SIEMENS

Ingenuity for life

HVAC products and building automation systems

Product Catalog 2017

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A Practical tips

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Dear customers

The world around us is constantly changing; in particular, digitalization and automation are gaining in importance. Everything is becoming networked, more integrated and more digitalized with huge amounts of data being generated. For buildings, this data offer a wealth of opportunities. Siemens has extensive experience in leveraging these opportunities to make buildings and infrastructures safer and more energy-efficient, focusing on the comfort and well-being of building users and easy product and system operation.

Siemens relies on Building Information Modeling (BIM), a working method revolutionizing and simplifying the construction process. It is based on virtual 3D models that reflect the geometric data of all building elements, construction schedules and budgets as well as all relevant building data pertaining to energy supply, lighting, fire safety and building management. This approach digitally networks information and optimizes workflows from planning to facility management.

Product developments such as new room automation stations with preprogrammed applications and networkable damper actuators add value to the Siemens product portfolio.

Make your buildings safer and more energy-efficient using innovative products and tested applications from Siemens.

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A consistent strategy

Market-leading technologies and winning business models have been the foundation of our success for more than 170 years.

Electrification: shaping the new energy age

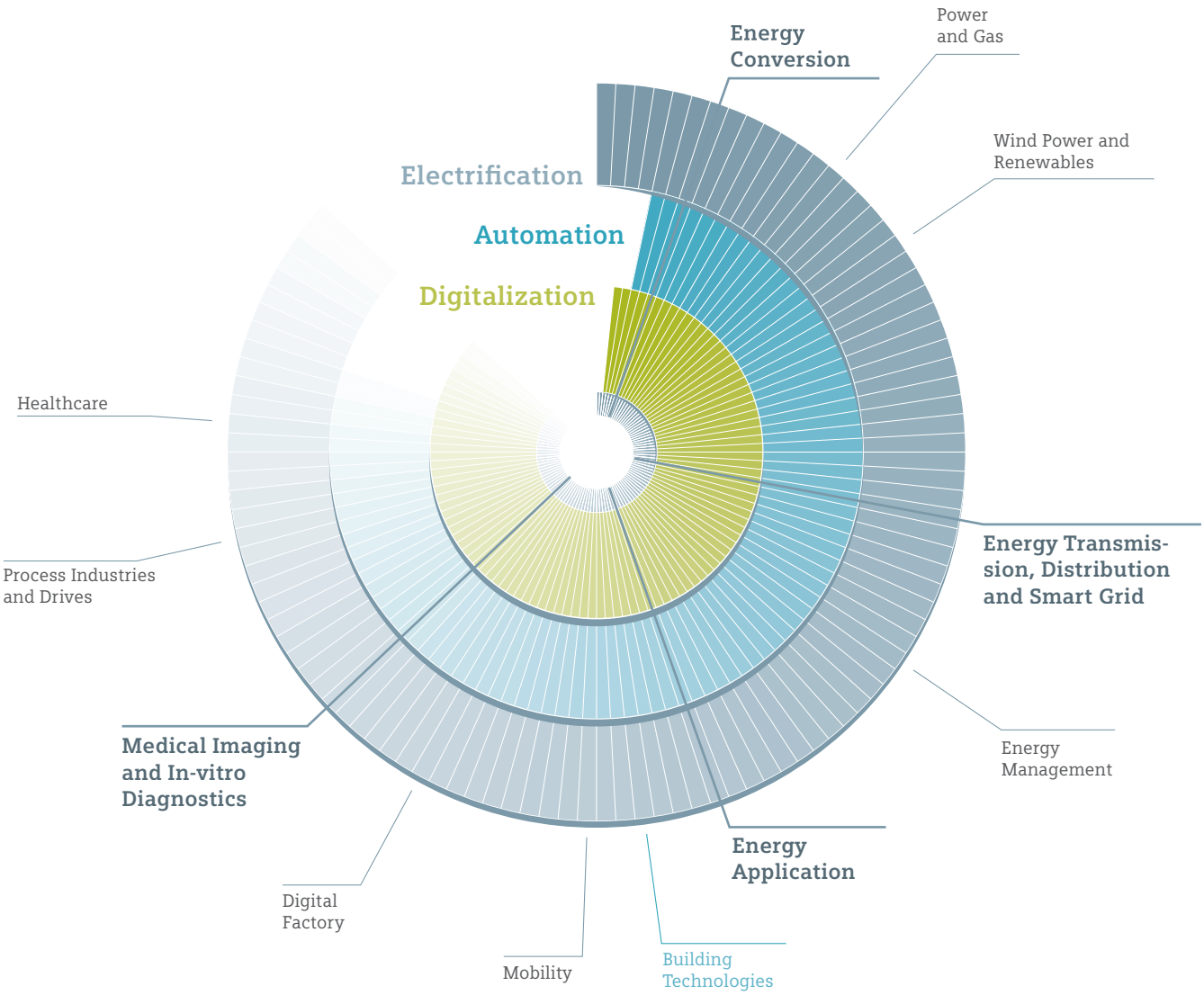
Siemens is positioned along the electrification value chain. Our products are highly efficient at generating, transmitting, distributing and using electrical energy. Electrification is where our roots are. We are still the leader in this space, and it is where our future lies.

Automation: shaping the 4th industrial revolution

We have been successfully automating our customers' processes for many years. We are a global leader in automation – a position we intend to maintain and expand.

Digitalization: shaping the digital enterprise

We want to exploit the opportunities offered by digitalization even more because added value for customers can increasingly be found in software solutions and intelligent data analytics.



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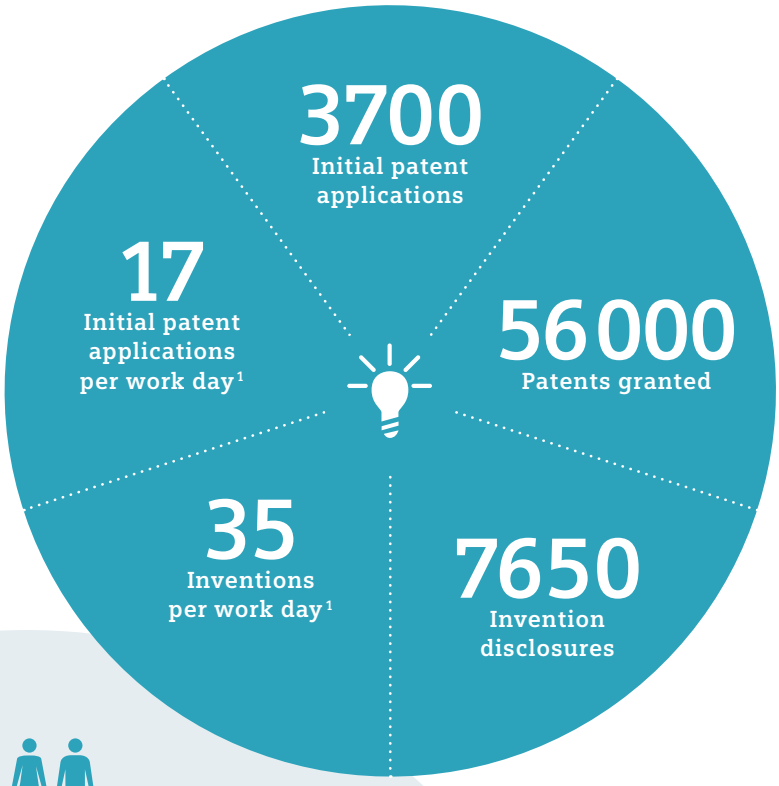
The power of innovation

With more than 348 000 employees around the world, Siemens is one the largest producers of energy-efficient and resource-saving technologies.



R&D employees and software developers (rounded) in FY 2015/16

32 100
employees in Research and Development (R&D)

17 500
Software developers

of those, approximately
7800
software developers in Corporate Technology

9
Interchange universities

16
Principal-partner universities

[1] calculation based on 220 work days

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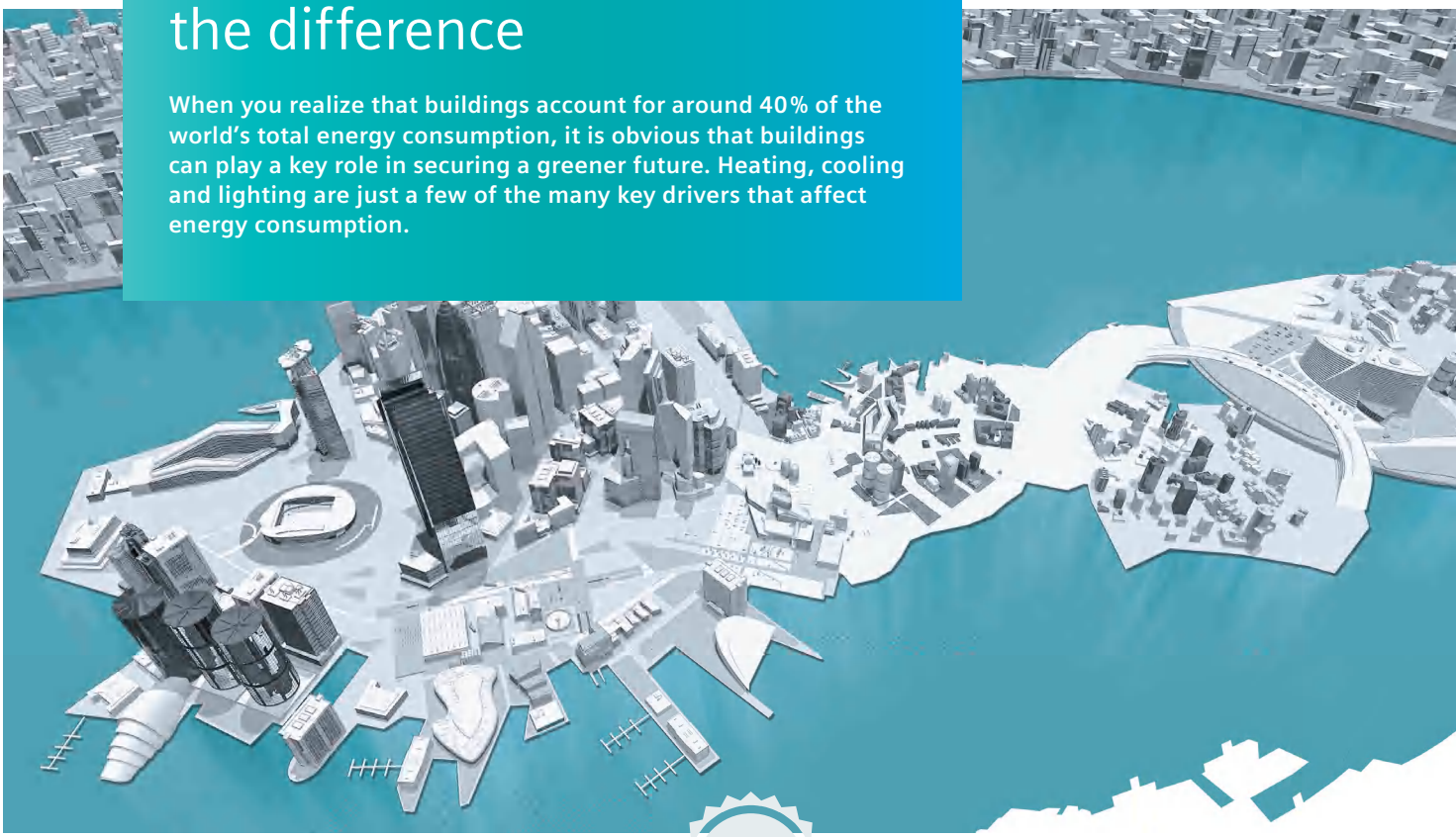
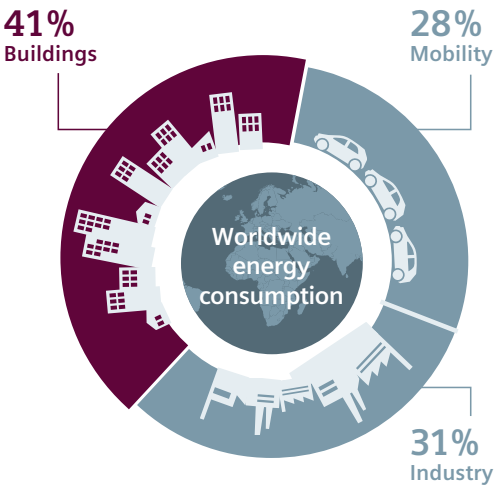
Building technology makes the difference

When you realize that buildings account for around 40% of the world's total energy consumption, it is obvious that buildings can play a key role in securing a greener future. Heating, cooling and lighting are just a few of the many key drivers that affect energy consumption.





"It pays to invest in professional, groundbreaking building technology!"

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The future of construction

Building Information Modeling (BIM) is a holistic process that is transforming planning, construction and management of buildings and infrastructures. Accelerated construction and early error detection are just two of the many benefits of BIM. Boost your efficiency by using BIM for planning.

siemens.com/bim-data

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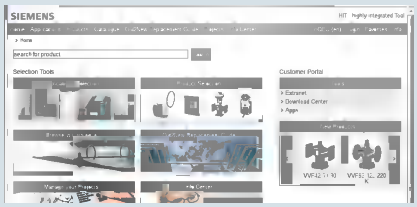
Support for your day-to-day tasks

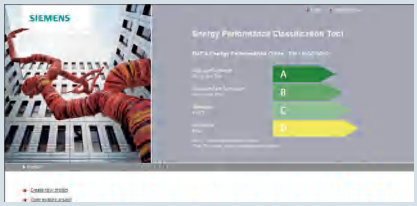
Siemens actively supports every phase of your project with tools, apps and training.

Quick search for products for designing HVAC plants



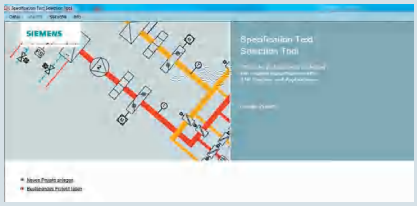
The HIT Portal makes your search for the right products for designing HVAC plants easier and less time-consuming. This tool provides more than 300 preconfigured, standard HVAC configurations classified according to energy saving potential per EN 15232. This allows you to select the application that best meets the desired efficiency class. Comprehensive specifications including system diagrams, materials list, technical documentation for each device and price calculations are available. Give it a try! **www.siemens.com/hit**

Assessing the energy efficiency of building automation systems



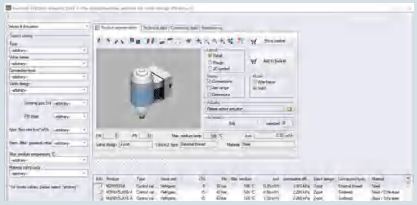
The Energy Performance Classification (EPC) Tool provides a quick analysis of the existing plant and estimates the energy saving potential as well as payback period. Energy efficiency is assessed according to EN 15232. For more information, please visit **www.siemens.com/epc**

Creating functional and neutral tenders



The Specification Text Selection Tool (STST) was designed to facilitate the efficient and professional creation of functional bids for building automation systems and HVAC installations. Featuring an extensive text database, you can prepare a detailed specification based on your HVAC design and selection of energy efficiency class per EN 15232. The database contains descriptions for the building automation system, control panel, switchgear, variable speed drives, valves and actuators, damper actuators and sensors. For more information, please visit **www.siemens.com/stst**

Selecting field devices quickly and easily



The VDI3805/ISO16757 data records make it even easier to select and plan your field devices. The product data records meet the requirements of the applicable VDI/ISO standard. Siemens also makes all CAD data and specification texts available in a DATANORM-compliant format. 2D and 3D views of product geometries in different data formats as well as representation of interference spaces for collision control simplify planning and prevent errors. For more information, please visit **www.siemens.com/vdi-selector**

Damper actuators matched to individual needs

Use the Product Configurator to choose the required OpenAir products quickly and easily. You can choose between two labels, position your logo on the label, specify the cable type and length (up to 5 m) as well as select for various connector types. Give it a try! **www.siemens.com/openair**

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Scan to HIT

Use this app to scan the data matrix code on the actuators for immediate access to all the essential product information, such as data sheets and installation instructions. This free app is available for iOS and Android devices in the appropriate stores.

Combi Valve Sizer

The Combi Valve Sizer app makes it easy to select the right Acvatix combi valve and actuator. Simply enter the required maximum volumetric flow and other properties, such as thread type or DN class, to see the recommended combi valve. Finding the actuator is just as easy. The app also shows you the maximum volumetric flow of all presettings.

SINAMICS ASSISTANT

This app converts the frequency (Hz) of a variable speed drive to the speed (rpm) to be set on the motor. This calculation can also be done in reverse, from revolutions per minute to Hertz. The error code function helps you quickly identify and resolve errors. The support page lists the names of contact persons in your region. In addition, videos on how to install and commission the G120 frequency converter and other topics are available.

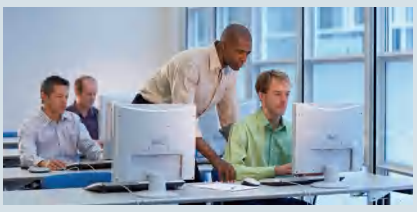
HomeControl for room automation

The HomeControl app offers you intuitive and straightforward operation of heating, ventilation and air conditioning plants as well as control of lighting and shading systems.

Siemens Download Center

The Download Center allows you to download all brochures, instructions, specifications and data sheets published by the Building Technologies Division of Siemens.

Training



Benefit from the knowledge of Siemens experts! Whether you are looking for technical courses, e.g. in hydraulics, or product training, Siemens is there for you with the BT Academy. Your Siemens contact can help you sign up.

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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-MHG	Ultrasonic heat meter 0.6 m3/h, M-bus, Ø5,2x45 mm, G 3/4", AC/DC 24 V	N5378	10-20
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WFM542-C000H0	Impeller type heat meter 1.5 m3/h, with m-bus communication and 2 pulse inputs, mounting length 80 mm	A6V10800216	10-13
WFM542-G000H0	Impeller type heat meter 1.5 m3/h, with m-bus communication and 2 pulse inputs, mounting length 110 mm	A6V10800216	10-13
WFM543-L000H0	Impeller type heat meter 2.5 m3/h, with m-bus communication and 2 pulse inputs, mounting length 130 mm	A6V10800216	10-13
WFM571-E000H0	Impeller type heat meter, wall-mounted, nominal flow rate 0.6 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-13
WFM572-E000H0	Impeller type heat meter, wall-mounted, nominal flow rate 1.5 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-13
WFM573-J000H0	Impeller type heat meter, wall-mounted, nominal flow rate 2.5 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-13
WFN541-G000H0	Impeller type heating/cooling energy meter 0.6 m3/h, with m-bus communication and 2 pulse inputs, mounting length 110 mm	A6V10800216	10-14

New Product

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Type Overview

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WFN542-G000H0	Impeller type heating/cooling energy meter 1.5 m3/h, with m-bus communication and 2 pulse inputs, mounting length 110 mm	A6V10800216	10-14
WFN543-L000H0	Impeller type heating/cooling energy meter 2.5 m3/h, with m-bus communication and 2 pulse inputs, mounting length 130 mm	A6V10800216	10-14
WFN571-E000H0	Impeller type heat and cooling energy meter, wall-mounted, nominal flow rate 0.6 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-14
WFN572-E000H0	Impeller type heat and cooling energy meter, wall-mounted, nominal flow rate 1.5 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-14
WFN573-J000H0	Impeller type heat and cooling energy meter, wall-mounted, nominal flow rate 2.5 m3/h, with IrDA interface & AMR radio communication	A6V10425530	10-14
WFW30.D080	Mechanical water meter single-jet, with module slot, 2.5 m³/h, 80 mm, G ¾ ", hot	N5326	10-9
WFW30.D110	Mechanical water meter single-jet, with module slot, 2.5 m³/h, 110 mm, G ¾ ", hot	N5326	10-9
WFW30.E130	Mechanical water meter single-jet, with module slot, 4 m³/h, 130 mm, G 1 ", hot	N5326	10-9
WFW40.D080	Mechanical water meter single-jet with module slot, 2.5 m³/h, 80 mm, G ¾ ", hot	N5302	10-10
WFW40.D110	Mechanical water meter single-jet with module slot, 2.5 m³/h, 110 mm, G ¾ ", hot	N5302	10-10
WFW40.E130	Mechanical water meter single-jet with module slot, 4 m³/h, 130 mm, G 1 ", hot	N5302	10-10
WFZ.IRDA-USB	Infrared read head (with USB interface)	N2886	10-8
WFZ.MBM-USB	M-bus programming adapter (USB)		10-12
WFZ.P	Self-lock seal with sealing wire		10-12
WFZ.PS	Triggering tool for radio telegrams		10-12
WFZ.R110	Spacer G ¾", length 110mm		10-12
WFZ.R130	Spacer G 1", length 130 mm		10-12
WFZ.R2	Mounting set, pair of fittings G ¾" x R ½" with gaskets		10-12
WFZ.R2-1	Mounting set, pair of fittings G 1" x R ¾" with gaskets		10-12
WFZ.R80	Spacer G ¾", length 80 mm		10-12
WFZ.W	Mounting kit for washstand water meter		10-12
WFZ.Z	Mounting kit for tap water meter		10-12
WFZ16.MO	Add-on radio module WFZ16 for WFx30.. water meters	N2879	10-11
WFZ166.MO	Add-on radio module WFZ166 for WFx30.. water meters	N2879	10-11
WFZ31	M-bus add-on module for WFx30.. water meters	A6V10443198	10-11
WFZ43	Pulse add-on module with reed contact and namur circuit for WFx40.. water meters	N5302	10-11
WFZ44	Pulse add-on module with reed contact for WFx40.. water meters	N5302	10-11
WFZ51	M-bus add-on module for WFx5.. meters	N5323	10-16
WFZ56.OK	AMR add-on module with integrated antenna for WFx5.. meters	N5323	10-16
WFZ566.OK	Walk-by add-on module with integrated antenna for WFx5.. meters	N5323	10-16
WHE502-D10	Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	A6V10786229	10-5
WHE542-0001S	Electronic heat cost allocator, double sensor, due date 12/31, meter reading by walk-by: Monthly, S-mode	A6V10786229	10-6
WHE542-D100S	Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31, meter reading by walk-by: Annualy, S-mode	A6V10786229	10-6
WHE542-D291S	Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, meter reading by walk-by: Monthly, S-mode	A6V10786229	10-6
WRI982	Consumption data interface	N2735	4-15
WSM506-0E	Ultrasonic heat meter, 0.6 m3/h, Ø5.2x45 mm, G 3/4", battery life 11 years	N5372	10-18
WSM506-BE	Ultrasonic heat meter, 0.6 m³/h, Ø5.2x45 mm, G ¾ ", battery life 11 years, M-bus	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
WSM515-BE	Ultrasonic heat meter, 1.5 m³/h, Ø5.2x45 mm, G ¾ ", battery life 11 years, M-bus	N5372	10-18
WSM525-0E	Ultrasonic heat meter, 2.5 m3/h, Ø5.2x45 mm, G 1", battery life 11 years	N5372	10-18
WSM525-BE	Ultrasonic heat meter, 2.5 m³/h, Ø5.2x45 mm, G 1", battery life 11 years, M-bus	N5372	10-18
WTT561-AA1100	Battery-powered network node	A6V10455680	10-29
WTT563-0C0000	M-bus RF gateway	A6V10897694	10-29
WTV531-GA5060	Level converter	A6V10844290	10-35
WTV534-0B4022	M-bus web server	A6V10844292	10-34
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WTZ.RM	PC radio module	N2876	10-30
WTZ.WBSET-2/PC	Mobile data logger set		10-8
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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, PN16, incl. 2 flat gaskets	N5324	10-26
WZM-F300	Spacer DN 40, length 300 mm, PN16, incl. 2 flat gaskets	N5324	10-26
WZM-F300.65	Spacer DN 65, length 300 mm, PN16, incl. 2 flat gaskets	N5324	10-26
WZM-F300.80	Spacer DN 80, length 300 mm, PN16, incl. 2 flat gaskets	N5324	10-26
WZM-F360.100-25	Spacer DN 100, length 360 mm, PN25, incl. 2 flat gaskets	N5324	10-26
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	10-21
WZM-G260	Spacer G 1¼", length 260 mm, incl. 2 flat gaskets	N5324	10-26
WZM-V110	Adapter set from G ¾" to 1", incl. gaskets		10-12
WZM-V130	Adapter from 110 mm G ¾" to 130 mm G ¾", incl. gaskets		10-12
WZM-V130	Extension set from 110 mm G ¾" to 130 mm G ¾", incl. gaskets		10-12
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		10-12
WZM-V165	Extension set from 110 mm G ¾" to 165 mm G ¾", incl. gaskets		10-12
WZM-V190	Adapter from 110 mm G ¾B" to 190 mm G 1B", incl. gaskets		10-12
WZM-V190	Extension set from 110 mm G ¾" to 190 mm G 1", incl. gaskets		10-12
WZR-OP-USB	Optical read head with USB interface for PC		10-19
WZT-A100	Mounting set G ½B" with threaded hole G ¼" for direct mounting of long sensors	N5324	10-27
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
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		10-21
WZT-G12	Welding sleeve G ½", 45° to the pipe axis, with threaded hole G ½"		10-21
WZT-GLG	Welding sleeve G ½", 90° to the pipe axis, with threaded hole G ½"		10-21
WZT-K1	Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm		10-19
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		10-19
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		10-19
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		10-21
WZT-S100	Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 100 mm	N5324	10-27
WZT-S150	Protection pocket G ½ B", stainless steel, with threaded hole G ¼", L = 150 mm	N5324	10-27
WZT-S43V	Pocket G½"B, stainless steel, 5.2 × 37 mm, with seal		10-19
WZU5-1020	Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 2 m	N5324	10-25
WZU5-1050	Pair of temperature sensors Pt500, PL Ø 6x100 mm, cable length 5 m	N5324	10-25
WZU5-1520	Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 2 m	N5324	10-25
WZU5-1550	Pair of temperature sensors Pt500, PL Ø 6x150 mm, cable length 5 m	N5324	10-25
WZU5-2815	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 1.5 m	N5324	10-25
WZU5-2825	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 27.5 mm, cable length 2.5 m	N5324	10-25
WZU5-3815	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 1.5 m	N5324	10-25
WZU5-3825	Pair of temperature sensors Pt500, DS M10x1 mm, sensor length 38 mm, cable length 2.5 m	N5324	10-25
WZU5-4515	Pair of temperature sensors Pt500, PS Ø5.2x45 mm, cable length 1.5 m	N5324	10-25
WZU5-4550	Pair of temperature sensors Pt500, PS Ø 5.2x45 mm, cable length 5 m	N5324	10-25
WZU-AC230-100	Power pack AC 230 V, cable length 10 m	N5324	10-25
WZU-AC230-15	Power pack AC 230 V, cable length 1.5 m	N5324	10-25
WZU-AC230-50	Power pack AC 230 V, cable length 5 m	N5324	10-25
WZU-ACDC24-00	Power pack AC/DC 24 V, with terminals	N5324	10-25
WZU-AM	Analog module	N5324	10-25

