ:QAE2111.010	**QAE2111.010**
Pt100	-30...130	150	At -30...130 °C: ±0.95	IP42		BPZ:QAE2111.015	**QAE2111.015**
Pt1000	-30...130	100	At -30...130 °C: ±0.95	IP42		BPZ:QAE2112.010	**QAE2112.010**
Pt1000	-30...130	150	At -30...130 °C: ±0.95	IP42		BPZ:QAE2112.015	**QAE2112.015**
LG-Ni1000	-30...130	100	At -30...130 °C: ±1.3	IP42		BPZ:QAE2121.010	**QAE2121.010**
LG-Ni1000	-30...130	150	At -30...130 °C: ±1,3	IP42		BPZ:QAE2121.015	**QAE2121.015**
NTC 10k	-30...125	100	At -30...125 °C: ±1.7	IP42		BPZ:QAE2130.010	**QAE2130.010**
NTC 10k	-30...125	150	At -30...125 °C: ±1.7	IP42		BPZ:QAE2130.015	**QAE2130.015**

Protecktion pocket are not included and needs to be ordered seperately

6

Immersion temperature sensor active

QAE21..4



Data sheet	N1782
Measuring range, temperature	-10...120 °C
Time constant	With protection pocket: 30 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Measurement accuracy	At 0...70 °C: ±1 K At -40...120 °C: ±1.4 K
Power consumption	≤ 1 VA
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 39 mm

Fixing is made by protection pocket or compression fitting. No protection pocket is included as standard. The nominal pressure depends on the protection pocket used (see accessories). By using the compression fitting AQE2102 the nominal pressure is 16 bar (PN 16).

Range overview QAE21..4

Analog output, signal	Operating voltage	Immersion length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	100	BPZ:QAE2164.010	**QAE2164.010**
DC 0...10 V	AC 24 V DC 13.5...35 V	150	BPZ:QAE2164.015	**QAE2164.015**
DC 4...20 mA	DC 13.5...35 V	100	BPZ:QAE2174.010	**QAE2174.010**
DC 4...20 mA	DC 13.5...35 V	150	BPZ:QAE2174.015	**QAE2174.015**

Accessories for QAE21..

Packaging unit	Protection pocket [LW7]	Material	PN class	Stock No.	Product No.
1 pc	100 mm, G½"	Stainless steel V4A	PN 16	BPZ:ALT-SS100	**ALT-SS100**
1 pc	150 mm, G½"	Stainless steel V4A	PN 16	BPZ:ALT-SS150	**ALT-SS150**
1 pc	100 mm, G½" (with flange)	Stainless steel V4A	PN 40	BPZ:ALT-SSF100	**ALT-SSF100**
1 pc	150 mm, G½" (with flange)	Stainless steel V4A	PN 40	BPZ:ALT-SSF150	**ALT-SSF150**
1 pc	100 mm, G½"	Brass, nickel-plated	PN 10	BPZ:ALT-SB100	**ALT-SB100**
1 pc	150 mm, G½"	Brass, nickel-plated	PN 10	BPZ:ALT-SB150	**ALT-SB150**

Product Title	Data sheet	Stock No.	Product No.
Compression fitting with threaded nipple ½"	N1781	BPZ:AQE2102	**AQE2102**

QAE26.9

Immersion temperature sensor Ø 6 mm with cable and fitting



With connecting cable

Data sheet	N1790
Measuring range, temperature	-40...180 °C
Sensing element, temperature	LG-Ni1000
Time constant	<3 s
Connection cable	Silicone, 2-wire
Cable length	1.2 m
Material, immersion pocket	Stainless steel
Immersion length	25...260 mm
Diameter	6 mm
Type of fixing	Thread R ¼ "
PN class	PN 40
Degree of protection	IP64

Stock No.	Product No.
BPZ:QAE26.9	**QAE26.9**

QAE26.9..

Immersion temperature sensur Ø 4 mm with cable and fitting



With connecting cable

Data sheet	N1790
Sensing element, temperature	LG-Ni1000
Time constant	<2.5 s
Cable length	2 m
Type of fixing	R¼ " thread
Measurement accuracy	At -50...180 °C: ±1.75 K
Diameter	4 mm
Material, immersion pocket	Stainless steel
PN class	PN 16
Degree of protection	IP64

Other technical data identical to QAE26.9

Packaging unit QAE1020.024 100 pieces

Range overview QAE26.9..

Immersion length [mm]	Measuring range, temperature [°C]	Connection cable	Stock No.	Product No.
15...65	-50...180	Silicone	BPZ:QAE26.90	**QAE26.90**
15...125	-50...180	Silicone	BPZ:QAE26.91	**QAE26.91**
15...240	-50...180	Silicone	BPZ:QAE26.93	**QAE26.93**
15...465	-50...180	Silicone	BPZ:QAE26.95	**QAE26.95**
15...240	-5...105	PVC	BPZ:QAE1020.024	**QAE1020.024**

Immersion temperature sensor for high temperature — QAE3..

With connection head made of die-cast aluminium.
No protection pocket required.



Data sheet	N1794
Sensing element, temperature	Pt100
Time constant	25 s
Connection, electrical	Screw terminals
Material, immersion pocket	Stainless steel
Type of fixing	Protection pocket G½ "
Material, housing	Die-cast aluminum
PN class	PN 40
Degree of protection	IP65
Dimensions (W x H x D)	69 x 92 x 81 mm

Range overview QAE3..

Measuring range, temperature [°C]	Analog output, signal	Immersion length [mm]	Operating voltage	Stock No.	Product No.
-50...200	Passive	100		BPZ:QAE3010.010	**QAE3010.010**
-50...200	Passive	160		BPZ:QAE3010.016	**QAE3010.016**
0...200	DC 4...20 mA	100	DC 7.5...30	BPZ:QAE3075.010	**QAE3075.010**
0...200	DC 4...20 mA	160	DC 7.5...30	BPZ:QAE3075.016	**QAE3075.016**

Immersion temperature sensor Pt100, short time constant, for high temperature — FT-TP/..

With connecting head to DIN.
No protection pocket required.



Data sheet	N1797
Measuring range, temperature	-100...450 °C
Sensing element, temperature	Pt100
Time constant	Air v = 1 m/s: <100 s Water v = 0,4 m/s: <5 s
Connection, electrical	Screw terminals
Type of fixing	Protection pocket G ½ "
Material, immersion pocket	Stainless steel
PN class	PN 40
Degree of protection	IP54
Dimensions (W x H x D)	60 x 80 x 85 mm

Range overview FT-TP/..

Immersion length [mm]	Stock No.	Product No.
100	BPZ:FT-TP/100	**FT-TP/100**
400	BPZ:FT-TP/400	**FT-TP/400**

Strap-on temperature sensor

QAD2..



Data sheet	N1801
Connection, electrical	Screw terminals
Degree of protection	IP42
Dimensions (W x H x D)	60 x 67 x 43 mm

Supplied complete with strap for pipe diameters from 15...140 mm.

Range overview QAD2..

Sensing element, temperature	Measuring range, temperature [°C]	Time constant [s]	Stock No.	Product No.
LG-Ni1000	-30...130	3	BPZ:QAD22	**QAD22**
Pt100	-30...130	3	BPZ:QAD2010	**QAD2010**
Pt1000	-30...130	3	BPZ:QAD2012	**QAD2012**
NTC 10k	-30...125	6	BPZ:QAD2030	**QAD2030**

Strap-on temperature sensor with cable LG-Ni1000

QAD26.220

With cable, without housing



Data sheet	N1802
Measuring range, temperature	-35...90 °C
Sensing element	LG-Ni 1000
Time constant	<10 s
Connection cable	2-wire
Cable length	2 m
Degree of protection	IP65

Supplied complete with strap for pipe diameters from 10...50 mm.

	Stock No.	Product No.
	BPZ:QAD26.220	**QAD26.220**

6

QAC..



Outside sensor, passive

For acquiring the outside temperature and – to a lesser degree – solar radiation, the effect of wind and the temperature of the wall.

Data sheet	N1811
Connection, electrical	Screw terminals
Degree of protection	IP54
Material	Plastic (ASA)

Range overview QAC..

Measuring range, temperature [°C]	Sensing element, temperature	Measurement accuracy [°C]	Time constant [min]	Stock No.	Product No.
-50...70	Pt100	±0.3 K at 0	14	BPZ:QAC2010	**QAC2010**
-50...70	Pt1000	±0.3 K at 0	14	BPZ:QAC2012	**QAC2012**
-50...70	LG-Ni1000	±0.4 K at 0	14	BPZ:QAC22	**QAC22**
-50...70	NTC 575	±1 K at -10...+20	12	BPZ:QAC32	**QAC32**
-40...70	NTC 10k	±0,46 K at 25	14	BPZ:QAC2030	**QAC2030**

6

QAC31..



Outside temperature sensor active

The QAC31.. may be used as an high-quality room sensor.

Data sheet	N1814
Measuring range, temperature	-50...50 °C
Time constant	20 min
Connection, electrical	Screw terminals
Degree of protection	IP65
Sensing element, temperature	Pt1000

Range overview QAC31..

Analog output, signal	Operating voltage	Measurement accuracy [K]	Stock No.	Product No.
DC 0...10 V	AC 24 V DC 13.5...35 V	At -50...50 °C: ±0.9	BPZ:QAC3161	**QAC3161**
DC 4...20 mA	DC 13.5...35 V	At -50...50 °C: ±0.9	BPZ:QAC3171	**QAC3171**

Window pane temperature sensor — QAT22



Data sheet	N1830
Cable length	1.5 m
Measurement accuracy	At 0 °C: ±0.4 K
Measuring range, temperature	-10...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	30 s
Connection cable	2-wire

Stock No.	Product No.
BPZ:QAT22	**QAT22**

Flue gas temperature sensor Pt1000 — FGT-PT1000

For measuring the flue gas temperature in flueways.



Data sheet	N1846
Sensing element, temperature	Pt1000
Measuring range, temperature	-20...400 °C
Connection cable	2-wire, 1.5 m, teflon with steel wire mesh
Material	Stainless steel V4A
Cable length	1.5 m
Material, immersion pocket	Sensor sleeve, stainless steel

Stock No.	Product No.
BPZ:FGT-PT1000	**FGT-PT1000**

QAP..

Cable temperature sensor (6 x 40.5 mm) for HVAC applications



Data sheet	N1831
Time constant	Fitted to pipe: <20 s
Material, protection pocket	Stainless steel
Type of fixing	Cable tie or with accessories
Degree of protection	IP65
Protection pocket	40,5 x 6 mm

Range overview QAP..

Cable length [m]	Sensing element, temperature	Connection cable	Measurement accuracy [K]	Measuring range, temperature [°C]	Stock No.	Product No.
1.5	LG-Ni1000	Silicone	At -30...130 °C: ±1.3	-30...130	BPZ:QAP21.3	**QAP21.3**
8	LG-Ni1000	Silicone	At -30...130 °C: ±1.3	-30...130	BPZ:QAP21.3/8000	**QAP21.3/8000**
1.5	Pt100	Silicone	At -30...130 °C: ±0.95	-30...130	BPZ:QAP2010.150	**QAP2010.150**
1.5	Pt1000	Silicone	At -30...130 °C: ±0.95	-30...130	BPZ:QAP2012.150	**QAP2012.150**
2	LG-Ni1000	PVC	At -30...130 °C: ±1.3	-25...95	BPZ:QAP22	**QAP22**
2	NTC 10k	PVC	At -25...95 °C: ±1.4	-25...95	BPZ:QAP1030.200	**QAP1030.200**

Accessories for QAP..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Changeover cable holder for QAP..	Set of 10 pieces	N1831	BPZ:ARG22.1	**ARG22.1**
Aluminium bar attachment for QAP..	Set of 5 pieces	N1831	BPZ:ARG22.2	**ARG22.2**
Terminal housing		N1207	S55700-P131	**RAK-H-M**
Cable holder for protection pocket mounting		N1831	BPZ:421314160	**421314160**

QAP21.2

Cable temperature sensor for high-temperature applications (180°C)



For acquiring the water temperature in flat solar collectors

Data sheet	N1833
Measuring range, temperature	-30...180 °C
Measurement accuracy	At -30...180 °C: ±1.65 K
Sensing element, temperature	LG-Ni1000
Time constant	Fitted to pipe: <20 s
Connection cable	Silicone
Cable length	1.5 m
Material, protection pocket	Stainless steel
Degree of protection	IP67
Protection pocket	50 x 6 mm

Stock No.	Product No.
BPZ:QAP21.2	**QAP21.2**

Cable temperature sensor for use in refrigeration plants (-50 °C) QAZ21.68..



Data sheet	N1848
Measuring range, temperature	-50...80 °C
Sensing element, temperature	LG-Ni1000
Time constant	Fitted to pipework <20 s
Connection cable	Silicone, 2-wire
Material, protection pocket	Stainless steel
Degree of protection	IP67
Protection pocket	50 x 6 mm

Supplied complete with 2 cable ties and sleeve coated with thermal conductive wax for fitting to pipework.

Range overview QAZ21.68..

Cable length [m]	Packaging unit	Stock No.	Product No.
2	1 piece	BPZ:QAZ21.682/101	**QAZ21.682/101**
5	100 pieces	BPZ:QAZ21.685/101	**QAZ21.685/101**

Cable sensor for fan coil applications QAH11..



For installation in fan coil units as
- a return air temperature sensor
- a changeover sensor

Data sheet	N1840
Measuring range	For fixed cable
Measuring range, temperature	-20...70 °C
Sensing element, temperature	NTC 3k
Time constant	1.5 min at v = 0 m/s
Cable length	2.5 m

Range overview QAH11..

Connection cable	Packaging unit	Stock No.	Product No.
2-wire, cable complete with connectors	10 pieces	BPZ:QAH11	**QAH11**
2-wire, with ferrules	10 pieces	BPZ:QAH11.1	**QAH11.1**

Accessories for QAH11..

Product Title	Packaging unit	Data sheet	Stock No.	Product No.
Changeover cable holder for QAH11..	10 pieces	N3009	BPZ:ARG86.3	**ARG86.3**

QFA20..

Room sensor for rel. humidity / temperature



For relative humidity and temperature

Data sheet	N1857
Measurement range humidity	0...95 % r.h.
Measurement accuracy	At 0...95 % r.h. and 23 °C: ±5 % At 30...70 % r.h. and 23 °C: ±3 %
Time constant	Humidity <20 s Temperature <8.5 min
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

Range overview QFA20..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Display	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V			BPZ:QFA2000	**QFA2000**
DC 4...20 mA		DC 13.5...35 V			S55720-S114	**QFA2001**
DC 0...10 V	LG-Ni1000	AC 24 V DC 13.5...35 V	0...50 °C		BPZ:QFA2020	**QFA2020**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFA2060	**QFA2060**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA2060D	**QFA2060D**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		S55720-S105	**QFA2060N**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		S55720-S115	**QFA2071**

Variants QFA..N = no logo

QFA31..

Room sensors for rel. Humidity / temperature for demanding requirements



For relative humidity and temperature

Data sheet	N1858
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature: <8.5 min
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	80 x 144 x 39 mm

Range overview QFA31..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Display	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V			BPZ:QFA3100	**QFA3100**
DC 4...20 mA		DC 13.5...35 V			BPZ:QFA3101	**QFA3101**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFA3160	**QFA3160**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA3160D	**QFA3160D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFA3171	**QFA3171**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA3171D	**QFA3171D**

Room sensors for rel. humidity / temperature for demanding requirements, with calibration certificate

QFA41..



For relative humidity and temperature

Data sheet	N1859
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature: <8.5 min
Measuring range, temperature	0...50 °C -35...35 °C -40...70 °C
Connection, electrical	Round connector
Degree of protection	IP65
Dimensions (W x H x D)	80 x 144 x 39 mm

Range overview QFA41..

Signal output humidity	Signal output temperature	Operating voltage	Display	Stock No.	Product No.
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	---	BPZ:QFA4160	**QFA4160**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13,5...35 V	LCD	BPZ:QFA4160D	**QFA4160D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	---	BPZ:QFA4171	**QFA4171**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	LCD	BPZ:QFA4171D	**QFA4171D**

Humidity sensors
Accessories for room sensors - wall mounting

Accessories for QFA..

Product Title	Data sheet	Stock No.	Product No.
Filter cap for humidity sensor	N1858	BPZ:AQF3101	**AQF3101**
Exchangeable measuring tip	N1858	BPZ:AQF3150	**AQF3150**
Remote sensing cable 3 m for sensor tip.	N1859	BPZ:AQY2010	**AQY2010**
Exchangeable measuring tip, with calibration certificate	N1859	BPZ:AQF4150	**AQF4150**

AQF3100

Radiation shield for exterior wall mounting



In combination with QFA31... room sensors.

Data sheet N1858

Stock No.	Product No.
BPZ:AQF3100	**AQF3100**

AQF3153

Service-Set

The service set comprises three measuring tips without sensor element. Each tip signals a predefined temperature and humidity value to the basic unit:

- 85%, 40 °C
- 50%, 23 °C
- 20%, 5 °C

The fixed values are available at the signal outputs. The accuracy is the same as for the test function. The measuring tips can be exchanged in operation.

Data sheet

Stock No.	Product No.
BPZ:AQF3153	**AQF3153**

Base modules for temperature and humidity measurement

AQR2540..

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Connection, electrical	Screw terminals



Range overview AQR2540..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S142	**AQR2540NF**
UK (British Standard)	83 x 83 mm	S55720-S143	**AQR2540NH**
IT (3 modular)	110 x 64 mm	S55720-S144	**AQR2540NG**
US (UL)	64 x 110 mm	S55720-S145	**AQR2540NJ**

Base module with KNX for temperature and humidity measurement

AQR2570..

Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals



Range overview AQR2570..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S203	**AQR2570NF**
UK (British Standard)	83 x 83 mm	S55720-S204	**AQR2570NH**
IT (3 Modular)	110 x 64 mm	S55720-S205	**AQR2570NG**
US (UL)	64 x 110 mm	S55720-S206	**AQR2570NJ**

Front modules for base modules

AQR253..

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm



Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Stock No.	Product No.
		0...100 %	S55720-S140	**AQR2533NNW**
0...50 °C	Active	0...100 %	S55720-S141	**AQR2535NNW**
0...50 °C	Active LG-Ni1000	0...100 %	S55720-S138	**AQR2534ANW**
0...50 °C	Active NTC 10k	0...100 %	S55720-S139	**AQR2534FNW**

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	**AQR2510NFW**
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	**AQR2510NHW**
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	**AQR2510NGW**

Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment

QFA1001



2-position controller with humidity sensor
External setpoint adjustment

Data sheet	N1518
Setpoint setting range	30...90 % r.h.
Switching differential	6 % r.h.
Time constant	At v = 0.2 m/s: 5 min
Digital outputs	1-pin Potential-free Changeover contact
Connection, electrical	Screw terminals
Digital output, switching voltage	AC 230 V
Digital output, switching current	5 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	76 x 76 x 34 mm

Stock No.	Product No.
BPZ:QFA1001	**QFA1001**

Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device

QFA1000



2-position controller with humidity sensor
Setpoint adjuster inside device

Data sheet	N1518
Setpoint setting range	30...90 % r.h.
Switching differential	6 % r.h.
Time constant	At v = 0.2 m/s: 5 min
Digital outputs	1-pin Potential-free Changeover contact
Connection, electrical	Screw terminals
Digital output, switching voltage	AC 230 V
Digital output, switching current	5 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	76 x 76 x 34 mm

Stock No.	Product No.
BPZ:QFA1000	**QFA1000**

QFM1660

Duct sensor for humidity (0...10 V) and temperature (0...10 V)



Active sensor for acquiring the air humidity and temperature in air duct

Data sheet	Q3731
Operating voltage	AC 24 V
Signal output humidity	DC 0...10 V
Signal output temperature	DC 0...10 V
Measurement range humidity	10...90% r. h.
Measuring range, temperature	0...50 °C
Measurement accuracy	Temperature at AC 24 V and 25 °C:±0.8 °C Humidity at 10...90% r. h. and 25 °C/20 °C:±5% r. h.
Degree of protection	IP42

Stock No.	Product No.
S55720-S198	**QFM1660**

QFM21..

Duct sensor for rel. humidity / temperature



For relative humidity and temperature

Data sheet	N1864
Measurement range humidity	0...95 % r.h.
Measurement accuracy	Humidity at 30...70 % r.h. and 23 °C: ±3 % r.h. Temperature, at 15...35 °C: ±0.8 K Temperature, at 35...50 °C: ±1.0 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...154 mm
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QFM21..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V		BPZ:QFM2100	**QFM2100**
DC 4...20 mA		DC 13.5...35 V		BPZ:QFM2101	**QFM2101**
DC 0...10 V	LG-Ni1000	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2120	**QFM2120**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2160	**QFM2160**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM2171	**QFM2171**

Duct sensors for rel. humidity / temperature for demanding requirements

QFM31..



For relative humidity and temperature.

Data sheet	N1882
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...206 mm
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QFM31..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Display	Stock No.	Product No.
DC 0...10 V		AC 24 V DC 13.5...35 V			BPZ:QFM3100	**QFM3100**
DC 4...20 mA		DC 13.5...35 V			BPZ:QFM3101	**QFM3101**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C		BPZ:QFM3160	**QFM3160**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFM3160D	**QFM3160D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C 0...70 °C		BPZ:QFM3171	**QFM3171**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35 V	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFM3171D	**QFM3171D**

Duct sensor for rel. humidity/temperature for demanding requirements, with calibration certificate

QFM41..



For relative humidity and temperature

Data sheet	N1883
Measurement range humidity	0...100 % r.h.
Measurement accuracy	Humidity at 0...100 % r.h. and 23 °C: ±2 % r.h. Temperature, at 15...35 °C: ±0.6 K Temperature, at 40...70 °C: ±0.8 K
Time constant	Humidity: <20 s Temperature in with 2 m/s moved air: <3.5 min
Immersion length	90...206 mm
Connection, electrical	Round connector
Type of fixing	Flange
Degree of protection	IP65
Dimensions (W x H x D)	80 x 117 x 39 mm

Range overview QFM41..

Signal output humidity	Signal output temperature	Operating voltage	Measuring range, temperature	Stock No.	Product No.
DC 4...20 mA		DC 13.5...35 V		BPZ:QFM4101	**QFM4101**
DC 0...10 V	DC 0...10 V	AC 24 V DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM4160	**QFM4160**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35 V	0...50 °C -35...35 °C -40...70 °C	BPZ:QFM4171	**QFM4171**

Accessories for QFM..

Product Title	Data sheet	Stock No.	Product No.
Filter cap for humidity sensor	N1858	BPZ:AQF3101	**AQF3101**
Exchangeable measuring tip	N1858	BPZ:AQF3150	**AQF3150**
Exchangeable measuring tip, with calibration certificate	N1859	BPZ:AQF4150	**AQF4150**

Service-Set AQF3153

The service set comprises three measuring tips without sensor element. Each tip signals a predefined temperature and humidity value to the basic unit:

- 85%, 40 °C
- 50%, 23 °C
- 20%, 5 °C

The fixed values are available at the signal outputs. The accuracy is the same as for the test function. The measuring tips can be exchanged in operation.

Data sheet

	Stock No.	Product No.
	BPZ:AQF3153	**AQF3153**

QFM81.2

Duct hygrostat, setpoint setting range 15...95 % r.h.



On / off hygrostat with humidity sensor.
External setpoint adjustment.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
Immersion length	130...156 mm
Degree of protection	IP30
Dimensions (W x H x D)	73 x 140 x 64 mm

Supplied complete with mounting flange.

Stock No.	Product No.
BPZ:QFM81.2	**QFM81.2**

QFM81.21

Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device



On / off hygrostat with humidity sensor.
Setpoint adjuster inside device.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
Immersion length	130...156 mm
Degree of protection	IP55
Dimensions (W x H x D)	73 x 140 x 64 mm

Stock No.	Product No.
BPZ:QFM81.21	**QFM81.21**

Condensation monitor, AC/DC 24 V — QXA2601

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.



Data sheet	N3302
Operating voltage	AC 24 V DC 24 V
Power consumption	1 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 1...30 V / DC 1...30 V
Digital output, switching current	DC 0.001...0.5 A / AC 0.001...1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.	Product No.
S55770-T325	QXA2601

Condensation monitor, AC/DC 24 V, with remote sensor head (cable length 1.5 m) — QXA2602

For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.



Data sheet	N3302
Operating voltage	AC 24 V DC 24 V
Power consumption	1 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 1...30 V / DC 1...30 V
Digital output, switching current	DC 0.001...0.5 A / AC 0.001...1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.	Product No.
S55770-T326	QXA2602

NEW PRODUCT

QXA2603

Condensation monitor, AC 230 V



For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.

Data sheet	N3302
Operating voltage	AC 230 V
Power consumption	4 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.	Product No.
S55770-T327	QXA2603

QXA2604

Condensation monitor, AC 230 V, with remote sensor head (cable length 1.5 m)



For monitoring and preventing condensation in buildings with chilled ceilings or in ventilation, air conditioning and heating plant.

Data sheet	N3302
Operating voltage	AC 230 V
Power consumption	4 VA
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	1 A
Switching point	92 ±4 % r.h.
Connection, electrical	Spring-type terminal
Degree of protection	IP54
Dimensions (W x H x D)	72 x 76 x 43 mm

Stock No.	Product No.
S55770-T328	QXA2604

Room air quality sensor CO_2 / temperature / rel. Humidity / VOC

QPA..



Data sheet	N1961
Operating voltage	AC 24 V DC 15...35 V
Power consumption	2 VA
Analog output, signal	DC 0...5 V DC 0...10 V
Ambient temperature, operation	0...50 °C
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm
Time constant	CO_2: <5 min Humidity: <20 s Temperature: <8.5 min

Note:Not suited for safety-related applications!

Range overview QPA..

Measuring range	Measuring range, temperature	Measurement range humidity	Display	Stock No.	Product No.
VOC: 0...100 %				S55720-S119	**QPA1000**
CO_2: 0...2000 ppm				BPZ:QPA2000	**QPA2000**
CO_2: 0...2000 ppm CO_2+VOC: 0...2000 ppm				BPZ:QPA2002	**QPA2002**
CO_2: 0...2000 ppm CO_2+VOC: 0...2000 ppm			LCD	BPZ:QPA2002D	**QPA2002D**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C			BPZ:QPA2060	**QPA2060**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C		LCD	BPZ:QPA2060D	**QPA2060D**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.		BPZ:QPA2062	**QPA2062**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	LCD	BPZ:QPA2062D	**QPA2062D**
CO_2: 0...2000 ppm	selectable			S55720-S121	**QPA2080**
CO_2: 0...2000 ppm	selectable		LCD	S55720-S122	**QPA2080D**

With the QPA2080 and QPA2080D the passive temperature element is freely selectable, enclosed in the delivery are LG-Ni1000, Pt1000, Pt100, NTC 10kOhm

QPA84

Indoor air quality controller with integrated VOC sensor for mixed gas



In ventilation plant to optimize indoor air quality and consumption of energy by means of demand-controlled ventilation.

Data sheet	N1571
Operating voltage	AC 230 V
Power consumption	0.5 VA
Measured variable	Mixed gas (VOC)
Digital outputs	Non-floating Switching contact
Digital output, switching voltage	AC 230 V
Digital output, switching current	8 (6.8) A
Connection, electrical	Screw terminals
Degree of protection	IP30
Dimensions (W x H x D)	96 x 101 x 39 mm

Stock No.	Product No.
BPZ:QPA84	**QPA84**

6

Base modules with integrated VOC measurement

AQR2547..



Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	VOC: 0...100 %
Connection, electrical	Screw terminals

Range overview AQR2547..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S146	**AQR2547NF**
UK (British Standard)	83 x 83 mm	S55720-S149	**AQR2547NH**
IT (3 modular)	110 x 64 mm	S55720-S152	**AQR2547NG**
US (UL)	64 x 110 mm	S55720-S155	**AQR2547NJ**

Front modules for base modules

AQR253..



Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Stock No.	Product No.
			S55720-S137	**AQR2530NNW**
0...50 °C	Active		S55720-S136	**AQR2532NNW**
		0...100 %	S55720-S140	**AQR2533NNW**
0...50 °C	Active	0...100 %	S55720-S141	**AQR2535NNW**
0...50 °C	Active LG-Ni1000	0...100 %	S55720-S138	**AQR2534ANW**
0...50 °C	Active NTC 10k	0...100 %	S55720-S139	**AQR2534FNW**

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	**AQR2510NFW**
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	**AQR2510NHW**
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	**AQR2510NGW**

AQR2546..

Base modules with integrated CO_2 measurement



Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	CO_2: 0...2000 ppm
Connection, electrical	Screw terminals

Range overview AQR2546..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S147	**AQR2546NF**
UK (British Standard)	83 x 83 mm	S55720-S150	**AQR2546NH**
IT (3 modular)	110 x 64 mm	S55720-S153	**AQR2546NG**
US (UL)	64 x 110 mm	S55720-S156	**AQR2546NJ**

6

AQR2576..

Base modules with KNX for CO_2 measurement



Data sheet	N1411
Voltage supply	KNX bus
Communication	KNX S-mode KNX LTE-mode KNX PL-Link
Analog inputs	Passive temperature sensor NTC 10k
Analog inputs, number	1
Digital inputs	Potential-free contacts
Digital inputs, number	2
Measuring range	CO_2: 0...5000 ppm
Connection, electrical	Bus connection: spring terminal sensor inputs: 4 screw terminals

Range overview AQR2576..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S207	**AQR2576NF**
UK (British Standard)	83 x 83 mm	S55720-S208	**AQR2576NH**
IT (3 Modular)	110 x 64 mm	S55720-S209	**AQR2576NG**
US (UL)	64 x 110 mm	S55720-S210	**AQR2576NJ**

AQR253..

Front modules for base modules



Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50 °C	Active			S55720-S136	**AQR2532NNW**
		0...100 %		S55720-S140	**AQR2533NNW**
0...50 °C	Active	0...100 %		S55720-S141	**AQR2535NNW**
0...50 °C	Active LG-Ni1000	0...100 %		S55720-S138	**AQR2534ANW**
0...50 °C	Active NTC 10k	0...100 %		S55720-S139	**AQR2534FNW**
0...50 °C	Active	0...100 %	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	**AQR2510NFW**
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	**AQR2510NHW**
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	**AQR2510NGW**

Base modules with integrated CO_2 and VOC measurement — AQR2548..



Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...5 V DC 0...20 mA DC 4...20 mA DC 0...10 mA
Measuring range	CO_2 + VOC: 0...100 % CO_2: 0...2000 ppm
Connection, electrical	Screw terminals

Range overview AQR2548..

Mechanical design	Dimensions (W x H)	Stock No.	Product No.
EU (CEE/VDE)	70.8 x 70.8 mm	S55720-S148	**AQR2548NF**
UK (British Standard)	83 x 83 mm	S55720-S151	**AQR2548NH**
IT (3 modular)	110 x 64 mm	S55720-S154	**AQR2548NG**
US (UL)	64 x 110 mm	S55720-S157	**AQR2548NJ**

Front modules for base modules — AQR253..



Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Air quality sensors
Room sensors - flush mounting AQR25..

Range overview AQR253..

Measuring range, temperature	Signal output temperature	Measurement range humidity	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50 °C	Active			S55720-S136	**AQR2532NNW**
		0...100 %		S55720-S140	**AQR2533NNW**
0...50 °C	Active	0...100 %		S55720-S141	**AQR2535NNW**
0...50 °C	Active LG-Ni1000	0...100 %		S55720-S138	**AQR2534ANW**
0...50 °C	Active NTC 10k	0...100 %		S55720-S139	**AQR2534FNW**
0...50 °C	Active	0...100 %	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

Frame for front modules AQR253..

Mechanical design	Color	Dimensions (W x H)	Stock No.	Product No.
DELTA line (CEE/VDE)	Titanium white	80.2 x 80.2 mm	S55720-S158	**AQR2510NFW**
DELTA miro (British Standard)	Titanium white	90 x 90 mm	S55720-S159	**AQR2510NHW**
DELTA azio (UL / 3 Modular)	Titanium white	80 x 120 mm / 120 x 80 mm	S55720-S160	**AQR2510NGW**

Duct air quality sensor CO_2/ temperature / rel. Humidity / VOC

QPM..



Data sheet	N1962
Operating voltage	AC 24 V DC 15...35 V
Power consumption	2 VA
Analog output, signal	DC 0...5 V DC 0...10 V
Ambient temperature, operation	-5...45 °C
Max. air velocity	≤ 10 m/s
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 274 mm
Time constant	CO_2: <5 min Humidity: <20 s Temperature: <3.5 min

Note: Not suited for safety-related applications!

Range overview QPM..

Measuring range	Measuring range, temperature	Measurement range humidity	Immersion length [mm]	Display	Stock No.	Product No.
VOC: 0...100 %			70...135		S55720-S123	**QPM1100**
CO_2: 0...2000 ppm			70...135		BPZ:QPM2100	**QPM2100**
CO_2: 0...2000 ppm CO_2+VOC: 0...2000 ppm			70...135		BPZ:QPM2102	**QPM2102**
CO_2: 0...2000 ppm CO_2+VOC: 0...2000 ppm			70...135	LCD	BPZ:QPM2102D	**QPM2102D**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C		100...165		BPZ:QPM2160	**QPM2160**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C		100...165	LCD	BPZ:QPM2160D	**QPM2160D**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	100...165		BPZ:QPM2162	**QPM2162**
CO_2: 0...2000 ppm	0...50 °C -35...35 °C	0...95 % r.H.	100...165	LCD	BPZ:QPM2162D	**QPM2162D**
CO_2: 0...2000 ppm			100...165		S55720-S124	**QPM2180**

The passive temperature element within the QPM2180 is freely selectable, enclosed in the delivery are LG-Ni1000, Pt1000, Pt100, NTC 10kOhm

Variants QPM..N = no logo

QBM3020..



Air duct differential pressure sensor, DC 0...10 V

For use with air or nonaggressive gases, for extremely demanding accuracy and high requirements. With diaphragm sensing element.
Availabe with switchable pressure-linear or extracting-the-root characteristic and digital display. With extracting-the-root characteristic, the pressure measuring range is adjustable.

Data sheet	N1916_01
Operating voltage	AC 24 V DC 13.5...33 V
Power consumption	0.5 VA
Analog output, signal	DC 0...10 V
Sensing element	Pressure diaphragm
Response time	<20 ms
Pressure conneciton	Connection branch, 6.2 mm dia.
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	101 x 86 x 49 mm

CE-, UL listed.
Supplied complete with PVC connecting tube of 2 m.

Range overview QBM3020.. with switchable characteristic (linear / root extracted)

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S234	QBM3020-1
-50...50	S55720-S233	QBM3020-1U
0...300	S55720-S235	QBM3020-3
0...500	S55720-S236	QBM3020-5
0...1000	S55720-S237	QBM3020-10
0...2500	S55720-S238	QBM3020-25

Range overview QBM3020..D with digital display and switchable characteristic (linear / root extracted)

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S239	QBM3020-1D
0...300	S55720-S240	QBM3020-3D
0...500	S55720-S241	QBM3020-5D
0...1000	S55720-S242	QBM3020-10D
0...2500	S55720-S243	QBM3020-25D

Air duct differential pressure sensor with calibration certificate

QBM400..

Technical data and accessories identical to QBM3...
With plug-in connection.

Data sheet N1919_01



Range overview QBM400.. with pressure-linear characteristic

Measuring range, pressure [Pa]	Stock No.	Product No.
0...100	S55720-S247	QBM4000-1
0...300	S55720-S248	QBM4000-3
0...1000	S55720-S249	QBM4000-10
0...2500	S55720-S250	QBM4000-25

Differential pressure sensor, DC 0...10 V

QBM2030..

With pressure-linear characteristic.
For use with air or nonaggressive gases, for general HVAC applications. With diaphragm sensing element and selectable pressure measuring ranges.



Data sheet N1910_01

Operating voltage	AC 24 V DC 13.5...33 V
Power consumption	0.5 VA
Sensing element	Pressure diaphragm
Time constant	1 s
Connection, electrical	Screw terminals
Analog output, signal	DC 0...10 V
Pressure conneciton	Connection branch, 6.2 mm dia.
Degree of protection	IP42
Dimensions (W x H x D)	92 x 94 x 49 mm

Supplied complete with set of 2 air duct connectors
and PVC tube of 2 m.

Range overview QBM2030..

Measuring range, pressure [Pa]	Stock No.	Product No.
-50...50 -100...100 0...100	S55720-S244	QBM2030-1U
0...200 0...250 0...500	S55720-S245	QBM2030-5
0...1000 0...1500 0...3000	S55720-S246	QBM2030-30

NEW PRODUCT

QBM410..



Air duct differential pressure sensor, DC 4...20 mA, with calibration certificate

For use with air and nonaggressive gases. For extremely demanding accuracy and high requirements. With diaphragm sensing element.

Data sheet	N1919_01
Operating voltage	DC 8...33 V
Sensing element	Pressure diaphragm
Connection, electrical	Screw terminals
Analog output, signal	DC 4...20 mA
Pressure conneciton	Connecting branch, 6.2 mm dia.
Degree of protection	IP54
Dimensions (W x H x D)	186 x 86 x 49

CE-, UL listed.
Supplied complete with PVC connecting tube of 2 m.

Accessories for QBM41 are identical to those for QBM3...

Range overview QBM410..

Measuring range, pressure [Pa]	Display	Stock No.	Product No.
-50...50	no	S55720-S251	QBM4100-1U
0...100	LCD	S55720-S252	QBM4100-1D

Accessories for QBM2.. /QBM3.. /QBM4..

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket for differenential pressure sensor for air	N1590	BPZ:AQB2000	**AQB2000**
Top hat rail adapter for differential pressure sensor for air	N1590	BPZ:AQB21.2	**AQB21.2**
Air duct probe for simple, quick and airtight mounting	N1589	BPZ:FK-PZ1	**FK-PZ1**
Air duct probe for accurate measurements	N1589	BPZ:FK-PZ2	**FK-PZ2**
Air duct probe for differential pressure sensor, fixed length	N1589	BPZ:FK-PZ3	**FK-PZ3**

Differential pressure monitor

QBM81..

Used as a flow switch or filter monitor in air ducts.



Data sheet	N1552
Digital outputs	1-pin Potential-free Switchover contact
Digital output, switching voltage	DC 24 V / AC 24...250 V
Digital output, switching current	0.01...5 (3) A
Permissible operating pressure	7500 Pa
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	88 x 110 x 90 mm
Pressure conneciton	Connection branch, 6.2 mm dia.
Ambient temperature, operation	-30...85 °C
Mounting position	Diaphragm vertical, pressure connection pointing downward

Supplied complete with set of 2 air duct connectors (plastic)
and 2 m long PVC tube.

Range overview QBM81..

Measuring range, pressure	Stock No.	Product No.
20...300 Pa	BPZ:QBM81-3	**QBM81-3**
50...500 Pa	BPZ:QBM81-5	**QBM81-5**
100...1000 Pa	BPZ:QBM81-10	**QBM81-10**
500...2000 Pa	S55720-S125	**QBM81-20**
1000...5000 Pa	S55720-S126	**QBM81-50**

Accessories for QBM81..

Product Title	Data sheet	Stock No.	Product No.
Air duct probe for simple, quick and airtight mounting	N1589	BPZ:FK-PZ1	**FK-PZ1**
Air duct probe for accurate measurements	N1589	BPZ:FK-PZ2	**FK-PZ2**
Air duct probe for differential pressure sensor, fixed length	N1589	BPZ:FK-PZ3	**FK-PZ3**

QBE2002-P..

Pressure sensor for liquids and gases (0...10 V)



With threaded connection G½".

Data sheet	N1909
Operating voltage	AC 24 V DC 18...33 V
Connection cable	3-wire
Cable length	1.5 m
Pressure conneciton	External thread G½ "
Analog output, signal	DC 0...10 V
Time constant	<5 ms
Max. permissible pressure	2 x scale end value (FS)
Medium temperature	-40...80 °C
Mounting position	Any
Connection, electrical	Cable
Degree of protection	IP65

Suited for use with oil-containing media.

Range overview QBE2002-P..

Measuring range, pressure	Stock No.	Product No.
0...100 kPa 0...1 bar	BPZ:QBE2002-P1	**QBE2002-P1**
0...200 kPa 0...2 bar	BPZ:QBE2002-P2	**QBE2002-P2**
0...400 kPa 0...4 bar	BPZ:QBE2002-P4	**QBE2002-P4**
0...500 kPa 0...5 bar	BPZ:QBE2002-P5	**QBE2002-P5**
0...1 MPa 0...10 bar	BPZ:QBE2002-P10	**QBE2002-P10**
0...1.6 MPa 0...16 bar	BPZ:QBE2002-P16	**QBE2002-P16**
0...2 MPa 0...20 bar	BPZ:QBE2002-P20	**QBE2002-P20**
0...2.5 MPa 0...25 bar	BPZ:QBE2002-P25	**QBE2002-P25**
0...4 MPa 0...40 bar	BPZ:QBE2002-P40	**QBE2002-P40**
0...6 MPa 0...60 bar	S55720-S185	**QBE2002-P60**

Pressure sensor for liquids and gases (0...20 mA)

QBE2102-P..

With threaded connection G½".



Data sheet	N1909
Operating voltage	DC 11...33 V
Connection cable	2-wire
Cable length	1.5 m
Pressure conneciton	External thread G½ "
Analog output, signal	DC 4...20 mA
Time constant	<5 ms
Max. permissible pressure	2 x scale end value (FS)
Medium temperature	-40...80 °C
Mounting position	Any
Connection, electrical	Cable
Degree of protection	IP65

Suited for use with oil-containing media.

Range overview QBE2102-P..

Measuring range, pressure	Stock No.	Product No.
0...400 kPa 0...4 bar	S55720-S165	**QBE2102-P4**
0...500 kPa 0...5 bar	S55720-S166	**QBE2102-P5**
0...1 MPa 0...10 bar	S55720-S167	**QBE2102-P10**
0...1,6 MPa 0...16 bar	S55720-S168	**QBE2102-P16**
0...2 MPa 0...20 bar	S55720-S169	**QBE2102-P20**

Accessories for QBE2002-P.. and QBE2102-P..

Product Title	Data sheet	Stock No.	Product No.
Mounting bracket for pressure sensor QBE2002	N1909	BPZ:AQB22.1	**AQB22.1**
Connection kit to mount QBE2002-P...	N1909	S55720-S116	**AQB2001**

QBE61.3-DP..



Differential pressure sensor for liquids and gases

For slightly aggressive liquids and gases, highly resistant to overpressure. Suitable for use with hot water and chilled water.
With threaded connections G½" and wall mounting bracket.

Data sheet	N1923
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Sensing element	Pressure diaphragm
Medium temperature	-15...80 °C
Mounting position	Any
Connection, electrical	Screw-free terminals
Pressure conneciton	External thread G ½ "
PN class	PN 40
Degree of protection	IP54
Dimensions (W x H x D)	126 x 135 x 60 mm

Not suitable for use with ammonia or freones.

6

Range overview QBE61.3-DP..

Measuring range, pressure [bar]	Max. permissible pressure [bar]	Stock No.	Product No.
0...2	12	BPZ:QBE61.3-DP2	**QBE61.3-DP2**
0...5	20	BPZ:QBE61.3-DP5	**QBE61.3-DP5**
0...10	20	BPZ:QBE61.3-DP10	**QBE61.3-DP10**

Note on max. permissible pressure: pressure on one side.

Accessories for QBE61.3-DP..

Product Title	Data sheet	Stock No.	Product No.
Water trap pipe	N1915	BPZ:428616520	**428616520**

QBE63-DP..



Differential pressure sensors for liquids and gase (DC 0...10 V)

For slightly aggressive liquids and gases, highly resistant to overpressure. With threaded connections G1/8"
Supplied complete with mounting bracket.

Data sheet	N1920
Operating voltage	AC 24 V DC 20...30 V
Analog output, signal	DC 0...10 V
Medium temperature	-10...80 °C
Connection, electrical	Screw terminals
Pressure conneciton	Internal thread G 1/8 "
Degree of protection	IP65
Dimension (Ø x L)	65 x 94 mm

Not suitable for use with ammonia or freones.

Range overview QBE63-DP..

Measuring range, pressure [kPa]	Max. permissible pressure [bar]	Stock No.	Product No.
0...10	10	BPZ:QBE63-DP01	**QBE63-DP01**
0...20	10	BPZ:QBE63-DP02	**QBE63-DP02**
0...50	20	BPZ:QBE63-DP05	**QBE63-DP05**
0...100	20	BPZ:QBE63-DP1	**QBE63-DP1**

Note on max. permissible pressure: pressure on one side

Differential pressure sensors for liquids and gase (0...10 V) QBE3000..

For slightly aggressive liquids and gases. With threaded connections G1/8".
Including mounting bracket and 2 screwed fittings for copper pipe, 6 mm dia.



Data sheet	N1922
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Medium temperature	-15...80 °C
Connection, electrical	Plug-in connection
Pressure conneciton	Internal thread G 1/8 "
Degree of protection	IP65

Not suitable for use with ammonia or freones.

Range overview QBE3000..

Measuring range, pressure	Max. permissible pressure [bar]	Stock No.	Product No.
0...1 bar 0...100 kPa	25	S55720-S173	**QBE3000-D1**
0...1.6 bar 0...160 kPa	25	S55720-S174	**QBE3000-D1.6**
0...2.5 bar 0...250 kPa	25	S55720-S175	**QBE3000-D2.5**
0...4 bar 0...400 kPa	25	S55720-S176	**QBE3000-D4**
0...6 bar 0...600 kPa	25	S55720-S186	**QBE3000-D6**
0...10 bar 0...1 MPa	50	S55720-S177	**QBE3000-D10**
0...16 bar 0...1.6 MPa	50	S55720-S178	**QBE3000-D16**

Note on max. permissible pressure: pressure on both sides.

QBE3100..

Differential pressure sensors for liquids and gase (4...20 mA)



For slightly aggressive liquids and gases. With threaded connections G1/8".
Including mounting bracket and 2 screwed fittings for copper pipe, 6 mm dia.

Data sheet	N1922
Operating voltage	DC 11...33 V
Analog output, signal	DC 4...20 mA
Medium temperature	-15...80 °C
Connection, electrical	Plug-in connection
Pressure conneciton	Internal thread G 1/8 "
Degree of protection	IP65

Not suitable for use with ammonia or freones.

Range overview QBE3100..

Measuring range, pressure	Max. permissible pressure [bar]	Stock No.	Product No.
0...1 bar 0...100 kPa	25	S55720-S179	**QBE3100-D1**
0...1.6 bar 0...160 kPa	25	S55720-S180	**QBE3100-D1.6**
0...2.5 bar 0...250 kPa	25	S55720-S181	**QBE3100-D2.5**
0...4 bar 0...400 kPa	25	S55720-S182	**QBE3100-D4**
0...6 bar 0...600 kPa	25	S55720-S187	**QBE3100-D6**
0...10 bar 0...1 MPa	50	S55720-S183	**QBE3100-D10**
0...16 bar 0...1,6 MPa	50	S55720-S184	**QBE3100-D16**

Note on max. permissible pressure: pressure on both sides.

Accessories for QBE63-DP.. and QBE3..

Product Title	Data sheet	Stock No.	Product No.
Connection kit to mount QBE63../64.., QBE3..	N1922	S55720-S117	**AQB2002**

Pressure sensor for refrigerants (0...10 V) — QBE2001-P..U

With internally threaded pressure connection UNF7/16-20.



Data sheet	N1907
Operating voltage	AC 24 V DC 16...33 V
Analog output, signal	DC 0...10 V
Connection, electrical	Cable
Connection cable	3-wire
Cable length	1.5 m
Pressure conneciton	Internal thread UNF7/16-20
Time constant	<2 ms
Medium temperature	-40...150 °C
Mounting position	Any
Degree of protection	IP67
Max. permissible pressure	3 x scale end value (FS)

For use with all media, including ammonia.

Range overview QBE2001-P..U

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	BPZ:QBE2001-P10U	**QBE2001-P10U**
-1...24 bar -100...2400 kPa	BPZ:QBE2001-P25U	**QBE2001-P25U**
-1...29 bar -100...2900 kPa	BPZ:QBE2001-P30U	**QBE2001-P30U**
-1...59 bar -100...5900 kPa	S55720-S171	**QBE2001-P60U**

Pressure sensors for refrigerants (4...20 mA) — QBE2101-P..U

With internally threaded pressure connection UNF7/16-20.



Data sheet	N1907
Operating voltage	DC 8...33 V
Analog output, signal	DC 4...20 mA
Connection, electrical	Cable
Connection cable	2-wire
Cable length	1.5 m
Pressure conneciton	Internal thread UNF7/16-20
Time constant	<2 ms
Medium temperature	-40...150 °C
Mounting position	Any
Degree of protection	IP67
Max. permissible pressure	3 x scale end value (FS)

Suitable for all media, including ammonia

Range overview QBE2101-P..U

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	BPZ:QBE2101-P10U	**QBE2101-P10U**
-1...24 bar -100...2400 kPa	BPZ:QBE2101-P25U	**QBE2101-P25U**
-1...29 bar -100...2900 kPa	BPZ:QBE2101-P30U	**QBE2101-P30U**
-1...59 bar -100...5900 kPa	S55720-S170	**QBE2101-P60U**

Accessories for QBE2001-P..U and QBE2101-P..U

Product Title	Data sheet	Stock No.	Product No.
Connection set, thread ½" for pressure sensor for refrigerant	N1907	BPZ:FT-PZ1	**FT-PZ1**

Flow sensor for liquids in DN 10...25 pipes

QVE2000.0..



For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1597
Operating voltage	DC 11.5....33 V
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE2000.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G½ "	1.8...32 l/min	S55720-S189	**QVE2000.010**
DN 15	G¾ "	3.5...50 l/min	S55720-S190	**QVE2000.015**
DN 20	G1 "	5.0...85 l/min	S55720-S191	**QVE2000.020**
Dn 25	G1¼ "	9.0...150 l/min	S55720-S192	**QVE2000.025**

Flow sensor for liquids in DN 10...25 pipes

QVE2100.0..



For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1597
Operating voltage	DC 18...33 V
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE2100.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G½ "	1.8...32 l/min	S55720-S193	**QVE2100.010**
DN 15	G¾ "	3.5...50 l/min	S55720-S194	**QVE2100.015**
DN 20	G1 "	5.0...85 l/min	S55720-S195	**QVE2100.020**
DN 25	G1¼ "	9.0...150 l/min	S55720-S196	**QVE2100.025**

QVE3000.0..

Flow sensor for liquids in DN 10...25 pipes



For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1598
Operating voltage	DC 11.5...33 V
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: red brass, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE3000.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G¾ "	1.8...32 l/min	S55720-S211	**QVE3000.010**
DN 15	G¾ "	3.5...50 l/min	S55720-S212	**QVE3000.015**
DN 20	G1 "	5.0...85 l/min	S55720-S213	**QVE3000.020**
DN 25	G1¼ "	9.0...150 l/min	S55720-S214	**QVE3000.025**

6

QVE3100.0..

Flow sensor for liquids in DN 10...25 pipes



For continuous flow measurement and monitoring of liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants

Data sheet	N1598
Operating voltage	DC 18...33 V
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Degree of protection	IP65
Material	Housing under pressure: red brass, Sensor: ETFE
Connection cable	2 m, with 3 pin plug M12x1

Range overview QVE3100.0..

Nominal size, piping	Connecting thread	Measuring range	Stock No.	Product No.
DN 10	G¾ "	1.8...32 l/min	S55720-S215	**QVE3100.010**
DN 15	G¾ "	3.5...50 l/min	S55720-S216	**QVE3100.015**
DN 20	G1 "	5.0...85 l/min	S55720-S217	**QVE3100.020**
DN 25	G1¼ "	9.0...150 l/min	S55720-S218	**QVE3100.025**

Flow switch for use in hydraulic systems, PN10, DN32...200 — QVE1900

For monitoring operation of systems using liquids or gases.



Data sheet	N1592
Digital outputs	1-pin Potential-free Changeover contact
Digital output, switching voltage	250 VAC
Digital output, switching current	15 (8) A
Nominal size, piping	DN32 - DN200
Connecting thread	R 1 " thread
PN class	PN 10
Medium temperature	-20...120 °C
Ambient temperature, operation	-20...85 °C
Material, valve body	Brass
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	108 x 70 x 132 mm

Stock No.	Product No.
BPZ:QVE1900	**QVE1900**

Flow switch for use in hydraulic systems, PN25, DN20...200 — QVE1901

For monitoring operation of systems using liquids or gases.



Data sheet	N1594
Digital outputs	1-pin Potential-free On / Off
Digital output, switching voltage	230 VAC, 48 VDC
Digital output, switching current	1 A
Nominal size, piping	DN20 - DN200
Connecting thread	G ½ " thread
PN class	PN 25
Medium temperature	-20...110 °C
Ambient temperature, operation	-20...80 °C
Material, valve body	Brass
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	120 x 38 x 92 mm
Additional info	Maximum switching capacity AC 26 VA, DC 20 W

Stock No.	Product No.
BPZ:QVE1901	**QVE1901**

QVE1902.0..

Flow switch for liquids in piping DN 10...25



For monitoring the flow of liquid medium in HVAC plants

Data sheet	N1596
Digital outputs	1-pin Potential-free reed contact
Digital output, switching voltage	AC 230 V, DC 48 V
Digital output, switching current	1 A
Medium temperature	-20...100 °C
Ambient temperature, operation	0...70 °C
Material, valve body	
Degree of protection	IP65
Additional info	Maximum switching capacity AC 26 VA, DC 20 W

Range overview QVE1902.0..

Nominal size, piping	Connecting thread	Qmax	Stock No.	Product No.
DN 10	G⅜ "	20 l/min	S55720-S199	**QVE1902.010**
DN 15	G½ "	30 l/min	S55720-S200	**QVE1902.015**
DN 20	G¾ "	80 l/min	S55720-S201	**QVE1902.020**
DN 25	G1 "	130 l/min	S55720-S202	**QVE1902.025**

Duct sensor for air velocity

QVM62.1



For measuring air velocities or volumetric flow in air ducts. Suited for primary plant (presetting the volumetric flow).

Data sheet	N1932
Operating voltage	AC / DC 24 V
Analog output, signal	DC 0...10 V DC 4...20 mA
Power consumption	5 VA
Cable length	1 m
Measuring range	0...10 m/s 0...15 m/s 0...5 m/s
Measurement accuracy	At 20 °C, 45 % r.h., 1013 hPa: ±0.65 m/s
Immersion length	30...300 mm
Connection, electrical	Screw terminals
Degree of protection	IP42

Sensor detached, ready wired, including pipe extension for different immersion lengths and mounting flange.

	Stock No.	Product No.
	BPZ:QVM62.1	**QVM62.1**

6

QLS60

Solar sensor



For measuring the solar radiation intensity.

Data sheet	N1943
Operating voltage	AC 24 V DC 18...30 V
Power consumption	2.5 VA
Analog output, signal	DC 0...10 V DC 4...20 mA
Measuring range	0...1000 W/m²
Time constant	≤2 s
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	51 x 92 x 46 mm

Stock No.	Product No.
BPZ:QLS60	**QLS60**

6

Valves and actuators



Overview and selection guides	Product overviews and application recommendations			7-2
Actuators for globe and pressure independent combi valves	Thermostatic head		RTN..	7-27
	Electrothermal		STA..3, STP..3	7-28
	Electromotoric		SSA.., SFP21.., SFP71.., SSA31.04, SUA21/1, SSP.., SFA21.., SFA71.., SSB.., SSD.., SSY.., SSC.., SQS.., SQD.., SAX.., SBX.., SBV..	7-34
	Electrohydraulic		SKB.., SKD.., SKC..	7-56
Globe and pressure independent combi valves	PN6...PN40	2-port flanged valves	VVF..,MVF461H.., MK..	7-63
	PN16/25	2-port threaded valves	VDN.., VEN.., VUN.., ADN.. , AEN.., VD1..CLC, VVP.., VVI.., MVI421.., VVG..	7-92
	Threaded fittings for valves 2-port		ALG.., ALS..	7-118
	PN6...PN40	3-port flanged valves	VXF.., MXF461.., M3P..FY	7-120
	PN16	3-port threaded valves 3-port threaded valves with bypass	VXP.., VMP.., VXI.., MXI421..,VXG..	7-140
	PN16	2-port and 3-port threaded valves with magnetic actuators	MXG461.., MXG461B.., MXG461S.., MXG462S..	7-157
	Threaded fittings for valves 3-port		ALG..	7-163
	PN16/25	Combi valves	VPF43.., VPF53..	7-164
	PN10	Mini Combi Valve (MCV)	VPD.. / VPE..	7-168
	PN25	Combi valves	VPP46.., VPI46.., VPI45..	7-171
Actuators for rotary valves	2..35Nm	Rotary actuators for ball valves with or without spring return	GQD..9A, GSD..9A, GDB..9E, GMA..9E, GLB..9E, GBB..1E, GIB..1E	7-177
		Rotary actuators for butterfly and slipper valve	SAL.., SQK.., SQL.., SQL..B.., SQL36..	7-184
Rotary valves	PN40	2-port / 3-port ball valves	VAI61.., VBI61, VAI60, VBI60	7-191
	PN6/PN10	3-port / 4-port slipper valves	VBF21.., VBG31.., VBI31.., VCI31	7-200
	PN6...PN16	Butterfly valves	VKF41.., VKF42.., VKF46..	7-205
Refrigerant valves	For expansion, hotgas and suction throttle applications		MVL661.., MVS661..N..	7-211
	2-port modulating pilot valve		M2FP..	7-213
	For refrigeration units and heat recovery		M3FB..LX..	7-214
	For condensate control		M3FK..LX	7-215

										Recommended media																		
		2-port valve	3-port valve	4-port valve	PN class	Type of connection	Silicon-free grease	Closed circuits	Open circuits	Chilled water	Cooling water [2]	Drinking water	Low temperature hot water	High temperature hot water	Water with anti-freeze [3]	Brines	Saturated steam	Superheated steam	Heat transfer oil	Media containing mineral oils	Mineral oil SAE05 ... SAE50	Diesel fuels based on mineral oil	Safety refrigerants	R744 (CO_2)	R717 (ammonia)	Air
Central HVAC plants	M3P..FY	■	■		16	F		■		■			■		■												
	M3P..FYP	■	■		16	F		■											■	■	■	■					
	MXF461..	■	■		16	F		■		■			■		■												
	MXF461..P	■	■		16	F		■											■	■	■	■					
	MXG461..	■	■		16	ET		■		■			■		■												
	MXG461B..	■	■		16	ET		■	■	■	■	■	■		■												
	MXG461..P	■	■		16	ET		■											■	■	■	■					
	MXG461S..	■	■		16	ET		■	■	■	■		■		■												
	MXG462S..	■	■		16	ET		■	■	■	■		■		■												
	MVF461H..	■			16	F		■		■			■	■	■		■	■									
	VAI60..	■			40	IT	■	■		■			■	■	■												
	VAI61..	■			40	IT	■	■		■			■	■	■												
	VBF21..		■		6	F		■					■	■													
	VBG31..		■		10	ET		■					■	■													
	VBI31..		■		10	IT		■					■	■													
	VBI60..		■		40	IT	■	■		■			■	■	■												
	VBI61..		■		40	IT	■	■		■			■	■	■												
	VCI31..			■	10	IT		■					■	■													
	VKF41..	■			16	F		■		■			■	■	■	■											
	VKF46..	■			16	F		■	■	■	■		■		■	■											■
	VPF43...	■			16	F	■	■		■			■	■	■												
	VPF53...	■			25	F	■	■		■			■	■	■												
	VVF21..	■			6	F	■	■		■			■	■	■	■											
	VVF31..	■			10	F	■	■		■			■	■	■	■											
	VVF40..	■			16	F	■	■		■			■	■	■	■											
	VVF43..	■			16	F	■	■	■	■	■		■	■	■	■	■	■	■								
	VVF53..	■			25	F	■	■	■	■	■		■	■	■	■	■	■	■								
	VVF61..	■			40	F		■	■	■	■		■	■	■	■	■	■	■								
	VVF61..2	■			40	F		■											■								
	VVG41..	■			16	ET	■	■	■	■	■		■	■	■	■	■	■									
	VVG44..	■			16	ET	■	■		■			■		■												
	VVG55..	■			25	ET	■	■		■			■	■	■												
	VXF21..		■		6	F	■	■		■			■	■	■	■											
	VXF31..		■		10	F	■	■		■			■	■	■	■											
	VXF40..		■		16	F	■	■		■			■	■	■	■											
	VXF43..		■		16	F	■	■	■	■	■		■	■	■	■			■								
	VXF53..		■		25	F	■	■	■	■	■		■	■	■	■			■								
	VXF61..		■		40	F		■	■	■	■		■	■	■	■			■								
	VXF61..2		■		40	F		■											■								
	VXG41..		■		16	ET	■	■	■	■	■		■	■	■	■											
	VXG41..01 [1]		■		16	ET	■	■	■	■	■	■	■	■	■	■											
	VXG44..		■		16	ET	■	■		■			■		■												
Room and zone applications	VD1..CLC	■			10	ET		■		■			■		■												
	VDN../VEN../VUN..	■			10	ET		■		■			■		■												
	VMP45..		■		16	ET		■		■			■		■												
	VMP47..		■		16	ET		■		■			■		■												
	VPD../VPE..	■			10	ET		■		■			■		■												
	VPI45.. [4]	■			25	IT		■		■			■		■												
	VPI46.. [4]	■			25	IT		■		■			■		■												
	VPP46.. [4]	■			25	ET		■		■			■		■												
	VVI46..	■			16	IT		■		■			■		■												
	VVP45..	■			16	ET		■		■			■		■												
	VVP47..	■			16	ET		■		■			■		■												
	VXI46..		■		16	IT		■		■			■		■												
	VXP45..		■		16	ET		■		■			■		■												
	VXP47..		■		16	ET		■		■			■		■												
Refrigeration systems	M2FP03GX				32	–		■															■		■		
	M3FB..LX..		■		PS 43	S		■															■				
	M3FK..LX..		■		32	S		■															■				
	MVL661..	■			PS 45	S		■															■	■			
	MVS661..N	■			PS 53	W		■															■	■	■		

Recommendation: Water treatment according to VDI 2035

[1] Sealed bypass

[2] Open circuits

[3] E.g. ethylene and propylene glycols

[4] As zone valve for floor heating systems

[5] Not for drinking water circuit (open circuit)

IT = internally threaded connection, ET = externally threaded connection, F = flanged connection, S = soldered connection, W = welded connection

Permissible medium temperature [°C]																		Generation				Distribution			Consumption/Use							
-40	-25	-20	-10	0	1	...	90	100	110	120	130	150	180	220	350	Boiler plants	District heating	Chiller plants	Cooling towers [2]	Domestic hot water (DHW) [5]	Heating groups	Air handling units	Floor heating	Radiators	Zone control	Fan coil units	Chilled ceilings	Variable air volume (VAV)		
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	M3P.. FY	Central HVAC plants
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	M3P.. FYP	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXF461..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXF461..P	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXG461..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXG461B..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXG461..P	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXG461S..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MXG462S..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MVF461H..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VAI60..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VAI61..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VBF21..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VBG31..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VBI31..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VBI60..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VBI61..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VCI31..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VKF41..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VKF46..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPF43...	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPF53...	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF21..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF31..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF40..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF43..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF53..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF61..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVF61..2	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVG41..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVG44..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VVG55..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF21..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF31..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF40..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF43..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF53..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF61..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXF61..2	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXG41..	
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■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXG44..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VD1..CLC	Room and zone applications
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VDN../VEN../VUN..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VMP45..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VMP47..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPD../VPE..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPI45.. [4]	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPI46.. [4]	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VPP46.. [4]	
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■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	VXP47..	
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	M2FP03GX	Refrigeration systems
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	M3FB..LX..	
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■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	MVS661..N	

7

TRV line

Typical applications	Actuators	Data sheet	RTN51 / RTN51G	RTN71	RTN81
– Radiators	RTN..	N2111			

Typical applications	Actuators	Data sheet	Operating voltage	Positioning signal	Positioning time [s]	Spring return function	RTN51 / RTN51G	RTN71	RTN81
– Radiators	STA23../73../63..	N4884					4.5 mm 100 N	2.5 mm 100 N	4.5 mm 90 N
	SSA..	N4893							
			AC 230 V	2-position	210	✓	STA23	–	STA23HD [1]
				3-position	150	–	–	SSA31	–
			AC 24 V	3-position	150	–	–	SSA81	–
				0...10 V	30	✓	STA63	–	–
			AC/DC 24 V	2-position/PDM	270	✓	STA73	–	STA73HD [1]
				0...10 V	34	–	–	SSA61	–
		Normally open/normally closed (for radiator valves)					NC	–	–

PN 10 1...120 °C	DIN	NF	DN	Rp/R [inch]	k_v [m³/h]	Δp_{max} [kPa]
Data sheet	N2105	N2106				
	VDN110	VDN210	10	Rp/R ⅜	0.09...0.63	60
	VDN115	VDN215	15	Rp/R ½	0.10...0.89	60
	VDN120	VDN220	20	Rp/R ¾	0.31...1.41	60
	VEN110	VEN210	10	Rp/R ⅜	0.09...0.63	60
	VEN115	VEN215	15	Rp/R ½	0.10...0.89	60
	VEN120	VEN220	20	Rp/R ¾	0.31...1.41	60
	–	VUN210	10	Rp/R ⅜	0.14...0.60	60
	–	VUN215	15	Rp/R ½	0.13...0.77	60

PN 10 1...110 °C		DN	Rp/R [inch]	k_v [l/h]	Δp_{max} [kPa]
Data sheet	N2103				
	VD115CLC	15	Rp/R ½	0.25...1.9	150
	VD120CLC	20	Rp/R ¾	0.25...2.6	150
	VD125CLC	25	Rp/R 1	0.25...2.6	150

Presettings for radiator valves VEN.., VDN.., VUN..

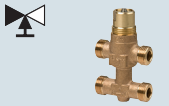
k_v values [m³/h] at the different preadjusted positions

Control range with electromotoric and electrothermic actuators SSA.., STA.. 	■	■	■	■	■	■	–
Control range with thermostatic head RTN.. 	■	■	■	■	■	–	■
Reference numbers for preadjustment	1	2	3	4	5	N	N
VDN110/VDN210/VEN110/VEN210	0.09	0.18	0.26	0.33	0.48	0.63	0.43
VDN115/VDN215/VEN115/VEN215	0.1	0.2	0.31	0.45	0.69	0.89	0.52
VDN120/VDN220/VEN120/VEN220	0.31	0.41	0.54	0.83	0.91	1.41	0.71
VUN210	0.14	0.28	0.38	0.49	0.53	0.6	0.43
VUN215	0.13	0.23	0.34	0.52	0.66	0.77	0.5

[1] Optimized for floor heating systems
k_v = nominal flow rate of cold water (5...30 °C) through the valve at the respective stroke and a differential pressure of 100 kPa (1 bar)
The selected k_v values of the radiator valves can be easily and precisely set on the valve head in 5 steps + N (fully open)

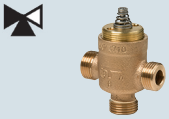
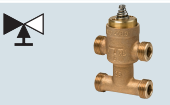
Elite line

Typical applications	Actuators	Data sheet				5.5 mm	
– Terminal units – Induction units – Chilled ceilings	SSB..	N4891				200 N 	200 N 
	Operating voltage	Positioning signal	Positioning time [s]	Auxiliary switch			
	AC 230 V	3-position	150	–	✓	SSB31	SSB31.1
	AC 24 V	3-position	150	–	✓	SSB81	SSB81.1
	AC/DC 24 V	0...10 V	75	–	–	SSB61	–

PN 16 Data sheet	1...110 °C N4845	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
	VVP45.10-..	10	G ½B	0.25 / 0.4 / 0.63	725	400
	VVP45.10-..	10	G ½B	1 / 1.6	725	400
	VVP45.15-2,5	15	G ¾B	2.5	350	350
	VVP45.20-4	20	G 1B	4	350	350
	VVP45.25-6,3	25	G 1¼B	6.3	300	300
	VXP45.10-..	10	G ½B	0.25 / 0.4 / 0.63	–	400
	VXP45.10-..	10	G ½B	1 / 1.6	–	400
	VXP45.15-2,5	15	G ¾B	2.5	–	350
	VXP45.20-4	20	G 1B	4	–	350
	VXP45.25-6,3	25	G 1¼B	6,3	–	300
	VMP45.10-..	10	G ½B	0.25 / 0.4	–	400
	VMP45.10-..	10	G ½B	0.63 / 1	–	400
	VMP45.10-1,6	10	G ½B	1.6	–	400
	VMP45.15-2,5	15	G ¾B	2.5	–	350
	VMP45.20-4	20	G 1B	4	–	350

Standard line

Typical applications	Actuators	Data sheet			4.5 mm	2.5 mm	
– Terminal units – Induction units – Chilled ceilings	STP23../73../63.. SFP.. SSP..	N4884 N4865 N4864			100 N 	135 N 	160 N 
	Operating voltage	Positioning signal	Positioning time [s]	Spring return function			
	AC 230 V	2-position	210	✓	STP23	–	–
		2-position	10	✓	–	SFP21/18	–
		3-position	150	–	–	–	SSP31
	AC 24 V	2-position	10	✓	–	SFP71/18	–
		3-position	43	–	–	–	SSP81.04
		3-position	150	–	–	–	SSP81
		0...10 V	30	✓	STP63	–	–
	AC/DC 24 V	2-position/PDM	270	✓	STP73	–	–
		0...10 V	34	–	–	–	SSP61

PN 16 Data sheet	1...110 °C N4847	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kP a]	Δp_s [kPa]	Δp_{max} [kPa]
	VVP47.10-..	10	G ½B	0.25 / 0.4	700	400	1000	400
	VVP47.10-..	10	G ½B	0.63 / 1	250	250	500	400
	VVP47.10-1,6	10	G ½B	1.6	150	150	300	300
	VVP47.15-2,5	15	G ¾B	2.5	150	150	300	300
	VVP47.20-4	20	G 1B	4	100	100	175	175
	VXP47.10-..	10	G ½B	0.25 / 0.4	–	400	–	400
	VXP47.10-..	10	G ½B	0.63 / 1	–	250	–	400
	VXP47.10-1,6	10	G ½B	1.6	–	150	–	300
	2,5VXP47.15-4	15	G ¾B	2.5	–	150	–	300
	VXP47.20-..	20	G 1B	4	–	100	–	175
	VMP47.10-..	10	G ½B	0.25 / 0.4	–	400	–	400
	VMP47.10-..	10	G ½B	0.63 / 1	–	250	–	400
	VMP47.10-1,6	10	G ½B	1.6	–	150	–	300
	VMP47.15-2,5	15	G ¾B	2.5	–	150	–	300

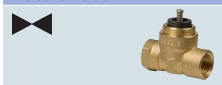
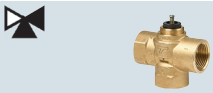
Union nuts for threaded valves

Union nuts for threaded valves	See page 15

VVP45...N with Serto compression fittings, k_{vs} = 2,5/4/6,3
VVP45..S, VMP45..S with Conex® compression fittings, k_{vs} = 0.63 / 1 / 1.6 / 2.5 m³/h
VVP47..S, VMP47..S with Conex® compression fittings, k_{vs} = 0.63 / 1 / 1.6 / 2.5 m³/h
.. = k_{vs} value

On/Off line

Typical applications	Actuators	Data sheet	Actuators	Data sheet	2.5 mm		4.5 mm	2.5 mm
– Terminal units – Domestic hot water storage tank charging – Zone control	**SFA..** **SUA21/1** **STA21../73../63..**	N4863 N4830 N4884	**SSA31.04** [1]	N4860	200 N 	150 N 	100 N 	160 N 
	Operating voltage	**Positioning signal**	**Positioning time [s]**	**Spring return function**				
	AC 230 V	2-position	10	✓	**SFA21/18**	–	–	–
		2-position	210	✓	–	–	**STA23**	–
		2-position/SPST [2]	10	–	–	**SUA21/1**	–	–
		3-position/SPDT [2]	43	–	–	–	–	**SSA31.04**
	AC 24 V	2-position	10	✓	**SFA71/18**	–	–	–
		0...10 V	30	✓	–	–	**STA63**	–
	AC/DC 24 V	2-position/PDM	270	✓	–	–	**STA73**	–

PN 16	1...110 °C	DN	Rp [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4842									
	**VVI46.15**	15	Rp ½	2	300	300	300	300	200	200
	VVI46.20	20	Rp ¾	3.5	300	300	300	300	200	200
	VVI46.25	25	Rp 1	5	300	300	250	250	200	200
	**VXI46.15** [3]	15	Rp ½	2	–	300	–	300	–	200
	VXI46.20 [3]	20	Rp ¾	3.5	–	300	–	300	–	200
	VXI46.25 [3]	25	Rp 1	5	–	300	–	300	–	200
	VXI46.25T [4]	25	Rp 1	5	–	200	–	200	–	200

Thermal actuators and connecting cables for combinable range, STx..3..