New Product

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WZU-BA+GUM	Standard battery (2x AA) for 6 years, complete with fastener	N5324	10-25
WZU-BDS	Universal battery (D-cell), life 6 and 16 years respectively	N5324	10-25
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-MI	M-bus module with 2 pulse inputs for heat and heat/cooling energy meters, generation 4	N5324	10-25
WZU-NE	Power pack for analogue module	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
WZU-WA	Mounting plate for wall mounting		10-27
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Z155/15F	Blanking flange, DN15		7-129
Z155/20F	Blanking flange, DN20		7-129
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Z366	Stem heating element for media temperatures 0 °C, 30 W, AC 24 V		7-147
ZM100/A	Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	7-205
ZM101/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	7-205
ZM110	Terminal housing for control of valves with magnetic actuator, 0...20 V Phs		7-205
ZM111	Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	7-205
ZM120/A	Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	7-205
ZM121/A	Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	7-205
ZM150	Replacement electronic for M3P..GY, M3P..FY, M2H..FY.., M3B..GY.., M2S..FY and M2FE..	N4348	7-130
ZM200/A	Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	7-205
ZM210	Terminal housing for control of valves with magnetic actuator, 0...20 V Phs		7-205
ZM220/A	Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	7-205
ZM250	Replacement electronic for M3P..FY..	N4454	7-130

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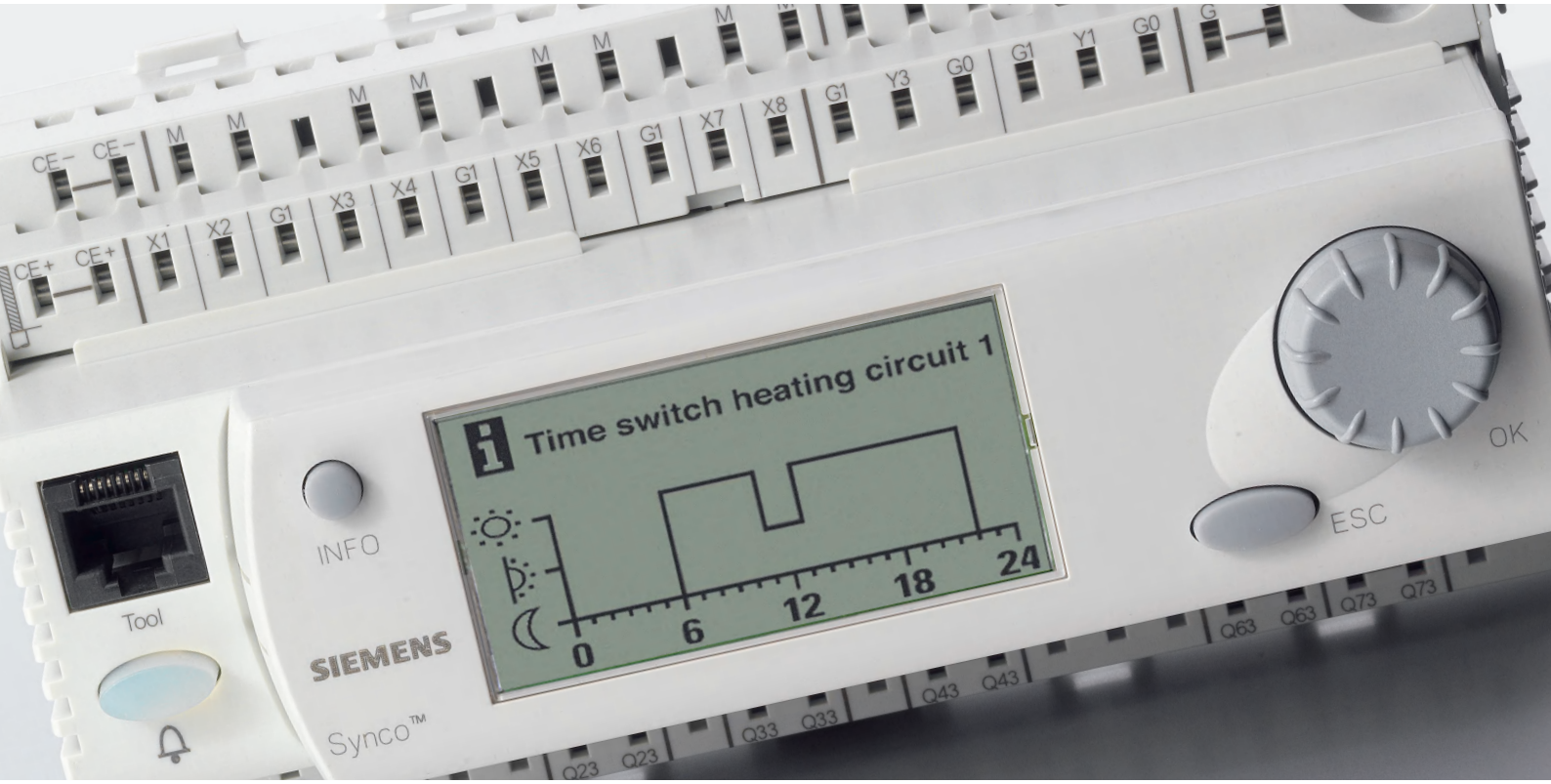
Standard controllers



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Overview of heating controllers product details

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

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

[1] Variant

Communication	RLE..		RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	201	211	340	350	351	360	361	479	480	481	482	760B	770
Controller network					LPB	LPB		LPB		LPB	LPB	LPB	LPB	KNX	KNX
Web operation					OZW672..			OZW 672..		OZW672..				OZW772..	

Sensors	RLE..		RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	201	211	340	350	351	360	361	479	480	481	482	760B	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..		RVP..		RVP..					RVL..				RMH..	RMK..
	132	162	201	211	340	350	351	360	361	479	480	481	482	760B	770
Room unit QAA50.110/101 analog			■	■	■	■	■	■	■	■	■	■	■		
Room unit digital QAW70..			■	■	■	■	■	■	■	■	■	■	■		
Room unit digital QAW740														■	■

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Overview of district heating controllers product details

Preferential applications	RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760B
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	RMH760B
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	RMH760B
Controller network			LPB	LPB	LPB	LPB	LPB	KNX
M-bus slave			■	■				
Web operation	ext. Modbus-Interface	ext. Modbus-Interface	OZW672..		OZW672..	OZW672..		OZW772..

Sensors		RVD120	RVD140	RVD250	RVD260	RVP340	RVL480	RVL481	RMH760B
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	RMH760B
Room unit analog	QAA50.110/101	■	■	■	■	■	■	■	
Room unit digital	QAW70..	■	■	■	■	■	■	■	
Room unit digital	QAW740								■

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Overview of HVAC controllers product details

	RLM..	RLA..	RWD..			RLU..					RMU..			RMS..		RMZ	
	162	162	82	62	68	202	220	222	232	236	710B	720B	730B	705B	785	787	788
	Air duct temperature controller	Room temperature controller	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..0B and RMS705B											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	2		1	2		2	2	6	2	4	6	6		4	2
3-position			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	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	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	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

AO Analog output
DO Digital output
UI Universal inputs

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Immersion temperature controller, AC 230 V, 3-position output — RLE132

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
Setpoint setting range	0...130 °C
Setpoint readjustment range	0...50 K
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
PN class	PN 10
Immersion length	150 mm
Degree of protection	IP65
Dimensions (W x H x D)	125 × 152 × 78 mm

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

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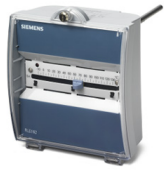
RLE162

Immersion temperature controller, AC 24 V, DC 0...10 V 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 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
Setpoint readjustment range	0...60 K
Setpoint setting range	-10...130 °C
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Analog outputs, number	2
Digital inputs	Potential-free input signal
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
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**

Accessories for RLE132 / RLE162

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

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Application examples Synco™ 100

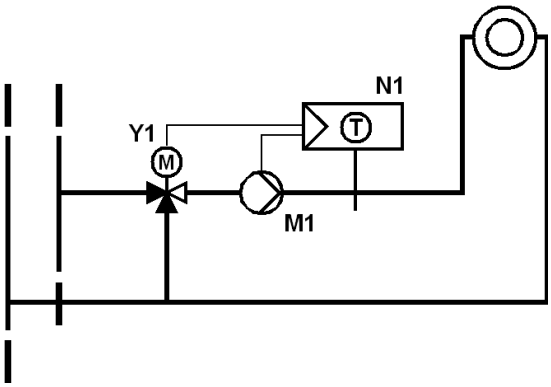
These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLE..
More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLE.. data sheet.

Heating Plant, Flow Temperature Control - Flow temperature control in a common distribution circuit

RLE132

H0C003 LE1 HQ

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

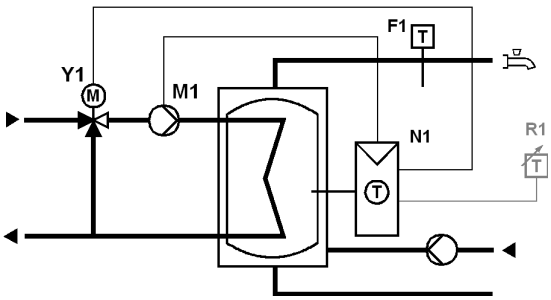


Domestic Hot Water Plant - Temperature control of domestic hot water storage via mixing valve and HWS circulation pump

RLE162

H00B01 LE1 HQ

- 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).



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RVP201..

Heating controller with analog operating elements

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
Degree of protection	IP40
Dimensions (W x H x D)	144 × 96 × 115 mm

Range overview RVP201..

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

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Heating controller incl. DHW heating

RVP211..

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
Degree of protection	IP40
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**

Field devices for RVP2..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
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**

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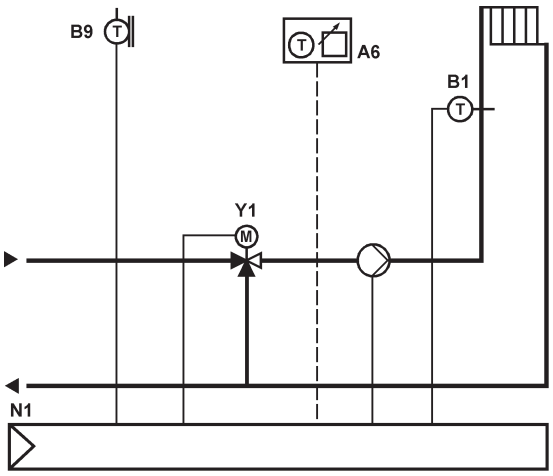
Application example RVP2..

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

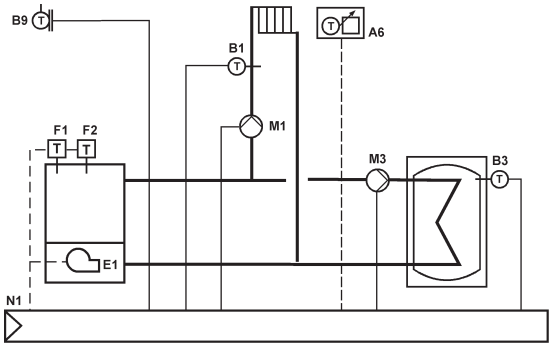


- Weather-compensated flow temperature control with 3-position actuator acting on mixing valve
- Frost protection for building and plant
- Time program with analog 24-hour time switch
- ECO function switches off heating depending on outside temperature
- Room temperature-dependent boost heating and quick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

RVP211.1

Weather-compensated heating system, heat generation, one heating circuit, d.h.w. - Weather-compensated flow temperature control acting on boiler

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

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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
Degree of protection	IP40
Dimensions (W x H x D)	144 × 96 × 109 mm

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

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RVP361

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

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
Degree of protection	IP40
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.
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
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**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

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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
Degree of protection	IP40
Dimensions (W x H x D)	144 × 96 × 109 mm

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

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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
Degree of protection	IP40
Dimensions (W x H x D)	144 × 96 × 109 mm

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

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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
Degree of protection	IP40
Dimensions (W x H x D)	144 × 96 × 109 mm

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

Accessories for RVP3..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Web Server for LPB devices	N5712	BPZ:OZW672..	**OZW672..**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
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**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

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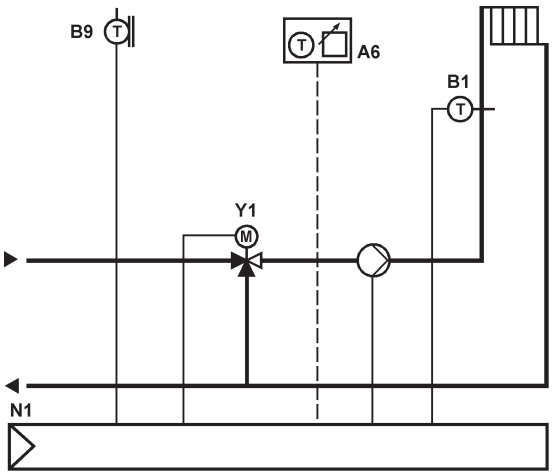
Application examples RVP3..

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

H0C001 VP3 HQ

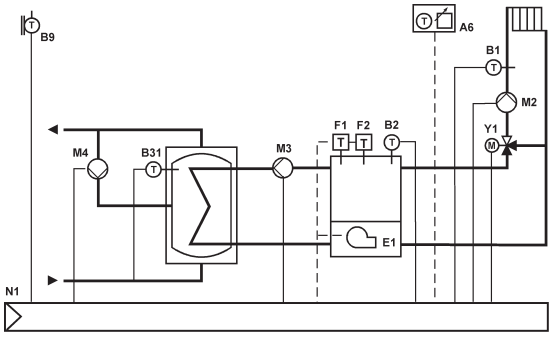


Weather-compensated heating system, one heating circuit

- 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..

HACA01 VP3 HQ

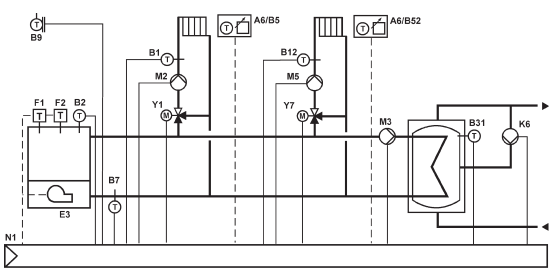


Weather-compensated heating system, heat generation, one heating circuit and d.h.w

- 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..

HBDA01 VP3 DE



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)

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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**

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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**

www.EngineeringEBooksPdf.com

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**

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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.
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Web Server for LPB devices	N5712	BPZ:OZW672..	**OZW672..**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
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**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**
Conduit box with surge protection for solar panel sensor	N2488	BPZ:AGS2S.200/1091	**AGS2S.200/109**

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Multifunctional room operator unit

QAW70..

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
Sensing element	NTC 10kΩ at 25 °C
Measuring range, temperature	0...32 °C
Setpoint readjustment range	±3 K
Communication	PPS
Connection cable	2-wire
Degree of protection	IP30
Dimensions (W x H x D)	97 x 143 x 41 mm

Range overview QAW70..

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

Room unit with PPS interface

QAA50.110/101

Room unit with LCD display, room temperature measurement and display, knob for manual setpoint readjustments, operating- and presence button

Data sheet	N2281
Voltage supply	Supply from controller module
Measuring range, temperature	0...45 °C
Setpoint readjustment range	±3 K
Communication	PPS
Mounting	Wall mount
Connection cable	2-wire
Degree of protection	IP20
Dimensions (W x H x D)	96 x 96 x 47 mm

	Stock No.	Product No.
	BPZ:QAA50.110/101	**QAA50.110/101**

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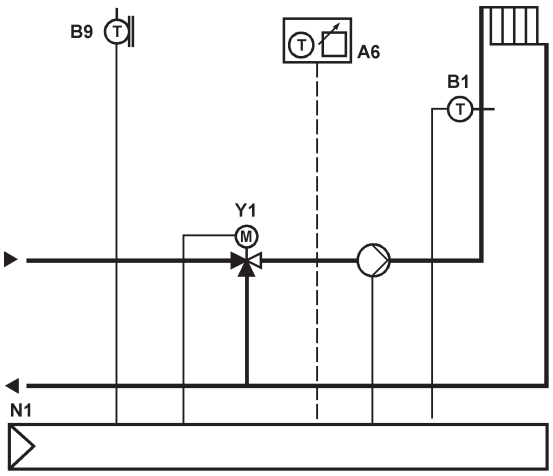
Application examples RVL4..

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.

RVL480

H0C001 VL4 HQ

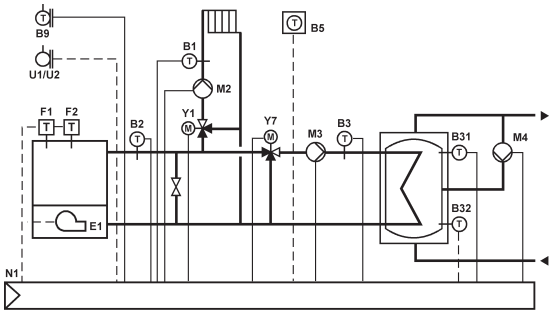


Weather-compensated heating system, one heating circuit

- 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)
- Analog setting of heating curve

RVL482

HACB01 VL4 HQ



Weather-compensated heating system, heat generation, one heating circuit, 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
- 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

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Heating controller

RMH760B-1

- 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

The RMH760B-1 supports the languages: English, German, French, Italian, Spanish, Portuguese, Dutch, Danish, Finnish, Norwegian, Swedish, Polish, Czech, Hungarian, Russian, Slovak, Bulgarian, Greek, Romanian, Slovenian, Serbian, Croatian, Turkish.

Extension modules complement the heating controller and offer extra functions. They are attached to the controller via plug-in connectors. The extension modules do not operate autonomously. The operation of the device from commissioning to enduser operation can be done 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 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
Communication	KNX (KNX TP1)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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
Relay outputs, number	5
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	173 × 90 × 80 mm

Stock No.	Product No.
BPZ:RMH760B-1	**RMH760B-1**

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RMK770-1

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

The RMK770-1 supports the languages: English, German, French, Italian, Spanish, Portuguese, Dutch, Danish, Finnish, Norwegian, Swedish, Polish, Czech, Hungarian, Russian, Slovak, Bulgarian, Greek, Romanian, Slovenian, Serbian, Croatian, Turkish.

Extension modules complement the boiler sequence controller and offer extra functions. They are attached to the controller via plug-in connectors. The extension modules do not operate autonomously. The operation of the device from commissioning to enduser operation can be done 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 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
Communication	KNX (KNX TP1)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Digital inputs, number	2
Digital inputs	Potential-free input signal
Digital input, contact query	5 mA DC 15 V
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)
Relay outputs, number	7
Relay output, switching current	4 (3) A
Relay output, switching voltage	AC 19...250 V
Degree of protection	IP20
Dimensions (W x H x D)	173 × 90 × 80 mm

Stock No.	Product No.
BPZ:RMK770-1	**RMK770-1**

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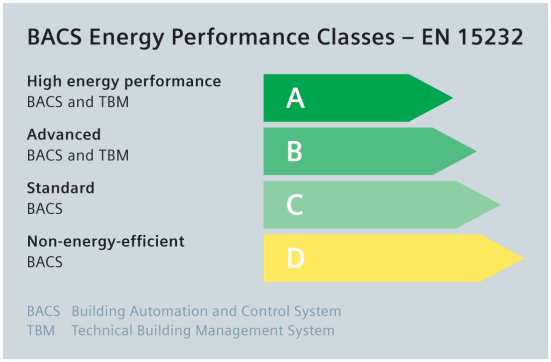
Application examples RMH760B.. and RMK770..

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 EN15232:2012.
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

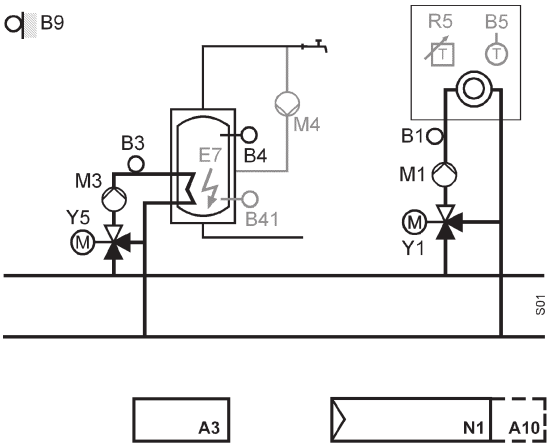


Weather-compensated heating control, one heating circuit, d.h.w.

RMH760B..

H0CB02 H6B HQ

- 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)

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

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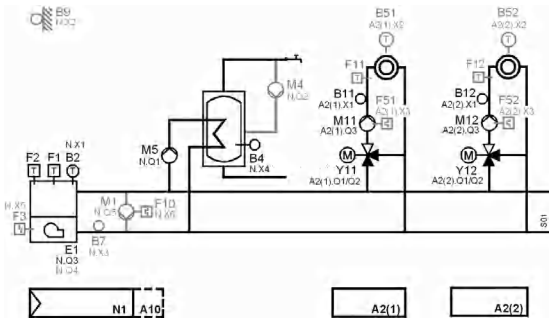
RMH760B..

HCDA01 H6B HQ



High energy performance
BACS and TBM

A

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

Weather-compensated heating control, heat generation, 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 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

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

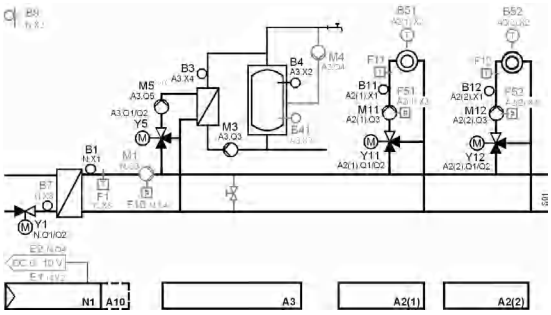
RMH760B..

DADC04 H6B HQ

- 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



High energy performance
BACS and TBM

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

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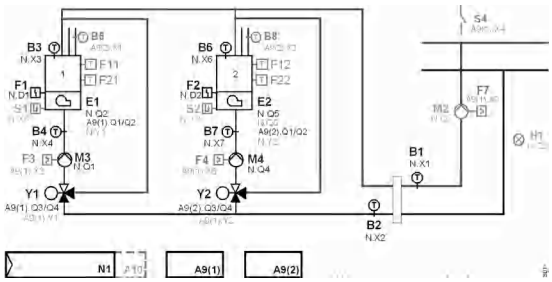
RMK770..

HFF003 MK7 HQ



Advanced
BACS and TBM

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

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

- 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 temperature
- 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

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

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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
Degree of protection	IP20(IP40)
Dimensions (W x H x D)	145 x 44 x 23 mm

	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
Degree of protection	IP20
Dimensions (W x H x D)	145 x 96 x 34 mm

	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
Operating voltage	AC 24 V
Voltage supply	KNX bus
Power consumption	2.5 VA
Degree of protection	IP20
Dimensions (W x H x D)	145 x 96 x 34 mm

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

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QAW740

Room unit with KNX bus

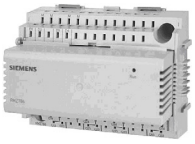
Configurable unit with display of operating mode, timer, temperatures and fault.

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

Data sheet	N1633
Voltage supply	KNX bus
Measuring range, temperature	0...45 °C
Setpoint readjustment range	±3 K
Communication	KNX (KNX TP1)
Connection cable	2-wire
Degree of protection	IP20
Dimensions (W x H x D)	96 x 96 x 47 mm

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	3 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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)
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	117 × 90 × 75 mm

Range overview RMZ78..

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

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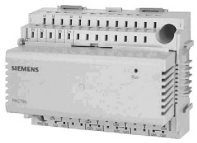
Heating circuit module

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-1

Data sheet	N3136
Voltage supply	Supply from controller module
Power consumption	3 VA
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Universal inputs, number	3
Universal input, signal	LG-Ni1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Pt1000 NTC 575 T1 (PTC)
Relay outputs, number	3
Relay outputs	Switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	117 × 90 × 75 mm

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

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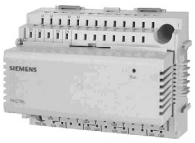
RMZ783B

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

Data sheet	N3136
Voltage supply	Supply from controller module
Power consumption	3 VA
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 A
Universal inputs, number	4
Universal input, signal	LG-Ni1000 0...1000 Ohm 1000...1175 Ohm DC 0...10 V Pt1000 NTC 575 T1 (PTC)
Relay outputs, number	5
Relay outputs	Switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	117 × 90 × 75 mm

	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
Max. cable length	10 m
Dimensions (W x H x D)	18.5 x 87.5 x 22.5 mm

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

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Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
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**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
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 sensur Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	**QAE26.9..**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**

Monitors

Product Title	Data sheet	Stock No.	Product No.
Thermal reset limit thermostat	N1202	BPZ:RAK-TW.1..H	**RAK-TW.1..H**
Flow switch for use in hydraulic systems, PN10, DN32...200	N1592	BPZ:QVE1900	**QVE1900**
Flow switch for use in hydraulic systems, PN25, DN20...200	N1594	BPZ:QVE1901	**QVE1901**
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 / sensors

Product Title	Data sheet	Stock No.	Product No.
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Front module for base module, temperature (active)	N1410	S55720-S136	**AQR2532NNW**
Room sensor KNX for temperature	N1602	S55624-H103	**QMX3.P30**
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**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Base module with KNX for temperature and humidity measurement	N1411	BPZ:AQR2570..	**AQR2570..**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

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**
Commissioning and plant operating software	N5649	S55800-Y100	**ACS790**
USB - KNX Service interface	A6V10438951	S55800-Y101	**OCI702**
Web server for Synco devices	N5701	BPZ:OZW772..	**OZW772..**

The software (ACS790) can be downloaded for free via http://www.siemens.com/acs790.

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

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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
- Communication via Modbus

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

Field devices for RVD1..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Pressure sensor for neutral and slightly aggressive liquids and gases (0...10 V)	A6V10432494	BPZ:QBE2003-P..	**QBE2003-P..**
Pressure sensor for refrigerants (0...10 V)	A6V10434676	BPZ:QBE2004-P..U	**QBE2004-P..U**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
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**

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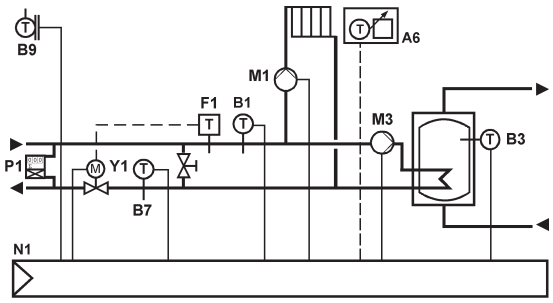
Application examples RVD1..

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.

RVD12..

DAAA01 VD1 HQ

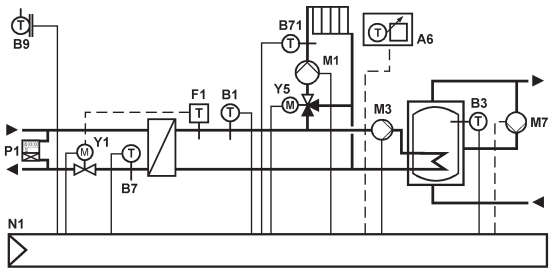


Direct system, weather-compensated heating and d.h.w.

- 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

RVD14..

DACA01 VD1 HQ



Weather-compensated flow temperature control acting on mixing circuit, d.h.w. supply with storage tank

- 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

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District heating controller

RVD25..

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
- Circulating pump, 2 charging pumps

Data sheet	N2513
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	5.5 VA
Communication	LPB (interconnected controller) M-bus (slave)
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
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD25..

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

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RVD26..

District heating controller

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
Communication	LPB (interconnected controller) M-bus (slave)
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
Dimensions (W x H x D)	144 x 96 x 109 mm

Range overview RVD26..

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

Sensor and room units for RVD..

Product Title	Data sheet	Stock No.	Product No.
Multifunctional room operator unit	N1637	BPZ:QAW70..	**QAW70..**
Pressure sensor for neutral and slightly aggressive liquids and gases (0...10 V)	A6V10432494	BPZ:QBE2003-P..	**QBE2003-P..**
Pressure sensor for refrigerants (0...10 V)	A6V10434676	BPZ:QBE2004-P..U	**QBE2004-P..U**
Room unit with PPS interface	N2281	BPZ:QAA50.110/101	**QAA50.110/101**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Outside sensor NTC 575 Ohm	N1811	BPZ:QAC32	**QAC32**
Web Server for LPB devices	N5712	BPZ:OZW672..	**OZW672..**
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**

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Application examples RVD2..

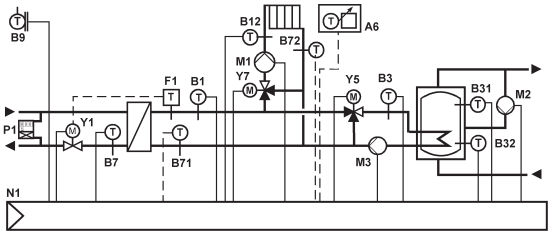
These are a few examples of applications that can be done with the controllers RVD2...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RVD2.. data sheet.

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

RVD25..

DACB01 VD2 HQ a

- 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

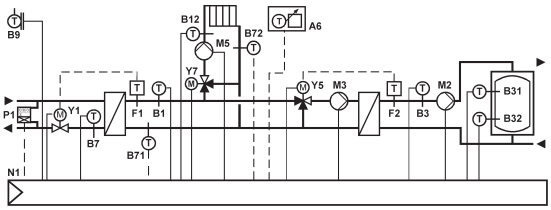


Demand-dependent control of heat exchanger with indirect district heat substation with 2-port valve

RVD25..

DACC01 VD2 HQ

- 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)

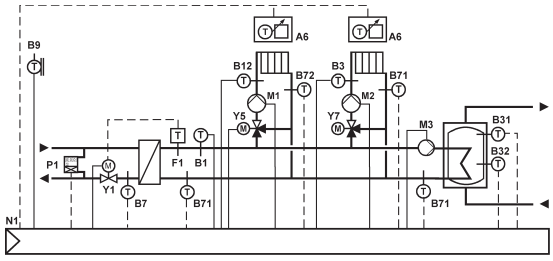


Weather-compensated flow temperature control of 2 heating circuits with mixing valves

RVD26..

DADA01 VD2 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
- 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)



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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
Setpoint readjustment range	0...10 K
Setpoint setting range	0...50 °C
Analog input, signal	LG-Ni1000 0...1000 Ohm DC 0...10 V
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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
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**

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Application examples Synco™ 100

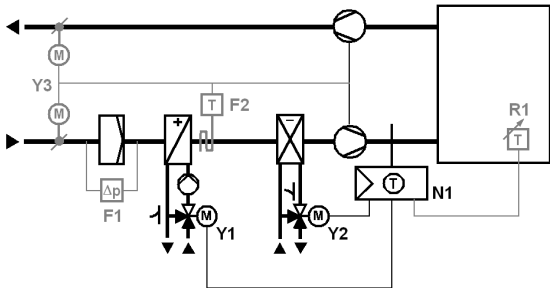
These are only a few examples of many applications that can be done with the with Synco™100 controllers: RLE..
More Synco™100 applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the RLE.. data sheet.

Partial Air Conditioning Plant, Heating / Cooling - 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

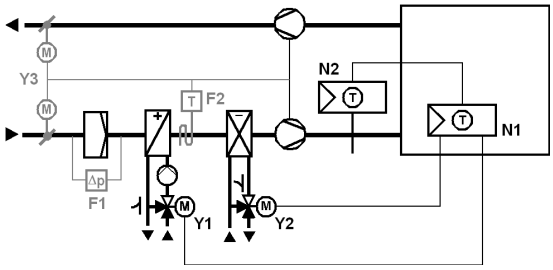


Room temperature control with limitation of supply air temperature

RLM162

ADC001 LA1 DE

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



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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
Setpoint readjustment range	0...10 K
Setpoint setting range	8...30 °C
Analog input, signal	LG-Ni1000 DC 0...10 V
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Digital inputs	Potential-free input signal
Digital input, contact query	DC 3...6 mA DC 6...15 V
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**

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Universal controllers

RLU..

- 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
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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)
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**

Service tool

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

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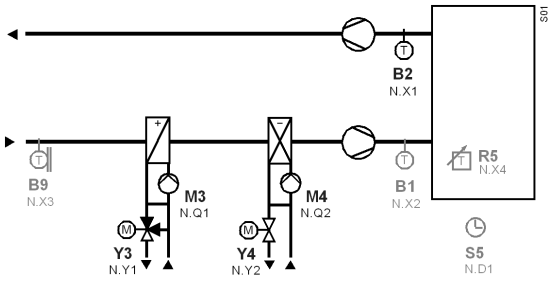
Application examples Synco™ 200

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..

RLU222

ADC002 LU2 HQ

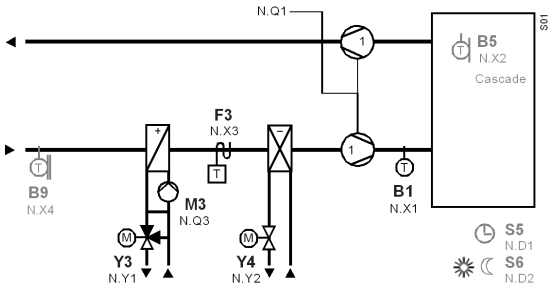


Partial Air Conditioning Plant, Heating / Cooling - Extract air (room) temperature control

- 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

RLU232

ADC015 LU3 HQ

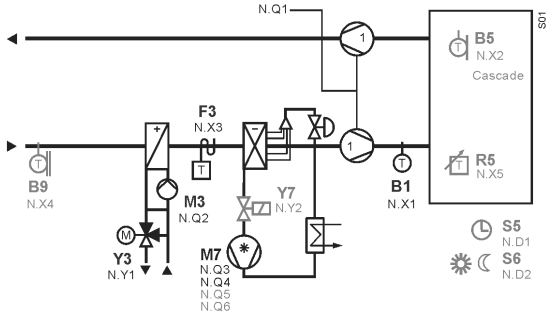


Partial Air Conditioning Plant, Heating / Cooling - Supply air temperature control with frost protection and release of fan

- 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

RLU236

ADC017 LU3 HQ



Partial Air Conditioning Plant, Heating / Cooling - Supply air (room) temperature control with frost protection and release of fan

- 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

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Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
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**
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**
Frost detector, modulating	A6V10432020	BPZ:QAF63..J	**QAF63..J**
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**
Window pane temperature sensor	N1830	BPZ:QAT22	**QAT22**
Pressure sensor for neutral and slightly aggressive liquids and gases (0...10 V)	A6V10432494	BPZ:QBE2003-P..	**QBE2003-P..**
Pressure sensor for refrigerants (0...10 V)	A6V10434676	BPZ:QBE2004-P..U	**QBE2004-P..U**
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	**QBM3020..**
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 (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	**QFM4160**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Duct sensor for air velocity	N1932	BPZ:QVM62.1	**QVM62.1**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	**QBE61.3-DP..**
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	**QBM2030..**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	**QAD26.220**
Differential pressure sensors for liquids and gase (DC 0...10 V)	N1920	BPZ:QBE63-DP..	**QBE63-DP..**
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**
Immersion temperature sensor 150 mm, LG-Ni1000, with protection pocket	N1781	BPZ:QAE2120.015	**QAE2120.015**
Differential pressure sensors for liquids and gase (0...10 V)	N1922	BPZ:QBE3000..	**QBE3000..**
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	**QAE2121.010**
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**
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	**QAC3161**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
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 air quality sensor CO_2/ temperature / rel. humidity / VOC	N1962	BPZ:QPM21..	**QPM..**

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Monitors

Product Title	Data sheet	Stock No.	Product No.
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	**QFA1000**
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	A6V10741072_ en-_a	BPZ:QXA21..	**QXA21..**
Frost detector, air side, 2-point	A6V10432022	BPZ:QAF64..J	**QAF64..J**
Frost monitor, 2-point	N1284	BPZ:QAF81..	**QAF81..**
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	**QFA1001**
Differential pressure monitor	N1552	BPZ:QBM81..	**QBM81..**

Room units / sensors

Product Title	Data sheet	Stock No.	Product No.
Room hygrostat, setpoint setting range 30...90 % r.h., setpoint adjuster inside device	N1518	BPZ:QFA1000	**QFA1000**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Room sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	**QFA3100**
Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	BPZ:QFA4160	**QFA4160**
Room air quality sensor CO_2 / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	**QPA..**
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	**QAA25**
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	**QPA84**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	**QFA3160**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
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 unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	**QAA27**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	**QFA2060**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Room hygrostat, setpoint setting range 30...90 % r.h., external setpoint adjustment	N1518	BPZ:QFA1001	**QFA1001**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

Step switches, signal converters, transformers and display

Product Title	Data sheet	Stock No.	Product No.
Transformers	N5536	BPZ:SEM62..	**SEM62..**
Variable Speed Drive for pumps and fans	N5111	BPZ:G120P..	**G120P..**
Universal digital indicator	N5312	BPZ:BAU200	**BAU200**
Current valve	N4937	BPZ:SEA45.1	**SEA45.1**
Digital time switch, 1-channel, with 7-day program	N5243	BPZ:SEH62.1	**SEH62.1**
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**

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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
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	Stock No.	Product No.
AC 24	2		1	BPZ:RWD62	**RWD62**
AC 24	1	1	1	BPZ:RWD68	**RWD68**
AC 24		2	1	BPZ:RWD82	**RWD82**

Field devices for RWD..

Product Title	Data sheet	Stock No.	Product No.
Setpoint adjuster, passive, scale 0...50 °C (exchangeable)	N1991	BPZ:BSG21.1	**BSG21.1**
Front module with passiv temperature measurement, LG-Ni1000	N1408	S55720-S133	**AQR2531ANW**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**
Thermal reset limit thermostat, 40...120 °C, protective pocket 100 mm, capillary tube 700 mm, clamping band	N1202	S55700-P117	**RAK-TW.1200B-H**
Switching and monitoring device	N3124	S55370-C100	**RMS705B-1**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

Accessories for RWD..

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

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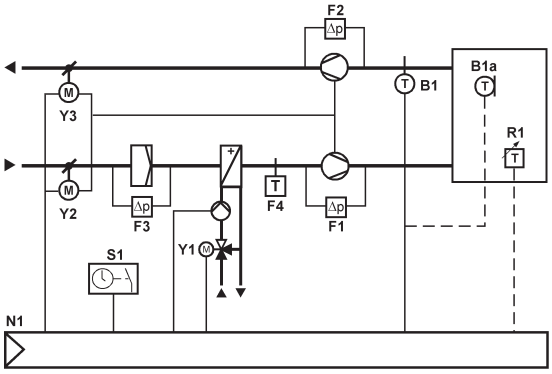
Application examples RWD..

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

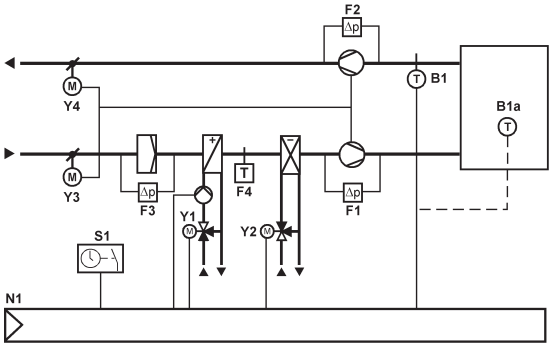


Return air temperature control

- 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

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Universal controller

RMU7..0B-1

- Universal controllers with integrated control and supervisory functions
- 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
- 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

The RMU7..0B-1 supports the languages: English, German, French, Italian, Spanish, Portuguese, Dutch, Danish, Finnish, Norwegian, Swedish, Polish, Czech, Hungarian, Russian, Slovak, Bulgarian, Greek, Romanian, Slovenian, Serbian, Croatian, Turkish, Chinese.

Extension modules complement the universal controller and offer extra functions. They are attached to the controller via plug-in connectors. The extension modules do not operate autonomously. The operation of the device from commissioning to enduser operation can be done via the operator unit.
Available extension modules:
- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

A total of 4 extension modules can simultaneously be used with the universal controller.

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
Communication	KNX (KNX TP1)
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	173 x 90 x 80 mm

Range overview RMU7..0B..

Analog outputs, number	Universal inputs, number	Relay outputs, number	Control loops, number	Stock No.	Product No.
2	6	2	1	BPZ:RMU710B-1	**RMU710B-1**
3	8	4	2	BPZ:RMU720B-1	**RMU720B-1**
4	8	6	3	BPZ:RMU730B-1	**RMU730B-1**

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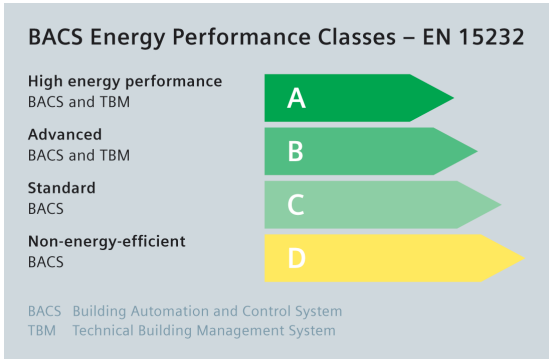


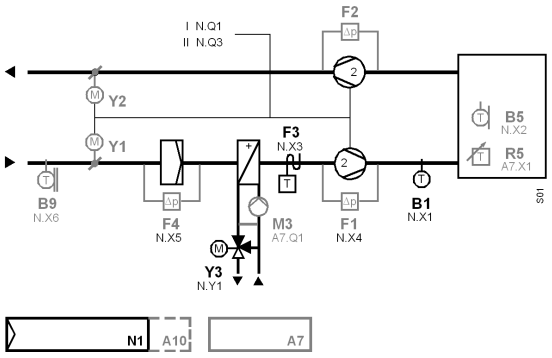
Application examples RMU710B..

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 EN15232:2012.
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

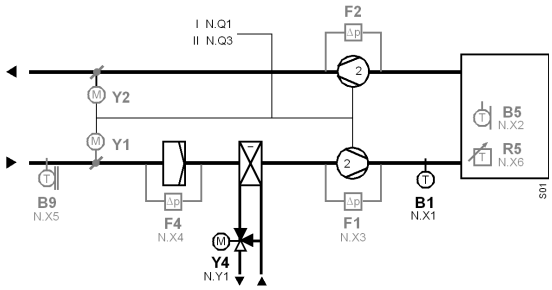


Ventilation Plant, Heating - Room-supply air temperature cascade control

- 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.

Ventilation Plant, Cooling - 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)

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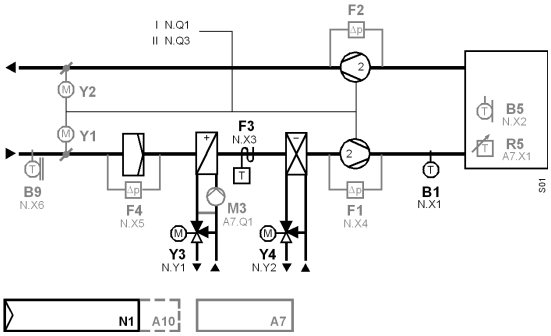
Partial Air Conditioning Plant, Heating / Cooling - Room-supply air temperature cascade control

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



Ventilation Plant, Heating

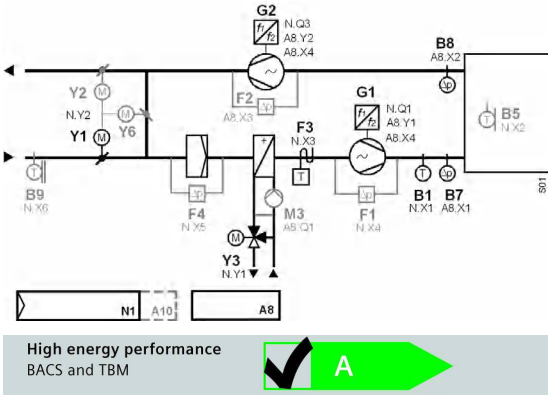
RMU710B..

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.

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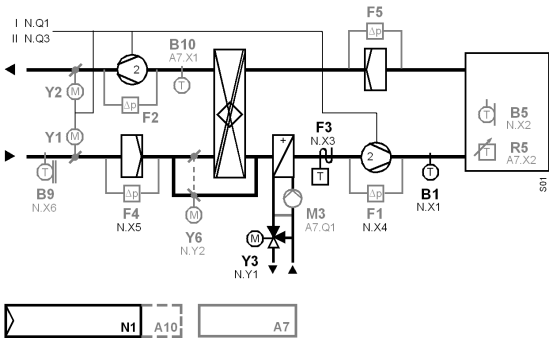
RMU710B..

ADAE01 U1B HQ



Advanced
BACS and TBM

B

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

Ventilation Plant, Heating - 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)

BACS Energy Performance Classes – EN 15232

High energy performance
BACS and TBM — A

Advanced
BACS and TBM — B

Standard
BACS — C

Non-energy-efficient
BACS — D

BACS Building Automation and Control System
TBM Technical Building Management System

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 EN15232:2012.
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.
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Partial Air Conditioning Plant, Heating / Cooling

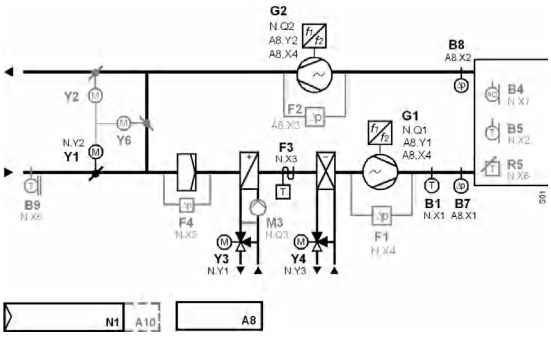
RMU720B..

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

A

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

Partial Air Conditioning Plant, Heating / Cooling - Room-supply air temperature cascade control

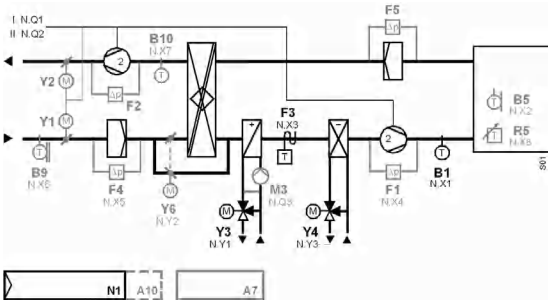
RMU720B..

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

B

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

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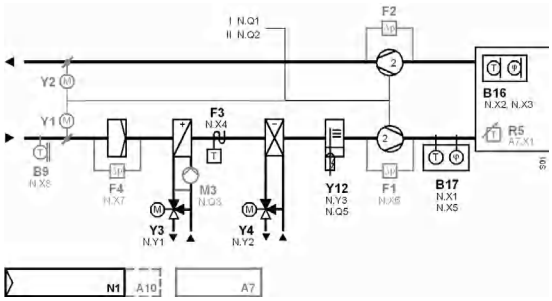
RMU720B..