Color		White						Black		
Equipped with		–	Function module DC 0...10 V		Auxiliary switch for STA	Auxiliary switch for STP	LED	–	Function module DC 0...10 V	
Positioning signal		2-position (ON/OFF)	DC 0...10 V	DC 0...10 V	2-position (ON/OFF)	2-position (ON/OFF)	2-position (ON/OFF)	2-position (ON/OFF)	DC 0...10 V	DC 0...10 V
		[STA.., NC]	[STA.., NC]	–	[STA.., NC]	–	[STA.., NC]	[STA.., NC]	[STA.., NC]	–
		[STP..., NO]	–	[STP.., NO]	–	[STP.., NO]	[STP.., NO]	[STP.., NO]	–	[STP.., NO]
Standard PVC cables	0.8 m	**ASY23L08**								
	1 m	**ASY23L10**			**ASA23U10**	**ASP23U10**				
	2 m	**ASY23L20**	**ASY6AL20**	**ASY6PL20**	**ASA23U20**	**ASP23U20**	**ASY23L20LD**		**ASY6AL20B**	**ASY6PL20B**
	3 m	**ASY23L30**						**ASY23L30B**		
	4 m	**ASY23L40**								
	5 m	**ASY23L50**	**ASY6AL50**	**ASY6PL50**			**ASY23L50LD**	**ASY23L50B**	**ASY6AL50B**	
	6 m	**ASY23L60**								
	7 m	**ASY23L70**	**ASY6AL70**	**ASY6PL70**					**ASY6AL70B**	
	10 m	**ASY23L100**						**ASY23L100B**		
	15 m	**ASY23L150**								
Halogen-free cables	2 m	**ASY23L20HF**	**ASY6AL20HF**	**ASY6PL20HF**						
	5 m	**ASY23L50HF**	**ASY6AL50HF**	**ASY6PL50HF**						
	7 m		**ASY6AL70HF**	**ASY6PL70HF**						
	10 m	**ASY23L100HF**								

Actuator									
STA73/00	■	■		■		■			
STA23/00	■			■					
STP73/00	■		■		■	■			
STP23/00	■				■				
STA73PR/00 [5]	■			■		■			
STP73PR/00 [5]	■				■	■			
STA73MP/00 [6]	■	■		■		■			
STA23MP/00 [6]	■			■					
STA73B/00							■	■	
STA23B/00							■		
STP73B/00							■		■
STP23B/00							■		

[1] Not suited for radiator valves
[2] SPST = single-pole single-throw, SPDT = single-pole double-throw
[3] 70% k_{vs} in bypass, leakage rate in bypass 2...5% of k_{vs} value
[4] 100% k_{vs} in bypass, leakage rate in bypass 0.05% of k_{vs} value. **For noiseless operation, the value of 100 kPa should not be exceeded.**
[5] Actuators ideal for parallel running. Pulse duration modulation (PDM) in connection with Siemens room controllers of the Desigo™ range and room thermostats.
[6] Multipack with 50 actuators (OEM) NC: normally closed, NO: normally open

Threaded combi valves with actuators

Typical applications	Actuators	Data sheet								
– Radiators	RTN.. STA23.. /73../63.. SSA..	N2111 N4884 N4893							4.5 mm 100 N	2.5 mm 100 N
	Operating voltage	Positioning signal	Positioning time [s]	Spring return function						
	AC 230 V	2-position	210	✓				–	STA23	–
		3-position	150	–				–	–	SSA31
	AC 24 V	3-position	150	–				–	–	SSA81
		0...10 V	30	✓				–	STA63	–
	AC/DC 24 V	2-position / PDM	270	✓				–	STA73	–
		0...10 V	34	–				–	–	SSA61
								RTN51	–	–
								RTN71	–	–
								RTN81	–	–

PN 10 1...90 °C	DIN	DN	Rp/R	V	V_{nom} [1]			Δp_{min} [kPa]			Δp_{max}
Data sheet	N2185		[inch]	[l/h]	[l/h]			[kPa]			[kPa]
	VPD110A-..[1]	10	Rp/R ⅜	25...318	45	90	145	6 [2]	8 [2]	10 [2]	60
	VPD115A-..[1]	15	Rp/R ½	25...318	45	90	145	6 [2]	8 [2]	10 [2]	60
	VPD110B-200	10	Rp/R ⅜	95...483	200				20		60
	VPD115B-200	15	Rp/R ½	95...483	200				20		60
	VPE110A-..[1]	10	Rp/R ⅜	25...318	45	90	145	6 [2]	8 [2]	10 [2]	60
	VPE115A-..[1]	15	Rp/R ½	25...318	45	90	145	6 [2]	8 [2]	10 [2]	60
	VPE110B-200	10	Rp/R ⅜	95...483	200				20		60
	VPE115B-200	15	Rp/R ½	95...483	200				20		60

Typical applications	Actuators	Data sheet		Spring return function	4.5 mm 100 N	2.5 / 5 mm 100 N
– Terminal units – Air handling units – Chilled ceilings	SSA.. STA.. SFA.. SUA..	N4893 N4884 N4863 N4830				
	Operating voltage	Positioning signal	Positioning time [s]			
	AC 230 V	3-position	150/300	–	–	SSA31
		2-position	210	✓	STA23	–
		2-position	10	✓	–	–
		2-position/SPST [3]	10	–	–	–
	AC 24 V	2-position	10	✓	–	–
		0...10 V	30	✓	STA63	–
	AC/DC 24 V	3-position	150/300	–	–	SSA81
		2-position/PDM	270	✓	STA73	–
		0...10 V	34/70	–	–	SSA61

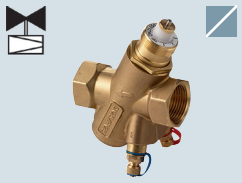
PN 25 1...110 °C	Without pressure testing points	With pressure testing points	DN	G [inch]	V_{min} [l/h]	V_{100} [l/h]	Δp_{min} [kPa]	Δp_{min} [kPa]	Δp_{max} [kPa]
Data sheet	N4855								
	VPP46.10L0.2	**VPP46.10L0.2Q**	10	½	30	200	15	15	400
	VPP46.15L0.2	**VPP46.15L0.2Q**	15	¾	30	200	15	15	400
	VPP46.15L0.6	**VPP46.15L0.6Q**	15	¾	100	575	15	15	400
	VPP46.20F1.4	**VPP46.20F1.4Q**	20	1	220	1330	–	20	400

PN 25 1...110 °C	Without pressure testing points	With pressure testing points	DN	G [inch]	V_{min} [l/h]	V_{100} [l/h]	Δp_{min} [kPa]	Δp_{min} [kPa]	Δp_{max} [kPa]
Data sheet	N4855								
	VPI46.15L0.2	**VPI46.15L0.2Q**	15	½	30	200	15	15	400
	VPI46.15L0.6	**VPI46.15L0.6Q**	15	½	100	575	15	15	400
	VPI46.20F1.4	**VPI46.20F1.4Q**	20	¾	220	1330	–	20	400

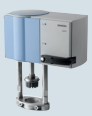
[1] .. = insert V_{nom}
V_{nom} = factory setting = volumetric flow at 0.5 mm stroke or setting mark 3 of the presetting
[2] Δp_{min} is valid for V_{nom} 45/90/145 l/h
[3] SPST = single-pole single-throw

Threaded combi valves with actuators

Typical applications	Actuators	Data sheet					5.5 mm	6.5 mm
– Terminal units – Air handling units – Chilled ceilings	SSD.. SQD..	N4861 N4540					250 N	400 N
								
	Operating voltage	Positioning signal	Positioning time [s]		Spring return function			
			SSD..	SQD..	SSD..	SQD..		
	AC 230 V	3-position	150	170	–	–	**SSD31**	**SQD35.00**
	AC 24 V	3-position	150	43	–	–	**SSD81**	**SQD85.03**
		0...10 V	–	43	–	–	**–**	**SQD65**
	AC/DC 24 V	0...10 V	75	–	–	–	**SSD61**	**–**
		0...10 V	75	–	–	–	**SSD61EP** [1]	**–**
		2...10 V	75	–	–	–	**SSD61.2**	**–**

PN 25 1...120 °C	Without preassure testing points	With pressure testing points	DN	Rp [inch]	V_{min} [l/h]	V_{100} [l/h]	Δp_{min} [kPa]	Δp_{max} [kPa]	Δp_{min} [kPa]	Δp_{max} [kPa]
Data sheet	N4853									
	**VPI45.15F0.5**	**VPI45.15F0.5Q**	15	Rp ½	90	620	16	400	–	–
	VPI45.15F1.5	**VPI45.15F1.5Q**	15	Rp ½	290	1730	18	400	–	–
	VPI45.20F0.9	**VPI45.20F0.9Q**	20	Rp ¾	160	1050	16	400	–	–
	VPI45.20F2	**VPI45.20F2Q**	20	Rp ¾	350	2040	22	400	–	–
	VPI45.25F1.5	**VPI45.25F1.5Q**	25	Rp 1	280	1720	16	400	–	–
	VPI45.25F2	**VPI45.25F2Q**	25	Rp 1	350	2040	22	400	–	–
	VPI45.32F3	**VPI45.32F3Q**	32	Rp 1¼	560	3050	18	400	–	–
	VPI45.40F7	**VPI45.40F7Q**	40	Rp 1½	2355	7105	–	–	26	400
	VPI45.50F8.5	**VPI45.50F8.5Q**	50	Rp 2	2664	8586	–	–	32	400

Flanged combi valves with actuators

Typical applications	Actuators	Data sheet					Spring return function (30 sec)	800 N	1100 N
– Heating plants – Ventilation plants – Air conditioning plants	SAX..P.. SQV91P..	N4509 N4833							
	Operating voltage	Positioning signal	Positioning time [s]		Stroke [mm]				
			SAX	SQV	SAX	SQV			
	AC 230 V	3-position	30	–	20	–	–	**SAX31P03**	**–**
		3-position	–	40/80	–	20/40	✓	**–**	**SQV91P40** [2]
		3-position	–	40/80	–	20/40	✓	**–**	**SQV91P30** [2]
	AC/DC 24 V	3-position	30	–	20	–	–	**SAX81P03**	**–**
		3-position	–	40/80	–	20/40	✓	**–**	**SQV91P40**
		3-position	–	40/80	–	20/40	✓	**–**	**SQV91P30**
		0...10 V, 4...20 mA	30	–	20	–	–	**SAX61P03**	**–**
		0...10 V, 4...20 mA	–	40/80	–	20/40	✓	**–**	**SQV91P40**
		0...10 V, 4...20 mA	–	40/80	–	20/40	✓	**–**	**SQV91P30**

PN 16	1...120 °C	DN	V_{min} [m³/h]	V_{100} [m³/h]	Δ_{min} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4315								
	**VPF43.50F16**	50	2.3	15	35	600	600	600	600
	VPF43.50F25	50	4.3	25	70	600	600	600	600
	VPF43.65F24	65	4.4	24	35	600	600	600	600
	VPF43.65F35	65	6	35	70	600	600	600	600
	VPF43.80F35	80	5.3	34	35	600	600	600	600
	VPF43.80F45	80	7	43	70	600	600	600	600
PN 25	1...120 °C	DN	V_{min} [m³/h]	V_{100} [m³/h]	Δ_{min} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4316								
	**VPF53.50F16**	50	2.3	15	35	600	600	600	600
	VPF53.50F25	50	4.3	25	70	600	600	600	600
	VPF53.65F24	65	4.4	24	35	600	600	600	600
	VPF53.65F35	65	6	35	70	600	600	600	600
	VPF53.80F35	80	5.3	34	35	600	600	600	600
	VPF53.80F45	80	7	43	70	600	600	600	600

[1] For equal-percentage valve characteristic

[2] For AC 230 V use of accessorie ASP1.1 required

Flanged 2-port and 3-port valves with 20/40 mm actuators

Typical applications	Actuators	Data sheet				Spring return function	20 mm			40 mm
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	SAX.. SKD.. SKB.. SKC..	N4501 N4561 N4564 N4566					800 N	1000 N	2800 N	2800 N
	Operating voltage	Positioning signal	Positioning time [s] SAX	SKD	SKB/SKC					
	AC 230 V	3-position	120	120	120	–	SAX31.00	SKD32.50	SKB32.50	SKC32.60
		3-position	–	120	120	✓	–	SKD32.51	SKB32.51	SKC32.61
		3-position	30	–	–	–	SAX31.03	–	–	–
		3-position	–	30	–	✓	–	SKD32.21	–	–
	AC 24 V [1]	3-position	120	120	120	–	SAX81.00	SKD82.50	SKB82.50	SKC82.60
		3-position	–	120	120	✓	–	SKD82.51	SKB82.51	SKC82.61
		3-position	30	–	–	–	SAX81.03	–	–	–
		0...10 V, 4...20 mA	–	30	120	–	–	SKD60	SKB60	SKC60
		0...10 V, 4...20 mA	–	30	120	✓	–	SKD62	SKB62	SKC62
	AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	SAX61.03	–	–	–

PN 6	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4310		N4410										
	VVF21.22..25 [2]		VXF21.22..25 [2]	25	1.9 / 3 / 5 / 7.5	600	300	600	300	600	300	–	–
	VVF21.25-.. [3]		VXF21.25-.. [3]	25	2.5 / 4 / 6.3 / 10	600	300	600	300	600	300	–	–
	VVF21.39..40 [2]		VXF21.39..40 [2]	40	12 / 19	500	300	600	300	600	300	–	–
	VVF21.40-..		VXF21.40-..	40	16 / 25	500	300	600	300	600	300	–	–
	VVF21.50		VXF21.50	50	31	300	300	450	300	600	300	–	–
	VVF21.50-40		VXF21.50-40	50	40	300	300	450	300	600	300	–	–
	VVF21.65		VXF21.65	65	49	175	175	275	275	600	300	–	–
	VVF21.65-63		VXF21.65-63	65	63	175	175	275	275	600	300	–	–
	VVF21.80		VXF21.80	80	78	100	100	175	175	500	300	–	–
	VVF21.80-100		VXF21.80-100	80	100	100	100	175	175	500	300	–	–
	VVF21.90		VXF21.90	100	124	–	–	–	–	–	–	300	200
	VVF21.100-160		VXF21.100-160	100	160	–	–	–	–	–	–	300	200

PN 10	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4320		N4420										
	VVF31.15-.. [3]		VXF31.15-.. [3]	15	2.5 / 4	1000	300	1000	300	1000	300	–	–
	VVF31.24..25 [2]		VXF31.24..25 [2]	25	5 / 7.5	1000	300	1000	300	1000	300	–	–
	VVF31.25-..		VXF31.25-..	25	6.3 / 10	1000	300	1000	300	1000	300	–	–
	VVF31.39..40 [2]		VXF31.39..40 [2]	40	12 / 19	525	300	775	300	1000	300	–	–
	VVF31.40-..		VXF31.40-..	40	16 / 25	525	300	775	300	1000	300	–	–
	VVF31.50		VXF31.50	50	31	325	300	475	300	1000	300	–	–
	VVF31.50-40		VXF31.50-40	50	40	325	300	475	300	1000	300	–	–
	VVF31.65		VXF31.65	65	49	175	175	275	275	750	300	–	–
	VVF31.65-63		VXF31.65-63	65	63	175	175	275	275	750	300	–	–
	VVF31.80		VXF31.80	80	78	100	100	175	175	500	300	–	–
	VVF31.80-100		VXF31.80-100	80	100	100	100	175	175	500	300	–	–
	VVF31.90		VXF31.90	100	124	–	–	–	–	–	–	300	200
	VVF31.100-160		VXF31.100-160	100	160	–	–	–	–	–	–	300	200
	VVF31.91		VXF31.91	125	200	–	–	–	–	–	–	200	150
	VVF31.125-250		VXF31.125-250	125	250	–	–	–	–	–	–	200	150
	VVF31.92		VXF31.92	150	300	–	–	–	–	–	–	125	100
	VVF31.150-315		VXF31.150-315	150	315	–	–	–	–	–	–	125	100

[1] SAX81..: AC/DC 24 V; [2] For 22...25, 24...25, 39...40 = insert number in place of k_{vs} value; [3] .. = insert k_{vs} value
VVF43.., VXF43..: For DN 15...50 and k_{vs} value ≤ 40 m³/h see V..F53..

Flanged 2-port and 3-port valves with 20/40 mm actuators

Typical applications	Actuators	Data sheet				Spring return function	20 mm			40 mm
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	SAX.. SKD.. SKB.. SKC..	N4501 N4561 N4564 N4566					800 N	1000 N	2800 N	2800 N
	Operating voltage	Positioning signal	Positioning time [s] SAX	SKD	SKB/SKC					
	AC 230 V	3-position	120	120	120	–	**SAX31.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
		3-position	–	120	120	✓	–	**SKD32.51**	**SKB32.51**	**SKC32.61**
		3-position	30	–	–	–	**SAX31.03**	–	–	–
		3-position	–	30	–	✓	–	**SKD32.21**	–	–
	AC 24 V [1]	3-position	120	120	120	–	**SAX81.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
		3-position	–	120	120	✓	–	**SKD82.51**	**SKB82.51**	**SKC82.61**
		3-position	30	–	–	–	**SAX81.03**	–	–	–
		0...10 V, 4...20 mA	–	30	120	–	–	**SKD60**	**SKB60**	**SKC60**
		0...10 V, 4...20 mA	–	30	120	✓	–	**SKD62**	**SKB62**	**SKC62**
	AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	**SAX61.03**	–	–	–

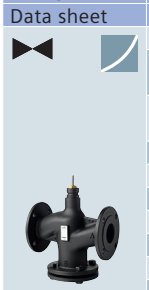
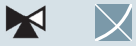
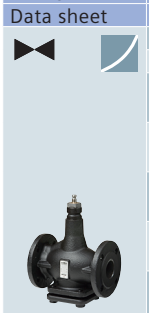
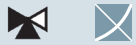
PN 16	-10...150 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4330		N4430										
	VVF40.15-.. [3]		**VXF40.15-..** [3]	15	1.9 / 2.5 / 3 / 4	1600	300	1600	300	1600	300	–	–
	VVF40.25-..		**VXF40.25-..**	25	5 / 6.3 / 7.5 / 10	1550	300	1600	300	1600	300	–	–
	VVF40.40-..		**VXF40.40-..**	40	12 / 16 / 19 / 25	525	300	775	300	1600	300	–	–
	VVF40.50-..		**VXF40.50-..**	50	31 / 40	325	300	475	300	1300	300	–	–
	VVF40.65-..		**VXF40.65-..**	65	49 / 63	175	175	275	275	750	300	–	–
	VVF40.80-..		**VXF40.80-..**	80	78 / 100	100	100	175	175	500	300	–	–
	VVF40.100-..		**VXF40.100-..**	100	124 / 160	–	–	–	–	–	–	300	200
	VVF40.125-..		**VXF40.125-..**	125	200 / 250	–	–	–	–	–	–	200	150
	VVF40.150-..		**VXF40.150-..**	150	300 / 315	–	–	–	–	–	–	125	100

PN 16	-20...220 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4404		N4404										
	VVF43.65-50		–	65	50	–	–	–	–	–	–	700	650
	VVF43.65-63		**VXF43.65-63**	65	63	–	–	–	–	–	–	700	650
	VVF43.80-80		–	80	80	–	–	–	–	–	–	450	400
	VVF43.80-100		**VXF43.80-100**	80	100	–	–	–	–	–	–	450	400
	VVF43.100-125		–	100	125	–	–	–	–	–	–	300	250
	VVF43.100-160		**VXF43.100-160**	100	160	–	–	–	–	–	–	300	250
	VVF43.125-200		–	125	200	–	–	–	–	–	–	175	160
	VVF43.125-250		**VXF43.125-250**	125	250	–	–	–	–	–	–	175	160
	VVF43.150-315		–	150	315	–	–	–	–	–	–	125	100
	VVF43.150-400		**VXF43.150-400**	150	400	–	–	–	–	–	–	125	100
	VVF43.65-63K		–	65	63	–	–	–	–	–	–	1600	800
	VVF43.80-100K		–	80	100	–	–	–	–	–	–	1600	800
	VVF43.100-160K		–	100	160	–	–	–	–	–	–	1600	800
	VVF43.125-250K		–	125	250	–	–	–	–	–	–	1600	800
	VVF43.150-360K		–	150	360	–	–	–	–	–	–	1600	800

[1] SAX81..: AC/DC 24 V; [2] For 22...25, 24...25, 39...40 = insert number in place of k_{vs} value; [3] .. = insert k_{vs} value
VVF43.., VXF43..: For DN 15...50 and k_{vs} value ≤ 40 m³/h see V..F53..

Flanged 2-port and 3-port valves with 20/40 mm actuators

Typical applications	Actuators	Data sheet				Spring return function	20 mm			40 mm
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	SAX.. SKD.. SKB.. SKC..	N4501 N4561 N4564 N4566					800 N	1000 N	2800 N	2800 N
	Operating voltage	Positioning signal	Positioning time [s] SAX	SKD	SKB/SKC					
	AC 230 V	3-position	120	120	120	–	**SAX31.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
		3-position	–	120	120	✓	–	**SKD32.51**	**SKB32.51**	**SKC32.61**
		3-position	30	–	–	–	**SAX31.03**	–	–	–
		3-position	–	30	–	✓	–	**SKD32.21**	–	–
	AC 24 V [1]	3-position	120	120	120	–	**SAX81.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
		3-position	–	120	120	✓	–	**SKD82.51**	**SKB82.51**	**SKC82.61**
		3-position	30	–	–	–	**SAX81.03**	–	–	–
		0...10 V, 4...20 mA	–	30	120	–	–	**SKD60**	**SKB60**	**SKC60**
		0...10 V, 4...20 mA	–	30	120	✓	–	**SKD62**	**SKB62**	**SKC62**
	AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	**SAX61.03**	–	–	–

PN 25	-20...220 °C			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4405		N4405										
	**VVF53.15-..** [2]		–	15	0.16 / 0.2 / 0.25	2500	1200	2500	1200	2500	1200	–	–
	VVF53.15-..		–	15	0.32 / 0.4 / 0.5 / 0.63	2500	1200	2500	1200	2500	1200	–	–
	VVF53.15-..		–	15	0.8 / 1 / 1.25 / 2 / 3.2	2500	1200	2500	1200	2500	1200	–	–
	VVF53.15-..		**VXF53.15-..** [2]	15	1.6 / 2.5 / 4	2500	1200	2500	1200	2500	1200	–	–
	VVF53.20-6.3		**VXF53.20-6.3**	20	6.3	2500	1200	2500	1200	2500	1200	–	–
	VVF53.25-..		–	25	5 / 8	1600	1200	2100	1200	2500	1200	–	–
	VVF53.25-..		**VXF53.25-..**	25	6.3 / 10	1600	1200	2100	1200	2500	1200	–	–
	VVF53.32-16		**VXF53.32-16**	32	16	900	750	1200	1100	2500	1200	–	–
	VVF53.40-..		–	40	12.5 / 20	550	500	750	650	2000	1200	–	–
	VVF53.40-..		**VXF53.40-..**	40	16 / 25	550	500	750	650	2000	1200	–	–
	VVF53.50-31.5		–	50	31.5	350	300	450	400	1200	1150	–	–
	VVF53.50-40		**VXF53.50-40**	50	40	350	300	450	400	1200	1150	–	–
	VVF53.65-63		**VXF53.65-63**	65	63	–	–	–	–	–	–	700	650
	VVF53.80-100		**VXF53.80-100**	80	100	–	–	–	–	–	–	450	400
	VVF53.100-160		**VXF53.100-160**	100	160	–	–	–	–	–	–	300	250
	VVF53.125-250		**VXF53.125-250**	125	250	–	–	–	–	–	–	175	160
	VVF53.150-400		**VXF53.150-400**	150	400	–	–	–	–	–	–	125	100
	VVF53.50-40K		–	50	40	2500	1200	2500	1200	2500	1200	–	–
	VVF53.65-63K		–	65	63	–	–	–	–	–	–	2500	1200
	VVF53.80-100K		–	80	100	–	–	–	–	–	–	2500	1200
	VVF53.100-160K		–	100	160	–	–	–	–	–	–	2500	1200
	VVF53.125-250K		–	125	250	–	–	–	–	–	–	2500	1200
	VVF53.150-360K		–	150	360	–	–	–	–	–	–	2500	1200
PN 40	-25...220 °C (350 °C)			DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4382		N4482										
	**VVF61.09..11** [3]		–	15	0,19 / 0,3 / 0,45	–	–	4000	1600	4000	1600	–	–
	VVF61.12..13 [3]		–	15	0,7 / 1,2	–	–	4000	1600	4000	1600	–	–
	VVF61.14..15 [3]		**VXF61.14..15** [3]	15	1,9 / 3	–	–	4000 –	1600 1200	4000 –	1600 1600	–	–
	VVF61.23..25 [3]		**VXF61.24..25** [3]	25	3 / 5 / 7,5 5 / 7,5	–	–	2250 –	1600 1200	4000 –	1600 1600		
	VVF61.39..40 [3]		**VXF61.39..40** [3]	40	12 / 19	–	–	–	–	4000 –	1600 1200	–	–
	VVF61.49..50 [3]		**VXF61.49..50** [3]	50	19 / 31	–	–	–	–	4000 –	1600 1000	–	–
	VVF61.65		**VXF61.65**	65	49	–	–	–	–	–	–	4000 –	1000 800
	VVF61.80		**VXF61.80**	80	78	–	–	–	–	–	–	4000 –	700 500
	VVF61.90		**VXF61.90**	100	124	–	–	–	–	–	–	4000 –	450 300
	VVF61.91		**VXF61.91**	125	200	–	–	–	–	–	–	4000 –	300 200
	VVF61.92		**VXF61.92**	150	300	–	–	–	–	–	–	4000 –	200 125

[1] SAX81..: AC/DC 24 V
[2] .. = insert k_{vs} value
[3] For 09...15, 14...15, 23...25, 24...25, 39...40, 49...50 = insert number in place of k_{vs} value

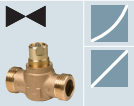
Threaded 2-port and 3-port valves with 5.5 mm actuators

Typical applications	Actuators	Data sheet					5.5 mm	
– Heating plants – District heating – Ventilation and air conditioning plants	SQS..	N4573					400 N 	400 N 
	Operating voltage	Positioning signal	Positioning time [s]		Spring return function			
	AC 230 V	3-position	150	150	✓	–	**SQS35.50**	**SQS35.00**
		3-position	35	35	✓	–	**SQS35.53**	**SQS35.03**
	AC 24 V	3-position	–	150	–	–	**–**	**SQS85.00**
		3-position	–	35	–	–	**–**	**SQS85.03**
		0...10 V	35	35	✓	–	**SQS65.5**	**SQS65**
		2...10 V	–	35	–	–	–	**SQS65.2**

PN 16	1...120 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4364		N4464					
	**VVG44.15-..**		**VXG44.15-..**	15	G 1B	0,25 / 0,4 / 0,63	1600	400
	VVG44.15-..		**VXG44.15-..**	15	G 1B	1 / 1,6	725	400
	VVG44.15-..		**VXG44.15-..**	15	G 1B	2,5 / 4	400	400
	VVG44.20-6.3		**VXG44.20-6.3**	20	G 1¼B	6,3	750	400
	VVG44.25-10		**VXG44.25-10**	25	G 1½B	10	400	400
	VVG44.32-16		**VXG44.32-16**	32	G 2B	16	250	250
	VVG44.40-25		**VXG44.40-25**	40	G 2¼B	25	125	125

PN 25	1...130 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4379					
	**VVG55.15-..**	15	G ¾B	0,25 / 0,4 / 0,63	2500	1200
	VVG55.15-..	15	G ¾B	1 / 1,6 / 2,5	2000	1200
	VVG55.20-4	20	G 1B	4	1000	1000
	VVG55.25-6.3	25	G 1¼B	6,3	800	800

Typical applications	Actuators	Data sheet					5.5 mm
– Heating plants – Ventilation plants	SSC..	N4895					300 N 
	Operating voltage	Positioning signal	Positioning time [s]		Spring return function		
	AC 230 V	3-position	150	–	–	–	**SSC31**	**–**
	AC 24 V	3-position	150	–	–	–	**SSC81**	**–**
	AC/DC 24 V	0...10 V	30	30	–	✓	**SSC61**	**SSC61.5**

PN 16	1...110 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4845		N4845					
	**VVP45.20-4**		**VXP45.20-4**	20	G 1B	4	350	350
	VVP45.25-6.3		**VXP45.25-6.3**	25	G 1¼B	6,3	300	300
	VVP45.25-10		**VXP45.25-10**	25	G 1½B	10	300	300
	VVP45.32-16		**VXP45.32-16**	32	G 2B	16	175	175
	VVP45.40-25		**VXP45.40-25**	40	G 2¼B	25	75	75

7

Threaded 2-port and 3-port valves with 20 mm actuators

Typical applications	Actuators	Data sheet				Spring return function	20 mm		
– Heating plants – Ventilation and air conditioning plants – Heat generation – Heat distribution – District heating	**SAX..** **SKD..** **SKB..**	N4501 N4561 N4564					800 N 	1000 N 	2800 N 
	Operating voltage	**Positioning signal**	**Positioning time [s]**						
			SAX	SKD	SKB				
	AC 230 V	3-position	120	120	120	–	**SAX31.00**	**SKD32.50**	**SKB32.50**
		3-position	–	120	120	✓	**–**	**SKD32.51**	**SKB32.51**
		3-position	30	–	–	–	**SAX31.03**	**–**	**–**
		3-position	–	30	–	✓	**–**	**SKD32.21**	**–**
	AC 24 V [1]	3-position	120	120	120	–	**SAX81.00**	**SKD82.50**	**SKB82.50**
		3-position	–	120	120	✓	**–**	**SKD82.51**	**SKB82.51**
		3-position	30	–	–	–	**SAX81.03**	**–**	**–**
		0...10 V, 4...20 mA	–	30	120	–	**–**	**SKD60**	**SKB60**
		0...10 V, 4...20 mA	–	30	120	✓	**–**	**SKD62**	**SKB62**
	AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	**SAX61.03**	**–**	**–**

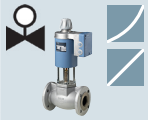
PN 16	-25...150 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4363		N4463									
 	**VVG41.11..12**		–	–	15	G 1B	0.63 / 1	1600	800	1600	800	1600	800
	VVG41.13		–	**VXG41.1301**	15	G 1B	1.6	1600	800	1600	800	1600	800
	VVG41.14		–	**VXG41.1401**	15	G 1B	2.5	1600	800	1600	800	1600	800
	VVG41.15		**VXG41.15**	**VXG41.1501**	15	G 1B	4	1600	800	1600	800	1600	800
	VVG41.20		**VXG41.20**	**VXG41.2001**	20	G 1¼B	6.3	1600	800	1600	800	1600	800
	VVG41.25		**VXG41.25**	**VXG41.2501**	25	G 1½B	10	1550	800	1600	800	1600	800
	VVG41.32		**VXG41.32**	**VXG41.3201**	32	G 2B	16	875	800	1275	800	1600	800
	VVG41.40		**VXG41.40**	**VXG41.4001**	40	G 2¼B	25	525	525	775	775	1600	800
	VVG41.50		**VXG41.50**	**VXG41.5001**	50	G 2¾B	40	300	300	450	450	1225	800

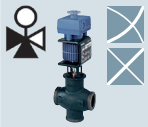
7

2-port and 3-port valves fitted with magnetic actuator

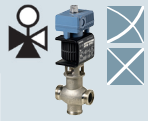
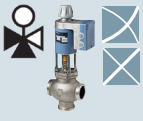
Typical applications	Valve type	Operating voltage	Positioning signal	Type suffix
– Supply air control with/without cascade – Fast-acting heat exchanger control – Domestic hot water mixing control – High-precision process control	**MXF461..**	AC 24 V	0...10 V, 2...10 V, 4...20 mA	P [1]
	M3P..FY..	AC 24 V	0...10 V, 4...20 mA	P [1]
	MVF461H..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
	MXG461..	AC 24 V	0...10 V, 2...10 V, 4...20 mA	P [1]
	MXG461B..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
	MXG461S..	AC 24 V	0...10 V, 2...10 V, 4...20 mA	–
	MXG462S..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–

PN 16	1...130 °C	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Note
Data sheet	N4455					
	**MXF461.15-..**	15	0.6 / 1.5 / 3	300	300	To be used as 2-port or mixing valves, not as diverting valves. Selectable valve characteristic: equal-percentage or linear.
	MXF461.20-5.0	20	5	300	300	
	MXF461.25-8.0	25	8	300	300	
	MXF461.32-12	32	12	300	300	
	MXF461.40-20	40	20	300	300	
	MXF461.50-30	50	30	300	300	
	MXF461.65-50	65	50	300	300	
	1...120 °C					
	N4454					
	M3P80FY	80	80	300	300	
	M3P100FY	100	130	200	200	

PN 16	1...180 °C	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4361				
	**MVF461H15-..**	15	0.6 / 1.5 / 3	1000	1000
	MVF461H20-5	20	5	1000	1000
	MVF461H25-8	25	8	1000	1000
	MVF461H32-12	32	12	1000	1000
	MVF461H40-20	40	20	1000	1000
	MVF461H50-30	50	30	1000	1000

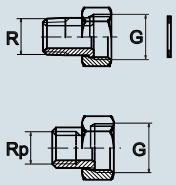
PN 16	1...130 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4455					
	**MXG461.15-..**	15	G 1B	0.6 / 1.5 / 3	300	300
	MXG461.20-5.0	20	G 1¼B	5	300	300
	MXG461.25-8.0	25	G 1½B	8	300	300
	MXG461.32-12	32	G 2B	12	300	300
	MXG461.40-20	40	G 2¼B	20	300	300
	MXG461.50-30	50	G 2¾B	30	300	300

PN 16	-20...130 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4461					
	**MXG461B15-..**	15	G 1B	0.6 / 1.5 / 3	1000	1000
	MXG461B20-5	20	G 1¼B	5	800	800
	MXG461B25-8	25	G 1½B	8	700	700
	MXG461B32-12	32	G 2B	12	600	600
	MXG461B40-20	40	G 2¼B	20	600	600
	MXG461B50-30	50	G 2¾B	30	600	600

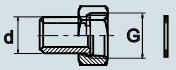
PN 16	1...130 °C	-20...130 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Note
Data sheet	N4465	N4466						
	**MXG461S15-1.5**	–	15	G 1B	1.5	300	300	To be used as 2-port or mixing valves, not as diverting valves. Selectable valve characteristic: equal-percentage or linear. [2]
	**MXG461S20-5.0**	–	20	G 1¼B	5	300	300	
	MXG461S25-8.0	–	25	G 1½B	8	300	300	
	MXG461S32-12	–	32	G 2B	12	300	300	
	–	**MXG462S50-30**	50	G 2¾B	30	600	600	

[1] P = media containing mineral oil
[2] Parts that are in contact with medium in stainless steel

Union nuts for threaded valves [1)]



Type		G	R, Rp	Material
Set of 2	Set of 3	[inch]	[inch]	
ALG132	ALG133	G ½B	R ⅜ (externally threaded)	Brass
ALG142	ALG143	G ¾B	R ½ (externally threaded)	Brass
ALG122	ALG123	G ¾B	Rp ⅜	Malleable cast iron
ALG152	ALG153	G 1B	Rp ½	Malleable cast iron
ALG152B	ALG153B	G 1B	Rp ½	Brass
ALG202	ALG203	G 1¼B	Rp ¾	Malleable cast iron
ALG202B	ALG203B	G 1¼B	Rp ¾	Brass
ALG252	ALG253	G 1½B	Rp 1	Malleable cast iron
ALG252B	ALG253B	G 1½B	Rp 1	Brass
ALG322	ALG323	G 2B	Rp 1¼	Malleable cast iron
ALG322B	ALG323B	G 2B	Rp 1¼	Brass
ALG402	ALG403	G 2¼B	Rp 1½	Malleable cast iron
ALG402B	ALG403B	G 2¼B	Rp 1½	Brass
ALG502	ALG503	G 2¾B	Rp 2	Malleable cast iron
ALG502B	ALG503B	G 2¾B	Rp 2	Brass



Type	G	Ø d	Material
Set of 2	[inch]	[mm]	
ALS152	G ¾B	21.3	Steel, weldable
ALS202	G 1B	26.8	Steel, weldable
ALS252	G 1¼B	33.7	Steel, weldable

[1)] Valve side: cylindrical thread G according to ISO 228-1, pipe side: ALG.. with cylindrical Rp- or tapered R-thread according to ISO 7-1
Pipe side: ALS.. with welded connection

2-port and 3-port control ball valves with rotary actuators

Typical applications	Actuators	Data sheet
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	**GQD..9A**	N4659
	GDB..9E	N4657
	GMA..9E	N4658
	GLB..9E	N4657

Operating voltage	Positioning signal	Positioning time [s] GQD	GDB	GMA	GLB	Spring return function	2 Nm	5 Nm	7 Nm	10 Nm
AC 230 V	3-position	–	150	–	150	–	–	**GDB331.9E**	–	**GLB331.9E**
AC 24 V	3-position	–	150	–	150	–	–	**GDB131.9E**	–	**GLB131.9E**
	0...10 V	–	150	–	150	–	–	**GDB161.9E**	–	**GLB161.9E**
AC/DC 24 V	3-position	30 / 15	–	90 / 15	–	✓	**GQD131.9A**	–	**GMA131.9E**	–
	0...10 V	30 / 15	–	90 / 15	–	✓	**GQD161.9A**	–	**GMA161.9E**	–

PN 40	1...120 °C		DN	Rp [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4211	N4211									
	VAI61.15-..	**VBI61.15-..**	15	Rp ½	1.6 / 2.5 / 4 / 6.3	1400	350	1400	350	1400	350
	VAI61.15-..	–	15	Rp ½	1 / 10	1400	350	1400	350	1400	350
	VAI61.20-..	**VBI61.20-..**	20	Rp ¾	4 / 6.3	1400	350	1400	350	1400	350
	VAI61.20-..	–	20	Rp ¾	10	1400	350	1400	350	1400	350
	VAI61.25-..	**VBI61.25-..**	25	Rp 1	10	–	–	1400	350	1400	350
	VAI61.25-..	–	25	Rp 1	6.3 / 16	–	–	1400	350	1400	350
	VAI61.32-..	–	32	Rp 1¼	10	–	–	–	–	1000	350
	VAI61.32-..	**VBI61.32-..**	32	Rp 1¼	16	–	–	–	–	1000	240
	VAI61.32-..	–	32	Rp 1¼	25	–	–	–	–	1000	240
	VAI61.40-..	–	40	Rp 1½	16	–	–	–	–	800	350
	VAI61.40-..	**VBI61.40-..**	40	Rp 1½	25	–	–	–	–	800	240
	VAI61.40-..	–	40	Rp 1½	40	–	–	–	–	800	240
	VAI61.50-..	–	50	Rp 2	25	–	–	–	–	600	350
	VAI61.50-..	**VBI61.50-..**	50	Rp 2	40	–	–	–	–	600	240
	VAI61.50-..	**VBI61.50-..**	50	Rp 2	63	–	–	–	–	600	240

Changeover and open/close ball valves with rotary actuators

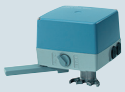
Typical applications	Actuators	Data sheet
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	**GSD..9A**	N4655
	GQD..9A	N4659
	GMA..9E	N4658
	GLB..9E	N4657

Operating voltage	Positioning signal	Positioning time [s] GSD	GLB	GQD	GMA	Spring return function	2 Nm	7 Nm	10 Nm
AC/DC 24 V	2-position	30	–	–	–	–	**GSD141.9A**	–	–
AC 230 V	2-position	30	–	–	–	–	**GSD341.9A**	–	–
AC 24 V	(2)/3-position	–	150	–	–	–	–	–	**GLB131.9E**
AC 230 V	(2)/3-position	–	150	–	–	–	–	–	**GLB331.9E**
AC/DC 24 V	2-position	–	–	30 (15)	–	✓	**GQD121.9A**	–	–
AC 230 V	2-position	–	–	30 (15)	–	✓	**GQD321.9A**	–	–
AC/DC 24 V	2-position	–	–	–	90 (15)	✓	–	**GMA121.9E**	–
AC 230 V	2-position	–	–	–	90 (15)	✓	–	**GMA321.9E**	–

PN 40	-10...120 °C	DN	Rp [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
Data sheet	N4213						
	VBI60.15-12T	15	½	12	350	350	350
	VBI60.20-16T	20	¾	16	350	350	350
	VBI60.25-16T	25	1	16	350	350	350
	VBI60.32-25T	32	1¼	25	–	350	350
	VBI60.40-49T	40	1½	49	–	350	350
	VBI60.50-73T	50	2	73	–	350	350
PN 40	**-10...120 °C**	**DN**	**Rp [inch]**	**k_{vs} [m³/h]**	**Δp_{max} [kPa]**	**Δp_{max} [kPa]**	**Δp_{max} [kPa]**
Data sheet	N4213						
	VBI60.15-5L	15	½	5	350	350	350
	VBI60.20-9L	20	¾	9	350	350	350
	VBI60.25-9L	25	1	9	350	350	350
	VBI60.32-13L	32	1¼	13	–	350	350
	VBI60.40-25L	40	1½	25	–	350	350
	VBI60.50-37L	50	2	37	–	350	350

PN 40	-10...120 °C	DN	Rp [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4213									
	VAI60.15-15	15	½	15	1400	350	1400	350	1400	350
	VAI60.20-22	20	¾	22	1400	350	1400	350	1400	350
	VAI60.25-22	25	1	22	1400	350	1400	350	1400	350
	VAI60.32-35	32	1¼	35	–	–	1000	350	1000	350
	VAI60.40-68	40	1½	68	–	–	800	350	800	350
	VAI60.50-96	50	2	96	–	–	600	350	600	350

3-port and 4-port slipper valves with rotary actuators

Typical applications	Actuators	Data sheet				5 Nm	5 Nm	10 Nm
– Small to medium-size heating plants	**SQK34../84..** **SQK33..** **SAL..**	N4508 N4506 N4502						
	Operating voltage	**Positioning signal**	**Positioning time [s]**					
			SQK	SQK33	SAL			
	AC 230 V	3-position	135	125	120	**SQK34.00**	**SQK33.00**	**SAL31.00T10**
		3-position	–	–	30	**–**	**–**	**SAL31.03T10**
	AC 24 V	3-position	135	–	–	**SQK84.00**	**–**	**–**
	AC/DC 24 V	3-position	–	–	120	**–**	**–**	**SAL81.00T10**
		3-position	–	–	30	**–**	**–**	**SAL81.03T10**
		0...10 V, 4...20 mA	–	–	120	**–**	**–**	**SAL61.00T10**
		0...10 V, 4...20 mA	–	–	30	**–**	**–**	**SAL61.03T10**
	Mounting set [1]					**direct**	**ASK32**	**ASK31N**

PN 6	1...120 °C	DN		k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
Data sheet	N4241						
	**VBF21.40**	40		25	30	30	–
	VBF21.50	50		40	30	30	–
	VBF21.65	65		63	–	–	30
	VBF21.80	80		100	–	–	30
	VBF21.100	100		160	–	–	30
	VBF21.125	125		550	–	–	30
	VBF21.150	150		820	–	–	30

PN 10	1...120 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
Data sheet	N4233						
	**VBG31.20**	20	G 1¼B	6.3	30	30	–
	VBG31.25	25	G 1½B	10	30	30	–
	VBG31.32	32	G 2B	16	30	30	–
	VBG31.40	40	G 2¼B	25	30	30	–

PN 10	1...120 °C	DN	Rp [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
Data sheet	N4232						
	**VBI31.20**	20	Rp ¾	6.3	30	30	–
	VBI31.25	25	Rp 1	10	30	30	–
	VBI31.32	32	Rp 1¼	16	30	30	–
	VBI31.40	40	Rp 1½	25	30	30	–

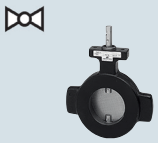
PN 10	1...120 °C	DN	Rp [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
Data sheet	N4252						
	**VCI31.20**	20	Rp ¾	6.3	30	30	–
	VCI31.25	25	Rp 1	10	30	30	–
	VCI31.32	32	Rp 1¼	16	30	30	–
	VCI31.40	40	Rp 1½	25	30	30	–

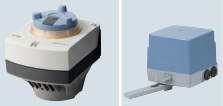
Page: 7-16VBI61..: For noiseless operation, the Δp_{max} value of 200 kPa should not be exceeded

[1] **Mounting sets ASK40, ASK41 for products of other manufacturers:** mounting sets for SQK33.. for 3-port and 4-port slipper valves from AXA, BUDERUS, CENTRA, ESBE/SHUNT AB, LOELL, MUEHLENBERG, ONDAMIX and VIESSMANN. For additional details, see data sheet N4291.

Butterfly valves with rotary actuators

Typical applications	Actuators	Data sheet	Rotation angle / Torque	90° 5 Nm	90° 10 Nm
– Shutoff or control – For closed or open circuits	**SQK..** **SAL..**	N4506 N4502			
	Operating voltage	**Positioning signal**	**Positioning time [s]**		
	AC 230 V	3-position	120	–	**SAL31.00T10**
		3-position	125	**SQK33.00**	–
		3-position	30	–	**SAL31.03T10**
	AC/DC 24 V	3-position	120	–	**SAL81.00T10**
		3-position	30	–	**SAL81.03T10**
		0...10 V, 4...20 mA	120	–	**SAL61.00T10**
		0...10 V, 4...20 mA	30	–	**SAL61.03T10**
	Mounting set			**ASK33**	**ASK33N**

PN 16 / Data sheet	-10...120 °C / N4131	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]
	**VKF41.40**	40	50	200	500
	VKF41.50	50	80	–	500
	VKF41.65	65	200	–	500
	VKF41.80	80	400	–	500
	VKF41.100	100	760	–	500
	VKF41.125	125	1000	–	300
	VKF41.150	150	2100	–	250
	VKF41.200	200	4000	–	125

Typical applications	Actuators	Data sheet	90° 20 Nm	90° 40 Nm	90° 100 Nm	90° 400 Nm	90° 1200 Nm
– Shutoff or control – For closed or open circuits	**SAL..** **SQL35../85..** **SQL36..**	N4502 N4505 N4505					
	Operating voltage	**Positioning signal**	**time [s]**				
	AC 230 V	3-position	6 [1]	– / –	– / –	**SQL36E65**	– / –
		3-position	12 [1]	– / –	– / –	–	**SQL36E110** / –
		3-position	24 [1]	– / –	– / –	–	– / **SQL36E160**
		3-position	25	– / –	**SQL36E50F04** / **SQL36E50F05**	–	– / –
		3-position	120	**SAL31.00T20** / –	– / –	–	– / –
		3-position	125	– / **SQL35.00**	– / –	–	– / –
	AC 24 V	3-position	125	– / **SQL85.00**	– / –	–	– / –
	AC/DC 24 V	3-position	120	**SAL81.00T20** / –	– / –	–	– / –
		0...10 V, 4...20 mA	120	**SAL61.00T20** / –	– / –	–	– / –
	Mounting set			– / **ASK35.2**	– / –	–	– / –

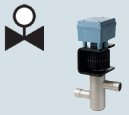
PN 16 / Data sheet	-10...120 °C / N4136	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
	**VKF46.40**	40	50	1600	–	1600	–	–	–	–
	VKF46.50	50	85	1600	–	1600	–	–	–	–
	VKF46.65	65	215	1600	–	1600	–	–	–	–
	VKF46.80	80	420	–	1600	–	1600	–	–	–
	VKF46.100	100	800	–	1600	–	1600	–	–	–
	VKF46.125	125	1010	–	1000	–	1000	–	–	–
	VKF46.150	150	2100	–	–	–	–	1600	–	–
	VKF46.200	200	4000	–	–	–	–	1000	–	–
	VKF46.250	250	6400	–	–	–	–	–	1000	–
	VKF46.300	300	8500	–	–	–	–	–	1000	–
	VKF46.350	350	11500	–	–	–	–	–	600	–
	VKF46.400	400	14500	–	–	–	–	–	300	–
	VKF46.450	450	20500	–	–	–	–	–	–	300
	VKF46.500	500	21000	–	–	–	–	–	–	300
	VKF46.600	600	29300	–	–	–	–	–	–	300
PN 16 / Data sheet	-10...120 °C / N4136	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
	**VKF46.350TS**	350	11500	–	–	–	–	–	–	1000
	VKF46.400TS	400	14500	–	–	–	–	–	–	1000
	VKF46.450TS	450	20500	–	–	–	–	–	–	1000
	VKF46.500TS	500	21000	–	–	–	–	–	–	1000
	VKF46.600TS	600	29300	–	–	–	–	–	–	1000

[1] With auxiliary module SEZ31.1 variable positioning time: SQL36E65: 30...180 s, SQL36E110: 60...360 s, SQL36E160: 120...720 s

Recommended maximum flow velocity:
VKF41..: < 4 m/s for water, see data sheet for details
VKF46..: 4.5 m/s for water, 60 m/s for gas

Refrigerant valves

Typical applications	Valve	Operating voltage	Positioning signal	Auxiliary functions
– Expansion, direct/indirect hot-gas and hot-gas distribution applications – Suction gas applications – Condensate mixing – Brine plants	**M2FP03GX**	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs	–
	MVL661..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	Minimum stroke setting
	MVS661..N	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	Minimum stroke setting
	M3FB..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs	–
	M3FK..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs	–

PN 32	-40...100 °C				k_{vs} [m³/h]		Δp_{max} [kPa]	
Data sheet	N4731							
	**M2FP03GX**		Pilot valve		0.3		1800	
PS 45	-40...120 °C	DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]	
Data sheet	N4714							
	**MVL661.15-0.4**	15	Sleeve	⅝	0.4	0.25	2500	
	MVL661.15-1.0	15	Sleeve	⅝	1	0.63	2500	
	MVL661.20-2.5	20	Sleeve	⅞	2.5	1.6	2500	
	MVL661.25-6.3	25	Sleeve	1⅛	6.3	4	2500	
	MVL661.32-12	32	Sleeve	1⅜	12	7.6	200	
PS 53	-40...120 °C	DN	Connection	Inner Ø [mm]	Outer Ø [mm]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]
Data sheet	N4717							
	**MVS661.25-016N**	25	Weldable	22.4	33.7	0.16	0.1	2500
	MVS661.25-0.4N	25	Weldable	22.4	33.7	0.4	0.25	2500
	MVS661.25-1.0N	25	Weldable	22.4	33.7	1	0.63	2500
	MVS661.25-2.5N	25	Weldable	22.4	33.7	2.5	1.6	2500
	MVS661.25-6.3N	25	Weldable	22.4	33.7	6.3	4	2500

PN 32	-40...120 °C	DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]	Liquid Δp_{max} [kPa]	Gas Δp_{max} [kPa]
Data sheet	N4722						
	**M3FK15LX06**	15	Sleeve	⅝	0.6	200	800
	M3FK15LX15	15	Sleeve	⅝	1.5	200	800
	M3FK15LX	15	Sleeve	⅝	3	200	800
	M3FK20LX	20	Sleeve	⅞	5	200	800
	M3FK25LX	25	Sleeve	1⅛	8	200	800
	M3FK32LX	32	Sleeve	1⅜	12	200	800
	M3FK40LX	40	Sleeve	1⅝	20	200	800
	M3FK50LX	50	Sleeve	2⅛	30	200	800
PS 43	-40...120 °C	DN	Connection	Inner Ø [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	
Data sheet	N4721						
	**M3FB15LX06/A**	15	Sleeve	⅝	0.6	2200	
	M3FB15LX15/A	15	Sleeve	⅝	1.5	2200	
	M3FB15LX/A	15	Sleeve	⅝	3	2200	
	M3FB20LX/A	20	Sleeve	⅞	5	1800	
	M3FB25LX/A	25	Sleeve	1⅛	8	1200	
	M3FB32LX	32	Sleeve	1⅜	12	800	

7

Definitions

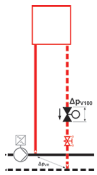
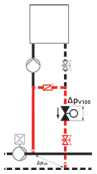
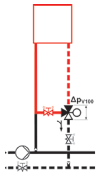
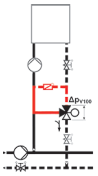
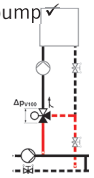
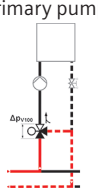
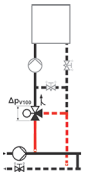
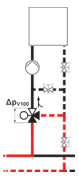
Abbr.	Term	Unit	Definition
Δp	Differential pressure	kPa	Pressure differential between plant sections.
Δp_{max}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when mixing), valid for the entire actuating range of the motorized valve.
Δp_{maxV}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when distributing), valid for the entire actuating range of the motorized valve.
Δp_{min}	Minimum differential pressure	kPa	Minimum differential pressure required, so that the differential pressure regulator works reliably with combi valves. Δp_{min} depends on presetting position, see data sheet for details.
Δp_{V0}		kPa	Maximum differential pressure across the valve's closed control path.
Δp_{V100}	Differential pressure at nominal flow rate	kPa	Differential pressure across the fully open valve and the valve's control path by a volumetric flow V_{100}.
Δp_s	Closing pressure	kPa	For 2-port valves, maximum permissible differential pressure at which the motorized valve will close securely against the pressure (close off pressure). Only valid for 2-port valves.
Δp_{MV}		kPa	Differential pressure across the variable flow path. Often Δp_{MV} is not known, in which case typical values can be used.
Δp_{VR}		kPa	Differential pressure between flow and return.
ΔT	Temperature spread	K	Temperature differential between flow and return.
DN	Nominal size		Characteristic for matching parts of the piping system.
H_0	Shutoff head	m	The head generated by a pump at closed value, at a given speed and a given pump medium.
kPa	Unit of pressure	kPa	100 kPa = 1 bar = 10 mWC
mWC	Meter water column	m	
k_v	Nominal flow	m³/h	Amount of cold water (5...30 °C) passing through the valve at the respective stroke and at a differential pressure of 100 kPa (1 bar).
k_{VS}	Nominal flow rate	m³/h	Nominal flow rate of cold water (5...30 °C) through the fully open valve (H_{100}) at a differential pressure of 100 kPa (1 bar).
	Spring return function		Shutoff in the event of a power failure.
PN	PN class		Characteristic relating to the combination of mechanical and dimensional properties of a component in the piping system.
Phs	Phase cut control signal	V	DC 0...20 V Phs
P_v	Valve authority		Ratio of differential pressure across fully open valve (H_{100}) and differential pressure across valve and variable flow path. To ensure correct control, a minimum valve authority of 0.25 is required.
Q_{100}	Rated capacity	kW	Plant's design capacity.
V_{100}	Volumetric flow	m³/h	Volumetric flow with valve fully open (H_{100}).
V_{min}	Minimum volumetric flow	m³/h	Smallest presettable volumetric flow through the fully open combi valve (H_{100}).
υ	Kinematic viscosity	mm²/s	In the case of kinematic viscosities υ up to 10 mm²/s, no corrections are required. For the selection of actuating devices for kinematic viscosities υ above 10 mm²/s, please contact your local Siemens branch office.
c	Specific heat capacity	kJ/kgK	
ρ	Specific density	kg/m³	

Symbols

	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic.
	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic with 70% of the k_{VS} value. This compensates for the flow resistance of the heat exchange, so that the total volumetric flow V_{100} remains as constant as possible.
	2-port valve, control path with equal-percentage valve characteristic.
	2-port valve, control path with linear valve characteristic.
	3-port, control path and bypass with linear valve characteristic. Bypass with 70% of the k_{vs} value. This compensates for the flow resistance of the heat exchanger, so that the total flow amount V_{100} remains as constant as possible.
	3-port valve, control path and bypass with linear valve characteristic.
	3-port valve, control path and bypass with equal-percentage valve characteristic.

Valve sizing and actuator selection

Basic hydraulic circuit

1	Determine the type of hydraulic circuit	Throttling circuit	Injection circuit with 2-port valve	Diverting circuit	Injection circuit with 3-port valve	Mixing circuit		Mixing circuit with fixed premixing	
—	For valve sizing relevant variable flow path					Primary pump ✓ 	Primary pump ✗ 	Primary pump ✓ 	Primary pump ✗ 

HVAC plants and consumers

Heating								
Surface/floor heating	–	■	–	outdated	–	–	■	■
Heating plant (primary)	–	■	■	outdated	■	■	■	■
Zone control, heating	–	■	–	outdated	–	–	–	–
Heating group	–	■	–	–	■	■	■	■
Generation of heat energy	–	–	–	–	–	■	–	■
Heat exchanger water-water	■	uncommon	uncommon	uncommon	uncommon	–	–	–
Ventilation and air conditioning plants								
Air handling unit (AHU)	■	■	■	outdated	■	■	–	–
Fan coil unit	■	–	■	outdated	–	–	–	–
Cooling coil	dehumidifying	–	dehumidi-fying	uncommon	–	–	–	–
Reheating coil	■	■	outdated	outdated	uncommon	uncommon	uncommon	uncommon
Preheating coil	–	■	–	outdated	uncommon	uncommon	uncommon	uncommon
VAV	■	–	■	outdated	–	–	–	–
Zone control	■	–	■	outdated	–	–	–	–
Chiller plants								
Surface/floor cooling	–	■	–	outdated	–	–	–	–
Generation of cooling energy	–	–	–	–	–	■	–	■
Cooling towers	■	–	■	uncommon	–	–	–	–
Zone control, cooling	–	■	–	outdated	–	–	–	–
District heating and cooling								
District heating, primary	■	uncommon	–	–	–	uncommon	–	uncommon
District heating, secondary	■	■	–	–	–	uncommon	–	uncommon
District cooling, primary	■	uncommon	–	–	–	uncommon	–	uncommon
District cooling, secondary	■	■	–	–	–	uncommon	–	uncommon
Domestic hot water (DHW)								
DHW	–	■	–	–	–	■	–	–

7

Header

Differential pressure header	pressurized						pressureless				
Volumetric flow	variable		constant				variable				

Determination of k_{vs} value

2	**Δp_{VR} or Δp_{MV}**	Δp_{VR}		Δp_{MV}							
	typical range	10...200 kPa	10...200 kPa	10...50 kPa	2...5 kPa	2...5 kPa	5...15 kPa	2...5 kPa	5...15 kPa		
	typical value	Use effective Δp_{VR} value		35 kPa	3 kPa	3 kPa	8 kPa	3 kPa	8 kPa		
3	**Determine Δp_{V100}**	$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$		$\Delta p_{V100} > \Delta p_{MV}$							
4	**Calculate V_{100}**	Water without anti-freeze $V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$					Water with anti-freeze $V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$				
5	**Determine k_{vs} value**	$k_V = \frac{V_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \Rightarrow k_{VS} \geq 0.85 \cdot k_V$ value									
6	**Check resulting Δp_{V100}**	$\Delta p_{V100} = 100 \cdot \left(\frac{V_{100}}{k_{VS}}\right)^2$									

Selection of valve and actuator

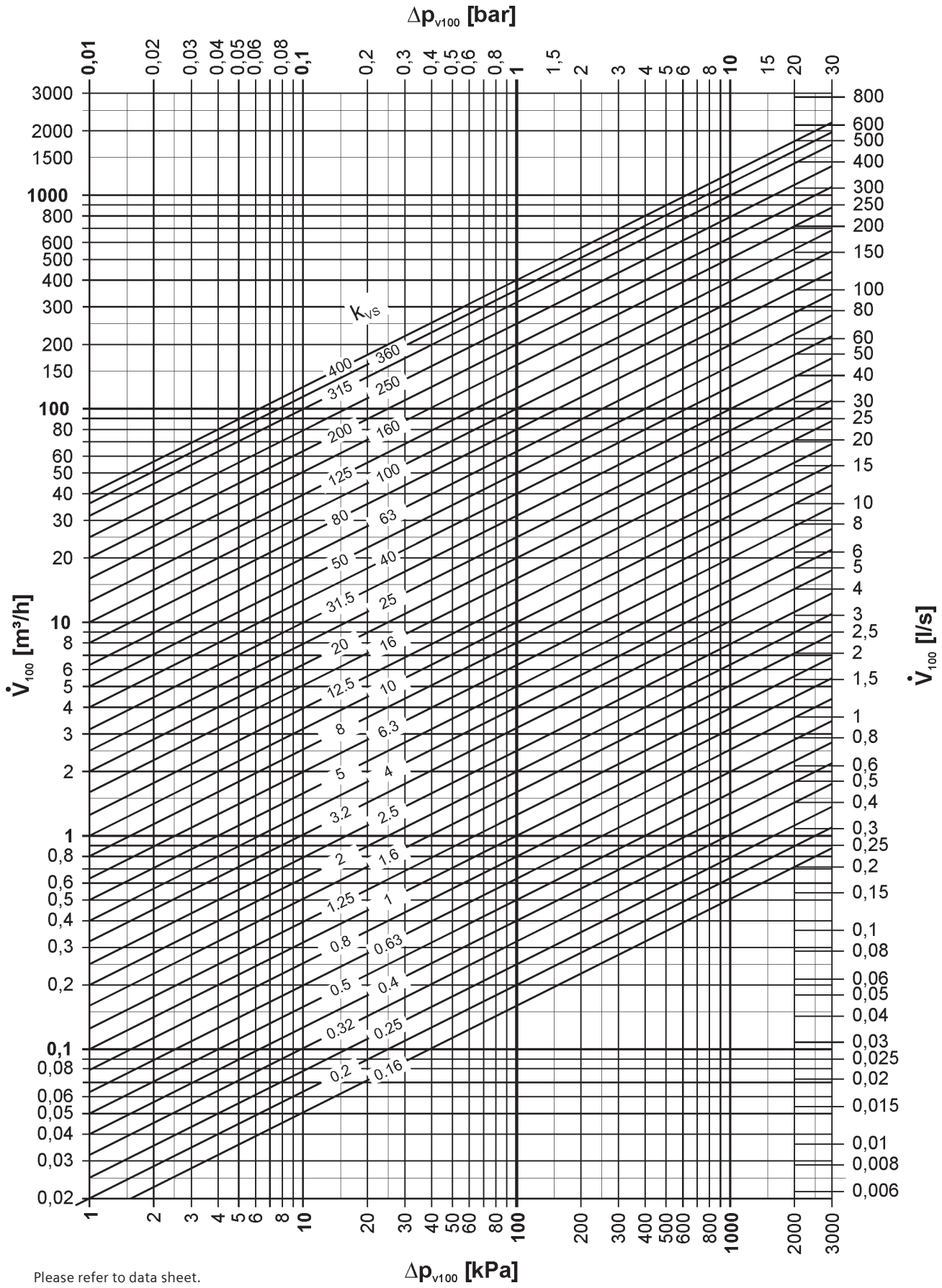
7	**Select suitable valve series**	a) Type of valve (2-port, 3-port, 3-port with bypass) b) Connections (flanged, threaded, soldered)	c) PN class d) Nominal size DN	e) Max/min medium temperature f) Medium	
8	**Check valve authority P_v** (control stability)	$P_V = \frac{\Delta p_{V100}}{\Delta p_{VR}} \geq 0.25...0.8$	$P_V = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.25...0.8$		
9	**Select actuator**	a) Operating voltage functions	b) Positioning signal	c) Positioning time	d) Spring return function e) Auxiliary
10	**Check working range**	a) Differential pressure $\Delta p_{max} > \Delta p_{V0}$	b) Closing pressure $\Delta p_s > H_0$		
11	**Selection**	Valve and suitable actuator			

Size and select combi valves

Determine volumetric flow V					
1	**Determine Q_{100}**	Q_{100}			
2	**Determine ΔT**	ΔT			
3	**Calculate V**	Water without anti-freeze $V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$		Water with anti-freeze $V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$	
Select combi valve and actuator					
4	**Select suitable combi valve**	a) Type of valve (with/without P/T plugs)[1)] d) Connection (flanged, threaded)	b) PN class e) Nominal size DN	c) Max/min medium temperature f) Medium	
5	**Determine presetting**	Determine presetting using the volumetric flow/dial table in data sheet of the respective combi valve			
6	**Select actuator**	a) Operating voltage	b) Positioning signal	c) Positioning time	d) Auxiliary functions
7	**Check working range**	a) $\Delta p < \Delta p_{max}$ – maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve b) $\Delta p > \Delta p_{min}$ – minimum differential pressure required across the valve's control path, so that the differential pressure regulator works reliably			
8	**Select actuator**	Combi valve and suitable actuator			

7

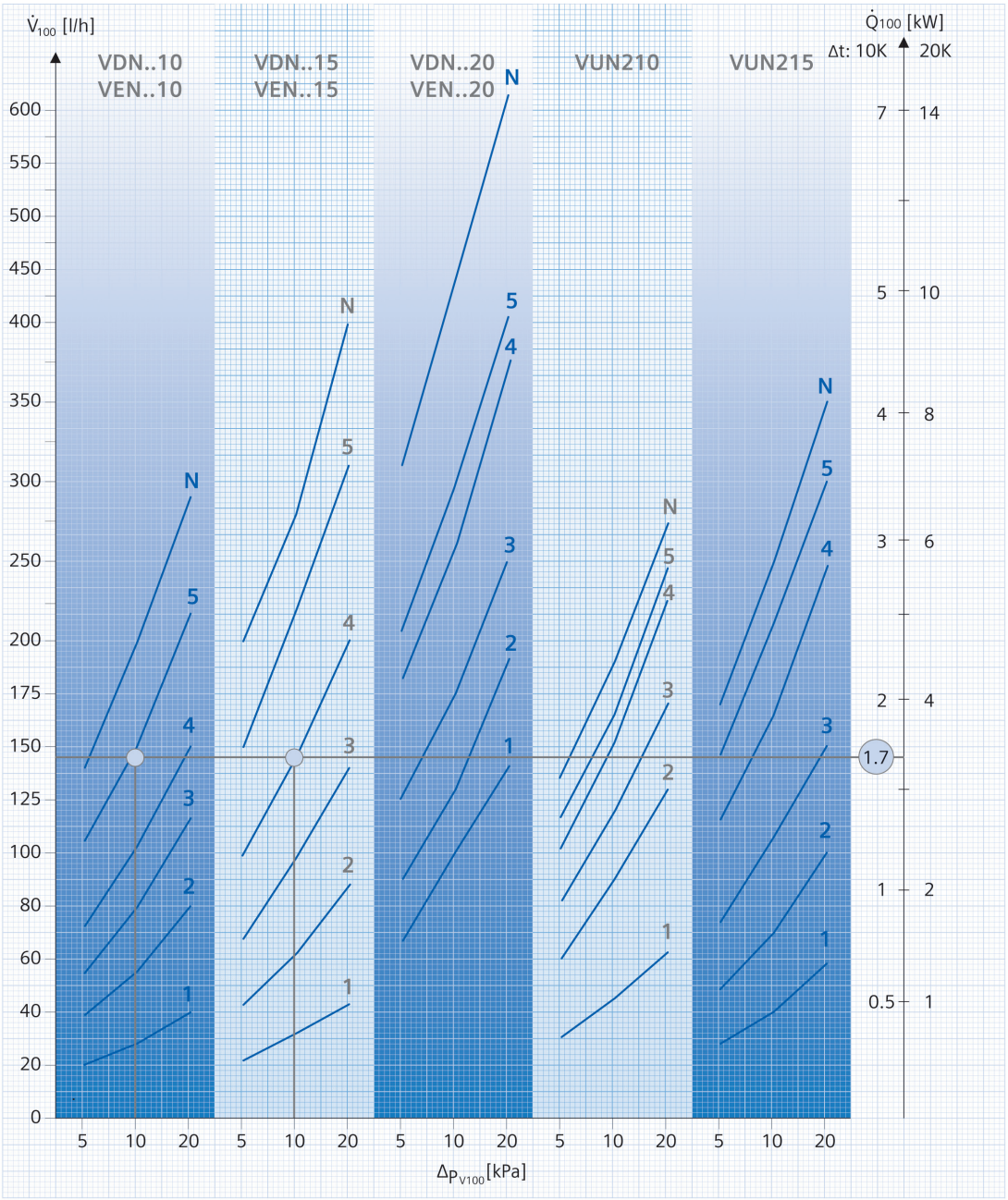
Sizing chart for flanged and threaded valves



Please refer to data sheet.

7

Sizing chart / Presetting for radiator valves VDN../VEN../VUN..



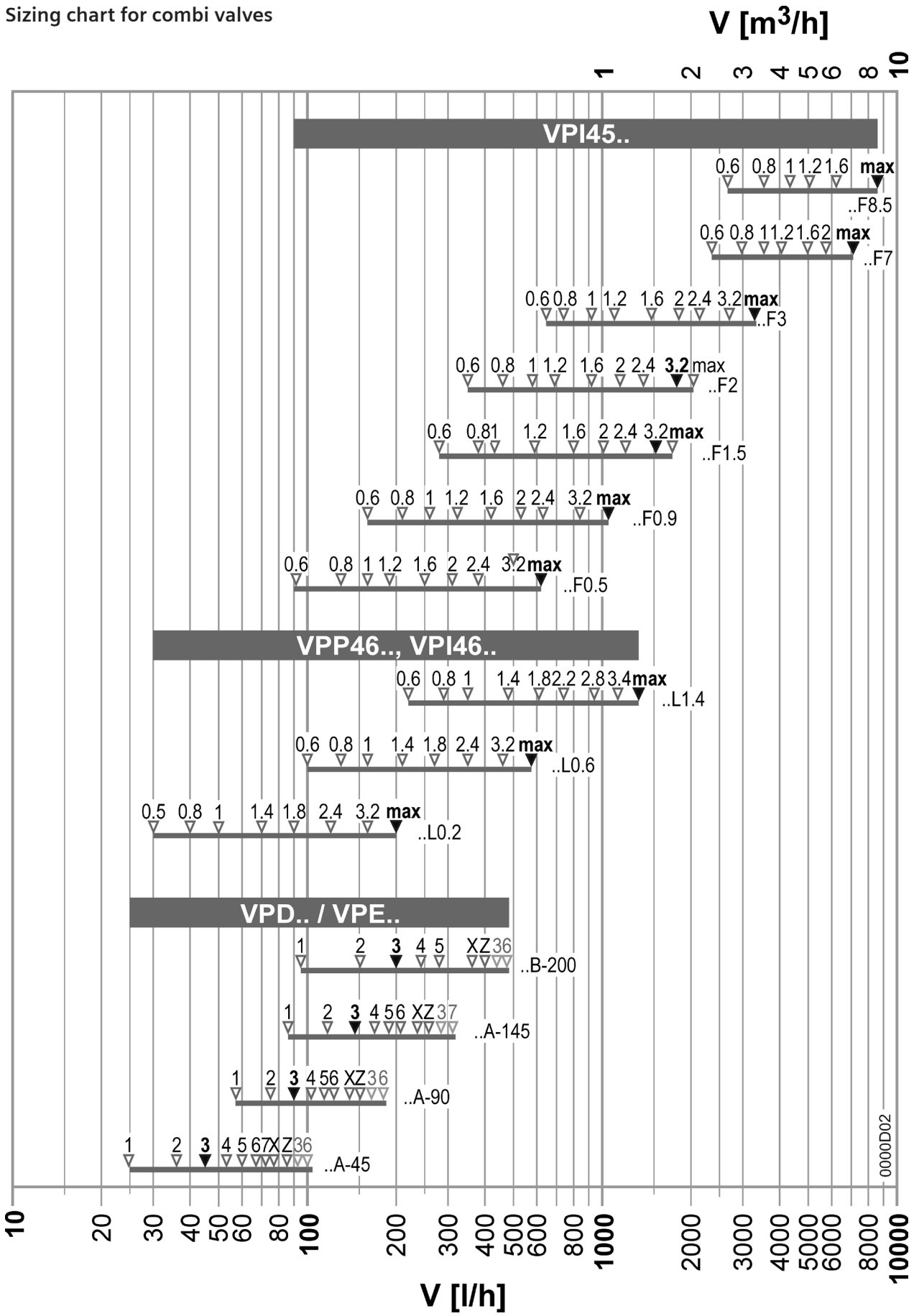
Example

Given:
Q = 1.7 kW
Δt = 10 K
Δp_{V100} = 10 kPa

Solution:
VDN..10, presetting 5
or VDN..15, presetting 4
etc.

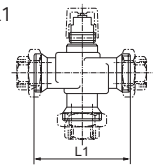
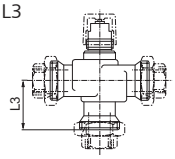
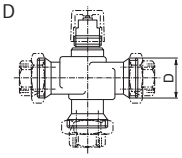
We know from experience that the majority of plant operate with a Δp_{V100} of 5...20 kPa (0.05...0.2 bar).
For detailed charts, refer to the relevant data sheets.

Sizing chart for combi valves

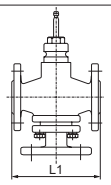
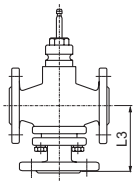
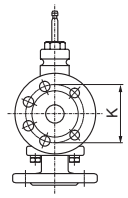
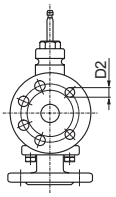


7

Dimensions threaded valves [mm]

	Type	PN	DN10	DN15	DN20	DN25	DN32	DN40	DN50
L1 	V..G41..	16	–	100	100	105	105	130	150
	V..G44..	16	–	100	100	105	105	130	–
	VVP45../VXP45..	16	60	65	80	80/105	105	130	–
	VVG55..	25	–	65	70	75	–	–	–
L3 	VXG41..	16	–	50	50	52.5	52.5	65	75
	VXG44..	16	–	50	50	52.5	52.5	65	–
	VVP45../VXP45..	16	30	32.5	40	40/52.5	52.5	65	–
D 	V..G41..	16	–	G 1B	G 1¼B	G 1½B	G 2B	G 2¼B	G 2¾B
	V..G44..	16	–	G 1B	G 1¼B	G 1½B	G 2B	G 2¼B	–
	VVP45../VXP45..	16	G ½B	G ¾B	G 1B	G 1¼B/G 1½B	G 2B	G 2¼B	–
	VVG55..	25	–	G ¾B	G 1B	G 1¼B	–	–	–

Dimensions flanged valves [mm]

	Type	PN	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
L1 	V..F21..	6	–	–	150	–	180	200	240	260	300	–	–
	V..F31..	10	130	–	160	–	200	230	290	310	350	400	480
	V..F40..	16	130	–	160	–	200	230	290	310	350	400	480
	V..F43..	16	–	–	–	–	–	–	290	310	350	400	480
	V..F53..	25	130	150	160	180	200	230	290	310	350	400	480
	V..F61..	40	130	–	160	–	200	230	290	310	350	400	480
L3 	VXF21..	6	–	–	75	–	90	100	120	130	150	–	–
	VXF31..	10	65	–	80	–	100	115	145	155	175	200	240
	VXF40..	16	65	–	80	–	100	115	145	155	175	200	240
	VXF43..	16	–	–	–	–	–	–	145	155	175	200	240
	VXF53..	25	65	75	80	90	100	115	145	155	175	200	240
	VXF61..	40	65	–	80	–	162	170	215	230	250	280	305
K 	V..F21..	6	–	–	75	–	100	110	130	150	170	–	–
	V..F31..	10	65	–	85	–	110	125	145	160	180	210	240
	V..F40..	16	65	–	85	–	110	125	145	160	180	210	240
	V..F43..	16	–	–	–	–	–	–	145	160	180	210	240
	V..F53..	25	65	75	85	100	110	125	145	160	190	220	250
	V..F61..	40	65	–	85	–	110	125	145	160	190	220	250
D2 	V..F21..	6	–	–	11 (4x)	–	14 (4x)	14 (4x)	14 (4x)	19 (4x)	19 (4x)	–	–
	V..F31..	10	14 (4x)	–	14 (4x)	–	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F40..	16	14 (4x)	–	14 (4x)	–	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F43..	16	–	–	–	–	–	–	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)
	V..F53..	25	14 (4x)	14 (4x)	14 (4x)	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	23 (8x)	28 (8x)	28 (8x)
	V..F61..	40	14 (4x)	–	14 (4x)	–	18 (4x)	18 (4x)	18 (8x)	22 (8x)	22 (8x)	26 (8x)	26 (8x)

7

Thermostatic actuators

RTN..

Thermostatic actuators for controlling the room temperature. Setpoint adjustment with knob. Versions with shutoff and frost protection position.
Limit stops for minimum and maximum values or setpoint locking.
Mounts directly on Siemens radiator valves VDN../VEN../VUN../VPD../VPE..

Data sheet N2111



Thermostatic actuators RTN51

Design	Surface treatment	Setpoint setting range	Stock No.	Product No.
Frost protection position Closing position	RAL 9016, matt	12...28 °C	BPZ:RTN51	**RTN51**
Frost protection position Closing position	RAL 9016, glossy	12...28 °C	BPZ:RTN51G	**RTN51G**

Thermostatic actuators with remote sensor RTN71

Design	Surface treatment	Setpoint setting range	Capillary length	Stock No.	Product No.
Remote sensor Frost protection position Closing position	RAL 9016, matt	12...28 °C	2 m	BPZ:RTN71	**RTN71**

Thermostatic actuators with remote adjuster RTN81

Design	Surface treatment	Setpoint setting range	Capillary length	Stock No.	Product No.
Remote sensor Frost protection position	RAL 9016, matt	8...28 °C	2 m	BPZ:RTN81	**RTN81**

Accessories for thermostatic actuators RTN..

Product Title	Data sheet	Stock No.	Product No.
Adapter for valves of other manufacture	N2179	BPZ:AV..	**AV..**

Actuators for globe and pressure independent combi valves
Positioning force 100 N: STA..3

STA..3



Electrothermal actuators with and without connecting cable for radiator, small, and zone valves

Electrothermal actuators with and without connecting cable for:
- Radiator valves VDN.., VEN.., VUN..
- MCV MiniCombiValves VPD.., VPE..
- Small valves VD1..CLC..
- Zone valves V..I46..
- Combi valves VPP46.., VPI46..
- Valves of other manufacturers

Actuators without connecting cable can be equipped with:
- Connecting cable up to 15 m, also halogen-free
- Connecting cable with LED operation indicator
- Connecting cable with auxiliary switch or DC 0...10 V module

Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview actuators STA..3

Operating voltage	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230 V	210	2-position	1	S55174-A101	**STA23**
AC 24 V	30	DC 0...10	1	S55174-A104	**STA63**
AC 24 V DC 24 V	270	2-position PDM	1	S55174-A100	**STA73**
AC 230 V	210	2-position	0.8	S55174-A107	**STA23HD**
AC 24 V DC 24 V	270	2-position	0.8	S55174-A106	**STA73HD**
AC 230 V	210	2-position		S55174-A110	**STA23/00**
AC 230 V	210	2-position		S55174-A118	**STA23B/00**
AC 230 V	210	2-position		S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	270	2-position PDM		S55174-A109	**STA73/00**
AC 24 V DC 24 V	270	2-position PDM		S55174-A117	**STA73B/00**
AC 24 V DC 24 V	270	2-position PDM		S55174-A113	**STA73MP/00**
AC 24 V DC 24 V	270	2-position PDM/parallel operation		S55174-A115	**STA73PR/00**

The given positioning time is related to the maximum stoke of 4.5 mm.

Connection cable for STA..3

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4

Positioning signal	Auxiliary switch	Display	Color	Cable length	Material	Stock No.	Product No.
2-position	0		White	0.8 m	PVC	S55174-A121	**ASY23L08**
2-position	0		White	1 m	PVC	S55174-A122	**ASY23L10**
2-position	0		White	2 m	PVC	S55174-A123	**ASY23L20**
2-position	0		White	3 m	PVC	S55174-A124	**ASY23L30**
2-position	0		White	4 m	PVC	S55174-A125	**ASY23L40**
2-position	0		White	5 m	PVC	S55174-A126	**ASY23L50**
2-position	0		White	6 m	PVC	S55174-A127	**ASY23L60**
2-position	0		White	7 m	PVC	S55174-A128	**ASY23L70**
2-position	0		White	10 m	PVC	S55174-A129	**ASY23L100**
2-position	0		White	15 m	PVC	S55174-A130	**ASY23L150**
2-position	0		Black	3 m	PVC	S55174-A131	**ASY23L30B**
2-position	0		Black	5 m	PVC	S55174-A132	**ASY23L50B**
2-position	0		Black	10 m	PVC	S55174-A133	**ASY23L100B**
2-position	0		White	2 m	Halogen-free	S55174-A134	**ASY23L20HF**
2-position	0		White	5 m	Halogen-free	S55174-A135	**ASY23L50HF**
2-position	0		White	10 m	Halogen-free	S55174-A136	**ASY23L100HF**
DC 0...10 V	0		White	2 m	PVC	S55174-A137	**ASY6AL20**
DC 0...10 V	0		White	5 m	PVC	S55174-A138	**ASY6AL50**
DC 0...10 V	0		White	7 m	PVC	S55174-A139	**ASY6AL70**
DC 0...10 V	0		White	2 m	PVC	S55174-A140	**ASY6PL20**
DC 0...10 V	0		White	5 m	PVC	S55174-A141	**ASY6PL50**
DC 0...10 V	0		White	7 m	PVC	S55174-A142	**ASY6PL70**
DC 0...10 V	0		Black	2 m	PVC	S55174-A146	**ASY6PL20B**
DC 0...10 V	0		White	2 m	Halogen-free	S55174-A150	**ASY6PL20HF**
DC 0...10 V	0		White	5 m	Halogen-free	S55174-A151	**ASY6PL50HF**
DC 0...10 V	0		White	7 m	Halogen-free	S55174-A152	**ASY6PL70HF**
2-position	1		White	1 m	PVC	S55174-A153	**ASA23U10**
2-position	1		White	2 m	PVC	S55174-A154	**ASA23U20**
2-position	0	LED	White	2 m	PVC	S55174-A157	**ASY23L20LD**
2-position	0	LED	White	5 m	PVC	S55174-A158	**ASY23L50LD**

Accessories for STA..3

Product Title	Data sheet	Stock No.	Product No.
Adapter for Danfoss RA2000, Plastic	N4884	S55174-A164	**AV533**
Adapter for Giacomini	N4884	S55174-A165	**AV63**
Adapter for Vaillant	N2100	BPZ:AV59	**AV59**
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	**AV64**
Adapter various (5 pieces)	N4884	S55174-A167	**AV304**
Adapter for valves with M30 x 1.5	N2179	S55174-A159	**AV301**
Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	N4884	S55174-A160	**AV302**
Adapter for valves with M30 x 1, TA	N4884	S55174-A161	**AV303**
Theft protection	N4884	S55174-A168	**AL431**

Electrothermal actuators with and without connecting cable for small valves

STP..3



Electrothermal actuators with and without connecting cable for:
- Small valves V..P47..
- Valves of other manufacturers

Actuators without connecting cable can be equipped with:
- Connecting cable up to 15 m, also halogen-free
- Connecting cable with LED operation indicator
- Connecting cable with auxiliary switch or DC 0...10 V module

Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview actuators STP..3

Operating voltage	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230 V	210	2-position	1	S55174-A103	**STP23**
AC 24 V	30	DC 0...10	1	S55174-A105	**STP63**
AC 24 V DC 24 V	270	2-position PDM	1	S55174-A102	**STP73**
AC 230 V	210	2-position		S55174-A112	**STP23/00**
AC 230 V	210	2-position		S55174-A120	**STP23B/00**
AC 24 V DC 24 V	270	2-position PDM		S55174-A111	**STP73/00**
AC 24 V DC 24 V	270	2-position PDM		S55174-A119	**STP73B/00**
AC 24 V DC 24 V	270	2-position PDM/parallel operation		S55174-A116	**STP73PR/00**

The given positioning time is related to the maximum stoke of 4.5 mm.

Connection cable for STP..3

For suitable combination of actuator STP.. and connection cable ASY.., see chapter introduction page 7-4.

Positioning signal	Auxiliary switch	Display	Color	Cable length	Material	Stock No.	Product No.
2-position	0		White	0.8 m	PVC	S55174-A121	**ASY23L08**
2-position	0		White	1 m	PVC	S55174-A122	**ASY23L10**
2-position	0		White	2 m	PVC	S55174-A123	**ASY23L20**
2-position	0		White	3 m	PVC	S55174-A124	**ASY23L30**
2-position	0		White	4 m	PVC	S55174-A125	**ASY23L40**
2-position	0		White	5 m	PVC	S55174-A126	**ASY23L50**
2-position	0		White	6 m	PVC	S55174-A127	**ASY23L60**
2-position	0		White	7 m	PVC	S55174-A128	**ASY23L70**
2-position	0		White	10 m	PVC	S55174-A129	**ASY23L100**
2-position	0		White	15 m	PVC	S55174-A130	**ASY23L150**
2-position	0		Black	3 m	PVC	S55174-A131	**ASY23L30B**
2-position	0		Black	5 m	PVC	S55174-A132	**ASY23L50B**
2-position	0		Black	10 m	PVC	S55174-A133	**ASY23L100B**
2-position	0		White	2 m	Halogen-free	S55174-A134	**ASY23L20HF**
2-position	0		White	5 m	Halogen-free	S55174-A135	**ASY23L50HF**
2-position	0		White	10 m	Halogen-free	S55174-A136	**ASY23L100HF**
DC 0...10 V	0		White	2 m	PVC	S55174-A137	**ASY6AL20**
DC 0...10 V	0		White	5 m	PVC	S55174-A138	**ASY6AL50**
DC 0...10 V	0		White	7 m	PVC	S55174-A139	**ASY6AL70**
DC 0...10 V	0		White	2 m	PVC	S55174-A140	**ASY6PL20**
DC 0...10 V	0		White	5 m	PVC	S55174-A141	**ASY6PL50**
DC 0...10 V	0		White	7 m	PVC	S55174-A142	**ASY6PL70**
DC 0...10 V	0		Black	2 m	PVC	S55174-A146	**ASY6PL20B**
DC 0...10 V	0		White	2 m	Halogen-free	S55174-A150	**ASY6PL20HF**
DC 0...10 V	0		White	5 m	Halogen-free	S55174-A151	**ASY6PL50HF**
DC 0...10 V	0		White	7 m	Halogen-free	S55174-A152	**ASY6PL70HF**
2-position	1		White	1 m	PVC	S55174-A155	**ASP23U10**
2-position	1		White	2 m	PVC	S55174-A156	**ASP23U20**
2-position	0	LED	White	2 m	PVC	S55174-A157	**ASY23L20LD**
2-position	0	LED	White	5 m	PVC	S55174-A158	**ASY23L50LD**

Accessories for STP..3

Product Title	Data sheet	Stock No.	Product No.
Adapter for Danfoss RA2000, Plastic	N4884	S55174-A164	**AV533**
Adapter for Giacomini	N4884	S55174-A165	**AV63**
Adapter for Vaillant	N2100	BPZ:AV59	**AV59**
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	**AV64**
Adapter various (5 pieces)	N4884	S55174-A167	**AV304**
Adapter for valves with M30 x 1.5	N2179	S55174-A159	**AV301**
Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	N4884	S55174-A160	**AV302**
Adapter for valves with M30 x 1, TA	N4884	S55174-A161	**AV303**
Theft protection	N4884	S55174-A168	**AL431**

Actuators for globe and pressure independent combi valves
Positioning force 100 N: SSA..

SSA..



Electromotoric actuators 100 N for valves with 2.5/5 mm stroke

For radiator valves, small valves and Combi valves

Electromotoric actuators for modulating or 3-position control of heating systems, chilled ceilings and terminal units. With automatic stroke adaption, force-dependent switching off in the end position, position indication, manual control and plug-in type connecting cable. Suited for use with Siemens radiator valves VDN../VEN../VUN../VPD../VPE.., Siemens small valves VD1..CLC and on radiator valves with M30 x 1.5 connection (Heimeier, Cazzaniga, Oventrop M30x1,5, Honeywell-Braukmann, MNG, Junkers, Beulco new). Further valves of other manufacture on request.
Suited for Siemens Combi valves VPP46../VPI46.. with 2.5, respectively 5 mm stroke.

Data sheet	N4893
Positioning force	100 N
Stroke	2.5 mm 5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5
SSA61..: 1.5 mm minimal stroke required for self calibration

Range overview actuators SSA..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	0	1.5	BPZ:SSA31	**SSA31**
AC 24 V	0.8	3-position	150	0	1.5	BPZ:SSA81	**SSA81**
AC 24 V DC 24 V	2.5	DC 0...10 V	34	0	1.5	BPZ:SSA61	**SSA61**
AC 230 V	6	3-position	150	1	1.5	BPZ:SSA31.1	**SSA31.1**
AC 24 V	0.8	3-position	150	1	1.5	BPZ:SSA81.1	**SSA81.1**
AC 230 V	6	3-position	150	0		BPZ:SSA31/00	**SSA31/00**
AC 24 V	0.8	3-position	150	0		BPZ:SSA81/00	**SSA81/00**
AC 24 V DC 24 V	2	DC 0...10 V	34	0		BPZ:SSA61/00	**SSA61/00**

Positioning time for 2.5 mm stroke
Auxilary switch: Changeover contact AC 250 V, 1 A res., 0.5 A ind., adjustable switching point 0...100 %

SSA../00: Cable selection see accessories for SSA..

Accessories for SSA..

Product Title	Data sheet	Stock No.	Product No.
Adapter for tamper-proof fitting for SSA.. actuators	N4893	BPZ:AL40	**AL40**
Adapter for tamper-proof fitting for STA.., STP.. actuators	N4878	BPZ:AL41	**AL41**
Adapter for valves of other manufacture	N2179	BPZ:AV..	**AV..**
Connecting cable 1.5 m, 3-position, AC 230 V		BPZ:ASY3L15	**ASY3L15**
Connecting cable 2.5 m, 3-position, AC 230 V		BPZ:ASY3L25	**ASY3L25**
Connecting cable 4.5 m, 3-position, AC 230 V		BPZ:ASY3L45	**ASY3L45**
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V		BPZ:ASY6L15	**ASY6L15**
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V		BPZ:ASY6L25	**ASY6L25**
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V		BPZ:ASY6L45	**ASY6L45**
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24		BPZ:ASY6L45HF	**ASY6L45HF**
Connecting cable 1.5 m, 3-position, AC 24 V		BPZ:ASY8L15	**ASY8L15**
Connecting cable 2.5 m, 3-position, AC 24 V		BPZ:ASY8L25	**ASY8L25**
Connecting cable 4.5 m, 3-position, AC 24 V		BPZ:ASY8L45	**ASY8L45**
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24		BPZ:ASY8L45HF	**ASY8L45HF**
Retaining screw for cable connector		BPZ:ASY98	**ASY98**
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..		BPZ:ASY99	**ASY99**
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	N4864	BPZ:ASY100	**ASY100**

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Actuators for globe and pressure independent combi valves
Positioning force 100 N: SSA..

Range overview adapters AV..

Adapter for	Data sheet	Stock No.	Product No.
Beulco M30 x 1	N2100	BPZ:AV51	**AV51**
Comap	N2100	BPZ:AV52	**AV52**
Danfoss RA2000	N2100	BPZ:AV53	**AV53**
Danfoss RAVL	N2100	BPZ:AV54	**AV54**
Danfoss RAV	N2100	BPZ:AV55	**AV55**
Giacomini	N2100	BPZ:AV56	**AV56**
Herz	N2100	BPZ:AV57	**AV57**
Oventrop old (M 30x1.0)	N2100	BPZ:AV58	**AV58**
Vaillant	N2100	BPZ:AV59	**AV59**
TA	N2100	BPZ:AV60	**AV60**
Markaryd (MMA)	N2100	BPZ:AV61	**AV61**

Note:
Beulco: Not to be used with RTN.., for old make of Beulco distributors only
Oventrop: Introduced M30 x 1.5 in 2001 and requires no adapter
TA (Heimeier): Introduced M30 x 1.5 in 2003 and requires no adapter

Fitting the actuators to valves of other manufacture (M30 x 1.5) without adapter:
- Heimeier
- Junkers
- Honeywell Braukmann
- MNG
- Cazzaniga
- Oventrop M30 x 1.5 (from 2001)
- Beulco new

Electromotoric actuators 135 N for small valves V..P47..

SFP21../SFP71..

For small valves VVP47.., VXP47.. and VMP47..



Together with VVP47.., VXP47.. and VMP47.., they offer high-quality on/off control. Versions for AC 24 V and AC 230 V available. For on/off control of terminal units and heating and cooling zones. The actuators offer a low noise level, have a manual lever, power fail reset function (NC valve closed) and 1.8 m connecting cable. 1 auxiliary switch is available as an accessory item. The combination with a 3-port valve is suited for applications requiring tight shutoff in both valve end positions.

Data sheet	N4865
Positioning force	135 N
Positioning signal	2-position
Positioning time	10 s
Stroke	2.5 mm
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85° inclined

For fitting to the valve: Cap nut M30 x 1.5

Range overview actuators SFP..

Operating voltage	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	9.8	Optional	1.8	BPZ:SFP21/18	**SFP21/18**
AC 24 V	9.8	Optional	1.8	BPZ:SFP71/18	**SFP71/18**

Auxilary switch: Changeover contact AC 250 V, 3 A res., 2 A ind., adjustable switching point 50 %

Accessories for SFP21../SFP71..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

Actuators for globe and pressure independent combi valves
Positioning force 160 N: SSA31.04

SSA31.04

Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 230 V, 3P, SPDT



For VPI46../ VPP46.. zone valves

Electromotoric actuators for 3-position or SPDT control of zone valves V..I46.. with internally threaded connections. For 3-position or SPDT (open/close) control of heating systems, domestic hot water storage tank charging as well as terminal units and zones. The actuators have automatic stroke adaption, force-dependent switching off in the end positions, position indication, manual control and 1.5 m connecting cable.
Not suitable for radiator valves (soft seal).

Data sheet	N4860
Positioning force	160 N
Operating voltage	AC 230 V
Positioning signal	3-position SPDT
Positioning time	43 s
Power consumption	6 VA
Stroke	2.5 mm
Cable length	1.5 m
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5

	Stock No.	Product No.
	BPZ:SSA31.04	**SSA31.04**

7

Accessories for SSA31.04

Product Title	Data sheet	Stock No.	Product No.
Retaining screw for cable connector		BPZ:ASY98	**ASY98**

Electromotoric actuator, 150 N, 1.5 m, AC 230 V, 2P

SUA21/1



Electromotoric actuators without spring return for V..I46.. zone valves. Primarily used in heating, ventilation and air conditioning systems for water-based control of hot water and cold water.

- Heating and cooling zones
- Control valves for fan coil units
- Zone valve for floor heating via heating distributors (manifolds)
- Chilled ceiling units
- On/off control for domestic hot water boilers
- Shut off valve for wall mounted boiler applications

Data sheet	N4830
Positioning force	150 N
Stroke	2.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85 ° horizontal, do not suspend

For fitting to the valve: plastic union nut M30 x 1.5

Range overview SUA..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6 VA @ 50 Hz	2-position (SPST)	10 s @ 50 Hz	1.5	S55176-A102	**SUA21/1**

Positioning signal: SPST Single pole single throw, requires change-over contact, i.e. three wires.

Actuators for globe and pressure independent combi valves
Positioning force 160 N: SSP..

SSP..



Electromotoric actuators 160 N for valves with 2.5 mm stroke

- For small valves VVP47.., VXP47.. and VMP47..
- For retrofitting the small valves 2W.., 3W.. and 4W.. with adapter AL100.

Electromotoric actuators for modulating or 3-position control of small valves for terminal units and heating and cooling zones. With position indication, manual control, automatic stroke adaption, force-dependent switching off in the end positions and plug-in type connecting cable.

Data sheet	N4864
Positioning force	160 N
Stroke	2.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5.
SSP81.., SSP61.. are CE, C-tick, UL and cUL listed.

Range overview SSP.. actuators

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSP31	**SSP31**
AC 24 V DC 24 V	2.5	DC 0...10 V	34	1.5	BPZ:SSP61	**SSP61**
AC 24 V	0.8	3-position	150	1.5	BPZ:SSP81	**SSP81**
AC 24 V	0.8	3-position	43	1.5	BPZ:SSP81.04	**SSP81.04**
AC 230 V	6	3-position	150		BPZ:SSP31/00	**SSP31/00**
AC 24 V DC 24 V	2.5	DC 0...10 V	34		BPZ:SSP61/00	**SSP61/00**
AC 24 V	0.8	3-position	150		BPZ:SSP81/00	**SSP81/00**
AC 24 V	0.8	3-position	43		BPZ:SSP81.04/00	**SSP81.04/00**

Positioning time for 2.5 mm stroke
SSP../00: Cable selection see accessories for SSP..

Accessories for SSP..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	**ASY3L15**
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	**ASY3L25**
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	**ASY3L45**
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	**ASY6L15**
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	**ASY6L25**
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V	BPZ:ASY6L45	**ASY6L45**
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	**ASY6L45HF**
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	**ASY8L15**
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	**ASY8L25**
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	**ASY8L45**
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	**ASY8L45HF**
Retaining screw for cable connector	BPZ:ASY98	**ASY98**
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	**ASY99**
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	**ASY100**
Retrofit adapter for installed 2W..., 3W..., 4W... valves	BPZ:AL100	**AL100**

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Actuators for globe and pressure independent combi valves
Positioning force 200 N: SFA21.. / SFA71..

SFA21.. / SFA71..



Electromotoric actuators 200 N for small valves V..I46..

For V..I46.. zone valves, AC 24 V and AC 230 V versions.

Electromotoric actuators for on/off control of zone. For on/off control of terminal units and heating and cooling zones. The actuators are equipped with a manual lever, spring return facility (NO valve closed) and 1.8 m connecting cable. 1 auxiliary switch is available as an accessory item.

Data sheet	N4863
Positioning force	200 N
Positioning signal	2-position
Positioning time	10 s
Stroke	2.5 mm
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 85° inclined
Auxiliary switch	1

For fitting to the valve: Cap nut M30 x 1.5

Range overview actuators SFA..

Operating voltage [V]	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230	12	Optional	1.8	BPZ:SFA21/18	**SFA21/18**
AC 24	12	Optional	1.8	BPZ:SFA71/18	**SFA71/18**
AC 230	12	Optional		BPZ:SFA21	**SFA21**

Auxilary switch: Changeover contact AC 250 V, 3 A res., 2 A ind., adjustable switching point 50 %

Auxiliary switch for actuators SFA..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

Electromotoric actuators 200 N for valves with 5.5 mm stroke

SSB..

For small valves V..P45..



Electromotoric actuators for modulating or 3-position control of small valves for terminal units and chilled ceilings. With position indication, manual control and plug-in type connecting cable 1.5 m. Automatic stroke adaption and force-dependent switching off in the end position.

Data sheet	N4891
Positioning force	200 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined
Medium temperature	1...110 °C

For fitting to the valve: Cap nut G¾"
SSB61.., SSB81.. are CE, C-tick, UL and cUL listed.

Range overview SSB..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	0	1.5	BPZ:SSB31	**SSB31**
AC 24 V	0.8	3-position	150	0	1.5	BPZ:SSB81	**SSB81**
AC 24 V DC 24 V	2.5	DC 0...10 V	75	0	1.5	BPZ:SSB61	**SSB61**
AC 230 V	6	3-position	150	1	1.5	BPZ:SSB31.1	**SSB31.1**
AC 24 V	0.8	3-position	150	1	1.5	BPZ:SSB81.1	**SSB81.1**
AC 230 V	6	3-position	150	0		BPZ:SSB31/00	**SSB31/00**
AC 24 V	0.8	3-position	150	0		BPZ:SSB81/00	**SSB81/00**
AC 24 V DC 24 V	2.5	DC 0...10 V	75	0		BPZ:SSB61/00	**SSB61/00**

Auxilary switch: Changeover contact AC 250 V, 1 A res., 0.5 A ind., adjustable switching point 0...100 %
SSB../00: Cable selection see accessories for SSB..

Actuators for globe and pressure independent combi valves
Positioning force 200 N: SSB..

Accessories for SSB..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	**ASY3L15**
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	**ASY3L25**
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	**ASY3L45**
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	**ASY6L15**
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	**ASY6L25**
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V	BPZ:ASY6L45	**ASY6L45**
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	**ASY6L45HF**
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	**ASY8L15**
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	**ASY8L25**
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	**ASY8L45**
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	**ASY8L45HF**
Retaining screw for cable connector	BPZ:ASY98	**ASY98**
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	**ASY99**
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	**ASY100**

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Electromotoric actuators 250 N for combi valves VPI45.. SSD..



Electromotoric actuators for modulating or 3-position control of combi valves VPI45.. for water-side control of hot and cooling water in heating, ventilation and air conditioning systems. With position indication, manual control and plug-in type connecting cables.
Available are actuators types for modulating control DC 0/2...10 V and DC 0...10 V (SSD61EP) for equal-percentage valve characteristic.

Data sheet	N4861
Positioning force	250 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Medium temperature	1...110 °C
Mounting position	Upright to 90° inclined

For fitting to the valve: Cap nut M30 x 1.5.
SSD81.., SSD61.. are CE, C-tick, UL and cUL listed.
The types SSD61.5 and SSD81.5 have the same housing and dimensions as the SSC.. actuators.

Range overview actuators SSD..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSD31	**SSD31**
AC 24 V DC 24 V	2.5	DC 0...10 V	75	1.5	BPZ:SSD61	**SSD61**
AC 24 V DC 24 V	2.5	DC 2...10 V	75	1.5	BPZ:SSD61.2	**SSD61.2**
AC 24 V DC 24 V	2.5	DC 0...10 V	75	1.5	BPZ:SSD61EP	**SSD61EP**
AC 24 V	0.8	3-position	150	1.5	BPZ:SSD81	**SSD81**
AC 230 V	6	3-position	150		BPZ:SSD31/00	**SSD31/00**
AC 24 V DC 24 V	2.5	DC 0...10 V	75		BPZ:SSD61/00	**SSD61/00**
AC 24 V DC 24 V	2.5	DC 2...10 V	75		BPZ:SSD61.2/00	**SSD61.2/00**
AC 24 V DC 24 V	2.5	DC 0...10 V	75		BPZ:SSD61EP/00	**SSD61EP/00**
AC 24 V	0.8	3-position	150		BPZ:SSD81/00	**SSD81/00**

SSD../00: Cable selection see accessories for SSD..
SSD61EP.. for equal-percentage valve characteristics

Actuators for globe and pressure independent combi valves
Positioning force 250 N: SSD..

Accessories for SSD..

Product Title	Stock No.	Product No.
Connecting cable 1.5 m, 3-position, AC 230 V	BPZ:ASY3L15	**ASY3L15**
Connecting cable 2.5 m, 3-position, AC 230 V	BPZ:ASY3L25	**ASY3L25**
Connecting cable 4.5 m, 3-position, AC 230 V	BPZ:ASY3L45	**ASY3L45**
Connecting cable 1.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L15	**ASY6L15**
Connecting cable 2.5 m, DC 0...10 V, AC/DC 24 V	BPZ:ASY6L25	**ASY6L25**
Connecting cable 4.5 m, DC 0..10 V, AC/DC 24 V	BPZ:ASY6L45	**ASY6L45**
Connecting cable 4.5 m, DC 0...10 V, AC/DC 24 V, halogen-free, VDE 0207-24	BPZ:ASY6L45HF	**ASY6L45HF**
Connecting cable 1.5 m, 3-position, AC 24 V	BPZ:ASY8L15	**ASY8L15**
Connecting cable 2.5 m, 3-position, AC 24 V	BPZ:ASY8L25	**ASY8L25**
Connecting cable 2.5 m, 3-position, AC 24 V, with Batigyr connector	BPZ:ASY8L25B	**ASY8L25B**
Connecting cable 4.5 m, 3-position, AC 24 V	BPZ:ASY8L45	**ASY8L45**
Connecting cable 4.5 m, 3-position, AC 24 V, halogen-free, VDE 0207-24	BPZ:ASY8L45HF	**ASY8L45HF**
Retaining screw for cable connector	BPZ:ASY98	**ASY98**
Terminal block connector 3 position, AC 24 V for SSA81../SSB81../SSD81../SSP81..	BPZ:ASY99	**ASY99**
Terminal block connector DC0...10 V, AC 24 V for SSA61../SSB61../SSP61../SSD61..	BPZ:ASY100	**ASY100**

Accessories for SSP.. (N4864), SSA.. (N4893), SSB.. (N4891) and SSD.. (N4861)

Electromotoric actuators 250 N for valves VVP45..N

SSY..



For operation of Siemens valves VVP45..N for water-side control of hot and cooling water in heating, ventilation and air conditioning systems.

Data sheet	N4894
Positioning force	250 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	1...50 °C
Mounting position	Upright to 90° inclined
Medium temperature	1...110 °C

For fitting to the valve: Cap nut G¾.
SSY81 is CE, C-tick, UL and cUL listed.

Range overview actuators SSY..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230 V	6	3-position	150	1.5	BPZ:SSY31	**SSY31**
AC 24 V	0.8	3-position	150	1.5	BPZ:SSY81	**SSY81**

Accessories for SSY..

Product Title	Data sheet	Stock No.	Product No.
Retaining screw for cable connector		BPZ:ASY98	**ASY98**

Actuators for globe and pressure independent combi valves
Positioning force 300 N: SSC..

SSC..



Electromotoric actuators 300 N for valves with 5.5 mm stroke

Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position. With plastic housing and cap nut for fitting on threaded valves with 5.5 mm stroke.

Data sheet	N4895
Positioning force	300 N
Stroke	5.5 mm
Degree of protection	IP40
Ambient temperature, operation	5...50 °C
Medium temperature	1...110 °C
Mounting position	Upright to horizontal

SSC81.., SSC61.., SSC61.5 are CE, UL, cUL and C-TIC listed

Range overview SSC..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	3-position	0.8	150	No	BPZ:SSC81	**SSC81**
AC 24 V DC 24 V	DC 0...10 V	2	30	No	BPZ:SSC61	**SSC61**
AC 24 V DC 24 V	DC 0...10 V	2	30	Yes (15 s)	BPZ:SSC61.5	**SSC61.5**
AC 230 V	3-position	6	150	No	BPZ:SSC31	**SSC31**

SSC61.5: Power consumption when connecting power for the first time 3 VA

Accessories for SSC..

Product Title	Data sheet	Stock No.	Product No.
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	**ASK30**

Electromotoric actuators for threaded valves with a stroke of 5.5 mm

SQS..

Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position. With plastic housing and cap nut for fitting on threaded valves with a stroke of 5.5 mm.



Data sheet	N4573
Positioning force	400 N
Stroke	5.5 mm
Spring return function	SQS35.50, SQS35.53, SQS65.5
Degree of protection	IP54
Ambient temperature, operation	-5...50 °C
Medium temperature	1...130 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SQS65..)

Range overview SQS..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	2.5	150	No	BPZ:SQS35.00	**SQS35.00**
AC 230 V	3-position	3.5	35	No	BPZ:SQS35.03	**SQS35.03**
AC 230 V	3-position	5	150	Yes (8 s)	BPZ:SQS35.50	**SQS35.50**
AC 230 V	3-position	6	35	Yes (8 s)	BPZ:SQS35.53	**SQS35.53**
AC 24 V	DC 0...10 V 0...1000 Ohm	4.5	35	No	BPZ:SQS65	**SQS65**
AC 24 V	DC 2...10 V 0...1000 Ohm	4.5	35	No	BPZ:SQS65.2	**SQS65.2**
AC 24 V	DC 0...10 V 0...1000 Ohm	7	35	Yes (8 s)	BPZ:SQS65.5	**SQS65.5**
AC 24 V	3-position	2	150	No	BPZ:SQS85.00	**SQS85.00**
AC 24 V	3-position	2	35	No	BPZ:SQS85.03	**SQS85.03**

Actuators with spring-return function have a position indication in place of the manual control lever.
Actuators SQS65 and SQS65.5 are UL-listed (only 60 Hz); type suffix U, e.g. SQS65U.

Accessories for SQS35../SQS85..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQS35../85.., SQD35../85..	N4573	BPZ:ASC9.6	**ASC9.6**
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	**ASK30**

Actuators for globe and pressure independent combi valves
Positioning force 400 N: SQD..

SQD..



Electromotoric actuators 400 N für Combi valves

For operation of Siemens Combi valves VPI45.., DN40/50 with 6.5 mm stroke for water-side control of low temperature hot water and cooling water in heating, ventilation and air conditioning systems. Manual control with automatic reset to control mode. Overload-proof through force-dependent switching off in the end position.

Data sheet	N4540
Positioning force	400 N
Stroke	6.5 mm
Degree of protection	IP54
Ambient temperature, operation	-5...50 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SQD65)

For fitting to the valve: Cap nut M30 x 1.5.

Range overview actuators SQD..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Stock No.	Product No.
AC 230 V	2.5	3-position	170	BPZ:SQD35.00	**SQD35.00**
AC 24 V	4.5	DC 0...10 V 0...1000 Ohm	43	BPZ:SQD65	**SQD65**
AC 24 V	2	3-position	43	BPZ:SQD85.03	**SQD85.03**

7

Accessories for SQD..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQS35../85.., SQD35../85..	N4573	BPZ:ASC9.6	**ASC9.6**

Electromotoric actuators 800 N for valve with 20 mm stroke

SAX..



Electromotoric actuator for the operation of Siemens 2-port and 3-port valves, types VVF.., VVG.., VXF.. and VXG.. with 20 mm stroke as control and safety shut-off valves in heating, ventilation and air conditioning systems.
With manual adjuster and position indicator, status indication per LED.
Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

SA..81.., SA..61.. are UL listed.

Data sheet	N4501
Positioning force	800 N
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...100 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAX..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	3.5	120	S55150-A105	**SAX31.00**
AC 230 V	3-position	8	30	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	30	S55150-A100	**SAX61.03**
AC 24 V DC 24 V	3-position	3.5	120	S55150-A102	**SAX81.00**
AC 24 V DC 24 V	3-position	8	30	S55150-A103	**SAX81.03**

Accessories for actuators SAX..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	**ASZ7.5/1000**
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	**ASZ7.5/200**
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	**ASZ7.5/135**
Funtion module for SA..61.., sequence control/changeover of acting direction	N4501	S55845-Z107	**AZX61.1**
Stem heating element for media < 0 °C	N4501	S55845-Z108	**ASZ6.6**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

Actuators for globe and pressure independent combi valves
Positioning force 500 N: SAX..P..

SAX..P..



Electromotoric actuators 500 N for Combi valves VPF43../53..

Electromotoric actuator for the operation of Siemens Combi valves, types VPF43.. and VPF53.. with 20 mm stroke as control valves in ventilation, air conditioning, district heating and cooling systems. With manual adjuster and position indicator, status indication per LED. With manual adjuster and position indicator, status indication per LED. Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

Data sheet	N4509
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	1...100 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SAX6..)

SA..81P.., SA..61P.. are UL listed.

Range overview SAX..P..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Positioning force [N]	Stock No.	Product No.
AC 230 V	8	3-position	30	No	500	S55150-A118	SAX31P03
AC 24 V DC 24 V	8	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	500	S55150-A114	SAX61P03
AC 24 V DC 24 V	8	3-position	30	No	500	S55150-A116	SAX81P03

Accessories for SAX..P..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	**ASZ7.5/1000**
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	**ASZ7.5/200**
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	**ASZ7.5/135**

Electromotoric actuators for seat valves

SBX..

For operation with Siemens 2-port and 3-port valves, types VVF47.., VXF47.. with 20 and 40 mm stroke as control valves in heating, ventilation and air conditioning systems



Data sheet	N4519
Positioning force	700 N
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal

Range overview SBX..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	9	120	S55160-A102	**SBX31**
AC 24 V	DC 0...10 V	5	120	S55160-A100	**SBX61**
AC 24 V	3-position	4	120	S55160-A101	**SBX81**

Accessories for SBX..

Product Title	Data sheet	Stock No.	Product No.
Function module 4...20 mA for SBX61, SBV61	N4519	S55845-Z120	**AZX420**

Actuators for globe and pressure independent combi valves
Positioning force 1100 N: SQV..P..

SQV..P..



Electromotoric actuators 1100 N for Combi valves VPF43../53..

Electromotoric actuators for the operation of Siemens Combi valves, types VPF43.. and VPF53.. with 20/40 mm stroke as control valves in ventilation, air conditioning, district heating and cooling systems. With manual adjuster and position indicator, status indication per LED and with selectable positioning time (20 mm: 40, 60, 90 or 120 s, 40 mm: 80, 120, 180 or 240 s). Optional functions with auxiliary switches, potentiometer and AC 230 V power module.

Data sheet	N4833
Positioning force	1100 N
Stroke	20 mm 40 mm
Degree of protection	IP66
Ambient temperature, operation	0...55 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V

Actuators SQV..P.. are UL-listed

Range overview SQV..P..

Operating voltage	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V DC 24 V	20	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	S55150-A130	**SQV91P30**
AC 24 V DC 24 V	20	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	S55150-A131	**SQV91P40**

Accessories for actuators SQV..P..

Product Title	Data sheet	Stock No.	Product No.
Double auxiliary switch for SQV..P..	N4833	S55845-Z137	ASC10.42
Potentiometer 0...1000 Ohm for SQV..P..	N4833	S55845-Z136	ASZ7.6/1000
AC 230 V Adapter für SQV..P..	N4833	S55845-Z138	ASP1.1

Electromotoric actuators for seat valves

SBV..

For operation with Siemens 2-port and 3-port valves, types VVF47.., VXF47.. with 20 and 40 mm stroke as control valves in heating, ventilation and air conditioning systems



Data sheet	N4519
Positioning force	1600 N
Stroke	40 mm
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal

Range overview SBV..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230 V	3-position	9	180	S55160-A105	**SBV31**
AC 24 V	DC 0...10 V	7	180	S55160-A103	**SBV61**
AC 24 V	3-position	7	180	S55160-A104	**SBV81**

Accessories for SBV..

Product Title	Data sheet	Stock No.	Product No.
Function module 4...20 mA for SBX61, SBV61	N4519	S55845-Z120	**AZX420**

Actuators for globe and pressure independent combi valves
Electrohydraulic, positioning force 1000 N: SKD..

SKD32../SKD82..

Electrohydraulic actuators 1000 N for valves with 20 mm stroke



Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Spring return function	SKD32.21, SKD32.51, SKD82.51
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Medium temperature	-25...150 °C
Mounting position	Upright to horizontal

Range overview SKD32../SKD82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	20	Open 30 Close 10	Yes (8 s)	BPZ:SKD32.21	**SKD32.21**
AC 230 V	3-position	16	120	No	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	21	120	Yes (8 s)	BPZ:SKD32.51	**SKD32.51**
AC 24 V	3-position	13	120	No	BPZ:SKD82.50	**SKD82.50**
AC 24 V	3-position	18	120	Yes (8 s)	BPZ:SKD82.51	**SKD82.51**
AC 24 V	3-position	13	120	No	BPZ:SKD82.50U	**SKD82.50U**
AC 24 V	3-position	18	120	Yes (8 s)	BPZ:SKD82.51U	**SKD82.51U**

Actuators SKD 82.50U and SKD82.51U are UL-listed.

SKD60/SKD62..

Electrohydraulic actuators 1000 N for valves with 20 mm stroke



Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Spring return function	SKD62..
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Medium temperature	-25...150 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Range overview SKD60/SKD62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	No	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	No	BPZ:SKD60U	**SKD60U**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62	**SKD62**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62U	**SKD62U**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	17	Open 30 Close 15	Yes (15 s)	BPZ:SKD62UA	**SKD62UA**

Actuators with type suffix ..U /..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

NEW PRODUCT

Actuators for globe and pressure independent combi valves
Electrohydraulic, positioning force 2800 N: SKB..

SKB32../SKB82..

Electrohydraulic actuators 2800 N for valves with 20 mm stroke



Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4564
Positioning force	2800 N
Stroke	20 mm
Spring return function	SKB32.51, SKB82.51
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal

Range overview SKB32../SKB82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	10	120	No	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	15	120	Yes (10 s)	BPZ:SKB32.51	**SKB32.51**
AC 24 V	3-position	13	120	No	BPZ:SKB82.50	**SKB82.50**
AC 24 V	3-position	18	120	Yes (10 s)	BPZ:SKB82.51	**SKB82.51**
AC 24 V	3-position	13	120	No	BPZ:SKB82.50U	**SKB82.50U**
AC 24 V	3-position	18	120	Yes (10 s)	BPZ:SKB82.51U	**SKB82.51U**

Actuators with type suffix ..U are UL-listed.

SKB60/62..

Electrohydraulic actuators 2800 N for valves with 20 mm stroke



Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 20 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4564
Positioning force	2800 N
Stroke	20 mm
Spring return function	SKB62..
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Range overview SKB60/SKB62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	No	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62	**SKB62**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62U	**SKB62U**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	18	Open 120 Close 10	Yes (10 s)	BPZ:SKB62UA	**SKB62UA**

Actuators with type suffix ..U /..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

Actuators for globe and pressure independent combi valves
Electrohydraulic, positioning force 2800 N: SKC..

SKC32../SKC82..

Electrohydraulic actuators 2800 N for valves with 40 mm stroke



Overload-proof through travel-dependent, fixed switching off in end position. With die-cast aluminium housing and yoke for valves with 40 mm stroke. Optional functions: one auxiliary switch or one potentiometer. With manual control.

Data sheet	N4566
Positioning force	2800 N
Stroke	40 mm
Spring return function	SKC32.61, SKC82.61
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal

Range overview SKC32../82..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230 V	3-position	19	120	No	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	24	120	Yes (18 s)	BPZ:SKC32.61	**SKC32.61**
AC 24 V	3-position	19	120	No	BPZ:SKC82.60	**SKC82.60**
AC 24 V	3-position	24	120	Yes (18 s)	BPZ:SKC82.61	**SKC82.61**
AC 24 V	3-position	19	120	No	BPZ:SKC82.60U	**SKC82.60U**
AC 24 V	3-position	24	120	Yes (18 s)	BPZ:SKC82.61U	**SKC82.61U**

Actuators with type suffix ..U are UL-listed.

SKC60/SKC62..

Electrohydraulic actuators 2800 N for valves with 40 mm stroke



Overload-proof through travel-dependent, electronic switching off in end position. With die-cast aluminium housing and yoke for valves with 40 mm stroke. Optional function with one auxiliary switch. With manual control.

Data sheet	N4566
Positioning force	2800 N
Stroke	40 mm
Spring return function	SKC62..
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-25...220 °C (350 °C)
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V DC 4...20 mA

Range overview SKC60/SKC62..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	24	Open 120 Close 20	No	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62	**SKC62**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62U	**SKC62U**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	28	Open 120 Close 20	Yes (20 s)	BPZ:SKC62UA	**SKC62UA**

Actuators with type suffix ..U /..UA are UL-listed. Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

Actuators for globe and pressure independent combi valves
Accessories for SKD.. / SKB.. / SKC..

Accessories for actuators SKB.. / SKC.. / SKD..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	**ASC1.6**
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	**ASC9.3**
Stroke inverter for SKD..	N4561	BPZ:ASK50	**ASK50**
Stroke inverter for SKB..	N4564	BPZ:ASK51	**ASK51**
Stem heating element for media < 0 °C		BPZ:ASZ6.5	**ASZ6.5**
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	**ASZ7.3**
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	**ASZ7.31**
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	**ASZ7.32**

2-port seat valves PN6 with flanged connections

VVF21..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits



Data sheet	N4310
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 25...40: >50 DN 50...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 6

Range overview 2-port valves VVF21..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	600	300	600	300	600			25	1.9	BPZ:VVF21.22	**VVF21.22**
300	600	300	600	300	600			25	2.5	BPZ:VVF21.25-2.5	**VVF21.25-2.5**
300	600	300	600	300	600			25	3	BPZ:VVF21.23	**VVF21.23**
300	600	300	600	300	600			25	4	BPZ:VVF21.25-4	**VVF21.25-4**
300	600	300	600	300	600			25	5	BPZ:VVF21.24	**VVF21.24**
300	600	300	600	300	600			25	6.3	BPZ:VVF21.25-6.3	**VVF21.25-6.3**
300	600	300	600	300	600			25	7.5	BPZ:VVF21.25	**VVF21.25**
300	600	300	600	300	600			25	10	BPZ:VVF21.25-10	**VVF21.25-10**
300	500	300	600	300	600			40	12	BPZ:VVF21.39	**VVF21.39**
300	500	300	600	300	600			40	16	BPZ:VVF21.40-16	**VVF21.40-16**
300	500	300	600	300	600			40	19	BPZ:VVF21.40	**VVF21.40**
300	500	300	600	300	600			40	25	BPZ:VVF21.40-25	**VVF21.40-25**
300	300	300	450	300	600			50	31	BPZ:VVF21.50	**VVF21.50**
300	300	300	450	300	600			50	40	BPZ:VVF21.50-40	**VVF21.50-40**
175	175	275	275	300	600			65	49	BPZ:VVF21.65	**VVF21.65**
175	175	275	275	300	600			65	63	BPZ:VVF21.65-63	**VVF21.65-63**
100	100	175	175	300	500			80	78	BPZ:VVF21.80	**VVF21.80**
100	100	175	175	300	500			80	100	BPZ:VVF21.80-100	**VVF21.80-100**
						200	300	100	124	BPZ:VVF21.90	**VVF21.90**
						200	300	100	160	BPZ:VVF21.100-160	**VVF21.100-160**

Replacement sealing glands for VVF21..:

VVF/VXF21.., DN25...DN80: part no. 4 284 8806 0
VVF/VXF21.., DN100: part no. 4 679 5629 0

VVF21.. will be phased out around spring 2014, replacement products VVF22.. will be available at the same time

Globe and pressure independent combi valves
2-port flanged valves, PN6: VVF21..

Field of application for VVF21..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	6 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VVF21..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

2-port seat valves PN10 with flanged connections

VVF31..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits



Data sheet	N4320
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 25...40: >50 DN 50...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 10

Range overview 2-port valves VVF31..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	1000	300	1000	300	1000			15	2.5	BPZ:VVF31.15-2.5	**VVF31.15-2.5**
300	1000	300	1000	300	1000			15	4	BPZ:VVF31.15-4	**VVF31.15-4**
300	1000	300	1000	300	1000			25	5	BPZ:VVF31.24	**VVF31.24**
300	1000	300	1000	300	1000			25	6.3	BPZ:VVF31.25-6.3	**VVF31.25-6.3**
300	1000	300	1000	300	1000			25	7.5	BPZ:VVF31.25	**VVF31.25**
300	1000	300	1000	300	1000			25	10	BPZ:VVF31.25-10	**VVF31.25-10**
300	525	300	775	300	1000			40	12	BPZ:VVF31.39	**VVF31.39**
300	525	300	775	300	1000			40	16	BPZ:VVF31.40-16	**VVF31.40-16**
300	525	300	775	300	1000			40	19	BPZ:VVF31.40	**VVF31.40**
300	525	300	775	300	1000			40	25	BPZ:VVF31.40-25	**VVF31.40-25**
300	325	300	475	300	1000			50	31	BPZ:VVF31.50	**VVF31.50**
300	325	300	475	300	1000			50	40	BPZ:VVF31.50-40	**VVF31.50-40**
175	175	275	275	300	750			65	49	BPZ:VVF31.65	**VVF31.65**
175	175	275	275	300	750			65	63	BPZ:VVF31.65-63	**VVF31.65-63**
100	100	175	175	300	500			80	78	BPZ:VVF31.80	**VVF31.80**
100	100	175	175	300	500			80	100	BPZ:VVF31.80-100	**VVF31.80-100**
						200	300	100	124	BPZ:VVF31.90	**VVF31.90**
						200	300	100	160	BPZ:VVF31.100-160	**VVF31.100-160**
						150	200	125	200	BPZ:VVF31.91	**VVF31.91**
						150	200	125	250	BPZ:VVF31.125-250	**VVF31.125-250**
						100	125	150	300	BPZ:VVF31.92	**VVF31.92**
						100	125	150	315	BPZ:VVF31.150-315	**VVF31.150-315**

VVF31.. will be phased out around spring 2014, replacement products VVF32.. will be available at the same time

Globe and pressure independent combi valves
2-port flanged valves, PN10: VVF31..

Range overview 2-port valves C/VVF31..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	1000	300	1000	300	1000			25	5	BPZ:C/VVF31.24	**C/VVF31.24**
300	1000	300	1000	300	1000			25	6.3	BPZ:C/VVF31.25-6.3	**C/VVF31.25-6.3**
300	1000	300	1000	300	1000			25	7.5	BPZ:C/VVF31.25	**C/VVF31.25**
300	1000	300	1000	300	1000			25	10	BPZ:C/VVF31.25-10	**C/VVF31.25-10**
300	525	300	775	300	1000			40	12	BPZ:C/VVF31.39	**C/VVF31.39**
300	525	300	775	300	1000			40	16	BPZ:C/VVF31.40-16	**C/VVF31.40-16**
300	525	300	775	300	1000			40	19	BPZ:C/VVF31.40	**C/VVF31.40**
300	525	300	775	300	1000			40	25	BPZ:C/VVF31.40-25	**C/VVF31.40-25**
300	325	300	475	300	1000			50	31	BPZ:C/VVF31.50	**C/VVF31.50**
300	325	300	475	300	1000			50	40	BPZ:C/VVF31.50-40	**C/VVF31.50-40**
175	175	275	275	300	750			65	49	BPZ:C/VVF31.65	**C/VVF31.65**
175	175	275	275	300	750			65	63	BPZ:C/VVF31.65-63	**C/VVF31.65-63**
100	100	175	175	300	500			80	78	BPZ:C/VVF31.80	**C/VVF31.80**
100	100	175	175	300	500			80	100	BPZ:C/VVF31.80-100	**C/VVF31.80-100**
						200	300	100	124	BPZ:C/VVF31.90	**C/VVF31.90**
						200	300	100	160	BPZ:C/VVF31.100-160	**C/VVF31.100-160**
						150	200	125	200	BPZ:C/VVF31.91	**C/VVF31.91**
						150	200	125	250	BPZ:C/VVF31.125-250	**C/VVF31.125-250**
						100	125	150	300	BPZ:C/VVF31.92	**C/VVF31.92**
						100	125	150	315	BPZ:C/VVF31.150-315	**C/VVF31.150-315**

C/VVF31.. will be phased out around autumn 2014, replacement products VVF32..C will be available at the same time

Replacement sealing glands for VVF31..:

VVF/VXF31.., DN15...DN80: part no. 4 284 8806 0
VVF/VXF31.., DN100...DN150: part no. 4 679 5629 0

Field of application for VVF31..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	10 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0° C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VVF31..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF40..

VVF40..



2-port seat valves PN16 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4330
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 16

Range overview 2-port valves VVF40..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	1600	300	1600	300	1600			15	1.9	BPZ:VVF40.15-1.9	**VVF40.15-1.9**
300	1600	300	1600	300	1600			15	2.5	BPZ:VVF40.15-2.5	**VVF40.15-2.5**
300	1600	300	1600	300	1600			15	3	BPZ:VVF40.15-3	**VVF40.15-3**
300	1600	300	1600	300	1600			15	4	BPZ:VVF40.15-4	**VVF40.15-4**
300	1550	300	1600	300	1600			25	5	BPZ:VVF40.25-5	**VVF40.25-5**
300	1550	300	1600	300	1600			25	6.3	BPZ:VVF40.25-6.3	**VVF40.25-6.3**
300	1550	300	1600	300	1600			25	7.5	BPZ:VVF40.25-7.5	**VVF40.25-7.5**
300	1550	300	1600	300	1600			25	10	BPZ:VVF40.25-10	**VVF40.25-10**
300	525	300	775	300	1600			40	12	BPZ:VVF40.40-12	**VVF40.40-12**
300	525	300	775	300	1600			40	16	BPZ:VVF40.40-16	**VVF40.40-16**
300	525	300	775	300	1600			40	19	BPZ:VVF40.40-19	**VVF40.40-19**
300	525	300	775	300	1600			40	25	BPZ:VVF40.40-25	**VVF40.40-25**
300	325	300	475	300	1300			50	31	BPZ:VVF40.50-31	**VVF40.50-31**
300	325	300	475	300	1300			50	40	BPZ:VVF40.50-40	**VVF40.50-40**

VVF40.. will be phased out around spring 2014, replacement products VVF42.. will be available at the same time

Range overview 2-port valves VVF40..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max}	SKC.. Δp_s	DN	k_{vs} [m³/h]	Stock No.	Product No.
175	175	275	275	300	750			65	49	BPZ:VVF40.65-49	**VVF40.65-49**
175	175	275	275	300	750			65	63	BPZ:VVF40.65-63	**VVF40.65-63**
100	100	175	175	300	500			80	78	BPZ:VVF40.80-78	**VVF40.80-78**
100	100	175	175	300	500			80	100	BPZ:VVF40.80-100	**VVF40.80-100**
						200	300	100	124	BPZ:VVF40.100-124	**VVF40.100-124**
						200	300	100	160	BPZ:VVF40.100-160	**VVF40.100-160**
						150	200	125	200	BPZ:VVF40.125-200	**VVF40.125-200**
						150	200	125	250	BPZ:VVF40.125-250	**VVF40.125-250**
						100	125	150	300	BPZ:VVF40.150-300	**VVF40.150-300**
						100	125	150	315	BPZ:VVF40.150-315	**VVF40.150-315**

VVF40.. will be phased out around spring 2014, replacement products VVF42.. will be available at the same time

Range overview 2-port valves C/VVF40..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	1550	300	1600	300	1600			25	5	BPZ:C/VVF40.25-5	**C/VVF40.25-5**
300	1550	300	1600	300	1600			25	6.3	BPZ:C/VVF40.25-6.3	**C/VVF40.25-6.3**
300	1550	300	1600	300	1600			25	7.5	BPZ:C/VVF40.25-7.5	**C/VVF40.25-7.5**
300	1550	300	1600	300	1600			25	10	BPZ:C/VVF40.25-10	**C/VVF40.25-10**
300	525	300	775	300	1600			40	12	BPZ:C/VVF40.40-12	**C/VVF40.40-12**
300	525	300	775	300	1600			40	16	BPZ:C/VVF40.40-16	**C/VVF40.40-16**
300	525	300	775	300	1600			40	19	BPZ:C/VVF40.40-19	**C/VVF40.40-19**
300	525	300	775	300	1600			40	25	BPZ:C/VVF40.40-25	**C/VVF40.40-25**
300	325	300	475	300	1300			50	31	BPZ:C/VVF40.50-31	**C/VVF40.50-31**
300	325	300	475	300	1300			50	40	BPZ:C/VVF40.50-40	**C/VVF40.50-40**
175	175	275	275	300	750			65	49	BPZ:C/VVF40.65-49	**C/VVF40.65-49**
175	175	275	275	300	750			65	63	BPZ:C/VVF40.65-63	**C/VVF40.65-63**
100	100	175	175	300	500			80	78	BPZ:C/VVF40.80-78	**C/VVF40.80-78**
100	100	175	175	300	500			80	100	BPZ:C/VVF40.80-100	**C/VVF40.80-100**
						200	300	100	124	BPZ:C/VVF40.100-124	**C/VVF40.100-124**
						200	300	100	160	BPZ:C/VVF40.100-160	**C/VVF40.100-160**
						150	200	125	200	BPZ:C/VVF40.125-200	**C/VVF40.125-200**
						150	200	125	250	BPZ:C/VVF40.125-250	**C/VVF40.125-250**
						100	125	150	300	BPZ:C/VVF40.150-300	**C/VVF40.150-300**
						100	125	150	315	BPZ:C/VVF40.150-315	**C/VVF40.150-315**

C/VVF40.. will be phased out around autumn 2014, replacement products VVF42..C will be available at the same time

Combinable actuator for VVF40..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

2-port seat valve PN16 with flanged connections

VVF43..

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits



Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.01 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16

Range overview 2-port valves VVF43..

SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
650	700	65	50	S55206-V100	**VVF43.65-50**
650	700	65	63	S55206-V101	**VVF43.65-63**
400	450	80	80	S55206-V102	**VVF43.80-80**
400	450	80	100	S55206-V103	**VVF43.80-100**
250	300	100	125	S55206-V104	**VVF43.100-125**
250	300	100	160	S55206-V105	**VVF43.100-160**
160	175	125	200	S55206-V106	**VVF43.125-200**
160	175	125	250	S55206-V107	**VVF43.125-250**
100	125	150	315	S55206-V108	**VVF43.150-315**
100	125	150	400	S55206-V109	**VVF43.150-400**

2-port seat valve PN16 with flanged connections, pressure compensated

VVF43..K

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits



Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/360 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel
PN class	PN 16

Globe and pressure independent combi valves
2-port flanged valves, PN16: VVF43..

Range overview 2-port valves VVF43..K

SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
800	1600	65	63	S55206-V110	**VVF43.65-63K**
800	1600	80	100	S55206-V111	**VVF43.80-100K**
800	1600	100	160	S55206-V112	**VVF43.100-160K**
800	1600	125	250	S55206-V113	**VVF43.125-250K**
800	1600	150	360	S55206-V114	**VVF43.150-360K**

Field of application for VVF43..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 180 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	16 bar	FEPM O-ring, silicone-free grease
Saturated steam	≤ 200 °C	15 bar abs	FEPM O-ring, silicone-free grease
Superheated steam	≤ 220 °C	15 bar abs	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

7

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	**428488060**
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VVF43..
VVF43.., DN65...150: part no. 7428400610

Combinable actuator for VVF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

2-port seat valves PN16, flanged connections VVF47..

VVF47..

For use in heating, ventilating and air conditioning systems as a control valve for closed circuits



Data sheet	N4419
Leakage rate	0...0.1% of Kvs value
Medium temperature	1...95 °C
Valve characteristic	Equal percentage
Rangeability	DN 50...150: > 50
Material, valve body	Grey cast iron EN-GJL-250
Material, inside set	CrNi/bronze
PN class	PN 16

Range overview 2-port valves VVF47..

SBX.. Δp_{max} [kPa]	SBX.. Δp_s [kPa]	SBV.. Δp_{max} [kPa]	SBV.. Δp_s [kPa]	Stroke [mm]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300			20	50	40	S55220-V106	**VVF47.50**
175	175	300	400	20	65	63	S55220-V107	**VVF47.65**
100	100	250	250	20	80	100	S55220-V108	**VVF47.80**
		200	200	40	100	160	S55220-V109	**VVF47.100**
		300	400	40	125	250	S55220-V110	**VVF47.125**
		300	400	40	150	315	S55220-V111	**VVF47.150**

Field of application for VVF47..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	1...95 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

Combinable actuator for VVF47..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	N4519	S55160-A102	**SBX31**
AC 24 V	DC 0...10 V	120	N4519	S55160-A100	**SBX61**
AC 24 V	3-position	120	N4519	S55160-A101	**SBX81**
AC 230 V	3-position	180	N4519	S55160-A105	**SBV31**
AC 24 V	DC 0...10 V	180	N4519	S55160-A103	**SBV61**
AC 24 V	3-position	180	N4519	S55160-A104	**SBV81**

Globe and pressure independent combi valves
2-port flanged valves, PN25: VVF53..

VVF53..



2-port seat valve PN25 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated and superheated steam in open and closed circuits

Data sheet	N4405
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.01 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	DN 15, $k_{vs} \leq 1{,}25$ m³/h: >50 DN 15...150: >100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16 / PN 25

Range overview 2-port valves VVF53.. DN 15/ 20/ 25

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1200	2500	1200	2500	1200	2500			15	0.16	S55208-V100	**VVF53.15-0.16**
1200	2500	1200	2500	1200	2500			15	0.2	S55208-V101	**VVF53.15-0.2**
1200	2500	1200	2500	1200	2500			15	0.25	S55208-V102	**VVF53.15-0.25**
1200	2500	1200	2500	1200	2500			15	0.32	S55208-V103	**VVF53.15-0.32**
1200	2500	1200	2500	1200	2500			15	0.4	S55208-V104	**VVF53.15-0.4**
1200	2500	1200	2500	1200	2500			15	0.5	S55208-V105	**VVF53.15-0.5**
1200	2500	1200	2500	1200	2500			15	0.63	S55208-V106	**VVF53.15-0.63**
1200	2500	1200	2500	1200	2500			15	0.8	S55208-V107	**VVF53.15-0.8**
1200	2500	1200	2500	1200	2500			15	1	S55208-V108	**VVF53.15-1**
1200	2500	1200	2500	1200	2500			15	1.25	S55208-V109	**VVF53.15-1.25**
1200	2500	1200	2500	1200	2500			15	1.6	S55208-V110	**VVF53.15-1.6**
1200	2500	1200	2500	1200	2500			15	2	S55208-V111	**VVF53.15-2**
1200	2500	1200	2500	1200	2500			15	2.5	S55208-V112	**VVF53.15-2.5**
1200	2500	1200	2500	1200	2500			15	3.2	S55208-V113	**VVF53.15-3.2**
1200	2500	1200	2500	1200	2500			15	4	S55208-V114	**VVF53.15-4**
1200	2500	1200	2500	1200	2500			20	6.3	S55208-V116	**VVF53.20-6.3**
1200	1600	1200	2100	1200	2500			25	5	S55208-V117	**VVF53.25-5**
1200	1600	1200	2100	1200	2500			25	6.3	S55208-V118	**VVF53.25-6.3**
1200	1600	1200	2100	1200	2500			25	8	S55208-V119	**VVF53.25-8**
1200	1600	1200	2100	1200	2500			25	10	S55208-V120	**VVF53.25-10**

Range overview 2-port valves VVF53.. DN 32/40/50/65/80/100/125/150

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
750	900	1100	1200	1200	2500			32	16	S55208-V122	**VVF53.32-16**
500	550	650	750	1200	2000			40	12.5	S55208-V123	**VVF53.40-12.5**
500	550	650	750	1200	2000			40	16	S55208-V124	**VVF53.40-16**
500	550	650	750	1200	2000			40	20	S55208-V125	**VVF53.40-20**
500	550	650	750	1200	2000			40	25	S55208-V126	**VVF53.40-25**
300	350	400	450	1150	1200			50	31.5	S55208-V127	**VVF53.50-31.5**
300	350	400	450	1150	1200			50	40	S55208-V128	**VVF53.50-40**
						650	700	65	63	S55208-V129	**VVF53.65-63**
						400	450	80	100	S55208-V130	**VVF53.80-100**
						250	300	100	160	S55208-V131	**VVF53.100-160**
						160	175	125	250	S55208-V132	**VVF53.125-250**
						100	125	150	400	S55208-V133	**VVF53.150-400**

2-port seat valve PN25 with flanged connections, pressure compensated

VVF53..K

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated steam and superheated steam in open and closed circuits



Data sheet	N4405
Stroke	DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Equal percentage k_{vs} 250/360 linear
Rangeability	> 100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel
PN class	PN 25

Range overview 2-port valves VVF53..K

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1200	2500	1200	2500	1200	2500			50	40	S55208-V134	**VVF53.50-40K**
						1200	2500	65	63	S55208-V135	**VVF53.65-63K**
						1200	2500	80	100	S55208-V136	**VVF53.80-100K**
						1200	2500	100	160	S55208-V137	**VVF53.100-160K**
						1200	2500	125	250	S55208-V138	**VVF53.125-250K**
						1200	2500	150	360	S55208-V139	**VVF53.150-360K**

Globe and pressure independent combi valves
2-port flanged valves, PN25: VVF53..

Field of application for VVF53..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 220 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	25 bar	FEPM O-ring, silicone-free grease
Saturated steam	≤ 200 °C	16 bar abs	FEPM O-ring, silicone-free grease
Superheated steam	≤ 220 °C	16 bar abs	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	**428488060**
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VVF53..
VVF53.., DN15...150: part no. 7428400610

7

Combinable actuator to VVF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**

Globe and pressure independent combi valves
2-port flanged valves, PN40: VVF61..

VVF61..



2-port seat valves PN40 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils, saturated and superheated steam in open and closed circuits

Control devices MK..6.. (water, steam) are TÜV tested control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4382
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-25...220 °C (350 °C)
Valve characteristic	Equal percentage
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	CrNi steel
PN class	PN 40

Range overview 2-port valves VVF61..

SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	4000	1600	4000			15	0.19	BPZ:VVF61.09	**VVF61.09**
1600	4000	1600	4000			15	0.3	BPZ:VVF61.10	**VVF61.10**
1600	4000	1600	4000			15	0.45	BPZ:VVF61.11	**VVF61.11**
1600	4000	1600	4000			15	0.7	BPZ:VVF61.12	**VVF61.12**
1600	4000	1600	4000			15	1.2	BPZ:VVF61.13	**VVF61.13**
1600	4000	1600	4000			15	1.9	BPZ:VVF61.14	**VVF61.14**
1600	4000	1600	4000			15	3	BPZ:VVF61.15	**VVF61.15**
1600	2250	1600	4000			25	3	BPZ:VVF61.23	**VVF61.23**
1600	2250	1600	4000			25	5	BPZ:VVF61.24	**VVF61.24**
1600	2250	1600	4000			25	7.5	BPZ:VVF61.25	**VVF61.25**
		1600	4000			40	12	BPZ:VVF61.39	**VVF61.39**
		1600	4000			40	19	BPZ:VVF61.40	**VVF61.40**
		1600	4000			50	19	BPZ:VVF61.49	**VVF61.49**
		1600	4000			50	31	BPZ:VVF61.50	**VVF61.50**
				1000	4000	65	49	BPZ:VVF61.65	**VVF61.65**
				700	4000	80	78	BPZ:VVF61.80	**VVF61.80**
				450	4000	100	124	BPZ:VVF61.90	**VVF61.90**
				300	4000	125	200	BPZ:VVF61.91	**VVF61.91**
				200	4000	150	300	BPZ:VVF61.92	**VVF61.92**

Control devices MK..6.. (water, steam) are TÜV tested per DIN EN 14597 and can therefore be used as control devices with safety shut-off function for protection against excessive temperature and pressure.

Replacement sealing glands for VVF61..

VVF/VXF.., DN15...DN25: part no. 4 284 8829 0
VVF/VXF.., DN40...DN150: part no. 4 679 5630 0
VVF/VXF61..2, DN15...DN150: part no. 4 284 8829 0
VVF/VXF61..5, DN15...25: part no. 4 284 9538 0
VVF/VXF61..5, DN40...DN150: part no. 4 284 9540 0

Field of application for VVF61..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-25...220 °C	40 bar ISO 7005	PTFE sleeve	--
High-temperature hot water	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Saturated steam / Super-heated steam	≤ 220 °C	17 bar, ≤ DN25 11 bar, ≥ DN40	PTFE sleeve	--
Heat transfer oil	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	220...350 °C	40 bar ISO 7005	PTFE sleeve	2 1)

For media < 0 °C, stem heating element ASZ6.5 is required.
1) Special versions with extended neck are available for applications with heat transfer oil up to 350 °C (only for types VVF61.13 to VVF61.92). When ordering, please give Product No. with type suffix, e.g. VVF61.252

Combinable actuator for VVF61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

Modulating control valves with magnetic actuator, PN16, flanged

MVF461H..

2-port valves PN 16 with magnetic actuator for modulating control of high-temperature hot water or steam.
With positioning control, position feedback signal, spring return function and manual control.



Data sheet	N4361
Operating voltage	AC 24 V DC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	< 2 s
Spring return function	A-> AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
PN class	PN 16
Permissible operating pressure	Water < 120 °C: 1600 kPa Water > 120 °C: 1300 kPa Saturated steam: 900 kPa
Leakage rate	< 0.05% of k_{vs} value
Medium temperature	1...180 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	CrNi steel

7

Range overview flanged valves MVF461H..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Stock No.	Product No.
15	0.6	1000	1000	33	BPZ:MVF461H15-0.6	**MVF461H15-0.6**
15	1.5	1000	1000	33	BPZ:MVF461H15-1.5	**MVF461H15-1.5**
15	3	1000	1000	33	BPZ:MVF461H15-3	**MVF461H15-3**
20	5	1000	1000	33	BPZ:MVF461H20-5	**MVF461H20-5**
25	8	1000	1000	33	BPZ:MVF461H25-8	**MVF461H25-8**
32	12	1000	1000	43	BPZ:MVF461H32-12	**MVF461H32-12**
40	20	1000	1000	65	BPZ:MVF461H40-20	**MVF461H40-20**
50	30	1000	1000	65	BPZ:MVF461H50-30	**MVF461H50-30**

MVF.. valves with magnetic actuators are UL-listed.

Accessories for MVF461..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		BPZ:ASE12	**ASE12**

Globe and pressure independent combi valves
Control device with safety function, PN25: MK..5..

MK..5..



Control device PN25, safety function to DIN EN 14597

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems. For open and closed circuits. With positioning control, position feedback signal and spring return function.

Data sheet	N4387
Leakage rate	0...0.05 % of k_{vs} value
Medium temperature	1...150 °C
Valve characteristic	Equal percentage
Rangeability	DN15: 50...100 DN25...40: 100...200
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 25
Spring return function	Yes (5...25 s)
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..532..) AC 24 V (MK..562..)
Positioning signal	3-position (MK..532..) DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..) 0...1000 Ohm (MK..562..)
Position feedback	DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..)
Positioning time	120 s (MK..532..) Open 50 s (MKD562..) Close 15 s (MKD562..) Open 120 s (MKB562..) Close 10 s (MKB562..)

Range overview control device safety function MKD532..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	1600	15	0.16	S55329-M100-A100	**MKD532.15-0.16**
1600	1600	15	0.2	S55329-M101-A100	**MKD532.15-0.2**
1600	1600	15	0.25	S55329-M102-A100	**MKD532.15-0.25**
1600	1600	15	0.32	S55329-M103-A100	**MKD532.15-0.32**
1600	1600	15	0.4	S55329-M104-A100	**MKD532.15-0.4**
1600	1600	15	0.5	S55329-M105-A100	**MKD532.15-0.5**
1600	1600	15	0.63	S55329-M106-A100	**MKD532.15-0.63**
1600	1600	15	0.8	S55329-M107-A100	**MKD532.15-0.8**
1600	1600	15	1	S55329-M108-A100	**MKD532.15-1**
1600	1600	15	1.25	S55329-M109-A100	**MKD532.15-1.25**
1600	1600	15	1.6	S55329-M110-A100	**MKD532.15-1.6**
1600	1600	15	2	S55329-M111-A100	**MKD532.15-2**
1600	1600	15	2.5	S55329-M112-A100	**MKD532.15-2.5**
1600	1600	15	3.2	S55329-M113-A100	**MKD532.15-3.2**
1600	1600	15	4	S55329-M114-A100	**MKD532.15-4**
1600	1600	25	5	S55329-M115-A100	**MKD532.25-5**
1600	1600	25	6.3	S55329-M116-A100	**MKD532.25-6.3**
1600	1600	25	8	S55329-M117-A100	**MKD532.25-8**
1600	1600	25	10	S55329-M118-A100	**MKD532.25-10**
600	600	40	12.5	S55329-M119-A100	**MKD532.40-12.5**
600	600	40	16	S55329-M120-A100	**MKD532.40-16**
600	600	40	20	S55329-M121-A100	**MKD532.40-20**
600	600	40	25	S55329-M122-A100	**MKD532.40-25**

MKD532..: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Range overview control device safety function MKD562..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	1600	15	0.16	S55329-M100-A101	**MKD562.15-0.16**
1600	1600	15	0.2	S55329-M101-A101	**MKD562.15-0.2**
1600	1600	15	0.25	S55329-M102-A101	**MKD562.15-0.25**
1600	1600	15	0.32	S55329-M103-A101	**MKD562.15-0.32**
1600	1600	15	0.4	S55329-M104-A101	**MKD562.15-0.4**
1600	1600	15	0.5	S55329-M105-A101	**MKD562.15-0.5**
1600	1600	15	0.63	S55329-M106-A101	**MKD562.15-0.63**
1600	1600	15	0.8	S55329-M107-A101	**MKD562.15-0.8**
1600	1600	15	1	S55329-M108-A101	**MKD562.15-1**
1600	1600	15	1.25	S55329-M109-A101	**MKD562.15-1.25**
1600	1600	15	1.6	S55329-M110-A101	**MKD562.15-1.6**
1600	1600	15	2	S55329-M111-A101	**MKD562.15-2**
1600	1600	15	2.5	S55329-M112-A101	**MKD562.15-2.5**
1600	1600	15	3.2	S55329-M113-A101	**MKD562.15-3.2**
1600	1600	15	4	S55329-M114-A101	**MKD562.15-4**
1600	1600	25	5	S55329-M115-A101	**MKD562.25-5**
1600	1600	25	6.3	S55329-M116-A101	**MKD562.25-6.3**
1600	1600	25	8	S55329-M117-A101	**MKD562.25-8**
1600	1600	25	10	S55329-M118-A101	**MKD562.25-10**
600	600	40	12.5	S55329-M119-A101	**MKD562.40-12.5**
600	600	40	16	S55329-M120-A101	**MKD562.40-16**
600	600	40	20	S55329-M121-A101	**MKD562.40-20**
600	600	40	25	S55329-M122-A101	**MKD562.40-25**

MKD562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Range overview control device safety function MKD532..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	2500	15	0.16	S55329-M100-A110	**MKB532.15-0.16**
1600	2500	15	0.2	S55329-M101-A110	**MKB532.15-0.2**
1600	2500	15	0.25	S55329-M102-A110	**MKB532.15-0.25**
1600	2500	15	0.32	S55329-M103-A110	**MKB532.15-0.32**
1600	2500	15	0.4	S55329-M104-A110	**MKB532.15-0.4**
1600	2500	15	0.5	S55329-M105-A110	**MKB532.15-0.5**
1600	2500	15	0.63	S55329-M106-A110	**MKB532.15-0.63**
1600	2500	15	0.8	S55329-M107-A110	**MKB532.15-0.8**
1600	2500	15	1	S55329-M108-A110	**MKB532.15-1**
1600	2500	15	1.25	S55329-M109-A110	**MKB532.15-1.2**
1600	2500	15	1.6	S55329-M110-A110	**MKB532.15-1.6**
1600	2500	15	2	S55329-M111-A110	**MKB532.15-2**
1600	2500	15	2.5	S55329-M112-A110	**MKB532.15-2.5**
1600	2500	15	3.2	S55329-M113-A110	**MKB532.15-3.2**
1600	2500	15	4	S55329-M114-A110	**MKB532.15-4**
1600	2500	25	5	S55329-M115-A110	**MKB532.25-5**
1600	2500	25	6.3	S55329-M116-A110	**MKB532.25-6.3**
1600	2500	25	8	S55329-M117-A110	**MKB532.25-8**
1600	2500	25	10	S55329-M118-A110	**MKB532.25-10**
1600	2000	40	12.5	S55329-M119-A110	**MKB532.40-12**
1600	2000	40	16	S55329-M120-A110	**MKB532.40-16**
1600	2000	40	20	S55329-M121-A110	**MKB532.40-20**
1600	2000	40	25	S55329-M122-A110	**MKB532.40-25**

MKD532..: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Range overview control device safety function MKD562..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	2500	15	0.16	S55329-M100-A111	**MKB562.15-0.16**
1600	2500	15	0.2	S55329-M101-A111	**MKB562.15-0.2**
1600	2500	15	0.25	S55329-M102-A111	**MKB562.15-0.25**
1600	2500	15	0.32	S55329-M103-A111	**MKB562.15-0.32**
1600	2500	15	0.4	S55329-M104-A111	**MKB562.15-0.4**
1600	2500	15	0.5	S55329-M105-A111	**MKB562.15-0.5**
1600	2500	15	0.63	S55329-M106-A111	**MKB562.15-0.63**
1600	2500	15	0.8	S55329-M107-A111	**MKB562.15-0.8**
1600	2500	15	1	S55329-M108-A111	**MKB562.15-1**
1600	2500	15	1.25	S55329-M109-A111	**MKB562.15-1.2**
1600	2500	15	1.6	S55329-M110-A111	**MKB562.15-1.6**
1600	2500	15	2	S55329-M111-A111	**MKB562.15-2**
1600	2500	15	2.5	S55329-M112-A111	**MKB562.15-2.5**
1600	2500	15	3.2	S55329-M113-A111	**MKB562.15-3.2**
1600	2500	15	4	S55329-M114-A111	**MKB562.15-4**
1600	2500	25	5	S55329-M115-A111	**MKB562.25-5**
1600	2500	25	6.3	S55329-M116-A111	**MKB562.25-6.3**
1600	2500	25	8	S55329-M117-A111	**MKB562.25-8**
1600	2500	25	10	S55329-M118-A111	**MKB562.25-10**
1600	2000	40	12.5	S55329-M119-A111	**MKB562.40-12**
1600	2000	40	16	S55329-M120-A111	**MKB562.40-16**
1600	2000	40	20	S55329-M121-A111	**MKB562.40-20**
1600	2000	40	25	S55329-M122-A111	**MKB562.40-25**

MKD562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Accessories for MK..5..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	**ASC1.6**
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	**ASC9.3**
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	**ASZ7.3**
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	**ASZ7.31**
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	**ASZ7.32**

Control device PN25, safety function to DIN EN 14597, steam

MK..5..G

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems using steam as medium. For closed circuits.



Data sheet	N4389
Leakage rate	0...0.05 % of k_{VS} value
Medium temperature	1...180 °C
Valve characteristic	Equal percentage
Rangeability	DN15: 50...100 DN25...40: 100...200
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 25
Spring return function	Yes
Degree of protection	IP54
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..532..) AC 24 V (MK..562..)
Positioning signal	3-position (MK..532..) DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..) 0...1000 Ohm (MK..562..)
Position feedback	DC 0...10 V (MK..562..) DC 4...20 mA (MK..562..)
Positioning time	120 s (MK..532..) Open 50 s (MKD562..) Close 15 s (MKD562..) Open 120 s (MKB562..) Close 10 s (MKB562..)