ADFB01 U2B HQ

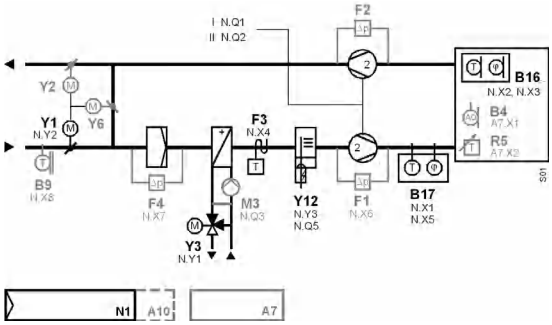


Partial Air Conditioning Plant, Heating / Cooling / Humidifying - Room-supply air temperature cascade and humidity control

- 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 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..

AEDB01 U2B HQ



Advanced
BACS and TBM

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

Partial Air Conditioning Plant, Heating / Humidifying - Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
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- 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
- Supply Temperature control, variable set point with load dependant compensation
- Room or exhaust air humidity control

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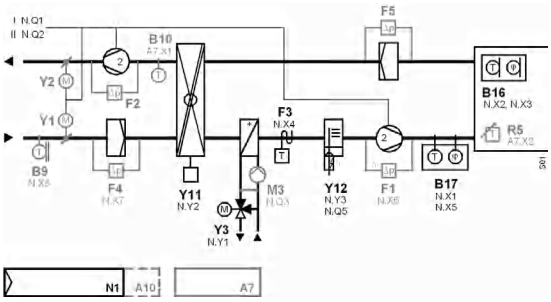
Partial Air Conditioning Plant, Heating / Humidifying - Room-supply air temperature cascade and humidity control

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.

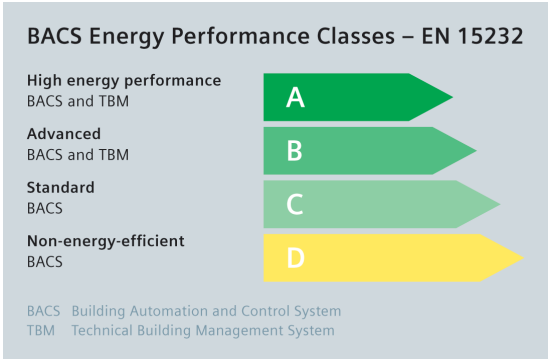
The indicated energy efficiency classification can be attained only if the following functions are implemented:

- 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 EN15232:2012.
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



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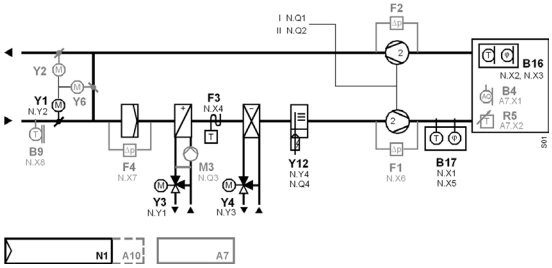
RMU730B..

AEFB01 U3B HQ



Advanced
BACS and TBM

B

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

Partial Air Conditioning Plant, Heating / Cooling / Humidifying - Room-supply air temperature cascade and humidity control

- 7-day time switch with holiday / special day program
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- Control of room humidity via the air humidifier (on command and modulating positioning signal)
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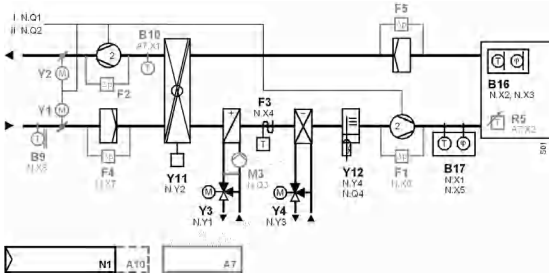
- Supervision of the supply air filter with a differential pressure sensor
- Limitation of supply air humidity

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..

ADFP01 U3B HQ



Advanced
BACS and TBM

B

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

Air Conditioning Plant, Heating / Cooling / Humidifying / De-humidifying - Room-supply air temperature cascade and humidity 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, 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

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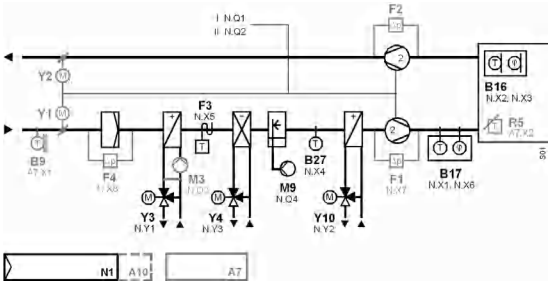
Air Conditioning Plant, Heating / Cooling / Humidifying / De-humidifying - Room-supply air temperature cascade and humidity control

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



Air Conditioning Plant, Heating / Cooling / Humidifying / Dehumidifying

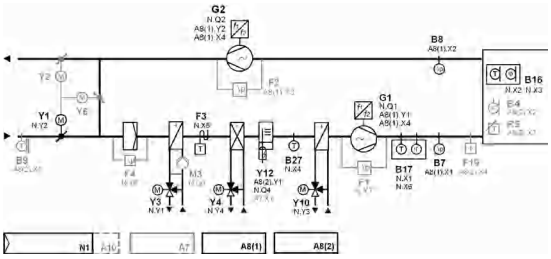
RMU730B..

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.

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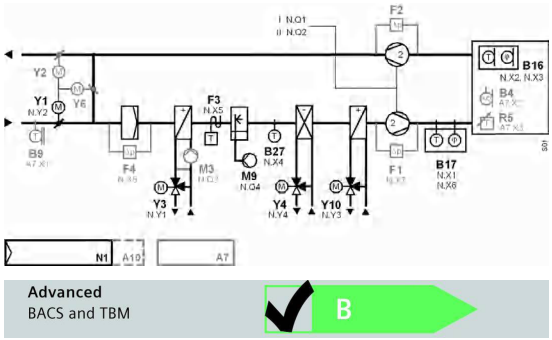
RMU730B..

AEZH02 U3B HQ



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

Air Conditioning Plant, Heating / Cooling / Humidifying / De-humidifying - 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 preheater 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

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Switching and monitoring device

RMS705B-1

The RMS705B-1 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-1 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
- 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, etc., with automatic changeover
- Step switch with linear, binary or flexible functionality

The RMS705B-1 supports the languages: English, German, French, Italian, Spanish, Portuguese, Dutch, Danish, Finnish, Norwegian, Swedish, Polish, Czech, Hungarian, Russian, Slovak, Bulgarian, Greek, Romanian, Slovenian, Serbian, Croatian, Turkish, Chinese.

Extension modules complement the switching and monitoring device and offer extra functions. They are attached to the controller via plug-in connectors. The extension modules do not operate autonomously. The operation of the device from commissioning to enduser operation can be done via the operator unit.
Available extension modules:
- 1 universal module RMZ785
- 2 universal modules RMZ787
- 2 universal modules RMZ788

A total of 4 extension modules can simultaneously be used with the switching and monitoring device.

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

Data sheet	N3124
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Communication	KNX (KNX TP1)
Analog outputs, number	4
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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
Relay outputs, number	6
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	173 x 90 x 80 mm

Stock No.	Product No.
S55370-C100	**RMS705B-1**

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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
Degree of protection	IP20(IP40)
Dimensions (W x H x D)	145 x 44 x 23 mm

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
Degree of protection	IP20
Dimensions (W x H x D)	145 x 96 x 34 mm

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
Operating voltage	AC 24 V
Voltage supply	KNX bus
Power consumption	2.5 VA
Degree of protection	IP20
Dimensions (W x H x D)	145 x 96 x 34 mm

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

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Room unit with KNX bus

QAW740

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

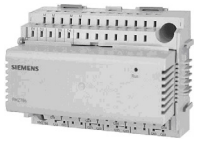
With 3 operating elements:
- Knob for setpoint readjustments
- Operating mode button
- Timer button

Data sheet	N1633
Voltage supply	KNX bus
Measuring range, temperature	0...45 °C
Setpoint readjustment range	±3 K
Communication	KNX (KNX TP1)
Connection cable	2-wire
Degree of protection	IP20
Dimensions (W x H x D)	96 x 96 x 47 mm

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
Voltage supply	Supply from controller module
Power consumption	3 VA
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
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)
Relay outputs	switching contact, potential-free
Relay output, switching voltage	AC 19...265 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	117 × 90 × 75 mm

Range overview RMZ78..

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

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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
Max. cable length	10 m
Dimensions (W x H x D)	18.5 x 87.5 x 22.5 mm

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

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Sensors, setpoint adjusters

Product Title	Data sheet	Stock No.	Product No.
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**
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**
Frost detector, modulating	A6V10432020	BPZ:QAF63..J	**QAF63..J**
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**
Window pane temperature sensor	N1830	BPZ:QAT22	**QAT22**
Air duct differential pressure sensor, DC 0...10 V	N1916_01	BPZ:QBM3020..	**QBM3020..**
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 (0...10 V) and temperature (0...10 V) with calibration certificate	N1883	BPZ:QFM4160	**QFM4160**
Solar sensor	N1943	BPZ:QLS60	**QLS60**
Duct sensor for air velocity	N1932	BPZ:QVM62.1	**QVM62.1**
Outside sensor LG-Ni1000	N1811	BPZ:QAC22	**QAC22**
Frost detector, air side, 2-point	A6V10432022	BPZ:QAF64..J	**QAF64..J**
Differential pressure sensor for liquids and gases	N1923	BPZ:QBE61.3-DP..	**QBE61.3-DP..**
Differential pressure sensor, DC 0...10 V	N1910_01	BPZ:QBM2030..	**QBM2030..**
Strap-on temperature sensor LG-Ni1000	N1801	BPZ:QAD22	**QAD22**
Strap-on temperature sensor with cable LG-Ni1000	N1802	BPZ:QAD26.220	**QAD26.220**
Differential pressure sensors for liquids and gase (DC 0...10 V)	N1920	BPZ:QBE63-DP..	**QBE63-DP..**
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 sensur Ø 4 mm with cable and fitting	N1790	BPZ:QAE26.9..	**QAE26.9..**
Differential pressure sensors for liquids and gase (0...10 V)	N1922	BPZ:QBE3000..	**QBE3000..**
Immersion temperature sensor 100 mm, LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.010	**QAE2121.010**
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**
Immersion temperature sensor 150 mm LG-Ni1000, without protection pocket	N1781	BPZ:QAE2121.015	**QAE2121.015**
Outside / room temperature sensor DC 0..10V	N1814	BPZ:QAC3161	**QAC3161**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**
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 air quality sensor CO_2/ temperature / rel. humidity / VOC	N1962	BPZ:QPM21..	**QPM..**

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Monitors

Product Title	Data sheet	Stock No.	Product No.
Temperature controller	N1205	BPZ:RAK-TR.1..H	**RAK-TR.1..H**
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	A6V10741072_ en-_a	BPZ:QXA21..	**QXA21..**
Frost detector, air side, 2-point	A6V10432022	BPZ:QAF64..J	**QAF64..J**
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**
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	N1212	BPZ:RAZ-TW.1..J	**RAZ-TW.1..J**
Differential pressure monitor	N1552	BPZ:QBM81..	**QBM81..**
Temperature controller/ safety limit thermostat	N1214	BPZ:RAZ-ST..J	**RAZ-ST..J**

Room units / sensors

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 sensor for humidity (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3100	**QFA3100**
Room sensor for humidity (DC 0..10V) and temperature (DC 0..10V) with calibration certificate	N1859	BPZ:QFA4160	**QFA4160**
Room air quality sensor CO_2 / temperature / rel. Humidity / VOC	N1961	BPZ:QPA20..	**QPA..**
Front module for base module, temperature (active)	N1410	S55720-S136	**AQR2532NNW**
Room unit with room temperature sensor and setpoint adjuster	N1721	BPZ:QAA25	**QAA25**
Indoor air quality controller with integrated VOC sensor for mixed gas	N1571	BPZ:QPA84	**QPA84**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V) for demanding requirements	N1858	BPZ:QFA3160	**QFA3160**
Room sensor KNX for temperature	N1602	S55624-H103	**QMX3.P30**
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 unit with room temperature sensor and setpoint readjuster -3...3 K	N1721	BPZ:QAA27	**QAA27**
Room sensor for humidity (DC 0...10 V) and temperature (DC 0...10 V)	N1857	BPZ:QFA2060	**QFA2060**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Base module with KNX for temperature and humidity measurement	N1411	BPZ:AQR2570..	**AQR2570..**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**
Mounting plates for front modules with passiv temperature measurement	N1408	BPZ:AQR2500..	**AQR2500..**

Step switches, signal converter and transformers

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

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Service tool

Product Title	Data sheet	Stock No.	Product No.
Service tool for KNX / LPB	N5655	BPZ:OCI700.1	**OCI700.1**
Commissioning and plant operating software	N5649	S55800-Y100	**ACS790**
USB - KNX Service interface	A6V10438951	S55800-Y101	**OCI702**
Web server for Synco devices	N5701	BPZ:OZW772..	**OZW772..**

The software (ACS790) can be downloaded for free via http://www.siemens.com/acs790.

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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
Positioning signal	AC 24 V (pulse / pause)
Triac outputs	Potential-free
Triac output, switching output	0.04...10 kW
Triac output, switching voltage	AC 42...660 V
Triac output, switching current	Max. 25 A
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
Triac output, switching current	0.5 A
Degree of protection	IP20
Dimensions (W x H x D)	36 × 90 × 60 mm

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

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Signal converter with preprogrammed applications

SEZ220

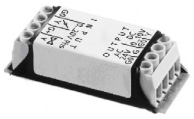
- Maximum and minimum selection
- Calculation of average
- Calculation of enthalpy, enthalpy differential, absolute humidity, dewpoint
- Flexible adaptation, limitation, inversion and conversion of input signal
- Tested preselected applications
- Flexible configuration

Data sheet	N5146
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	5 VA
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Universal inputs, number	5
Universal input, signal	0...1000 Ohm DC 0...10 V LG-Ni1000 Pt1000 T1 (PTC)
Degree of protection	IP20
Dimensions (W x H x D)	123 x 90 x 86 mm

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

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

SEZ91.6



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 input, signal	DC 0...20 V Phs
Analog output, signal	DC 0...10 V
Degree of protection	IP20
Dimensions (W x H x D)	57 x 22 x 18 mm

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

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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	Stock No.	Product No.
Various	0...1000 Ohm	BPZ:BSG21.1	**BSG21.1**
-20...20 °C 20...60 °C -3...3 K	LG-Ni1000	BPZ:BSG21.5	**BSG21.5**

For BSG21.1: Scale 0...50 °C included as standard. For additional scales (BSG-Z) please contact your local Siemens branch.

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 (for additional scales (BSG-Z) please contact your local Siemens branch).

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**

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Universal digital indicator

BAU200

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 input, signal	DC 0...10 V LG-Ni1000 Pt100 Pt1000 T1 (PTC)
Analog output, signal	DC 0...10 V
Degree of protection	IP50
Dimensions (W x H x D)	96 x 48 x 83 mm

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

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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
Power consumption	3 VA
Frequency	50/60 Hz
Buffer time	72 h
Display	LCD
Digital inputs, number	1
Digital input, contact query	8 mA DC 24 V
Digital input, application	Countdown timer
Relay output, switching voltage	AC 24...250 V DC 24 V
Relay output, switching current	AC 6 (3) A DC 0.1...4 A
Relay outputs	Change-over contact, potential-free
Connection cable	Max. 2.5 mm^2
Type of fixing	Wall mouting with screws DIN rail 60 mm long min.
Degree of protection	IP20
Ambient temperature, operation	0...50 °C
Dimensions (W x H x D)	79 × 106 × 56 mm

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

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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
Primary voltage	AC 230 V
Secondary voltage	AC 24 V
Output rating	30 VA
Mounting	On DIN rail With screws
Degree of protection	IP20
Dimensions (W x H x D)	114 × 106 × 57 mm

Range overview SEM62..

Product Title	Stock No.	Product No.
Transformer	BPZ:SEM62.1	**SEM62.1**
Transformer with switch and replaceable fuse	BPZ:SEM62.2	**SEM62.2**

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Software, remote access and system devices

Overview and selection tools	Product range overview	2-2
	Overview of product details	2-3
	Interfaces	2-6
Engineering and service tool	For HVAC plants: ACS..	2-7
Interface OCI..	For HVAC plants	2-8
Web server	For remote control via KNX	2-9
	For remote control via LPB	2-17

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2

Overview standard systems

Communication	KNX (Konnex)	LPB (Local process bus)
Standard systems for:	Heating, ventilation or air conditioning	Heating plants
Web server	OZW772..	OZW672..
Software	ACS790	ACS790
Service Tool	OCI700.1	OCI700.1
USB-KNX Interface with Bus Power supply	OCI702	
Heating controllers	Synco™ ■ RMH760B-1 Heating controller ■ RMK770-1 Boiler sequence controller	■ RVL4.. Heating controllers ■ RVP3.. Heating controllers ■ RVD2.. District heating controllers
Ventilation and air conditioning controllers	Synco™ ■ RMU7..0B.. Universal controllers	
Switching and Monitoring Device	Synco™ ■ RMS705B-1 Swichting and monitoring device	
Room controllers	Synco™ ■ RMB795B-1 Central control unit ■ RXB Room controllers	
Home Automation System	Synco™ living ■ QAX903, QAX913	
Thermostats	Synco™ ■ RDF301, RDF301.50, RDF600KN ■ RDG100KN, RDG160KN, RDG400KN, RDG800KN ■ RDU341	
Flush-mount room sensor	■ AQR253.. ■ AQR257..	
Wall-mount room sensor	■ QMX3.P30 ■ QMX3.P70	

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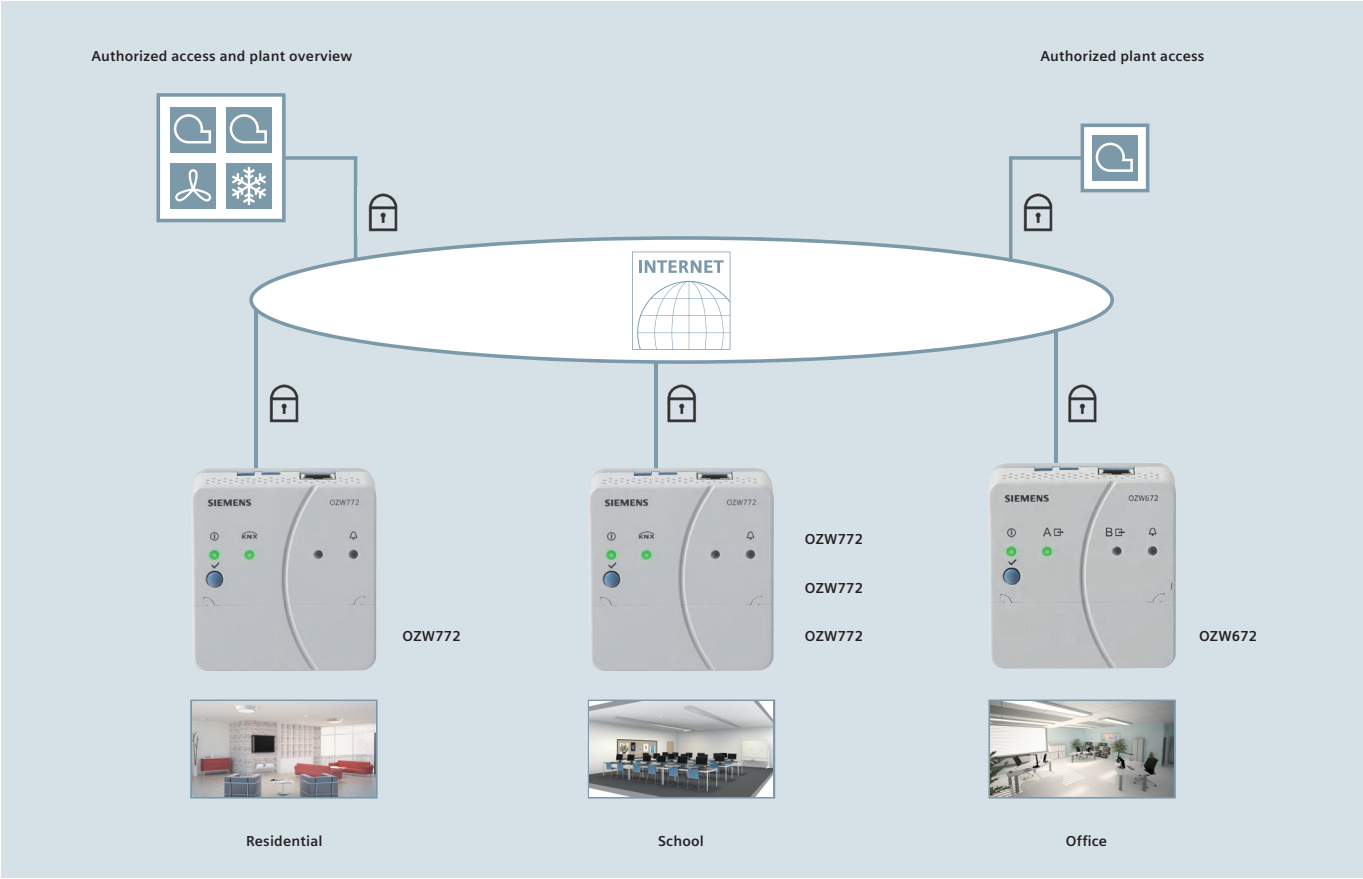
Synco IC

Easy and secure remote access and plant overview

Synco IC is a web-based Remote Access System. Setting-up Internet access to your plant is easy:
just connect your web server OZW with the Internet, create your user account on the web page and enter the key for your web server OZW.

www.siemens-syncoic.com



Internet portal Synco IC offers simple and secure access to your plants

Simple and fast set up of access via the Internet:

- fixed net- or mobile router
- neither a fixed IP address, nor a dynamic IP address service, nor port forwarding (NAT/PAT) is required

The portal provides additional functions:

- Manage one or multiple plants
- Central user management
- Display of plant overview, state of Energy indicators, and alarms
- Send alarm notifications per e-mail
- Secured communications through encryption (https)

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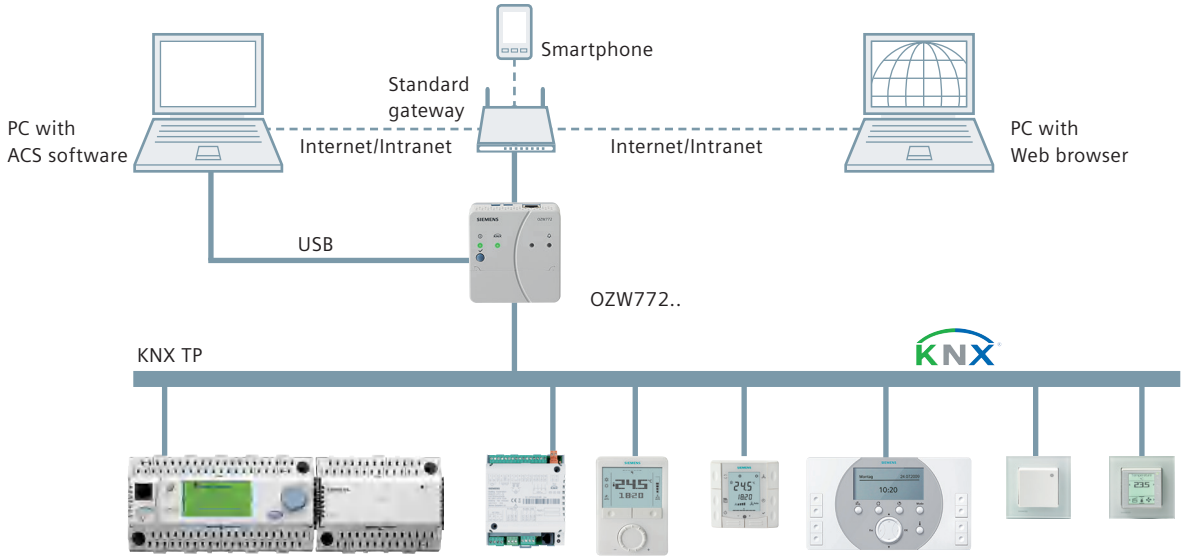
2

Synco Webserver

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.