Range overview control device safety function MKB532..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
600	600	15	1.25	S55329-M123-A110	**MKB532.15-1.2G**
600	600	15	1.6	S55329-M124-A110	**MKB532.15-1.6G**
600	600	15	2	S55329-M125-A110	**MKB532.15-2G**
600	600	15	2.5	S55329-M126-A110	**MKB532.15-2.5G**
600	600	15	3.2	S55329-M127-A110	**MKB532.15-3.2G**
600	600	15	4	S55329-M128-A110	**MKB532.15-4G**
600	600	25	5	S55329-M129-A110	**MKB532.25-5G**
600	600	25	6.3	S55329-M130-A110	**MKB532.25-6.3G**
600	600	25	8	S55329-M131-A110	**MKB532.25-8G**
600	600	25	10	S55329-M132-A110	**MKB532.25-10G**
600	600	40	12.5	S55329-M133-A110	**MKB532.40-12G**
600	600	40	16	S55329-M134-A110	**MKB532.40-16G**
600	600	40	20	S55329-M135-A110	**MKB532.40-20G**
600	600	40	25	S55329-M136-A110	**MKB532.40-25G**

MKB532..: AC 230 V, 3-position

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

7

Range overview control device safety function MKB562..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
600	600	15	1.25	S55329-M123-A111	**MKB562.15-1.2G**
600	600	15	1.6	S55329-M124-A111	**MKB562.15-1.6G**
600	600	15	2	S55329-M125-A111	**MKB562.15-2G**
600	600	15	2.5	S55329-M126-A111	**MKB562.15-2.5G**
600	600	15	3.2	S55329-M127-A111	**MKB562.15-3.2G**
600	600	15	4	S55329-M128-A111	**MKB562.15-4G**
600	600	25	5	S55329-M129-A111	**MKB562.25-5G**
600	600	25	6.3	S55329-M130-A111	**MKB562.25-6.3G**
600	600	25	8	S55329-M131-A111	**MKB562.25-8G**
600	600	25	10	S55329-M132-A111	**MKB562.25-10G**
600	600	40	12.5	S55329-M133-A111	**MKB562.40-12G**
600	600	40	16	S55329-M134-A111	**MKB562.40-16G**
600	600	40	20	S55329-M135-A111	**MKB562.40-20G**
600	600	40	25	S55329-M136-A111	**MKB562.40-25G**

MKB562..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Replacement in winter 2013/14 with MKD533../563.. and MKB533../563..

Accessories for MK..5..G

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	**ASC1.6**
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	**ASC9.3**
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	**ASZ7.3**
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	**ASZ7.31**
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	**ASZ7.32**

Globe and pressure independent combi valves
Control device with safety function, PN25: MK..6..

MK..6..



Control devices PN40, safety function to DIN EN 14597

Control devices with safety shut-off function per DIN EN 14597 for protection against excessive temperature and pressure in district heating, heating, ventilation and air conditioning systems. For open and closed circuits.

Data sheet	N4388
Leakage rate	0...0.05 % of k_{vs} value
Medium temperature	1...220 °C
Valve characteristic	Equal percentage
Rangeability	DN15...40: > 50 DN50...150: > 100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	Stainless steel
PN class	PN 40
Spring return function	Yes (5...25 s)
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal
Operating voltage	AC 230 V (MK..632..) AC 24 V (MK..662..)
Positioning signal	3-position (MK..632..) DC 0...10 V (MK..662..) DC 4...20 mA (MK..662..) 0...1000 Ohm (MK..662..)
Position feedback	DC 0...10 V (MK..662..) DC 4...20 mA (MK..662..)
Positioning time	120 s (MK..632..) Open 120 s (MKB662..) Close 10 s (MKB662..) Open 120 s (MKC662..) Close 20 s (MKC662..)

7

Range overview control device safety function MKB632..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	3200	15	0.19	S55329-M180-A110	**MKB632.15-0.19**
1600	3200	15	0.3	S55329-M181-A110	**MKB632.15-0.3**
1600	3200	15	0.45	S55329-M182-A110	**MKB632.15-0.45**
1600	3200	15	0.7	S55329-M183-A110	**MKB632.15-0.7**
1600	3200	15	1.2	S55329-M184-A110	**MKB632.15-1.2**
1600	3200	15	1.9	S55329-M185-A110	**MKB632.15-1.9**
1600	3200	15	3	S55329-M186-A110	**MKB632.15-3**
1600	3200	25	5	S55329-M187-A110	**MKB632.25-5**
1600	3200	25	7.5	S55329-M188-A110	**MKB632.25-7.5**
1600	3200	40	12	S55329-M189-A110	**MKB632.40-12**
1600	3200	40	19	S55329-M190-A110	**MKB632.40-19**
1600	3200	50	31	S55329-M191-A110	**MKB632.50-31**

MKB632..: AC 230 V, 3-position

Range overview control device safety function MKB662..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	3200	15	0.19	S55329-M180-A111	**MKB662.15-0.19**
1600	3200	15	0.3	S55329-M181-A111	**MKB662.15-0.3**
1600	3200	15	0.45	S55329-M182-A111	**MKB662.15-0.45**
1600	3200	15	0.7	S55329-M183-A111	**MKB662.15-0.7**
1600	3200	15	1.2	S55329-M184-A111	**MKB662.15-1.2**
1600	3200	15	1.9	S55329-M185-A111	**MKB662.15-1.9**
1600	3200	15	3	S55329-M186-A111	**MKB662.15-3**
1600	3200	25	5	S55329-M187-A111	**MKB662.25-5**
1600	3200	25	7.5	S55329-M188-A111	**MKB662.25-7.5**
1600	3200	40	12	S55329-M189-A111	**MKB662.40-12**
1600	3200	40	19	S55329-M190-A111	**MKB662.40-19**
1600	3200	50	31	S55329-M191-A111	**MKB662.50-31**

MKB662..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Range overview control device safety function MKC632..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1000	3200	65	49	S55329-M192-A120	**MKC632.65-49**
700	3200	80	78	S55329-M193-A120	**MKC632.80-78**
450	3200	100	124	S55329-M194-A120	**MKC632.100-124**
300	3200	125	200	S55329-M195-A120	**MKC632.125-200**
200	3200	150	300	S55329-M196-A120	**MKC632.150-300**

MKC632..: AC 230 V, 3-position

Range overview control device safety function MKC662..

Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1000	3200	65	49	S55329-M192-A121	**MKC662.65-49**
700	3200	80	78	S55329-M193-A121	**MKC662.80-78**
450	3200	100	124	S55329-M194-A121	**MKC662.100-124**
300	3200	125	200	S55329-M195-A121	**MKC662.125-200**
200	3200	150	300	S55329-M196-A121	**MKC662.150-300**

MKC662..: AC 24 V, DC 0...10 V / DC 4...20 mA / 0...1000 Ohm

Accessories for MK..6..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SKB6../ SKC6../ SKD6..	N4566	BPZ:ASC1.6	**ASC1.6**
Double auxiliary switch for SKB/ C/ D32../82..	N4561	BPZ:ASC9.3	**ASC9.3**
Potentiometer 0...1000 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.3	**ASZ7.3**
Potentiometer 0...135 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.31	**ASZ7.31**
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	**ASZ7.32**

2-port and angle valves PN10, to DIN

VDN1../VEN1..

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze







Data sheet	N2105
Medium temperature	1...120 °C
PN class	PN 10
Δp_{v100}	5...20 kPa
Material, valve body	Brass Ms58, mat nickel-plated
Permissible operating pressure	1000 kPa
Δp_{max}	60 kPa

The valves can be combined with Siemens actuators RTN../SSA../STA..

Range overview straight valves VDN1..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	0.09...0.63	60	BPZ:VDN110	**VDN110**
15	Rp/R ½ "	0.10...0.89	60	BPZ:VDN115	**VDN115**
20	Rp/R ¾ "	0.31...1.41	60	BPZ:VDN120	**VDN120**

Range overview angle valves VEN1..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	0.09...0.63	60	BPZ:VEN110	**VEN110**
15	Rp/R ½ "	0.10...0.89	60	BPZ:VEN115	**VEN115**
20	Rp/R ¾ "	0.31...1.41	60	BPZ:VEN120	**VEN120**

Combinable actuator for VDN1.. / VEN1..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	**RTN51**
					N4211	BPZ:RTN51G	**RTN51G**
					N2111	BPZ:RTN71	**RTN71**
					N2111	BPZ:RTN81	**RTN81**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	**STA73PR/00**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	**SSA31/00**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	**SSA61/00**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	**SSA81/00**
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	**STA63**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

2-port seat and angle valves PN10, to NF

VDN2../VEN2../VUN2..

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze



Data sheet	N2106
Medium temperature	1...120 °C
PN class	PN 10
Δp_{v100}	5...20 kPa
Material, valve body	Brass Ms58, mat nickel-plated
Permissible operating pressure	1000 kPa

The valves can be combined with Siemens actuators RTN../SSA.../STA..

Range overview straight valves VDN2..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	0.09...0.63	60	BPZ:VDN210	**VDN210**
15	Rp/R ½ "	0.10...0.89	60	BPZ:VDN215	**VDN215**
20	Rp/R ¾ "	0.31...1.41	60	BPZ:VDN220	**VDN220**

Range overview angle valves VEN2..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	0.09...0.63	60	BPZ:VEN210	**VEN210**
15	Rp/R ½ "	0.10...0.89	60	BPZ:VEN215	**VEN215**
20	Rp/R ¾ "	0.31...1.41	60	BPZ:VEN220	**VEN220**

Range overview reverse angle valves VUN2..

DN	Connecting thread	k_v [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	0.14...0.60	60	BPZ:VUN210	**VUN210**
15	Rp/R ½ "	0.13...0.77	60	BPZ:VUN215	**VUN215**

Combinable actuator to VDN2.. / VEN2.. / VUN2..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	**RTN51**
					N4211	BPZ:RTN51G	**RTN51G**
					N2111	BPZ:RTN71	**RTN71**
					N2111	BPZ:RTN81	**RTN81**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	**STA73PR/00**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	**SSA31/00**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	**SSA61/00**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	**SSA81/00**
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	**STA63**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Valve insert for VDN../VEN.. und VUN..

AVN1

Valve insert is suited for use with all types of valves of the VDN../VEN../VUN.. ranges.

Data sheet N2100



Stock No.	Product No.
BPZ:AVN1	**AVN1**

Manual knob, white, for VDN../VEN../VUN../VPD../VPE..

ATN4

For manual adjustment of valve.
The manual knobs are suited for use with all types of valves of the VDN.../VEN.../VUN../VPD... and VPE.. ranges.

Data sheet N2100



Stock No.	Product No.
BPZ:ATN4	**ATN4**

Manual knob, white, RAL9016, for VDN../VEN../VUN../VPD../VPE..

ATN3

For manual adjustment of valve.
The manual knobs are suited for use with all types of valves of the VDN.../VEN.../VUN../VPD... and VPE.. ranges.

Data sheet N2100



Stock No.	Product No.
BPZ:ATN3	**ATN3**

7

Globe and pressure independent combi valves
Straight and angle lockshield valves: ADN.. / AEN..

ADN../AEN..



Two-port seat and angle lockshield valves

Lockshield valves with throttling function for hydraulic balancing and shut-off function when removing / replacing radiator.
Adjustable flow capacity

Data sheet	N2107
Medium	Water with anti-freeze
Medium temperature	1...120 °C
PN class	PN 10
Material, valve body	Brass Ms58, mat nickel-plated

Range overview straight lockshield valves ADN..

DN	Connecting thread	k_v [m³/h]	Stock No.	Product No.
10	Rp/R ⅜ "	0...1.8	BPZ:ADN10	**ADN10**
15	Rp/R ½ "	0...2.5	BPZ:ADN15	**ADN15**
20	Rp/R ¾ "	0...3.0	BPZ:ADN20	**ADN20**

Range overview angle lockshield valves AEN..

DN	Connecting thread	k_v [m³/h]	Stock No.	Product No.
10	Rp/R ⅜ "	0...1.8	BPZ:AEN10	**AEN10**
15	Rp/R ½ "	0...2.5	BPZ:AEN15	**AEN15**
20	Rp/R ¾ "	0...3.0	BPZ:AEN20	**AEN20**

2-port small valves PN10, DIN, 2.5 mm stroke

VD1..CLC..

Small valves with higher k_V-values, for use in ventilation and air conditioning systems for water-side control of chilled ceilings and terminal units in closed circuits. Adjustable flow capacity.
Permissible media: water (to VDI 2035), water with anti-freeze.



Data sheet	N2103
Medium temperature	1...110 °C
PN class	PN 10
Δp_{v100}	5...20 kPa
Material, valve body	Brass, mat, nickel plated
Stroke	2.5 mm

The valves can be combined with Siemens actuators SSA.../STA..

Range overview straight valves VD1..CLC..

DN	Connecting thread	k_V [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
15	Rp/R ½ "	0.25...1.9	150	BPZ:VD115CLC	**VD115CLC**
20	Rp/R ¾ "	0.25...2.6	150	BPZ:VD120CLC	**VD120CLC**
25	Rp/R 1 "	0.25...2.6	150	BPZ:VD125CLC	**VD125CLC**

Combinable actuator to VD1..CLC

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	**RTN51**
					N4211	BPZ:RTN51G	**RTN51G**
					N2111	BPZ:RTN71	**RTN71**
					N2111	BPZ:RTN81	**RTN81**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	**STA73PR/00**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	**SSA31/00**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	**SSA61/00**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	**SSA81/00**
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	**STA63**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Compression fittings for copper and soft steel pipes — AVN1..-1..

For connecting copper or soft steel pipes to valves of the VDN../VEN../VUN.. ranges and lockshield valves of the ADN.../AEN... ranges



Data sheet N2100

Range overview compression fittings AVN1..-1..

DN	Connecting thread	Pipe diameter [mm]	Stock No.	Product No.
15	R ½ "	15	BPZ:AVN15-15	**AVN15-15**

Compression fittings plastic pipes with aluminum foil — AVN15A..

For connecting plastic pipes to valves of the VDN../VEN../VUN.. ranges and lockshield valves of the ADN.../AEN... ranges



Data sheet N2100

Range overview compression fittings AVN15A..

DN	Connecting thread	Pipe diameter [mm]	Stock No.	Product No.
15	R ½ "	16	BPZ:AVN15A16	**AVN15A16**

Globe and pressure independent combi valves
2-port threaded valves, PN16: VVP45..

VVP45..



2-port seat valves, PN16

2-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport up to k_{vs} 6.3: equal-percentage Throughport from k_{vs} 10: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel / Rg5 / brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing or 2-port valves, not as diverting valves.
V..P45..S are suitable for Conex® compression fittings.
VVP45..S and VMP45..S for k_{vs} values 0.63, 1, 1.6, 2.5 m³/h, datasheet N4854.

Range overview 2-port valves VVP45..

SSB.. Δp_{max} [kPa]	SSB.. Δp_s [kPa]	SSC.. Δp_{max} [kPa]	SSC.. Δp_s [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	725	300	300	G ½ B "	10	0.25	BPZ:VVP45.10-0.25	**VVP45.10-0.25**
400	725			G ½ B "	10	0.4	BPZ:VVP45.10-0.4	**VVP45.10-0.4**
400	725			G ½ B "	10	0.63	BPZ:VVP45.10-0.63	**VVP45.10-0.63**
400	725			G ½ B "	10	1	BPZ:VVP45.10-1	**VVP45.10-1**
400	725			G ½ B "	10	1.6	BPZ:VVP45.10-1.6	**VVP45.10-1.6**
350	350			G ¾ B "	15	2.5	BPZ:VVP45.15-2.5	**VVP45.15-2.5**
350	350			G 1 B "	20	4	BPZ:VVP45.20-4	**VVP45.20-4**
300	300			G 1¼ B "	25	6.3	BPZ:VVP45.25-6.3	**VVP45.25-6.3**
		300	300	G 1½ B "	25	10	BPZ:VVP45.25-10	**VVP45.25-10**
		175	175	G 2 B "	32	16	BPZ:VVP45.32-16	**VVP45.32-16**
		75	75	G 2¼ B "	40	25	BPZ:VVP45.40-25	**VVP45.40-25**

Range overview 2-port valves VVP45..S

SSB.. Δp_{max} [kPa]	SSB.. Δp_s [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	725	G ½ B "	10	0.63	BPZ:VVP45.10-0.63S	**VVP45.10-0.63S**
400	725	G ½ B "	10	1	BPZ:VVP45.10-1S	**VVP45.10-1S**
400	725	G ½ B "	10	1.6	BPZ:VVP45.10-1.6S	**VVP45.10-1.6S**
350	350	W 1⅛-14 "	15	2.5	BPZ:VVP45.15-2.5S	**VVP45.15-2.5S**

Field of applications for VVP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...110 °C	16 bar ISO 7628	EPDM O-ring

Accessories for VVP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VVP45..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150		N4891	BPZ:SSB31	**SSB31**
AC 24 V DC 24 V	DC 0...10 V	75		N4891	BPZ:SSB61	**SSB61**
AC 24 V	3-position	150		N4891	BPZ:SSB81	**SSB81**
AC 230 V	3-position	150	No	N4895	BPZ:SSC31	**SSC31**
AC 24 V DC 24 V	DC 0...10 V	30	No	N4895	BPZ:SSC61	**SSC61**
AC 24 V DC 24 V	DC 0...10 V	30	Yes (15 s)	N4895	BPZ:SSC61.5	**SSC61.5**
AC 24 V	3-position	150	No	N4895	BPZ:SSC81	**SSC81**

Globe and pressure independent combi valves
2-port threaded valves, PN16: VVP45..N

VVP45..N



Threaded 2-port seat valves, PN16

In ventilation and air-conditioning systems for water-side terminal unit control in closed circuits, e.g. induction units, fan coil units, small reheaters and small re-coolers, for use in
- 2-pipe systems with one heat exchanger for heating and cooling
- 4-pipe systems with two separate heat exchangers for heating and cooling

With threaded connections to ISO 228-1.
For low temperature hot water, chilled water, water with anti-freeze.

Data sheet	N4840
Stroke	5.5 mm
Leakage rate	0...0.1 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Equal percentage
Material, valve body	Red brass (CC499K)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 2-port valves VVP45..N

Connecting thread	Δp_{max} [kPa]	Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ¾ B "	400	550	15	2.5	BPZ:VVP45.15-2.5N	**VVP45.15-2.5N**
G 1 B "	400	550	20	4	BPZ:VVP45.20-4N	**VVP45.20-4N**
G 1¼ B "	400	500	25	6.3	BPZ:VVP45.25-6.3N	**VVP45.25-6.3N**

7

Combinable actuators for VVP45..N

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4894	BPZ:SSY31	**SSY31**
AC 24 V	3-position	150	N4894	BPZ:SSY81	**SSY81**

2-port valves, PN16

VVP47..

2-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.



Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{vs} value
Leakage rate bypass	0...0.05 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 3-port VVP47..

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	10	0.25	BPZ:VVP47.10-0.25	**VVP47.10-0.25**
G ½ B "	10	0.4	BPZ:VVP47.10-0.4	**VVP47.10-0.4**
G ½ B "	10	0.63	BPZ:VVP47.10-0.63	**VVP47.10-0.63**
G ½ B "	10	1	BPZ:VVP47.10-1	**VVP47.10-1**
G ½ B "	10	1.6	BPZ:VVP47.10-1.6	**VVP47.10-1.6**
G ¾ B "	15	2.5	BPZ:VVP47.15-2.5	**VVP47.15-2.5**
G 1 B "	20	4	BPZ:VVP47.20-4	**VVP47.20-4**

Range overview 3-port VVP47..S

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	10	0.63	BPZ:VVP47.10-0.63S	**VVP47.10-0.63S**
G ½ B "	10	1	BPZ:VVP47.10-1S	**VVP47.10-1S**
G ½ B "	10	1.6	BPZ:VVP47.10-1.6S	**VVP47.10-1.6S**
W11/8-14	15	2.5	BPZ:VVP47.15-2.5S	**VVP47.15-2.5S**

Overview differential pressures

SFP../SSP.. Δp_s [kPa]	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_s [kPa]	STP.. Δp_{max} [kPa]	Product No.
1000	400	700	400	**VVP47.10-0.25**
1000	400	700	400	**VVP47.10-0.4**
500	400	250	250	**VVP47.10-0.63**
500	400	250	250	**VVP47.10-1**
300	300	150	150	**VVP47.10-1.6**
300	300	150	150	**VVP47.15-2.5**
175	175	100	100	**VVP47.20-4**

Combinable actuator to VVP47..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP31	**SSP31**
AC 230 V	2-position	210	White	1	N4884	S55174-A103	**STP23**
AC 230 V	2-position	210	White		N4884	S55174-A112	**STP23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A120	**STP23B/00**
AC 230 V	2-position	10	Gray	1.8	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4864	BPZ:SSP61	**SSP61**
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A105	**STP63**
AC 24 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP81	**SSP81**
AC 24 V	3-position	43	White/Gray	1.5	N4864	BPZ:SSP81.04	**SSP81.04**
AC 24 V	2-position	10	Gray	1.8	N4865	BPZ:SFP71/18	**SFP71/18**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A102	**STP73**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A116	**STP73PR/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A111	**STP73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A119	**STP73B/00**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

2-port zone valves, PN16 with on/off characteristic

VVI46..

2-port valves, internally threaded connections, for the control of zones or terminal units. Suitable media: water (to VDE 2035), water with anti-freeze.



Data sheet	N4842
Stroke	2.5 mm
Leakage rate	0...0.05% of k_{vs} value
Medium temperature	1...110 °C
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
Material, inside set	Stainless steel, brass
Mounting position	Upright to horizontal
PN class	PN 16
Valve characteristic	Non-linear (on/off)

Range overview 2-port internally threaded valves VVI46..

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½ "	15	2	BPZ:VVI46.15	**VVI46.15**
Rp ¾ "	20	3.5	BPZ:VVI46.20	**VVI46.20**
Rp 1 "	25	5	BPZ:VVI46.25	**VVI46.25**
Rp ½ "	15	2	S55249-V100	**VVI46.15/1**
Rp ¾ "	20	3.5	S55249-V101	**VVI46.20/1**
Rp 1 "	25	5	S55249-V102	**VVI46.25/1**

Overview differential pressures

SUA21.. Δp_{max} [kPa]	SUA21.. Δp_s [kPa]	SFA.. Δp_{max} [kPa]	SFA.. Δp_s [kPa]	SSA31.04 Δp_{max} [kPa]	SSA31.04 Δp_s [kPa]	STA.. Δp_{max} [kPa]	STA.. Δp_s [kPa]	Stock No.	Product No.
300	300	300	300	200	200	200	200	BPZ:VVI46.15	**VVI46.15**
300	300	300	300	200	200	200	200	BPZ:VVI46.20	**VVI46.20**
200	200	200	200	200	200	200	200	BPZ:VVI46.25	**VVI46.25**
300	300	300	300	200	200	200	200	S55249-V100	**VVI46.15/1**
300	300	300	300	200	200	200	200	S55249-V101	**VVI46.20/1**
200	200	200	200	200	200	200	200	S55249-V102	**VVI46.25/1**

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.

Globe and pressure independent combi valves
2-port threaded valves, PN16: VVI46..

Combinable actuator to VVI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	2-position	10	Gray	1.8	N4863	BPZ:SFA21/18	**SFA21/18**
AC 24 V	2-position	10	Gray	1.8	N4863	BPZ:SFA71/18	**SFA71/18**
AC 230 V	3-position SPDT	43	White/Gray	1.5	N4860	BPZ:SSA31.04	**SSA31.04**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	10 s @ 50 Hz	N4830	S55176-A102	**SUA21/1**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

On/off 2-port valve with spring return

MVI421..



Control valve for use with terminal units for heating and cooling zones. The actuators are equipped with a manual lever and spring return facility (valve closed). 1 auxiliary switch is available as an accessory item.

Data sheet	N4867
Stroke	2.5 mm
Leakage rate	0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Operating voltage	AC 230 V
Positioning signal	2-position
Positioning time	10 s
Power consumption	12 VA
Degree of protection	IP30
Ambient temperature range	1...50 °C
Positioning force	200 N
Mounting position	Upright up to 85° inclined
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview of MVI421..

DN	Connecting thread	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Stock No.	Product No.
15	Rp 1/2	2.0	300	300	BPZ:MVI421.15	**MVI421.15**
20	Rp 3/4	3.5	300	300	BPZ:MVI421.20	**MVI421.20**
25	Rp 1	5.0	300	300	BPZ:MVI421.25	**MVI421.25**

Range overview of MVI421..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

Globe and pressure independent combi valves
2-port threaded valves, PN16: C/VVI41..

C/VVI41..



Internal threaded two-port Valve

- With internally threaded connections Rp.. to ISO 7-1
- For chilled water, low pressure hot water and saturated steam in open and closed circuits

Data sheet	N4362
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-25...150 °C
Valve characteristic	Equal-percentage
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi Steel/ Rg 5 brass
PN class	PN 16

Range overview 2-port valves C/VVI41..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	DN	Connecting thread	k_{vs} [m³/h]	Stock No.	Product No.
400	1600	400	1600	15	Rp ½ "	2.5	BPZ:C/VVI41.15-2.5	**C/VVI41.15-2.5**
400	1600	400	1600	15	Rp ½ "	4.0	BPZ:C/VVI41.15-4	**C/VVI41.15-4**
400	1600	400	1600	20	Rp ¾ "	6.3	BPZ:C/VVI41.20-6.3	**C/VVI41.20-6.3**
400	1550	400	1600	25	Rp 1 "	10	BPZ:C/VVI41.25-10	**C/VVI41.25-10**
400	875	400	1275	32	Rp 1¼ "	16	BPZ:C/VVI41.32-16	**C/VVI41.32-16**
400	525	400	775	40	Rp 1½ "	25	BPZ:C/VVI41.40-25	**C/VVI41.40-25**
300	300	400	450	50	Rp 2 "	40	BPZ:C/VVI41.50-40	**C/VVI41.50-40**

Replacement sealing gland for C/VVI41..

C/VVI41.., DN15...50: part no. 4 284 8874 0

Field of application for C/VVI41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	
Saturated steam / Super-heated steam	≤ 150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator for C/VVI41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**

Further information to the actuators please see "Actuators for valves with 20 mm stroke"
3-position actuators are also available as AC 24 V version, see "Actuators for valves with 20 mm stroke".

Globe and pressure independent combi valves
2-port threaded valves, PN16: VVG41..

VVG41..



2-port seat valves PN16 with externally threaded connections

- With threaded connections to ISO 228/1
- For cooling, chilled, low and high temperature water, brine and saturated and superheated steam in open and closed circuits

Data sheet	N4363
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	-25...150 °C
Valve characteristic	Equal percentage
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CuSn5Zn5Pb2 (CC499K)
Material, inside set	CrNi steel
PN class	PN 16

Range overview 2-port valves VVG41..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	SKB.. Δp_{max} [kPa]	SKB.. Δp_s [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
800	1600	800	1600	800	1600	G 1 B "	15	0.63	BPZ:VVG41.11	**VVG41.11**
800	1600	800	1600	800	1600	G 1 B "	15	1	BPZ:VVG41.12	**VVG41.12**
800	1600	800	1600	800	1600	G 1 B "	15	1.6	BPZ:VVG41.13	**VVG41.13**
800	1600	800	1600	800	1600	G 1 B "	15	2.5	BPZ:VVG41.14	**VVG41.14**
800	1600	800	1600	800	1600	G 1 B "	15	4	BPZ:VVG41.15	**VVG41.15**
800	1600	800	1600	800	1600	G 1¼ B "	20	6.3	BPZ:VVG41.20	**VVG41.20**
800	1550	800	1600	800	1600	G 1½ B "	25	10	BPZ:VVG41.25	**VVG41.25**
800	875	800	1275	800	1600	G 2 B "	32	16	BPZ:VVG41.32	**VVG41.32**
525	525	775	775	800	1600	G 2¼ B "	40	25	BPZ:VVG41.40	**VVG41.40**
300	300	450	450	800	1225	G 2¾ B "	50	40	BPZ:VVG41.50	**VVG41.50**

ALG..2 fittings must be ordered as individual items and will be delivered seperately.

Replacement sealing gland for VVG41..

VVG41.., DN15...50: part no. 4 284 8874 0

Field of application for VVG41..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease
Saturated steam / Superheated steam	≤ 150 °C	3 bar abs	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Accessories for VVG41..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VVG41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**

Further information to the actuators please see "Actuators for valves with 20 mm stroke"
3-position actuators are also available as AC 24 V version, see "Actuators for valves with 20 mm stroke".

Globe and pressure independent combi valves
2-port threaded valves, PN16: VVG44..

VVG44..



2-port seat valves PN16 with externally threaded connections

- With threaded connections to ISO 228/1
- For chilled water and low-temperature hot water in closed circuits

Data sheet	N4364
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	From DN 20: >100 DN 15: >50...100
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel / Rg5, brass
PN class	PN 16

Range overview 2-port valves VVG44..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	1600	G 1 B "	15	0.25	BPZ:VVG44.15-0.25	**VVG44.15-0.25**
400	1600	G 1 B "	15	0.4	BPZ:VVG44.15-0.4	**VVG44.15-0.4**
400	1600	G 1 B "	15	0.63	BPZ:VVG44.15-0.63	**VVG44.15-0.63**
400	725	G 1 B "	15	1	BPZ:VVG44.15-1	**VVG44.15-1**
400	725	G 1 B "	15	1.6	BPZ:VVG44.15-1.6	**VVG44.15-1.6**
400	400	G 1 B "	15	2.5	BPZ:VVG44.15-2.5	**VVG44.15-2.5**
400	400	G 1 B "	15	4	BPZ:VVG44.15-4	**VVG44.15-4**
400	750	G 1¼ B "	20	6.3	BPZ:VVG44.20-6.3	**VVG44.20-6.3**
400	400	G 1½ B "	25	10	BPZ:VVG44.25-10	**VVG44.25-10**
250	250	G 2 B "	32	16	BPZ:VVG44.32-16	**VVG44.32-16**
125	125	G 2¼ B "	40	25	BPZ:VVG44.40-25	**VVG44.40-25**

Δp_{max}/Δp_s-ratings refer to actuators SQS35/65/85 of the D-series with a positioning force of 400 N.
Fittings ALG..2 must be ordered as separae items and are also supplied as such.

Field of application for VVG44..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...120 °C	16 bar ISO 7005	EPDM O-ring

Accessories for VVG44..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator to VVG44..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	**SQS35.00**
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	**SQS35.03**
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	**SQS35.50**
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	**SQS35.53**
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	**SQS85.00**
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	**SQS85.03**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	**SQS65**
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	**SQS65.2**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	**SQS65.5**

Further information to the actuators please see "Actuators for threaded valves with 5.5 mm stroke"

Globe and pressure independent combi valves
2-port threaded valves, PN25: VVG55..

VVG55..



2-port seat valves PN25 with externally threaded connections

- With threaded connections to ISO 228/1
- For chilled water and low-temperature hot water in closed circuits, especially for district heat applications

Data sheet	N4379
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal percentage
Rangeability	From DN 20: >100 DN 15: >50...100
Permissible operating pressure	2500 kPa
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel
PN class	PN 25

Range overview 2-port valves VVG55..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
1200	2500	G ¾ B "	15	0.25	BPZ:VVG55.15-0.25	**VVG55.15-0.25**
1200	2500	G ¾ B "	15	0.4	BPZ:VVG55.15-0.4	**VVG55.15-0.4**
1200	2500	G ¾ B "	15	0.63	BPZ:VVG55.15-0.63	**VVG55.15-0.63**
1200	2000	G ¾ B "	15	1	BPZ:VVG55.15-1	**VVG55.15-1**
1200	2000	G ¾ B "	15	1.6	BPZ:VVG55.15-1.6	**VVG55.15-1.6**
1200	2000	G ¾ B "	15	2.5	BPZ:VVG55.15-2.5	**VVG55.15-2.5**
1000	1000	G 1 B "	20	4	BPZ:VVG55.20-4	**VVG55.20-4**
800	800	G 1¼ B "	25	6.3	BPZ:VVG55.25-6.3	**VVG55.25-6.3**

Field of application for VVG55..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with oxygen-binding additives Water with anti-freeze Low-temperature hot water High-temperature hot water	1...130 °C	25 bar ISO 7005	EPDM O-ring

Accessories for VVG55..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**
Fittings, pipeside with welding connection	BPZ:ALS..	**ALS..**

Combinable actuator to VVG55..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	**SQS35.00**
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	**SQS35.03**
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	**SQS35.50**
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	**SQS35.53**
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	**SQS85.00**
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	**SQS85.03**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	**SQS65**
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	**SQS65.2**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	**SQS65.5**

Globe and pressure independent combi valves
Threaded fittings for valves

Fittings with weldable connections: Set of 2

Cylindric thread to ISO 228-1 on valve side. Welded connection on the pipe side.
Each ALS.. set consists of 2 cap nuts, 2 inserts and 2 flat seals.

Connecting thread, valve side	Pipe diameter	Material	Stock No.	Product No.
G ¾ "	21.3 mm	Weldable steel	BPZ:ALS152	**ALS152**
G 1 "	26.8 mm	Weldable steel	BPZ:ALS202	**ALS202**
G 1¼ "	33.7 mm	Weldable steel	BPZ:ALS252	**ALS252**

Fittings with threaded connections: Set of 2

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side.
Each fitting set ALG..2 consists of 2 cap nuts, 2 insert nuts and 2 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G ½ "	R ⅜ "	Brass	BPZ:ALG132	**ALG132**
G ¾ "	R ½ "	Brass	BPZ:ALG142	**ALG142**
G ¾ "	Rp ⅜ "	Malleable cast iron, phosphated	BPZ:ALG122	**ALG122**
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG152	**ALG152**
G 1 "	Rp ½ "	Brass	S55846-Z100	**ALG152B**
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG202	**ALG202**
G 1¼ "	Rp ¾ "	Brass	S55846-Z102	**ALG202B**
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG252	**ALG252**
G 1½ "	Rp 1 "	Brass	S55846-Z104	**ALG252B**
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG322	**ALG322**
G 2 "	Rp 1¼ "	Brass	S55846-Z106	**ALG322B**
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG402	**ALG402**
G 2¼ "	Rp 1½ "	Brass	S55846-Z108	**ALG402B**
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG502	**ALG502**
G 2¾ "	Rp 2 "	Brass	S55846-Z110	**ALG502B**

Fittings with threaded connections: Set of 3

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side.
Each fitting set ALG..3 consists of 3 cap nuts, 3 insert nuts and 3 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G ½ "	R ⅜ "	Brass	BPZ:ALG133	**ALG133**
G ¾ "	R ½ "	Brass	BPZ:ALG143	**ALG143**
G ¾ "	Rp ⅜ "	Malleable cast iron, phosphated	BPZ:ALG123	**ALG123**
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	**ALG153**
G 1 "	Rp ½ "	Brass	S55846-Z101	**ALG153B**
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	**ALG203**
G 1¼ "	Rp ¾ "	Brass	S55846-Z103	**ALG203B**
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	**ALG253**
G 1½ "	Rp 1 "	Brass	S55846-Z105	**ALG253B**
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	**ALG323**
G 2 "	Rp 1¼ "	Brass	S55846-Z107	**ALG323B**
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	**ALG403**
G 2¼ "	Rp 1½ "	Brass	S55846-Z109	**ALG403B**
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	**ALG503**
G 2¾ "	Rp 2 "	Brass	S55846-Z111	**ALG503B**

Applications requiring union fittings with DVGW approval must be delivered by thirds.

Globe and pressure independent combi valves
3-port flanged valves, PN6: VXF21..

VXF21..



3-port seat valves PN6 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4410
Stroke	To DN 80: 20 mm From DN 100: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 25...40: >50 DN 50...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 6

Range overview 3-port valves VXF21..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300	300		25	1.9	BPZ:VXF21.22	**VXF21.22**
300	300	300		25	2.5	BPZ:VXF21.25-2.5	**VXF21.25-2.5**
300	300	300		25	3	BPZ:VXF21.23	**VXF21.23**
300	300	300		25	4	BPZ:VXF21.25-4	**VXF21.25-4**
300	300	300		25	5	BPZ:VXF21.24	**VXF21.24**
300	300	300		25	6.3	BPZ:VXF21.25-6.3	**VXF21.25-6.3**
300	300	300		25	7.5	BPZ:VXF21.25	**VXF21.25**
300	300	300		25	10	BPZ:VXF21.25-10	**VXF21.25-10**
300	300	300		40	12	BPZ:VXF21.39	**VXF21.39**
300	300	300		40	16	BPZ:VXF21.40-16	**VXF21.40-16**
300	300	300		40	19	BPZ:VXF21.40	**VXF21.40**
300	300	300		40	25	BPZ:VXF21.40-25	**VXF21.40-25**
300	300	300		50	31	BPZ:VXF21.50	**VXF21.50**
300	300	300		50	40	BPZ:VXF21.50-40	**VXF21.50-40**
175	275	300		65	49	BPZ:VXF21.65	**VXF21.65**
175	275	300		65	63	BPZ:VXF21.65-63	**VXF21.65-63**
100	175	300		80	78	BPZ:VXF21.80	**VXF21.80**
100	175	300		80	100	BPZ:VXF21.80-100	**VXF21.80-100**
			200	100	124	BPZ:VXF21.90	**VXF21.90**
			200	100	160	BPZ:VXF21.100-160	**VXF21.100-160**

Δp_{max}-ratings are valid for mixing applications.

VXF21.. will be phased out around spring 2014, replacement products VXF32.. will be available at the same time

Replacement sealing glands for VXF21..:

VVF/VXF21.., DN25...DN80: part no. 4 284 8806 0
VVF/VXF21.., DN100: part no. 4 679 5629 0

Field of application for VXF21..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	6 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VXF21..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

Globe and pressure independent combi valves
3-port flanged valves, PN10: VXF31..

VXF31..



3-port seat valves PN10 with flanged connections

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4420
Stroke	To DN 80: 20 mm From DN 100: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...0.2% of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 25...40: >50 DN 50...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 10

Range overview 3-port valves VXF31..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300	300		15	2.5	BPZ:VXF31.15-2.5	**VXF31.15-2.5**
300	300	300		15	4	BPZ:VXF31.15-4	**VXF31.15-4**
300	300	300		25	5	BPZ:VXF31.24	**VXF31.24**
300	300	300		25	6.3	BPZ:VXF31.25-6.3	**VXF31.25-6.3**
300	300	300		25	7.5	BPZ:VXF31.25	**VXF31.25**
300	300	300		25	10	BPZ:VXF31.25-10	**VXF31.25-10**
300	300	300		40	12	BPZ:VXF31.39	**VXF31.39**
300	300	300		40	16	BPZ:VXF31.40-16	**VXF31.40-16**
300	300	300		40	19	BPZ:VXF31.40	**VXF31.40**
300	300	300		40	25	BPZ:VXF31.40-25	**VXF31.40-25**
300	300	300		50	31	BPZ:VXF31.50	**VXF31.50**
300	300	300		50	40	BPZ:VXF31.50-40	**VXF31.50-40**
175	275	300		65	49	BPZ:VXF31.65	**VXF31.65**
175	275	300		65	63	BPZ:VXF31.65-63	**VXF31.65-63**
100	175	300		80	78	BPZ:VXF31.80	**VXF31.80**
100	175	300		80	100	BPZ:VXF31.80-100	**VXF31.80-100**
			200	100	124	BPZ:VXF31.90	**VXF31.90**
			200	100	160	BPZ:VXF31.100-160	**VXF31.100-160**
			150	125	200	BPZ:VXF31.91	**VXF31.91**
			150	125	250	BPZ:VXF31.125-250	**VXF31.125-250**
			100	150	300	BPZ:VXF31.92	**VXF31.92**
			100	150	315	BPZ:VXF31.150-315	**VXF31.150-315**

Δp_{max}-ratings are valid for mixing applications.

VXF31.. will be phased out around spring 2014, replacement products VXF32.. will be available at the same time

Range overview 3-port valves C/VXF31..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300	300		25	5	BPZ:C/VXF31.24	**C/VXF31.24**
300	300	300		25	6.3	BPZ:C/VXF31.25-6.3	**C/VXF31.25-6.3**
300	300	300		25	7.5	BPZ:C/VXF31.25	**C/VXF31.25**
300	300	300		25	10	BPZ:C/VXF31.25-10	**C/VXF31.25-10**
300	300	300		40	12	BPZ:C/VXF31.39	**C/VXF31.39**
300	300	300		40	16	BPZ:C/VXF31.40-16	**C/VXF31.40-16**
300	300	300		40	19	BPZ:C/VXF31.40	**C/VXF31.40**
300	300	300		40	25	BPZ:C/VXF31.40-25	**C/VXF31.40-25**
300	300	300		50	31	BPZ:C/VXF31.50	**C/VXF31.50**
300	300	300		50	40	BPZ:C/VXF31.50-40	**C/VXF31.50-40**
175	275	300		65	49	BPZ:C/VXF31.65	**C/VXF31.65**
175	275	300		65	63	BPZ:C/VXF31.65-63	**C/VXF31.65-63**
100	175	300		80	78	BPZ:C/VXF31.80	**C/VXF31.80**
100	175	300		80	100	BPZ:C/VXF31.80-100	**C/VXF31.80-100**
			200	100	124	BPZ:C/VXF31.90	**C/VXF31.90**
			200	100	160	BPZ:C/VXF31.100-160	**C/VXF31.100-160**
			150	125	200	BPZ:C/VXF31.91	**C/VXF31.91**
			150	125	250	BPZ:C/VXF31.125-250	**C/VXF31.125-250**
			100	150	300	BPZ:C/VXF31.92	**C/VXF31.92**
			100	150	315	BPZ:C/VXF31.150-315	**C/VXF31.150-315**

C/VXF31.. will be phased out around autumn 2014, replacement products VXF32..C will be available at the same time

Replacement sealing glands for VXF31..

VVF/VXF31.., DN15...DN80: part no. 4 284 8806 0
VVF/VXF31.., DN100...DN150: part no. 4 679 5629 0

Field of application for VXF31..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	10 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0° C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator to VXF31..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

3-port seat valves PN16 with flanged connections

VXF40..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits



Data sheet	N4430
Stroke	From DN 100: 40 mm To DN 80: 20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-10...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250/EN-GJL-HB 215
Material, inside set	< DN 40: CrNi steel/brass > DN 50: CrNi steel/Rg5
PN class	PN 16

Range overview 3-port valves VXF40..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300	300		15	1.9	BPZ:VXF40.15-1.9	**VXF40.15-1.9**
300	300	300		15	2.5	BPZ:VXF40.15-2.5	**VXF40.15-2.5**
300	300	300		15	3	BPZ:VXF40.15-3	**VXF40.15-3**
300	300	300		15	4	BPZ:VXF40.15-4	**VXF40.15-4**
300	300	300		25	5	BPZ:VXF40.25-5	**VXF40.25-5**
300	300	300		25	6.3	BPZ:VXF40.25-6.3	**VXF40.25-6.3**
300	300	300		25	7.5	BPZ:VXF40.25-7.5	**VXF40.25-7.5**
300	300	300		25	10	BPZ:VXF40.25-10	**VXF40.25-10**
300	300	300		40	12	BPZ:VXF40.40-12	**VXF40.40-12**
300	300	300		40	16	BPZ:VXF40.40-16	**VXF40.40-16**
300	300	300		40	19	BPZ:VXF40.40-19	**VXF40.40-19**
300	300	300		40	25	BPZ:VXF40.40-25	**VXF40.40-25**
300	300	300		50	31	BPZ:VXF40.50-31	**VXF40.50-31**
300	300	300		50	40	BPZ:VXF40.50-40	**VXF40.50-40**
175	275	300		65	49	BPZ:VXF40.65-49	**VXF40.65-49**
175	275	300		65	63	BPZ:VXF40.65-63	**VXF40.65-63**
100	175	300		80	78	BPZ:VXF40.80-78	**VXF40.80-78**
100	175	300		80	100	BPZ:VXF40.80-100	**VXF40.80-100**

Δp_{max}-ratings are valid for mixing applications.

VXF40.. will be phased out around spring 2014, replacement products VXF42.. will be available at the same time

Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF40..

Range overview 3-port valves VXF40..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
			200	100	124	BPZ:VXF40.100-124	**VXF40.100-124**
			200	100	160	BPZ:VXF40.100-160	**VXF40.100-160**
			150	125	200	BPZ:VXF40.125-200	**VXF40.125-200**
			150	125	250	BPZ:VXF40.125-250	**VXF40.125-250**
			100	150	300	BPZ:VXF40.150-300	**VXF40.150-300**
			100	150	315	BPZ:VXF40.150-315	**VXF40.150-315**

Δp_{max}-ratings are valid for mixing applications.

VXF40.. will be phased out around spring 2014, replacement products VXF42.. will be available at the same time

Range overview 3-port valves C/VXF40..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300	300		25	5	BPZ:C/VXF40.25-5	**C/VXF40.25-5**
300	300	300		25	6.3	BPZ:C/VXF40.25-6.3	**C/VXF40.25-6.3**
300	300	300		25	7.5	BPZ:C/VXF40.25-7.5	**C/VXF40.25-7.5**
300	300	300		25	10	BPZ:C/VXF40.25-10	**C/VXF40.25-10**
300	300	300		40	12	BPZ:C/VXF40.40-12	**C/VXF40.40-12**
300	300	300		40	16	BPZ:C/VXF40.40-16	**C/VXF40.40-16**
300	300	300		40	19	BPZ:C/VXF40.40-19	**C/VXF40.40-19**
300	300	300		40	25	BPZ:C/VXF40.40-25	**C/VXF40.40-25**
300	300	300		50	31	BPZ:C/VXF40.50-31	**C/VXF40.50-31**
300	300	300		50	40	BPZ:C/VXF40.50-40	**C/VXF40.50-40**
175	275	300		65	49	BPZ:C/VXF40.65-49	**C/VXF40.65-49**
175	275	300		65	63	BPZ:C/VXF40.65-63	**C/VXF40.65-63**
100	175	300		80	78	BPZ:C/VXF40.80-78	**C/VXF40.80-78**
100	175	300		80	100	BPZ:C/VXF40.80-100	**C/VXF40.80-100**
			200	100	124	BPZ:C/VXF40.100-124	**C/VXF40.100-124**
			200	100	160	BPZ:C/VXF40.100-160	**C/VXF40.100-160**
			150	125	200	BPZ:C/VXF40.125-200	**C/VXF40.125-200**
			150	125	250	BPZ:C/VXF40.125-250	**C/VXF40.125-250**
			100	150	300	BPZ:C/VXF40.150-300	**C/VXF40.150-300**
			100	150	315	BPZ:C/VXF40.150-315	**C/VXF40.150-315**

Δp_{max}-ratings in kPa are valid for mixing applications.

C/VXF40.. will be phased out around autumn 2014, replacement products VXF42..C will be available at the same time

Replacement sealing glands for VXF40..

VVF/VXF40.., DN15...DN80: part no. 4 284 8806 0
VVF/VXF40.., DN100...DN150: part no. 4 679 5629 0

Field of application for VXF40..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	-10...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Combinable actuator for VXF40..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

Globe and pressure independent combi valves
3-port flanged valves, PN16: VXF43..

VXF43..



3-port seat valves PN16 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils in open and closed circuits

Data sheet	N4404
Stroke	40 mm
Leakage rate	0...0.01 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16

Range overview 3-port valves VXF43..

SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
650	65	63	S55206-V115	**VXF43.65-63**
400	80	100	S55206-V116	**VXF43.80-100**
250	100	160	S55206-V117	**VXF43.100-160**
160	125	250	S55206-V118	**VXF43.125-250**
100	150	400	S55206-V119	**VXF43.150-400**

Δp_{max}- ratings are valid for mixing applications.

Field of application for VXF43..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 180 °C	16 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	16 bar	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

Accessories for VXF43..

Product Title	Material	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN65	Steel	N4404	S55845-Z114	**ALF41B65**
Bypass extension, flanged connections, DN80	Steel	N4404	S55845-Z115	**ALF41B80**
Bypass extension, flanged connections, DN100	Steel	N4404	S55845-Z116	**ALF41B100**
Bypass extension, flanged connections, DN125	Steel	N4404	S55845-Z117	**ALF41B125**
Bypass extension, flanged connections, DN150	Steel	N4404	S55845-Z118	**ALF41B150**

Bypass extension when replacing VXF41.. with VXF43.. or VXF53... Each set contains one extension, 4/8 treaded bolts including nuts and one flat gasket.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	**428488060**
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	**7424200000**
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	**7428400610**

Replacement sealing gland for VXF43..
VXF43.., DN65...150: part no. 7428400610

Combinable actuator for VXF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**

NEW PRODUCT

Globe and pressure independent combi valves
3-port threaded valves, PN16: VXF47..

VXF47..



3-port seat valves PN16, flanged connections VXF47..

For use in heating, ventilating and air conditioning systems as a control valve for closed circuits

Data sheet	N4419
Leakage rate	0...0.1% of Kvs value
Medium temperature	1...95 °C
Rangeability	DN 50...150: > 50
Material, valve body	Grey cast iron EN-GJL-250
Material, inside set	Stainless Steel/R65
PN class	PN 16

Range overview 3-port valves VXF47..

SBX.. Δp_{max} [kPa]	SBV.. Δp_{max} [kPa]	Stroke [mm]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300		20	50	40	S55220-V100	**VXF47.50**
175	300	20	65	63	S55220-V101	**VXF47.65**
100	250	20	80	100	S55220-V102	**VXF47.80**
	200	40	100	160	S55220-V103	**VXF47.100**
	100	40	125	250	S55220-V104	**VXF47.125**
	75	40	150	315	S55220-V105	**VXF47.150**

Field of application for VXF47..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Brine Water with anti-freeze Low-temperature hot water	1...95 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease

Combinable actuator for VXF47..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120		N4519	S55160-A102	**SBX31**
AC 24 V	DC 0...10 V	120		N4519	S55160-A100	**SBX61**
AC 24 V	3-position	120		N4519	S55160-A101	**SBX81**
AC 230 V	3-position	180		N4519	S55160-A105	**SBV31**
AC 24 V	DC 0...10 V	180		N4519	S55160-A103	**SBV61**
AC 24 V	3-position	180		N4519	S55160-A104	**SBV81**

3-port seat valves PN25 with flanged connections

VXF53..

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine, heat transfer oils in open and closed circuits



Data sheet	N4405
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.01 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value;SAX...: 0.05 % of k_{vs} value
Medium temperature	-20...220 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	>100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron EN-GJS-400-18-LT
Material, inside set	Stainless steel
PN class	PN 16 / PN 25

Range overview 3-port valves VXF53..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1200	1200	1200		15	1.6	S55208-V140	**VXF53.15-1.6**
1200	1200	1200		15	2.5	S55208-V141	**VXF53.15-2.5**
1200	1200	1200		15	4	S55208-V142	**VXF53.15-4**
1200	1200	1200		20	6.3	S55208-V144	**VXF53.20-6.3**
1200	1200	1200		25	6.3	S55208-V145	**VXF53.25-6.3**
1200	1200	1200		25	10	S55208-V146	**VXF53.25-10**
750	1100	1200		32	16	S55208-V148	**VXF53.32-16**
500	650	1200		40	16	S55208-V149	**VXF53.40-16**
500	650	1200		40	25	S55208-V150	**VXF53.40-25**
300	400	1150		50	40	S55208-V152	**VXF53.50-40**
			650	65	63	S55208-V153	**VXF53.65-63**
			400	80	100	S55208-V154	**VXF53.80-100**
			250	100	160	S55208-V155	**VXF53.100-160**
			160	125	250	S55208-V156	**VXF53.125-250**
			100	150	400	S55208-V157	**VXF53.150-400**

Δp_{max}- ratings are valid for mixing applications.

Globe and pressure independent combi valves
3-port flanged valves, PN25: VXF53..

Field of application for VXF53..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-20...150 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
High-temperature hot water	≤ 220 °C	25 bar ISO 7005	FEPM O-ring, silicone-free grease
Heat transfer oil	≤ 220 °C	25 bar	FEPM O-ring, silicone-free grease

For media < 0 °C, stem heating element ASZ6.5 or ASZ6.6 is required.
Media < -5 °C requires sealing gland 428488060.

Accessories for VXF53..

Product Title	Material	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN15	Steel	N4404	S55845-Z110	**ALF41B15**
Bypass extension, flanged connections, DN25	Steel	N4404	S55845-Z111	**ALF41B25**
Bypass extension, flanged connections, DN40	Steel	N4404	S55845-Z112	**ALF41B40**
Bypass extension, flanged connections, DN50	Steel	N4404	S55845-Z113	**ALF41B50**

Bypass extension when replacing VXF41.., DN15...50, with VXF43.. or VXF53... Each set contains one extension, 4/8 treaded bolts including nuts and one flat gasket.

Accessories for V..F43.. / V..F53..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM	BPZ:428488060	**428488060**
Stem connection washer for SKB/SKC actuators, stem diameter 10 mm, set of 5	BPZ:7424200000	7424200000
Replacement sealing gland, stem diameter 10 mm, sealing material FEPM	S55845-Z150	7428400610

Replacement sealing gland for VXF53..
VXF53.., DN15...150: part no. 7428400610

Combinable actuator to VXF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**

Globe and pressure independent combi valves
3-port flanged valves, PN40: VXF61..

VXF61..



3-port seat valves PN40 with flanged connections

- With flanged connections to ISO 7005
- For cooling, chilled, low and high temperature water, brine and heat transfer oils in open and closed circuits

Data sheet	N4482
Stroke	To DN 50: 20 mm From DN 65: 40 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-25...220 °C (350 °C)
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15...40: >50 DN 50...150: >100
Permissible operating pressure	4000 kPa
Material, valve body	Cast steel GP240GH
Material, inside set	CrNi steel
PN class	PN 40

Range overview 3-port valves VXF61..

SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1200	1600		15	1.9	BPZ:VXF61.14	**VXF61.14**
1200	1600		15	3	BPZ:VXF61.15	**VXF61.15**
1200	1600		25	5	BPZ:VXF61.24	**VXF61.24**
1200	1600		25	7.5	BPZ:VXF61.25	**VXF61.25**
	1200		40	12	BPZ:VXF61.39	**VXF61.39**
	1200		40	19	BPZ:VXF61.40	**VXF61.40**
	1000		50	19	BPZ:VXF61.49	**VXF61.49**
	1000		50	31	BPZ:VXF61.50	**VXF61.50**
		800	65	49	BPZ:VXF61.65	**VXF61.65**
		500	80	78	BPZ:VXF61.80	**VXF61.80**
		300	100	124	BPZ:VXF61.90	**VXF61.90**
		200	125	200	BPZ:VXF61.91	**VXF61.91**
		125	150	300	BPZ:VXF61.92	**VXF61.92**

Δp_{max}-ratings are valid for mixing applications.

Replacement sealing glands for VXF61..

VVF/VXF.., DN15...DN25: part no. 4 284 8829 0
VVF/VXF.., DN40...DN150: part no. 4 679 5630 0
VVF/VXF61..2, DN15...DN150: part no. 4 284 8829 0
VVF/VXF61..5, DN15...25: part no. 4 284 9538 0
VVF/VXF61..5, DN40...DN150: part no. 4 284 9540 0

Field of application for VXF61..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water	-25...220 °C	40 bar ISO 7005	PTFE sleeve	--
High-temperature hot water	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	≤ 220 °C	40 bar ISO 7005	PTFE sleeve	--
Heat transfer oil	220...350 °C	40 bar ISO 7005	PTFE sleeve	2 1)

For media < 0 °C, stem heating element ASZ6.5 is required.
1) Special versions with extended neck are available for applications with heat transfer oil up to 350 °C (only for types VVF61.13 to VVF61.92 and VXF61.14 to VXF61.92).
When ordering, please give Product No. with type suffix, e.g. VVF61.252

Combinable actuator for VXF61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 230 V	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230 V	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**

Globe and pressure independent combi valves
3-port flanged valves with magnetic actuators, PN16: MXF461..

MXF461..



Modulating control valves with magnetic actuator, PN16, flanged

Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of chilled or low-temperature hot water systems in closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4455
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4...20 mA
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Cast iron EN-GJL-250
Material, inside set	CrNi steel/brass

When used as a 2 port valve, inlet B (2) must be closed off with the Z155/.. blanking flange.
MXF461..P valves for media containing mineral oils (data sheet N4455)
MXF461.. valves are UL listed

CAUTION!
Use valve only as a mixing or 2-port valve, not as a diverting valve.

7

Range overview flanged valves MXF461..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Stock No.	Product No.
15	0.6	300	300	29	BPZ:MXF461.15-0.6	**MXF461.15-0.6**
15	1.5	300	300	29	BPZ:MXF461.15-1.5	**MXF461.15-1.5**
15	3	300	300	29	BPZ:MXF461.15-3.0	**MXF461.15-3.0**
20	5	300	300	29	BPZ:MXF461.20-5.0	**MXF461.20-5.0**
25	8	300	300	29	BPZ:MXF461.25-8.0	**MXF461.25-8.0**
32	12	300	300	29	BPZ:MXF461.32-12	**MXF461.32-12**
40	20	300	300	44	BPZ:MXF461.40-20	**MXF461.40-20**
50	30	300	300	44	BPZ:MXF461.50-30	**MXF461.50-30**
65	50	300	300	46	BPZ:MXF461.65-50	**MXF461.65-50**

Δp_s for use as 2-port valve

Field of application for MXF461..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 130 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 130 °C	16 bar	Viton-O-ring	P

Accessories for MXF461..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**

Blanking flanges

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

DN	Stock No.	Product No.
15	BPZ:Z155/15F	**Z155/15F**
20	BPZ:Z155/20F	**Z155/20F**
25	BPZ:Z155/25F	**Z155/25F**
32	BPZ:Z155/32F	**Z155/32F**
40	BPZ:Z155/40	**Z155/40**
50	BPZ:Z155/50	**Z155/50**
65	BPZ:Z155/65	**Z155/65**

Globe and pressure independent combi valves
3-port flanged valves with magnetic actuators, PN16: M3P..FY

M3P..FY..



Modulating control valves with magnetic actuator, PN16, flanged

Mixing and 2-port valves with magnetic actuator for modulating control of chilled or low-pressure hot water systems with closed circuits. Flanged connections, with positioning control, position feedback signal, spring return function, manual control.

Data sheet	N4454
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 4...20 mA
Positioning time	Close: <2 s
Spring return function	1->3 closed
Position feedback	DC 0...10 V
Degree of protection	IP31
Ambient temperature, operation	2...50 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	ca. 2 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	EN-GJL-HB215
Material, inside set	CrNi steel/brass

When used as a 2 port valve, inlet B (2) must be closed off with the Z155/.. blanking flange.
M3P..FYP for media containing mineral oils (data sheet N4454)

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

7

Range overview flanged valves M3P..FY

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Stock No.	Product No.
80	80	300	300	80	BPZ:M3P80FY	**M3P80FY**
100	130	200	200	120	BPZ:M3P100FY	**M3P100FY**

Δp_s for use as 2-port valve

Field of application for M3P..FY

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 120 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 120 °C	16 bar	Viton-O-ring	P

Accessories for M3P..FY

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**
Replacement electronic for M3P..FY..	N4454	BPZ:ZM250	**ZM250**

Blanking flanges

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

DN	Stock No.	Product No.
80	BPZ:Z155/80	**Z155/80**
100	BPZ:Z155/100	**Z155/100**

Globe and pressure independent combi valves
3-port threaded valves, PN16: VXP45..

VXP45..



3-port seat valves, PN16

3-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport up to k_{vs} 6.3: equal-percentage Throughport from [kvs/] 10: linear Bypass: linear
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi steel / Rg5 / brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing or 2-port valves, not as diverting valves.

Range overview 3-port valves VXP45..

Connecting thread	SSB.. Δp_{max} [kPa]	SSC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	400		10	0.25	BPZ:VXP45.10-0.25	**VXP45.10-0.25**
G ½ B "	400		10	0.4	BPZ:VXP45.10-0.4	**VXP45.10-0.4**
G ½ B "	400		10	0.63	BPZ:VXP45.10-0.63	**VXP45.10-0.63**
G ½ B "	400		10	1	BPZ:VXP45.10-1	**VXP45.10-1**
G ½ B "	400		10	1.6	BPZ:VXP45.10-1.6	**VXP45.10-1.6**
G ¾ B "	350		15	2.5	BPZ:VXP45.15-2.5	**VXP45.15-2.5**
G 1 B "	350		20	4	BPZ:VXP45.20-4	**VXP45.20-4**
G 1¼ B "	300		25	6.3	BPZ:VXP45.25-6.3	**VXP45.25-6.3**
G 1½ B "		300	25	10	BPZ:VXP45.25-10	**VXP45.25-10**
G 2 B "		175	32	16	BPZ:VXP45.32-16	**VXP45.32-16**
G 2¼ B "		75	40	25	BPZ:VXP45.40-25	**VXP45.40-25**

Field of applications for VXP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...110 °C	16 bar ISO 7628	EPDM O-ring

Accessories for VXP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VXP45..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150		N4891	BPZ:SSB31	**SSB31**
AC 24 V DC 24 V	DC 0...10 V	75		N4891	BPZ:SSB61	**SSB61**
AC 24 V	3-position	150		N4891	BPZ:SSB81	**SSB81**
AC 230 V	3-position	150	No	N4895	BPZ:SSC31	**SSC31**
AC 24 V DC 24 V	DC 0...10 V	30	No	N4895	BPZ:SSC61	**SSC61**
AC 24 V DC 24 V	DC 0...10 V	30	Yes (15 s)	N4895	BPZ:SSC61.5	**SSC61.5**
AC 24 V	3-position	150	No	N4895	BPZ:SSC81	**SSC81**

Further information to the actuators please see "Actuators for threaded valves with 5.5 mm stroke"

Globe and pressure independent combi valves
3-port threaded valves with bypass, PN16: VMP45..

VMP45..



3-port seat valves with bypass, PN16

3-port seat valves with bypass, with threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Equal-percentage: Bypass: linear
Material, valve body	Red brass CC499K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

V..P45.. valves are only used as mixing valves, not as diverting valves.

Range overview 3-port valves with bypass VMP45..

Connecting thread	SSB.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	400	10	0.25	BPZ:VMP45.10-0.25	**VMP45.10-0.25**
G ½ B "	400	10	0.4	BPZ:VMP45.10-0.4	**VMP45.10-0.4**
G ½ B "	400	10	0.63	BPZ:VMP45.10-0.63	**VMP45.10-0.63**
G ½ B "	400	10	1	BPZ:VMP45.10-1	**VMP45.10-1**
G ½ B "	400	10	1.6	BPZ:VMP45.10-1.6	**VMP45.10-1.6**
G ¾ B "	400	15	2.5	BPZ:VMP45.15-2.5	**VMP45.15-2.5**
G 1 B "	400	20	4	BPZ:VMP45.20-4	**VMP45.20-4**

Range overview 3-port valves with bypass VMP45..S

Connecting thread	SSB.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	400	10	0.63	BPZ:VMP45.10-0.63S	**VMP45.10-0.63S**
G ½ B "	400	10	1	BPZ:VMP45.10-1S	**VMP45.10-1S**
G ½ B "	400	10	1.6	BPZ:VMP45.10-1.6S	**VMP45.10-1.6S**
W 1⅛-14 "	400	15	2.5	BPZ:VMP45.15-2.5S	**VMP45.15-2.5S**

Field of applications for VMP45..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...110 °C	16 bar ISO 7628	EPDM O-ring

Accessories for VMP45..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VMP45..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4891	BPZ:SSB31	**SSB31**
AC 24 V DC 24 V	DC 0...10 V	75	N4891	BPZ:SSB61	**SSB61**
AC 24 V	3-position	150	N4891	BPZ:SSB81	**SSB81**

Globe and pressure independent combi valves
3-port threaded valves, PN16: VXP47..

VXP47..



3-port valves, PN16

3-port valves with threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{vs} value
Leakage rate bypass	0...0.05 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 3-port valves VXP47..

Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	10	0.25	BPZ:VXP47.10-0.25	**VXP47.10-0.25**
G ½ B "	10	0.4	BPZ:VXP47.10-0.4	**VXP47.10-0.4**
G ½ B "	10	0.63	BPZ:VXP47.10-0.63	**VXP47.10-0.63**
G ½ B "	10	1	BPZ:VXP47.10-1	**VXP47.10-1**
G ½ B "	10	1.6	BPZ:VXP47.10-1.6	**VXP47.10-1.6**
G ¾ B "	15	2.5	BPZ:VXP47.15-2.5	**VXP47.15-2.5**
G 1 B "	20	4	BPZ:VXP47.20-4	**VXP47.20-4**

70 % k_{vs} in bypass for all types

Overview differential pressures

SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	Product No.
400	400	**VXP47.10-0.25**
400	250	**VXP47.10-0.4**
400	250	**VXP47.10-0.63**
400	250	**VXP47.10-1**
300	150	**VXP47.10-1.6**
300	150	**VXP47.15-2.5**
175	100	**VXP47.20-4**

Combinable actuator to VXP47..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP31	**SSP31**
AC 230 V	2-position	210	White	1	N4884	S55174-A103	**STP23**
AC 230 V	2-position	210	White		N4884	S55174-A112	**STP23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A120	**STP23B/00**
AC 230 V	2-position	10	Gray	1.8	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4864	BPZ:SSP61	**SSP61**
AC 24 V	3-position	150	White/Gray	1.5	N4864	BPZ:SSP81	**SSP81**
AC 24 V	3-position	43	White/Gray	1.5	N4864	BPZ:SSP81.04	**SSP81.04**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A102	**STP73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A111	**STP73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A119	**STP73B/00**
AC 24 V	2-position	10	Gray	1.8	N4865	BPZ:SFP71/18	**SFP71/18**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A116	**STP73PR/00**

Globe and pressure independent combi valves
3-port threaded valves with bypass, PN16: VMP47..

VMP47..



3-port seat valves with bypass, PN16

3-port valves with bypass and threaded connections for the control of terminal units, chilled ceilings or heating zones.
Suitable media: Water (to VDI 2035), water with anti-freeze.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{vs} value
Leakage rate bypass	0...0.05 % of k_{vs} value
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Material, valve body	Red brass CC491K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16
Permissible operating pressure	1600 kPa

Range overview 3-port with bypass VMP47..

Connecting thread	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	400	400	10	0.25	BPZ:VMP47.10-0.25	**VMP47.10-0.25**
G ½ B "	400	400	10	0.4	BPZ:VMP47.10-0.4	**VMP47.10-0.4**
G ½ B "	400	250	10	0.63	BPZ:VMP47.10-0.63	**VMP47.10-0.63**
G ½ B "	400	250	10	1	BPZ:VMP47.10-1	**VMP47.10-1**
G ½ B "	300	150	10	1.6	BPZ:VMP47.10-1.6	**VMP47.10-1.6**
G ¾ B "	300	150	15	2.5	BPZ:VMP47.15-2.5	**VMP47.15-2.5**

70 % k_{vs} in bypass for all types

Range overview 3-port with bypass VMP47..S

Connecting thread	SFP../SSP.. Δp_{max} [kPa]	STP.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B "	400	250	10	0.63	BPZ:VMP47.10-0.63S	**VMP47.10-0.63S**
G ½ B "	400	250	10	1	BPZ:VMP47.10-1S	**VMP47.10-1S**
G ½ B "	300	150	10	1.6	BPZ:VMP47.10-1.6S	**VMP47.10-1.6S**
W11/8-14	300	150	15	2.5	BPZ:VMP47.15-2.5S	**VMP47.15-2.5S**

70 % k_{vs} in bypass for all types

Combinable actuator to VMP47..

Operating voltage	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	1.5	N4864	BPZ:SSP31	**SSP31**
AC 230 V	2-position	210	1	N4884	S55174-A103	**STP23**
AC 230 V	2-position	210		N4884	S55174-A112	**STP23/00**
AC 230 V	2-position	210		N4884	S55174-A120	**STP23B/00**
AC 230 V	2-position	10	1.8	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24 V DC 24 V	DC 0...10 V	34	1.5	N4864	BPZ:SSP61	**SSP61**
AC 24 V	3-position	150	1.5	N4864	BPZ:SSP81	**SSP81**
AC 24 V	3-position	43	1.5	N4864	BPZ:SSP81.04	**SSP81.04**
AC 24 V DC 24 V	2-position PDM	270	1	N4884	S55174-A102	**STP73**
AC 24 V DC 24 V	2-position PDM	270		N4884	S55174-A111	**STP73/00**
AC 24 V DC 24 V	2-position PDM	270		N4884	S55174-A119	**STP73B/00**
AC 24 V	2-position	10	1.8	N4865	BPZ:SFP71/18	**SFP71/18**
AC 24 V DC 24 V	2-position PDM/parallel operation	270		N4884	S55174-A116	**STP73PR/00**

Globe and pressure independent combi valves
3-port threaded valves PN16: VXI46..

VXI46..



3-port zone valves, PN16 with on/off characteristic

3-port valves, internally threaded connections, for the control of zones or terminal units. Suitable media: water (to VDE 2035), water with anti-freeze.

Data sheet	N4842
Stroke	2.5 mm
Leakage rate	0...0.05% of k_{vs} value
Leakage rate bypass	2...5% of k_{vs} value
Medium temperature	1...110 °C
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
Material, inside set	Stainless steel, brass
Mounting position	Upright to horizontal
PN class	PN 16
Valve characteristic	Non-linear (on/off)

Range overview 3-port internally threaded valves VXI46.. (diverting valves)

Connecting thread	DN	k_{vs} [m³/h]	SFA.. Δp_{max} [kPa]	SUA21.. Δp_{max} [kPa]	STA.. Δp_{max} [kPa]	Stock No.	Product No.
Rp ½ "	15	2	300	300	200	BPZ:VXI46.15	**VXI46.15**
Rp ¾ "	20	3.5	300	300	200	BPZ:VXI46.20	**VXI46.20**
Rp 1 "	25	5	300	300	200	BPZ:VXI46.25	**VXI46.25**
Rp ½ "	15	2	300	300	200	S55249-V103	**VXI46.15/1**
Rp ¾ "	20	3.5	300	300	200	S55249-V104	**VXI46.20/1**
Rp 1 "	25	5	300	300	200	S55249-V105	**VXI46.25/1**
Rp 1 "	25	5	200	200	200	BPZ:VXI46.25T	**VXI46.25T**

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.
VXI46..: 70 % k_{vs} in bypass, leakage rate in bypass 2...5 % of k_{vs} value. VXI46.25T: 100 % k_{vs} in bypass, leakage rate in bypass 0.05 % of k_{vs} value

Combinable actuator to VXI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	2-position	10	Gray	1.8	N4863	BPZ:SFA21/18	**SFA21/18**
AC 24 V	2-position	10	Gray	1.8	N4863	BPZ:SFA71/18	**SFA71/18**
AC 230 V	3-position SPDT	43	White/Gray	1.5	N4860	BPZ:SSA31.04	**SSA31.04**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	10 s @ 50 Hz	N4830	S55176-A102	**SUA21/1**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Globe and pressure independent combi valves
3-port Threaded valves, PN16: MXI421..

MXI421..



On/off 3-port valve with spring return

Control valve for use with terminal units for heating and cooling zones. The actuators are equipped with a manual lever and spring return facility (valve closed). 1 auxiliary switch is available as an accessory item.

Data sheet	N4867
Stroke	2.5 mm
Leakage rate	< 0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Operating voltage	AC 230 V
Positioning signal	2-position
Positioning time	10 s
Power consumption	12 VA
Degree of protection	IP30
Ambient temperature range	1...50 °C
Positioning force	200 N
Mounting position	Upright up to 85° inclined
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview of MXI421..

DN	Connecting thread	k_{vs} [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
15	Rp 1/2	2.0	300	BPZ:MXI421.15	**MXI421.15**
20	Rp 3/4	2.0	300	BPZ:MXI421.20	**MXI421.20**
25	Rp 1	2.0	300	BPZ:MXI421.25	**MXI421.25**

Accessories for MXI421..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

3-port seat valves PN16 with internally threaded connections

C/VXI41..

- With internally threaded connections Rp.. to ISO 7-1
- For chilled water, low pressure hot water in open and closed circuits



Data sheet	N4362
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0.5...2 % of k_{vs} value
Medium temperature	-25...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15: >50 DN 20...50: >100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi Steel/ Rg 5 brass
PN class	PN 16

Range overview of 3-port valves C/VXI41..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	DN	Connecting thread	k_{vs} [m³/h]	Stock No.	Product No.
400	400	15	Rp ½	2.5	BPZ:C/VXI41.15-2.5	**C/VXI41.15-2.5**
400	400	15	Rp ½	4.0	BPZ:C/VXI41.15-4	**C/VXI41.15-4**
400	400	20	Rp ¾	6.3	BPZ:C/VXI41.20-6.3	**C/VXI41.20-6.3**
400	400	25	Rp 1	10	BPZ:C/VXI41.25-10	**C/VXI41.25-10**
400	400	32	Rp 1¼	16	BPZ:C/VXI41.32-16	**C/VXI41.32-16**
400	400	40	Rp 1½	25	BPZ:C/VXI41.40-25	**C/VXI41.40-25**
300	400	50	Rp 2	40	BPZ:C/VXI41.50-40	**C/VXI41.50-40**

Replacement sealing gland for C/VXI41...

C/VXI41.., DN15...50: part no. 4 284 8874 0
C/VXI41..01, DN15...50 part no. 7 428 4004 70

Field of application for C/VXI41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Globe and pressure independent combi valves
3-port threaded valves PN16: C/VXI41..

Combinable actuator for C/VXI41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**

3-port seat valves PN16 with externally threaded connections

VXG41..

- With threaded connections to ISO 228-1
- For drinking, cooling and chilled water, low and high temperature hot water and brine in open and closed circuits



Data sheet	N4463
Stroke	20 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	Standard version: 0.5...2 % of k_{vs} value Special version: 0...0.02 % of k_{vs} value (VXG41..01)
Medium temperature	-25...150 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	DN 15: > 50 DN 20...50: > 100
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CuSn5Zn5Pb2 (CC499K)
Material, inside set	CrNi steel
PN class	PN 16

Range overview 3-port valves VXG41..

SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
800	800	800	G 1 B "	15	1.6	BPZ:VXG41.1301	**VXG41.1301**
800	800	800	G 1 B "	15	2.5	BPZ:VXG41.1401	**VXG41.1401**
800	800	800	G 1 B "	15	4	BPZ:VXG41.15	**VXG41.15**
800	800	800	G 1 B "	15	4	BPZ:VXG41.1501	**VXG41.1501**
800	800	800	G 1¼ B "	20	6.3	BPZ:VXG41.20	**VXG41.20**
800	800	800	G 1¼ B "	20	6.3	BPZ:VXG41.2001	**VXG41.2001**
800	800	800	G 1½ B "	25	10	BPZ:VXG41.25	**VXG41.25**
800	800	800	G 1½ B "	25	10	BPZ:VXG41.2501	**VXG41.2501**
800	800	800	G 2 B "	32	16	BPZ:VXG41.32	**VXG41.32**
800	800	800	G 2 B "	32	16	BPZ:VXG41.3201	**VXG41.3201**
525	775	800	G 2¼ B "	40	25	BPZ:VXG41.40	**VXG41.40**
525	775	800	G 2¼ B "	40	25	BPZ:VXG41.4001	**VXG41.4001**
300	450	800	G 2¾ B "	50	40	BPZ:VXG41.50	**VXG41.50**
300	450	800	G 2¾ B "	50	40	BPZ:VXG41.5001	**VXG41.5001**

VXG41..01 are DVGW approved
VXG41..01 are supplied with tight bypass
Δp_{max}-ratings are valid for mixing applications.
ALG..3 fittings must be ordered as individual items and will be delivered separately.

Replacement sealing gland for VXG41..

VXG41.., DN15...50: part no. 4 284 8874 0
VXG41..01, DN15...50 part no. 7 428 4004 70

Globe and pressure independent combi valves
3-port threaded valves, PN16: VXG41..

Field of application for VXG41..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Cooling water Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-25...150 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	--
Drinking water	≤ 90 °C	16 bar ISO 7005	EPDM O-ring, silicone-free grease	01

For media < 0°C, stem heating element ASZ6.5 or ASZ6.6 is required.