Webserver	OZW772			
Device versions	**OZW772.01**	**OZW772.04**	**OZW772.16**	**OZW772.250**
No. of Synco devices [1]	1	4	16	250
KNX S-Mode Datenpunkte	7	237	237	237
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 alarm inputs (potential free)	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.., RDG.., RDF.., RDU.., Synco™ living QAX9..

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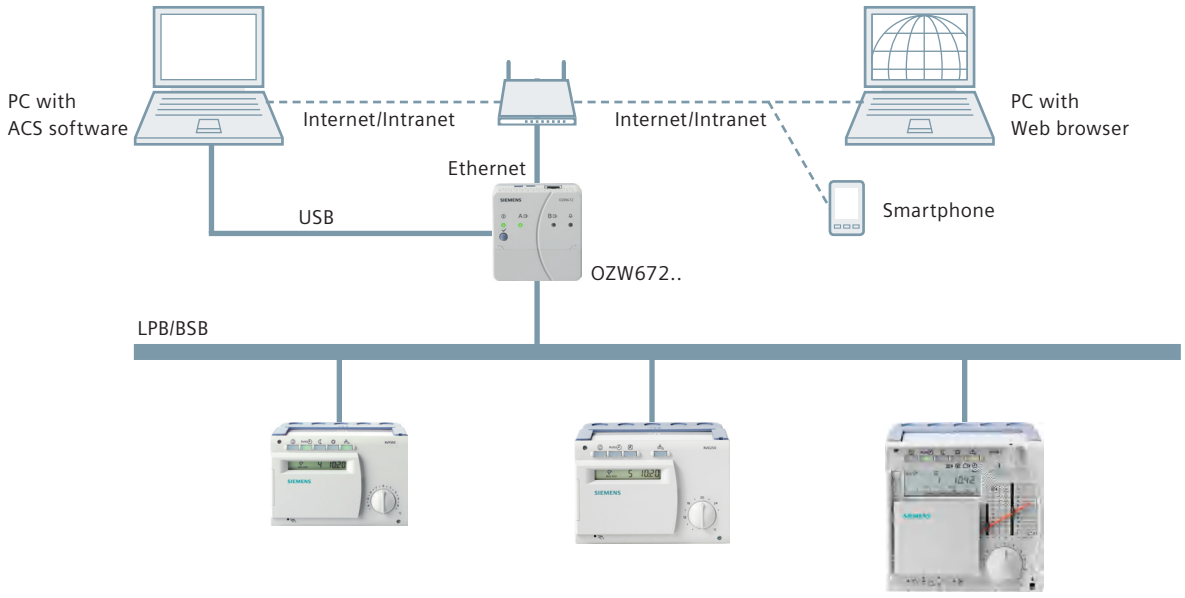
LPB Webserver

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.



Webserver	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 alarm inputs (potential free)	2		
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..

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2

Interfaces

Different interfaces are available for the connection with a Microsoft Windows PC tool. The units OCI7... are designed for portable use and devices N 148/... for mounting on a DIN rail.

Interface				
Type	OCI700	OCI702	N 148/12	N 148/22
PC Interface	USB	USB	USB	Ethernet RJ45
Long frames up to 64 Bytes	Yes	Yes	Yes	Yes
Tool (starting with version)				
ACS	V1	V10	V10	No
ETS	V3	V3	V3	V3
Desigo ABT Site	V6	V6	No	No
Devices				
Heating controller RVD, RVP, RVL	Yes	None	None	None
Synco 200 controller	Yes	None	None	None
Synco 700 and individual room controller	Yes	Yes	Yes	Yes
Synco living appartment unit	Yes	Yes	Yes	Yes
Gamma devices	Yes	Yes	Yes	Yes
Desigo TRA (DXR, PXC3)	None	Yes	None	None
KNX TP devices	Yes	Yes	Yes	Yes
Power supply				
Bus power supply (KNX TP)	No	25 mA, switchable	No	No
Power consumption from field bus	5 mA	5 mA	5 mA	5 mA
Operating voltage	USB	USB	USB	Power over Ethernet
Alternative power supply	No	No	No	24 VAC/DC
Mounting				
Mounting	portable	portable	DIN-Rail	DIN-Rail
Supplied accessories				
Cable for PC	USB	USB		
Cable for field bus	KNX RJ45 LPB RJ12	KNX RJ45 Jack plug Bus terminal		
Transport container	Service case	Bag		
PC-Tool	ACS-CD			

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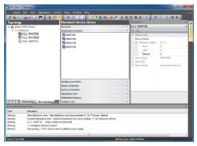
Commissioning and plant operating software

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 OCI7.. service interface
Compatible devices see OCI700.1 and OCI702.

Plant operation and supervision for
KNX systems
- Web server: OZW772
- Synco™ living: QAX9...
- Controllers: Synco™700, Synco RXB
- Thermostats: RDF..., RDG..., RDU341
- Sensors: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB/BSB systems
- Web server units: OZW672
- Sigmagyr controllers: RVD.., RVL.., RVP..
- Albatros controllers

The software can be downloaded for free via http://www.siemens.com/acs790.

Data sheet	N5649

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

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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:

Synco devices:
- Web Server OZW772
- Heating controller RMH760B-1
- Boiler sequence controller RMK770-1
- Universal controllers RMU7..0B-1
- Universal controllers RLU2..
- Switching and monitoring device RMS705B-1
- Room unit QAW740
- Central control unit RMB795B-1
- Individual room controllers RXB..
- Signal converter SEZ220
- Synco™ living central apartment unit QAX9..
- Synco™ thermostats RDF.., RDG.., RDU341
- Sensores: QMX3.P30, QMX3.P70, AQR253.. and AQR257..

LPB/BSB systems
- Web server units: OZW672
- Sigmagyr controllers: RVD.., RVL.., RVP..
- Albatros controllers

Data sheet N5655

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

OCI702

USB - KNX Service interface

The service interface consists of:
- OCI702 service interface
- USB 2.0 cable (Type A / B)
- KNX service cable for Synco™ controllers (RJ45 / RJ45)
- KNX service cable for Desigo™ TRA (RJ45 / jack plug 2.5 mm)
- KNX service cable (RJ45 / KNX bus terminal)

With the respective PC software, the interfaces allows to commission and service devices with KNX communication, e.g. from the following ranges:

- Synco™ 700 controllers and room devices
- KNX room thermostats RDF..., RDG..., RDU341
- Individual room controllers RXB..
- Synco™ living central apartment units QAX9...
- Desigo TRA
- GAMMA devices

Data sheet A6V10438951

	Stock No.	Product No.
	S55800-Y101	**OCI702**

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KNX standard systems main components

Product Title	Data sheet	Stock No.	Product No.
Room thermostat with KNX communications, for fan coil units and universal applications	N3191	BPZ:RDG1..KN	**RDG1..KN**
Central control unit for room controllers and room thermostats	N3122	S55370-C162	**RMB795B-1**
Heating controller	N3133	BPZ:RMH760B-1	**RMH760B-1**
Boiler sequence controller	N3132	BPZ:RMK770-1	**RMK770-1**
Switching and monitoring device	N3124	S55370-C100	**RMS705B-1**
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**
VAV compact controller KNX	N3547	BPZ:G..B181.1E/KN	**G..B181.1E/KN**
Room thermostat with KNX communications, AC 24 V, VAV heating and cooling systems	N3192	S55770-T165	**RDG400KN**
Room controller for fan-coil applications with KNX communication	N3875	S55373-C121	**RXB39.1/FC-13**
Front modules for base modules	N1410	BPZ:AQR253..	**AQR253..**
Web server for Synco devices	N5701	BPZ:OZW772..	**OZW772..**
Touch screen room thermostat with KNX communications, for 2-/4- pipe fan coil, universal applications or compressors in DX-type equipment	N3174	S55770-T350	**RDF800KN**
Room sensor KNX for temperature	N1602	S55624-H103	**QMX3.P30**
Flush-mount room thermostats with KNX communications, 2-/4-pipe fan coils or DX type equipment	N3171	BPZ:RDF301..	**RDF..KNX Flush Mount**
Universal controller	N3150	BPZ:RMUB..	**RMU7..0B-1**
Room sensor KNX for temperature, humidity, CO2	N1602	S55624-H104	**QMX3.P70**
Flush-mount room thermostat for rectangular conduit box with KNX communications, for VAV application	N3172	S55770-T106	**RDU341**
Base module with KNX for temperature and humidity measurement	N1411	BPZ:AQR2570..	**AQR2570..**
Room unit with KNX bus	N1633	BPZ:QAW740	**QAW740**
Base modules with KNX for CO_2 measurement	N1411	BPZ:AQR2576..	**AQR2576..**

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OZW772..

Web server for Synco 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 e-mails
- Record of trends, display and dispatch to 2 e-mail recipients
- Integration up to 237 S-Mode data points of KNX devices (not OZW772.01)
- Direct commissioning with web browser or ACS service tool
- Easy and secure remote access and plant overview with Synco IC Remote Access - a web-based service for secure remote access (www.siemens-syncoic.com)

Internet portal Synco IC offers simple and secure access to your plants
- Simple and fast set up of access via the Internet (fixed net- or mobile router)
- The portal provides additional functions:
- Manage one or multiple plants
- Central user management
- Display of plant overview, state of Energy indicators and alarms
- Send alarm notifications per e-mail
- Secured communications through encryption (https)

Package insert:
Installation Instructions G5701
Power pack AC 230 V / DC 24 V
Ethernet-cable
USB-cable
2 cable ties

Web servers OZW772.01, OZW772.04, OZW772.16, OZW772.250 can connect 1, 4, 16, or 250 KNX devices from the product ranges Synco 700, Synco RXB, and RDG/RDF/RDU room thermostats, and the QAX Synco living central apartment units.

Data sheet	N5701
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Communication	KNX TP (twisted pair) Ethernet, RJ45 plug socket (shielded) USB V2.0
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 Synco device	BPZ:OZW772.01	**OZW772.01**
Web server for 4 Synco devices	BPZ:OZW772.04	**OZW772.04**
Web server for 16 Synco devices	BPZ:OZW772.16	**OZW772.16**
Web server for 250 Synco devices	BPZ:OZW772.250	**OZW772.250**

www.EngineeringEBooksPdf.com

IP Viewer

N 151/01

Interface converter between a KNX and an IP network, with the following simultaneously executable functions:

- As a WebServer for monitoring and control of up to 40 states and values transmitted via the KNX network, which can be displayed on up to 5 image pages of a PC connected to the IP network using Internet Explorer 6.0, 7.0, 8.0 or Firefox 3.0 (for other browsers, see documentation at www.siemens.com/gamma-td)
- For the parameterization of a KNX system using ETS3.0f/ETS4/ETS5
- For communication between the KNX network and a ComBridge Studio visualization software

• Special WEB page for the multilanguage adaptation of the presentation of an image page and a special WEB page for firmware upgrades
• Ethernet interface for connection to the IP network using the Internet Protocol
• RJ45 socket for connection to Ethernet 10 Mbits/s
• 2 LED displays for indication of ready-to-run state and for IP communication
• Integrated bus coupling units
• KNX bus connection via bus terminal
• Electronics powered via an external AC/DC 24 V, 40 mA power supply unit
• Connection of external power supply unit via an extra-lowvoltage terminal
• Modular installation devices for mounting on TH35 EN 60715 mounting rail

The external 24 V AC/DC power supply unit must be ordered separately (e. g. 4AC2402).

Dimension width (1 MW = 18 mm)	4 MW

	Stock No.	Product No.
	5WG1151-1AB01	**N 151/01**

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N 152/01

IP Control Center

Visualization controller for full-graphic visualizations on web-compatible end devices such as PCs, tablets and smart phones with a standard web browser
For communication between KNX devices and PCs and, in connection with a LAN-/WLAN modem or DSL router, for remote access to a KNX installation, for usage as an interface for the ETS 3/4/5 and as an interface for a visualization, with usage of the KNXnet/IP protocol, with the following simultaneously usable functions:

- Web server for operating and monitoring up to 1250 statuses and values transmitted by the KNX network, which can be displayed using a standard browser on PCs, Tablets, or Smartphones connected to the IP network
- Special web page for firmware upgrade
- Graphical web editor for a creation of fully graphical visualization with control and display elements, configurable in various styles
- Smart editor for the creation one, for mobile browsers, smartphones, tablets tuned, visualisation with control and display elements, configurable in various styles and layouts
- Annual timer, with astronomical calendar, for 300 time switch schedules with up to 30 time switch commands per time switch schedule
- Scene module with up to 5000 scenes or events
- Chart module for recording and reporting of up to 10 data points
- Monitoring module for monitoring and storage of up to 1000 events into a ring buffer
- IP interface for control of up to 20 IP-devices via up to 20 TCP/UDP commands per IP-device
- Fully graphical logic module with up to 1000 logic functions
- Alarm function for up to 250 different alarms
- E-mail function, with up to 20 contacts, for transmission of chart data from chart module, logged data from monitoring module or alarm data
- Ethernet interface 10/100 Mbits/s with RJ45 socket for connection to the IP network using the Internet Protocol
- 2 LED displays for IP connection/communication and for error messages
- Integrated bus connector and bus terminal for connection to a KNX network
- Power supply of the electronics by an external voltage source for DC 24 V and at least 1.2 W, connection using a low voltage terminal
- Series installation device for mounting on support rails TH35 DIN EN 60715

Dimension width (1 MW = 18 mm)	4 MW

Stock No.	Product No.
5WG1152-1AB01	**N 152/01**

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

The external 24 V AC/DC power supply unit must be ordered separately (e. g. 4AC2402).

Dimension width (1 MW = 18 mm)	2 MW

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

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IP router

N 146/02

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

The external 24 V AC/DC power supply unit must be ordered separately (e. g. 4AC2402).

Dimension width (1 MW = 18 mm) 2 MW

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

IP controller

N 350E01

- LEDs for indicating that the device is ready-to-run, KNX communication, IP communication
- LC-Display
- Supports KNXnet/IP
- 1 Interface functions (Tunneling), 1 Interface functions (object server)
- Integrated real-time clock, weekly scheduling program for 100 scheduled entries/astro function
- Yearly time switching functions, 200 Event entries, 30 Logic gates
- Electronics powered via an external nominal 24 V AC/DC, 40 mA power supply unit
- Ethernet connection via RJ45 socket
- Plug-in terminal block for the connection of an external power supply unit
- Integrated bus coupling unit, bus connection via bus terminal
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

The external 24 V AC/DC power supply unit must be ordered separately (e. g. 4AC2402).

Dimension width (1 MW = 18 mm) 4 MW

	Stock No.	Product No.
	5WG1350-1EB01	**N 350E01**

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2

N 148/12

USB Interface

- Compatible with USB 2.0 and USB 3.0
- For isolated access to the bus line over the built-in USB socket (type B)
- For connection of a PC for addressing, parameterization, visualization, logging and diagnosis of bus devices
- Access to all bus devices in the whole bus system
- Support of bus telegrams with up to 64 bytes length
- Power supply over the bus line and over USB through the connected PC
- Integrated bus coupling unit, bus connection over contact system to data rail and parallel over bus terminal
- Transmission at USB 2.0 speed (max. 12 Mbit/s) between PC and USB interface
- Modular installation device for mounting on TH35 DIN EN 60715 mounting rail

The data rail must be ordered separately.

Dimension width (1 MW = 18 mm)	1

Stock No.	Product No.
5WG1148-1AB12	**N 148/12**

N 143/01

IP Gateway KNX/BACnet

- BACnet Application Specific Controller (B-ASC) as Gateway between KNX TP and BACnet IP
- Up to 250 BACnet objects
- Up to 455 BACnet COV subscriptions
- Automatic translation of KNX communication objects into BACnet objects according to the configuration with ETS
- For communication between KNX EIB devices and PCs or other devices with Ethernet (10BaseT) interface, as well as in conjunction with a LAN modem or DSL router for remote access to an KNX EIB installation
- For use as an interface e.g. for ETS3 or for visualization software
- Use the KNXnet/IP protocol
- KNXnet/IP Tunneling connection for parallel bus access by ETS and further PC software
- ObjectServer connection for visualization via network connections with long signal transmission duration
- Assignment of the network parameters by the installer using ETS, or automatically by a DHCP server in the network
- 2 LEDs for display of operational availability and IP communication
- Additional power supply by an external safety extra low voltage power supply for AC/DC 24 V, 40 mA
- Pluggable terminal block for connection of external power supply unit (not included)
- Integrated bus coupling unit with bus connection via bus terminal
- Ethernet connection via RJ45 socket
- Mounting on DIN rail EN 60715-TH35-7.5

Dimension width (1 MW = 18 mm)	4 MW

Stock No.	Product No.
5WG1143-1AB01	**N 143/01**

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Line/backbone coupler

N 140/..3

- 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

Line/backbone coupler

N 140/13

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

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

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

Line/backbone coupler for data rail

N 140/03

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

The data rail must be ordered separately.

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**

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2

N 125/..2

Power supply unit

- 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 N 120/2
- Modular installation devices for mounting on TH35 EN 60715 mounting rail

The optional data rail must be ordered separately.

Dimension width (1 MW = 18 mm) 4 MW

Range overview 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**

N 120/02

Choke, 640 mA

- 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

The optional data rail must be ordered separately.

Dimension width (1 MW = 18 mm) 2 MW

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

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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
- Record of trends, display and dispatch to 2 e-mail recipients

Internet portal Synco IC offers simple and secure access to your plants
- Simple and fast set up of access via the Internet (fixed net- or mobile router)
- The portal provides additional functions:
- Manage one or multiple plants
- Central user management
- Display of plant overview, state of Energy indicators and alarms
- Logging fault messages
- Send alarm notifications per e-mail
- Secured communications through encryption (https)

Package insert:
Installation Instructions G5711
Power pack AC 230 V / DC 24 V
Ethernet-cable
USB-cable
2 cable ties

Web servers OZW672.. can connect 1 LPB/BSB device or 4 or 16 LPB devices from the product ranges Sigmagyr, Albatros and Albatros2.

Data sheet	N5712
Operating voltage	Power pack: AC 230 V Web server: DC 24 V
Communication	LPB/BSB (twisted pair) Ethernet, RJ45 plug socket (shielded) USB V2.0
Digital inputs, number	2
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**

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2

LPB standard system main components

Product Title	Data sheet	Stock No.	Product No.
Web Server for LPB devices	N5712	BPZ:OZW672..	**OZW672..**
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 a second heating circuit	N2543	BPZ:RVL479	**RVL479**
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..**

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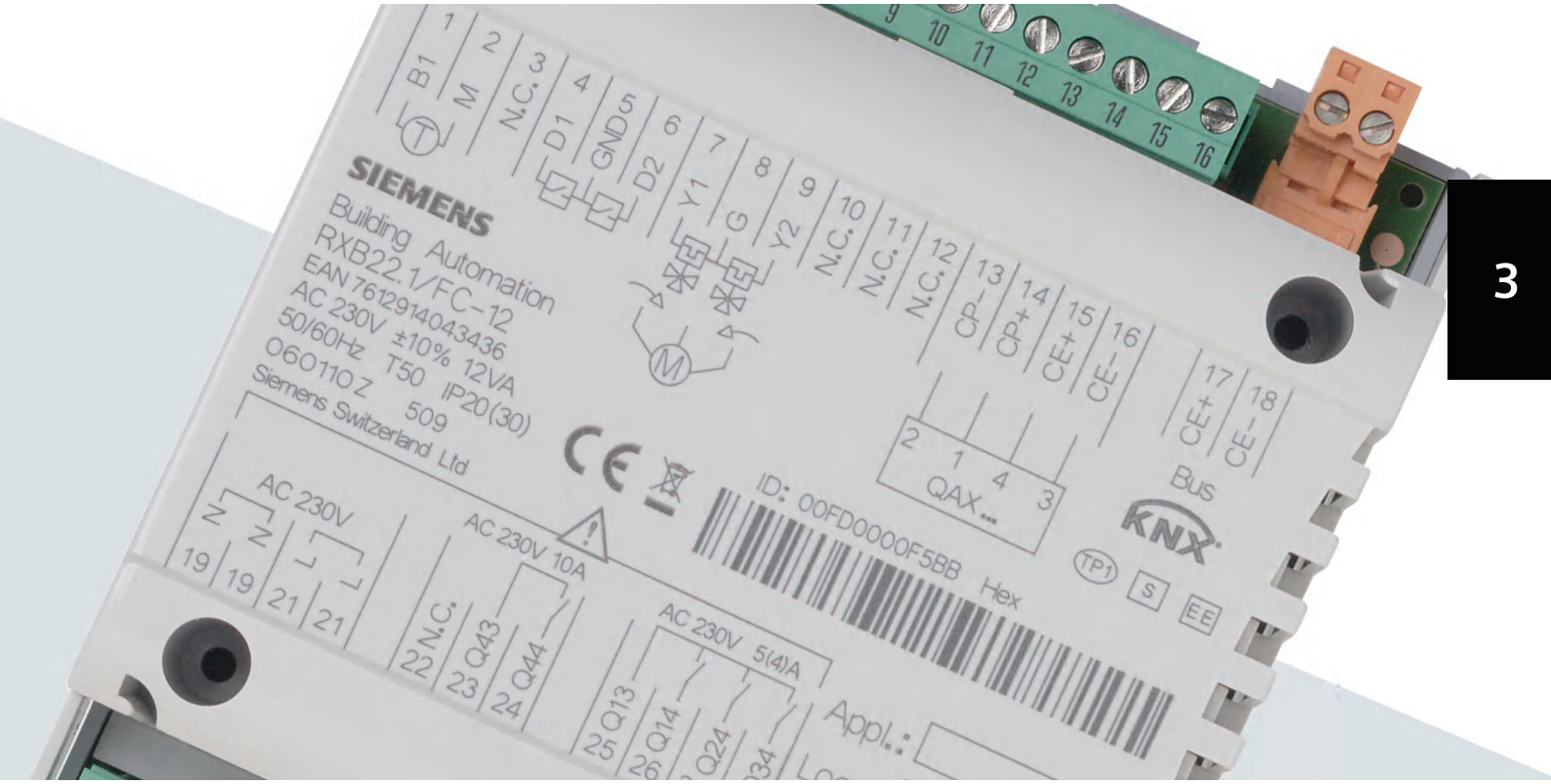
Room automation



Overview and selection tools	Communicating controllers – RXB (KNX)	3-2
	Room automation station DXR (BACnet)	3-5
	Communicating controllers – RXB (KNX)	3-10
	Field devices (KNX PL-Link) for DXR (BACnet)	3-11
Communicating room controllers - RXB (KNX)	For fan coil, radiator, chilled ceiling	3-13
Communicating central control unit (KNX)	Central control unit RMB795B.. for room controllers and room thermostats	3-16
Room operator units	Room operator units QAX3.. / QAX8.. (PPS2)	3-18
	Room operator units QMX3.. (KNX)	3-21
	Room operator units QAX9.. (EnOcean)	3-24
Room automation station DXR (BACnet)	For fan coils, Variable air volume (VAV), Radiant ceilings, Radiators	3-27
Room units for room automation station DXR (BACnet)	Room unit with KNX PL-Link	3-32
Field devices for room automation station DXR (BACnet)	Presence detectors with KNX PL-Link	3-37
	VAV compact controller with KNX PL-Link	3-38

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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.
To use QMX3 room operating units or sensors ETS-software must be used in every case.

Integration into Synco™

The central control unit RMB795B-1 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

Fan coil units

QAX30
QAX31
QAX32
QAX33
QAX34
QAX39
QAX84
QAX95
QAX96
QAX97
QAX98
QMX3.P30 *
QMX3.P34 *
QMX3.P37 *
AQR2531..

KNX

RXB21.1
RXB22.1
RXB24.1
RXB39.1

Room units

Controller

* ETS-software must be used

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Fields of application

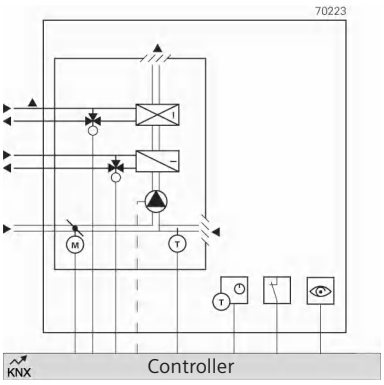
The scope of RXB is defined by the preprogrammed application software. The following pages provide an overview of the options and the corresponding devices, divided into different areas of application. The devices are supplied preprogrammed with the applications. The required application can be selected 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.:

- PWM or 3-point control of the valves and actuators (RXB39.1: 0-10 V DC control of motoric actuator)
- Temperature setpoints
- Manual or automatic fan control

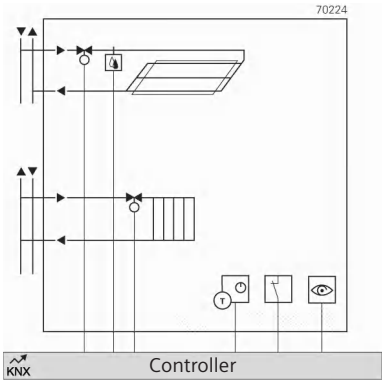
Fan coil systems

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/FC-13



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

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3

Room operation

Features	30.1	31.1	32.1	QAX.. 33.1	34.3	39.1	84.1
Display					■		■
Mode selection			■	■	■		■
Fan switch				■	■		■
Setpoint adjuster		■	■	■	■	■	■
Temperature sensor	■	■	■	■	■		■
Mounting							
Flush-mounted						■	■
Directly on wall	■	■	■	■	■		
Control panel(door)						■	
Communication							
PPS2	■	■	■	■	■	■	■
KNX							

Room units KNX

Features	P30	QMX3.. P34	P37	AQR.. 2570.. & 253..
Display		■	■	
Mode selection		■	■	
Fan switch		■	■	
Setpoint adjuster		■	■	
Temperature sensor	■	■	■	■
Mounting				
Flush-mounted				■
Directly on wall	■	■	■	
Communication				
EnOcean				
KNX	■	■	■	■

Wireless room operation

Features	95.4	96.4	97.4	98.4
Display				
Mode selection			■	■
Fan switch				■
Setpoint adjuster		■	■	■
Temperature sensor	■	■	■	■
Mounting				
Flush-mounted	■	■	■	■
Directly on wall	■	■	■	■
Communication				
EnOcean	■	■	■	■
KNX	■ [2]	■ [2]	■ [2]	■ [2]

[1] LED for air quality indicator
[2] **Suitable receiver:** RXZ97.1/KNX

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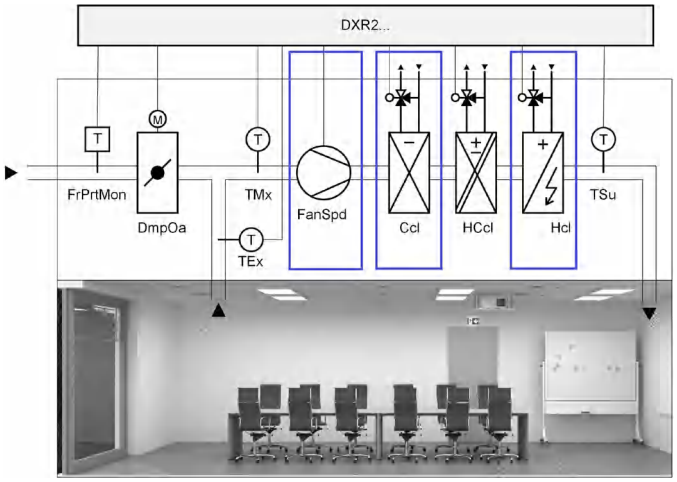
Configurable Room Automation Station with BACnet

1. Check application requirements

Requirements

- Fan coil
- 4-pipe system
- 3-speed fan
- 2 valves with electrothermal actuators (2-point control signal)
- Voltage AC 230 V
- Presence detector
- Room unit with built-in temperature sensor



	Frost protection (FrPrtMon)	Outside air damper (DmpOa)	Extract air temperature (TEx)	Mixed air temperature (TMx)	Fan speed (FanSpd)	Cooling coil (Ccl)	Heating/ cooling coil (HCcl)	Heating coil (Hcl)	Supply air temperature (TSu)
DI									
AI									
Relais					3				
Triac						1		1	
0..10 V									
Relais + 0..10 V									

2. Find matching products in overview tables

Products matching application requirements above:

Product Number	Description	Qty
DXR2.E10	Compact room automation stations, BACnet/IP, 230 V	1
QMX3.P34	Room operator unit KNX with temperature sensor, segmented backlit display, touchkeys	1
UP 258D11	Passive infrared presence detector	1
STP73	Electrothermal actuator, AC/DC 24 V, NO, 2P, 1 m	2
VMP47.10-1.6	3-port seat valve with bypass, external thread, PN16, DN10, kvs 1.6	2

Note:
Product overview tables provide quick overview and show main features, nevertheless, we recommend checking technical parameters of each product.

3. Check total data points and bus load

Used DXR2.. on-board data points:	5
KNX PL-link data points:	5
Total used data points:	10 < **30**
Total KNX PL-link bus load:	17.5 mA < **50 mA**

Correct, total values do not exceed maximum configuration.

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Overview and selection tools
Room automation station DXR (BACnet)

Application configuration

Applications can be configured by combining functions from one or several application types:
- Room sensor and operating
- Radiant (heated/chilled) ceiling and Radiator
- Fan coil
- VAV system or Fan powered box
- Radiant (heated/chilled) ceiling and Radiator
- Lighting
- Shading

Configuration is limited by total number of data points.

Application group Central functions requires dedicated room automation station.

Configurable controllers

Communication						
BACnet/IP	DXR2.E09-101A	DXR2.E09T-101A	DXR2.E10-101A	DXR2.E12P-102A	DXR2.E18-101A	DXR2.E18-102A
Application types						
Room operating	■	■	■	■	■	■
Heated / Chilled ceiling and Radiator	■	■	■	■	■	■
Fan coil	■	■	■		■	
VAV system or Fan powered box				■		■
Lighting	■	■	■	■	■	■
Shading	■	■	■	■	■	■
Central Functions					■*	■*
Housing						
DIN				■	■	■
Flat	■	■	■			
Operating voltage						
230V	■	■	■			
24V				■	■	■
Inputs and outputs onboard						
Digital inputs	1	1	1	1	2	2
Universal inputs	2	2	2	2	4	4
Relay outputs	3	1	3			
Triac outputs		4	4	6	8	8
Analog outputs (DC 0...10 V)	3	1		2	4	4
Pressure sensor				1		
Maximum configuration						
Total data points	30	30	30	30	60	60
Integrated power supply for KNX (mA)	50	50	50	50	50	50

* Cannot be combined with other applications

Configuration Tool

DXR2.. comes with set of standard applications that can be flexibly configured with the tool ABT Site.

	Product No.	SSN	Description
	CTX-LSI	S55802-Y153	ABT Site Engineering License - 1 Year

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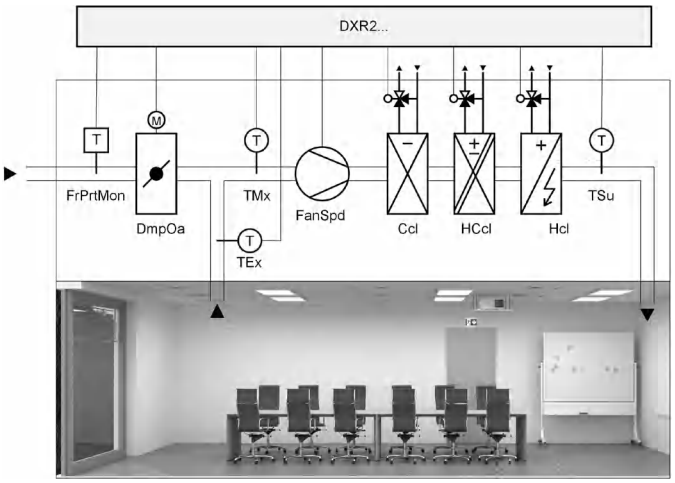
HVAC applications

Application types

Fan coil
Application can be configured from these functions:

- Outside Air Damper
- Single Speed Fan, Multi Speed Fan or Variable Speed Fan
- Chilled water cooling coil
- Direct expansion evaporator cooling coil
- Heating/Cooling coil
- Hot water heating coil
- Electric heating coil modulating, single stage or two stage
- Room temperature control by two-pipe system with change-over
- Room temperature control by four-pipe system
- Supply air temperature cascade control
- Room dehumidification control
- Air volume flow control
- Rapid ventilation
- Green leaf

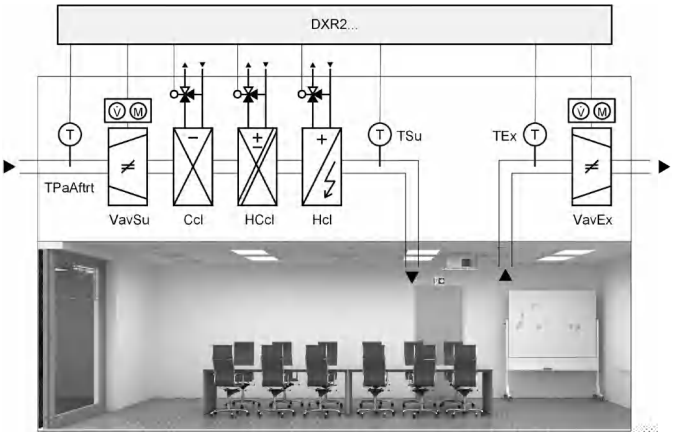


	Frost protection monitor (FrPrtMon)	Outside air damper (DmpOa)	Extract air temperature (TEx)	Mixed air temperature (TMx)	Fan speed (FanSpd)	Cooling coil (Ccl)	Heating/ cooling coil (HCcl)	Heating coil (Hcl)	Supply air temperature (TSu)
DI	1								
AI			1	1					1
Relais					1-3				
Triac		2			1-2	1-2	1, 2, 4 ,8	1-2	
0..10 V		1			1*	1	1, 4	1**	

* Requires additional relais or triac for enable signal
** Requires additional triac for electric heating enable signal

VAV (Variable Air Volume system)
Application can be configured from these functions:

- Supply and extract air control
- External flow control for VAV with integrated flow controller and differential pressure sensor
- Internal flow controller and differential pressure sensor for damper actuator control
- Internal flow controller and velocity sensor for damper actuator control
- Chilled water cooling coil
- Heating/Cooling coil
- Hot water heating coil
- Electric heating coil modulating, single stage or two stage
- Room temperature control by two-pipe system with change-over
- Room temperature control by four-pipe system
- Supply air temperature cascade control
- Air flow tracking for under/overpressure
- Room dehumidification control
- Room air quality control
- Rapid ventilation
- Green leaf



	Primary air temperature for air after-treatment (TPaAftrt)	Supply air VAV (VavSu)	Cooling coil (Ccl)	Heating/ cooling coil (HCcl)	Heating coil (Hcl)	Supply air temperature (TSu)	Extract air temperature (TEx)	Extract air VAV (VavEx)
DI								
AI	1					1	1	
Relais								
Triac		2**	1-2	1, 2, 4 ,8	1-2			2**
0..10 V		1	1	1, 4	1*			1
Actuator for VAV (KNX PL-Link)		1						1

* Requires additional triac for electric heating enable signal
** When using DXR2.. with AC 24 V power supply in combination with GDB181.1E/3 or GLB181.1E/3, use 0..10V signals.

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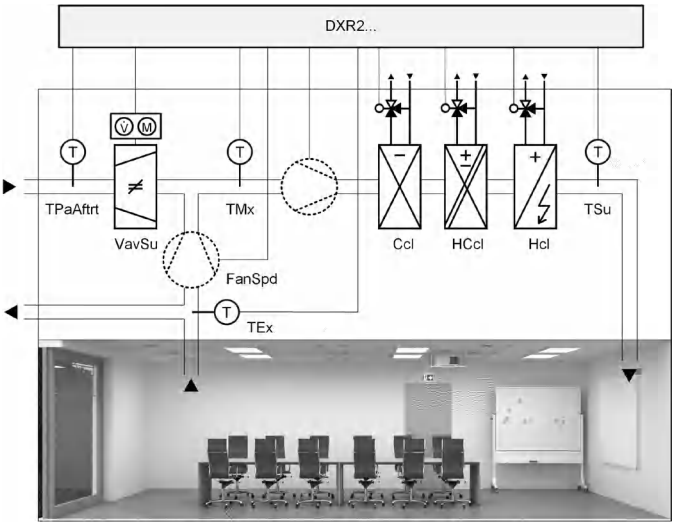
3

Fan powered box
Application can be configured from these functions:

- Supply air control
- External flow control for VAV with integrated flow controller and differential pressure sensor
- Internal flow controller and differential pressure sensor for damper actuator control
- Internal flow controller and velocity sensor for damper actuator control
- Single Speed Fan , 2 speed Fan or Variable Speed Fan
- Chilled water cooling coil
- Heating/Cooling coil
- Hot water heating coil
- Electric heating coil modulating, single stage or two stage
- Room temperature control by two-pipe system with change-over
- Room temperature control by four-pipe system
- Supply air temperature cascade control
- Room air quality control
- Rapid ventilation
- Green leaf

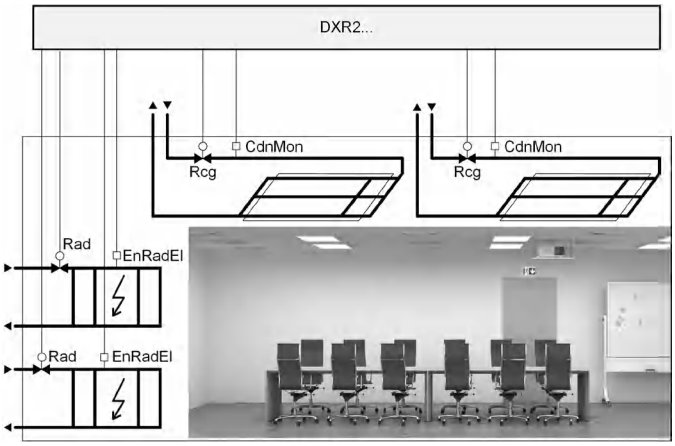


	Primary air temperature for air after-treatment (TPaAftrt)	Supply air VAV (VavSu)	Extract air temperature (TEx)	Mixed air temperature (TMx)	Fan speed (FanSpd)	Cooling coil (Ccl)	Heating/ cooling coil (HCcl)	Heating coil (Hcl)	Supply air temperature (TSu)
DI									
AI	1		1	1					1
Relais									
Triac		2			1-2	1-2	1, 2, 4, 8	1-2	
0..10 V		1			1*	1	1, 4	1**	
Actuator for VAV (KNX PL-Link)		1*							

* Requires additional triac for enable signal
** Requires additional triac for electric heating enable signal

Radiant ceiling and Radiator
Application can be configured from these functions:

- Chilled ceiling with chilled water
- Heated/chilled ceiling by two-pipe system with change-over
- Heated/chilled ceiling by four-pipe system with 6 way valves
- Heating ceiling with hot water
- Hot water radiator
- Electric radiator modulating or staged
- Downdraft compensation for radiators
- Condensation monitor
- Room temperature control
- Green leaf



	Radiator (Rad)	Radiator overtemperature (RadOvrT)	Radiant ceiling (Rcg)	Condensation monitor (CdnMon)
DI		1		1
AI				
Relais				
Triac	1-4		1-4	
0..10 V	1-2*		1-2	

* Requires additional triac or relais for electric heating enable signal

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Room sensor and operating

Application can be configured from these functions:
- Room operating units QMX3 on KNX PL-Link
- Sensors for onboard IO's or KNX PL-Link
- Presence/brightness sensors for onboard IO's or KNX PL-Link

	Temperature sensor	Air quality Sensor	Humidity sensor	Presence detector
DI				2
AI	1	1	1	
HVAC Sensor (KNX PL-Link)	1	1	1	
Presence and brightness sensor (KNX PL-Link)				1-4*
Room unit (KNX PL-Link)	1	1	1	

* Must be the same device

	Window contact	Room operator unit
DI	1	
Room unit (KNX PL-Link)		2*

* Must be the same device

Central functions

Application can be configured from these functions:
- Central operation group including room operating mode and start optimization, setpoints and seasonal compensation
- Demand controlled hot water supply system, includes temperature setpoint
- Demand controlled chilled water supply system, includes temperature setpoint, shift to avoid condensation by collecting condensation monitors, free cooling calculation
- Demand controlled 2 pipe heating / cooling water supply system includes temperature setpoint, changeover, free cooling calculation
- Demand controlled air handling unit (supply and extract air) includes temperature setpoint, maximum humidity setpoint, pressure setpoint, maintain minimal central air volume, flow deviation calculation, summed air volume setpoints
- Variable air volume (VAV) emergency group includes shut down, extract, pressurization or purge
- Central weather station information includes outside temperature, outside brightness, outside solar radiation, outside wind speed, outside precipitation

	Central Weather Station Controller					Central Emergency Controller		
	Outside temperature	Relative outside humidity	Atmospheric pressure	Wind speed	Precipitation detector	Forced Emergency shut down air supply	Forced Smoke extraction (exhaust air)	Forced Smoke pressurization (supply air)
DI					1	1-2	1-2	1-2
AI	1	1	1	1				
Push button (KNX PL-Link)								
DXR2.. Type	DXR2..18..					DXR2..18..		

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3

Room units

	P36	QMX3.. P34	P74
Features			
Mode selection	■	■	■
Fan switch	■	■	■
Setpoint adjuster	■	■	■
Temperature sensor	■	■	■
Humidity sensor			■
Air quality sensor			■
Mounting			
Flush mounted	■		
Direct on wall		■	■
Integration into DXR2…			
Data points	3	3	5
KNX PL-Link bus load (mA)	12.5	7.5	15

HVAC Sensor (KNX PL-Link)

	AQR2570… and AQR2532NNW	AQR2570… and AQR2535NNW	AQR2576… and AQR2530NNW	AQR2576… and AQR2532NNW	AQR2576… and AQR2535NNW	AQR2576… and AQR253NNWQ	QMX3.P30	QMX3.P70
Features								
LED indication air quality						■		■
Temperature sensor	■	■		■	■	■	■	■
Humidity sensor		■			■	■		■
Air quality sensor			■	■	■	■		■
Mounting								
Flush mounted	■	■	■	■	■	■		
Direct on wall							■	■
Integration into DXR2…								
Data points	1	2	1	2	3	3	1	3
KNX PL-Link bus load (mA)	5	5	15	15	15	15	7.5	15

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Presence and brightness sensor (KNX PL-link)

Type	**UP 258D11**	**UP 258D12**
Features		
Presence detector	■	■
Detection area at mounting height 2.5 m (m)	3	4.5
Brightness sensor	■	■
Integration into DXR2..		
Data points	**2**	**2**
KNX PL-link bus load (mA)	**10**	**10**

Actuator for VAV (KNX PL-Link)

Type	**GDB181.1E/KN**	**GLB181.1E/KN**
Features		
Torque (Nm)	**5**	**10**
Air damper area (m2)	**0.8**	**1.5**
Operating range (Pa)	**0...300**	**0...300**
Operating voltage (V AC)	**24**	**24**
Integration into DXR2..		
Data points	**2**	**2**
KNX PL-link bus load (mA)	**5**	**5**

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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, PWM, valve actuators AC 24 V (3-position) as well as KNX bus actuators
- Potential-free relay contacts for fan speed control
- Connecting relay for electric heating (RXB22.1 und RXB39.1)
- 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
Communication	Bus: KNX (S-mode and LTE mode) Room unit: PPS2
Service plug	RXT20.1
Digital inputs, number	2
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Triac outputs	PWM 3-position
Triac output, switching voltage	AC 24 V
Triac output, switching current	0.5 A
Interface type	KNX-bus
Mounting	On DIN rail With screws
Mounting location	Ceiling voids with cover Fan coil Panel
Degree of protection	IP30
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 (PWM /3-position) with the triac output.

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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
Communication	Bus: KNX Room unit: PPS2
Service plug	ETS Professional, ACS, HandyTool
Analog inputs, number	2
Analog outputs, number	3
Analog output, signal	DC 0...10 V
Digital inputs, number	4
Relay outputs, number	1
Electric reheater relay	1
Relay output, switching voltage	AC 250 V
Relay output, switching current	5 (4) A
Mounting	On DIN rail
Mounting location	Ceiling voids with cover Fan coil Panel
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.
Terminal cover for RXB2../ RXC2../ RXM2..	N3834	BPZ:RXZ20.1	**RXZ20.1**
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**
Terminal cover for RXB3../ RXC3../ RXM3..	N3840	BPZ:RXZ30.1	**RXZ30.1**

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Room operating unit for RXB..

Product Title	Data sheet	Stock No.	Product No.
Radio frequency receiver with Gateway EnOcean/KNX	N1662	S55842-Z101	**RXZ97.1/KNX**
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**
Room unit with PPS2 interface		BPZ:QAX3..	**QAX3..**
Flush-mounted room unit complete with PPS2 interface and design frame	N1649	BPZ:QAX84.1/PPS2	**QAX84.1/PPS2**
Room operator unit KNX with temperature sensor, segmented backlit display, touchkeys	N1602	S55624-H105	**QMX3.P34**
Room operator unit KNX with temperature sensor, segmented backlit display, configurable touchkeys, LED display	N1602	S55624-H108	**QMX3.P37**

Interfaces and tools for RXB..

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**

Temperature sensors for RXB..

Product Title	Data sheet	Stock No.	Product No.
Room temperature sensor LG-Ni1000	N1721	BPZ:QAA24	**QAA24**
Duct temperature sensor 400 mm, LG-Ni1000	N1761	BPZ:QAM2120.040	**QAM2120.040**
Room sensor KNX for temperature	N1602	S55624-H103	**QMX3.P30**
Room temperature sensor LG-Ni1000 for mounting on recessed conduit boxes	N1722	BPZ:QAA64	**QAA64**
Front modules with passiv temperature measurement	N1408	BPZ:AQR2531..	**AQR2531..**
Cable temperature sensor PVC 2 m, LG-Ni1000	N1831	BPZ:QAP22	**QAP22**

Dewpoint sensor for RXB..

Product Title	Data sheet	Stock No.	Product No.
Condensation monitor	A6V10741072_ en-_a	BPZ:QXA21..	**QXA21..**

Damper actuators for RXB..

Product Title	Data sheet	Stock No.	Product No.
Rotary air damper actuators 5 Nm, without spring return	A6V10636149	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	A6V10636149	BPZ:GLB..1E	**GLB..1E**
Linear air damper actuators 250 N, without spring return	N4664	BPZ:GLB..2E	**GLB..2E**

Valve actuators for RXB..

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

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RMB795B-1

Central control unit for room controllers and room thermostats

- Central control unit with integrated control and supervisory functions for individual room control with RXB room controllers and room thermostats RDG/RDF/RDU
- Central collection of heating and cooling demands from any KNX room controllers
- Control of any HVAC primary controllers in dependence on the received and calculated heating/cooling demands
- Individual time programs for room groups
- Preselected operating modes and setpoints, minimum / maximum temperature supervision and supervision of RXB room controllers and room thermostats RDG/RDF/RDU
- 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
- Clear-text operation with separate operator unit (plug-in type or detached)
- Integrated KNX bus communication
- No extra commissioning tool required

The RMB795-1 supports the languages: German, French, Italian, Spanish, Portuguese, Dutch, English, Danish, Swedish, Finnish, Norwegian, Czech, Slovak, Polish, Hungarian, Russian, Bulgarian, Romanian, Slovenian, Serbian, Croatian, Greek, Turkish and Chinese.

Extension modules complement the central control unit and offer extra functions. They are attached to the controller via plug-in connectors. The extension modules do not operate autonomously. The operation of the device from commissioning to enduser operation can be done via the operator unit.
Available extension modules:
- max. 1 universal module RMZ785
- max. 2 universal modules RMZ787

A total of 3 extension modules can simultaneously be used with the central control unit.

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

Data sheet	N3122
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	12 VA
Communication	KNX (KNX TP1)
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	Max. 1 mA
Universal inputs, number	6
Universal input, signal	2 x LG-Ni1000 DC 0...10 V Potential-free digital status contact LG-Ni1000 Pt1000 T1 (PTC)
Relay outputs, number	4
Relay outputs	Potential-free digital status contact
Relay output, switching voltage	AC 19...250 V
Relay output, switching current	4 (3) A
Degree of protection	IP20
Dimensions (W x H x D)	173 x 90 x 80 mm

Stock No.	Product No.
S55370-C162	**RMB795B-1**

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Accessories for RMB795B-1

Product Title	Data sheet	Stock No.	Product No.
Universal module (8UI)	N3146	BPZ:RMZ785	**RMZ785**
Universal module (4UI, 4DO)	N3146	BPZ:RMZ787	**RMZ787**
Plug-in type operator unit	N3111	BPZ:RMZ790	**RMZ790**
Detached operator unit with 3 m cable	N3112	BPZ:RMZ791	**RMZ791**
Bus operator unit	N3113	BPZ:RMZ792	**RMZ792**
Module connector	N3138	BPZ:RMZ780	**RMZ780**

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3

QAX3..

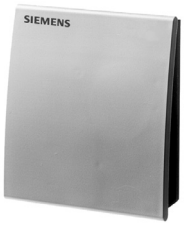
Room unit with PPS2 interface

Room units for acquiring the room temperature and operation of individual room control.