Accessories for VXG41..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VXG41..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230 V	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 230 V	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230 V	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 230 V	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 230 V	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230 V	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24 V	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**

3-port seat valves PN16 with externally threaded connections

VXG44..

- With threaded connections to ISO 228/1
- For chilled water or low-temperature hot water in closed circuits



Data sheet	N4464
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0...0.02 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Throughport: linear Bypass: linear
Rangeability	From DN 20: >100 DN 15: >50
Permissible operating pressure	1600 kPa
Material, valve body	Bronze CC491K (Rg5)
Material, inside set	CrNi steel/Rg5/brass
PN class	PN 16

Range overview 3-port valves VXG44..

Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	G 1 B "	15	0.25	BPZ:VXG44.15-0.25	**VXG44.15-0.25**
400	G 1 B "	15	0.4	BPZ:VXG44.15-0.4	**VXG44.15-0.4**
400	G 1 B "	15	0.63	BPZ:VXG44.15-0.63	**VXG44.15-0.63**
400	G 1 B "	15	1	BPZ:VXG44.15-1	**VXG44.15-1**
400	G 1 B "	15	1.6	BPZ:VXG44.15-1.6	**VXG44.15-1.6**
400	G 1 B "	15	2.5	BPZ:VXG44.15-2.5	**VXG44.15-2.5**
400	G 1 B "	15	4	BPZ:VXG44.15-4	**VXG44.15-4**
400	G 1¼ B "	20	6.3	BPZ:VXG44.20-6.3	**VXG44.20-6.3**
400	G 1½ B "	25	10	BPZ:VXG44.25-10	**VXG44.25-10**
250	G 2 B "	32	16	BPZ:VXG44.32-16	**VXG44.32-16**
125	G 2¼ B "	40	25	BPZ:VXG44.40-25	**VXG44.40-25**

Δp_{max}-ratings are valid for mixing applications. The ratings refer to actuators SQS35/65/85 of the D-series with a positioning force of 400N. Fittings ALG..3 must be ordered as separate items and are also supplied as such.

Field of application for VXG44..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Water with anti-freeze Low-temperature hot water	1...120 °C	16 bar ISO 7005	EPDM O-ring

Accessories for VXG44..

Product Title	Stock No.	Product No.
Fittings, pipe-side with threaded connection	BPZ:ALG..	**ALG..**

Combinable actuator for VXG44..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	No	N4573	BPZ:SQS35.00	**SQS35.00**
AC 230 V	3-position	35	No	N4573	BPZ:SQS35.03	**SQS35.03**
AC 230 V	3-position	150	Yes (8 s)	N4573	BPZ:SQS35.50	**SQS35.50**
AC 230 V	3-position	35	Yes (8 s)	N4573	BPZ:SQS35.53	**SQS35.53**
AC 24 V	3-position	150	No	N4573	BPZ:SQS85.00	**SQS85.00**
AC 24 V	3-position	35	No	N4573	BPZ:SQS85.03	**SQS85.03**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65	**SQS65**
AC 24 V	DC 2...10 V 0...1000 Ohm	35	No	N4573	BPZ:SQS65.2	**SQS65.2**
AC 24 V	DC 0...10 V 0...1000 Ohm	35	Yes (8 s)	N4573	BPZ:SQS65.5	**SQS65.5**

Modulating control valves with magnetic actuator, PN16, external thread

MXG461..



Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of chilled or low-temperature hot water systems in closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4455
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4..20 mA
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1000 kPa
PN class	PN 16
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Cast iron EN-GJL-250
Material, inside set	CrNi steel/brass

When used as a 2-port valve, port B must be closed off with the accessories (nut, cover, gasket) provided with the valve.
MXG461..P valves for media containing mineral oils (data sheet N4455)
MXG461.. valves are UL listed

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

7

Range overview threaded valves MXG461..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
15	0.6	300	300	29	G 1 B "	BPZ:MXG461.15-0.6	**MXG461.15-0.6**
15	1.5	300	300	29	G 1 B "	BPZ:MXG461.15-1.5	**MXG461.15-1.5**
15	3	300	300	29	G 1 B "	BPZ:MXG461.15-3.0	**MXG461.15-3.0**
20	5	300	300	29	G 1¼ B "	BPZ:MXG461.20-5.0	**MXG461.20-5.0**
25	8	300	300	29	G 1½ B "	BPZ:MXG461.25-8.0	**MXG461.25-8.0**
32	12	300	300	29	G 2 B "	BPZ:MXG461.32-12	**MXG461.32-12**
40	20	300	300	44	G 2¼ B "	BPZ:MXG461.40-20	**MXG461.40-20**
50	30	300	300	44	G 2¾ B "	BPZ:MXG461.50-30	**MXG461.50-30**

Fittings ALG..3 must be ordered as separate items and are also supplied as such.
Δp_s for use as 2-port valve

Globe and pressure independent combi valves
2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG461..

Field of application for MXG461..

Medium	Temperature	Operating pressure	Sealing gland	Suffix
Chilled water Water with anti-freeze Low-temperature hot water	≤ 130 °C	16 bar	EPDM O-ring	--
Mineral oil SAE05...SAE50, mineral-oil-based diesel fuels, heat transfer oils	≤ 130 °C	16 bar	Viton-O-ring	P

Accessories for MXG461..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**

Fittings: Set of 3

Cylindric thread to ISO 228/1 on the valve side
Cylindric thread to ISO 7/1 on the pipe side
Each ALG..3 fitting consists of 3 cap nuts, 3 insert nuts and 3 flat seals

DN	Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
15	G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	**ALG153**
20	G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	**ALG203**
25	G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	**ALG253**
32	G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	**ALG323**
40	G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	**ALG403**
50	G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	**ALG503**

Modulating control valves with magnetic actuator, PN16, external thread, DVGW

MXG461B..



Mixing and 2-port valves PN 16 with magnetic actuator for modulating control of DHW (mains water, water in open circuits), chilled water or low-temperature hot water.
With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4461
Operating voltage	AC 24 V DC 20...30 V
PN class	PN 16
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1600 kPa
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	-20...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Red brass CC491K, low-lead amount
Material, inside set	CrNi steel
Product conformity	DVGW approved

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Range overview threaded valves MXG461B..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
15	0.6	1000	1000	33	G 1 B "	BPZ:MXG461B15-0.6	**MXG461B15-0.6**
15	1.5	1000	1000	33	G 1 B "	BPZ:MXG461B15-1.5	**MXG461B15-1.5**
15	3	1000	1000	33	G 1 B "	BPZ:MXG461B15-3	**MXG461B15-3**
20	5	800	800	33	G 1¼ B "	BPZ:MXG461B20-5	**MXG461B20-5**
25	8	700	700	33	G 1½ B "	BPZ:MXG461B25-8	**MXG461B25-8**
32	12	600	600	43	G 2 B "	BPZ:MXG461B32-12	**MXG461B32-12**
40	20	600	600	43	G 2¼ B "	BPZ:MXG461B40-20	**MXG461B40-20**
50	30	600	600	65	G 2¾ B "	BPZ:MXG461B50-30	**MXG461B50-30**

The fittings are made of bronze / brass and supplied with the valve.
Δp_s for use as 2-port valve
MXG461B.. valves with magnetic actuators are UL-listed.

Accessories for MXG461B..

Product Title	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..	BPZ:ASE12	**ASE12**
Stem heating element for media temperatures 0 °C, 30 W, AC 24 V	BPZ:Z366	**Z366**

Modulating control valves with magnetic actuator, PN16, external thread, stainless steel

MXG461S..



Mixing and 2-port valves with magnetic actuator for modulating control of general and industrial HVAC plants. For open and closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4465
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 2...10 V DC 4...20 mA
Positioning time	< 1 s
Spring return function	A -> AB closed
Position feedback	DC 0...10 V
Degree of protection	IP54
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
PN class	PN 16
Permissible operating pressure	1000 kPa
Leakage rate	< 0.02 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	1...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	CrNi cast stainless steel
Material, inside set	CrNi steel

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

7

Range overview threaded valves MXG461S..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
15	1.5	300	300	29	G 1 B "	BPZ:MXG461S15-1.5	**MXG461S15-1.5**
20	5.0	300	300	29	G 1¼ B "	BPZ:MXG461S20-5.0	**MXG461S20-5.0**
25	8.0	300	300	29	G 1½ B "	BPZ:MXG461S25-8.0	**MXG461S25-8.0**
32	12	300	300	29	G 2 B "	BPZ:MXG461S32-12	**MXG461S32-12**

Union fittings made of stainless steel must delivered by thirds.
Δp_s for use as 2-port valve
MXG461S.. valves with magnetic actuators are UL-listed.

Accessories for MXG461S..

Product Title	Data sheet	Stock No.	Product No.
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**

Globe and pressure independent combi valves
2-port and 3-port Threaded valves with magnetic actuators, PN16: MXG462S..

MXG462S..



Modulating control valves with magnetic actuator, PN16, external thread, stainless steel

Mixing and 2-port valves with magnetic actuator for modulating control of general and industrial HVAC plants. For open and closed circuits. With positioning control, position feedback signal, spring return function and manual control.

Data sheet	N4466
Operating voltage	AC 24 V DC 20...30 V
PN class	PN 16
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA DC 0...20 V Phs
Positioning time	<2 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP31
Ambient temperature, operation	-5...45 °C
Mounting position	Upright to horizontal
Permissible operating pressure	1600 kPa
Leakage rate	< 0.05 % of k_{vs} value
Leakage rate bypass	< 0.2 % of k_{vs} value
Medium temperature	-20...130 °C
Valve characteristic	Equal-percentage Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	CrNi stainless steel
Material, inside set	CrNi steel

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve. When used as a 2-port valve, port B must be closed off with the cover supplied with the valve and a cap nut of the fitting.

Range overview threaded valves MXG462S..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_s [kPa]	Power consumption [VA]	Connecting thread	Stock No.	Product No.
50	30	600	600	65	G 2¾ B "	BPZ:MXG462S50-30	**MXG462S50-30**

Union fittings made of stainless steel must be delivered by thirds.
Δp_s for use as 2-port valve
MXG462S.. valves with magnetic actuators are UL-listed.

Accessories for MXG462S..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		BPZ:ASE12	**ASE12**

Fittings with threaded connections: Set of 2

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side.
Each fitting set ALG..2 consists of 2 cap nuts, 2 insert nuts and 2 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG152	**ALG152**
G 1 "	Rp ½ "	Brass	S55846-Z100	**ALG152B**
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG202	**ALG202**
G 1¼ "	Rp ¾ "	Brass	S55846-Z102	**ALG202B**
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG252	**ALG252**
G 1½ "	Rp 1 "	Brass	S55846-Z104	**ALG252B**
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG322	**ALG322**
G 2 "	Rp 1¼ "	Brass	S55846-Z106	**ALG322B**
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG402	**ALG402**
G 2¼ "	Rp 1½ "	Brass	S55846-Z108	**ALG402B**
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG502	**ALG502**
G 2¾ "	Rp 2 "	Brass	S55846-Z110	**ALG502B**

Fittings with threaded connections: Set of 3

Cylindric thread to ISO 228-1 on the valve side. Tapered R-externally or cylindrical Rp-internally threaded to ISO 7-1 on the pipe side.
Each fitting set ALG..3 consists of 3 cap nuts, 3 insert nuts and 3 flat seals.

Connecting thread, valve side	Connecting thread, pipe side	Material	Stock No.	Product No.
G 1 "	Rp ½ "	Phosphated malleable cast iron	BPZ:ALG153	**ALG153**
G 1 "	Rp ½ "	Brass	S55846-Z101	**ALG153B**
G 1¼ "	Rp ¾ "	Phosphated malleable cast iron	BPZ:ALG203	**ALG203**
G 1¼ "	Rp ¾ "	Brass	S55846-Z103	**ALG203B**
G 1½ "	Rp 1 "	Phosphated malleable cast iron	BPZ:ALG253	**ALG253**
G 1½ "	Rp 1 "	Brass	S55846-Z105	**ALG253B**
G 2 "	Rp 1¼ "	Phosphated malleable cast iron	BPZ:ALG323	**ALG323**
G 2 "	Rp 1¼ "	Brass	S55846-Z107	**ALG323B**
G 2¼ "	Rp 1½ "	Phosphated malleable cast iron	BPZ:ALG403	**ALG403**
G 2¼ "	Rp 1½ "	Brass	S55846-Z109	**ALG403B**
G 2¾ "	Rp 2 "	Phosphated malleable cast iron	BPZ:ALG503	**ALG503**
G 2¾ "	Rp 2 "	Brass	S55846-Z111	**ALG503B**

Applications requiring union fittings with DVGW approval must be delivered by thirds.

Globe and pressure independent combi valves
Combi valves, PN 16: VPF43..

VPF43..



Combi valves PN16 with flanged connections

For use in heating, ventilating and air conditioning systems as a control valve in closed circuits.

Data sheet	N4315
Stroke	20 mm
Leakage rate	Class IV (0...0.01% of volumetric flow)
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Gray cast iron GJL-250
Material, inside set	Stainless steel, Brass (DZR)
PN class	PN 16

Range overview combi valves VPF43..

DN	Volumetric flow Vmin [m³/h]	Volumetric flow V [m³/h]	Δp_{min} [kPa]	Stock No.	Product No.
50	3.2	16	35	S55266-V100	VPF43.50F16
50	5	25	70	S55266-V101	VPF43.50F25
65	5	25	35	S55266-V102	VPF43.65F24
65	7	35	70	S55266-V103	VPF43.65F35
80	7	35	35	S55266-V104	VPF43.80F35
80	9	45	70	S55266-V105	VPF43.80F45

7

Overview differential pressures

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SQV.. Δp_{max} [kPa]	SQV.. Δp_s [kPa]	Stock No.	Product No.
600	600	600	600	S55266-V100	VPF43.50F16
600	600	600	600	S55266-V101	VPF43.50F25
600	600	600	600	S55266-V102	VPF43.65F24
600	600	600	600	S55266-V103	VPF43.65F35
600	600	600	600	S55266-V104	VPF43.80F35
600	600	600	600	S55266-V105	VPF43.80F45

Field of application for VPF43..

Medium	Temperature	Valve packing
Low-temperature hot water	up to 120 °C	EPDM O-ring
Chilled water	above 1 °C	EPDM O-ring

Accessories for VPF43..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	**ALE11**
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	**ALP45**
Blanking plug for P/T ports	S55264-V115	**ALP46**
Drain ball valve inclusive O-ring	S55264-V116	**ALP47**
Combined P/T port and drain ball valve with red ribbon	S55264-V117	**ALP48**
Long P/T ports (set of 2 pieces)	S55264-V118	**ALP49**
Black spare valve protection cap (set of 2 pieces)	S55264-V119	**ALP50**

Combinable actuator to VPF43..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	30	No	N4509	S55150-A118	**SAX31P03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	N4509	S55150-A114	**SAX61P03**
AC 24 V DC 24 V	3-position	30	No	N4509	S55150-A116	**SAX81P03**
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	N4833	S55150-A130	**SQV91P30**
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	N4833	S55150-A131	**SQV91P40**

Further information to the actuators please see "Actuators for combi valves"

NEW PRODUCT

Globe and pressure independent combi valves
Combi valves, PN 25: VPF53..

VPF53..



Combi valves PN25 with flanged connections

For use in heating, ventilating and air conditioning systems as a control valve in closed circuits

Data sheet	N4316
Stroke	20 mm
Leakage rate	Class IV (0...0.01% of volumetric flow)
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron GJS-400-15
Material, inside set	Stainless steel, Brass (DZR)
PN class	PN 25

Range overview combi valves VPF53..

DN	Volumetric flow Vmin [m³/h]	Volumetric flow V [m³/h]	Δp_{min} [kPa]	Stock No.	Product No.
50	3.2	16	35	S55266-V112	VPF53.50F16
50	5	25	70	S55266-V113	VPF53.50F25
65	5	25	35	S55266-V114	VPF53.65F24
65	7	35	70	S55266-V115	VPF53.65F35
80	7	35	35	S55266-V116	VPF53.80F35
80	9	45	70	S55266-V117	VPF53.80F45

7

Overview differential pressures

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SQV.. Δp_{max} [kPa]	SQV.. Δp_s [kPa]	Stock No.	Product No.
600	600	600	600	S55266-V112	VPF53.50F16
600	600	600	600	S55266-V113	VPF53.50F25
600	600	600	600	S55266-V114	VPF53.65F24
600	600	600	600	S55266-V115	VPF53.65F35
600	600	600	600	S55266-V116	VPF53.80F35
600	600	600	600	S55266-V117	VPF53.80F45

Field of application for VPF53..

Medium	Temperature	Valve packing
Low-temperature hot water	up to 120 °C	EPDM O-ring
Chilled water	above 1 °C	EPDM O-ring

Accessories for VPF53..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	**ALE11**
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	**ALP45**
Blanking plug for P/T ports	S55264-V115	**ALP46**
Drain ball valve inclusive O-ring	S55264-V116	**ALP47**
Combined P/T port and drain ball valve with red ribbon	S55264-V117	**ALP48**
Long P/T ports (set of 2 pieces)	S55264-V118	**ALP49**
Black spare valve protection cap (set of 2 pieces)	S55264-V119	**ALP50**

Combinable actuator to VPF53..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 230 V	3-position	30	No	N4509	S55150-A118	**SAX31P03**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	N4509	S55150-A114	**SAX61P03**
AC 24 V DC 24 V	3-position	30	No	N4509	S55150-A116	**SAX81P03**
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem retracted	N4833	S55150-A130	**SQV91P30**
AC 24 V DC 24 V	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	Yes (30 s) Stem extended	N4833	S55150-A131	**SQV91P40**

Further information to the actuators please see "Actuators for combi valves"

NEW PRODUCT

Globe and pressure independent combi valves
Mini Combi Valves (MCV), DIN: VPD.. / VPE..

VPD../VPE..



MiniCombiValves (MCV)

Combivalves with presetting, PN 10, with connections according to EN215 for
- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Data sheet	N2185
Medium temperature	1...90 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass, nickel-plated
Material, inside set	EPDM
PN class	PN 10

Suitable media: Water (to VDI 2035), water with anti-freeze.

The valves can be operated with Siemens actuators type SSA.. / STA.. and thermostatic actuators RTN..

Range overview straight valves VPD.. to DIN

DN	Connecting thread	Volumetric flow V [l/h]	Δp_w [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	45	5	6	BPZ:VPD110A-45	**VPD110A-45**
10	Rp/R ⅜ "	90	5	8	BPZ:VPD110A-90	**VPD110A-90**
10	Rp/R ⅜ "	145	5	10	BPZ:VPD110A-145	**VPD110A-145**
15	Rp/R ½ "	45	5	6	BPZ:VPD115A-45	**VPD115A-45**
15	Rp/R ½ "	90	5	8	BPZ:VPD115A-90	**VPD115A-90**
15	Rp/R ½ "	145	5	10	BPZ:VPD115A-145	**VPD115A-145**
10	Rp/R ⅜ "	200	10	20	BPZ:VPD110B-200	**VPD110B-200**
15	Rp/R ½ "	200	10	20	BPZ:VPD115B-200	**VPD115B-200**

Δp_w = effective pressure (controlled differential pressure)
Δp_{min} = required minimum differential pressure across valve
$\dot{v}$= volumetric flow at a stroke of 0.5 mm

Range overview angle valves VPE.. to DIN

DN	Connecting thread	Volumetric flow V [l/h]	Δp_w [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	45	5	6	BPZ:VPE110A-45	**VPE110A-45**
10	Rp/R ⅜ "	90	5	8	BPZ:VPE110A-90	**VPE110A-90**
10	Rp/R ⅜ "	145	5	10	BPZ:VPE110A-145	**VPE110A-145**
15	Rp/R ½ "	45	5	6	BPZ:VPE115A-45	**VPE115A-45**
15	Rp/R ½ "	90	5	8	BPZ:VPE115A-90	**VPE115A-90**
15	Rp/R ½ "	145	5	10	BPZ:VPE115A-145	**VPE115A-145**
10	Rp/R ⅜ "	200	10	20	BPZ:VPE110B-200	**VPE110B-200**
15	Rp/R ½ "	200	10	20	BPZ:VPE115B-200	**VPE115B-200**

Δp_w = effective pressure (controlled differential pressure)
Δp_{min} = required minimum differential pressure across valve
$\dot{v}$= volumetric flow at a stroke of 0.5 mm

Combinable actuator to VPD.. / VPE..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
					N2111	BPZ:RTN51	**RTN51**
					N4211	BPZ:RTN51G	**RTN51G**
					N2111	BPZ:RTN71	**RTN71**
					N2111	BPZ:RTN81	**RTN81**
AC 230 V	2-position	210	White	1	N4884	S55174-A101	**STA23**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White	1	N4884	S55174-A100	**STA73**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 24 V DC 24 V	2-position PDM/parallel operation	270	White		N4884	S55174-A115	**STA73PR/00**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	**SSA31/00**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	**SSA61/00**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	**SSA81/00**
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	**STA63**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Accessories for VPD../VPE..

AV100-VP1

Seal insertion for VPD.. and VPE.. MiniCombiValves (MCV)



Valve insert for use with all types of valves of the VPD.. and VPE.. ranges.

Data sheet N2100

	Stock No.	Product No.
	BPZ:AV100-VP1	**AV100-VP1**

Combi valves PN25, externally threaded

VPP46..



Pre-adjustable Combi valves, PN 25, externally threaded for
- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Volumetric flow 30...1330 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	To DN 15: 2.5 mm DN 20: 5 mm
Medium temperature	1...110 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
PN class	PN 25

Range overview combi valves VPP46..

DN	Connecting thread	Volumetric flow Vmin [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
10	G ½ "	30	200	S55264-V101	**VPP46.10L0.2**
10	G ½ "	30	200	S55264-V105	**VPP46.10L0.2Q**
15	G ¾ "	30	200	S55264-V102	**VPP46.15L0.2**
15	G ¾ "	30	200	S55264-V106	**VPP46.15L0.2Q**
15	G ¾ "	100	575	S55264-V103	**VPP46.15L0.6**
15	G ¾ "	100	575	S55264-V107	**VPP46.15L0.6Q**
20	G 1 "	220	1330	S55264-V104	**VPP46.20F1.4**
20	G 1 "	220	1330	S55264-V108	**VPP46.20F1.4Q**

The VPP46..Q types are equipped with P/T Plugs

Overview differential pressures

STA.. Δp_{min} [kPa]	STA.. Δp_{max} [kPa]	SSA.. Δp_{min} [kPa]	SSA.. Δp_{max} [kPa]	Stock No.	Product No.
15	400	15	400	S55264-V101	**VPP46.10L0.2**
15	400	15	400	S55264-V105	**VPP46.10L0.2Q**
15	400	15	400	S55264-V102	**VPP46.15L0.2**
15	400	15	400	S55264-V106	**VPP46.15L0.2Q**
15	400	15	400	S55264-V103	**VPP46.15L0.6**
15	400	15	400	S55264-V107	**VPP46.15L0.6Q**
		20	400	S55264-V104	**VPP46.20F1.4**
		20	400	S55264-V108	**VPP46.20F1.4Q**

Globe and pressure independent combi valves
Combi valves for rooms and zones, PN 25: VPI46..

VPI46..



Combi valves PN25, internally threaded

Pre-adjustable Combi valves, PN 25, internally threaded for
- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Volumetric flow 30...1330 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	To DN 15: 2.5 mm DN 20: 5 mm
Medium temperature	1...110 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
PN class	PN 25

Range overview combi valves VPI46..

DN	Connecting thread	Volumetric flow Vmin [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
15	Rp ½ "	30	200	S55264-V109	**VPI46.15L0.2**
15	Rp ½ "	30	200	S55264-V112	**VPI46.15L0.2Q**
15	Rp ½ "	100	575	S55264-V110	**VPI46.15L0.6**
15	Rp ½ "	100	575	S55264-V113	**VPI46.15L0.6Q**
20	Rp ¾ "	220	1330	S55264-V111	**VPI46.20F1.4**
20	Rp ¾ "	220	1330	S55264-V114	**VPI46.20F1.4Q**

The VPI46..Q types are equipped with P/T Plugs

Overview differential pressures

STA.. Δp_{min} [kPa]	STA.. Δp_{max} [kPa]	SSA.. Δp_{min} [kPa]	SSA.. Δp_{max} [kPa]	Stock No.	Product No.
15	400	15	400	S55264-V109	**VPI46.15L0.2**
15	400	15	400	S55264-V112	**VPI46.15L0.2Q**
15	400	15	400	S55264-V110	**VPI46.15L0.6**
15	400	15	400	S55264-V113	**VPI46.15L0.6Q**
		20	400	S55264-V111	**VPI46.20F1.4**
		20	400	S55264-V114	**VPI46.20F1.4Q**

Accessories for VPP46.. / VPI46..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	**ALE11**
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	**ALP45**
Blanking plug for P/T ports	S55264-V115	**ALP46**
Drain ball valve inclusive O-ring	S55264-V116	**ALP47**
Combined P/T port and drain ball valve with red ribbon	S55264-V117	**ALP48**
Long P/T ports (set of 2 pieces)	S55264-V118	**ALP49**
Black spare valve protection cap (set of 2 pieces)	S55264-V119	**ALP50**

Combinable actuator to VPP46.. / VPI46..

Operating voltage	Positioning signal	Positioning time [s]	Color	Cable length [m]	Data sheet	Stock No.	Product No.
AC 24 V	DC 0...10 V	30	White	1	N4884	S55174-A104	**STA63**
AC 230 V	2-position	210	White		N4884	S55174-A110	**STA23/00**
AC 230 V	2-position	210	Black		N4884	S55174-A118	**STA23B/00**
AC 230 V	2-position	210	White		N4884	S55174-A114	**STA23MP/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A109	**STA73/00**
AC 24 V DC 24 V	2-position PDM	270	Black		N4884	S55174-A117	**STA73B/00**
AC 24 V DC 24 V	2-position PDM	270	White		N4884	S55174-A113	**STA73MP/00**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31	**SSA31**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray	1.5	N4893	BPZ:SSA61	**SSA61**
AC 230 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 V	3-position	150	White/Gray	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230 V	3-position	150	White/Gray		N4893	BPZ:SSA31/00	**SSA31/00**
AC 24 V	3-position	150	White/Gray		N4893	BPZ:SSA81/00	**SSA81/00**
AC 24 V DC 24 V	DC 0...10 V	34	White/Gray		N4893	BPZ:SSA61/00	**SSA61/00**
AC 230 V	2-position (SPST)	10 s @ 50 Hz	Gray	1.5	N4830	S55176-A102	**SUA21/1**

For suitable combination of actuator STA.. and connection cable ASY.., see chapter introduction page 7-4.

Globe and pressure independent combi valves
Combi valves, PN 25: VPI45..

VPI45..



Combi valves PN25, internally threaded

Combivalves with presetting with internal thread for volume flow of 90...8500 l/h. With or without pressure measuring points for

- ventilation and air conditioning plants for control on the water side and automatic hydraulic balancing of terminal units, such as fan coils, induction units, and in heat exchangers for heating or cooling.
- heating zones like self-contained heating systems, apartments, individual rooms, etc.
- closed circuits

Data sheet	N4853
Stroke	To DN 32: 5 mm From DN 40: 6.5 mm
Medium temperature	1...120 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Linear
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, CrNi steel
PN class	PN 25

Range overview combi valves VPI45..

DN	Connecting thread	Volumetric flow Vmin [l/h]	Volumetric flow V [l/h]	Stock No.	Product No.
15	Rp ½ "	90	620	BPZ:VPI45.15F0.5	**VPI45.15F0.5**
15	Rp ½ "	90	620	BPZ:VPI45.15F0.5Q	**VPI45.15F0.5Q**
15	Rp ½ "	290	1730	BPZ:VPI45.15F1.5	**VPI45.15F1.5**
15	Rp ½ "	290	1730	BPZ:VPI45.15F1.5Q	**VPI45.15F1.5Q**
20	Rp ¾ "	160	1050	BPZ:VPI45.20F0.9	**VPI45.20F0.9**
20	Rp ¾ "	160	1050	BPZ:VPI45.20F0.9Q	**VPI45.20F0.9Q**
20	Rp ¾ "	350	2040	BPZ:VPI45.20F2	**VPI45.20F2**
20	Rp ¾ "	350	2040	BPZ:VPI45.20F2Q	**VPI45.20F2Q**
25	Rp 1 "	280	1720	BPZ:VPI45.25F1.5	**VPI45.25F1.5**
25	Rp 1 "	280	1720	BPZ:VPI45.25F1.5Q	**VPI45.25F1.5Q**
25	Rp 1 "	350	2040	BPZ:VPI45.25F2	**VPI45.25F2**
25	Rp 1 "	350	2040	BPZ:VPI45.25F2Q	**VPI45.25F2Q**
32	Rp 1¼ "	560	3050	BPZ:VPI45.32F3	**VPI45.32F3**
32	Rp 1¼ "	560	3050	BPZ:VPI45.32F3Q	**VPI45.32F3Q**
40	Rp 1½ "	2355	7105	BPZ:VPI45.40F7	**VPI45.40F7**
40	Rp 1½ "	2355	7105	BPZ:VPI45.40F7Q	**VPI45.40F7Q**
50	Rp 2 "	2664	8586	BPZ:VPI45.50F8.5	**VPI45.50F8.5**
50	Rp 2 "	2664	8586	BPZ:VPI45.50F8.5Q	**VPI45.50F8.5Q**

The VPI45...Q types are equipped with P/T Plugs

Overview differential pressures

SSD.. Δp_{min} [kPa]	SSD.. Δp_{max} [kPa]	SQD.. Δp_{min} [kPa]	SQD.. Δp_{max} [kPa]	Product No.
16	400			**VPI45.15F0.5**
16	400			**VPI45.15F0.5Q**
18	400			**VPI45.15F1.5**
18	400			**VPI45.15F1.5Q**
16	400			**VPI45.20F0.9**
16	400			**VPI45.20F0.9Q**
22	400			**VPI45.20F2**
22	400			**VPI45.20F2Q**
16	400			**VPI45.25F1.5**
16	400			**VPI45.25F1.5Q**
22	400			**VPI45.25F2**
22	400			**VPI45.25F2Q**
18	400			**VPI45.32F3**
18	400			**VPI45.32F3Q**
		26	400	**VPI45.40F7**
		26	400	**VPI45.40F7Q**
		32	400	**VPI45.50F8.5**
		32	400	**VPI45.50F8.5Q**

Up to Δp_{max} = 400 kPa: leakage rate > 0,05% of volumetric flow V_{100}; Up to Δp_{max} = 230 kPa: leakage rate 0...0,05% of volumetric flow V_{100}

Accessories for VPI45..

Product Title	Stock No.	Product No.
Electronic manometer for Siemens combi valves	BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves	BPZ:ALE11	**ALE11**
Spare nipples for VPI45.., set of 2, for VPI45..	BPZ:ALP45	**ALP45**
Blanking plug for P/T ports	S55264-V115	**ALP46**
Drain ball valve inclusive O-ring	S55264-V116	**ALP47**
Combined P/T port and drain ball valve with red ribbon	S55264-V117	**ALP48**
Long P/T ports (set of 2 pieces)	S55264-V118	**ALP49**
Black spare valve protection cap (set of 2 pieces)	S55264-V119	**ALP50**
Pre-setting key for VPI45..	S55264-V120	**ALP52**

Globe and pressure independent combi valves
Combi valves, PN 25: VPI45..

Combinable actuator to VPI45..

Operating voltage	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	1.5	N4861	BPZ:SSD31	**SSD31**
AC 24 V DC 24 V	DC 0...10 V	75	1.5	N4861	BPZ:SSD61	**SSD61**
AC 24 V DC 24 V	DC 2...10 V	75	1.5	N4861	BPZ:SSD61.2	**SSD61.2**
AC 24 V DC 24 V	DC 0...10 V	75	1.5	N4861	BPZ:SSD61EP	**SSD61EP**
AC 24 V	3-position	150	1.5	N4861	BPZ:SSD81	**SSD81**
AC 230 V	3-position	150		N4861	BPZ:SSD31/00	**SSD31/00**
AC 24 V DC 24 V	DC 0...10 V	75		N4861	BPZ:SSD61/00	**SSD61/00**
AC 24 V DC 24 V	DC 2...10 V	75		N4861	BPZ:SSD61.2/00	**SSD61.2/00**
AC 24 V DC 24 V	DC 0...10 V	75		N4861	BPZ:SSD61EP/00	**SSD61EP/00**
AC 24 V	3-position	150		N4861	BPZ:SSD81/00	**SSD81/00**
AC 230 V	3-position	170		N4540	BPZ:SQD35.00	**SQD35.00**
AC 24 V	3-position	43		N4540	BPZ:SQD85.03	**SQD85.03**
AC 24 V	DC 0...10 V 0...1000 Ohm	43		N4540	BPZ:SQD65	**SQD65**

Rotary actuators 2 Nm with spring return for ball valves VAI61../VBI61.. and VAI60../VBI60..

GQD..9A



Electromotoric actuators for 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables.

Data sheet	N4659
Torque	2 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP40
Angular rotation	90 °
Positioning time	Opening with motor: 30 s Closing with spring: 15 s
Mounting position	Upright to horizontal
Spring return function	Yes
Position feedback	DC 0...10 V (GQD161.9A)

Range overview GQD..9A

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	6.5 VA 4.5 W	2-position	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	4 VA 2.5 W	3-position	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	4.5 VA 3 W	DC 0...10 V	BPZ:GQD161.9A	**GQD161.9A**
AC 230	10 VA 4.5 W	2-position	BPZ:GQD321.9A	**GQD321.9A**

Actuators for rotary valves
Rotary actuators 2 Nm, without spring-return: GSD..9A

GSD..9A

Rotary actuators 2 Nm without spring return for ball valves VAI61.. and VBI61..



Electromotoric rotary actuators without spring return, for On-Off control (2 wire SPDT), pre-wired with 0.9 m long connection cable

Data sheet	N4655
Torque	2 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP40
Angular rotation	90 °
Positioning time	30 s
Mounting position	Upright to horizontal
Spring return function	No

Range overview GSD..9A

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	2 VA 1.5 W	ON/OFF	BPZ:GSD141.9A	GSD141.9A
AC 230	12 VA 2 W	ON/OFF	BPZ:GSD341.9A	GSD341.9A

7

Rotary actuators 5 Nm without spring return for ball valves VAI61.. and VBI61.. GDB..9E

Electromotoric actuators for 3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables.



Data sheet	N4657
Torque	5 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	150 s
Mounting position	Upright to horizontal
Spring return function	No
Position feedback	DC 0...10 V (GDB161.9E)

Range overview GDB..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24	2 VA 1 W	3-position	BPZ:GDB131.9E	**GDB131.9E**
AC 24	3 VA 2 W	DC 0...10 V	BPZ:GDB161.9E	**GDB161.9E**
AC 230	2 VA 1 W	3-position	BPZ:GDB331.9E	**GDB331.9E**

Actuators for rotary valves
Rotary actuators 7 Nm, with spring-return: GMA..9E

GMA..9E



Rotary actuators 7 Nm with spring return for ball valves VAI60../VBI60.. and VAI61../VBI61..

Electromotoric actuators for 2-position, 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables.

Data sheet	N4658
Torque	7 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Mounting position	Upright to horizontal
Spring return function	Yes
Position feedback	

Range overview GMA..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24 DC 24	5 VA 3.5 W	3-position	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	5 VA 3.5 W	DC 0...10 V	BPZ:GMA161.9E	**GMA161.9E**

Rotary actuators 10 Nm without spring return for ball valves VAI60../VBI60.. and VAI61../VBI61..

GLB..9E

Electromotoric actuators for 3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables.



Data sheet	N4657
Torque	10 Nm
Ambient temperature, operation	-32...55 °C
Degree of protection	IP54
Angular rotation	90 °
Positioning time	150 s
Mounting position	Upright to horizontal
Spring return function	No
Position feedback	DC 0...10 V (GLB161.9E)

Range overview GLB..9E

Operating voltage [V]	Power consumption	Positioning signal	Stock No.	Product No.
AC 24	2 VA 1 W	3-position	BPZ:GLB131.9E	**GLB131.9E**
AC 24	3 VA 2 W	DC 0...10 V	BPZ:GLB161.9E	**GLB161.9E**
AC 230	2 VA 1 W	3-position	BPZ:GLB331.9E	**GLB331.9E**

Actuators for rotary valves
Rotary actuators 25 Nm: GBB..1E

GBB..1E



Rotary actuators 25 Nm for ball valves VAF51..

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4626
Torque	25 Nm
Air damper area	4 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Rotary actuators 25 Nm for ball valves VAF51..

Range overview GBB...1E

Operating voltage V	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.1E	**GBB131.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB135.1E	**GBB135.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.1E	**GBB136.1E**
AC 230	3-position	5 VA / 5 W	0	BPZ:GBB331.1E	**GBB331.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB335.1E	**GBB335.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB336.1E	**GBB336.1E**
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.1E	**GBB161.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.1E	**GBB163.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GBB164.1E	**GBB164.1E**
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GBB166.1E	**GBB166.1E**

Types GBB135.1E and GBB335.1E also have a feedback potentiometer.

Basic Documentation No.: Z4626

Rotary actuators 35 Nm for ball valves VAF51..

GIB..1E

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4626
Torque	35 Nm
Air damper area	6 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Rotary actuators 35 Nm for ball valves VAF51..

Range overview GIB...1E

Operating voltage V	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GIB131.1E	**GIB131.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB135.1E	**GIB135.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB136.1E	**GIB136.1E**
AC 230	3-position	5 VA / 5 W	0	BPZ:GIB331.1E	**GIB331.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB335.1E	**GIB335.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB336.1E	**GIB336.1E**
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GIB161.1E	**GIB161.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GIB163.1E	**GIB163.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GIB164.1E	**GIB164.1E**
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GIB166.1E	**GIB166.1E**

Types GIB135.1E and 335.1E also have a potentiometer.

Basic Documentation No.: Z4626

SAL..



Electromotoric actuators 10...20 Nm for slipper and butterfly valves

Rotary actuator for the operation of 3-port slipper valves VBF21.. and butterfly valves VKF41.. as control and safety shut-off valves in heating, ventilation and air conditioning systems.
With manual adjuster and position indicator, status indication per LED.
Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

SA..81.., SA..61.. are UL listed.

Data sheet	N4502
Angular rotation	90 °
Degree of protection	IP54
Ambient temperature, operation	-15...55 °C
Medium temperature	-10...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAL31../61../81..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230 V	3-position	3.5	120	10	S55162-A108	**SAL31.00T10**
AC 230 V	3-position	6.5	30	10	S55162-A109	**SAL31.03T10**
AC 230 V	3-position	4.1	120	20	S55162-A110	**SAL31.00T20**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	4	120	10	S55162-A100	**SAL61.00T10**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8.5	30	10	S55162-A101	**SAL61.03T10**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	5.8	120	20	S55162-A102	**SAL61.00T20**
AC 24 V DC 24 V	3-position	4	120	10	S55162-A104	**SAL81.00T10**
AC 24 V DC 24 V	3-position	4	30	10	S55162-A105	**SAL81.03T10**
AC 24 V DC 24 V	3-position	4	120	20	S55162-A106	**SAL81.00T20**

Accessories for rotary actuators SAL..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Potentiometer 0...1000 Ohm for SA..31../SA..81..	N4501	S55845-Z106	**ASZ7.5/1000**
Potentiometer 0...200 Ohm for SA..31../SA..81..	N4501	S55845-Z105	**ASZ7.5/200**
Potentiometer 0...135 Ohm for SA..31../SA..81..	N4501	S55845-Z104	**ASZ7.5/135**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

Mounting sets for SAL..

Product Title	Data sheet	Stock No.	Product No.
Mounting set for SAL.. onto VBF21..	N4502	S55845-Z100	**ASK31N**
Mounting set for SAL.. onto VKF41..	N4502	S55845-Z101	**ASK33N**

Actuators for rotary valves
Rotary actuators 5...20 Nm: SQK.. / SQL..

SQK../SQL..



Electromotoric actuators 5...20 Nm for rotary valves

With reversible synchronous motor. Changeover button for manual / automatic control and manual override. With die-cast aluminium housing and plastic cover. Can be combined with ASK3.. mounting sets to motorize butterfly and slipper valves (corresponding mounting sets must be ordered as separate items).
SQK33..: Angle of rotation adjustable between 70° and 180°.

Angular rotation	90 °
Positioning signal	3-position
Degree of protection	IP44
Mounting position	Upright to horizontal
Ambient temperature, operation	-15...55 °C

All actuators have 2 built-in end switches and space for 1 ancillary unit (auxiliary switch or potentiometer).

for VBF21.., VBG31.., VBI31.., VCI31.., VKF41.., VKF46..

Range overview actuators SQK.. / SQL..

Operating voltage	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Data sheet	Stock No.	Product No.
AC 230 V	3	135	5	N4508	BPZ:SQK34.00	**SQK34.00**
AC 24 V	3	135	5	N4508	BPZ:SQK84.00	**SQK84.00**
AC 230 V	3	125	5	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	6.5	125	20	N4505	BPZ:SQL35.00	**SQL35.00**
AC 24 V	6.5	125	20	N4505	BPZ:SQL85.00	**SQL85.00**

7

Auxiliary switch for actuators SQK.. / SQL..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQK34../84..	N4508	BPZ:ASC9.7	**ASC9.7**
Auxiliary switch for SQK33.., SQL33../83../35../85.., SQX32../82..	N4554	BPZ:ASC9.5	**ASC9.5**
Double auxiliary switch for SQL33../83../35../85.., SQX32../82..	N4554	BPZ:ASC9.4	**ASC9.4**
1 auxiliary switch and 1 potentiometer for SQX32../SQX82../SQL33../SQL83../SQL35../SQL85..	N4554	BPZ:ASZ7.4	**ASZ7.4**

Mounting sets

Product Title	Data sheet	Stock No.	Product No.
Mounting set for SQL33.. / 83.. / 35.. / 85.. and slipper valves VBF21..from DN65	N4506	BPZ:ASK31	**ASK31**
Mounting set for SQK33.. / SQL33.. / 83.. and slipper valves VBI31.. / VBG31.. / VCI31.. / VBF21.. up to DN50	N4506	BPZ:ASK32	**ASK32**
Mounting set for SQK33.. / SQL33.. / 83.. and butterfly valves VKF41..	N4506	BPZ:ASK33	**ASK33**
Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN40 to DN65	N4136	BPZ:ASK35.1	**ASK35.1**
Mounting set for SQL35.. / 85.. and butterfly valves VKF46.., DN80 to DN125	N4136	BPZ:ASK35.2	**ASK35.2**

Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices

ASK40



- Suitable for use with the following types of 3-port slipper valves:

- CENTRA DIFFERENTIAL: DR.., DRG.. (DN15...125)
- CENTRA KOMPAKT: DRK.. (DN 15...40), DFK.. (DN25...32)
- ESBE / SHUNT AB: Threaded: R¾"...R½", R2" / flanged: DN20...25, 32...50

- Suitable for use with the following types of 4-port slipper valves:

- CENTRA DUPLEX: ZR.. (DN15...200)
- CENTRA KOMPAKT: ZRK.. (DN20...40)
- ESBE / SHUNT AB: Threaded: R¾"...R½", R2" / flanged: DN20...25, 32...50

Data sheet N4291

	Stock No.	Product No.
	BPZ:ASK40	**ASK40**

Mounting sets for SQK33.. / SQL33.. / 83.. for third-party devices

ASK41



- Suitable for use with the following types of 3-port slipper valves:

- AXA: F3, G3, S3 (DN20...65)
- BUDERUS: 3M (DN20...32), 3F (DN 25...50)
- LOELL: LG3, LF3 (DN20...40)
- MUEHLENBERG: AM3 (DN15...50)
- ONDAMIX (ONDAL): MDM (DN25...32)
- VIESSMANN: DN20...25, 32...40

- Suitable for use with the following types of 4-port slipper valves:

- AXA: F4, G4, S4 (DN20...65)
- BUDERUS: 4M (DN20...32), 4F (DN25...50)
- LOELL: LG4, LF4 (DN20...50)
- MUEHLENBERG: AM4 (DN20...50)
- ONDAMIX (ONDAL): DN20...50
- VIESSMANN: DN20...25, 32...40

Data sheet N4291

	Stock No.	Product No.
	BPZ:ASK41	**ASK41**

Phase- out Winter 2013/14 - Rotary actuators SQL35.00/ SQL85.00, and the mounting sets ASK35.1/ ASK35.2/ ASK40/ ASK41

Actuators for rotary valves
Rotary actuators 40...1200 Nm: SQL36..

SQL36..



Electromotoric actuators 40...1200 Nm for butterfly valves

With reversible asynchronous motor. Direct-acting manual control. Die-cast aluminium housing and plastic manual knob. For VKF46 butterfly valves from DN40 mm, no mounting kits required.

Data sheet	N4505
Angular rotation	90 °
Operating voltage	AC 230 V
Positioning signal	3-position
Degree of protection	IP67
Mounting position	Any
Ambient temperature, operation	-20...70 °C

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer and 1 positioning time module (without SQL36E50..) can be retrofitted.

Range overview actuators SQL36..

Operating voltage [V]	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230 V	25	25	40	BPZ:SQL36E50F04	**SQL36E50F04**
AC 230 V	25	25	40	BPZ:SQL36E50F05	**SQL36E50F05**
AC 230 V	166	6	100	BPZ:SQL36E65	**SQL36E65**
AC 230 V	235	12	400	BPZ:SQL36E110	**SQL36E110**
AC 230 V	235	24	1200	BPZ:SQL36E160	**SQL36E160**

Running time with auxiliary module SEZ31.1: variable positioning time 30...180 s (SQL35E65), 60...360 s (SQL36E110) resp. 120...720 s (SQL36E160)

Accessories for SQL36E..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary module, variable positioning time for SQL36E..	N4505	BPZ:SEZ31.1	**SEZ31.1**
Double auxiliary switch for SQL36E	N4505	BPZ:ASC36	**ASC36**
Potentiometer 1000 Ohm for SQL36E..	N4505	BPZ:ASZ36	**ASZ36**

Electromotoric actuators 25...2650 Nm for butterfly valves VKF42..

SQL..B..

Electromotoric actuator for operation of VKF42.. butterfly valves as shutoff and control valves in heating, ventilation and air conditioning plants. No mounting kits required.
Flange connection to EN ISO 5211.



Data sheet	N4520
Angular rotation	90 °
Degree of protection	IP65
Mounting position	Upright to horizontal
Ambient temperature, operation	-20...65 °C
Medium temperature	-10...80 °C
Position feedback	DC 0...10 V (SQL361..)

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer 1000 Ohm can be retrofitted.

Range overview actuators SQL..B..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 220	2-position (SPDT)	42	11	25	S55164-A100	**SQL321B25**
AC 220	2-position (SPDT)	88	19	50	S55164-A101	**SQL321B50**
AC 220	DC 0...10	88	19	50	S55164-A102	**SQL361B50**
AC 220	2-position (SPDT)	91	39	150	S55164-A103	**SQL321B150**
AC 220	DC 0...10	91	39	150	S55164-A104	**SQL361B150**
AC 220	2-position (SPDT)	165	39	270	S55164-A105	**SQL321B270**
AC 220	DC 0...10	165	39	270	S55164-A106	**SQL361B270**
AC 220	2-position (SPDT)	194	47	570	S55164-A107	**SQL321B570**
AC 220	DC 0...10	194	47	570	S55164-A108	**SQL361B570**
AC 220	2-position (SPDT)	361	76	1400	S55164-A109	**SQL321B1400**
AC 220	DC 0...10	361	76	1400	S55164-A110	**SQL361B1400**
AC 220	2-position (SPDT)	436	105	2650	S55164-A111	**SQL321B2650**
AC 220	DC 0...10	436	105	2650	S55164-A112	**SQL361B2650**

Accessories for SQL..B..

Product Title	Data sheet	Stock No.	Product No.
Double auxiliary switch	N4520	S55845-Z121	**ASC10.20**
Double auxiliary switch	N4520	S55845-Z122	**ASC10.21**
Potentiometer for SQL321B50	N4520	S55845-Z123	**ASZ10.20**
Potentiometer for SQL321B50/SQL321B150	N4520	S55845-Z124	**ASZ10.21**
Potentiometer for SQL321B270/SQL321B570	N4520	S55845-Z125	**ASZ10.22**
Potentiometer for SQL321B1400/SQL321B2650	N4520	S55845-Z126	**ASZ10.23**

VAF51..



2-port control ball valves, flanged connections, PN25

Ball valves for use in heating, cooling, ventilating and air conditioning systems as a control or shutoff valve.

Data sheet	N4120
Leakage rate	0...0.01 % of k_{vs} value
Angular rotation	90 °
Medium temperature	2...80 °C
Permissible operating pressure	2500 kPa
Valve characteristic	Equal-percentage
Rangeability	> 200
Material, valve body	EN-GJL-250
Material, inside set	Stainless steel (SS-340)
PN class	PN 25

Range overview 2-port valves VAF51..

GBB..1E Δp_{max} [kPa]	GBB..1E Δp_s [kPa]	GIB..1E Δp_{max} [kPa]	GIB..1E Δp_s [kPa]	2 x GIB..1E Δp_{max} [kPa]	2 x GIB..1E Δp_s [kPa]	DN	k_{vs}	Stock No.	Product No.
400	400					65	63	S55232-V100	VAF51.65-63
400	400					80	100	S55232-V101	**VAF51.80-100**
		400	400			100	160	S55232-V102	VAF51.100-160
		300	300			125	200	S55232-V103	VAF51.125-200
				400	400	150	360	S55232-V104	VAF51.150-360

7

Accessories for VAF51..

Product Title	Stock No.	Product No.
Ball valve mounting set, DN65, DN80, DN100	BPZ:ASK77.6	**ASK77.6**
Ball valve mounting set, DN125	BPZ:ASK77.7	**ASK77.7**
Ball valve mounting set, DN150	BPZ:ASK77.8	**ASK77.8**

Combinable actuator for VAF51..

Operating voltage	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	3-position	150	N4626	BPZ:GBB331.1E	**GBB331.1E**
AC 24 V	3-position	150	N4626	BPZ:GBB131.1E	**GBB131.1E**
AC 24 V	DC 0...10 V	150	N4626	BPZ:GBB161.1E	**GBB161.1E**
AC 230 V	3-position	150	N4626	BPZ:GIB331.1E	**GIB331.1E**
AC 24 V	3-position	150	N4626	BPZ:GIB131.1E	**GIB131.1E**
AC 24 V	DC 0...10 V	150	N4626	BPZ:GIB161.1E	**GIB161.1E**

2-port control ball valves, internally threaded, PN40

VAI61..

Internally threaded connections Rp.. as per ISO 7-1.
For use in heating, ventilating and air conditioning plants as a control or safety shutoff valve. For closed circuits.



Data sheet	N4211
Leakage rate	0...0.0001 % of k_{vs} value
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Equal-percentage
Rangeability	> 500
Permissible operating pressure	1600 kPa
Material, valve body	Brass UNS C35330 (DZR)
Material, inside set	Brass UNS C35330 (DZR), chromium-plated
PN class	PN 40

Range overview VAI61.. with rotary actuators GMA..9E and GLB..9E

GMA../GLB..9E Δp_{max} [kPa]	GMA../GLB..9E Δp_s [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	1400	Rp ½ "	15	1	BPZ:VAI61.15-1	**VAI61.15-1**
350	1400	Rp ½ "	15	1.6	BPZ:VAI61.15-1.6	**VAI61.15-1.6**
350	1400	Rp ½ "	15	2.5	BPZ:VAI61.15-2.5	**VAI61.15-2.5**
350	1400	Rp ½ "	15	4	BPZ:VAI61.15-4	**VAI61.15-4**
350	1400	Rp ½ "	15	6.3	BPZ:VAI61.15-6.3	**VAI61.15-6.3**
350	1400	Rp ½ "	15	10	BPZ:VAI61.15-10	**VAI61.15-10**
350	1400	Rp ¾ "	20	4	BPZ:VAI61.20-4	**VAI61.20-4**
350	1400	Rp ¾ "	20	6.3	BPZ:VAI61.20-6.3	**VAI61.20-6.3**
350	1400	Rp ¾ "	20	10	BPZ:VAI61.20-10	**VAI61.20-10**
350	1400	Rp 1 "	25	6.3	BPZ:VAI61.25-6.3	**VAI61.25-6.3**
350	1400	Rp 1 "	25	10	BPZ:VAI61.25-10	**VAI61.25-10**
350	1400	Rp 1 "	25	16	BPZ:VAI61.25-16	**VAI61.25-16**
350	1000	Rp 1¼ "	32	10	BPZ:VAI61.32-10	**VAI61.32-10**
240	1000	Rp 1¼ "	32	16	BPZ:VAI61.32-16	**VAI61.32-16**
240	1000	Rp 1¼ "	32	25	BPZ:VAI61.32-25	**VAI61.32-25**
350	800	Rp 1½ "	40	16	BPZ:VAI61.40-16	**VAI61.40-16**
240	800	Rp 1½ "	40	25	BPZ:VAI61.40-25	**VAI61.40-25**
240	800	Rp 1½ "	40	40	BPZ:VAI61.40-40	**VAI61.40-40**
350	600	Rp 2 "	50	25	BPZ:VAI61.50-25	**VAI61.50-25**
240	600	Rp 2 "	50	40	BPZ:VAI61.50-40	**VAI61.50-40**
240	600	Rp 2 "	50	63	BPZ:VAI61.50-63	**VAI61.50-63**

Rotary valves
2-port ball valves, PN40: VAI61..

Range overview VAI61.. with rotary actuators GQD..9A and GDB..9E

GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	GDB..9E Δp_{max} [kPa]	GDB..9E Δp_s [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	1400	350	1400	Rp ½ "	15	1	BPZ:VAI61.15-1	**VAI61.15-1**
350	1400	350	1400	Rp ½ "	15	1.6	BPZ:VAI61.15-1.6	**VAI61.15-1.6**
350	1400	350	1400	Rp ½ "	15	2.5	BPZ:VAI61.15-2.5	**VAI61.15-2.5**
350	1400	350	1400	Rp ½ "	15	4	BPZ:VAI61.15-4	**VAI61.15-4**
350	1400	350	1400	Rp ½ "	15	6.3	BPZ:VAI61.15-6.3	**VAI61.15-6.3**
350	1400	350	1400	Rp ½ "	15	10	BPZ:VAI61.15-10	**VAI61.15-10**
350	1400	350	1400	Rp ¾ "	20	4	BPZ:VAI61.20-4	**VAI61.20-4**
350	1400	350	1400	Rp ¾ "	20	6.3	BPZ:VAI61.20-6.3	**VAI61.20-6.3**
350	1400	350	1400	Rp ¾ "	20	10	BPZ:VAI61.20-10	**VAI61.20-10**
		350	1400	Rp 1 "	25	6.3	BPZ:VAI61.25-6.3	**VAI61.25-6.3**
		350	1400	Rp 1 "	25	10	BPZ:VAI61.25-10	**VAI61.25-10**
		350	1400	Rp 1 "	25	16	BPZ:VAI61.25-16	**VAI61.25-16**

Accessories for VAI61..

Product Title	Stock No.	Product No.
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	**ASK77.2**
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	**ASK77.3**
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	**ASK77.4**

Combinable actuator for VAI61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	3-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**
AC 24 V	3-position	150	No	N4657	BPZ:GDB131.9E	**GDB131.9E**
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GDB161.9E	**GDB161.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GDB331.9E	**GDB331.9E**
AC 24 V DC 24 V	3-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	**GLB131.9E**
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GLB161.9E	**GLB161.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	**GLB331.9E**

Rotary valves
3-port ball valves, PN40: VBI61..

VBI61..



3-port control ball valves, internally threaded, PN40

Internally threaded connections Rp.. as per ISO 7-1.
For use in heating, ventilating and air conditioning plants as a control or safety shutoff valve. For closed circuits.

Data sheet	N4211
Leakage rate	0...0.00001 % of k_{vs} value
Leakage rate bypass	< 1 % of k_{vs} value
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Throughport: equal-percentage Bypass: linear
Rangeability	> 500
Permissible operating pressure	1600 kPa
Material, valve body	Brass UNS C35330 (DZR)
Material, inside set	Brass UNS C35330 (DZR), chromium-plated
PN class	PN 40

Range overview VBI61..

GQD..9A Δp_{max} [kPa]	GDB..9E Δp_{max} [kPa]	GMA../GLB..9 E Δp_{max} [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	350	350	Rp ½ "	15	1.6	BPZ:VBI61.15-1.6	**VBI61.15-1.6**
350	350	350	Rp ½ "	15	2.5	BPZ:VBI61.15-2.5	**VBI61.15-2.5**
350	350	350	Rp ½ "	15	4	BPZ:VBI61.15-4	**VBI61.15-4**
350	350	350	Rp ½ "	15	6.3	BPZ:VBI61.15-6.3	**VBI61.15-6.3**
350	350	350	Rp ¾ "	20	4	BPZ:VBI61.20-4	**VBI61.20-4**
350	350	350	Rp ¾ "	20	6.3	BPZ:VBI61.20-6.3	**VBI61.20-6.3**
	350	350	Rp 1 "	25	10	BPZ:VBI61.25-10	**VBI61.25-10**
		240	Rp 1¼ "	32	16	BPZ:VBI61.32-16	**VBI61.32-16**
		240	Rp 1½ "	40	25	BPZ:VBI61.40-25	**VBI61.40-25**
		240	Rp 2 "	50	40	BPZ:VBI61.50-40	**VBI61.50-40**
		240	Rp 2 "	50	63	BPZ:VBI61.50-63	VBI61.50-63

Accessories for VBI61..

Product Title	Stock No.	Product No.
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	**ASK77.2**
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	**ASK77.3**
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	**ASK77.4**
Insulation cover for VBI60/61, DN15	BPZ:ALI15VBI60/61	**ALI15VBI60/61**
Insulation cover for VBI61, DN20	BPZ:ALI20VBI61	**ALI20VBI61**
Insulation cover for VBI60/61, DN25	BPZ:ALI25VBI60/61	**ALI25VBI60/61**
Insulation cover for VBI60/61, DN32	BPZ:ALI32VBI60/61	**ALI32VBI60/61**
Insulation cover for VBI60/61, DN40	BPZ:ALI40VBI60/61	**ALI40VBI60/61**
Insulation cover for VBI60/61, DN50	BPZ:ALI50VBI60/61	**ALI50VBI60/61**

Combinable actuator for VBI61..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	3-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**
AC 24 V	3-position	150	No	N4657	BPZ:GDB131.9E	**GDB131.9E**
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GDB161.9E	**GDB161.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GDB331.9E	**GDB331.9E**
AC 24 V DC 24 V	3-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 V DC 24 V	DC 0...10 V	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	**GLB131.9E**
AC 24 V	DC 0...10 V	150	No	N4657	BPZ:GLB161.9E	**GLB161.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	**GLB331.9E**

Rotary valves
2-port ball valves, PN40: VAI60..

VAI60..



Open/close ball valves 2-port, PN40

Internally threaded connections Rp.. as per ISO 7-1.
For use in heating, ventilating and air conditioning plants as open/close ball valves. For closed circuits.

Data sheet	N4213
Leakage rate	0...0.0001 of k_{vs} value
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Dezincification resistant hot-pressed brass (DZR), CW602N
Material, inside set	Dezincification resistant hot-pressed brass (DZR), CW602N, chromium-plated
PN class	PN 40

Range overview VAI60.. with rotary actuators GMA..9E and GLB..9E

GMA../GLB..9E Δp_{max} [kPa]	GMA../GLB..9E Δp_s [kPa]	Connecting thread ["]	DN	k_{vs}	Stock No.	Product No.
350	1400	Rp ½ "	15	15	BPZ:VAI60.15-15	VAI60.15-15
350	1400	Rp 1 "	20	22	BPZ:VAI60.20-22	VAI60.20-22
350	1400	Rp 1 "	25	22	BPZ:VAI60.25-22	VAI60.25-22
350	1000	Rp 1¼ "	32	35	BPZ:VAI60.32-35	VAI60.32-35
350	800	Rp 1½ "	40	68	BPZ:VAI60.40-68	VAI60.40-68
350	600	Rp 2 "	50	96	BPZ:VAI60.50-96	VAI60.50-96

7

Range overview VAI60.. with rotary actuators GQD..9A and GDB..9E

GSD..9A Δp_{max}	GSD..9A Δp_s	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	Connecting thread	DN	k_{vs}	Stock No.	Product No.
350	1400	350	1400	Rp ½ "	15	15	BPZ:VAI60.15-15	VAI60.15-15
350	1400	350	1400	Rp 1 "	20	22	BPZ:VAI60.20-22	VAI60.20-22
350	1400	350	1400	Rp 1 "	25	22	BPZ:VAI60.25-22	VAI60.25-22
				Rp 1¼ "	32	35	BPZ:VAI60.32-35	VAI60.32-35
				Rp 1½ "	40	68	BPZ:VAI60.40-68	VAI60.40-68
				Rp 2 "	50	96	BPZ:VAI60.50-96	VAI60.50-96

Accessories for VAI60..

Product Title	Stock No.	Product No.
Insulation cover for VAI60/61, DN15	BPZ:ALI15VAI60/61	**ALI15VAI60/61**
Insulation cover for VAI60/61, DN20	BPZ:ALI20VAI60/61	**ALI20VAI60/61**
Insulation cover for VAI60/61, DN25	BPZ:ALI25VAI60/61	**ALI25VAI60/61**
Insulation cover for VAI60/61, DN32	BPZ:ALI32VAI60/61	**ALI32VAI60/61**
Insulation cover for VAI60/61, DN40	BPZ:ALI40VAI60/61	**ALI40VAI60/61**
Insulation cover for VAI60/61, DN50	BPZ:ALI50VAI60/61	**ALI50VAI60/61**
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	**ASK77.2**
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	**ASK77.3**
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	**ASK77.4**

Combinable actuator for VAI60..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 230 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**
AC 24 V DC 24 V	ON/OFF	30	No	N4655	BPZ:GSD141.9A	**GSD141.9A**
AC 230 V	ON/OFF	30	No	N4655	BPZ:GSD341.9A	**GSD341.9A**
AC 24 V DC 24 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	**GLB131.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	**GLB331.9E**

NEW PRODUCT

Rotary valves
3-port ball valves, PN40: VBI60..

VBI60..



Changeover ball valves 3-port, PN40

Internally threaded connections Rp.. as per ISO 7-1.
For use in heating, ventilating and air conditioning plants as changeover ball valves. For closed circuits.

Data sheet	N4213
Leakage rate	0...0.0001 of k_{vs} value
Leakage rate bypass	
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Dezincification resistant hot-pressed brass (DZR), CW602N
Material, inside set	Dezincification resistant hot-pressed brass (DZR), CW602N, chromium-plated
PN class	PN 40

Range overview VBI60..

GQD..9A Δp_{max} [kPa]	GSD..9A Δp_{max} [kPa]	GMA../GLB..9 E Δp_{max} [kPa]	Connecting thread ["]	DN	k_{vs}	Stock No.	Product No.
350	350	350	Rp ½ "	15	5	BPZ:VBI60.15-5L	VBI60.15-5L
350	350	350	Rp ½ "	15	12	BPZ:VBI60.15-12T	VBI60.15-12T
350	350	350	Rp 1 "	20	9	BPZ:VBI60.20-9L	VBI60.20-9L
350	350	350	Rp 1 "	20	16	BPZ:VBI60.20-16T	VBI60.20-16T
350	350	350	Rp 1 "	25	9	BPZ:VBI60.25-9L	VBI60.25-9L
350	350	350	Rp 1 "	25	16	BPZ:VBI60.25-16T	VBI60.25-16T
		350	Rp 1¼ "	32	13	BPZ:VBI60.32-13L	VBI60.32-13L
		350	Rp 1¼ "	32	25	BPZ:VBI60.32-25T	VBI60.32-25T
		350	Rp 1½ "	40	25	BPZ:VBI60.40-25L	VBI60.40-25L
		350	Rp 1½ "	40	49	BPZ:VBI60.40-49T	VBI60.40-49T
		350	Rp 2 "	50	37	BPZ:VBI60.50-37L	VBI60.50-37L
		350	Rp 2 "	50	73	BPZ:VBI60.50-73T	VBI60.50-73T

Accessories for VBI60..

Product Title	Stock No.	Product No.
Insulation cover for VBI60/61, DN15	BPZ:ALI15VBI60/61	**ALI15VBI60/61**
Insulation cover for VBI60, DN20	BPZ:ALI20VBI60	**ALI20VBI60**
Insulation cover for VBI60/61, DN25	BPZ:ALI25VBI60/61	**ALI25VBI60/61**
Insulation cover for VBI60/61, DN32	BPZ:ALI32VBI60/61	**ALI32VBI60/61**
Insulation cover for VBI60/61, DN40	BPZ:ALI40VBI60/61	**ALI40VBI60/61**
Insulation cover for VBI60/61, DN50	BPZ:ALI50VBI60/61	**ALI50VBI60/61**
Mounting kit for rotary actuators GMA..1E with spring-return	BPZ:ASK77.2	**ASK77.2**
Mounting kit for rotary actuators GDB..1E, GSD..1A and GLB..1E without spring-return	BPZ:ASK77.3	**ASK77.3**
Mounting kits for rotary actuators GQD..1A with spring-return	BPZ:ASK77.4	**ASK77.4**

Combinable actuator for VBI60..

Operating voltage	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 V DC 24 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 230 V	2-position	Opening with motor: 30 Closing with spring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**
AC 24 V DC 24 V	ON/OFF	30	No	N4655	BPZ:GSD141.9A	**GSD141.9A**
AC 230 V	ON/OFF	30	No	N4655	BPZ:GSD341.9A	**GSD341.9A**
AC 24 V DC 24 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230 V	2-position	Opening with motor: 90 Closing with spring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 V	3-position	150	No	N4657	BPZ:GLB131.9E	**GLB131.9E**
AC 230 V	3-position	150	No	N4657	BPZ:GLB331.9E	**GLB331.9E**

NEW PRODUCT

Rotary valves
3-port slipper valves, PN6: VBF21..

VBF21..



3-port slipper valves PN 6 with flanged connections

- With flanged connections to ISO 7005
- For chilled or low-temperature hot water in closed circuits

Data sheet	N4241
Angular rotation	90 °
Leakage rate	DN40...100: 0...0.1 % of k_{vs} value DN125...150: 0...0,5 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	< DN 100: CrNi steel/brass > DN 125: CrNi steel/Rg5
PN class	PN 6

VBF21.40 / VBF21.50 are shipped with manual adjuster.
VBF21.., DN40/50, with SQK34.., SQK84..: Direct mounting
VBF21.., DN40/50, with SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBF21..

SQK.. Δp_{max} [kPa]	SAL..T10 Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Required mounting set	Stock No.	Product No.
30		40	25	Direct SQK33.00: ASK32	BPZ:VBF21.40	**VBF21.40**
30		50	40	Direct SQK33.00: ASK32	BPZ:VBF21.50	**VBF21.50**
	30	65	63	ASK31N	BPZ:VBF21.65	**VBF21.65**
	30	80	100	ASK31N	BPZ:VBF21.80	**VBF21.80**
	30	100	160	ASK31N	BPZ:VBF21.100	**VBF21.100**
	30	125	550	ASK31N	BPZ:VBF21.125	**VBF21.125**
	30	150	820	ASK31N	BPZ:VBF21.150	**VBF21.150**

DN40...50, series 02
DN65...150, series 01

Combinable actuator to VBF21.40 and VBF21.50

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	**SQK34.00**
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	**SQK84.00**

Combinable actuator to VBF21.65 ... VBF21.150

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	120	ASK31N	N4502	S55162-A108	**SAL31.00T10**
AC 230 V	3-position	30	ASK31N	N4502	S55162-A109	**SAL31.03T10**
AC 24 V DC 24 V	DC 0...10 DC 4...20 0...1000	120	ASK31N	N4502	S55162-A100	**SAL61.00T10**
AC 24 V DC 24 V	DC 0...10 DC 4...20 0...1000	30	ASK31N	N4502	S55162-A101	**SAL61.03T10**
AC 24 V DC 24 V	3-position	120	ASK31N	N4502	S55162-A104	**SAL81.00T10**
AC 24 V DC 24 V	3-position	30	ASK31N	N4502	S55162-A105	**SAL81.03T10**

The mounting sets are not included.

Rotary valves
3-port slipper valves,PN10: VBG31..

VBG31..



3-port slipper valves PN 10 with externally threaded connections

- With externally threaded connections to ISO 228-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster
- With screwed fittings

Data sheet	N4233
Angular rotation	90 °
Leakage rate	0...0.1 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel/brass
PN class	PN 10

VBG31.. are supplied with malleable cast iron fittings.

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBG31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Required mounting set	Stock No.	Product No.
30	G 1¼ B "	20	6.3	Direct SQK33.00: ASK32	BPZ:VBG31.20	**VBG31.20**
30	G 1½ B "	25	10	Direct SQK33.00: ASK32	BPZ:VBG31.25	**VBG31.25**
30	G 2 B "	32	16	Direct SQK33.00: ASK32	BPZ:VBG31.32	**VBG31.32**
30	G 2¼ B "	40	25	Direct SQK33.00: ASK32	BPZ:VBG31.40	**VBG31.40**

DN20...40, series 02

Combinable actuator to VBG31..

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	**SQK34.00**
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	**SQK84.00**

3-port slipper valves PN 10 with internally threaded connections

VBI31..



- Internally threaded connections to ISO 7-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster

Data sheet	N4232
Angular rotation	90 °
Leakage rate	0...0.1 % of k_{vs} value
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel/brass
PN class	PN 10

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

Range overview 3-port slipper valves VBI31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Required mounting set	Stock No.	Product No.
30	Rp ¾ "	20	6.3	Direct SQK33.00: ASK32	BPZ:VBI31.20	**VBI31.20**
30	Rp 1 "	25	10	Direct SQK33.00: ASK32	BPZ:VBI31.25	**VBI31.25**
30	Rp 1¼ "	32	16	Direct SQK33.00: ASK32	BPZ:VBI31.32	**VBI31.32**
30	Rp 1½ "	40	25	Direct SQK33.00: ASK32	BPZ:VBI31.40	**VBI31.40**

DN20...40, series 02

Combinable actuator to VBI31..

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	**SQK34.00**
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	**SQK84.00**

Rotary valves
4-port slipper valves, PN10: VCI31..

VCI31..



4-port slipper valves PN 10 with internally threaded connections

- Internally threaded connections to ISO 7-1
- For chilled or low-temperature hot water in closed circuits
- With manual adjuster

Data sheet	N4252
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Brass
PN class	PN 10

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

Range overview 4-port slipper valves VCI31..

SQK.. Δp_{max} [kPa]	Connecting thread	DN	k_{vs} [m³/h]	Required mounting set	Stock No.	Product No.
30	Rp ¾ "	20	6.3	Direct SQK33.00: ASK32	BPZ:VCI31.20	**VCI31.20**
30	Rp 1 "	25	10	Direct SQK33.00: ASK32	BPZ:VCI31.25	**VCI31.25**
30	Rp 1¼ "	32	16	Direct SQK33.00: ASK32	BPZ:VCI31.32	**VCI31.32**
30	Rp 1½ "	40	25	Direct SQK33.00: ASK32	BPZ:VCI31.40	**VCI31.40**

DN20...40, series 02

Combinable actuator to VCI31..

Operating voltage	Positioning signal	Positioning time [s]	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	3-position	125	Direct SQK33.00: ASK32	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK34.00	**SQK34.00**
AC 24 V	3-position	135	Direct SQK33.00: ASK32	N4508	BPZ:SQK84.00	**SQK84.00**

Butterfly valves PN6/10/16 for flanged connections

VKF41..

- With metallic tight-closing for mounting between 2 flanges PN6, PN10 or PN16 to ISO 7005
- For chilled and low-temperature hot water in closed circuits



Data sheet	N4131
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Stainless steel
PN class	PN 16

SAL..T10, SAL..T20 require mounting set ASK33N
VKF41.., DN 40: SQK33.00 requires mounting set ASK33

Range overview butterfly valves VKF41..

SQK.. Δp_s [kPa]	SAL..T10 Δp_s [kPa]	DN	k_{vs} [m³/h]	Leakage rate	Required mounting set	Stock No.	Product No.
200	500	40	50	0.22% of k_{vs}	ASK33N SQK33.00: ASK33	BPZ:VKF41.40	**VKF41.40**
	500	50	80	0.14% of k_{vs}	ASK33N	BPZ:VKF41.50	**VKF41.50**
	500	65	200	0.09% of k_{vs}	ASK33N	BPZ:VKF41.65	**VKF41.65**
	500	80	400	0.06% of k_{vs}	ASK33N	BPZ:VKF41.80	**VKF41.80**
	500	100	760	0.04% of k_{vs}	ASK33N	BPZ:VKF41.100	**VKF41.100**
	300	125	1000	0.04% of k_{vs}	ASK33N	BPZ:VKF41.125	**VKF41.125**
	250	150	2100	0.02% of k_{vs}	ASK33N	BPZ:VKF41.150	**VKF41.150**
	125	200	4000	0.01% of k_{vs}	ASK33N	BPZ:VKF41.200	**VKF41.200**

Field of application for VKF41..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Demineralised water (softened) Brine Water with anti-freeze Low-temperature hot water High-temperature hot water	-10...120 °C	16 bar	EPDM O-ring

Combinable actuator to VKF41..

Operating voltage	Torque	Positioning signal	Required mounting set	Data sheet	Stock No.	Product No.
AC 230 V	5 Nm	3-position	ASK33N SQK33.00: ASK33	N4506	BPZ:SQK33.00	**SQK33.00**
AC 230 V	10 Nm	3-position	ASK33N	N4502	S55162-A108	**SAL31.00T10**
AC 230 V	10 Nm	3-position	ASK33N	N4502	S55162-A109	**SAL31.03T10**
AC 24 V DC 24 V	10 Nm	DC 0...10 V DC 4...20 mA 0...1000 Ohm	ASK33N	N4502	S55162-A100	**SAL61.00T10**
AC 24 V DC 24 V	10 Nm	DC 0...10 V DC 4...20 mA 0...1000 Ohm	ASK33N	N4502	S55162-A101	**SAL61.03T10**
AC 24 V DC 24 V	10 Nm	3-position	ASK33N	N4502	S55162-A104	**SAL81.00T10**
AC 24 V DC 24 V	10 Nm	3-position	ASK33N	N4502	S55162-A105	**SAL81.03T10**

Butterfly valves PN16 for flanged connections, with tight shutoff

VKF42..



Butterfly valve is used as motorized or shut-off valves in heating, ventilation and air conditioning systems applications.

- In open and closed circuits
- For 2-position (SPDT) or DC 0...10 V control signals
- For chiller and cooling tower sequencing circuits
- To open or close the flow to a heat exchanger or to complete plant sections

Data sheet	N4119
Angular rotation	90 °
Medium temperature	-10...80 °C
Permissible operating pressure	1600 kPa
Leakage rate	A to ISO 5208 (tight-closing)
Material, valve body	DN50...150: Grey cast iron EN-GJL-200 (HT200) DN200...600: Nodular cast iron EN-GJS-450-10 (QT450-10)
Material, inside set	Stainless steel Nodular cast iron EN-GJS-450-10 (QT450-10) Nylon coating
PN class	PN 16

Range overview butterfly valves VKF42..