Voltage supply	PPS2
Power consumption	0.10 VA
Time constant	≤8 min
Measuring range, temperature	0...40 °C
Sensing element, temperature	NTC
Measurement accuracy	±0.25 K at 25 °C ±0.5 K at 5...30 °C
Setpoint readjustment range	±12 K
Mounting location	Indoors
Mounting	Directly on wall In recessed or top-mounted conduit box
Degree of protection	IP30

QAX30.1

Room unit with sensor and PPS2 interface



- Acquisition of room temperature

Data sheet	N1741
Dimensions (W x H x D)	90 x 100 x 32 mm

Stock No.	Product No.
BPZ:QAX30.1	**QAX30.1**

QAX31.1

Room unit with sensor, setpoint adjuster and PPS2 interface

- Acquisition of room temperature
- Setpoint adjuster for room temperature

Data sheet	N1741
Dimensions (W x H x D)	90 x 100 x 36 mm

Stock No.	Product No.
BPZ:QAX31.1	**QAX31.1**

QAX32.1

Room unit with sensor, setpoint and operating mode selector and PPS2 interface

- Acquisition of room temperature
- Setpoint adjuster for room temperature
- Rocker switch for mode selection (Off / Auto)

Data sheet	N1641
Dimensions (W x H x D)	90 x 100 x 36 mm

Stock No.	Product No.
BPZ:QAX32.1	**QAX32.1**

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Room unit with sensor, setpoint and operating mode selector, fan speed selection, and PPS2 interface

QAX33.1

- Acquisition of room temperature
- Setpoint adjuster for room temperature
- Rocker switch for mode selection (Off/Auto) and for manual fan control with fan coil systems (up to 3 speeds)

Data sheet	N1642
Dimensions (W x H x D)	90 x 100 x 36 mm

Stock No.	Product No.
BPZ:QAX33.1	**QAX33.1**

Room unit with sensor, setpoint and operating mode selector, display and PPS2 interface

QAX34.3

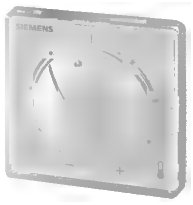
- Acquisition of room temperature
- Rocker switch for adjustment of room temperature setpoint
- Rocker switch for mode selection (Off/Auto) and for manual fan control with fan coil systems (up to 3 speeds)
- LCD with display of room temperature and control mode
- Together with the RXB controllers for parameter setting

Data sheet	N1640
Dimensions (W x H x D)	96 x 119 x 24 mm

Stock No.	Product No.
BPZ:QAX34.3	**QAX34.3**

Universal setpoint adjuster with PPS2 interface

QAX39.1



- Setpoint adjuster for room temperature

Data sheet	N1646
Dimensions (W x H x D)	48 x 48 x 15 mm

Stock No.	Product No.
BPZ:QAX39.1	**QAX39.1**

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QAX84.1/PPS2

Flush-mounted room unit complete with PPS2 interface and design frame

The set consists of:
- Operator unit,
- PPS2 bus coupling unit and
- Design frame DELTA line in titanium white.

Functionality:
- Acquisition of room temperature
- Switch for adjustment of room temperature setpoint
- Switch for mode selection (Off/Auto) and for manual fan control with fan coil systems (up to 3 speeds)
- LCD with display of room temperature and control mode

Data sheet	N1649
Voltage supply	PPS2
Measuring range, temperature	0...40 °C
Sensing element, temperature	NTC
Mounting	Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	80 x 80 x 30.5 mm

Stock No.	Product No.
BPZ:QAX84.1/PPS2	**QAX84.1/PPS2**

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Wall-mounted room sensors and operator units for KNX

QMX3..

The wall-mounted room unit QMX3.. consists of:
- Base plate
- Sensor or room operator unit

The following functions are (depending on type):
- Temperature sensor or multisensor (T, r.h., CO2)
- Backlit display or LED display
- Touchkeys
- Switching and control of lighting, blinds, scenes

Data sheet	N1602
Voltage supply	KNX bus
Measuring range, temperature	0...50 °C
Sensing element, temperature	NTC
Communication	KNX PL-Link KNX S-Mode
Mounting	Wall-mounting
Degree of protection	IP30

Room operator unit KNX with temperature sensor, configurable touchkeys, LED display

QMX3.P02

Functions:
- Temperature sensor
- Configurable touchkeys with LED display
- Switching and control of lighting, blinds, scenes
- Window for labels

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H107	**QMX3.P02**

Room sensor KNX for temperature

QMX3.P30

Functions:
- Temperature sensor

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H103	**QMX3.P30**

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QMX3.P34

Room operator unit KNX with temperature sensor, segmented backlit display, touchkeys

Functions:
- Temperature sensor
- Segmented backlit display and touchkeys

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H105	**QMX3.P34**

QMX3.P37

Room operator unit KNX with temperature sensor, segmented backlit display, configurable touchkeys, LED display

Functions:
- Temperature sensor
- Segmented backlit display and touchkeys
- Configurable touchkeys with LED display
- Switching and control of lighting, blinds, scenes
- Window for labels

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H108	**QMX3.P37**

QMX3.P70

Room sensor KNX for temperature, humidity, CO2

Functions:
- multisensor for temperature, humidity and CO2
- Air quality indicator with LED

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H104	**QMX3.P70**

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Room operator unit KNX with sensors for temperature, humidity, CO2, segmented backlit display, touchkeys

QMX3.P74

Functions:
- multisensor for temperature, humidity and CO2
- Segmented backlit display and touchkeys

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H106	**QMX3.P74**

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QAX95.4

Room unit with EnOcean interface

- 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
Time constant	≤16 min
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
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**

The matching single DELTA line frame is included in delivery. DELTA miro frame must be ordered separately.

QAX96.4

Room unit with EnOcean interface, setpoint adjuster

- 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
Time constant	≤16 min
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
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**

The matching single DELTA line frame is included in delivery. DELTA miro frame must be ordered separately.

www.EngineeringEBooksPdf.com

Room unit with EnOcean interface, setpoint adjuster, button and switch — QAX97.4

- 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
Time constant	≤16 min
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
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**

The matching single DELTA line frame is included in delivery. DELTA miro frame must be ordered separately.

Room unit with EnOcean interface, setpoint adjuster, button and switch for fan stages — QAX98.4

- 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
Time constant	≤16 min
Measuring range, temperature	0...50 °C
Measurement accuracy	±0.4 K
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**

The matching single DELTA line frame is included in delivery. DELTA miro frame must be ordered separately.

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RXZ97.1/KNX

Radio frequency receiver with Gateway EnOcean/KNX

- Commands and measured values from EnOcean remote sensors may also be transmitted on KNX bus, for example to control KNX actuators
- Evaluation of up to 32 EnOcean channels
- EnOcean channels can be used for: switches, dimming, blinds, temperature sensors, window contacts, light sensors, binary inputs
- 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.
Ambient temperature, storage	-25...70 °C
Degree of protection	IP20
Weight	0.07 kg
Dimensions (W x H x D)	71 x 71 x 27 mm

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

RXZ95.1/LON

Radio frequency receiver with Gateway EnOcean/LonWorks, AC / DC 24 V, external antenna

- Wireless receiver with LonWorks® interface FTT10A
- Evaluation of up to 9 EnOcean room units (room temperature and setpoint adjustment)

For use with:
- Desigo RXC
- Devices / systems with LonWorks® communication

An external antenna is included in the delivery.

Data sheet	N1661
Operating voltage	DC 24 V AC 24 V
Voltage supply	LonWorks bus (LPT10)
Power consumption	0.82 VA
Ambient temperature, operation	-20...60 °C
Ambient humidity, operation	<70 % r.H.
Ambient temperature, storage	-20...60 °C
Degree of protection	IP42
Weight	0.173 kg
Dimensions (W x H x D)	58 x 78 x 46 mm

Stock No.	Product No.
S55842-Z100	**RXZ95.1/LON**

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Compact room automation station, BACnet/IP, 230 V, flat housing, 1 DI, 2 UI, 3 relay, 3 AO

DXR2.E09-101A

Compact room automation stations for HVAC, lighting, and shading:
- BACnet/IP communications
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power)
- KNX S-Mode device integration
- 2-port Ethernet switch
- USB interface for Tool

Data sheet	N9204
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	24 VA
Communication	BACnet/IP KNX PL-Link KNX S-Mode
Universal inputs, number	2
Digital inputs, number	1
Analog outputs, number	3
Analog output, signal	DC 0...10 V
Analog output, current	1 mA
Relay outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	4 (3) A
Mounting	On DIN rail or wall
Degree of protection	IP20
Dimensions (W x H x D)	112 x 165 x 49 mm

Stock No.	Product No.
S55376-C110	**DXR2.E09-101A**

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DXR2.E09T-101A

Compact room automation station, BACnet/IP, 230 V, flat housing, 1 DI, 2 UI, 1 relay, 1 AO, 4 triac

Compact room automation stations for HVAC, lighting, and shading:
- BACnet/IP communications
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power)
- KNX S-Mode device integration
- 2-port Ethernet switch
- USB interface for Tool

Data sheet	N9204
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	24 VA
Communication	BACnet/IP KNX PL-Link KNX S-Mode
Universal inputs, number	2
Digital inputs, number	1
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	1 mA
Relay outputs, number	1
Relay output, switching voltage	AC 250 V
Relay output, switching current	4 (3) A
Triac outputs, number	4
Triac output, switching voltage	AC 24 V
Triac output, switching current	150 mA
Mounting	On DIN rail or wall
Degree of protection	IP20
Dimensions (W x H x D)	112 x 165 x 49 mm

Stock No.	Product No.
S55376-C111	**DXR2.E09T-101A**

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Compact room automation station, BACnet/IP, 230 V, flat housing, 1 DI, 2 UI, 3 relay, 4 triac

DXR2.E10-101A

Compact room automation stations for HVAC, lighting, and shading:
- BACnet/IP communications
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power)
- KNX S-Mode device integration
- 2-port Ethernet switch
- USB interface for Tool

Data sheet	N9204
Operating voltage	AC 230 V
Frequency	50/60 Hz
Power consumption	24 VA
Communication	BACnet/IP KNX PL-Link KNX S-Mode
Universal inputs, number	2
Digital inputs, number	1
Relay outputs, number	3
Relay output, switching voltage	AC 250 V
Relay output, switching current	4 (3) A
Triac outputs, number	4
Triac output, switching voltage	AC 24 V
Triac output, switching current	150 mA
Mounting	On DIN rail or wall
Degree of protection	IP20
Dimensions (W x H x D)	112 x 165 x 49 mm

Stock No.	Product No.
S55376-C109	**DXR2.E10-101A**

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DXR2.E12P-102A

Compact room automation station, BACnet/IP, 24 V, DIN housing, 1 DI, 2 UI, 2 AO, 6 triac, pressure sensor

Compact room automation stations for HVAC, lighting, and shading:
- BACnet/IP communications
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power)
- KNX S-Mode device integration
- 2-port Ethernet switch
- USB interface for Tool

Data sheet	N9205
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	70 VA
Communication	BACnet/IP KNX PL-Link KNX S-Mode
Universal inputs, number	2
Digital inputs, number	1
Analog outputs, number	2
Analog output, signal	DC 0...10 V
Analog output, current	1 mA
Triac outputs, number	6
Triac output, switching voltage	AC 24 V
Triac output, switching current	250 mA
Mounting	On DIN rail or wall
Degree of protection	IP20
Dimensions (W x H x D)	180 x 105 x 60 mm

Stock No.	Product No.
S55376-C108	**DXR2.E12P-102A**

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Compact room automation station, BACnet/IP, 24 V, DIN housing, 2 DI, 4 UI, 4 AO, 8 triac

DXR2.E18..

Compact room automation stations for HVAC, lighting, and shading:
- BACnet/IP communications
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power)
- KNX S-Mode device integration
- 2-port Ethernet switch
- USB interface for Tool

Data sheet	N9205
Operating voltage	AC 24 V
Frequency	50/60 Hz
Power consumption	78 VA
Communication	BACnet/IP KNX PL-Link KNX S-Mode
Analog output, signal	DC 0...10 V
Triac output, switching voltage	AC 24 V
Triac output, switching current	250 mA
Mounting	On DIN rail or wall
Degree of protection	IP20
Dimensions (W x H x D)	180 x 105 x 60 mm

Range overview DXR2.E18..

Product Title	Stock No.	Product No.
Compact room automation station, BACnet/IP, 24 V, DIN housing, 2 DI, 4 UI, 4 AO, 8 triac, (Fancoil, Radiant ceilling, Radiator, 4 Lights & 2 Shades)	S55376-C107	**DXR2.E18-101A**
Compact room automation station, BACnet/IP, 24 V, DIN housing, 2 DI, 4 UI, 4 AO, 8 triac, (Variable air volume, Fan-powered box, Radiant ceilling, Radiator, 4 Lights & 2 Shades)	S55376-C128	**DXR2.E18-102A**

Accessories for Desigo DXR2..

Product Title	Data sheet	Stock No.	Product No.
Terminal cover for DXR.., 180 mm, 2 pieces		S55376-C120	**DXA.H180**
Terminal cover for DXR.., 110 mm, 2 pieces		S55376-C119	**DXA.H110**

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Room units for room automation station DXR (BACnet)
Room unit with KNX PL-Link

QMX3..

Room sensor and unit for KNX PL-Link, freely configurable, flush-mounted

The flush-mounted room unit QMX3.. consists of:
- Operator unit
- Bezel, titanium white
- Base plate and KNX plug.

Functionality:
- Freely configurable user interface (keys and visual items) as part of Total Room Automation
- RoomOptiControl energy efficiency function
- Room temperature measurement
- Display of room temperature, control mode, scenes etc. (dot matrix LCD)
- Backlit display, white or blue selection
- KNX PL-Link interface to the room automation station with plug & play functionality
- Can be combined with different standard and design bezels

Data sheet	N1601
Voltage supply	KNX bus
Measuring range, temperature	0...50 °C
Sensing element, temperature	NTC
Communication	KNX PL-Link
Mounting	Flush or wall-mounted conduit box
Degree of protection	IP30
Dimensions (W x H x D)	55 x 55 x 38 mm

Range overview QMX3..

Product Title	Stock No.	Product No.
Room unit for KNX PL-Link, freely configurable, flush-mounted with square bezel	S55624-H100	**QMX3.P36F**
Room unit for KNX PL-Link, freely configurable, flush-mounted with landscape bezel (3 modules landscape)	S55624-H101	**QMX3.P36G**

AQR253..

Front modules for base modules

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

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Wall-mounted room sensors and operator units for KNX

QMX3..

The wall-mounted room unit QMX3.. consists of:
- Base plate
- Sensor or room operator unit

The following functions are (depending on type):
- Temperature sensor or multisensor (T, r.h., CO2)
- Backlit display or LED display
- Touchkeys
- Switching and control of lighting, blinds, scenes

Data sheet	N1602
Voltage supply	KNX bus
Measuring range, temperature	0...50 °C
Sensing element, temperature	NTC
Communication	KNX PL-Link KNX S-Mode
Mounting	Wall-mounting
Degree of protection	IP30

Room operator unit KNX with temperature sensor, configurable touchkeys, LED display

QMX3.P02

Functions:
- Temperature sensor
- Configurable touchkeys with LED display
- Switching and control of lighting, blinds, scenes
- Window for labels

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H107	**QMX3.P02**

Room sensor KNX for temperature

QMX3.P30

Functions:
- Temperature sensor

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H103	**QMX3.P30**

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Room units for room automation station DXR (BACnet)
Room unit with KNX PL-Link

QMX3.P34

Room operator unit KNX with temperature sensor, segmented backlit display, touchkeys

Functions:
- Temperature sensor
- Segmented backlit display and touchkeys

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H105	**QMX3.P34**

QMX3.P37

Room operator unit KNX with temperature sensor, segmented backlit display, configurable touchkeys, LED display

Functions:
- Temperature sensor
- Segmented backlit display and touchkeys
- Configurable touchkeys with LED display
- Switching and control of lighting, blinds, scenes
- Window for labels

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H108	**QMX3.P37**

QMX3.P70

Room sensor KNX for temperature, humidity, CO2

Functions:
- multisensor for temperature, humidity and CO2
- Air quality indicator with LED

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H104	**QMX3.P70**

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Room operator unit KNX with sensors for temperature, humidity, CO2, segmented backlit display, touchkeys

QMX3.P74

Functions:
- multisensor for temperature, humidity and CO2
- Segmented backlit display and touchkeys

Data sheet	N1602
Dimensions (W x H x D)	88.4 x 133.4 x 18 mm

Stock No.	Product No.
S55624-H106	**QMX3.P74**

Base module with KNX for temperature and humidity measurement

AQR2570..

- Base module without sensor for plugging onto a front module
- 1 analog input to connect temperature sensors with NTC 10k sensing element to measure room, floor, or ceiling temperature
- 2 multifunctional binary inputs to connect window contacts or buttons
- Power supply via KNX bus, bus load < 5 mA

Data sheet	N1411
Voltage supply	KNX bus
Analog inputs, number	1
Analog inputs	Passive temperature sensor NTC 10k
Digital inputs, number	2
Digital inputs	Potential-free contacts

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**
IT (3 Modular)	110 x 64 mm	S55720-S205	**AQR2570NG**
UK (British Standard)	83 x 83 mm	S55720-S204	**AQR2570NH**
US (UL)	64 x 110 mm	S55720-S206	**AQR2570NJ**

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Room units for room automation station DXR (BACnet)
Room unit with KNX PL-Link

AQR2576..

Base modules with KNX for CO_2 measurement

- Base module with maintenance and recalibration-free CO2 sensor to plug onto a front module
- 1 analog input to connect temperature sensors with NTC 10k sensing element to measure room, floor, or ceiling temperature
- 2 multifunctional binary inputs to connect window contacts or buttons
- Power supply via KNX bus, bus load < 5 mA

Data sheet	N1411
Voltage supply	KNX bus
Measuring range	CO_2: 0...5000 ppm
Analog inputs, number	1
Analog inputs	Passive temperature sensor NTC 10k
Digital inputs, number	2
Digital inputs	Potential-free contacts

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**
IT (3 Modular)	110 x 64 mm	S55720-S209	**AQR2576NG**
UK (British Standard)	83 x 83 mm	S55720-S208	**AQR2576NH**
US (UL)	64 x 110 mm	S55720-S210	**AQR2576NJ**

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Presence detector / Motion detector with constant light level control — UP 258E22

Passive infrared detector for ceiling mounting indoors
- Optional blinding of parts of the detection area
- Mixed light measurement
- Cyclical sending or sending on change of value of the measured brightness value (Lux)
- Integrated two-position controller
- Constant light level control for a main group of luminaries and up to four additional groups of luminaries
- Lighting control configurable as fully automatic or semi-automatic
- Motion detection for three function blocks (presence detector, motion detector, and HVAC detector)
- 2 per function block selectable functions (A, B) on start of the presence detection and two per function block selectable functions (C, D) on expiration of the presence detection
- Configurable delay of 0...255 seconds between sending of function A and B respectively C and D
- Selection per function (A, B, C, D) switching On/Off, 8-bit value, selectable 8-bit value, 16-bit value, temperature value, brightness value, 8-bit scene control
- Blocking object per function block
- Per function block configurable overshoot time, in each case configurable as a fixed time, as switchable between two times via the bus, or settable to a value via the bus
- Parallel operation of several presence detectors (master-slave, master-master) without additional logic module
- Integrated IR receiver and IR decoder for IR remote controls with six pairs of pushbuttons
- Functions of the IR remote control selectable per pair of pushbuttons or per each single pushbutton of a button pair
- Per pushbutton selectable function toggle, switching on, switching off, 8-bit scene recall, 8-bit value, 16-bit value, temperature value, brightness value
- For each pair of pushbuttons selectable function switching On/Off, 2-button dimming with stop telegram, 2-button solar protection control, variable 8-bit value, 8-bit scene control
- Blocking object for IR decoder
- Test mode for easy start-up
- LED for display of detected movements in test mode, to be configured using ETS
- Integrated bus coupling unit, bus connection via bus terminal, Power supply over the bus line
- Ceiling mounting on a flush-mounting box with 60 mm diameter and min. 40 mm depth or in a housing for surface-mounting (to be ordered separately)
- Monitoring motion range horizontal 360°, vertical approx. 105°
- Monitoring motion of an area of diameter 8 m (depending on mounting/room height)
- Programming button reachable from front

	Stock No.	Product No.
	5WG1258-2EB22	**UP 258E22**

Presence detector with brightness sensor — UP 258D12

Passive infrared detector for ceiling mounting indoors
- Optional blinding of parts of the detection area
- Mixed light measurement
- Power supply over the bus line
- Integrated bus coupling unit, bus connection via bus terminal
- Ceiling mounting on a flush-mounting box with 60 mm diameter and min. 40 mm depth or in a housing for surface-mounting (to be ordered separately)
- Integrated IR decoder for S 255/11
- Monitoring motion range horizontal 360°, vertical approx. 105°
- Monitoring motion of an area of diameter 8 m (depending on mounting/room height)
- UP mounting with fixing claws in suspended ceiling
- Programming button reachable from front

Dimension (Ø x H)	88 x 63 mm

	Stock No.	Product No.
	5WG1258-2DB12	**UP 258D12**

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3

G..B181.1E/KN

VAV compact controller KNX

- 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
Communication	KNX S-Mode KNX LTE-Mode KNX PL-Link
Cable length	0.9 m
Degree of protection	IP54
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	Stock No.	Product No.
5	AC 24	0.8	3 VA 2.5 W	S55499-D134	**GDB181.1E/KN**
10	AC 24	1.5	3 VA 2.5 W	S55499-D135	**GLB181.1E/KN**

Basic Documentation No.: P3547.

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Home automation system

4

Overview and selection tools	Product range overview Synco living	4-2
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Synco™ living	Central apartment unit QAX9..	4-5
	Room unit QAW91.. and room sensor QAA91..	4-8
	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 Meteo sensor QAC910	4-16
	RF repeater ERF910	4-17
	Door/window contact AP 260	4-18

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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 (4)

The heating circuit controller compares the actual values and setpoints for each room communicated from the central apartment unit via RF and regulates the temperature by adjusting the valve settings of the heat distributer.
The multicontroller is for precontrol of up to 2 independent hydraulic room groups (e.g. radiators, floor heating) or for control of ventilation plant with up to 3 stages.

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.
With the HomeControl app from Siemens, you have an intuitive and simple control for your heating, air conditioning and ventilation system, as well as light and shading control.
Alarm messages, reports and consumption data can be sent to email recipients as required.

Consumption data interface (6)

The consumption data interface collects consumption data of heat/cool energy, electricity, water and gas.

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)

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. In addition, it saves energy and stay comfortable.

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.

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

Synco™ living is the outstanding 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 TP) 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 international KNX standard.