SQL321B25/SQL 361B50 Δp_s [kPa]	SQL..B50 Δp_s [kPa]	SQL..B150 Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
700			50	65	S55237-V100	**VKF42.50**
700			65	140	S55237-V101	**VKF42.65**
700			80	210	S55237-V102	**VKF42.80**
700			100	470	S55237-V103	**VKF42.100**
	700		125	750	S55237-V104	**VKF42.125**
		700	150	1250	S55237-V105	**VKF42.150**
		700	200	3100	S55237-V106	**VKF42.200**

SQL..B270 Δp_s [kPa]	SQL..B570 Δp_s [kPa]	SQL..B1400 Δp_s [kPa]	SQL..B2650 Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
700				250	4050	S55237-V107	**VKF42.250**
	700			300	7500	S55237-V108	**VKF42.300**
	700			350	10250	S55237-V109	**VKF42.350**
		700		400	14100	S55237-V110	**VKF42.400**
		700		450	18500	S55237-V111	**VKF42.450**
			700	500	24000	S55237-V112	**VKF42.500**
			700	600	37000	S55237-V113	**VKF42.600**

Range overview butterfly valves VKF42..

GEB..1E Δp_s [kPa]	GBB..1E Δp_s [kPa]	GIB..1E Δp_s [kPa]	2 x GIB..1E Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
700				50	65	S55237-V100	**VKF42.50**
700				65	140	S55237-V101	**VKF42.65**
	700			80	210	S55237-V102	**VKF42.80**
	300	700		100	470	S55237-V103	**VKF42.100**
			700	125	750	S55237-V104	**VKF42.125**
			700	150	1250	S55237-V105	**VKF42.150**

Combinable actuator to VKF42..

Operating voltage	Torque	Positioning signal	Required mounting set	Data sheet	Stock No.	Product No.
AC 220 V	25 Nm	2-position (SPDT)	Direct	N4520	S55164-A100	**SQL321B25**
AC 220 V	50 Nm	2-position (SPDT)	Direct	N4520	S55164-A101	**SQL321B50**
AC 220 V	50 Nm	DC 0...10 V	Direct	N4520	S55164-A102	**SQL361B50**
AC 220 V	150 Nm	2-position (SPDT)	Direct	N4520	S55164-A103	**SQL321B150**
AC 220 V	150 Nm	DC 0...10 V	Direct	N4520	S55164-A104	**SQL361B150**
AC 220 V	270 Nm	2-position (SPDT)	Direct	N4520	S55164-A105	**SQL321B270**
AC 220 V	270 Nm	DC 0...10 V	Direct	N4520	S55164-A106	**SQL361B270**
AC 220 V	570 Nm	2-position (SPDT)	Direct	N4520	S55164-A107	**SQL321B570**
AC 220 V	570 Nm	DC 0...10 V	Direct	N4520	S55164-A108	**SQL361B570**
AC 220 V	1400 Nm	2-position (SPDT)	Direct	N4520	S55164-A109	**SQL321B1400**
AC 220 V	1400 Nm	DC 0...10 V	Direct	N4520	S55164-A110	**SQL361B1400**
AC 220 V	2650 Nm	2-position (SPDT)	Direct	N4520	S55164-A111	**SQL321B2650**
AC 220 V	2650 Nm	DC 0...10 V	Direct	N4520	S55164-A112	**SQL361B2650**

Butterfly valves PN6/10/16 for flanged connections, with tight shutoff

VKF46..



- With EPDM seal for mounting between 2 flanges PN6, PN10 or NP16 to ISO 7005
- For chilled water, low-temperature hot water, DHW, cold water and fresh water in closed or open circuits

VKF46.450...600 PN 16 only

Data sheet	N4136
Angular rotation	90 °
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Leakage rate	Tight shutoff, EN 12266-1, leakage rate A
Material, valve body	From DN350: Nodular cast iron EN-GJS-400-15 To DN300: Grey cast iron EN-GJL-250
Material, inside set	From DN350: Nickel-plated steel To DN300: Stainless steel
Required mounting set	SQL35.., SQL85..: ASK35.1, ASK35.2 SQL36: Direct

Range overview butterfly valves VKF46..

SAL..T20 Δp_s [kPa]	SQL35../85.. Δp_s [kPa]	SQL36E50F04 Δp_s [kPa]	SQL36E50F05 Δp_s	Required mounting set	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600	1600	1600		ASK35.1	40	50	BPZ:VKF46.40	**VKF46.40**
1600	1600	1600		ASK35.1	50	85	BPZ:VKF46.50	**VKF46.50**
1600	1600	1600		ASK35.1	65	215	BPZ:VKF46.65	**VKF46.65**
	1600		1600	ASK35.2	100	800	BPZ:VKF46.100	**VKF46.100**
	1000		1000	ASK35.2	125	1010	BPZ:VKF46.125	**VKF46.125**

SAL..T20 Δp_s [kPa]	SQL36E65 Δp_s	SQL36E110 Δp_s [kPa]	SQL36E160 Δp_s [kPa]	Required mounting set	DN	k_{vs} [m³/h]	Stock No.	Product No.
	1600			Direct	150	2100	BPZ:VKF46.150	**VKF46.150**
	1000			Direct	200	4000	BPZ:VKF46.200	**VKF46.200**
		1000		Direct	250	6400	BPZ:VKF46.250	**VKF46.250**
		1000		Direct	300	8500	BPZ:VKF46.300	**VKF46.300**
		600		Direct	350	11500	BPZ:VKF46.350	**VKF46.350**
		300		Direct	400	14500	BPZ:VKF46.400	**VKF46.400**
			300	Direct	450	20500	BPZ:VKF46.450	**VKF46.450**
			300	Direct	500	21000	BPZ:VKF46.500	**VKF46.500**
			300	Direct	600	29300	BPZ:VKF46.600	**VKF46.600**

Rotary valves
Butterfly valves PN6, PN10, PN16: VKF46..

Field of application for VKF46..

Medium	Temperature	Operating pressure	Sealing gland
Chilled water Cooling water Brine Water with anti-freeze Demineralised water (softened) Low-temperature hot water Air	-10...120 °C	16 bar	EPDM

Manual adjuster for VKF46..

Product Title	Data sheet	Stock No.	Product No.
Manual adjuster for VKF46.., DN40 to DN65	N4136	BPZ:ASK46.1	**ASK46.1**
Manual adjuster for VKF46.., DN80 to DN125	N4136	BPZ:ASK46.2	**ASK46.2**
Manual adjuster for VKF46.., DN150 to DN200	N4136	BPZ:ASK46.3	**ASK46.3**
Manual adjuster for VKF46.., DN250 to DN400	N4136	BPZ:ASK46.4	**ASK46.4**

Combinable actuator to VKF46..

Operating voltage	Torque [Nm]	Power consumption [VA]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230 V	20	6.5	3-position	125	N4505	BPZ:SQL35.00	**SQL35.00**
AC 24 V	20	6.5	3-position	125	N4505	BPZ:SQL85.00	**SQL85.00**
AC 230 V	40	25	3-position	25	N4505	BPZ:SQL36E50F04	**SQL36E50F04**
AC 230 V	40	25	3-position	25	N4505	BPZ:SQL36E50F05	**SQL36E50F05**
AC 230 V	100	166	3-position	6	N4505	BPZ:SQL36E65	**SQL36E65**
AC 230 V	400	235	3-position	12	N4505	BPZ:SQL36E110	**SQL36E110**
AC 230 V	1200	235	3-position	24	N4505	BPZ:SQL36E160	**SQL36E160**
AC 230 V	20	4.1	3-position	120	N4502	S55162-A110	**SAL31.00T20**
AC 24 V DC 24 V	20	5.8	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A102	**SAL61.00T20**
AC 24 V DC 24 V	20	4	3-position	120	N4502	S55162-A106	**SAL81.00T20**

Modulating refrigerant valves with magnetic actuator, PS45, hermetically sealed, for safety refrigerants

MVL661..-..



Hermetically sealed 2-port valves for modulating control of chillers and heat pumps.
- Expansion, hot-gas and suction throttle applications with one type of valve
- PS45, stainless steel with soldering connections
- Integrated power electronic with precise position feedback signal
- For safety refrigerants such as R22, R134a, R404A, R407C, R410A, R507, and R744 (CO2). Not suitable for inflammable refrigerants.

Data sheet	N4714
Operating voltage	AC 24 V DC 20...30 V
Power consumption	22 VA
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Positioning time	< 1 s
Spring return function	A->AB closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP65
Ambient temperature, operation	-25...55 °C
Mounting position	Upright to horizontal
Permissible operating pressure	4500 kPa
Leakage rate	< 0.002 % of k_{vs} value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Steel/ CrNi steel
Material, inside set	CrNi steel/brass

The MVL661..-.. refrigerant valve is used in conjunction with PolyCool for superheat control or SAPHIR for chiller control.
MVL661..-.. replaces M2FS..LX.., M2FE..L.. and MVL661.25.
MVL661..-.. are UL listed.
ASR61: Replacement electronics in the event of defective valve electronics.

Range overview MVL661..

DN	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
15	0.4	0.25	2500	BPZ:MVL661.15-0.4	**MVL661.15-0.4**
15	1	0.63	2500	BPZ:MVL661.15-1.0	**MVL661.15-1.0**
20	2.5	1.6	2500	BPZ:MVL661.20-2.5	**MVL661.20-2.5**
25	6.3	4	2500	BPZ:MVL661.25-6.3	**MVL661.25-6.3**
32	12	8	200	BPZ:MVL661.32-12	**MVL661.32-12**

k_{vs}-reduced selectable with DIP switch
MVL661.32-12 can only be used as a suction throttle valve

MVS661..N



Modulating refrigerant valves with magnetic actuator, PS53, hermetically sealed

Hermetically sealed 2-port valves for modulating control of refrigerant circuits including chillers and heat pumps.
- Expansion, hot-gas and suction throttle applications with one type of valve
- PN40, stainless steel with welding connections
- Integrated power electronic with precise position feedback signal
- For ammonia R717 and all standard refrigerants, noncorrosive gases/liquids and CO_2 (R744). It is not suited for use with inflammable refrigerants.

Data sheet	N4717
Operating voltage	AC 24 V DC 20...30 V
Power consumption	22 VA
Positioning signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Positioning time	<1 s
Spring return function	Closed
Position feedback	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Degree of protection	IP65
Ambient temperature, operation	-25...55 °C
Mounting position	Upright to horizontal
Permissible operating pressure	4000 kPa
Leakage rate	<0.002% of k_{vs}-value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:1000
Material, valve body	Steel / CrNi steel
Material, inside set	CrNi steel

"An exchangeable ASR..N valve insert allows for different k_{vs}-values with the same type of DN25 valve. In the event of service, this insert can also be replaced on the plant.
MVS661..N are UL listed."

7

Range overview MVS661..N

DN	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	Δp_{max} [kPa]	Stock No.	Product No.
25	0.16	0.10	2500	BPZ:MVS661.25-016N	**MVS661.25-016N**
25	0.40	0.25	2500	BPZ:MVS661.25-0.4N	**MVS661.25-0.4N**
25	1	0.63	2500	BPZ:MVS661.25-1.0N	**MVS661.25-1.0N**
25	2.5	1.6	2500	BPZ:MVS661.25-2.5N	**MVS661.25-2.5N**
25	6.3	4.0	2500	BPZ:MVS661.25-6.3N	**MVS661.25-6.3N**

k_{vs}-reduced selectable with DIP switch

2-port modulating pilot valve with magnetic actuator, PN32, AC 24 V, DC 0...10 V / 4...20 mA / 0...20 Phs to control main valves

M2FP03GX



Hermetically sealed 2-port valve as a control valve for main valves from 2" to 5".
- PN32 with threaded connections
- For use with refrigerants such as R22, R134a, R404A, R407C, R507 and ammonia R717
- ZM electronics must be ordered separately (see below)

Data sheet	N4731
Operating voltage	AC 24 V
Positioning time	<1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Power consumption	13 VA
Spring return function	Closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
k_{vs}	0.3 m³/h
Permissible operating pressure	3200 kPa
Δp_{max}	1800 kPa
Leakage rate	< 0.25 % of k_{vs} value
Medium temperature	-40...100 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel

	Stock No.	Product No.
	BPZ:M2FP03GX	**M2FP03GX**

7

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 0...20 V Phs	DC 5...7.5 V DC 10...15 V Phs	IP54	BPZ:ZM101/A	**ZM101/A**
AC 24 V	DC 4...20 mA DC 0...20 V Phs	DC 12...16 mA DC 10...15 V Phs	IP54	BPZ:ZM121/A	**ZM121/A**
	DC 0...20 V Phs	DC 10...15 V Phs	IP54	BPZ:ZM111	**ZM111**

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Refrigerant valves
For refrigeration units and heat recovery: M3FB..LX..

M3FB..LX..



Modulating refrigerant valves with magnetic actuator, PS43, soldered connection, hermetically sealed

Hermetically sealed contol valves for modulating capacity control of refrigeration units and for heat recovery.

- PN40 with soldered CrNi steel connections
- For organic safety refrigerants such as R22, R134a, R404A, R407C, R410A, R507, etc. Not suitable for flammable refrigerants
- ZM electronics must be ordered separately (see accessories)

Data sheet	N4721
Operating voltage	AC 24 V
Positioning time	< 1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Spring return function	AB-> A closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	4300 kPa
Leakage rate	< 0.05% of k_{vs}-value
Leakage rate bypass	< 0.5% of k_{vs}-value
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel/brass
Degree of protection	IP54

7

Range overview M3FB..LX..

DN	k_{vs} [m³/h]	Δp_{max} [kPa]	Power consumption [VA]	Stock No.	Product No.
15	0.6	2200	26	BPZ:M3FB15LX06/A	**M3FB15LX06/A**
15	1.5	2200	26	BPZ:M3FB15LX15/A	**M3FB15LX15/A**
15	3	2200	26	BPZ:M3FB15LX/A	**M3FB15LX/A**
20	5	1800	26	BPZ:M3FB20LX/A	**M3FB20LX/A**
25	8	1200	40	BPZ:M3FB25LX/A	**M3FB25LX/A**
32	12	800	40	BPZ:M3FB32LX	**M3FB32LX**

Δp_{max} across control port AB -> A

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 0...20 V Phs	DC 5...7.5 V DC 10...15 V Phs	IP54	BPZ:ZM101/A	**ZM101/A**
AC 24 V	DC 4...20 mA DC 0...20 V Phs	DC 12...16 mA DC 10...15 V Phs	IP54	BPZ:ZM121/A	**ZM121/A**
	DC 0...20 V Phs	DC 10...15 V Phs	IP54	BPZ:ZM111	**ZM111**

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Modulating refrigerant valves with magnetic actuator, PN32, flanged, hermetically sealed

M3FK..LX..



Hermetically sealed mixing or straight-through valves for modulating capacity control of condensers.
- PN32 with copper soldering connection
- For safety refrigerants such as R22, R134a, R404A, R407C, R507, etc.
- ZM electronics must be ordered separately (see below)

Data sheet	N4722
Operating voltage	AC 24 V
Positioning time	< 1 s
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Spring return function	1-> 3 closed
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	3200 kPa
Δp_{max} gas	800 kPa
Δp_{max} liquid	200 kPa
Leakage rate	< 0.05% of k_{vs}-value
Leakage rate bypass	< 0.5% of k_{vs}-value
PN class	PN 32
Medium temperature	-40...120 °C
Valve characteristic	Linear
Stroke resolution $\Delta H/H_{100}$	1:200
Material, valve body	Steel
Material, inside set	CrNi steel/brass

Range overview M3FK..LX..

DN	k_{vs} [m³/h]	Power consumption [VA]	Stock No.	Product No.
15	0.6	13	BPZ:M3FK15LX06	**M3FK15LX06**
15	1.5	13	BPZ:M3FK15LX15	**M3FK15LX15**
15	3	13	BPZ:M3FK15LX	**M3FK15LX**
20	5	16	BPZ:M3FK20LX	**M3FK20LX**
25	8	16	BPZ:M3FK25LX	**M3FK25LX**
32	12	20	BPZ:M3FK32LX	**M3FK32LX**
40	20	40	BPZ:M3FK40LX	**M3FK40LX**
50	30	40	BPZ:M3FK50LX	**M3FK50LX**

Matching ZM.. electronics

Operating voltage	Positioning signal	Operating range	Degree of protection	Stock No.	Product No.
AC 24 V	DC 0...10 V DC 0...20 V Phs	DC 5...7.5 V DC 10...15 V Phs	IP54	BPZ:ZM101/A	**ZM101/A**
AC 24 V	DC 4...20 mA DC 0...20 V Phs	DC 12...16 mA DC 10...15 V Phs	IP54	BPZ:ZM121/A	**ZM121/A**
	DC 0...20 V Phs	DC 10...15 V Phs	IP54	BPZ:ZM111	**ZM111**

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Damper actuators



Overview and selection tools	Overview of product details	8-2
Actuators for HVAC applications	Rotary damper actuators with spring-return 2 Nm: GQD..A	8-7
	Rotary damper actuators with spring-return 7 Nm: GMA..1E	8-9
	Rotary damper actuators with spring-return 18 Nm: GCA..1E	8-10
	Accessories for rotary damper actuators	8-11
	Rotary damper actuators without spring-return 2 Nm: GSD..1A	8-12
	Rotary damper actuators without spring-return 5 Nm: GDB..1E	8-13
	Rotary damper actuators without spring-return 10 Nm: GLB..1E	8-14
	Rotary damper actuators without spring-return 15 Nm: GEB..1E	8-15
	Rotary damper actuators without spring-return 25 Nm: GBB..1E	8-16
	Rotary damper actuators without spring-return 35 Nm: GIB..1E	8-17
	Accessories for rotary damper actuators	8-18
	Rotary damper actuators with safety function 6 Nm: GNP..1E	8-20
	Rotary damper actuators without safety function 6 Nm: GAP..1E	8-21
	Linear damper actuators without spring-return 125 N: GDB..2E	8-22
	Linear damper actuators without spring-return 250 N: GLB..2E	8-23
	Linear damper actuators without spring-return 400 N: GEB..2E	8-24
	Linear damper actuators without spring-return 550 N: GBB..2E	8-25
	Accessories for linear damper actuators	8-26
Actuators for air volume control	VAV compact controllers KNX 5/10 Nm: G..B181.1E/KN	8-27
	VAV compact controllers 5/10 Nm: G..B181.1E/3	8-28
	VAV modular controllers: ASV181.1E/3	8-29
Damper actuators for fire and smoke	Actuators for fire and smoke protection dampers 7 Nm: GNA..1E	8-30
	Actuators for fire and smoke protection dampers 18 Nm: GGA..1E	8-32
	Actuators for fire and smoke protection dampers 6 Nm: GND..	8-34
	Actuators for fire and smoke protection dampers 16 Nm: GGD..	8-38

Damper actuators without spring return (SR)

Actuators for HVAC applications		Control signal	Operating voltage	Standard model	Feedback potenti-ometer (1 kOhm)	Adjustable start/span	Adjustable start/span with 2 auxil-iary switches	Feedback (1 kOhm) with 2 auxiliary switches	2 auxiliary switches	Dimen-sions, round damper shaft (mm)	Dimen-sions, square damper shaft (mm)
	**GSD series** 2 Nm for approx. 0.3 m² damper area 30 s running time	2-position On/Off (1-wire SPST)	AC/DC 24 V AC 230 V	GSD121.1A GSD321.1A	–	–	–	–	GSD126.1A GSD326.1A	8...15	6...11
	**GDB series** 5 Nm for approx. 0.8 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GDB131.1E GDB331.1E	GDB132.1E GDB332.1E	–	–	–	GDB136.1E GDB336.1E	8...16	6...12,8
		Modulating DC 0...10 V	AC 24 V	GDB161.1E	–	GDB163.1E	GDB164.1E	–	GDB166.1E		
	**GLB series** 10 Nm for approx. 1.5 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GLB131.1E GLB331.1E	GLB132.1E GLB332.1E	–	–	–	GLB136.1E GLB336.1E	8...16	6...12,8
		Modulating DC 0...10 V	AC 24 V	GLB161.1E	–	GLB163.1E	GLB164.1E	–	GLB166.1E		
	**GAP series** 6 Nm for approx. 1 m² damper area 2 s running time	2-position	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E	6,4...20,5	6,4...13
		3-position	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E		
		Modulating DC 0/2...10 V 0/4...20 mA	AC/DC 24 V	GAP191.1E	–	–	–	–	GAP196.1E		
	**GEB series** 15 Nm for approx. 3 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GEB131.1E GEB331.1E	GEB132.1E GEB332.1E	–	–	–	GEB136.1E GEB336.1E	6,4...20,5	6,4...13
		Modulating DC 0...10 V	AC 24 V	GEB161.1E	–	GEB163.1E	GEB164.1E	–	GEB166.1E		
	**GBB series** 25 Nm for approx. 4 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GBB131.1E GBB331.1E	–	–	–	GBB135.1E GBB335.1E	GBB136.1E GBB336.1E	8...25,6	6...18
		Modulating DC 0...10 V	AC 24 V	GBB161.1E	–	GBB163.1E	GBB164.1E	–	GBB166.1E		
	**GIB series** 35 Nm for approx. 6 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GIB131.1E GIB331.1E	–	–	–	GIB135.1E GIB335.1E	GIB136.1E GIB336.1E	8...25,6	6...18
		Modulating DC 0...10 V	AC 24 V	GIB161.1E	–	GIB163.1E	GIB164.1E	–	GIB166.1E		
	**GDB series** 125 N for approx. 0.8 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GDB131.2E GDB331.2E	–	–	–	–	GDB136.2E GDB336.2E	–	–
		Modulating DC 0...10 V	AC 24 V	GDB161.2E	–	GDB163.2E	–	–	–		
	**GLB series** 250 N for approx. 1.5 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GLB131.2E GLB331.2E	–	–	–	–	GLB136.2E GLB336.2E	–	–
		Modulating DC 0...10 V	AC 24 V	GLB161.2E	–	GLB163.2E	–	–	–		
	**GEB series** 400 N for approx. 3 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GEB131.2E GEB331.2E	–	–	–	–	GEB136.2E GEB336.2E	–	–
		Modulating DC 0...10 V	AC 24 V	GEB161.2E	–	GEB163.2E	–	–	–		
	**GBB series** 550 N for approx. 4 m² damper area 150 s running time	3-position	AC 24 V AC 230 V	GBB131.2E GBB331.2E	–	–	–	–	GBB136.2E GBB336.2E	–	–
		Modulating DC 0...10 V	AC 24 V	GBB161.2E	–	GBB163.2E	–	–	–		

8

Damper actuators with spring return (SR)

Actuators for HVAC applications		Control signal	Operating voltage	Standard model	Feedback potentiometer (1 kOhm)	Adjustable start/span	Adjustable start/span with 2 auxiliary switches	Feedback (1 kOhm) with 2 auxiliary switches	2 auxiliary switches	Dimensions, round damper shaft (mm)	Dimensions, square damper shaft (mm)
	**GQD series** 2 Nm for approx. 0.3 m² damper area 30 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GQD121.1A GQD321.1A	–	–	–	–	GQD126.1A GQD326.1A	8...15	6...11
		3-position	AC/DC 24 V	GQD131.1A	–	–	–	–	GQD136.1A		
		Modulating DC 0...10 V	AC/DC 24 V	GQD161.1A	–	–	–	–	GQD166.1A		
	**GNP series** 6 Nm for approx. 1 m² damper area 2 s running time el. fail-safe function	2-position	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E	6,4...20,5	6,4...13
		3-position	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E		
		Modulating DC 0/2...10 V 0/4...20 mA	AC/DC 24 V	GNP191.1E	–	–	–	–	GNP196.1E		
	**GMA series** 7 Nm for approx. 1.5 m² damper area 90 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GMA121.1E GMA321.1E	–	–	–	–	GMA126.1E GMA326.1E	6,4...20,5	6,4...13
		3-position	AC/DC 24 V	GMA131.1E	GMA132.1E	–	–	–	GMA136.1E		
		Modulating DC 0...10 V	AC/DC 24 V	GMA161.1E	–	GMA163.1E	GMA164.1E	–	GMA166.1E		
	**GCA series** 18 Nm for approx. 3 m² damper area 90 s running time 15 s SR time	2-position	AC/DC 24 V AC 230 V	GCA121.1E GCA321.1E	–	–	–	–	GCA126.1E GCA326.1E	8...25,6	6...18
		3-position	AC/DC 24 V	GCA131.1E	–	–	–	GCA135.1E	–		
		Modulating DC 0...10 V	AC/DC 24 V	GCA161.1E	–	GCA163.1E	GCA164.1E	–	GCA166.1E		

Actuators for fire and smoke protection dampers

Actuators for fire and smoke protection dampers		Control signal	Operating voltage	2 auxiliary switches	2 auxiliary switches and thermal cut-out	Dimensions, square damper shaft (mm)
	**GGA actuator** [1] 18 Nm for approx. 2.5 m² damper area 90 s running time 15 s spring return time	2-position	AC/DC 24 V AC 230 V	GGA126.1E/..[2] GGA326.1E/..[2]	GGA126.1E/T..[2] GGA326.1E/T..[2]	10, 12
	**GNA actuator** [1] 7 Nm for approx. 1 m² damper area 90 s running time 15 s spring return time	2-position	AC/DC 24 V AC 230 V	GNA126.1E/..[2] GNA326.1E/..[2]	GNA126.1E/T..[2] GNA326.1E/T..[2]	10, 12

[1] Available to OEMs only [2] .. = insert dimension of damper shaft square (mm)

Actuators for air volume controllers

Actuators for air volume controllers 300 Pa application range		Control signal	Operating voltage	Standard model	Dimensions, round damper shaft (mm)	Dimensions, square damper shaft (mm)
	**GDB 300 Pa VAV compact controller** [1] 5 Nm for approx. 0.8 m² damper area 150 s running time	3-position	AC 24 V	GDB181.1E/3	8...16	6...12,8
		Modulating DC 0/2...10 V	AC 24 V			
		KNX S-Mode KNX LTE-Mode KNX PL-Link	AC 24 V	GDB181.1E/KN		
	**GLB 300 Pa VAV compact controller** [1] 10 Nm for approx. 1.5 m² damper area 150 s running time	3-position	AC 24 V	GLB181.1E/3	8...16	6...12,8
		Modulating DC 0/2...10 V	AC 24 V			
		KNX S-Mode KNX LTE-Mode KNX PL-Link	AC 24 V	GLB181.1E/KN		
	**ASV 300 Pa VAV modular controller** [1]	3-position	AC 24 V	ASV181.1E/3	–	–
		Modulating DC 0/2...10 V	AC 24 V			

[1] Available to OEMs only

8

Accessories for actuators

Description		GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
	**Rotary to linear set with lever** Allows a direct-coupled actuator to provide a linear drive; can be used to simultaneously drive a set of opposing or adjacent dampers with a single actuator.	■			ASK71.5
	**Rotary to linear set with lever** Allows a direct-coupled actuator to provide an auxiliary linear drive; can be used to simultaneously drive a set of opposing or adjacent dampers with a single actuator.		■	■	ASK71.13 ASK71.3
	**Rotary to linear set with lever and angle bracket** For use in applications where the actuator can be rigidly surface-mounted and a linear stroke output is required.	■			ASK71.6
	**Rotary to linear set with lever and mounting plate** For use in applications where the actuator can be rigidly surface-mounted and a linear stroke output is required.		■	■	ASK71.14 ASK71.4
	**Universal lever** For use with all OpenAir rotary to linear kits for linear applications requiring connection to damper louver shaft when joint connection is not possible. For 8 to 25.6 mm round.	■	■	■	**ASK71.9**
	**Tandem mounting bracket** **Tandem mounting bracket for 2-position and 3-position GCA/GIB models** **Tandem mounting bracket for modulating GCA/GIB models**		■	 ■ ■	**ASK73.3** **ASK73.1** **ASK73.2**
	**Rotary to linear set for duct mounting** For airstream applications and where a foot-mounted actuator can be used. Includes crank arm, Teflon support-bearing ring, and mounting fasteners. **Rotary to linear set for duct and frame mounting**	■	 ■	■	ASK71.6 ASK71.1 ASK71.11

8

Description		GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
	**Rotary to linear set for frame mounting** For direct mounting to damper frame. Includes a crank arm to generate a linear stroke, a Teflon support-bearing ring to minimize side-loading on the actuator's output bearing, and other mounting fasteners. **Rotary to linear set for duct and frame mounting**		 ■	■	ASK71.2 ASK71.11
	**Special shaft adapter** • Up to 27 mm shaft diameter Note: When used with a GIB, accepts shaft diameters from 19 to 27 mm			■	ASK74.1
	**Actuator shaft insert** for small shaft diameters • Up to 10 mm diameter	■			ASK78.3
	**Weathershield** Includes cover, gasket and screws. • IP65 • UV-resistant	 ■	■ ■	 ■ ■ ■	ASK75.3 ASK75.1 ASK75.4 ASK75.6 ASK75.5 ASK75.2
	**Shaft extension**		■	■	ASK74.7
	**Setting unit for VAV compact controller** for GDB/GLB/ASV181.1E/3	■			AST10
	**Interface converter for VAV compact controller** PPS2 to RS232 interface converter for use with GDB/GLB/ASV181.1E/3	■			AST11

OpenAir accessories

Description		GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
	**External auxiliary switches** External auxiliary switch kit, attachable to GCA, GMA, GEB, GBB und GIB rotary actuators - 1 external auxiliary switch - 2 external auxiliary switches		 ■ ■	 ■ ■	 ASC77.1E ASC77.2E
	**Shaft inserts for GDB/GLB...1** - Round 1/2” - Square 8 x 8 mm - Square 8 x 8 mm fix - Square 10 x 10 mm - Round 10 mm - Round 12 mm - D-profile fix	 ■ ■ ■ ■ ■ ■ ■			 ASK78.5 ASK78.6 ASK78.14 ASK78.7 ASK78.9 ASK78.10 ASK78.12

For acccessories and spare parts for air damper actuators, please order data sheet:

N4697 (GMA/GEB)
N4698 (GDB/GLB)
N4699 (GCA/GBB/GIB)

8

Rotary air damper actuators 2 Nm with spring return

GQD..1A

- For shaft dia 8...15 mm, square 6...11 mm, min. shaft length 20 mm
- With housing made of plastic and 0.9 m connecting cable



Data sheet	N4604
Torque	2 Nm
Air damper area	0.3 m²
Angular rotation	90 °
Positioning time	Open with motor: 30 s Closing with spring: 15 s
Degree of protection	IP40
Dimensions (W x H x D)	73 x 122 x 63 mm

Range overview GQD..1A

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	6.5 VA 4.5 W	0	BPZ:GQD121.1A	**GQD121.1A**
AC 24 DC 24	2-position	6.5 VA 4.5 W	2	BPZ:GQD126.1A	**GQD126.1A**
AC 230	2-position	10 VA 4.5 W	0	BPZ:GQD321.1A	**GQD321.1A**
AC 230	2-position	10 VA 4.5 W	2	BPZ:GQD326.1A	**GQD326.1A**
AC 24 DC 24	3-position	4 VA 2.5 W	0	BPZ:GQD131.1A	**GQD131.1A**
AC 24 DC 24	3-position	4 VA 2.5 W	2	BPZ:GQD136.1A	**GQD136.1A**
AC 24 DC 24	DC 0...10 V	4.5 VA 3 W	0	BPZ:GQD161.1A	**GQD161.1A**
AC 24 DC 24	DC 0...10 V	4.5 VA 3 W	2	BPZ:GQD166.1A	**GQD166.1A**

Actuators for HVAC applications
Rotary damper actuators with spring-return 2 Nm: GQD..A

GQD..6A

Rotary air damper actuators 2 Nm, with spring return



- Operate direct driven dampers used to control air flow in duct specifically to adress two position domestic and light commercial barrel damper application.
- For shaft dia 8
- Air damper area approx. 0.3 m²
- With housing made of plastic and 0.9 m connecting cable

Data sheet	N4606
Torque	2 Nm
Air damper area	0.3 m²
Positioning time	Open with motor: 30 s Closing with spring: 15 s
Degree of protection	IP40
Dimensions (W x H x D)	70 x 121.4 x 62.5 mm

Range overview GQD..6A

Operating voltage [V]	Positioning signal	Stock No.	Product No.
AC 24 DC 24	2-position	BPZ:GQD121.6A	**GQD121.6A**
AC 230	2-position	BPZ:GQD321.6A	**GQD321.6A**

8

Rotary air damper actuators 7 Nm, with spring return

GMA..1E

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4614
Torque	7 Nm
Air damper area	1.5 m²
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GMA...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	5 VA 3.5 W	0	BPZ:GMA121.1E	**GMA121.1E**
AC 24 DC 24	2-position	5 VA 3.5 W	2	BPZ:GMA126.1E	**GMA126.1E**
AC 230	2-position	7.5 VA	0	BPZ:GMA321.1E	**GMA321.1E**
AC 230	2-position	7,5 VA	2	BPZ:GMA326.1E	**GMA326.1E**
AC 24 DC 24	3-position	5 VA 3.5 W	0	BPZ:GMA131.1E	**GMA131.1E**
AC 24 DC 24	3-position	5 VA 3.5 W	0	BPZ:GMA132.1E	**GMA132.1E**
AC 24 DC 24	3-position	5 VA 3.5 W	2	BPZ:GMA136.1E	**GMA136.1E**
AC 24 DC 24	DC 0...10 V	5 VA 3.5 W	0	BPZ:GMA161.1E	**GMA161.1E**
AC 24 DC 24	DC 0...35 V Adjustable	5 VA 3.5 W	0	BPZ:GMA163.1E	**GMA163.1E**
AC 24 DC 24	DC 0...35 V Adjustable	5 VA 3.5 W	2	BPZ:GMA164.1E	**GMA164.1E**
AC 24 DC 24	DC 0...10 V	5 VA 3.5 W	2	BPZ:GMA166.1E	**GMA166.1E**

Type GMA132.1E also has a feedback potentiometer.

Basic Documentation No.: Z4614

Actuators for HVAC applications
Rotary damper actuators with spring-return 18 Nm: GCA..1E

GCA..1E



Rotary air damper actuators 18 Nm, with spring return

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4613
Torque	18 Nm
Air damper area	3 m²
Angular rotation	90 °
Positioning time	Opening with motor: 90 s Closing with spring: 15 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GCA...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	2-position	7 VA / 5 W	0	BPZ:GCA121.1E	**GCA121.1E**
AC 24 DC 24	2-position	7 VA / 5 W	2	BPZ:GCA126.1E	**GCA126.1E**
AC 230	2-position	8 VA / 6 W	0	BPZ:GCA321.1E	**GCA321.1E**
AC 230	2-position	8 VA / 6 W	2	BPZ:GCA326.1E	**GCA326.1E**
AC 24 DC 24	3-position	7 VA / 5 W	0	BPZ:GCA131.1E	**GCA131.1E**
AC 24 DC 24	3-position	7 VA / 5 W	2	BPZ:GCA135.1E	**GCA135.1E**
AC 24 DC 24	DC 0...10 V	7 VA / 5 W	0	BPZ:GCA161.1E	**GCA161.1E**
AC 24 DC 24	DC 0...35 V Adjustable	7 VA / 5 W	0	BPZ:GCA163.1E	**GCA163.1E**
AC 24 DC 24	DC 0...35 V Adjustable	7 VA / 5 W	2	BPZ:GCA164.1E	**GCA164.1E**
AC 24 DC 24	DC 0...10 V	7 VA / 5 W	2	BPZ:GCA166.1E	**GCA166.1E**

Type GCA135.1E also has a feedback potentiometer.

Basic Documentation No.: Z4613

Accessories for rotary air damper actuators GMA..1E

Product Title	Data sheet	Stock No.	Product No.
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	**ASK71.11**
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	**ASK71.13**
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	**ASK71.14**
Bracket for power pack	N4697	BPZ:ASK73.3	**ASK73.3**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield	N4697	BPZ:ASK75.3	**ASK75.3**
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	**ASK75.6**
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	**ASC77.1E**
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	**ASC77.2E**

Accessories for rotary air damper actuators GCA...1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	**ASK71.1**
Rotary/linear mounting kit for frame mounting	N4699	BPZ:ASK71.2	**ASK71.2**
Rotary/linear mounting kit with lever	N4699	BPZ:ASK71.3	**ASK71.3**
Rotary/linear mounting kit with lever and bracket	N4699	BPZ:ASK71.4	**ASK71.4**
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Bracket for power pack	N4699	BPZ:ASK73.1	**ASK73.1**
Flexible bracket for power pack	N4699	BPZ:ASK73.2	**ASK73.2**
Special shaft adapter	N4699	BPZ:ASK74.1	**ASK74.1**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	**ASK75.1**
Weather shield for rotarytype actuator GBB/GCA/GIB...1E	N4699	BPZ:ASK75.4	**ASK75.4**
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	**ASC77.1E**
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	**ASC77.2E**

Caution!
- ASK73.1 is only valid for GCA12...1E, GCA13...1E, GCA32...1E, GIB13...1E, GIB33...1E
- ASK73.2 is only valid for GCA16...1E and GIB16...1E

Actuators for HVAC applications
Rotary damper actuators non-spring return 2 Nm: GSD..1A

GSD..1A



Rotary air damper actuators 2 Nm without spring return

- Operate direct driven zone dampers used to control air flow in ducts specifically to address two position domestic and light commercial barrel damper applications.
- For shaft dia 8...15 mm, square 6...11 mm, min. shaft length 20 mm
- With housing made of plastic and 0.9 m connecting cable

Data sheet	N4603
Torque	2 Nm
Air damper area	0.3 m²
Angular rotation	90 °
Positioning time	30 s
Degree of protection	IP40
Dimensions (W x H x D)	73 x 122 x 63 mm

Range overview GSD..1A

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	SPST	2 VA 1.5 W	0	BPZ:GSD121.1A	**GSD121.1A**
AC 24 DC 24	SPST	2 VA 1.5 W	2	BPZ:GSD126.1A	**GSD126.1A**
AC 230	SPST	12 VA 2 W	0	BPZ:GSD321.1A	**GSD321.1A**
AC 230	SPST	12 VA 2 W	2	BPZ:GSD326.1A	**GSD326.1A**

Rotary air damper actuators 5 Nm, without spring return

GDB..1E

- For shaft dia. 8..16 mm, square 6...12 mm, min. shaft length 30 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable



Data sheet	N4634
Torque	5 Nm
Air damper area	0.8 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	68 x 137 x 59.5 mm

Range overview GDB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA	0	BPZ:GDB131.1E	**GDB131.1E**
AC 24	3-position	2 VA	0	BPZ:GDB132.1E	**GDB132.1E**
AC 24	3-position	2 VA	2	BPZ:GDB136.1E	**GDB136.1E**
AC 230	3-position	2 VA	0	BPZ:GDB331.1E	**GDB331.1E**
AC 230	3-position	2 VA	0	BPZ:GDB332.1E	**GDB332.1E**
AC 230	3-position	2 VA	2	BPZ:GDB336.1E	**GDB336.1E**
AC 24	DC 0...10 V	3 VA	0	BPZ:GDB161.1E	**GDB161.1E**
AC 24	DC 0...35 V Adjustable	3 VA	0	BPZ:GDB163.1E	**GDB163.1E**
AC 24	DC 0...35 V Adjustable	3 VA	2	BPZ:GDB164.1E	**GDB164.1E**
AC 24	DC 0...10 V	3 VA	2	BPZ:GDB166.1E	**GDB166.1E**

Types GDB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4634

Actuators for HVAC applications
Rotary damper actuators non-spring return 10 Nm: GLB..1E

GLB..1E



Rotary air damper actuators 10 Nm, without spring return

- For shaft dia. 8..16 mm, square 6...12 mm, min. shaft length 30 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable

Data sheet	N4634
Torque	10 Nm
Air damper area	1.5 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	68 x 137 x 59.5 mm

Range overview GLB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA 1 W	0	BPZ:GLB131.1E	**GLB131.1E**
AC 24	3-position	2 VA	0	BPZ:GLB132.1E	**GLB132.1E**
AC 24	3-position	2 VA	2	BPZ:GLB136.1E	**GLB136.1E**
AC 230	3-position	2 VA 1 W	0	BPZ:GLB331.1E	**GLB331.1E**
AC 230	3-position	2 VA	0	BPZ:GLB332.1E	**GLB332.1E**
AC 230	3-position	2 VA	2	BPZ:GLB336.1E	**GLB336.1E**
AC 24	DC 0...10 V	3 VA 2 W	0	BPZ:GLB161.1E	**GLB161.1E**
AC 24	DC 0...35 V Adjustable	3 VA	0	BPZ:GLB163.1E	**GLB163.1E**
AC 24	DC 0...35 V Adjustable	3 VA	2	BPZ:GLB164.1E	**GLB164.1E**
AC 24	DC 0...10 V	3 VA	2	BPZ:GLB166.1E	**GLB166.1E**

Types GLB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4634

Rotary air damper actuators 15 Nm, without spring return

GEB..1E

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4621
Torque	15 Nm
Air damper area	3 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GEB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB131.1E	**GEB131.1E**
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB132.1E	**GEB132.1E**
AC 24	3-position	4 VA / 3.5 W	2	BPZ:GEB136.1E	**GEB136.1E**
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB331.1E	**GEB331.1E**
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB332.1E	**GEB332.1E**
AC 230	3-position	3 VA / 3 W	2	BPZ:GEB336.1E	**GEB336.1E**
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	0	BPZ:GEB161.1E	**GEB161.1E**
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	0	BPZ:GEB163.1E	**GEB163.1E**
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	2	BPZ:GEB164.1E	**GEB164.1E**
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	2	BPZ:GEB166.1E	**GEB166.1E**

Types GEB132.1E and 332.1E have a feedback potentiometer.

Basic Documentation No.: Z4621

Actuators for HVAC applications
Rotary damper actuators non-spring return 25 Nm: GBB..1E

GBB..1E



Rotary air damper actuators 25 Nm, without spring return

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4626
Torque	25 Nm
Air damper area	4 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GBB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.1E	**GBB131.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB135.1E	**GBB135.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.1E	**GBB136.1E**
AC 230	3-position	5 VA / 5 W	0	BPZ:GBB331.1E	**GBB331.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB335.1E	**GBB335.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GBB336.1E	**GBB336.1E**
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.1E	**GBB161.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.1E	**GBB163.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GBB164.1E	**GBB164.1E**
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GBB166.1E	**GBB166.1E**

Types GBB135.1E and GBB335.1E also have a feedback potentiometer.

Basic Documentation No.: Z4626

Rotary air damper actuators 35 Nm, without spring return

GIB..1E

- With self-centering shaft adapter for shaft dia. 8..25.6 mm, square 6...18 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4626
Torque	35 Nm
Air damper area	6 m²
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 300 x 75 mm

Range overview GIB...1E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GIB131.1E	**GIB131.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB135.1E	**GIB135.1E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GIB136.1E	**GIB136.1E**
AC 230	3-position	5 VA / 5 W	0	BPZ:GIB331.1E	**GIB331.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB335.1E	**GIB335.1E**
AC 230	3-position	5 VA / 5 W	2	BPZ:GIB336.1E	**GIB336.1E**
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GIB161.1E	**GIB161.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GIB163.1E	**GIB163.1E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	2	BPZ:GIB164.1E	**GIB164.1E**
AC 24	DC 0...10 V	8 VA / 8 W	2	BPZ:GIB166.1E	**GIB166.1E**

Types GIB135.1E and 335.1E also have a potentiometer.

Basic Documentation No.: Z4626

Accessories for rotary air damper actuators GDB...1E and GLB..1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit	N4698	BPZ:ASK71.5	**ASK71.5**
Rotary/linear mounting kit with bracket	N4698	BPZ:ASK71.6	**ASK71.6**
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Centering insert 12.7 mm dia. (½")	N4698	BPZ:ASK78.5	**ASK78.5**
Centering insert 8 mm square	N4698	BPZ:ASK78.6	**ASK78.6**
Centering insert 10 mm square	N4698	BPZ:ASK78.7	**ASK78.7**
Centering insert 10 mm dia.	N4698	BPZ:ASK78.9	**ASK78.9**
Centering insert 12 mm dia.	N4698	BPZ:ASK78.10	**ASK78.10**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Centering insert 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**

Accessories for rotary air damper actuators GMA..1E and GEB...1E

Product Title	Data sheet	Stock No.	Product No.
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	**ASK71.11**
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	**ASK71.13**
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	**ASK71.14**
Bracket for power pack	N4697	BPZ:ASK73.3	**ASK73.3**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield	N4697	BPZ:ASK75.3	**ASK75.3**
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	**ASK75.6**
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	**ASC77.1E**
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	**ASC77.2E**

Accessories for rotary air damper actuators GCA...1E, GBB...1E, GIB...1E

Product Title	Data sheet	Stock No.	Product No.
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	**ASK71.1**
Rotary/linear mounting kit for frame mounting	N4699	BPZ:ASK71.2	**ASK71.2**
Rotary/linear mounting kit with lever	N4699	BPZ:ASK71.3	**ASK71.3**
Rotary/linear mounting kit with lever and bracket	N4699	BPZ:ASK71.4	**ASK71.4**
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Bracket for power pack	N4699	BPZ:ASK73.1	**ASK73.1**
Flexible bracket for power pack	N4699	BPZ:ASK73.2	**ASK73.2**
Special shaft adapter	N4699	BPZ:ASK74.1	**ASK74.1**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	**ASK75.1**
Weather shield for rotarytype actuator GBB/GCA/GIB...1E	N4699	BPZ:ASK75.4	**ASK75.4**
External auxiliary switch assembly 1 switch	N4615	BPZ:ASC77.1E	**ASC77.1E**
External auxiliary switch assembly 2 switches	N4615	BPZ:ASC77.2E	**ASC77.2E**

Caution!
- ASK73.1 is only valid for GCA12...1E, GCA13...1E, GCA32...1E, GIB13...1E, GIB33...1E
- ASK73.2 is only valid for GCA16...1E and GIB16...1E

Actuators for HVAC applications
Fast running damper actuators with safety function 6 Nm: GNP..1E

GNP..1E



Rotary air damper actuators 6 Nm, with electronic fail-save function

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4609
Torque	6 Nm
Air damper area	1 m²
Angular rotation	90 °
Positioning time	Opening with motor: 2 s Closing with Super Cap: 2 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GNP...1E

Operating voltage [V]	Positioning signal [V]	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	20 VA 13 W	0	BPZ:GNP191.1E	**GNP191.1E**
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	20 VA 13 W	2	BPZ:GNP196.1E	**GNP196.1E**

8

Rotary air damper actuators 6 Nm, without electronic fail-save function

GAP..1E

- With self-centering shaft adapter for shaft dia. 6.4...20.5 mm, square 6.4...13 mm, min. shaft length 20 mm
- With position indication and adjustable mechanical limit stop
- Button for disengaging the gear train to enable manual control
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4608
Torque	6 Nm
Air damper area	1 m²
Angular rotation	90 °
Positioning time	2 s
Degree of protection	IP54
Dimensions (W x H x D)	81 x 192 x 63 mm

Range overview GAP..1E

Operating voltage [V]	Positioning signal [V]	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	30 VA 22 W	0	BPZ:GAP191.1E	**GAP191.1E**
AC 24 DC 24	DC 0(2)...10 V 0(4)...20 mA	30 VA 22 W	2	BPZ:GAP196.1E	**GAP196.1E**

8

Actuators for HVAC applications
Linear damper actuators without spring-return 125 N: GDB..2E

GDB..2E



Linear air damper actuators 125 N, without spring return

- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable

Data sheet	N4664
Force	125 N
Air damper area	0.8 m²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	68 x 152 x 59 mm

Range overview GDB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA / 1 W	0	BPZ:GDB131.2E	**GDB131.2E**
AC 24	3-position	2 VA / 1 W	2	BPZ:GDB136.2E	**GDB136.2E**
AC 230	3-position	2 VA / 1 W	0	BPZ:GDB331.2E	**GDB331.2E**
AC 230	3-position	2 VA / 1 W	2	BPZ:GDB336.2E	**GDB336.2E**
AC 24	DC 0...10 V	3 VA / 2 W	0	BPZ:GDB161.2E	**GDB161.2E**
AC 24	DC 0...35 V Adjustable	3 VA / 2 W	0	BPZ:GDB163.2E	**GDB163.2E**

Basic Documentation No.: Z4664

Linear air damper actuators 250 N, without spring return

GLB..2E

- Button for disengaging the gear train to enable manual override
- With base made of steel, plastic housing and 0.9 m connecting cable



Data sheet	N4664
Force	250 N
Air damper area	1.5 m²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	68 x 152 x 59 mm

Range overview GLB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	2 VA / 1 W	0	BPZ:GLB131.2E	**GLB131.2E**
AC 24	3-position	2 VA / 1 W	2	BPZ:GLB136.2E	**GLB136.2E**
AC 230	3-position	2 VA / 1 W	0	BPZ:GLB331.2E	**GLB331.2E**
AC 230	3-position	2 VA / 1 W	2	BPZ:GLB336.2E	**GLB336.2E**
AC 24	DC 0...10 V	3 VA / 2 W	0	BPZ:GLB161.2E	**GLB161.2E**
AC 24	DC 0...35 V Adjustable	3 VA / 2 W	0	BPZ:GLB163.2E	**GLB163.2E**

Basis Documentation No.: Z4664

Actuators for HVAC applications
Linear damper actuators without spring-return 400 N: GEB..2E

GEB..2E



Linear air damper actuators 400 N, without spring return

- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable

Data sheet	N4653
Force	400 N
Air damper area	3 m²
Nominal stroke	60 mm
Positioning time	150 s
Degree of protection	IP40
Dimensions (W x H x D)	81 x 212 x 60 mm

Range overview GEB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	4 VA / 3.5 W	0	BPZ:GEB131.2E	**GEB131.2E**
AC 24	3-position	4 VA / 3.5 W	2	BPZ:GEB136.2E	**GEB136.2E**
AC 230	3-position	3 VA / 3 W	0	BPZ:GEB331.2E	**GEB331.2E**
AC 230	3-position	3 VA / 3 W	2	BPZ:GEB336.2E	**GEB336.2E**
AC 24	DC 0...10 V DC 2...10 V	6 VA / 5.5 W	0	BPZ:GEB161.2E	**GEB161.2E**
AC 24	DC 0...35 V Adjustable	6 VA / 5.5 W	0	BPZ:GEB163.2E	**GEB163.2E**

Basic Documentation No.: Z4653

Linear air damper actuators 550 N, without spring return

GBB..2E

- Button for disengaging the gear train to enable manual override
- With housing made of die-cast aluminium and 0.9 m connecting cable



Data sheet	N4656
Force	550 N
Air damper area	4 m²
Nominal stroke	70 mm
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	100 x 298 x 67.5 mm

Range overview GBB...2E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Stock No.	Product No.
AC 24	3-position	7 VA / 7 W	0	BPZ:GBB131.2E	**GBB131.2E**
AC 24	3-position	7 VA / 7 W	2	BPZ:GBB136.2E	**GBB136.2E**
AC 230	3-position	8 VA / 5 W	0	BPZ:GBB331.2E	**GBB331.2E**
AC 230	3-position	8 VA / 5 W	2	BPZ:GBB336.2E	**GBB336.2E**
AC 24	DC 0...10 V	8 VA / 8 W	0	BPZ:GBB161.2E	**GBB161.2E**
AC 24	DC 0...35 V Adjustable	8 VA / 8 W	0	BPZ:GBB163.2E	**GBB163.2E**

Basic Documentation No.: Z4656

Accessories for linear air damper actuators GDB..2E and GLB..2E

Product Title	Data sheet	Stock No.	Product No.
Clamp for linkage (5...8 mm dia.)	N4698	BPZ:ASK55.2	**ASK55.2**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**

Accessories for linear air damper actuators GEB..2E

Product Title	Data sheet	Stock No.	Product No.
Linear/rotary mounting kit with bracket	N4697	BPZ:ASK72.3	**ASK72.3**
Weather shield for rotary-/linear-type actuator GMA/GEB...E	N4697	BPZ:ASK75.6	**ASK75.6**

Accessories for linear air damper actuators GBB...2E

Product Title	Data sheet	Stock No.	Product No.
Linear/rotary mounting kit with cardan joint	N4699	BPZ:ASK72.1	**ASK72.1**
Linear/rotary mounting kit with bracket	N4699	BPZ:ASK72.2	**ASK72.2**
Weather shield for linear actuator	N4699	BPZ:ASK75.2	**ASK75.2**

VAV compact controller KNX

G..B181.1E/KN

- Networked compact controller with KNX capability for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor, damper actuator and digitally configurable air volume controller
- Nominal torque 5 or 10 Nm, air damper rotation angle mechanically adjustable between 0 and 90°
- Configurable as single device per room or for cascade control with pressure ratio 1:1, positive pressure, or negative pressure
- Prewired with a 0.9 m connecting cable and a 0.9 m KNX bus cable



Data sheet	N3547
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Communication	KNX S-Mode KNX LTE-Mode KNX PL-Link
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/KN

Torque [Nm]	Operating voltage [V]	Air damper area [m²]	Power consumption [VA]	Stock No.	Product No.
5	AC 24	0.8	3	S55499-D134	**GDB181.1E/KN**
10	AC 24	1.5	3	S55499-D135	**GLB181.1E/KN**

Basic Documentation No.: P3547

8

Actuators for air volume control
VAV compact controllers 5/10 Nm: G..B181.1E/3

G..B181.1E/3



VAV compact controller

- Compact controller for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor, damper actuator and digitally configurable air volume controller
- Nominal torque 5 or 10 Nm, air damper rotation angle mechanically adjustable between 0 and 90°
- Optionally configurable as VAV compact controller or as damper actuator/differential pressure sensor unit
- Prewired with a 0.9 m connecting cable

Data sheet	N3544
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/3

Torque [Nm]	Operating voltage [V]	Air damper area [m²]	Positioning signal	Power consumption [VA]	Stock No.	Product No.
5	AC 24	0.8	DC 0...10 V DC 2...10 V 3-position	3	BPZ:GDB181.1E/3	**GDB181.1E/3**
10	AC 24	1.5	DC 0...10 V DC 2...10 V 3-position	3	BPZ:GLB181.1E/3	**GLB181.1E/3**

Basic Documentation No.: P3544

VAV modular controller

ASV181.1E/3

- Modular controller for plants with variable or constant air volume flow
- Integrated, highly precise differential pressure sensor and digitally configurable air volume controller
- For connection to an OpenAir™ family 3-position air damper actuator with high torque or safety functions
- Prewired with a 0.9 m cable and a 0.3 m connecting cable



Data sheet	N3545
Operating voltage	AC 24 V
Power consumption	1 VA
Positioning signal	DC 0...10 V DC 2...10 V 3-position
Degree of protection	IP54
Dimensions (W x H x D)	68 x 144 x 45 mm

	Stock No.	Product No.
	BPZ:ASV181.1E/3	**ASV181.1E/3**

Accessories for G..B181.1../.. and ASV181.1E/3

Product Title	Data sheet	Stock No.	Product No.
Manual operator unit	N5851	BPZ:AST10	**AST10**
Interface converter	N5852	BPZ:AST11	**AST11**

AST10 for G..B181.1E/3 after Serie E and G..B181.1E/KN with reduced functionality usable only

More accessories, see type GLB...1E / GDB...1E

8

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 7 Nm: GNA..1E

GNA126.1E..



Actuators for fire protection dampers

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4620
Torque	7 Nm
Air damper area	1 m²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return: 15 s
Power consumption	5 VA / 3.5 W
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GNA126.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GNA126.1E/10	**GNA126.1E/10**
AC 24 DC 24	12 x 12	BPZ:GNA126.1E/12	**GNA126.1E/12**

Range overview GNA126.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GNA126.1E/T10	**GNA126.1E/T10**
AC 24 DC 24	12 x 12	BPZ:GNA126.1E/T12	**GNA126.1E/T12**

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 7 Nm: GNA..1E

Actuators for fire protection damper

GNA326.1E..



- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4620
Torque	7 Nm
Air damper area	1 m²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Closing with spring return 15 s
Power consumption	7 VA / 4.5 W
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GNA326.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GNA326.1E/10	**GNA326.1E/10**
AC 230	12 x 12	BPZ:GNA326.1E/12	**GNA326.1E/12**

Range overview GNA326.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GNA326.1E/T10	**GNA326.1E/T10**
AC 230	12 x 12	BPZ:GNA326.1E/T12	**GNA326.1E/T12**

Accessories for GNA126.1E/T und GNA326.1E/T

Product Title	Data sheet	Stock No.	Product No.
Duct tip for temperature monitor unit (72 °C)	N4697	BPZ:ASK79.4	ASK79.4
Duct tip for temperature monitor unit (95 °C)	N4697	BPZ:ASK79.5	ASK79.5

NEW PRODUCT

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 18 Nm: GGA..1E

GGA126.1E..



Actuators for fire protection dampers

- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4617
Torque	18 Nm
Air damper area	2.5 m²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return 15 s
Power consumption	7 VA / 5 W
Dimensions (W x H x D)	100 x 264 x 71 mm

Range overview GGA126.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	10 x 10	BPZ:GGA126.1E/10	**GGA126.1E/10**
AC 24 DC 24	12 x 12	BPZ:GGA126.1E/12	**GGA126.1E/12**

Range overview GGA126.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC/DC 24	10 x 10	BPZ:GGA126.1E/T10	**GGA126.1E/T10**
AC/DC 24	12 x 12	BPZ:GGA126.1E/T12	**GGA126.1E/T12**

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 18 Nm: GGA..1E

Actuators for fire protection dampers

GGA326.1E..



- Rotary type
- 2-position
- Spring return to failsafe position
- Temperature monitoring unit (for 72 °C)
- Fixed auxiliary switches for switching points 5 ° and 80 °
- Rigid connection between actuator and damper square shafts (10x10, 12x12)
- Manual setting
- Position indicator
- Robust, lightweight all metal housing made from die-cast aluminium and 0.9 m connecting cable
- Degree of protection: Temperature monitoring unit IP54 / Actuator IP54

Data sheet	N4617
Torque	18 Nm
Air damper area	2.5 m²
Angular rotation	90 °
Positioning time	Open with motor: 90 s Close with spring return 15 s
Power consumption	8 VA / 6 W
Dimensions (W x H x D)	100 x 264 x 71 mm

Range overview GGA326.1E.. without temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GGA326.1E/10	**GGA326.1E/10**
AC 230	12 x 12	BPZ:GGA326.1E/12	**GGA326.1E/12**

Range overview GGA326.1E/T.. with temperature monitoring unit

Operating voltage [V]	Shaft linkage [mm]	Stock No.	Product No.
AC 230	10 x 10	BPZ:GGA326.1E/T10	**GGA326.1E/T10**
AC 230	12 x 12	BPZ:GGA326.1E/T12	**GGA326.1E/T12**

Accessories for GGA126.1E/T und GGA326.1E/T

Product Title	Data sheet	Stock No.	Product No.
Duct tip for temperature monitor unit (72 °C)	N4697	BPZ:ASK79.4	ASK79.4
Duct tip for temperature monitor unit (95 °C)	N4697	BPZ:ASK79.5	ASK79.5

NEW PRODUCT

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 6 Nm: GND..

GND121.1U

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90°
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND121.1U	**GND121.1U**

GND121.1U/F

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, Elect. fuse link capable



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND121.1U/F	**GND121.1U/F**

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run

GND321.1U



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND321.1U	**GND321.1U**

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, Elect. fuse link capable

GND321.1U/F



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND321.1U/F	**GND321.1U/F**

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 6 Nm: GND..

GND126.1U

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND126.1U	**GND126.1U**

GND126.1U/F

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 24 Vac/Vdc, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac/Vdc
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

Stock No.	Product No.
BPZ:GND126.1U/F	**GND126.1U/F**

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux

GND326.1U



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

	Stock No.	Product No.
	BPZ:GND326.1U	**GND326.1U**

Spring Return, UL Smoke, Fire/Smoke, 53 lb-in (6 Nm), 230 Vac, 2-position Control, 15 sec Run, 2-Aux, Elect. fuse link capable

GND326.1U/F



OpenAir™ GND Series Electric Damper Actuator, rotary, spring return, 53 lb-in (6 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches, electric fuse link connection. Designed for UL Listed Smoke Control Dampers and for Combination Fire/Smoke Rated Dampers. ASK79.xxx Electronic Fuse link is temperature specific and sold separately.

Data sheet	155-746
Torque	53 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	
Control Signal	2-position
Positioning time	
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	

	Stock No.	Product No.
	BPZ:GND326.1U/F	**GND326.1U/F**

Accessories for GND..

Product Title	Stock No.	Product No.
OpenAir Electronic Fusible Link.	BPZ:ASK79.165	**ASK79.165**
OpenAir Electronic Fusible Link.	BPZ:ASK79.250	**ASK79.250**
OpenAir Electronic Fusible Link.	BPZ:ASK79.350	**ASK79.350**

Damper actuators for fire and smoke protection dampers
Actuators for fire and smoke protection dampers 16 Nm: GGD..

GGD121.1U

Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke



OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 24 Vac/dc, 2-position control, 15 sec run time, Fire/Smoke

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
BPZ:GGD121.1U	**GGD121.1U**

GGD126.1U

Spring Return, 142 lb-in (16 Nm), 24 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches



OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 24 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	24 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	0 to 130 °F
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
S55450-D159	**GGD126.1U**

Spring Return, 142 lb-in (16 Nm), 230 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke

GGD321.1U



OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 230 Vac, 2-position control, 15 sec run time, Fire/Smoke

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	230 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
BPZ:GGD321.1U	**GGD321.1U**

Spring Return, 142 lb-in (16 Nm), 120 Vac, 2-position Control, 15 sec Run Time, Fire/Smoke, 2-Aux Switches

GGD326.1U



OpenAir™ GGD Series Electric Damper Actuator, rotary, spring return, 142 lb-in (16 Nm), 120 Vac, 2-position control, 15 sec run time, Fire/Smoke, dual auxiliary switches

Data sheet	152-046P25
Torque	142 lb-in
Actuation Style	Rotary
Angular rotation	90 °
Air damper area	
Operating voltage	120 Vac
Power consumption	150 VA
Control Signal	2-position
Positioning time	15 s
Ambient temperature, operation	
Spring return function	
Dimensions (W x H x D)	12 x 4.75 x 2.88 in

Stock No.	Product No.
S55450-D161	**GGD326.1U**

Variable speed drives



Overview and selection tools	Overview of product details	9-2
Variable speed drives	G120P..	9-5
	Accessories and spare parts for G120P..	9-10

Order instruction

G120P Bundle

Control Unit
CU230P-2 BT
incl. shield connection kit



Power Module
PM230
3 AC 380 ... 480 V
0.37 ... 90 kW



order separately

Operator panel
IOP
Intelligent
Operator
Panel
or
BOP-2
Basic Operator
Panel
or
Blanking
cover







Optional accessory
Memory cards
PC inverter connection kit 2
CU230P-2 DP (PROFIBUS DP)
CU230P-2 CAN (CANopen)

Spare parts
Small mounting parts
Fan units

Power range G120P

		Dimension / WxHxD			
		IP55		IP20	
kW	Frame size	Filter A	Filter B	Filter A	Filter B
0.37	A	154x460x249	154x460x249	73x196x223	73x202x288
0.55	A	154x460x249	154x460x249	73x196x223	73x202x288
0.75	A	154x460x249	154x460x249	73x196x223	73x202x288
1.1	A	154x460x249	154x460x249	73x196x223	73x202x288
1.5	A	154x460x249	154x460x249	73x196x223	73x202x288
2.2	A	154x460x249	154x460x249	73x196x223	73x202x288
3	A	154x460x249	154x460x249	73x196x223	73x202x288
4	B	180x540x249	180x540x249	100x292x223	100x297x308
5.5	B	180x540x249	180x540x249	100x292x223	100x297x308
7.5	B	180x540x249	180x540x249	100x292x223	100x297x308
11	C	230x620x249	230x620x249	140x355x223	140x359x318
15	C	230x620x249	230x620x249	140x355x223	140x359x318
18.5	C/D	230x620x249	320x640x329	140x355x223	140x359x318
22	D	320x640x329	320x640x329	275x512x262	375x512x262
30	D	320x640x329	320x640x329	275x512x262	375x512x262
37	E	320x751x329	320x751x329	275x635x262	385x635x262
45	E	320x751x329	320x751x329	275x635x262	385x635x262
55	F	410x915x416	410x915x416	350x934x374	500x934x374
75	F	410x915x416	410x915x416	350x934x374	500x934x374
90	F	410x915x416	410x915x416	not available	not available

Remark IP55: The depth increases by 5mm if BOP-2 or blind cover is used. The Depth increases by 15mm if IOP is used
Remark IP20: The height increases if screen plate is used:
FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm.
In addition please consider 10mm increase if BOP-2 is used and 20mm if IOP is used.

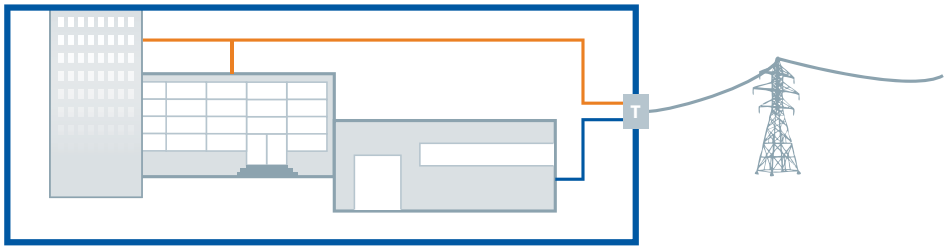
Selection Guide for EMC-filter

Product standard EN 61800-3				
Environment	1st environment	1st or 2nd environment (building operator decision)	2nd environment	2nd environment
Category	C1	C2	C3	C4
Limits according to EN 55011	Class B	Class A1 (+ Warning hints)	Class A2 (+ Warning hints)	Values exceeds limit defined by class A2
	G120P with B-filter			
		G120P with A-filter		

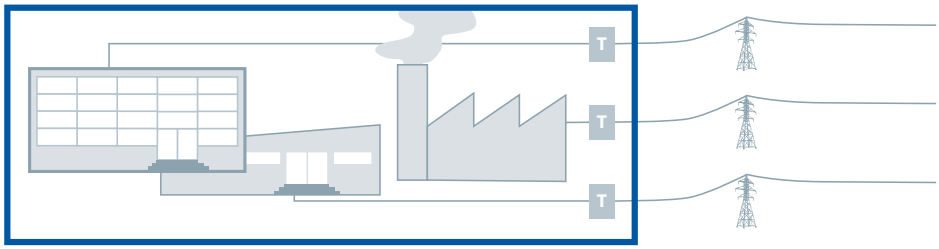
1st environment/class B: residential areas



1st or 2nd environment/class A or B: special areas



2nd environment/class A: industrial areas



9

Variable Speed Drive for pumps and fans

G120P..



Variable speed drive for energy-optimized speed control of pump, compressor and fan motors in building control applications, including: Powermodule PM230, ControlUnit CU230P-2 BT with screening plate without panel. Available degree of protection: IP20 and IP55.

The G120P Bundle does not contain an operator panel or blanking cover. To achieve the IP55 or IP54 protection rating with the IP55 devices, please order an operator panel or blanking cover separately.

Data sheet	N5111
Standard	EN 61800-3
Operating temperature	0...60 °C
Overload capacity	FSA-FSC: 110% for 57 sec. and 150% for 3 sec. every 300 sec. FSD-FSF: 110% for 60 sec. every 300 sec.
Operating voltage	400 V
Frequency	47...63 Hz
Output frequency	0...650 Hz
PWM frequency	4 kHz...16 kHz (2 kHz steps)
Protection functions	- Overvoltage and undervoltage - VSD overtemperature - Motor temperature with PTC via special input terminals - I^2t motor, thermal - Ground fault, short circuit - Stalling current and locked rotor
Digital inputs, number	6
Digital inputs	Potential-free input signal Programmable
Analog inputs, number	4
Analog inputs	Switchable, programmable scaling
Analog input, signal	DC -10...10 V DC 0...10 V DC 0...20 mA DC 2...10 V DC 4...20 mA Pt1000 LG-Ni1000
Analog outputs, number	2
Analog outputs	Programmable scaling Switchable
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Relay outputs, number	3
Relay outputs	Potential-free switchover contacts Programmable
Relay output, switching voltage	AC 250 V DC 30 V
Relay output, switching current	AC 2 A DC 5 A
Communication	Modbus/RTU RS485/USS BACnetMS/TP PROFIBUS (optional) CANopen (optional) P1 FLN
Product conformity	CE C-TIC

Variable speed drives
G120P..

Range overview G120P.. IP55 with integrated EMC-Filter, class B (C1); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	154 x 460 x 249	5.01	6SL3200-6AM11-3BH0	**G120P-0.37/35B**
0.55	1.7	154 x 460 x 249	5.01	6SL3200-6AM11-7BH0	**G120P-0.55/35B**
0.75	2.2	154 x 460 x 249	5.01	6SL3200-6AM12-2BH0	**G120P-0.75/35B**
1.1	3.1	154 x 460 x 249	5.01	6SL3200-6AM13-1BH0	**G120P-1.1/35B**
1.5	4.1	154 x 460 x 249	5.01	6SL3200-6AM14-1BH0	**G120P-1.5/35B**
2.2	5.9	154 x 460 x 249	5.01	6SL3200-6AM15-8BH0	**G120P-2.2/35B**
3	7.7	154 x 460 x 249	5.01	6SL3200-6AM17-7BH0	**G120P-3/35B**
4	10.2	180 x 540 x 249	7.01	6SL3200-6AM21-0BH0	**G120P-4/35B**
5.5	13.2	180 x 540 x 249	7.01	6SL3200-6AM21-3BH0	**G120P-5.5/35B**
7.5	18	180 x 540 x 249	7.01	6SL3200-6AM21-8BH0	**G120P-7.5/35B**
11	26	230 x 620 x 249	10.21	6SL3200-6AM22-6BH0	**G120P-11/35B**
15	32	230 x 620 x 249	10.21	6SL3200-6AM23-2BH0	**G120P-15/35B**
18.5	38	320 x 640 x 329	31.71	6SL3200-6AM23-8BH0	**G120P-18.5/35B**
22	45	320 x 640 x 329	31.71	6SL3200-6AM24-5BH0	**G120P-22/35B**
30	60	320 x 640 x 329	31.71	6SL3200-6AM26-0BH0	**G120P-30/35B**
37	75	320 x 751 x 329	37.71	6SL3200-6AM27-5BH0	**G120P-37/35B**
45	90	320 x 751 x 329	37.71	6SL3200-6AM28-8BH0	**G120P-45/35B**
55	110	410 x 915 x 416	70.71	6SL3200-6AM31-1BH0	**G120P-55/35B**
75	145	410 x 915 x 416	70.71	6SL3200-6AM31-4BH0	**G120P-75/35B**
90	178	410 x 915 x 416	70.71	6SL3200-6AM31-7BH0	**G120P-90/35B**

IP55: The depth increases when using a BOP-2/Blanking Cover by +5mm and with an IOP +15mm

Range overview G120P.. IP55 with integrated EMC-Filter, class A (C2); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	154 x 460 x 249	5.01	6SL3200-6AM11-3AH0	**G120P-0.37/35A**
0.55	1.7	154 x 460 x 249	5.01	6SL3200-6AM11-7AH0	**G120P-0.55/35A**
0.75	2.2	154 x 460 x 249	5.01	6SL3200-6AM12-2AH0	**G120P-0.75/35A**
1.1	3.1	154 x 460 x 249	5.01	6SL3200-6AM13-1AH0	**G120P-1.1/35A**
1.5	4.1	154 x 460 x 249	5.01	6SL3200-6AM14-1AH0	**G120P-1.5/35A**
2.2	5.9	154 x 460 x 249	5.01	6SL3200-6AM15-8AH0	**G120P-2.2/35A**
3	7.7	154 x 460 x 249	5.01	6SL3200-6AM17-7AH0	**G120P-3/35A**
4	10.2	180 x 540 x 249	7.01	6SL3200-6AM21-0AH0	**G120P-4/35A**
5.5	13.2	180 x 540 x 249	7.01	6SL3200-6AM21-3AH0	**G120P-5.5/35A**
7.5	18	180 x 540 x 249	7.01	6SL3200-6AM21-8AH0	**G120P-7.5/35A**
11	26	230 x 620 x 249	10.21	6SL3200-6AM22-6AH0	**G120P-11/35A**
15	32	230 x 620 x 249	10.21	6SL3200-6AM23-2AH0	**G120P-15/35A**
18.5	38	230 x 620 x 249	10.21	6SL3200-6AM23-8AH0	**G120P-18.5/35A**
22	45	320 x 640 x 329	31.71	6SL3200-6AM24-5AH0	**G120P-22/35A**
30	60	320 x 640 x 329	31.71	6SL3200-6AM26-0AH0	**G120P-30/35A**
37	75	320 x 751 x 329	37.71	6SL3200-6AM27-5AH0	**G120P-37/35A**
45	90	320 x 751 x 329	37.71	6SL3200-6AM28-8AH0	**G120P-45/35A**
55	110	410 x 915 x 416	70.71	6SL3200-6AM31-1AH0	**G120P-55/35A**
75	145	410 x 915 x 416	70.71	6SL3200-6AM31-4AH0	**G120P-75/35A**
90	178	410 x 915 x 416	70.71	6SL3200-6AM31-7AH0	**G120P-90/35A**

IP55: The depth increases when using a BOP-2/Blanking Cover by +5mm and with an IOP +15mm

Variable speed drives
G120P..

Range overview G120P.. IP20 with external EMC-Filter, class B (C1); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	73 x 202 x 288	4.06	6SL3200-6AE11-3BH0	**G120P-0.37/32B**
0.55	1.7	73 x 202 x 288	4.06	6SL3200-6AE11-7BH0	**G120P-0.55/32B**
0.75	2.2	73 x 202 x 288	4.06	6SL3200-6AE12-2BH0	**G120P-0.75/32B**
1.1	3.1	73 x 202 x 288	4.06	6SL3200-6AE13-1BH0	**G120P-1.1/32B**
1.5	4.1	73 x 202 x 288	4.06	6SL3200-6AE14-1BH0	**G120P-1.5/32B**
2.2	5.9	73 x 202 x 288	4.06	6SL3200-6AE15-8BH0	**G120P-2.2/32B**
3	7.7	73 x 202 x 288	4.06	6SL3200-6AE17-7BH0	**G120P-3/32B**
4	10.2	100 x 297 x 308	7.71	6SL3200-6AE21-0BH0	**G120P-4/32B**
5.5	13.2	100 x 297 x 308	7.71	6SL3200-6AE21-3BH0	**G120P-5.5/32B**
7.5	18	100 x 297 x 308	7.71	6SL3200-6AE21-8BH0	**G120P-7.5/32B**
11	26	140 x 359 x 318	13.11	6SL3200-6AE22-6BH0	**G120P-11/32B**
15	32	140 x 359 x 318	13.11	6SL3200-6AE23-2BH0	**G120P-15/32B**
18.5	38	140 x 359 x 318	13.11	6SL3200-6AE23-8BH0	**G120P-18.5/32B**
22	45	375 x 512 x 262	21.5	6SL3200-6AE24-5BH0	**G120P-22/32B**
30	60	375 x 512 x 262	21.5	6SL3200-6AE26-0BH0	**G120P-30/32B**
37	75	385 x 635 x 262	34.3	6SL3200-6AE27-5BH0	**G120P-37/32B**
45	90	385 x 635 x 262	34.3	6SL3200-6AE28-8BH0	**G120P-45/32B**
55	110	500 x 934 x 374	70.6	6SL3200-6AE31-1BH0	**G120P-55/32B**
75	145	500 x 934 x 374	70.6	6SL3200-6AE31-4BH0	**G120P-75/32B**

IP20: When using a screening kit for the Power Module the total height increases as follows: FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm
The depth increases when using a BOP-2 by +10mm and with an IOP +20mm

Range overview G120P.. IP20 with integrated EMC-Filter, class A (C2); 400V

Power output [kW]	Output current [A]	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.37	1.3	73 x 196 x 223	2.31	6SL3200-6AE11-3AH0	**G120P-0.37/32A**
0.55	1.7	73 x 196 x 223	2.31	6SL3200-6AE11-7AH0	**G120P-0.55/32A**
0.75	2.2	73 x 196 x 223	2.31	6SL3200-6AE12-2AH0	**G120P-0.75/32A**
1.1	3.1	73 x 196 x 223	2.31	6SL3200-6AE13-1AH0	**G120P-1.1/32A**
1.5	4.1	73 x 196 x 223	2.31	6SL3200-6AE14-1AH0	**G120P-1.5/32A**
2.2	5.9	73 x 196 x 223	2.31	6SL3200-6AE15-8AH0	**G120P-2.2/32A**
3	7.7	73 x 196 x 223	2.31	6SL3200-6AE17-7AH0	**G120P-3/32A**
4	10.2	100 x 292 x 223	3.71	6SL3200-6AE21-0AH0	**G120P-4/32A**
5.5	13.2	100 x 292 x 223	3.71	6SL3200-6AE21-3AH0	**G120P-5.5/32A**
7.5	18	100 x 292 x 223	3.71	6SL3200-6AE21-8AH0	**G120P-7.5/32A**
11	26	140 x 355 x 223	5.81	6SL3200-6AE22-6AH0	**G120P-11/32A**
15	32	140 x 355 x 223	5.81	6SL3200-6AE23-2AH0	**G120P-15/32A**
18.5	38	140 x 355 x 223	5.81	6SL3200-6AE23-8AH0	**G120P-18.5/32A**
22	45	275 x 512 x 262	14	6SL3200-6AE24-5AH0	**G120P-22/32A**
30	60	275 x 512 x 262	14	6SL3200-6AE26-0AH0	**G120P-30/32A**
37	75	275 x 635 x 262	22	6SL3200-6AE27-5AH0	**G120P-37/32A**
45	90	275 x 635 x 262	22	6SL3200-6AE28-8AH0	**G120P-45/32A**
55	110	350 x 934 x 374	48	6SL3200-6AE31-1AH0	**G120P-55/32A**
75	145	350 x 934 x 374	48	6SL3200-6AE31-4AH0	**G120P-75/32A**

IP20: When using a screening kit for the Power Module the total height increases as follows: FSA: + 80 mm; FSB: + 78 mm; FSC: + 77 mm; FSD, FSE, FSF: + 123 mm
The depth increases when using a BOP-2 by +10mm and with an IOP +20mm

Available operator panels

Product Title	Data sheet	Stock No.	Product No.
G120P basic operator panel BOP-2, IP55	N5116	6SL3255-6AA00-4CA0	**G120P-BOP-2**
G120P intelligent operator panel IOP-2, IP54	N5116	6SL3255-6AA00-4JA1	**G120P-IOP-2**
G120P blanking cover, IP55		6SL3256-6BA00-0AA0	**G120P-BCOVER**

NEW PRODUCT

Variable speed drives
Accessories and spare parts for G120P..

Accessories and spare parts for IP55

Product Title	Stock No.	Product No.
Installation kit for G120P (PM230) IP55, FSA. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LA00-0MA0	G120P-INS-KIT-FSA
Installation kit for G120P (PM230) IP55, FSB. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LB00-0MA0	G120P-INS-KIT-FSB
Installation kit for G120P (PM230) IP55, FSC. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LC00-0MA0	G120P-INS-KIT-FSC
Installation kit for G120P (PM230) IP55, FSD. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LD00-0MA0	G120P-INS-KIT-FSD
Installation kit for G120P (PM230) IP55, FSE. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LE00-0MA0	G120P-INS-KIT-FSE
Installation kit for G120P (PM230) IP55, FSF. Contains cable glands (EMC for motor), end sleeves and cable lugs	6SL3266-7LF00-0MA0	G120P-INS-KIT-FSF
Air guide sheet for installing G120P (PM230) IP55 FSA in systems without direct wall mounting	6SL3266-7SA00-0MA0	G120P-AIRSHEET-FSA
Air guide sheet for installing G120P (PM230) IP55 FSB in systems without direct wall mounting	6SL3266-7SB00-0MA0	G120P-AIRSHEET-FSB
Air guide sheet for installing G120P (PM230) IP55 FSC in systems without direct wall mounting	6SL3266-7SC00-0MA0	G120P-AIRSHEET-FSC
G120P PM Fan IP55, external, FSD-FSE	6SL3200-0SF24-0AA0	**G120P-FExtFSDE-IP55**
G120P PM Fan IP55, external, FSF	6SL3200-0SF26-0AA0	**G120P-FExtFSF-IP55**
G120P PM Fan IP55, internal, FSA-FSC	6SL3200-0SF31-0AA0	**G120P-FIntFSAC-IP55**
G120P PM Fan IP55, internal, FSD-FSF	6SL3200-0SF32-0AA0	**G120P-FIntFSDF-IP55**
G120P mounting parts set, PM230, IP55, FSA	6SL3200-0SK02-0AA0	**G120P-MSetFSA-IP55**
G120P mounting parts set, PM230, IP55, FSB	6SL3200-0SK03-0AA0	**G120P-MSetFSB-IP55**
G120P mounting parts set, PM230, IP55, FSC	6SL3200-0SK04-0AA0	**G120P-MSetFSC-IP55**
G120P mounting parts set, PM230, IP55, FSE	6SL3200-0SK06-0AA0	**G120P-MSetFSE-IP55**
G120P mounting parts set, PM230, IP55, FSF	6SL3200-0SK07-0AA0	**G120P-MSetFSF-IP55**
G120P mounting parts set, PM230, IP55, FSD	6SL3200-0SK05-0AA0	**G120P-MSetFSD-IP55**

Accessories and spare parts for IP20

Product Title	Stock No.	Product No.
G120P Screening-Kit, PM230 IP20 FSD-FSE	6SL3262-1AD00-0DA0	**G120P-Screen-FSDE**
G120P Screening-Kit, PM230 IP20 FSF	6SL3262-1AF00-0DA0	**G120P-Screen-FSF**
G120P PM Fan IP20, external, FSD-FSE	6SL3200-0SF05-0AA0	**G120P-FExtFSDE-IP20**
G120P PM Fan IP20, external, FSF	6SL3200-0SF08-0AA0	**G120P-FExtFSF-IP20**
G120P Screening-Kit, PM230 IP20 FSA	6SL3266-1EA00-0KA0	**G120P-Screen-FSA**
G120P Screening-Kit, PM230 IP20 FSB	6SL3266-1EB00-0KA0	**G120P-Screen-FSB**
G120P Screening-Kit, PM230 IP20 FSC	6SL3266-1EC00-0KA0	**G120P-Screen-FSC**

Accessories and spare parts for IP55 and IP20

Product Title	Stock No.	Product No.
G120P Door mounting kit for IOP or BOP-2	6SL3256-6AP00-0JA0	**G120P-DOOR-KIT**
Sinamics Micro Memory Card (MMC)	6SL3254-0AM00-0AA0	**G120P-MMC-Card**
G120P PC-Inverter Connection Kit-2	6SL3255-0AA00-2CA0	**G120P-PC-Kit**
STARTER Commissioning Tool for Sinamics and Micromaster Drives	6SL3072-0AA00-0AG0	**G120P-Starter**
G120P Control Unit, CanOpen	6SL3243-0BB30-1CA3	**CU230P-2 CAN**
G120P Control Unit, Profibus	6SL3243-0BB30-1PA3	**CU230P-2 DP**
G120P Control Unit, USS, Modb, BacNet	6SL3243-6BB30-1HA3	**CU230P-2 BT**
G120P CU230P-2 Screening Kit	6SL3264-1EA00-0FA0	**G120P-CUScreen**
G120P PM Fan IP20/IP55, external, FSA	6SL3200-0SF21-0AA0	**G120P-FExtFSA**
G120P PM Fan IP20/IP55, external, FSB	6SL3200-0SF22-0AA0	**G120P-FExtFSB**
G120P PM Fan IP20/IP55, external, FSC	6SL3200-0SF23-0AA0	**G120P-FExtFSC**

NEW PRODUCT

Metering



Overview and selection tools	Overview of product details	10-2
Electronic heat cost allocators	Electronic heat cost allocators WHE50..	10-5
	Electronic heat cost allocators WHE57..	10-6
	Electronic heat cost allocators WHE55..	10-7
	Electronic heat cost allocators WHE56..	10-8
	Accessories and mounting material for WHE5..	10-9
Mechanical water meters	Mechanical water meters single-jet: WFK.. / WFW..	10-11
Impeller type heating/cooling energy meters	Single-jet: WF..5.. / WFM2.. / WFN2..	10-12
	Accessories for single-jet	10-17
Ultrasonic heating/cooling meters	Ultrasonic heating/cooling meters WSM5../WSB5..	10-18
	Ultrasonic heating/cooling meters 2WR6..	10-20
	Ultrasonic heating/cooling meters UH50..	10-25
Systems for remote readout	Automatic Meter Reading System (AMR 868 MHz)	10-29
	walk-by radio system	10-32
	M-Bus metering system	10-34

Heat cost allocators WHE5..



	1 sensor	2 sensors	Communication	Summer switch off	Due date
WHE501-D29	■		none	■ [2]	30.09
WHE502-D10		■	none	■ [1]	31.12
WHE502-D29		■	none	■ [2]	30.09
WHE571-D29	■		IrDA	■ [2]	30.09
WHE572-D29		■	IrDA	■ [2]	30.09
WHE551-0000	■		Walk-by		31.12
WHE551-D291	■		Walk-by	■ [2]	30.09
WHE552-0000		■	Walk-by		31.12
WHE552-D100		■	Walk-by	■ [1]	31.12
WHE552-D291		■	Walk-by	■ [2]	30.09
WHE561-000	■		AMR		31.12
WHE561-D29	■		AMR	■ [2]	30.09
WHE562-000		■	AMR		31.12
WHE562-D10		■	AMR	■ [1]	31.12
WHE562-D29		■	AMR	■ [2]	30.09

[1] Beginning of summer: 01.06 - End of summer: 31.08

[2] Beginning of summer: 01.06 - End of summer: 30.09

Hot and cold water meters



	Type of meter	Q3	Mounting length	Communication	Connection
WFK30.D080	Cold water up to 30° C	2.5 m³/h	80 mm	walk-by oder AMR [1]	G 3/4"
WFK30.D110	Cold water up to 30° C	2.5 m³/h	110 mm	walk-by oder AMR [1]	G 3/4"
WFW30.D080	Hot water up to 90° C	2.5 m³/h	80 mm	walk-by oder AMR [1]	G 3/4"
WFW30.D110	Hot water up to 90° C	2.5 m³/h	110 mm	walk-by oder AMR [1]	G 3/4"

[1] With add-on radio module: AMR (WFZ16.MO), walk-by (WFZ166.MO)

Heat and cooling energy meters



	Type of meter	Nominal flow rate	Communica-tion	Power supply	Type	Connec-tion	Mounting length
WFM501-E000H0	Heat	0.6 m³/h	walk-by or AMR [2]	Battery	Impeller meter	G 3/4"	110 mm
WFM21.B111	Heat	0.6 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
WFM26.B111	Heat	0.6 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
WFN21.B111	Combi	0.6 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
WFN26.B111	Combi	0.6 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
WFM502-E000H0	Heat	1.5 m³/h	walk-by or AMR [2]	Battery	Impeller meter	G 3/4"	110 mm
WFM21.D111	Heat	1.5 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
WFM26.D111	Heat	1.5 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
WFN21.D111	Combi	1.5 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
WFN26.D111	Combi	1.5 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
WFM503-J000H0	Heat	2.5 m³/h	walk-by or AMR [2]	Battery	Impeller meter	G 1"	130 mm
WFM21.E131	Heat	2.5 m³/h	M-Bus	Battery	Impeller meter	G 1"	130 mm
WFM26.E131	Heat	2.5 m³/h	AMR	Battery	Impeller meter	G 1"	130 mm
WFN21.E131	Combi	2.5 m³/h	M-Bus	Battery	Impeller meter	G 1"	130 mm
WFN26.E131	Combi	2.5 m³/h	AMR	Battery	Impeller meter	G 1"	130 mm

[2] With add-on radio module: AMR (WFZ56.OK), walk-by (WFZ566.OK)

Ultrasonic heat meters

		Type of meter	Nominal flow rate	Communication	Power supply	Type	Conn-ection	Mounting length
	WSM506-0A	Heat	0.6 m³/h	none	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM506-0E	Heat	0.6 m³/h	none	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	WSM515-0A	Heat	1.5 m³/h	none	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM515-0E	Heat	1.5 m³/h	none	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	WSM525-0A	Heat	2.5 m³/h	none	Battery [1]	Ultrasonic meter	G 1"	130 mm
	WSM525-0E	Heat	2.5 m³/h	none	Battery [2]	Ultrasonic meter	G 1"	130 mm
	2WR605-MBE	Heat	0.6 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MBG	Heat	0.6 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MHE	Heat	0.6 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	2WR605-MHG	Heat	0.6 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MBE	Heat	1.5 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MBG	Heat	1.5 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MHE	Heat	1.5 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 3/4"	110 mm
	2WR621-MHG	Heat	1.5 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 3/4"	110 mm
	2WR636-MBE	Heat	2.5 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 1"	130 mm
	2WR636-MBG	Heat	2.5 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 1"	130 mm
	2WR636-MHE	Heat	2.5 m³/h	M-Bus	Battery [2]	Ultrasonic meter	G 1"	130 mm
	2WR636-MHG	Heat	2.5 m³/h	M-Bus	AC/DC 24 V	Ultrasonic meter	G 1"	130 mm
	UH50-A05-00	Heat	0.6 m³/h	none [3]	none [3]	Ultrasonic meter	G 3/4"	110 mm
	UH50-C05-00	Combi	0.6 m³/h	none [3]	none [3]	Ultrasonic meter	G 3/4"	110 mm
	UH50-A21-00	Heat	1.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 3/4"	110 mm
	UH50-C21-00	Combi	1.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 3/4"	110 mm
	UH50-A36-00	Heat	2.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 1"	130 mm
	UH50-C36-00	Combi	2.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 1"	130 mm
	UH50-A45-00	Heat	3.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C45-00	Combi	3.5 m³/h	none [3]	none [3]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A50-00	Heat	6.0 m³/h	none [3]	none [3]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C50-00	Combi	6.0 m³/h	none [3]	none [3]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A61-00	Heat	10 m³/h	none [3]	none [3]	Ultrasonic meter	DN 40	300 mm
	UH50-C61-00	Combi	10 m³/h	none [3]	none [3]	Ultrasonic meter	DN 40	300 mm
	UH50-A65-00	Heat	15 m³/h	none [3]	none [3]	Ultrasonic meter	DN 50	270 mm
	UH50-C65-00	Combi	15 m³/h	none [3]	none [3]	Ultrasonic meter	DN 50	270 mm
	UH50-A70-00	Heat	25 m³/h	none [3]	none [3]	Ultrasonic meter	DN 65	300 mm
	UH50-C70-00	Combi	25 m³/h	none [3]	none [3]	Ultrasonic meter	DN 65	300 mm
	UH50-A74-00	Heat	40 m³/h	none [3]	none [3]	Ultrasonic meter	DN 80	300 mm
	UH50-C74-00	Combi	40 m³/h	none [3]	none [3]	Ultrasonic meter	DN 80	300 mm
	UH50-A83-00	Heat	60 m³/h	none [3]	none [3]	Ultrasonic meter	DN 100	360 mm
	UH50-C83-00	Combi	60 m³/h	none [3]	none [3]	Ultrasonic meter	DN 100	360 mm

[1] Battery life: 6 years

[2] Battery life: 11 years

[3] Various communication and power supply modules available

Electronic heat cost allocators

WHE50..

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.
WHE50.. heat cost allocators without communication interface must be visually read on site and the readings must be manually written down. They are especially suited for basic plants that require no complex data evaluations or no very fast readout.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).



Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE50.. without communication interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F100	**WHE501-D29**
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	S55562-F101	**WHE502-D10**
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F102	**WHE502-D29**

Electronic heat cost allocators
Electronic heat cost allocators WHE57..

WHE57..



Electronic heat cost allocators with infrared interface

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.
WHE57.. heat cost allocators with optical close-range interface must be read on site. The readings can be made semi-automatically by means of the IrDA reading head.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).

Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE57.. with infrared interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with infrared interface, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F113	**WHE571-D29**
Electronic heat cost allocator with infrared interface, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F114	**WHE572-D29**

Electronic heat cost allocators with walk-by radio interface

WHE55..

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.
The heat cost allocators featuring a walk-by radio interface are read locally via RF (radio frequency 868 MHz). The allocators send the consumption data at a predetermined point in time. Using the mobile data logger, the person making the readout collects the radio telegrams.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).



Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE55.. with walk-by radio interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with walk-by radio interface, Single-sensor, due date 12/31, type of readout annual	S55562-F103	**WHE551-0000**
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	S55562-F104	**WHE551-D291**
Electronic heat cost allocator with walk-by radio interface, Double sensor, due date 12/31, type of readout annual	S55562-F105	**WHE552-0000**
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31, type of readout annual	S55562-F106	**WHE552-D100**
Electronic heat cost allocator with walk-by radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, type of readout monthly	S55562-F107	**WHE552-D291**

Electronic heat cost allocators
Electronic heat cost allocators WHE56..

WHE56..



Electronic heat cost allocators with AMR radio interface

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.
The WHE56.. heat cost allocators are read out via RF (radio frequency 868 MHz).
The devices send the current consumption data in cycles to the network nodes. These nodes automatically collect and store the data from all integrated heat cost allocators. Customers can read all consumption data of plants from a remote location.

- Programming is performed with the ACT50 software.
- Simply extendable with remote sensor.
- All types are supplied without mounting plate (heat conductor).

Data sheet	N2886
Voltage supply	Lithium battery
Battery life	>10 Years
Operating voltage	DC 3 V
Display	LCD
Dimensions (W x H x D)	40 x 102 x 31 mm

Heat cost allocators WHE56.. with AMR radio interface

Product Title	Stock No.	Product No.
Electronic heat cost allocator with AMR radio interface, Single-sensor, due date 12/31	S55562-F108	**WHE561-000**
Electronic heat cost allocator with AMR radio interface, watchdog timer, Single-sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F109	**WHE561-D29**
Electronic heat cost allocator with AMR radio interface, Double sensor, due date 12/31	S55562-F110	**WHE562-000**
Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	S55562-F111	**WHE562-D10**
Electronic heat cost allocator with AMR radio interface, watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30	S55562-F112	**WHE562-D29**

Accessories for WHE5.. – parts for fixing

Product Title	Packaging unit	Stock No.	Product No.
Mounting plate (P3)	50 pieces	S55563-F115	**FKA0017**
Threaded hoop (pipe 18...30 mm)	10 pieces	JXF:FKT0014	**FKT0014**
Threaded hoop (pipe up to 17 mm)	10 pieces	JXF:FKT0004	**FKT0004**
Shank nut M3 x 3 mm	100 pieces	JXF:FNM0002	**FNM0002**
Shank nut M3 x 6 mm	100 pieces	JXF:FNM0003	**FNM0003**
Shank nut M3 x 9.5 mm	100 pieces	JXF:FNM0001	**FNM0001**
Clamping sleeve special radiator	10 pieces	JXF:FKM0002	**FKM0002**
Clamping bracket (pipes TE 36 mm)	10 pieces	JXF:FKT0015	**FKT0015**
Clamping bracket (pipes TE 46 mm)	10 pieces	JXF:FKT0016	**FKT0016**
Clamping bracket shortened	10 pieces	JXF:FKT0009	**FKT0009**
Clamping bracket trapezoidal 35 mm	10 pieces	JXF:FKT0018	**FKT0018**
Clamping bracket trapezoidal 50 mm	10 pieces	JXF:FKT0019	**FKT0019**
Clamping bracket trapezoidal 65 mm	10 pieces	JXF:FKT0020	**FKT0020**
Expanding bracket of lamella-type radiator	10 pieces	JXF:FKA0004	**FKA0004**
Square bolt 4.5 mm with cross pin	10 pieces	JXF:BOZ4002	**BOZ4002**
Square bolt 6 mm with cross pin	10 pieces	JXF:BOZ4003	**BOZ4003**
Square bolt 12 mm with cross pin	10 pieces	JXF:BOZ4004	**BOZ4004**

Accessories for WHE5.. – parts for mounting

Product Title	Packaging unit	Stock No.	Product No.
Spacer sleeve	10 pieces	JXF:FKT0010	**FKT0010**
Spacer	10 pieces	JXF:FKA0013	**FKA0013**
Threaded bushing	10 pieces	JXF:FKA0012	**FKA0012**
Clamping piece (threaded hoop 17 mm)	10 pieces	JXF:FKA0003	**FKA0003**
Clamping piece (threaded hoop 18...30 mm)	10 pieces	JXF:FKA0008	**FKA0008**
Installation plate for remote sensor	10 pieces	JXF:FKA0009	**FKA0009**
Mounting plate wide	25 pieces	JXF:FKA0022	**FKA0022**
Sensor housing	50 pieces	JXF:FKK0029	**FKK0029**
Safety cap for sensor housing	50 pieces	JXF:FKK0045	**FKK0045**
Wall bracket (P3)	10 pieces	JXF:FKK0044	**FKK0044**
Contact screw	10 pieces	JXF:FKA0010	**FKA0010**
Contact screw long	10 pieces	JXF:FKA0011	**FKA0011**

Electronic heat cost allocators
Accessories and mounting material for WHE5..

Accessories for WHE5.. – standard parts

Product Title	Packaging unit	Stock No.	Product No.
Self-tapping screw B 2.9 x 13 mm	500 pieces	JXF:FNR0008	**FNR0008**
Screw B 3.9 x 45 mm	500 pieces	JXF:FNR0007	**FNR0007**
Cross-slot screw M4 x 30 mm	500 pieces	JXF:FNR0003	**FNR0003**
Cross-slot screw M4 x 40 mm	500 pieces	JXF:FNR0004	**FNR0004**
Cross-slot screw M4 x 50 mm	500 pieces	JXF:FNR0005	**FNR0005**
Cross-slot screw M4 x 70 mm	500 pieces	JXF:FNR0006	**FNR0006**
Welding stud M3 x 8 mm	1000 pieces	JXF:FKT0013	**FKT0013**
Welding stud M3 x 12 mm	1000 pieces	JXF:FKT0011	**FKT0011**
Welding stud M3 x 15 mm	1000 pieces	JXF:FKT0012	**FKT0012**
Hexagon nut M4	1000 pieces	JXF:FNM0004	**FNM0004**
Self-locking nut with serrated bearing M3	1000 pieces	JXF:FNM0005	**FNM0005**

Miscellaneous accessories for WHE5..

Product Title	Packaging unit	Stock No.	Product No.
Dowel 6 mm	100 pieces	JXF:FNU0001	**FNU0001**
Remote sensor 1.5 m	10 pieces	JXF:BBV4003	**BBV4003**
Remote sensor 2.5 m	10 pieces	JXF:BBV4004	**BBV4004**
Remote sensor 5 m	10 pieces	JXF:BBV4005	**BBV4005**
Lead seal blue	100 pieces	JXF:FKK0041	**FKK0041**
Cable duct white	10 m	JXF:FOZ0001	**FOZ0001**
Snap-on panel	50 pieces	JXF:FKK0034	**FKK0034**
Installation template	1 piece	JXF:HCAIP001001	**HCAIP001001**
Installation aid (convector)	1 piece	JXF:FKT0017	**FKT0017**
ERGO universal instant glue 3g	1 piece	JXF:FSS0007	**FSS0007**

Programming accessories for WHE5..

Product Title	Packaging unit	Stock No.	Product No.
Parameterization and diagnostic software for heat cost allocators		JXF:ACT50-HCA	**ACT50-HCA**
Infrared read head (with USB interface)	1 piece	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Programming adapter	1 piece	JXF:HCAPH001001	**HCAPH001001**
Mobile data logger set	1 piece	JXF:WTZ.WBSET-2/PC	**WTZ.WBSET-2/PC**

Mechanical water meter single-jet, wall mounted (module compatible)

WFK30.. / WFW30..



Mechanical single-jet impeller meter for measuring the consumption of cold (WFK30..) or hot water (WFW30..). Display of cumulated consumption. Versions without remote reading output. Body made of brass, dry-runner with magnetic transmission and pivotable totalizer. All water meters WFK30.. and WFW30.. can be retrofitted with electronic communication modules for AMR (WFZ16.MO) and walk-by (WFZ166.MO) readout. These meters are MID conform.

- Metrological class, horizontal mounting of body = R80 (class B).
- Metrological class, vertical mounting of body = R40 (class A).
- Flow rate Q3 according 2004/22/EC MID

Mechanical water meter to acquire the water consumption in domestic water systems in residential or non-residential buildings and in water supply systems.

Data sheet	N5326
PN class	PN 16
Pressure drop	250 mbar

Range overview single-jet water meters without remote reading output

Flow rate Q3 [m³/h]	Mounting length [mm]	Connecting thread ["]	Max. water temperature [°C]	Stock No.	Product No.
2.5	80	G ¾	30	S55560-F100	**WFK30.D080**
2.5	110	G ¾	30	S55560-F101	**WFK30.D110**
2.5	80	G ¾	90	S55560-F102	**WFW30.D080**
2.5	110	G ¾	90	S55560-F103	**WFW30.D110**

Mounting material domestic water meters single-jet

Product Title	Stock No.	Product No.
Mounting kit for washstand water meter	JXF:WFZ.W	**WFZ.W**
Mounting kit for tap water meter	JXF:WFZ.Z	**WFZ.Z**
Adapter from 80 mm G ¾B" to 110 mm G 1B", incl. gaskets	JXF:WZM-V110	**WZM-V110**
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	**WZM-V130**

Spacer and fittings

Product Title	Stock No.	Product No.
Spacer ¾", length 80 mm	JXF:WFZ.R80	**WFZ.R80**
Spacer ¾", length 110mm	JXF:WFZ.R110	**WFZ.R110**
Mounting set, pair of fittings G ¾" x R ½" with gaskets	JXF:WFZ.R2	**WFZ.R2**

Programming tools and software for mechanical water meters with radio adapter WFZ16..

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	**ACT20**
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Triggering tool for radio telegrams	BPZ:WFZ.PS	**WFZ.PS**
Special adapter RS232 to USB	JXF:WFZ.USB-1	**WFZ.USB-1**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	WFZ.MBM-USB

NEW PRODUCT

Impeller type heating/cooling energy meters
Single-jet: WF..5.. / WFM2.. / WFN2..

WF..5..



Impeller type heat meter, wall-mounted

The electronic, mains-independent impeller type heat meter WFM5.. is of compact design and used as a metering device for the physically correct acquisition of energy consumption. It is available as a wall-mounting version in different sizes for heat, combined heat/cooling or solar energy metering. The meter consists of a volume metering section, 2 ready connected temperature sensors and a ready fitted processor which - based on flow rate and temperature differential - calculates the energy consumption. The consumption values acquired by the meter can be read out on site, or modules can be retrofitted for remote readout via AMR (WFZ56.OK) or walk-by (WFZ566.OK). The meters are used primarily in plants with central production of heat or cooling energy, where the energy is delivered via zones to several individual consumers.

The meters are supplied with Operating and Installation Instructions in the following languages: Bulgarian, Croatian, Czech, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Slovakian, Slovenian, Spanish and Turkish.

Data sheet	N5323
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 16
Measuring range, temperature	10..90 °C
Sensing element, temperature	Pt1000
Sensor	DS Ø5.0x45 mm
Cable length, sensor	1.5 m
Communication	IrDA + module interface
Due Date	12.31
Display	kWh
Voltage supply	Lithium battery
Battery life	10 years
Mounting location	Meter: return Sensor in the flow: directly immersed or in approved protection pockets Sensor in the return: integrated in the return, directly immersed

Range overview electronic, mains-independent impeller type heat meter WFM5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Stock No.	Product No.
0.6	110	G ¾	S55561-F177	WFM501-E000H0
1.5	110	G ¾	S55561-F178	WFM502-E000H0
2.5	130	G 1	S55561-F179	WFM503-J000H0

Electronic heat meter, wall mounted

WFM2..



The heat meters are electronic dry-runners. They acquire the flow acquisition without generating a magnetic field and use highly accurate temperature sensors. They are used in residential and commercial buildings for acquiring heat or cooling energy consumption. Day by day they transmit the current measured values and consumption on the set day to the associated data collectors.The heat meters are available as single-jet or measuring cell models in different sizes, enabling them to be installed on all types of standard plant. The tenant can see his individual consumption on a large, easy-to-read display. The built-in lithium battery powers the device for a period of time exceeding the calibration period.Data transmission via M-bus, pulse, or the AMR remote meter readout system.The heat meter has 3 display levels which show the following values and variables:

- Cumulated heat consumption since the heat meter was first installed
- Cumulated heat consumption since the last set day
- Segment test
- Current heat output- Current flow rate
- Current flow temperature
- Current return temperature
- Current temperature differential
- Heat meter's number of operating hours since it was first installed
- Set day and set month
- Stored heat consumption of previous year
- Stored heat consumption of the last 13 months
- Verification code
- Indication of errors
- Cumulated volume since the heat meter was first installed

The units displayed are ?C or K, kWh (or GJ on request), m³/h, kW and hours.Standard display is the cumulated heat consumption.

Data sheet	N5333
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 10
Measuring range, temperature	1...90 °C
Min. temperature differential	3 K
Sensing element, temperature	Pt500
Battery life	> 8 years

Electronic heat meters, wall mounting, M-Bus, 5.0 mm sensor

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immersion	yes	S55561-F165	**WFM21.B111**
1.5	110	G ¾	1.5	Direct immersion	yes	S55561-F166	**WFM21.D111**
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F167	**WFM21.E131**

Electronic heat meters, wall mounting, for AMR 868 MHz; 5.0 mm sensor

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immer-sion	yes	S55561-F168	**WFM26.B111**
1.5	110	G ¾	1.5	Direct immer-sion	yes	S55561-F169	**WFM26.D111**
2.5	130	G 1	1.5	Direct immer-sion	yes	S55561-F170	**WFM26.E131**

Electronic heat and cooling energy meter, wall mounted

WFN2..



The heat / cooling energy meters are electronic dry-runners. They acquire the flow without generating a magnetic field and use highly accurate temperature sensors. They are used in residential and commercial buildings for acquiring heat or cooling energy consumption. Day by day they transmit the current measured values and consumption on the set day to the associated data collectors. The heat / cooling energy meters are available as single-jet or measuring cell models in different sizes, enabling them to be installed on all types of standard plant (calculator removable, cable length 1,5 m). The tenant can see his individual consumption on a large, easy-to-read display. The built-in lithium battery powers the device for a period of time exceeding the calibration period. Data transmission via M-bus, pulse, or the AMR remote meter readout system.

The heat meter has 3 display levels which show the following values and variables:

- Cumulated heat consumption since the meter was first installed
- Cumulated heat consumption since the last set day
- Segment test
- Current heat output
- Current flow rate
- Current flow temperature
- Current return temperature
- Current temperature differential
- Heat meter's number of operating hours since it was first installed
- Set day and set month
- Stored heat consumption of previous year
- Stored heat consumption of the last 13 months
- Verification code
- Indication of errors
- Cumulated cooling energy comsumption since the meter was first installed

The units displayed are °C or K, kWh (or GJ on request), m³/h, kW, and hours.
The standard display shows the cumulated heat consumption.

Data sheet	N5338
Measurement accuracy	MID class 3
Standard	EN 1434
PN class	PN 10
Measuring range, temperature	1...90 °C
Min. temperature differential	Cooling: 0.6 K Heat: 3 K
Sensing element, temperature	Pt500
Battery life	> 8 years

Range overview single-jet heat and cooling energy meters with M-Bus communication

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immersion	yes	S55561-F171	**WFN21.B111**
1.5	110	G ¾	1.5	Direct immersion	yes	S55561-F172	**WFN21.D111**
2.5	130	G 1	1.5	Direct immersion	yes	S55561-F173	**WFN21.E131**

Impeller type heating/cooling energy meters
Single-jet: WF..5.. / WFM2.. / WFN2..

Range overview single-jet heat and cooling energy meters AMR 868 MHz

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Cable length, sensor [m]	Sensor	Return sensor integrated	Stock No.	Product No.
0.6	110	G ¾	1.5	Direct immer-sion	yes	S55561-F174	**WFN26.B111**
1.5	110	G ¾	1.5	Direct immer-sion	yes	S55561-F175	**WFN26.D111**
2.5	130	G 1	1.5	Direct immer-sion	yes	S55561-F176	**WFN26.E131**

Programming tools and software for heat meters based on PC

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	**ACT20**
Parameterization and diagnostics software for heating energy meters	JXF:ACT50-HEAT	ACT50-HEAT
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Triggering tool for radio telegrams	BPZ:WFZ.PS	**WFZ.PS**
Special adapter RS232 to USB	JXF:WFZ.USB-1	**WFZ.USB-1**
M-bus connection kit	JXF:WFZ.MBUSSET	**WFZ.MBUSSET**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	WFZ.MBM-USB

NEW PRODUCT

WSM5../WSB5..



Ultrasonic heat and cooling energy meters

The WSM5.. heat meter and the WSB5.. cooling energy meter acquire the volume flow statically based on the ultrasonic measuring principle. They are available as wall-mounting versions in different sizes. The meters excel in great measuring accuracy, a high-tech volume measuring section made of plastic, and wear resistance.
The consumption values acquired by the meter must be read on site. The processor unit can be removed (cable length 1.5 m). The temperature sensor is ready connected to the processor unit. The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages: Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5372
Sensing element, temperature	Pt500
Sensor	PL Ø5.2x45 mm
Cable length, sensor	1.5 m
Measurement accuracy	MID class 2
Standard	EN 1434
Communication	None
PN class	PN 16
Due Date	01.01
Display	kWh
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview Ultrasonic heating meters WSM5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Battery life	Stock No.	Product No.
0.6	110	G ¾ "	6 Years	S55561-F132	**WSM506-0A**
0.6	110	G ¾ "	11 Years	S55561-F133	**WSM506-0E**
1.5	110	G ¾ "	6 Years	S55561-F134	**WSM515-0A**
1.5	110	G ¾ "	11 Years	S55561-F135	**WSM515-0E**
2.5	130	G 1 "	6 Years	S55561-F136	**WSM525-0A**
2.5	130	G 1 "	11 Years	S55561-F137	**WSM525-0E**

Mounting set for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Mounting kit, 2 coupling nuts G ¾", 2 inserts R ½", 2 EPDM packings	LYU:T23-E34	**T23-E34**
Mounting kit, 2 coupling nuts G 1", 2 inserts R ¾", 2 EPDM packings	LYU:T23-E1	**T23-E1**

Accessories see Datasheet: N5372

Ball valves for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Ball valve R ½" with union nut G ¾"	LYU:WZT-K12-34	**WZT-K12-34**
Ball valve R ¾" with union nut G ¾"	LYU:WZT-K34-34	**WZT-K34-34**
Ball valve R ¾" with union nut G 1"	LYU:WZT-K34-1	**WZT-K34-1**
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	**WZT-K1-1**

Accessories see Datasheet: N5372

Adapter and accessories for Ultrasonic heating/cooling meters WSM5..

Product Title	Stock No.	Product No.
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	S55563-F116	**WZT-A12**
Adapter G 3/8 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/8"	LYU:WZT-A38	**WZT-A38**
Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"	LYU:WZT-A34	**WZT-A34**
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	**9956230**
Wall adapter, incl. 2 screws and 2 dowels	LYU:T23-WA10	**T23-WA10**
Welding sleeve with threaded hole for temperature sensor DS M10×1 mm	S55563-F121	**WZT-G10**
Protection pocket G ½B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	**WZT-M35**
Spacer G ¾", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	**WZM-G110**
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	**WZM-G130**
EPDM gaskets for mounting the flow measuring section ¾"	LYU:T23-34EPDM10	**T23-34EPDM10**
EPDM gaskets for mounting the flow measuring section 1"	LYU:T23-1EPDM10	**T23-1EPDM10**
Sealing disk G ¾", for threaded connection R ½"	LYU:9060944002	**9060944002**
Sealing disk G 1", for threaded connection R ¾"	LYU:9060944003	**9060944003**

Accessories see Datasheet: N5372

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	**WZR-OP-USB**
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	**WZX-UA-SED**
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	**WZX-UA-SFD**
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	**WZX-UA-SEP**
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	**WZX-UA-SFP**
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	**WZX-UA-SEU**
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	**WZX-UA-SFU**

Accessories see Datasheet: N5372

Ultrasonic heating/cooling meters 2WR6..

2WR6..



Ultrasonic heat and cooling energy meters

The 2WR6.. heat and cooling energy meter acquires the volume flow statically based on the ultrasonic measuring principle. It is available as a wall-mounting version in different sizes. The 2WR6... excels in great measuring accuracy, wear resistance, and long-term stability.
The 2WR6.. transmits the current consumption value, the monthly values, the set day value, and error messages to the respective data collector. The processor unit can be removed (cable length 1 m). The temperature sensor is ready connected to the processor unit. The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages: Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5378
Sensing element, temperature	Pt500
Measurement accuracy	MID class 2
Standard	EN 1434
Communication	M-bus
PN class	PN 16
Due Date	01.01
Display	kWh
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview Ultrasonic heating meters with power packs 2WR6..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Operating voltage [V]	Sensor [V]	Stock No.	Product No.
0.6	110	G ¾ "	AC 24 DC 24	DS M10 x 1 mm	S55561-F101	**2WR605-MBG**
0.6	110	G ¾ "	AC 24 DC 24	Ø5.2x45 mm	S55561-F103	**2WR605-MHG**
1.5	110	G ¾ "	AC 24 DC 24	DS M10 x 1 mm	S55561-F105	**2WR621-MBG**
1.5	110	G ¾ "	AC 24 DC 24	Ø5.2x45 mm	S55561-F107	**2WR621-MHG**
2.5	130	G 1 "	AC 24 DC 24	DS M10 x 1 mm	S55561-F109	**2WR636-MBG**
2.5	130	G 1 "	AC 24 DC 24	Ø5.2x45 mm	S55561-F111	**2WR636-MHG**

Range overview Ultrasonic heating meters with battery 2WR6..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Voltage supply	Sensor	Stock No.	Product No.
0.6	110	G ¾ "	Lithium battery	DS M10 x 1 mm	S55561-F100	**2WR605-MBE**
0.6	110	G ¾ "	Lithium battery	Ø5.2x45 mm	S55561-F102	**2WR605-MHE**
1.5	110	G ¾ "	Lithium battery	DS M10 x 1 mm	S55561-F104	**2WR621-MBE**
1.5	110	G ¾ "	Lithium battery	Ø5.2x45 mm	S55561-F106	**2WR621-MHE**
2.5	130	G 1 "	Lithium battery	DS M10 x 1 mm	S55561-F108	**2WR636-MBE**
2.5	130	G 1 "	Lithium battery	Ø5.2x45 mm	S55561-F110	**2WR636-MHE**

Battery life cycle 11 years

Fittings for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T34110	**99T34110**
Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T01130	**99T01130**
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	S55563-F124	**WZM-E34**
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	S55563-F123	**WZM-E1**
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	**WZM-V130**
Adapter from 110 mm G ¾B" to 130 mm G 1B", incl. 4 gaskets	LYU:WZM-V130.G1	**WZM-V130.G1**
Adapter from 110 mm G ¾B" to 165 mm G ¾B", incl. 4 gaskets	LYU:WZM-V165	**WZM-V165**
Adapter from 110 mm G ¾B" to 190 mm G 1B", incl. gaskets	LYU:WZM-V190	**WZM-V190**

Accessories see Datasheet: N5378

Ball valves for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Ball valve R ½" with union nut G ¾"	LYU:WZT-K12-34	**WZT-K12-34**
Ball valve R ¾" with union nut G ¾"	LYU:WZT-K34-34	**WZT-K34-34**
Ball valve R ¾" with union nut G 1"	LYU:WZT-K34-1	**WZT-K34-1**
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	**WZT-K1-1**
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	S55563-F104	**WZT-K12**
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	S55563-F120	**WZT-K34**
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	S55563-F119	**WZT-K1**
Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm	S55563-F105	**9930128002**

Accessories see Datasheet: N5378

Accessories for Ultrasonic heating/cooling meters 2WR6..

Product Title	Stock No.	Product No.
Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"	S55563-F122	**WZT-G12**
Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"	LYU:WZT-GLG	**WZT-GLG**
Welding sleeve with threaded hole for temperature sensor DS M10×1 mm	S55563-F121	**WZT-G10**
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	S55563-F116	**WZT-A12**
Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"	LYU:WZT-A34	**WZT-A34**
Protection pocket G ½B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	**WZT-M35**
Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	**WZT-M50**
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	**9956230**
Mounting kit for sensor Ø 5.2x45 mm	LYU:9930127002	**9930127002**
Spacer G ¾", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	**WZM-G110**
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	**WZM-G130**
Spacer G 1", length 190 mm, incl. 2 flat gaskets	LYU:WZM-G190	**WZM-G190**
Sealing disk G ¾", for threaded connection R ½"	LYU:9060944002	**9060944002**
Sealing disk G 1", for threaded connection R ¾"	LYU:9060944003	**9060944003**
Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm	LYU:9060944001	**9060944001**
Sealing disc ½" made of copper	LYU:9060948	**9060948**

Accessories see Datasheet: N5378

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	**WZR-OP-USB**
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	**WZX-UA-SED**
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	**WZX-UA-SFD**
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	**WZX-UA-SEP**
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	**WZX-UA-SFP**
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	**WZX-UA-SEU**
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	**WZX-UA-SFU**

Accessories see Datasheet: N5324

Ultrasonic heat and heating/cooling energy meters

UH50..

The UH50-A.. heat meter and the UH50-C.. heat/combi meter acquire the volume flow statically based on the ultrasonic measuring principle. They are available as wall-mounting versions in different sizes. The meters excel in great measuring accuracy, wear resistance, and long-term stability. The UH50.. transmits the current consumption value, the monthly values, the set day value, and error messages to the respective data collector.
The processor unit can be equipped with different sensors, different power supplies, and 2 communication modules.



The display informs the user about the amount of energy consumed.

The ultrasonic meters are used in residential or commercial buildings to acquire the amount of heat or heat/cooling energy consumed.

The meters are supplied with Operating and Mounting Instructions in the following languages:
Bulgarian, Chinese, Croatian, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Slovakian, Slovenian, Spanish, and Turkish

Data sheet	N5324
Sensing element, temperature	Pt500
Communication	Without, see accessories
Measurement accuracy	Heat: MID class 2 Cold: EN 1434
Mounting location	Meter: Return
Standard	EN 1434
Due Date	01.01
Additional info	The standard meter is supplied without power supply and without communication (see accessories).

Ultrasonic heating/cooling meters 0.6...2.5 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.
Connection of sensor: The sensor can be replaced; the return sensor is integrated in the volume measuring section (internally, directly immersed).

Sensors: DS M10x1 mm, length = 27.5 mm

Cable length: 1.5 m

Display: kWh

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	PN class	Type of Meter	Stock No.	Product No.
0.6	110	G ¾ "	PN 16	Heat	S55561-F112	**UH50-A05-00**
0.6	110	G ¾ "	PN 16	Heat Cooling	S55561-F122	**UH50-C05-00**
1.5	110	G ¾ "	PN 16	Heat	S55561-F113	**UH50-A21-00**
1.5	110	G ¾ "	PN 16	Heat Cooling	S55561-F123	**UH50-C21-00**
2.5	130	G 1 "	PN 16	Heat	S55561-F114	**UH50-A36-00**
2.5	130	G 1 "	PN 16	Heat Cooling	S55561-F124	**UH50-C36-00**

Ultrasonic heating/cooling meters 3.5...6 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.
Connection of sensor: The sensor can be replaced; the return sensor is integrated in the volume measuring section (internally, directly immersed).

Sensors: DS M10x1 mm, length = 38 mm

Cable length: 1.5 m

Display: kWh

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	PN class	Type of Meter	Stock No.	Product No.
3.5	260	G 1¼ "	PN 16	Heat	S55561-F115	**UH50-A45-00**
3.5	260	G 1¼ "	PN 16	Heat Cooling	S55561-F125	**UH50-C45-00**
6	260	G 1¼ "	PN 16	Heat	S55561-F116	**UH50-A50-00**
6	260	G 1¼ "	PN 16	Heat Cooling	S55561-F126	**UH50-C50-00**

Ultrasonic heating/cooling meters 10 m³/h

Design of processor unit: Split unit with ready wired control line of 1.5 m.
Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: Ø6 mm, length = 100 mm

Cable length: 5 m

Display: kWh

Nominal flow rate [m³/h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
10	300	40	PN 25	Heat	S55561-F117	**UH50-A61-00**
10	300	40	PN 25	Heat Cooling	S55561-F127	**UH50-C61-00**

Ultrasonic heating/cooling meters 15...25 m³/h

Design of processor unit: Split unit with ready wired control line of 3 m.
Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: DS M10x1 mm, length = 100 mm

Cable length: 5 m

Display: MWh

Nominal flow rate [m³/h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
15	270	50	PN 25	Heat	S55561-F118	**UH50-A65-00**
15	270	50	PN 25	Heat Cooling	S55561-F128	**UH50-C65-00**
25	300	65	PN 25	Heat	S55561-F119	**UH50-A70-00**
25	300	65	PN 25	Heat Cooling	S55561-F129	**UH50-C70-00**

Ultrasonic heating/cooling meters 40...60 m³/h

Design of processor unit: Split unit with ready wired control line of 3 m.
Connection of sensor: The sensor can be replaced; the return sensor is not integrated in the volume measuring section.

Sensors: Ø6 mm, length = 150 mm

Cable length: 5 m

Display: MWh

Nominal flow rate [m³/h]	Mounting length [mm]	DN	PN class	Type of Meter	Stock No.	Product No.
40	300	80	PN 25	Heat	S55561-F120	**UH50-A74-00**
40	300	80	PN 25	Heat Cooling	S55561-F130	**UH50-C74-00**
60	360	100	PN 25	Heat	S55561-F121	**UH50-A83-00**
60	360	100	PN 25	Heat Cooling	S55561-F131	**UH50-C83-00**

Communication modules for UH50..

Product Title	Stock No.	Product No.
Pulse module with 2 channels	S55563-F107	**WZU-P2**
Pulse module with Opto-MOS output	LYU:WZU-P2L	**WZU-P2L**
M-bus module for heat and heat/cooling energy meters, generation 2	S55563-F109	**WZU-MB**
M-bus module for heat and heat/cooling energy meters, generation 4	S55563-F110	**WZU-MB-G4**
M-bus module with 2 pulse inputs for heat and heat/cooling energy meters, generation 4	S55563-F108	**WZU-MI**
CL module, digital passive interface	LYU:WZU-CL	**WZU-CL**
Radio module 433 MHz with integrated antenna and two pulse inputs	LYU:WZU-RM	**WZU-RM**
Radio module 433 MHz with external antenna and two pulse inputs	LYU:WZU-RM-EXT	**WZU-RM-EXT**
Radio module 868 MHz with integrated antenna	LYU:WZU-RF	**WZU-RF**
Radio module 868 MHz with external antenna	LYU:WZU-RF-EXT	**WZU-RF-EXT**
GPRS module with external antenna (magnetic attachment) and power pack 110...230 V	LYU:WZU-GPRS	**WZU-GPRS**
GPRS module with external antenna (for screw mounting) and power pack 110...230 V	LYU:WZU-GPRS-ANT	**WZU-GPRS-ANT**
GSM module with two pulse inputs	LYU:WZU-GM	**WZU-GM**
Analog module	LYU:WZU-AM	**WZU-AM**
Power pack for analogue module	LYU:WZR-NE	**WZR-NE**

Accessories see Datasheet: N5324

Power packs for UH50..

Product Title	Stock No.	Product No.
Power pack AC 230 V, cable length 1.5 m	S55563-F111	**WZU-AC230-15**
Power pack AC 230 V, cable length 5 m	LYU:WZU-AC230-50	**WZU-AC230-50**
Power pack AC 230 V, cable length 10 m	LYU:WZU-AC230-100	**WZU-AC230-100**
Power pack AC/DC 24 V, with terminals	S55563-F112	**WZU-ACDC24-00**
Standard battery (2x AA) for 6 years, complete with fastener	S55563-F114	**WZU-BA+GUM**
Universal battery (D-cell), life 6 and 16 years respectively	S55563-F113	**WZU-BDS**

Accessories see Datasheet: N5324

Temperature sensors (pairs) for UH50..

Product Title	Stock No.	Product No.
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 1.5 m	LYU:WZU5-2815	**WZU5-2815**
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 2.5 m	LYU:WZU5-2825	**WZU5-2825**
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 1.5 m	LYU:WZU5-3815	**WZU5-3815**
Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 2.5 m	LYU:WZU5-3825	**WZU5-3825**
Pair of temperature sensors Pt500, PS Ø5.2x45 mm, cable length 1.5 m	LYU:WZU5-4515	**WZU5-4515**
Pair of temperature sensors Pt500, PS Ø 5.2x45 mm, cable length 5 m	LYU:WZU5-4550	**WZU5-4550**
Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 2 m	LYU:WZU5-1020	**WZU5-1020**
Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 5 m	LYU:WZU5-1050	**WZU5-1050**
Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 2 m	LYU:WZU5-1520	**WZU5-1520**
Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 5 m	LYU:WZU5-1550	**WZU5-1550**

Accessories see Datasheet: N5324

Fittings for UH50..

Product Title	Stock No.	Product No.
Mounting set for 110 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T34110	**99T34110**
Mounting set for 130 mm, 1 spacer, 2 fittings, 1 protection pocket and gaskets	LYU:99T01130	**99T01130**
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	S55563-F124	**WZM-E34**
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	S55563-F123	**WZM-E1**
Mounting kit, pair of fittings G 1¼ " x R 1" with gaskets	S55563-F125	**WZM-E54**
Mounting kit, pair of fittings G 2" × R 1½" with gaskets	LYU:WZM-E2.1	**WZM-E2.1**
Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	LYU:WZM-V130	**WZM-V130**
Adapter from 110 mm G ¾B" to 130 mm G 1B", incl. 4 gaskets	LYU:WZM-V130.G1	**WZM-V130.G1**
Adapter from 110 mm G ¾B" to 165 mm G ¾B", incl. 4 gaskets	LYU:WZM-V165	**WZM-V165**
Adapter from 110 mm G ¾B" to 190 mm G 1B", incl. gaskets	LYU:WZM-V190	**WZM-V190**

Accessories see Datasheet: N5324

Adapter and gaskets for UH50..

Product Title	Stock No.	Product No.
Spacer G ¾", length 110 mm, incl. 2 flat gaskets	LYU:WZM-G110	**WZM-G110**
Spacer G 1", length 130 mm, incl. 2 flat gaskets	LYU:WZM-G130	**WZM-G130**
Spacer G 1", length 190 mm, incl. 2 flat gaskets	LYU:WZM-G190	**WZM-G190**
Spacer G 1¼", length 260 mm, incl. 2 flat gaskets	LYU:WZM-G260	**WZM-G260**
Spacer DN 40, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300	**WZM-F300**
Spacer DN 50, length 270 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F270	**WZM-F270**
Spacer DN 65, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300.65	**WZM-F300.65**
Spacer DN 80, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300.80	**WZM-F300.80**
Spacer DN 100, length 360 mm, PN 25, incl. 2 flat gaskets	LYU:WZM-F360.100-25	**WZM-F360.100-25**
Sealing disk G ¾", for threaded connection R ½"	LYU:9060944002	**9060944002**
Sealing disk G 1", for threaded connection R ¾"	LYU:9060944003	**9060944003**
Sealing disk G 1¼", for threaded connection R 1"	LYU:9060944004	**9060944004**
Sealing disk for flange DN 40	LYU:9060944024	**9060944024**
Sealing disk for flange DN 50	LYU:9060944025	**9060944025**
Sealing disk for flange DN 65	LYU:9060944026	**9060944026**
Sealing disk for flange DN 80	LYU:9060944027	**9060944027**
Sealing disk for flange DN 100	LYU:9060944028	**9060944028**

Accessories see Datasheet: N5324

Accessories for UH50..

Product Title	Stock No.	Product No.
Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"	S55563-F122	**WZT-G12**
Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"	LYU:WZT-GLG	**WZT-GLG**
Welding sleeve with threaded hole for temperature sensor DS M10×1 mm	S55563-F121	**WZT-G10**
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	S55563-F104	**WZT-K12**
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	S55563-F120	**WZT-K34**
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	S55563-F119	**WZT-K1**
Ball valve R ½" with union nut G ¾"	LYU:WZT-K12-34	**WZT-K12-34**
Ball valve R ¾" with union nut G ¾"	LYU:WZT-K34-34	**WZT-K34-34**
Ball valve R ¾" with union nut G 1"	LYU:WZT-K34-1	**WZT-K34-1**
Ball valve R 1" with union nut G 1"	LYU:WZT-K1-1	**WZT-K1-1**
Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm	S55563-F105	**9930128002**
Adapter G 3/8 B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G 3/8"	LYU:WZT-A38	**WZT-A38**
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	S55563-F116	**WZT-A12**
Adapter G ¾ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ¾"	LYU:WZT-A34	**WZT-A34**
Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 100 mm	S55563-F117	**WZT-S100**
Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 150 mm	S55563-F118	**WZT-S150**
Protection pocket G ½B", brass, Ø 5.2x35 mm, for temperature sensor Ø 5.2x45 mm	S55563-F103	**WZT-M35**
Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	**WZT-M50**
Mounting plate for top hat rail	LYU:WZU-MH	**WZU-MH**
Adapter for protection pocket Ø 6 mm to install temperature sensor type Ø 5.2x45 mm	LYU:WZT-R32	**WZT-R32**
Mounting kit for sensor Ø 5.2x45 mm	LYU:9930127002	**9930127002**
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	**9956230**
Mounting set G ½B" with threaded hole G ¼" for direct mounting of long sensors	LYU:WZT-A100	**WZT-A100**
Service-key for calibration modus	LYU:9089885	**9089885**
Sealing disk Ø 8.6/5.3, size 1 mm, for temperature sensor DS M10x1 mm	LYU:9060944001	**9060944001**
Sealing disc ½" made of copper	LYU:9060948	**9060948**
Self-lock seal with sealing wire	LYU:9956186001	**9956186001**

Accessories see Datasheet: N5324

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical reading head with USB plug for PC interface	LYU:WZR-OP-USB	**WZR-OP-USB**
UltraAssist Standard, first license, CD with dongle for printer interface	LYU:WZX-UA-SED	**WZX-UA-SED**
UltraAssist Standard, second license, with dongle for printer interface	LYU:WZX-UA-SFD	**WZX-UA-SFD**
UltraAssist Standard, first license, CD with dongle as PCMCIA card	LYU:WZX-UA-SEP	**WZX-UA-SEP**
UltraAssist Standard, second license, dongle as PCMCIA card	LYU:WZX-UA-SFP	**WZX-UA-SFP**
UltraAssist Standard, first license, CD with dongle for USB interface	LYU:WZX-UA-SEU	**WZX-UA-SEU**
UltraAssist Standard, second license, with dongle for USB interface	LYU:WZX-UA-SFU	**WZX-UA-SFU**

Accessories see Datasheet: N5324

AMR wireless system 868 MHz

AMR



The Automatic Meter Reading system (AMR) is an innovative system for wireless remote readout of consumption data. It consists of network nodes (data collectors) which form a network within the premises to collect all consumption data transmitted by the metering devices, to store them and to make them available for further handling. The network nodes can be read either locally or by making use of Internet technologies, also from the office. The types of consumption meters included in the AMR system are heat meters, water meters and heat cost allocators. A pulse adapter is available, enabling third-party meters to be integrated into the system.The AMR system excels in versatility, ease of installation and maintenance, and offers a large number of readout choices matched to customer needs. The system components are suited for installation in small premises (e.g. 3 apartments) and in large plant comprising several buildings. Installation of the wireless network is largely automatic, including self-configuration.
Functioning principle:The system automatically configures itself during installation, forming a network. The battery-powered network nodes receive and store the consumption data from the metering devices installed within their range. In the network, the measured values received from all metering devices are constantly updated. This means that every network node holds the consumption data of the entire plant so that readout can take place at any of the nodes. For local readout, a laptop can be connected to any of the network nodes via cable, or an optional wireless module can be used. This works within the range of each network node. Depending on the local situation, it may not even be necessary to enter the house for making the readout. If AMR plant shall be read out from a remote location, one of the network nodes is to be used with a gateway. This gateway then offers a number of communication choices: Data can be transmitted directly to the billing systems via GSM network, broadband cable network or computer network. The user can choose the transmission medium he prefers.

Data sheet N2870

AMR 868 MHz main components

Product Title	Data sheet	Stock No.	Product No.
Electronic heat cost allocators with AMR radio interface	N2886	JXF:WHE56..	**WHE56..**
Electronic heat meter, wall mounted	N5333	JXF:WFM2..	**WFM2..**
Electronic heat and cooling energy meter, wall mounted	N5338	JXF:WFN2..	**WFN2..**

Overview radio adapter AMR

Product Title	Data sheet	Stock No.	Product No.
Radio adapter AMR Modularis Radio adapter for mechanical Modularis water meters (WFx30, WMx10). Adapter acquires and process the metering pulses of the radio-ready mechanical water meters WFx30../WMx10.. and transmits the data to the AMR system.		S55563-F100	**WFZ16.MO**
AMR add-on module with integrated antenna The add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat meter and passes it on to the AMR system.	N5323	S55563-F132	WFZ56.OK

Accessories for WFZ16.MO

Product Title	Data sheet	Stock No.	Product No.
Torque Screwdriver, Torx Plus™ recommended for radio adapter Modularis WFZ16x.MO		JXF:FZ201-009	**FZ201-009**

NEW PRODUCT

AEW36.2



AMR pulse adapter

The pulse adapter is used for acquiring and storing the pulses received from consumption meters with pulse output. It is possible to acquire pulses from heat, gas and water meters.

Other types of meters on request.

Data sheet N2873

	Stock No.	Product No.
	S55563-F129	**AEW36.2**

WTT16..



Network nodes

The nodes receive and handle the data from the consumption meters of the AMR system. During installation, all nodes automatically create a radio-based network within the building, where all information and consumption values are exchanged at regular intervals via a 868 MHz link. This ensures that all data required for consumption-related readout are available at any of the nodes in the network for local readout. Local readout can be wireless or wire-bound (RS-232 or via M-bus). If the network nodes shall be read from a remote location, the AMR gateway can be used as an interface to different communication media. The gateway facilitates remote readout via a fixed telephone network, GSM or - using the optional Ethernet interface - via broad-band cable or computer networks.
For completely wireless installation of the node networks, the battery-powered types WTT16... are available. A mains-powered version WTX16... is available for special applications.

Data sheet N2874

Range overview: Network nodes with interface for local readout

Product Title	Data sheet	Stock No.	Product No.
Battery-powered network node Local, wireless readout (WTZ.RM) or via M-bus (WFZ.IRDA-USB or WFZ.MBM-USB)	N2874	S55563-F126	**WTT16**
Battery-powered network node With RS-232 moduleLocal readout via RS-232 (WTZ.K232) or M-bus (WFZ.IRDA-USB or WFZ.MBM-USB)	N2874	S55563-F127	**WTT16.232**

Range overview: Network nodes with interface for remote readout

Product Title	Data sheet	Stock No.	Product No.
Network node and power supply with communication module gateway GSM for max. 500 metering devices, no connection to other networks possible	N2878	S55563-F128	**WTX16.MOD-1**

PC radio module **WTZ.RM**

with program CD, USB cable and measuring device

Data sheet N2876



	Stock No.	Product No.
	JXF:WTZ.RM	**WTZ.RM**

Programming adapter and tools for WTT../ WTX..

Product Title	Stock No.	Product No.
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
RS-232 cable	JXF:WTZ.K232	**WTZ.K232**
Special adapter RS232 to USB	JXF:WFZ.USB-1	**WFZ.USB-1**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	**WFZ.MBM-USB**

Software for WTT../ WTX..

Product Title	Stock No.	Product No.
Parameterizing and diagnostics software	JXF:ACT20	**ACT20**
Parameterization software	JXF:ACT21	**ACT21**
Readout software	JXF:ACS26	**ACS26**
Setup and service software	JXF:ACT26	**ACT26**

Batteries

Product Title	Operating voltage [V]	Battery capacity [Ah]	Stock No.	Product No.
Battery for WTT16..	3.6	13	JXF:WTZ.BAT	**WTZ.BAT**
Backup battery for WT..16..	3	1	JXF:FBCRAA/KS	**FBCRAA/KS**

NEW PRODUCT

walk-by



walk-by radio system 868 MHz

Simple, fast and reliable. These three attributes are the most apt descriptions of the walk-by system. After all, it provides values for billing consumption easily, quickly and dependably. And the meter-reader does not even have to enter the tenant's flat - on the reading date, he only has to enter the commonly accessible area of the property.
For smaller properties, he can even collect data outside of the building. That not only benefits the meter-reader (who does not have to plan and mount data collectors any more), but also tenants. They no longer have to agree on a date for reading or even be there on the readout day. It couldn't be simpler. At the set reading time, the meters send current
consumption data at short intervals. The meter-reader only has to enter the building or even just walk around it with his mobile meter-reading system. This consists of a mobile data collector
and a laptop with application software. The data collector collects the radio telegrams and, after a plausibility check, sends them wirelessly to the laptop via the Bluetooth interface. The software on the laptop not only manages the data, it also shows the meter-reader the current progress of the process. After having received all data, the meter-reader can then leave the property. Back at his workplace, the meter-reader only has to export the data saved and read them for example into a billing program. If data is needed on a regular basis – meaning permanently mounted data collectors are to be retrofitted with an interface for remote data transmission – the measuring devices can be reprogrammed from the walk-by system to the stationary AMR system from Siemens at any time. This means that readout values can be called up on a daily basis without entering the property.

Within the walk-by system there are walk-by heat cost allocators and walk-by radio adpaters available. More devices on request.

Overview heat cost allocators walk-by

Product Title	Data sheet	Stock No.	Product No.
Electronic heat cost allocators with walk-by radio interface	N2886	JXF:WHE55..	**WHE55..**

Overview radio adapter walk-by

Product Title	Data sheet	Stock No.	Product No.
Radio adapter walk-by Modularis Radio adapter for mechanical Modularis water meters (WFx30, WMx10). Adapter acquires and process the metering pulses of the radio-ready mechanical water meters WFx30../WMx10.. and transmits the data to the walk-by system.		S55563-F101	**WFZ166.MO**
Walk-by add-on module with integrated antenna The walk-by add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat meter and passes it on to the walk-by system.	N5323	S55563-F133	WFZ566.OK

Tools walk-by

Product Title	Stock No.	Product No.
Torque Screwdriver, Torx Plus™ recommended for radio adapter Modularis WFZ16x.MO	JXF:FZ201-009	**FZ201-009**
Mobile data logger set Bluetooth-Stick, Software ACT46, mobil data collector with bag	JXF:WTZ.WBSET-2/PC	**WTZ.WBSET-2/PC**

M-bus metering system

M-Bus



The M-Bus Metering System is a proven system used for the remote readout of consumption data. It conforms to EN 1434/3. The system contains all components required for reading M-bus-compatible consumption meters via an easy-to-install, interference-proof 2-wire bus. The consumption meters available within the M-Bus Metering System are heat meters and water meters. A pulse adapter enables third-party meters to be integrated into the system. M-bus-compatible meters of other manufacture can also be read out after appropriate testing. The M-Bus Metering System exels in immunity, ease of installation and maintenance plus sow a large number of readout choices matched to customer needs. The system components are suited for installation in small premises (e.g. 3 apartments) and in large plant comprising several buildings.

Data sheet N5361

Combinable field devices for M-Bus

Product Title	Data sheet	Stock No.	Product No.
Electronic heat meter, wall mounted	N5333	JXF:WFM2..	**WFM2..**
Electronic heat and cooling energy meter, wall mounted	N5338	JXF:WFN2..	**WFN2..**
Ultrasonic heat and cooling energy meters	N5378	LYU:2WR6..	**2WR6..**

Software and tools

Product Title	Data sheet	Stock No.	Product No.
Commissioning and plant operating software	N5649	S55800-Y100	**ACS790**
Parameterizing and diagnostics software		JXF:ACT20	**ACT20**
Infrared read head (with USB interface)	N2886	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
M-bus programming adapter (USB)		JXF:WFZ.MBM-USB	WFZ.MBM-USB

M-bus pulse adapter

AEW310.2



Module for acquiring and storing the pulses received from consumption meters with pulse output. It can handle pulses from heat, gas, hot water, chilled water, electricity or hours run meters.

Features:
- Operation without power pack
- Supervision of the meter's connection (Namur circuitry)
- Connections: 2 meters with pulse output (Reed contact, Namur circuitry)
- incl. m-bus connection kit

Data sheet N5383

Dimensions (W x H x D) 80 x 80 x 28 mm

Stock No.	Product No.
S55563-F130	**AEW310.2**

Parameterizing and diagnostics software

ACT20

- for water meters WFK3../WFW3.. with additional communication modul
- for heat meters WFM2../WFM4..
- for heat / cooling energy meters WFN2..
- for pulse adapters AEW3..

Stock No.	Product No.
JXF:ACT20	**ACT20**

NEW PRODUCT

WFZ.IRDA-USB

Infrared read head (with USB interface)



IrDA communication head with USB connection:
- water meters WFK3../WFW3.. with additional communication modul
- heat meters WFM2../WFM4..
- heat/cooling energy meters WFN2..
- pulse adapters AEW3..
- network nodes WT..

	Stock No.	Product No.
	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**

WFZ.MBM-USB

M-bus programming adapter (USB)



M-bus mini master with USB interface:
- network nodes WT..
- heat meters WFM2../WFM4..
- heat/cooling energy meters WFN2..
- pulse adapters AEW3..

	Stock No.	Product No.
	JXF:WFZ.MBM-USB	WFZ.MBM-USB

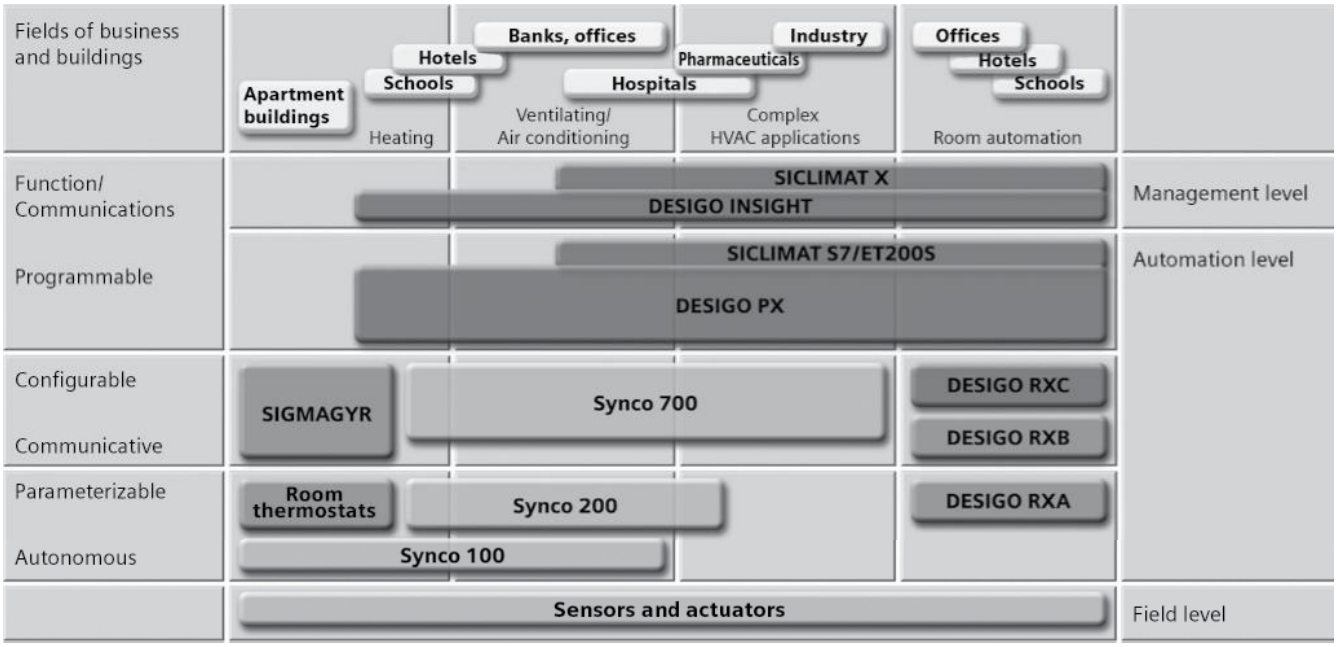
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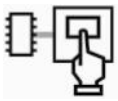
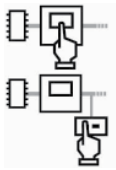
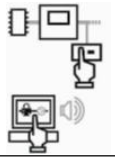
Practical tips



Overview	Control ranges	A-2
Hydraulic settings	Control of mixing and injection circuit for floor heating	A-3
	Injection control for radiated heat	A-4
Faulty circulation	On the boiler	A-5
	On distributor	A-6
Valves and actuators	Sizing and selection	A-7
	Example heating plants	A-10
	Example ventilation & air conditioning plants	A-12
	Valve rating for water	A-16
	Sizing and selection of steam	A-19
	Water vapor table	A-22
	Terms	A-23
	Mounting	A-24
Sensors	Location	A-25
	Mounting	A-27
Air damper actuator	Selection	A-28

Preferred solutions with our controller product range and systems



Plant size project size	Application	Operating	Heating	Ventilation	Air conditioning	Refrigeration	After treatment in individual room: Radiator, VAV + LQ chilled ceiling	After treatment in individual room: Fan coil	After treatment in individual room: Light and blinds
	**Individual plant** n Autonomous controller n Local operation n Preprogrammed solutions		SIGMAGYR RVP..					DESIGO™ RXA	
			Synco™ 100						
			Synco™ 200						
	**Individual plant** n Communicative controller n Local/remote operation n Preprogrammed solutions		SIGMAGYR RVL..				DESIGO™ RXB		
			Synco™ 700						
	**Distributed plants** n Communicative controller n Central/local operation n Preprogrammed solutions		Synco™ 700				DESIGO™ RXB		
	**Complex plants** n Communicative controller n Central/local operation n Customized solutions		DESIGO™ PX				DESIGO™ RXC		
	**Complex plants with building automation and control system** n Communicative controller n Central operation n Customized solutions n Cross-installation integration of third-party systems as well		DESIGO™ Insight DESIGO™ PX				DESIGO™ RXC		

A

Control of mixing and injection circuit for floor heating

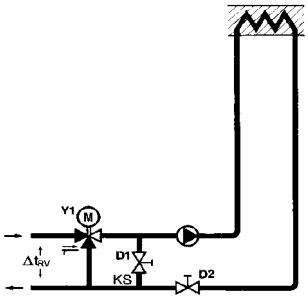
Application

Mix with set premix and injection circuit is suitable for controlling low-temperature heating (floor heating plants) with heat generators where the maximum flow temperature is higher than the maximum permissible temperature of the plant flow.

Use the temperature difference ΔtRv between boiler flow and plant return to determine the control valve's volume flow rate. The valve nominal value is then smaller than the plant flow.

Mixing circuit

Floor heating control using double mixing circuit

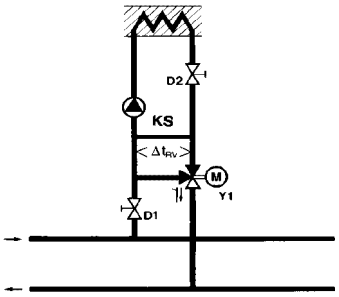


Mixing circuit with fixed premix for connection to heat generators or distributors without differential pressure

1. Temperature level
1.1 Bring the heat generator to maximum operating temperature for a closed control valve.
1.2 Fully open throttle D1 in the short circuit.
1.3 Switch on pump.
1.4 Manually, fully open actuating element Y1 (peak load operation).
1.5 Close throttle D1 until the floor heating flow achieves the maximum operating temperature, e.g. 50°C. (never higher than the maximum permissible).
2. Temperature difference
The plant is compensated using a compensation throttle D2 in flow or return to the nominal temperature difference between flow and return water (temperature difference) and thus the nominal volume flow. This setting takes place when items 1.1...1.6 are met and results in stable control even during low-load operation. The setting instructions by the floor heating supplier must be followed.
2.1 Bring the heat generator to maximum operating temperature for a closed control valve.
2.2 Fully open throttle D2.
2.3 Switch on pump.
2.4 Manually, fully open actuating element Y1 (peak load operation).
2.5 Close throttle D2 until the designed temperature difference of, for example, 10 k is achieved.
3.1 Changeover control valve to automatic.
3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor.
You do not need the supplemental short circuit CS for the mixing circuit when the maximum flow temperature for the heat generator cannot exceed the maximum permissible temperature for the plant flow.

Injection circuit

Floor heating control using injection circuit



Injection circuit
for connection to pressure distributors

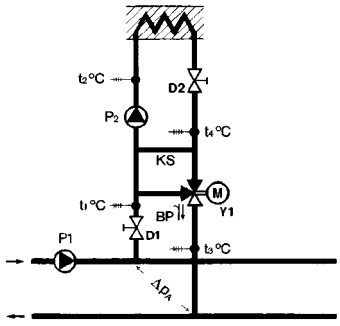
A relatively large portion of cooled off return water from the floor heating is constantly re-mixed with its flow via the short circuit. It has a lower maximum value versus the boiler water temperature.

1. Temperature level
1.1 Bring the heat generator to maximum operating temperature for a closed control valve.
1.2 Switch on main and group pump.
1.3 Manually, fully open actuating element Y1 (peak load operation).
1.4 Set throttle D1 in the primary flow and return so that the floor heating flow temperature cannot exceed the maximum permissible temperature.
2. Temperature difference
Set throttle D2 as described for mixing circuit using fixed premix.
3.1 Changeover control valve to automatic.
3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor.

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Injection control for radiated heat

Injection circuit



Injection circuit

General

Injection circuits must be compensated on the primary and secondary side, because

- **Excess pressure builds on the connection points for the given heating group, which must be reduced to the required connecting pressure ΔpA and**
- **The complete plant generally operates at a pump pressure that is higher than was originally planned.**

Procedure

As a rule, compensation takes place with a fully opened control valve.

For a compensated injection circuit, primary pump P1 supplies as much water to the heating group, as its pump P2 is capable of assuming. Then

$$\Delta p_A = \Delta p_{p2}$$

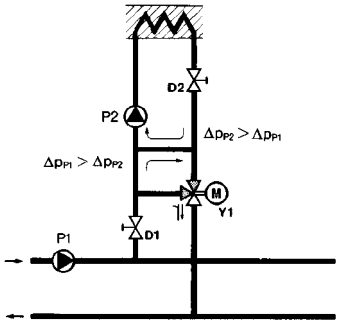
No heating water circulates in the bypass as well as in the short circuit and

$$t_1\ °C = t_2\ °C$$
$$t_3\ °C = t_4\ °C$$

The consumer limits the volume flow using throttle D1 and thus sets the temperature difference between flow and return.

Throttle D2 is used to compensate the injection, so that the desired consumer flow temperature is not exceeded when the valve is fully open.

Incorrect circulation



Incorrect circulation for non-compensated injection circuit

Procedure

- Fully open throttles D1 and D2
- Bring heat generator to the maximum operating temperature

1. Flow temperature:

1.1 Manually, fully open actuating element (peak load operation) and wait for a stable consumer return temperature.

1.2 Close throttle D2 a bit when the flow temperature exceeds the maximum desired value. Close throttle D1 accordingly when the flow temperature is too low.

2. Temperature difference:

2.1 The consumer flow temperature has the maximum permissible temperature (see flow temperature) when the valve is fully opened.

2.2 Wait for stable consumer return temperature.

2.3 Throttle D1 is closed, lowering the flow, until the desired temperature difference is set, when the temperature difference between the flow and return is less than the planned value.

2.4 Check consumer flow temperature and eventually change using throttle D2. Then check items 2, 3 and 4 and correct as required.

3.1 Changeover control valve to automatic.

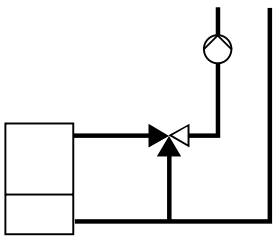
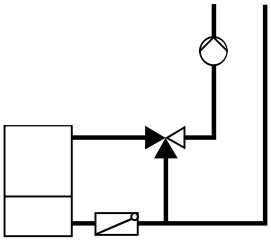
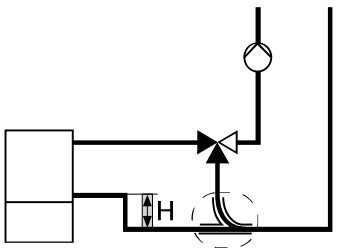
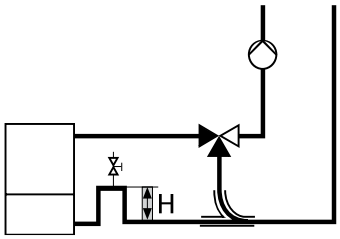
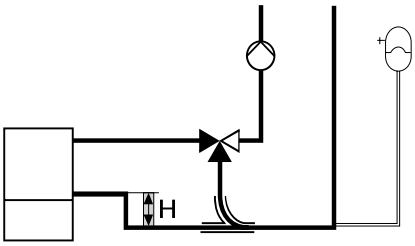
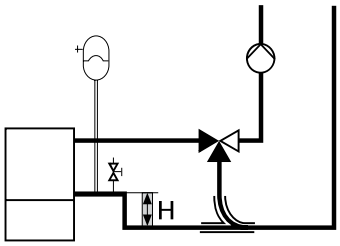
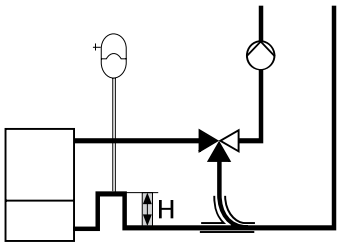
3.2 Check after 72 hours of control, in particular, when multiple groups are connected to one distributor.

A

On the boiler

Incorrect circulation may occur for heating plants with a closed three-port valve or three-port plug and ball valve, since warm water is specifically lighter than cold water. As a result, warm water pushes upward within a water column and cold water pushes downward, which results in gravitational circulation.

As a consequence, when the heating circuit pump is switched on, heated boiler water may flow into the heating circuit flow from the boiler return via the mixing line through the two opened mixing ports. When the heating circuit pump is switched off, it is more likely that hot boiler water will "sneak" into the radiators via the heating circuit return line.

False	Correct	Measures against incorrect circulations
Incorrect circulation in the boiler... ① 	...prevent a shutoff valve ② 	Incorrect circulations can be prevented, either by – Inserting a shutoff valve (Figure 2), or better:
③ 		– Insert pipe-in-pipe insulation and "shoe" the mixing line to the return (Figure 3) (H = 8 to 10 times pipe Ø)
④ 		– Insert a pipe-in-pipe insulation with bleed valve (Figure 4) (H = 8 to 10 times pipe Ø)
⑤ 	⑥ 	**Connect closed expansion vessels** Connect the supply line to the expansion vessel on the space provided on the boiler or on the highest point for the pipe-in-pipe insulation. (H = 8 to 10 times pipe Ø)
⑦ 		Figure 7 is a sample connection for the expansion vessel to pipe-in-pipe insulation with a boiler connection at the bottom. (H = 8 to 10 times pipe Ø)

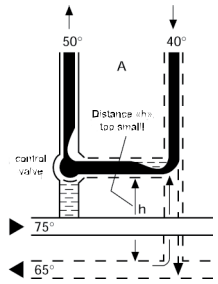
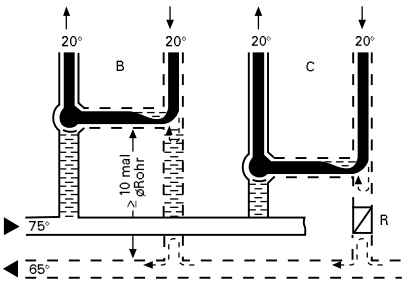
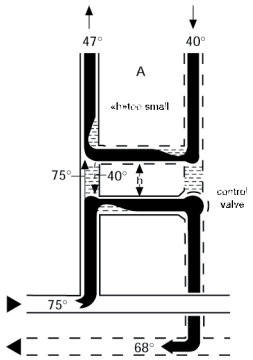
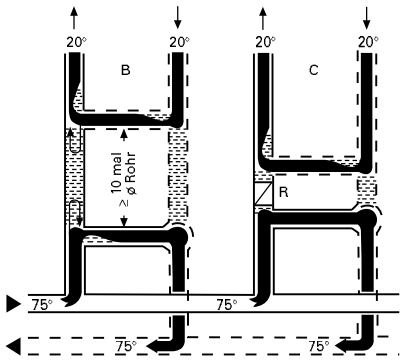
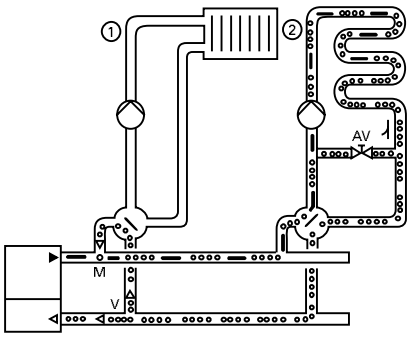
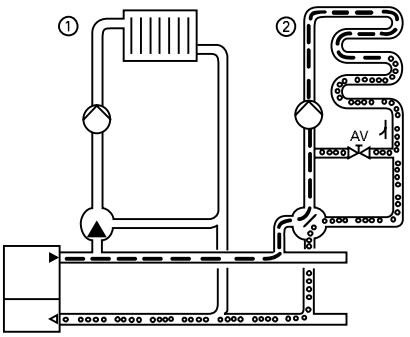
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Faulty circulation
On distributor

On distributor

Incorrect circulation may occur for heating plants with a closed three-port valve or three-port plug and ball valve, since warm water is specifically lighter than cold water. As a result, warm water pushes upward within a water column and cold water pushes downward, which results in gravitational circulation.

As a consequence, when the heating circuit pump is switched on, heated boiler water may flow into the heating circuit flow from the boiler return via the mixing line through the two opened mixing gates. When the heating circuit pump is switched off, it is more likely that hot boiler water will "sneak" into the radiators via the heating circuit return line.

False	Corrrect	Measures against incorrect circulations
		**Mixing circuit on differential pressure-free distributor** – Distance from bypass to collector h ≥ 10 times pipe Ø, min. 40 cm or – Insert gravitational brake R in the return for the heating group
		**Injection circuit on pressure distributor** – Distance from bypass to short circuit h ≥ 10 times pipe Ø, min. 40 cm or – Insert gravitational brake R in the flow between the bypass and short circuit
 Incorrect circulation from point V via the open path for the closed mixer after mixing point M. Impact of incorrect circulation in the floor heating. .		**Mixing circuit with four-port mixer on distributor without primary pump** – Control group ①using three-port mixer

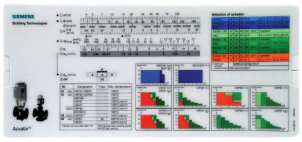
A

Technical information on sizing and selection of valves and actuators

The behavior of a modulated controlled plant depends highly on the measurement of the control valves. Sizing is optimum when full plant output is first achieved after the control valve is fully opened.

Valve and actuator selection tool
We recommend using the valve calculator, flow diagrams and selection programs EasyVASP or Refrigeration VASP to simplify sizing and selection.

Valve calculator



Valves and actuators for central HVAC plants.

Applications
- Heat generation
- Heat distribution
- Heating zones
- Heating plant
- Ventilation and air conditioning plant
- Community and district heating plants
- Drinking water mixing plants
- High-precision process control



Valves and actuators for room and zone applications

Applications
- Air after treatment devices
- Induction devices
- Chilled ceilings
- Boiler charges
- Zone control
- Radiator applications

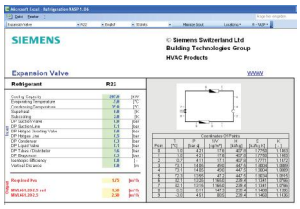
EasyVASP



Valves and actuators for
- Central HVAC plants
- Room and zone applications
- Steam applications

Applications
- For the aforementioned applications

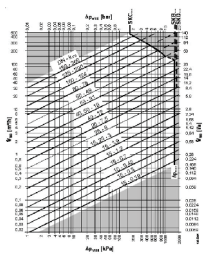
RefrigerationVASP



Valves and actuators for
- Expansion applications
- Hot gas applications
- Suction gas applications

Applications
- Refrigeration circuits
- Chillers
- Heat pumps

Flow diagrams



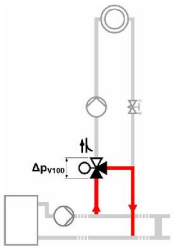
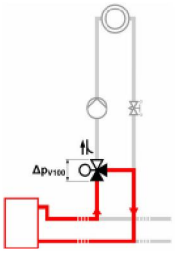
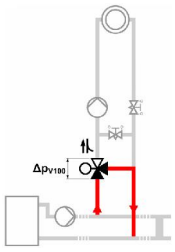
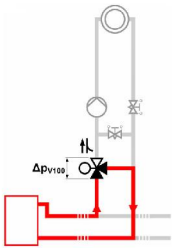
Valves and actuators for
- Central HVAC plants
- Room and zone applications

Applications
- For the aforementioned applications

A

Sizing and selection for water

Determine volume flow V_{100}			Notes
Volume flow $\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T \cdot f_1}$	$\dot{V}_{100}$ (m³/h) Q_{100} (kW) ΔT (K)	**Volume flow at** Plant nominal output Plant nominal output Temperature difference	f_1 (corrective factor) = 1 for water For glycol percentage of > 20 % or application of other media, see page A-16

Determine flow k_v and differential pressure Δp_{V100} b/ Select nominal flow value k_{vs}			
$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$	Δp_{V100} (kPa)	Loss of pressure via the fully open valve	Can also be determined via flow diagrams, EasyVASP or valve calculator
Hydraulic basic circuits	The variable flow path depends on the hydraulic circuit. It is specially emphasized in the graphics for the basic circuits depicted below. Δp_{MV} Loss of pressure on variable flow paths Δp_{MV} is often unknown or very small. In this case, use the following values gained from the field:		**Mixing circuit on the differential pressure-free distributor:** Δp_{V100} = 2...5 kPa with primary pump Δp_{V100} = 5...15 kPa without primary pump **Boiler return rise:** Δp_{V100} = 3 kPa **Injection circuit with three-port valve:** Δp_{V100} = 2...5 kPa **Injection circuit with two-port valve:** Δp_{V100} = 50 % from Δp_{VR} **Throttle circuit:** Δp_{V100} = 50 % from Δp_{VR}
Determine hydraulic circuit —— Δp_{MV} differential pressure via the variable flow path	 Mixing circuit without bypass With primary pump	 Without primary pump	 Mixing circuit with bypass With primary pump	 Without primary pump

A

Check valve authority P_V (control stability)		Notes
$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3...0.6$ Use the resulting differential pressure Δp_{V100}	The pressure loss via a fully opened valve Δp_{V100} must, at a minimum, be as large as the pressure loss Δp_{MV} via the variable flow part of the plant	Valve authority should be between 0.3 and 0.6, **select smaller valve as required.**

Select suitable valve series		
a) Determine type of valve	Select two-port or three-port appropriate to the hydraulic circuit	See overview of product range
b) Determine connection type	Thread (inside/outside) or flange	See overview of product range
c) Select valve pressure stage	PN class must at a minimum correspond to the plant pressure stage	See overview of product range

Check valve operating range		
a) Temperature	Use within permissible temperature limits	See overview of product range or product section
b) Medium	Check whether applied medium permitted	See overview of product range or product section

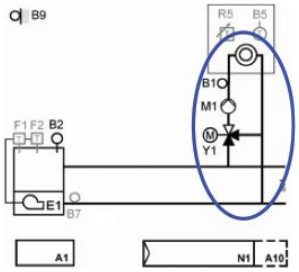
Select actuator		
a) Select operating voltage and positioning signal	Pursuant to voltage source and controller signal	
b) Determine desired actuator runtime	Match runtime to dynamic process	See application recommendations
c) Fail-safe function required	If required, select the appropriate control equipment	See overview of product range Type designations with 5 as well as all magnetic valves

Check control equipment operating range		
a) Differential pressure Δp_{max}	Greater than or equal to the maximum pressure drop via control equipment during control	See production section and selection aides
a) Δp_s (Close off)		

A

Example: Sizing a control valve

Required	3-port control valve, flanged	
Plant data	Pressure class	PN 10
	Plant's rated capacity Q_{100}	160 kW
	Temperature difference ΔT	70/55 = 15 K
	Medium	Water
	Differential pressure across variable flow path Δp_{MV}	8 kPa
	Positioning signal	3-position, AC 230 V



1 Determine volumetric flow V_{100}

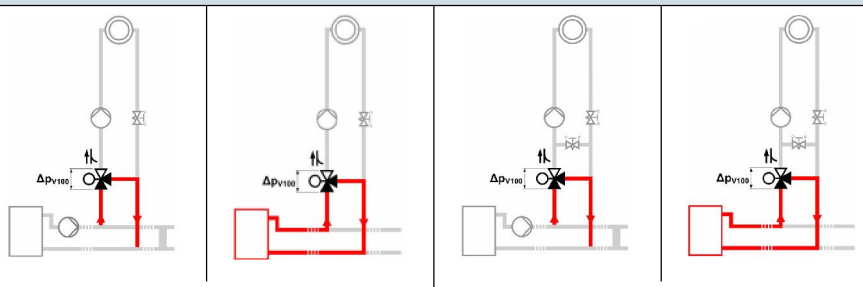
$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$$

$$\dot{V}_{100} = \frac{160\ kW}{1.163 \cdot 15\ K} = 9.2\ m^3/h$$

2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit

—— differential pressure Δp_{MV} across variable flow path



		Mixing circuit without bypass		Mixing circuit with bypass	
		With primary pump	Without prim. pump	With primary pump	Without prim. pump
Δp_{MV}	Typical range	2...5 kPa	5...15 kPa	2...5 kPa	5...15 kPa
	Typical value	3 kPa	8 kPa	3 kPa	8 kPa
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$			
Δp_{max}		$\geq \Delta p_{V100}$			
Example of hydraulic circuit	Example	Mixing circuit without primary pump		$\Delta p_{V100} \geq \Delta p_{MV}$	
Selected differential pressure		Δp_{V100} = 8 kPa			

3 Determine the k_v-value

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$$

$$k_v = \frac{9.2\ m^3/h}{\sqrt{\frac{8\ kPa}{100}}} = 32.5\ m^3/h$$

4 Select nominal flow value k_{vs} and determine resulting differential pressure Δp_{V100}

$k_{vs} \geq 0.8 \cdot k_v$-value	$k_{vs} \geq 0.8 \cdot 32.5\ m^3/h = 26\ m^3/h$	$k_{vs} = 31\ m^3/h$

Resulting Δp_{V100}

$$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2$$

$$\Delta p_{V100} = 100 \cdot \left(\frac{9.2\ m^3/h}{31\ m^3/h}\right)^2 = 8.8\ kPa$$

A

5	Check valve authority P_V (control stability)	
	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3...0.6$	$\frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{8.8\ kPa}{8.8\,kPa + 8\ kPa} = 0.52$
	Enter resulting differential pressure Δp_{V100}	

6	Select suitable valve range		
	a) Type of valve	3-port seat valve	
	b) Connections	Flanged	
	c) Pressure class	PN 10	
	d) Nominal size DN	50	
	e) Medium	Water	
	f) Medium temperature	70 °C	
	Available valve range(s)	k_{vs} = 31 m³/h	VXF31..
	Type of valve selected	VXF31.50	k_{vs} = 31 m³/h

7	Select the actuator		
	a) Supply voltage	AC 230 V	
	b) Control signal	3-position	
	c) Actuator positioning time	Available ranges	SQX.. 35...150 s
			SKD.., SKB.. 30...120 s
	d) Spring return facility	No	
	e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal	
	Available types of actuators	SQX.., SKD.., SKB..	

8	Check the actuator's working range			
		SQX.. + VXF31.50	SKD.. + VXF31.50	SKB.. + VXF31.50
	a) Differential pressure $\Delta p_{max} \geq \Delta p_{V100}$	$\Delta p_{max} \geq 8{,}8$ kPa		
	Δp_{max}	300 kPa	300 kPa	300 kPa
	b) Closing pressure $\Delta p_s \geq H_0$	Not applicable to 3-port valves		
	Type of actuator selected	SQX32.00 (without spring return, running time 150 s, no auxiliary functions)		

Selection			
	Type of valve	VXF31.50	for details, refer to Data Sheet N4320
	Type of actuator	SQX32.00	for details, refer to Data Sheet N4554

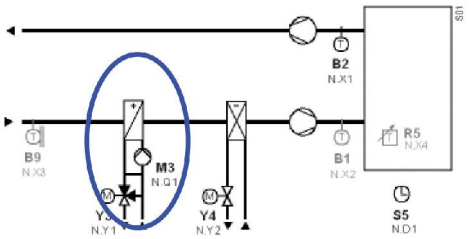
A

Example: Ventilation plant with supply air temperature control
Part 1 – hot water heating coil

Required 3-port control valve, externally threaded

Plant data

Pressure class	PN 16
Plant's rated capacity Q_{100}	55 kW
Temperature difference hot water heating coil ΔT	60/40 = 20 K
Medium	Water
Differential pressure across variable flow path Δp_{MV}	3 kPa
Positioning signal	0...10 V



1 Determine volumetric flow V_{100}

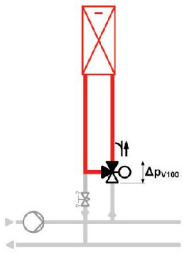
$$\dot{V}_{100} = \frac{Q_{100}}{1{,}163 \cdot \Delta T}$$

$$\dot{V}_{100} = \frac{55\ \text{kW}}{1{,}163 \cdot 20\ \text{K}} = 2{,}4\ \text{m}^3/\text{h}$$

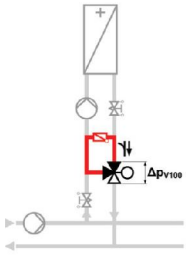
2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit

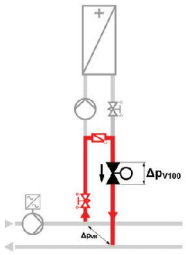
—— differential pressure Δp_{MV} across variable flow path



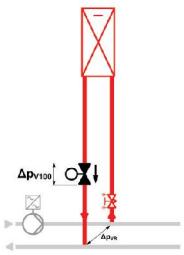
Diverting circuit



Injection circuit with 3-port valve



Injection circuit with 2-port valve



Throttling circuit

		Primary pump constant		Primary pump controlled	
Δp_{MV}	Typical range	5...50 kPa	2...5 kPa		
	Typical value	35 kPa	3 kPa		
Δp_{VR}	Typical range			20...200 kPa	20...200 kPa
	Typical value			Use effective Δp_{VR}-value	
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
Δp_{max}		$\Delta p_{max} \geq \Delta p_{V100}$		$\Delta p_{max} \geq \Delta p_{VR}$	
Example of hydraulic circuit	Example	Injection circuit with 3-port valve Primary pump constant		$\Delta p_{V100} \geq \Delta p_{MV}$	
Selected differential pressure		Δp_{V100} = 3 kPa			

3 Determine the k_v-value

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$$

$$k_v = \frac{2{,}4\ \text{m}^3/\text{h}}{\sqrt{\frac{3\ \text{kPa}}{100}}} = 13{,}9\ \text{m}^3/\text{h}$$

4 Select nominal flow value k_{vs} and determine resulting differential pressure Δp_{V100}

$k_{vs} \geq 0.8 \cdot k_v$-value	$k_{vs} \geq 0.8 \cdot 13.9\ \text{m}^3/\text{h} = 11.1\ \text{m}^3/\text{h}$	k_{vs} = 12 m³/h or k_{vs} = 16 m³/h	
Resulting Δp_{V100}	k_{vs} = 12 m³/h	k_{vs} = 16 m³/h	
$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2$	$\Delta p_{V100} = 100 \cdot \left(\frac{2{,}4\ \text{m}^3/\text{h}}{12\ \text{m}^3/\text{h}}\right)^2 = 4\ \text{kPa}$	$\Delta p_{V100} = 100 \cdot \left(\frac{2{,}4\ \text{m}^3/\text{h}}{16\ \text{m}^3/\text{h}}\right)^2 = 2{,}3\ \text{kPa}$	

A

5 Check valve authority P_V (control stability)

$$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3...0.6$$

Enter resulting differential pressure Δp_{V100}

MXG461.32-12	VXG41.32
k_{vs} = 12 m³/h	k_{vs} = 16 m³/h
$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{4\ kPa}{4\,kPa + 3\,kPa} = 0{,}57$	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{2{,}3\ kPa}{2{,}3\,kPa + 3\,kPa} = 0{,}43$

6 Select suitable valve range

a) Type of valve	3-port seat valve	
b) Connections	Externally threaded	
c) Pressure class	PN 16	
d) Nominal size DN	32	
e) Accessories	Union fittings	
Available valve range(s)	k_{vs} = 12 m³/h k_{vs} = 16 m³/h	MXG461.. VXG41.., VXG44.., VXP45..
Type of valve selected	MXG461.32-12 VXG41.32	k_{vs} = 12 m³/h k_{vs} = 16 m³/h

7 Check the valve's working range

a) Medium temperature	90 °C < MXG461.. for maximum permissible medium temperature of 130 °C 90 °C < VXG41.. for maximum permissible medium temperature of 130 °C	
b) Medium	MXG461..: suited for water VXG41..: suited for water	

8 Select the actuator

a) Supply voltage	AC 24 V		
b) Control signal	0...10 V		
c) Actuator positioning time	Available ranges	MXG461..	< 2 s
		SQX..	35...150 s
		SKD.., SKB..	30...120 s
d) Spring return facility	No		
e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal		
Available types of actuators	MXG461..: actuator integrated VXG41..: SQX.., SKD.., SKB..		
Type of actuator(s) selected	MXG461.32-12 SQX62		

9 Check the actuator's working range

		MXG461.32-12	VXG41.32 + SQX62
a) Differential pressure	$\Delta p_{max} \geq \Delta p_{V100}$	$\Delta p_{max} \geq$ 4 kPa	$\Delta p_{max} \geq$ 2.3 kPa
	Δp_{max}	300 kPa	800 kPa
b) Closing pressure	$\Delta p_s \geq H_0$	Not applicable to 3-port valves	
Type of actuator(s) selected		MXG461.32-12 SQX62	actuator integrated without spring return, running time 35 s, no auxiliary functions, with position checkback signal

Selection

Type of valve Type of actuator	VXG41.32 SQX62	for details, refer to Data Sheet N4463 for details, refer to Data Sheet N4554	Suited for controlled systems with: n Usual degree of difficulty n Ease of service and repair
Valve and actuator	MXG461.32-12	for details, refer to Data Sheet N4455	Specially suited for controlled with: n High degree of difficulty n Demanding requirements for control accuracy n Fast load changes

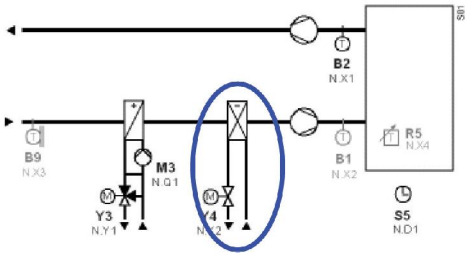
A

Example: Ventilation plant with supply air temperature control
Part 2 – chilled water cooling coil

Required 2-port control valve, externally threaded

Plant data

Pressure class	PN 16
Plant's rated capacity Q_{100}	65 kW
Temperature difference chilled water cooling coil ΔT	6/12 = 6 K
Medium	Water
Differential pressure Δp_{VR}	30 kPa
Zero pump head H_0	200 kPa
Positioning signal	0...10 V



1 Determine volumetric flow V_{100}

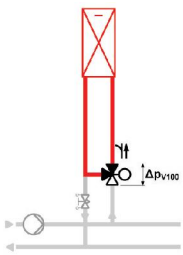
$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$$

$$\dot{V}_{100} = \frac{65\ kW}{1.163 \cdot 6\ K} = 9.3\ m^3/h$$

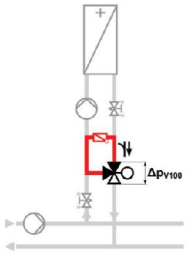
2 Determine differential pressure Δp_{V100}

Determine the type of hydraulic circuit

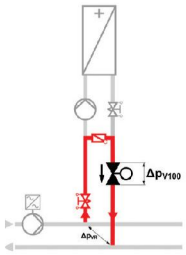
—— differential pressure Δp_{MV} across variable flow path



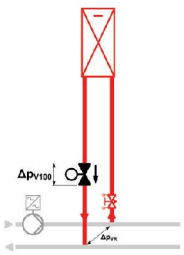
Diverting circuit



Injection circuit with 3-port valve



Injection circuit with 2-port valve



Throttling circuit

		Primary pump constant		Primary pump controlled	
Δp_{MV}	Typical range	5...50 kPa	2...5 kPa		
	Typical value	35 kPa	3 kPa		
Δp_{VR}	Typical range			20...200 kPa	20...200 kPa
	Typical value			Use effective Δp_{VR}-value	
Δp_{V100}		$\Delta p_{V100} \geq \Delta p_{MV}$		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
Δp_{max}		$\Delta p_{max} \geq \Delta p_{V100}$		$\Delta p_{max} \geq \Delta p_{VR}$	
Example of hydraulic circuit	Example	Throttling circuit primary pump controlled		$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$	
Selected differential pressure		$\Delta p_{V100} = \frac{\Delta p_{VR}}{2} = \frac{30\,kPa}{2} = 15\ kPa$			

3 Determine the k_v-value

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$$

$$k_v = \frac{9.3\ m^3/h}{\sqrt{\frac{15\ kPa}{100}}} = 24\ m^3/h$$

4 Select nominal flow value k_{vs} and determine resulting differential pressure Δp_{V100}

$k_{vs} \geq 0.8 \cdot k_v$-value	$k_{vs} \geq 0.8 \cdot 24\ m^3/h = 19.2\ m^3/h$	$k_{vs} = 20\ m^3/h$ or $k_{vs} = 25\ m^3/h$	
Resulting Δp_{V100}	$k_{vs} = 20\ m^3/h$	$k_{vs} = 25\ m^3/h$	
$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2$	$\Delta p_{V100} = 100 \cdot \left(\frac{9.3\ m^3/h}{20\ m^3/h}\right)^2 = 21.6\ kPa$	$\Delta p_{V100} = 100 \cdot \left(\frac{9.3\ m^3/h}{25\ m^3/h}\right)^2 = 13.8\ kPa$	

A

5 Check valve authority P_V (control stability)

$$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3...0.6$$

Enter resulting differential pressure Δp_{V100}

MXG461.40-20	VVG41.40
k_{vs} = 20 m³/h	k_{vs} = 25 m³/h
$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} = \frac{21{,}6\ kPa}{30\ kPa} = 0{,}72$	$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} = \frac{13{,}8\ kPa}{30\ kPa} = 0{,}46$

6 Select suitable valve range

a) Type of valve	3-port control valve	
b) Connections	Externally threaded	
c) Pressure class	PN 16	
d) Nominal size DN	40	
e) Accessories	Union fittings	
Available valve range(s)	k_{vs} = 20 m³/h k_{vs} = 25 m³/h	MXG461.. (2-Weg) VVG41.., VVG44.., VVP45..
Type of valve selected	MXG461.40-20 VVG41.40	k_{vs} = 20 m³/h k_{vs} = 25 m³/h

7 Check the valve's working range

a) Medium temperature	12 °C < MXG461.. for maximum medium temperature of 130 °C 12 °C < VVG41.. for maximum medium temperature of 130 °C 6 °C > VXG41.. for minimum medium temperature of 1 °C 6 °C > VVG41.. for minimum medium temperature of -25 °C
b) Medium	MXG461..: suited for water VVG41..: suited for water

8 Select the actuator

a) Supply voltage	AC 24 V		
b) Control signal	0...10 V		
c) Actuator positioning time	Available ranges	MXG461..	< 2 s
		SQX..	35...150 s
		SKD.., SKB..	30...120 s
d) Spring return facility	No		
e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal		
Available types of actuators	MXG461..: actuator integrated VVG41..: SQX.., SKD.., SKB..		
Type of actuator(s) selected	MXG461.40-20 SQX62		

9 Check the actuator's working range

		MXG461.40-20	VVG41.40 + SQX62
a) Differential pressure	$\Delta p_{max} \geq \Delta p_{VR}$	$\Delta p_{max} \geq$ 30 kPa	$\Delta p_{max} \geq$ 30 kPa
	Δp_{max}	300 kPa	525 kPa
b) Closing pressure	$\Delta p_s \geq H_0$	300 kPa	525 kPa

Type of actuator(s) selected	MXG461.40-20	actuator integrated
	SQX62	without spring return, running time 35 s, no auxiliary functions, with position checkback signal

Selection

Type of valve	VXG41.40	for details, refer to Data Sheet N4463	Suited for controlled systems with: n Usual degree of difficulty n Ease of service and repair
Type of actuator	SQX62	for details, refer to Data Sheet N4554	
Valves and actuators	MXG461.40-20	for details, refer to Data Sheet N4455	Specially suited for controlled systems with: n High degree of difficulty n Demanding requirements for control accuracy n Fast load changes
	When used as a through-port valve, inlet B must be closed off with the accessories supplied with the valve (nuts, cover and gasket)		

A

Important notes

When measuring valve size using a media other than water, please note that the media properties
- Specific heat
- Density
- Kinematic viscosity

differ from water. All measured values depend on temperature.

Water without antifreeze

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} \ [m^3/h]$$

Water with antifreeze
The design temperature is the lowest medium temperature occurring in the valve.

$$\dot{V}_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \Delta T \cdot \rho} \ [m^3/h] \quad \text{or} \quad \dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T \cdot f_1}$$

$\dot{V}_{100}$	= volumetric flow	[m³/h]
Q_{100}	= rated capacity of plant	[kW]
ΔT	= temperature difference of flow and return	[K]
c	= specific heat capacity	[kJ/kgK]
ρ	= specific density	[kg/m^3]

For glycol portion > 20 %, use the corrective factor f1 per table in the formula for determining volume flow.

Corrective factor f1 for Antifrogen N

x	-40	-20	0	20	40	60	80	100	Temp. [°C]
100	0.60	0.62	0.63	0.65	0.67	0.68	0.69	0.71	
80	0.71	0.73	0.74	0.75	0.77	0.78	0.79	0.80	
60	0.79	0.80	0.81	0.82	0.84	0.85	0.86	0.86	
52	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.88	
44		0.87	0.88	0.88	0.89	0.90	0.90	0.90	
34		0.92	0.92	0.92	0.92	0.92	0.93	0.93	
20			0.97	0.97	0.96	0.96	0.96	0.95	

The data and application notes of the glycol manufacturer are binding.
x = percentage of Antifrogen N

Determine the corrective factor f_1

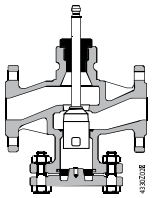
Entry: c; ρ

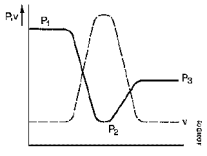
Output: Corrective factor f_1

$$f_1 = \frac{c\left[\frac{kJ}{kgK}\right]}{4.18} \times \frac{\rho\left[\frac{kg}{m^3}\right]}{1000}$$

Kinematic viscosity
No corrections required for kinematic viscosity = of up to 10 mm²/s. Please contact your local representative on selecting control actuating devices equipment at other kinematic viscosity =.

Cavitation
High medium velocity in the narrowest section of the valve results in localized underpressure (p2). If the underpressure falls below the boiling pressure (vapor pressure) of the medium, cavitation (vapor bubbles) takes place and, in extreme circumstances, Valve body material is removed from the surfaces. Furthermore, the noise level increases dramatically as cavitation develops. Cavitation can be prevented by limiting the differential pressure across the valve as a function of the medium temperature and upstream pressure, provided the valves differential pressure as provided for in flow chart 1 for a valve is not exceeded and the static pressures listed in diagram 2 are maintained.



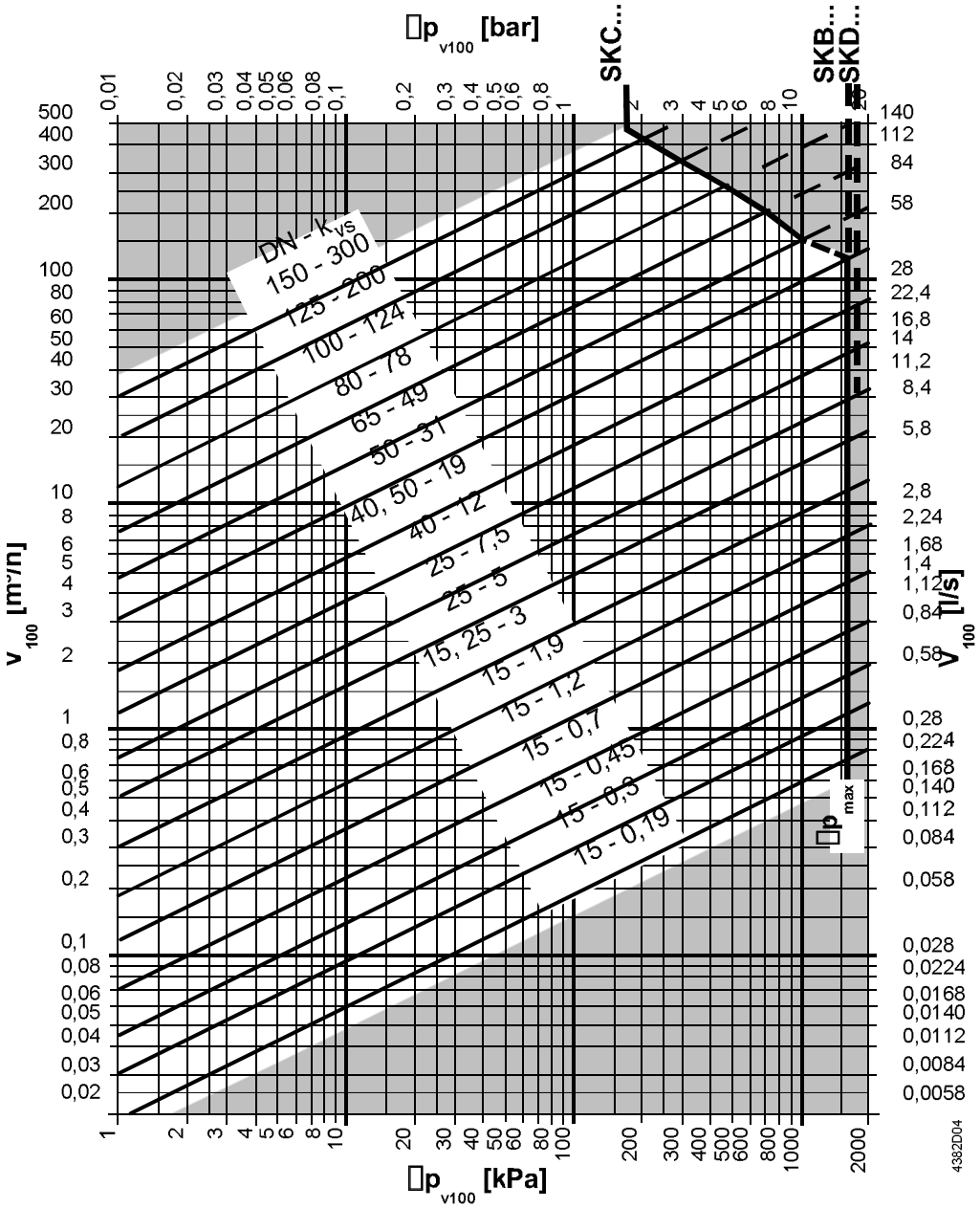


To prevent cavitation sufficient static counterpressure at the valve's outlet must also be ensured for domestic hot water and cold water circuits. A throttling valve, for example, downstream from the heat exchanger would ensure this. In this case, the maximum pressure drop across the control valve should be selected according to the 80 °C curve from the chart on page 19-18.

—— pressure profile
----- velocity profile

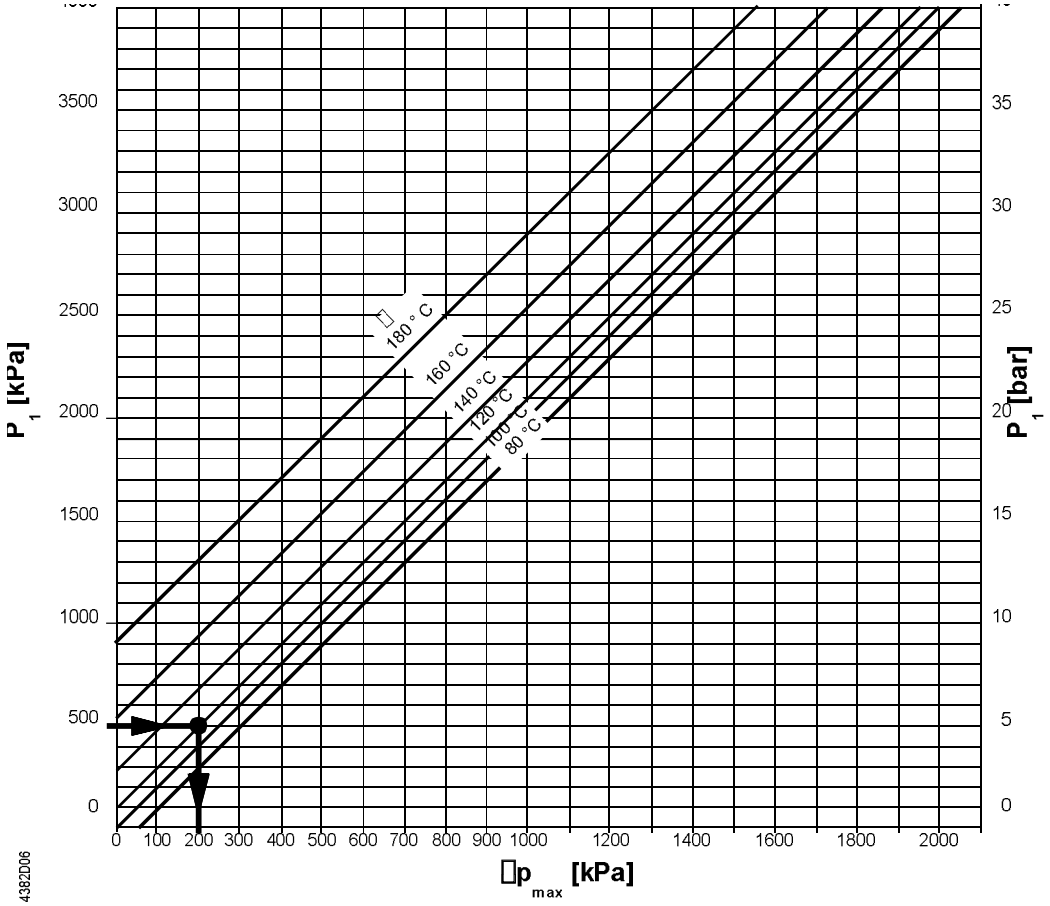
A

Example – Flow diagram for VVF61..



Cavitation

Ensure there is sufficient static counter pressure p_3 at the valve outlet to prevent cavitation. This can be accomplished, for example, with a throttling valve after the heat exchanger. Pressure loss across the control valve should be selected per the 80 °C curve from the following diagram.

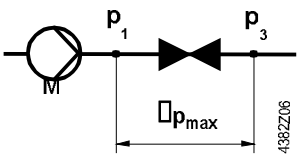


Pressure chart 2

Δp_{max} = differential pressure with valve almost fully closed, at which cavitation can nearly be completely avoided
p_1 = static pressure at inlet
p_3 = static pressure at outlet
M = pump
J = water temperature

Example: Hot water

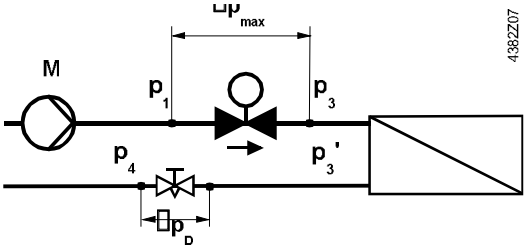
Pressure p_1 upstream of the valve: 500 kPa (5 bar)
Water temperature: 120 °C



The above chart 2 shows that when the valve is nearly fully closed, a maximum differential pressure Δp_{max} of 200 kPa (2 bar) is permitted.

Example: Cold water

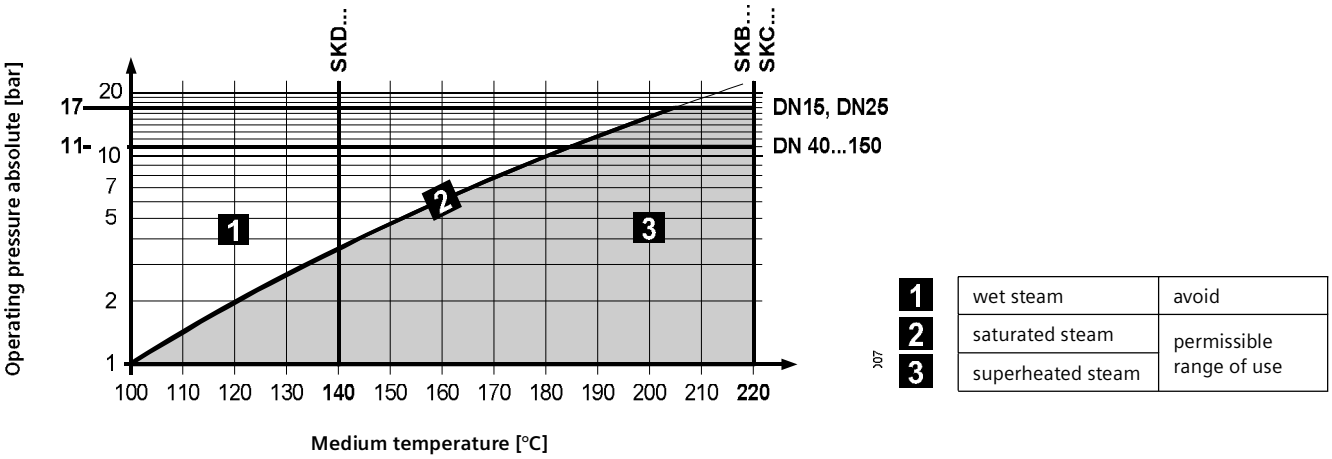
Prevention of cavitation using the example of well-water cooling:



Cold water = 12 °C
p_1 = 500 kPa (5 bar)
p_4 = 100 kPa (1 bar) (atmospheric pressure)
Δp_{max} = 300 kPa (3 bar)
$\Delta p_{3\text{-}3'}$ = 20 kPa (0,2 bar)
Δp_D (throttle) = 80 kPa (0,8 bar)
$p_{3'}$ = pressure downstream from consumer in kPa

Valve design for saturated and super-heated steam

Saturated and super-heated steam in sub-critical range



Recommendation: The differential pressure Δp_{max} via the valve for saturated and super-heated steam should approximate the critical pressure ratio as much as possible.

$$\text{Pressure ratio} = \frac{p_1 - p_3}{p_1} \times 100\%$$

p_1 = absolute pressure before the valve in kPa
p_3 = absolute pressure after the valve in kPa

Calculate the k_{vs}-value for steam

Sub-critical range		Overcritical range	
$\frac{p_1 - p_3}{p_1} \times 100\% < 42\ \%$	Pressure ratio < 42% sub-critical	$\frac{p_1 - p_3}{p_1} \times 100\% \geq 42\ \%$	Pressure ratio ≥ 42% overcritical (not recommended)
$k_{VS} = 4.4 \times \frac{\dot{m}}{\sqrt{p_3 \times (p_1 - p_3)}} \times k$		$k_{VS} = 8.8 \times \frac{\dot{m}}{p_1} \times k$	

$\dot{m}$ = Steam amount in kg/h
k = Factor for superheating steam = 1 + 0,0012 • ΔT (for saturated steam, k = 1)
ΔT = Temperature difference in K between saturated and superheated steam

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Example with saturated steam and for sub-critical range

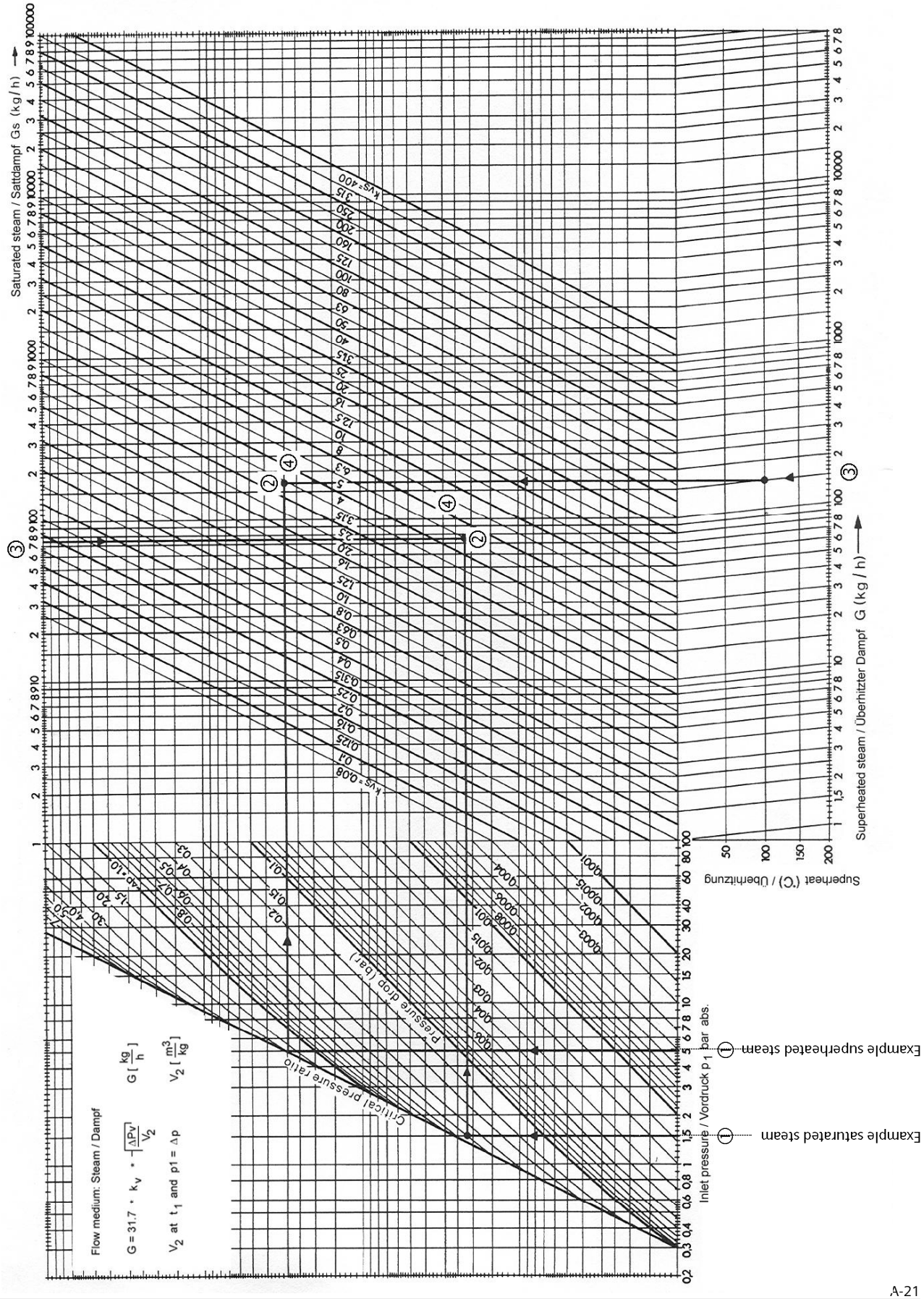
Using formula			Using diagram 3 (next page)	
given	Saturated steam	= 133,5 °C	Saturated steam	= 133.5 °C
	p_1	= 150 kPa (1.5 bar)	p_1	= 150 kPa (1.5 bar)
	$\dot{m}$	= 75 kg/h	$\dot{m}$	= 75 kg/h
	Pressure ratio	= 27 %	Pressure drop	= 40 kPa (0.4 bar)
sought	k_{vs}, valve type		k_{vs}, valve type	
solution	① $p_3 = p_1 - \frac{27\,\% \cdot p_1}{100\,\%}$		① vertical line upward for pressure drop p_1 = 1.5 bar (150 kPa) (absolute)	
	② $p_3 = 150\,\text{kPa} - \frac{27\,\% \cdot 150\,\text{kPa}}{100\,\%} = 110\,\text{kPa}\ (1.1\,\text{bar})$		② horizontal line to the right for intersection 1.5 bar (150 kPa) and pressure drop 0.4 bar (40 kPa)	
	③ $k_{vs} = 4.4 \cdot \frac{75\,\text{kg/h}}{\sqrt{110\,\text{kPa} \cdot (150\,\text{kPa} - 110\,\text{kPa})}} \cdot 1 = 4.97\,\text{m}^3/\text{h}$		③ vertical line downward at 75 kg/h	
			③ Intersection k_{vs} value Select existing k_{vs} value of the valve series VVF41.., VXF41.., VVF45.., VVF52.., VVF61.., VXF61..	
			⑤ Selected k_{vs} value: 5 m³/h	
selected	k_{vs} = 5 m³/h	VVF61.24	k_{vs} = 5 m³/h	VVF61.24

Example with superheated steam and for sub-critical range

Using formula			Using diagram 3 (next page)	
given	Superheated steam	= 251.8 °C	Superheated steam	= 251.8 °C
	Saturated steam	= 151.8 °C	Saturated steam	= 151.8 °C
	Superheating ΔT	= 100 °C	Superheating ΔT	= 100 °C
	p_1	= 500 kPa (5 bar)	p_1	= 500 kPa (5 bar)
	$\dot{m}$	= 150 kg/h	$\dot{m}$	= 150 kg/h
	Pressure ratio	= 40 %	Pressure ratio	= 200 kPa (2 bar)
sought	k_{vs}, valve type		k_{vs}, valve type	
solution	① $p_3 = p_1 - \frac{40\,\% \cdot p_1}{100\,\%}$		① vertical line upward for pressure drop p_1 = 5 bar (500 kPa) (absolute)	
	② $p_3 = 500\,\text{kPa} - \frac{40\,\% \cdot 500\,\text{kPa}}{100\,\%} = 300\,\text{kPa}\ (3\,\text{bar})$		② horizontal line to the right for intersection 5 bar (500 kPa) and pressure drop 2 bar (200 kPa)	
	③ $k_{vs} = 4.4 \cdot \frac{150\,\text{kg/h}}{\sqrt{300\,\text{kPa} \cdot (500\,\text{kPa} - 300\,\text{kPa})}} \cdot 1 = 3.02\,\text{m}^3/\text{h}$		③ vertical line superheated steam upward at 150 kg/h	
			③ Intersection k_{vs} value Select existing k_{vs} value of the valve series VVF41.., VXF41.., VVF45.., VVF52.., VVF61.., VXF61..	
			⑤ Selected k_{vs}-Wert: 3 m³/h	
selected	k_{vs} = 3 m³/h	VVF61.23	k_{vs} = 3 m³/h	VVF61.23

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Diagram 3 on determining the kvs value for steam



Water vapor table

pressure		tempera-ture	specific water volume	specific vapour volume	density of vapour	enthalpy of water	enthalpy of vapour	evaporation heat
p	p	t	v'	v''	ρ''	h'	h''	r
kPa	bar	℃	dm^3/kg	m^3/kg	kg/m^3	kJ/kg	kJ/kg	kJ/kg
1	0.010	6.9808	1.0001	129.20	0.007739	29.34	2514.4	2485.0
2	0.020	17.513	1.0012	67.01	0.01492	73.46	2533.6	2460.2
3	0.030	24.100	1.0027	45.67	0.02190	101.00	2545.6	2444.6
4	0.040	28.983	1.0040	34.80	0.02873	121.41	2554.5	2433.1
5	0.050	32.898	1.0052	28.19	0.03547	137.77	2561.6	2423.8
6	0.060	36.183	1.0064	23.74	0.04212	151.50	2567.5	2416.0
7	0.070	39.025	1.0074	20.53	0.04871	163.38	2572.6	2409.2
8	0.080	41.534	1.0084	18.10	0.05523	173.86	2577.1	2403.2
9	0.090	43.787	1.0094	16.20	0.06171	183.28	2581.1	2397.9
10	0.10	45.833	1.0102	14.67	0.06814	191.83	2584.8	2392.9
20	0.20	60.086	1.0172	7.650	0.1307	251.45	2609.9	2358.4
30	0.30	69.124	1.0223	5.229	0.1912	289.30	2625.4	2336.1
40	0.40	75.886	1.0265	3.993	0.2504	317.65	2636.9	2319.2
50	0.50	81.345	1.0301	3.240	0.3086	340.56	2646.0	2305.4
60	0.60	85.954	1.0333	2.732	0.3661	359.93	2653.6	2293.6
70	0.70	89.959	1.0361	2.365	0.4229	376.77	2660.1	2283.3
80	0.80	93.512	1.0387	2.087	0.4792	391.72	2665.8	2274.0
90	0.90	96.713	1.0412	1.869	0.5350	405.21	2670.9	2265.6
100	1.0	99.632	1.0434	1.694	0.5904	417.51	2675.4	2257.9
150	1.5	111.37	1.0530	1.159	0.8628	467.13	2693.4	2226.2
200	2.0	120.23	1.0608	0.8854	1.129	504.70	2706.3	2201.6
250	2.5	127.43	1.0675	0.7184	1.392	535.34	2716.4	2181.0
300	3.0	133.54	1.0735	0.6056	1.651	561.43	2724.7	2163.2
350	3.5	138.87	1.0789	0.5240	1.908	584.27	2731.6	2147.4
400	4.0	143.62	1.0839	0.4622	2.163	604.67	2737.6	2133.0
450	4.5	147.92	1.0885	0.4138	2.417	623.16	2742.9	2119.7
500	5.0	151.84	1.0928	0.3747	2.669	640.12	2747.5	2107.4
600	6.0	158.84	1.1009	0.3155	3.170	670.42	2755.5	2085.0
700	7.0	164.96	1.1082	0.2727	3.667	697.06	2762.0	2064.9
800	8.0	170.41	1.1150	0.2403	4.162	720.94	2767.5	2046.5
900	9.0	175.36	1.1213	0.2148	4.655	742.64	2772.1	2029.5
1000	10.0	179.88	1.1274	0.1943	5.147	762.61	2776.2	2013.6
1100	11	184.07	1.1331	0.1774	5.637	781.13	2779.7	1998.5
1200	12	187.96	1.1386	0.1632	6.127	798.43	2782.7	1984.3
1300	13	191.61	1.1438	0.1511	6.617	814.70	2785.4	1970.7
1400	14	195.04	1.1489	0.1407	7.106	830.08	2787.8	1957.7
1500	15	198.29	1.1539	0.1317	7.596	844.67	2798.9	1945.2
1600	16	201.37	1.1586	0.1237	8.085	858.56	2791.7	1933.2
1700	17	204.31	1.1633	0.1166	8.575	871.84	2793.4	1921.5
1800	18	207.11	1.1678	0.1103	9.065	884.58	2794.8	1910.3
1900	19	209.80	1.1723	0.1047	9.555	896.81	2796.1	1899.3
2000	20	212.37	1.1766	0.09954	10.05	908.59	2797.2	1888.6
2500	25	223.94	1.1972	0.07991	12.51	961.96	2800.9	1839.0
3000	30	233.84	1.2163	0.06663	15.01	1008.4	2802.3	1793.9
4000	40	250.33	1.2521	0.04975	20.10	1087.4	2800.3	1712.9
5000	50	263.91	1.2858	0.03743	25.36	1154.5	2794.2	1639.7
6000	60	275.55	1.3187	0.03244	30.83	1213.7	2785.0	1571.3
7000	70	285.79	1.3513	0.02737	36.53	1267.4	2773.5	1506.0
8000	80	294.97	1.3842	0.02353	42.51	1317.1	2759.9	1442.8
9000	90	303.31	1.4179	0.02050	48.79	1363.7	2744.6	1380.9
10000	100	310.96	1.4526	0.01804	55.43	1408.0	2727.7	1319.7
11000	110	318.05	1.4887	0.01601	62.48	1450.6	2709.3	1258.7
12000	120	324.65	1.5268	0.01428	70.01	1491.8	2689.2	1197.4
13000	130	330.83	1.5672	0.01280	78.14	1532.0	2667.0	1135.0
14000	140	336.64	1.6106	0.01150	86.99	1571.6	2642.4	1070.7
15000	150	342.13	1.6579	0.01034	96.71	1611.0	2615.0	1004.0
20000	200	365.70	2.0370	0.005877	170.2	1826.5	2418.4	591.9
22000	220	373.69	2.6714	0.003728	268.3	2011.1	2195.6	184.5
22120	221.2	374.15	3.17	0.00317	315.5	2107.4	2107.4	0

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Explanation of the abbreviations and terms used

Abbreviation	Term	Unit	Definition
Δp	Differential pressure	kPa	Pressure differential between plant sections
Δp_{max}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorised valve
Δp_{V100}	Differential pressure at nominal flow rate	kPa	Differential pressure across the fully open valve and the valve's control path by a volume flow V_{100}
Δp_s	Closing pressure	kPa	Maximum permissible differential pressure at which the motorised valve will close securely against the pressure (close off pressure)
Δp_{MV}	Differential pressure across variable flow path	kPa	Often, Δp_{MV} is not known, in which case typical practical values can be used
Δp_{VR}	Differential pressure of flow and return	kPa	
ΔT	Spread	K	Temperature differential between flow and return
DN	Nominal size		Characteristic for matching parts of the piping system
EPDM	Sealing material		Ethylene propylene Dien rubber for sealing elements
H	Stroke	mm	Valve stem travel
H_0	Zero pump head	m	Pump head, for no flow. The pump operates with a closed valve.
kPa	Unit of pressure		100 kPa = 1 bar = 10 mWS
k_v	Nominal flow value	m³/h	Amount of cold water (5...30 °C) passing through the valve at the respective stroke and at a differential pressure of 100 kPa (1 bar)
k_{vs}	Nominal flow rate	m³/h	Nominal flow rate of cold water (5 bis 30 °C) through the fully open (H_{100}) at a differential pressure of 100 kPa (1 bar)
	Leakage rate	% k_{vs}	Leakage rate when valve is fully closed (H_0) to DIN EN 1349
	Emergency positioning function		Shutoff in the event of a power failure
mWC	Meter water column	m	
PN	PN class		Characteristic relating to the combination of mechanical and dimensional properties of a component in the piping system
P_V	Valve authority		Ratio of differential pressure across fully open valve (H_{100}) and differential pressure across valve and variable flow path. To ensure correct control, a minimum valve authority of 0.3 is required
Teflon	Sealing material		Poly Tetra Fluor Ethylene (PTFE) for sealing elements
Viton	Sealing material		Fluoro-carbon for sealing elements
Q_{100}	Rated capacity	kW	Plant's design capacity
V100	Volumetric flow	m³/h	Volumetric flow with valve fully open (H_{100})
u	Kinematic viscosity	mm²/s	
c	Specific heat capacity	kJ/kgK	
r	Specific density	kg/m³	

Relationship between the terms Δp_{max} and Δp_s (close off)
Maximum differential pressure Δp_{max} indicates the differential pressure up to which the control valve can be subjected to the resultant dynamic requirements over the entire stroke range, i.e. from the fully closed to the fully open position. Therefore, Δp_{max} initially depends on design and selected materials, as well as on the available positioning force of the actuator. If the actuator is too weak, only a portion of the possible application range can be utilized.

Conclusion: Δp_{max} is the most important pressure term for the operation of control valves.

Closing pressure Δp_s applies only in the case of a simple shutoff function, but not as a continuos operating state. In this case (e.g. as a safety function in case of pipe rupture), it is important to be able to close against as high a dynamic pressure as possible. This characteristic quantity is comparable with the term «close-off pressure» which is common on the market.

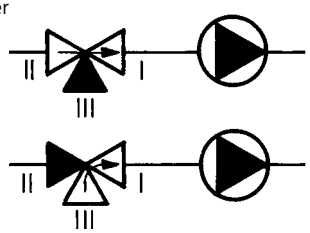
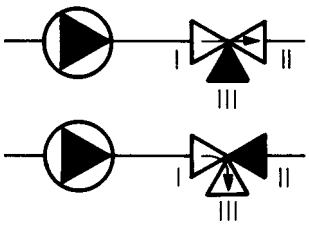
Conclusion: Δp_s or close-off pressure is often consciously or unconsciously equated to the dynamic range Δp_{max}. This erroneously suggests an application field to the customer that does not correspond to the permissible field of use of the control valve, which can cause premature failure.

The list terms can be found in the product descriptions and technical data in the product catalog.

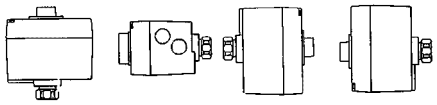
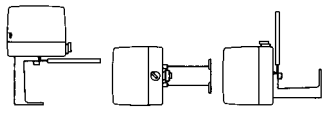
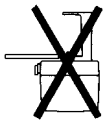
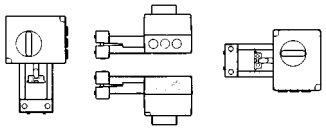
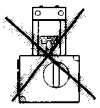
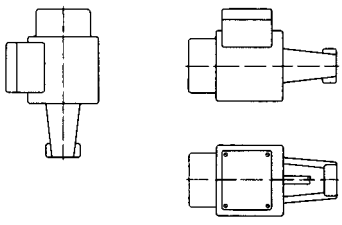
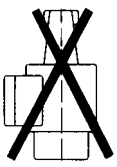
Norms and standards
The valves comply with the requirements of Pressure Equipment Directive PED97/23/EC for presure-carrying equipment according to section 1, clause 2.1.4.
For products classified in categories I and II, Declaration of Conformity will be provided.

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Installation and function of three-port valves

Three-port valves	Function	Actuators
	Mixing: From II and III to I Distribution: From I to II and III Gate II = Control port (sealing) Gate III = Bypass port (immersion seat) for all valves, only type VXG41 with sealing bypass port together with SQX actuators	
Install mixer 	Open control port Close control port	With all actuator types: n electric motor n electro-hydraulic n electro-magnetic
Install as distributor 	Open control port Close control port	Preferably using electro-hydraulic actuators

Actuator installation position

Allowed	Not allowed	Actuators
		Electric motor stroke actuator SQS35../65.. for valve with 5.5 mm stroke
		Electric motor rotary actuator SQK33.. / SQK34.. / SQL33.. / SQL35.. For plug and ball valve and butterfly valves
		Electric motor stroke actuator SQX.. For valve with 20 mm stroke
		Electric motor stroke actuator SKB.. / SKD.. For valves with 20 mm stroke SKC.. For valves with 40 mm stroke

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Room temperature sensor, room thermostats, remote control devices with built-in room temperature sensor

Application

Room temperature sensor is used in single family homes and duplexes for:

- Room temperature control
- Weather-dependent flow temperature control with connection to room temperature as disturbance variable
- Primarily in non-residential buildings for:
- Room max limits
- Monitoring room temperature for switched off heating (frost protection) and boost heating.
- Optimization

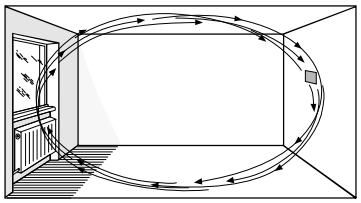
Select reference room

The reference room for placing the room temperature sensor

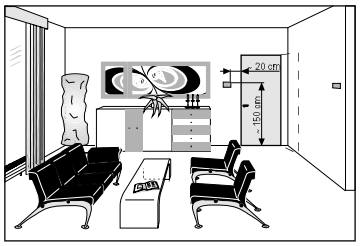
- For single-family homes and duplexes, in general in the main living room
- In non-residential buildings, the least favorable room from a thermal standpoint, e.g.:

Corner room on the north/northwest side or room with large portion of exterior surfaces and must serve as representative for main use of rooms influenced by the optimization system (e.g. no interior rooms, entries, hallways, storage rooms, gangways).

Correct



Best mounting location for room temperature sensor: The interior wall in the main living room opposite the radiator

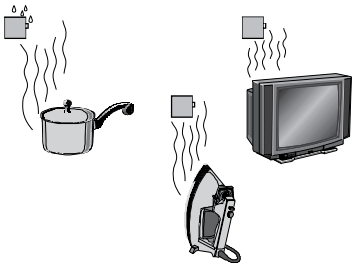


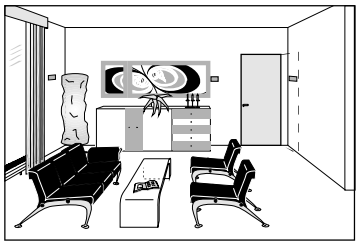
Proper placement of room temperature sensor

How to correctly place the room temperature sensor:

- This device should be placed on an interior wall in the main living room opposite the radiator.
- The room behind this wall must be heated to achieve a representative temperature for the entire living area in the main living room.
- Mounting height: ca. 1.5 m above the floor.
- 1.5 m minimum distance from heat source (e.g. television and strong lights).

False





Incorrect placement of room temperature sensor

However, do not place the room temperature sensor:

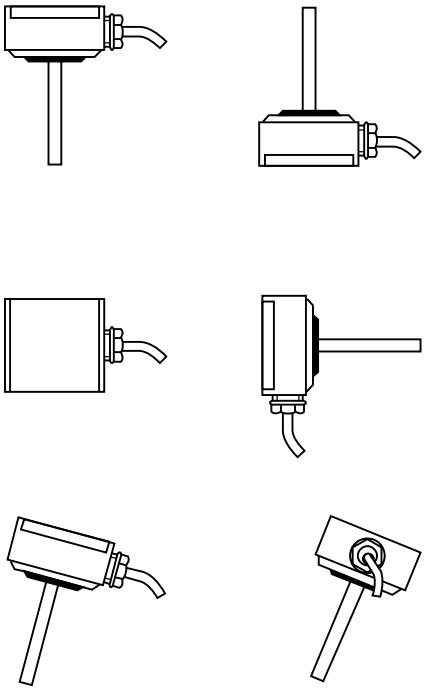
- In bookcases and coves, behind doors and curtains
- In direct sun or supply air
- Close to windows and doors
- In areas with strong contamination
- On a spot on the wall where the heating or domestic hot water piping runs or where a chimney is located
- On an exterior wall.

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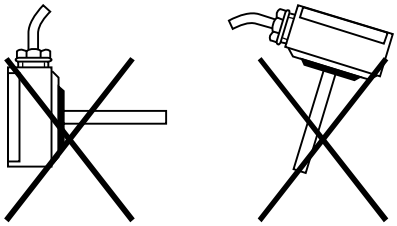
Flow and return temperature sensor immersion or strap-on temperature sensor

Installation position	Control sensor	Limitation sensor
To protect against humidity, install the sensor housing so that the lead for the electric wiring is not pointed up.	As a matter of principle, place the sensors so that the medium to be measured constantly circulates on the mounting location. Where not possible, mount the sensor as close as possible to the medium used to change temperature. (Example: See indirect district heating connection).	

Correct

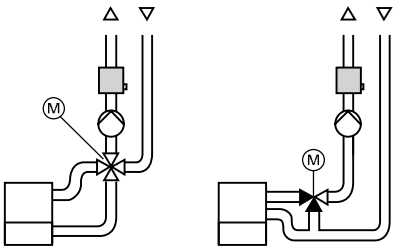


False



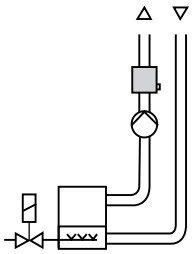
Mounting location for pump in flow

With four-port mixer

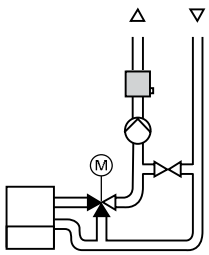


With three-port mixer

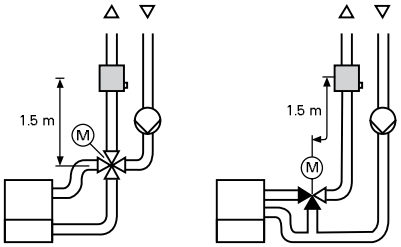
Without mixer



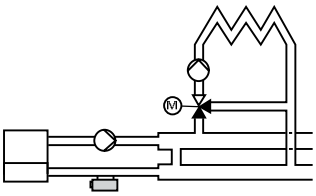
With three-port mixer (floor heating)



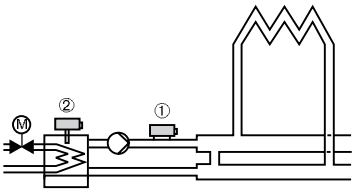
Mounting location for pump in return



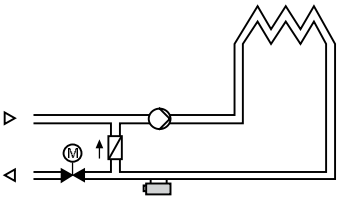
Minimum limitation of the boiler return temperature



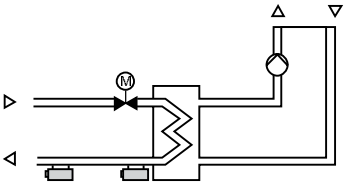
Min.- ① or maximum limitation ② of the heating flow temperature



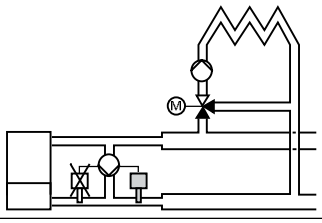
Maximum limitation of the district heating return (direct district heating connection)



Maximum limitation of the district heating return (indirect district heating connection)



Control of boiler mixing pump



A

Immersion temperature sensor QAE..; strap-on sensor QAD..;

Standard immersion and strap-on sensor can be used for a medium temperature of max. 130°C (special models up to 200°C/450°C). The mounted sensor cannot be exposed to a heat dam since the highest permissible ambient temperature for the housing is generally just 50°C. Immersion sensors must be immersed deeply enough; otherwise the measured result is too low.

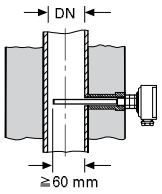
This sheet includes information on:
- Required minimum thickness of insulation for the heating pipes,
- Mounting possibilities for immersion sensors,
- Immersion sensor lengths per pipe nominal length and insulation thickness,
- And the required length of the sensor piece.

§6 the heating plant ordinance:
Heat insulation for heating distribution plants

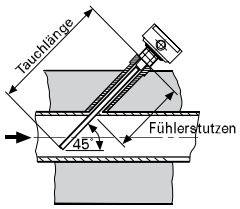
Pipe nominal length DN in mm	Minimum thickness of insulation layer in mm
to 20	20
22...35	30
40...100	same as DN
100...250	100

* at = 0.035 $Wm^{-1} K^{-1}$

Immersion temperature sensor

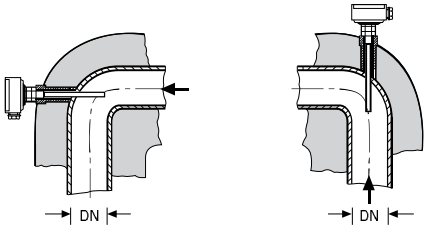


Pipe Ø DN [mm]	Insulation layer [mm]	**Sensor pieces in mm** for immersion sensor length 150	200	300 [mm]
80	80	80	-	-
100	100	-	110	-
125	100	-	100	120
150...250	100	-	100	120



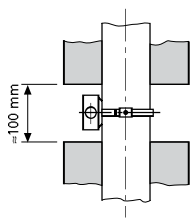
Pipe Ø DN [mm]	Insulation layer [mm]	**Sensor pieces in mm** for immersion sensor length 200	300 [mm]
80	80	130	130
100...250	100	-	160

Optimum order



Pipe Ø DN [mm]	**Sensor pieces** [mm]	Immersion sensor length 100	150	200	300 [mm]
40		x	x	x	x
50		-	x	x	x
65		-	x	x	x
80		-	x	x	x
100...250		-	-	x	x

Plant temperature sensor



Remove a section of insulation, approximately 100 mm (see figure) when using a strap-on temperature sensor.

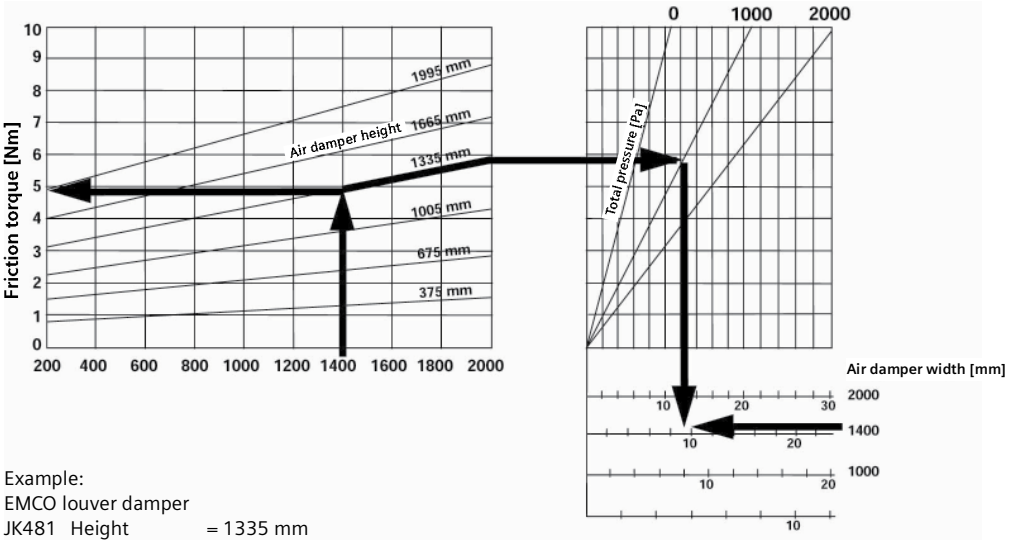
A

Select air damper actuator

Select air damper actuator

The data for the air damper required to select the employed air damper actuator. The manufacturer offers dimension diagram for the various air damper types in its documentation. This allows you to determine the required torque for the air damper based on air damper width, air damper height and overall plant pressure.

Example of manufacturer diagram



Example:
EMCO louver damper
JK481 Height = 1335 mm
Width = 1400 mm
Total pressure = 1000 Pa

Total torque = 9,7 Nm

To ensure that the actuator function achieves damper torque in operation and for contamination in the plant, the actuator should provide some 20% more torque as required for a new air damper.

Safety factor SF = 0.8

Overall torque = Torque characteristic [Nm/m^2] x damper area [m^2]

$$\text{Number of actuators} = \frac{\text{Total required damper torque}}{\text{SF1 x actuator torque (see specification)}}$$

Actuator series GBB
Nominal torque = 20 Nm

$$\text{Number of actuators} = \frac{9{,}7\ \text{Nm}}{0{,}8 \times 20\ \text{Nm}} \leq 1 \quad \underline{1}$$

Control signal

Control with Synco™ RMU7..
DC 0..10 V

Actuator: GBB161.1E

A

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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