More information about Synco living see www.siemens.com/syncoliving

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Synco living – more comfort at home

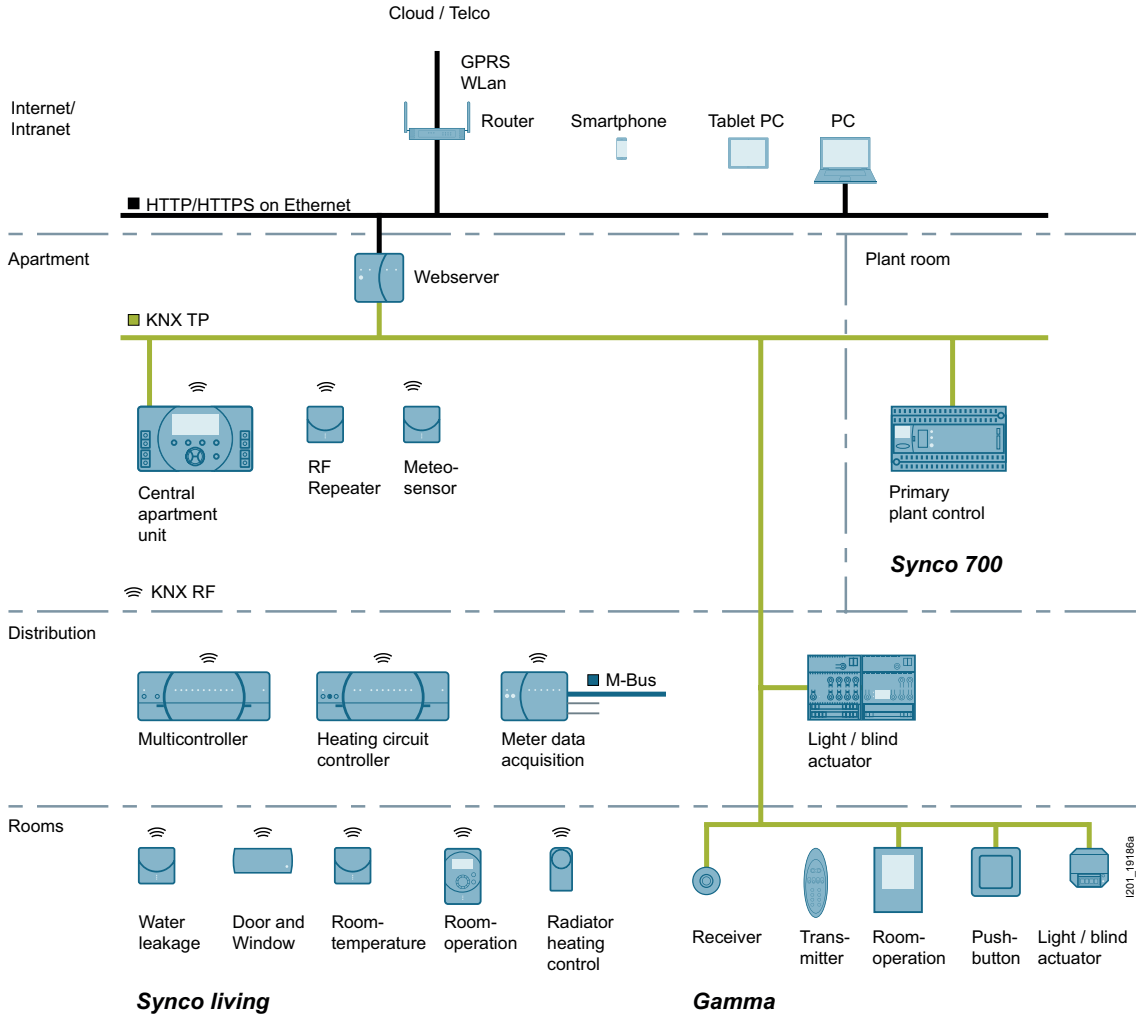
Synco living is specially tailored to the needs of private areas. The unique home automation system unites all functions such as heating, ventilation, lighting, blinds, security technology as well as consumption data acquisition. All components can be integrated wired or wireless in a flexible way. The control in line with the demand allows up to 30% less heating energy use – and lower CO2 emissions for your home. Synco living fulfils all requirements to achieve energy efficiency class A in accordance with EN 15232. In addition the eu.bac certification demonstrates proven quality and energy efficiency according to European standards and directives.

Synco operating – efficient operation of plant with straightforward remote control

Thanks to Synco's Web server, plant operation and monitoring can be effected from a PC or Smartphone at any time and from any location. An alarm system delivers fault status or maintenance messages in due time, also via SMS or e-mail, if required. The app allows operation from underway or from the sofa.

Monitored energy efficiency

The energy indicator monitors end user settings, shows exceeded limit values and reports them to the residents periodically via e-mail or app. A leaf symbol shows the energy status for each setting: Green means that the setting is correct from an energetic point of view; orange signals that a setting is energetically unfavorable. This way, each deviation is made transparent and visible at all times.



Gamma - The tried-and-tested building control

Gamma building control enables all components in house and building control systems to be networked flexibly via the two wires of the bus cable. Whether you want to realize highly complex multi-utility systems or are looking for small solutions – this technology can be adapted to your individual requirements.

Synco 700 – versatile HVAC controller range of modular design

Being the heart for manages the primary energy plant. This modular product range controls and monitors the HVAC plant. Installation and commissioning work can be performed quickly and efficiently: The extension modules simply click onto the controllers. Thanks to standard applications integrated in the controllers, there is no need for programming. The documentation gives you an overview of all integrated applications. Also, customized configuartions can be made very straightforwardly.

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Central apartment unit with energy consumption data collection

QAX913-9

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 TP)
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing
- 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
- 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
- Wireless communication with the devices of Synco living and the Hager tebis TX product ranges
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App

Data sheet	N2740
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Display	Full graphic backlit display
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP (wired bus)
Indoor wireless range	30 m
Universal inputs, number	1
Universal inputs	Digital 0/1 LG-Ni1000
Universal input, signal	Digital 0/1 LG-Ni1000
Relay outputs, number	1
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Mounting	With screws
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Stock No.	Product No.
S55621-H126	**QAX913-9**

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QAX903-9

Central apartment unit for HVAC and energy consumption data collection

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 TP)
- Collection of meter data (heat / cool, electricity, water, gas) to support automated meter reading & billing
- Display of meteorological data
- Presentation of key data on info pages
- 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
- Wireless communication with the devices of Synco living product ranges
- Remote access via Siemens web server OZW772.xx
- Intuitive and simple control with Android or IOS App

Data sheet	N2741
Operating voltage	AC 230 V
Frequency	50 Hz
Power consumption	7 VA
Display	Full graphic backlit display
Communication	KNX RF-compatible, 868.3 MHz bidirectional (RF) and KNX TP (wired bus)
Indoor wireless range	30 m
Universal inputs, number	1
Universal inputs	Digital 0/1 LG-Ni1000
Universal input, signal	Digital 0/1 LG-Ni1000
Relay outputs, number	1
Relay output, switching voltage	AC 24...230 V NO - contact
Relay output, switching current	AC 0.02...2 (2) A
Mounting	With screws
Degree of protection	IP20D
Dimensions (W x H x D)	230 x 130 x 29.7 mm

Stock No.	Product No.
S55621-H125	**QAX903-9**

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Web server for QAX9..

Product Title	Data sheet	Stock No.	Product No.
Web server for 1 Synco device	N5701	BPZ:OZW772.01	**OZW772.01**
Web server for 4 Synco devices	N5701	BPZ:OZW772.04	**OZW772.04**
Web server for 16 Synco devices	N5701	BPZ:OZW772.16	**OZW772.16**
Web server for 250 Synco devices	N5701	BPZ:OZW772.250	**OZW772.250**

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QAW910

Room unit

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 capacity	2.5 Ah
Battery life	3 years
Measuring range, temperature	0...50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
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 130 x 23.6 mm

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

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Room unit with KNX RF for 2 heating zones

QAW912

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)
Measuring range, temperature	0...50 °C
Display	Segment LCD
Display size	Resolution 0.1 °C
Communication	KNX RF-compatible, bidirectional, 868.3 MHz
Indoor wireless range	30 m
Degree of protection	IP40
Dimensions (W x H x D)	84 x 130 x 23.6 mm

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

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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 capacity	2.5 Ah
Battery life	3 years
Measuring range, temperature	0...50 °C
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 x 23 mm

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

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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)

Suitable adaptors for valves of other manufacturers refer to AV5.. and AV6..

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
Mounting position	Upright to 90° inclined
Degree of protection	IP40
Dimensions (W x H x D)	48 x 95 x 80.6 mm

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

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

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

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

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

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

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

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

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

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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 capacity	2.5 Ah
Battery life	3 years
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**

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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**

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

- Dimensions (W x H x D):
  - Outside sensor: 80 x 92 x 50 mm
  - RF transmitter: 84 x 84 x 23 mm

Data sheet	N2702
Voltage supply	Mignon (2xAA) LR6
Battery capacity	2.5 Ah
Battery life	3 years
Measuring range, temperature	-50...50 °C
Communication	KNX RF-compatible, 868.3 MHz unidirectional (RF)
Indoor wireless range	30 m
Degree of protection	IP40

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

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AP 260/11

Door/window contact 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. Battery included in delivery.

Dimensions (W x H x D)	87 x 36 x 27 mm

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

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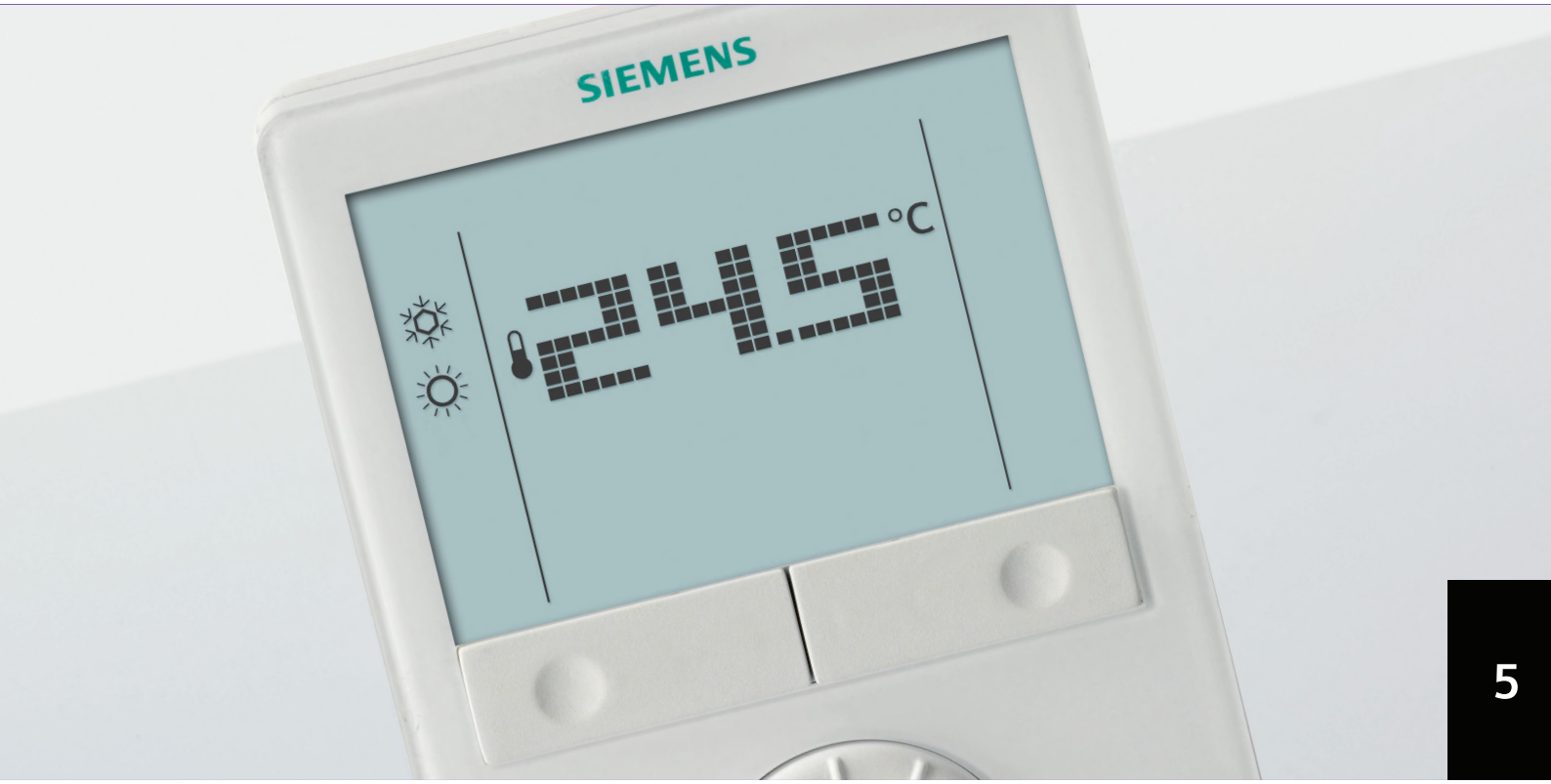
Thermostats



5

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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
- Product lifecycles and environment in partnership
- Standards are not negotiable

Heating / Cooling applications

		Basic		With display					With time switch				
Type		RAA	RCU	RDD	RDD 310/EH	RDD810..	RDH	RDF800..	RDE	RDE 410/EH	RDG	RDJ	REV
Housing													
Setpoint knob		□	■				✪				■	✪	
Setpoint buttons				■	■				■	■			■
Landscape format design											□		
LED indicators		□											
Digital display				✪	✪	■	■	■	■	✪	✪	■	■
Programming slider												■	✪
Touch screen						✪		✪					
Wiring													
Mains-independent		✪											
Battery-powered				□					□			■	■
Mains-powered		□	■	□	■	■	*	■	□	■	□	*	*
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									■		■	
	Weekly								✪	■	□	■	□
Operating mode	Comf. mode	■	■	■	■	■	■	■	■	■	■	■	■
	Eco mode		■	■	■	■		■	■	■	■	■	■
	Standby.		■		■	■		■	■	■	■		
	Frost protect.			■	■	■		■	■	■	■	■	■
	Holidays								■				□
Control loop		2-point	2-point/ PI	2-point	2-point	2-point	2-point	2-point/PI	2-point	2-point	2-point/PI	2-point	2-point/ PID or PI
KNX-Communication						■		■					

■ Valid for all variants □ Depending on variants ✪ Main feature * Radio frequency receiver only
RDD810KN.. only compatible with chinese frames

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Fan-coils application

		Basic		With display			With time switch		
Type		RAB	RCC	RDG1xx	RDF3xx RDF600..	RDF800..	RDG1..T	RDG100T/H	RDF600T
Housing									
Setpoint knob		■	■	■			■	■	
LED indicators		□	✪						
Digital display				✪	■	■	■	■	■
Auto fan speed				■	■	■	■	■	■
Flush mounting					✪	■			✪
Touch screen						✪			
Wiring									
Mains-independent		✪							
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				■		■	■	■	
Humidity control				□					
Time switch	weekly						✪	✪	✪
Operating mode	Comfort	■	■	■	■	■	■	■	■
	Economy		■	■	■	■	■	■	■
	Standby/Prot.	□	■	■	■	■	■	■	■
	Frost protect.		□	■	■	■	■	■	■
Control loop		2-point	2-point/PI	2-point/PI	2-point/PI	2-point/PI	2-point/PI	2-point/PI	2-point/PI
Infrared remote control					□		■	■	□
KNX-Communication				□	□	■			

Heat Pumps applications

		With display		With time switch	
Type		RDG110 / RDG160...	RDF3xx / RDF600..	RDF600T	RDG160T
Housing					
Digital display		■	■	■	■
Fan speed command		- / 1 / 3 / DC	1 / 3	1 / 3	- / 1 / 3 / DC
Wiring					
Mains-powered		■	■	■	■
Sensor input		■	■	■	■
Relay output		■	■	■	■
Functionalities					
Electric heater		■	■	■	■
DX compressor		■	□	□	■
Manuel Heat / Cool changeover		■	■	■	
Weekly time clock				■	
Operating mode	Comf. mode	■	■	■	■
	Eco mode	■	■	■	■
	Standby.	■	■	■	■
	Frost protect.	■	■	■	■
Control loop		2-point	2-point	2-point	2-point
KNX-communication		□	□		

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

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VAV applications

		Basic	With display	
Type		**RCU5x**	**RDU34..**	**RDG40..**
Housing				
Setpoint knob		■		■
Digital display			■	■
Semi-flush mounting			■	
Wiring				
Mains-powered		■	■	■
Senor input			■	■
Changeover input		□	■	■
Analog output		■	■	■
Relay output			■	
Functionalities				
Indoor air quality				□
Manuel Heat / Cool changeover		□	■	■
External setpoint shift		□		
Vmin Cooling		■	■	■
Operating mode	Comf. mode	■	■	■
	Eco mode	■	■	■
	Sandby/Prot.	■	■	■
	Frost protect.	■	■	■
Control loop		2-point	P/PI	P/PI
KNX-communication			□	□

■ Valid for all variants □ Depending on variants

5

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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.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-ST.1385M				■	40...70	700		■	■		■	■			65				■	■		■			■			■			
RAK-ST.1600MP				■	95...130	700		■	■		■	■			65	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.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	■		■	■		■	■			■	■	■	■		
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			■				■			■					
QAF63.2-J [1]	Sensor				0...15	2000	see Data sheet		■	nr	nr	nr	nr		42						■				■						
QAF63.6-J [1]	Sensor				0...15	6000	see Data sheet		■	nr	nr	nr	nr		42						■				■						
QAF64.2-J [1]		■	■		0...15	2000	see Data sheet		■	nr	nr	nr	nr		42						■			■	■	■	■				
QAF64.6-J [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						■				■	■					
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

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Smart Room Thermostat

RDS110

Room thermostat for the control of heating applications in apartments, single family homes, dormitories and other residential-type as well as light commercial spaces. With remote access via computer, tablet, or smartphone using the Siemens Comfort Cloud service.

Features Room Thermostat
- Backlit, auto-dimming 3.5" color LCD touch screen for intuitive local operation
- Straightforward temperature and operation mode selection
- RoomOptiControl function with the Green leaf button for energy-optimized operation
- Temperature setting limitation for the use in public spaces
- Room temperature control using the built-in temperature sensor or as an option a remote sensor
- Optional temperature averaging in conjunction with an additional remote temperature sensor
- Extra time program for domestic hot water boiler
- Improved self-learning algorithm with PID response
- Optimum start control
- Periodic pump/valve run for protection against seizure
- Floor temperature limitation in conjunction with remote sensor in electric floor-heating applications
- Humidity control using the built-in humidity sensor or as an option a remote sensor
- Presence detection in conjunction with a built-in PIR sensor
- Two multifunctional inputs, optional and configurable for operating mode switchover contact (e.g. for a window contact), condensation monitor, remote temperature sensor, remote humidity sensor, floor temperature sensor, outside air temperature sensor
- One relay output to control heating equipment: Boiler, electric boiler, radiator valve, floor heating valve, circulation pump, electrical radiator, electrical floor heating, heating fan
- One relay outputs to control either Domestic Hot Water boiler, humidifier or dehumidifier
- Direct WLAN (802.11b/g/n) connection with internet router, no need of an extra gateway or interface
- Navigation wizard for a guided and fast commissioning
- Remote firmware upgrade capability

Features of remote operation and monitoring
- Mobile App for Smart phones and tablets based on iOS and Android operating systems and Web-portal supported by most HTML5 browsers
- Individual time program for each day of the week
- Operation modes "home", "away" and "off"
- User account management

Data sheet	A6V10807602
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Connectable with a WLAN (802.11b/g/n) compatible router
Analog inputs, number	2
Relay outputs	1. Heating: Boiler, valve, radiator, pump, fan 2. DHW, humidifier, dehumidifier
Relay outputs, number	2
Relay output, switching voltage	AC 24...230 V or potential free
Relay output, switching current	5 (2) A
Type of fixing	Wall mounting with screws
Degree of protection	IP30
Dimensions (W x H x D)	91 x 91 x 26 mm

Stock No.	Product No.
S55772-T100	RDS110

New Product

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RDG100KN

Room thermostat with KNX communications, AC 230 V, for fan coil units and universal applications

- 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

Data sheet	N3191
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)
Analog inputs, number	2
Digital inputs, number	1
Relay outputs	Fan: 1- or 3-speed
Relay outputs, number	3
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (4) A
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac outputs, number	3
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

Stock No.	Product No.
S55770-T163	**RDG100KN**

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Room thermostat with KNX communications, AC 24 V, for fan coil units and universal applications, heat pump, fan (1-/ 3-speed, DC), valves (2-point, DC)

RDG160KN

- 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, presence detector
- Operating modes: Comfort, Economy 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
- heating / cooling with 6-port ball valves

Data sheet	N3191
Operating voltage	AC 24 V
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)
Analog inputs, number	2
Analog outputs	Valve, el. heater: 2 Fan: 1 (ECM)
Analog outputs, number	3
Analog output, signal	DC 0...10 V
Digital inputs, number	1
Relay outputs	Valve, compressor or el. heater: 2 outputs, 2-position Fan: 1- or 3-speed
Relay outputs, number	3
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (4) 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-T297	**RDG160KN**

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RDG165KN

Room thermostat with KNX communications and built-in humidity sensor and humidity control, AC 24 V, for fan coil units and universal applications, heat pump, 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, Presence detector, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact
- Operating modes: Comfort, Economy 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
- Built-in humidity sensor and humidity control

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
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Communication	Bus: KNX (S-Mode und LTE-Mode mit Synco 700)
Analog inputs, number	2
Analog outputs	Valve, el. heater: 2 Fan: 1 (ECM)
Analog outputs, number	3
Analog output, signal	DC 0...10 V
Digital inputs, number	1
Relay outputs	Valve, compressor or el. heater: 2 outputs, 2-position Fan: 1- or 3-speed
Relay outputs, number	3
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (4) 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-T347	**RDG165KN**

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Touch screen room thermostat with KNX communications, for 2-/4- pipe fan coil, universal applications or compressors in DX-type equipment

RDF800KN

- 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, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact, presence detector
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: Ivory white
- Backlit display

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3174
Operating voltage	AC 230 V
Power consumption	6 VA
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay outputs, number	5
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Type of fixing	With screws on recessed round conduit box diameter min. 60 mm
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 47 mm

	Stock No.	Product No.
	S55770-T350	**RDF800KN**

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RDF800KN/NF

Touch screen room thermostat with KNX communications, for 2-/4- pipe fan coil, universal applications or compressors in DX-type equipment (for China frames)

- 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, window contact on/off, dewpoint monitor, electrical heater enabled, fault contact, presence detector
- Automatic or manual heating/cooling changeover
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: Ivory white
- Backlit display
- Mounting on chinese mounting frames

Application selectable:
- 2-pipe system
- 2-pipe system with electrical heater
- 4-pipe system

Data sheet	N3174
Operating voltage	AC 230 V
Power consumption	6 VA
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay outputs, number	5
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Type of fixing	Only on China frames
Degree of protection	IP30
Dimensions (W x H x D)	82 x 82 x 47 mm

Stock No.	Product No.
S55770-T335	**RDF800KN/NF**

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Flush-mount room thermostats with KNX communications, 2-/4-pipe fan coils or DX type equipment

RDF..KNX Flush Mount

- 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, presence detector (RDF600KN only)
- 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	N3171
Operating voltage	AC 230 V
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay outputs, number	5
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Degree of protection	IP30

Range overview RDF..KNX Flush Mount

Product Title	Type of fixing	Dimensions (W x H x D) [mm]	Stock No.	Product No.
Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment for square conduit boxes	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm	86 x 86 x 57	S55770-T104	**RDF301**
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	86 x 86 x 57	S55770-T105	**RDF301.50**
Flush-mount room thermostat with KNX communications, 2-/4-pipe fan coils or DX type equipment	With screws on recessed round conduit box diameter min. 60 mm	86 x 86 x 46	S55770-T293	**RDF600KN**

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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
Power consumption	2 VA
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	1
Analog outputs	VAV actuator, electric heater, valve
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Digital inputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac outputs, number	1
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-T165	**RDG400KN**

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Room thermostat for temperature and air quality control with KNX communications, AC 24 V, VAV heating and cooling systems

RDG405KN

- 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, presence detector
- 1 input DC 0...10 V for damper position feedback, for CO2 sensor
- Operating modes: Comfort, Economy and Protection
- Modulating PI control
- Control depending on the room or the return air temperature and air quality
- 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
Power consumption	2 VA
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Analog outputs	VAV actuator, electric heater, valve
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Digital inputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac outputs, number	1
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-T348	RDG405KN

New Product

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RDU341

Flush-mount room thermostat for rectangular conduit box with KNX communications, 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

Data sheet	N3172
Operating voltage	AC 24 V
Power consumption	2.5 VA
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Analog outputs	VAV actuator
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Relay outputs	N.O. contact, potential-free
Relay outputs, number	1
Relay output, switching voltage	AC 230 V
Relay output, switching current	Max. 5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
S55770-T106	**RDU341**

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Flush-mount room thermostat for rectangular conduit box with Modbus communications, 2-/4-pipe fan coils or DX type equipment

RDF302

- Modbus communications
- 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
- 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
Power consumption	7 VA
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: Modbus RTU (RS 485)
Analog inputs, number	2
Relay outputs	Fan: N.O. contacts, non-floating Valve: N.O. contacts, non-floating
Relay outputs, number	5
Relay output, switching voltage	AC 230 V
Relay output, switching current	5 (2) A
Type of fixing	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 57 mm

Stock No.	Product No.
S55770-T238	**RDF302**

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RDD810KN/NF

Touch screen room thermostat with KNX communications, for heating application (for China frames)

- KNX communications
- Operating modes: Comfort, Economy and Protection
- Control output: changeover contact (SPDT)
- 2 multifunctional inputs for keycard contact, external room / return air temperature (QAH11.1, QAA32), window contact on/off, presence detector, fault contact, presence detector
- Adjustable commissioning and control parameters
- Minimum and maximum setpoint limitation
- Color of housing: Ivory white
- Backlit display
- Mounting on chinese mounting frames

Data sheet	N3175
Operating voltage	AC 230 V
Power consumption	6 VA
Setpoint setting range	5...40 °C
Switching differential	0.5...6 K
Communication	Bus: KNX (S-mode and LTE mode with Synco 700)
Analog inputs, number	2
Relay outputs	Heating: contacts, floating
Relay outputs, number	1
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Type of fixing	Only on China frames
Degree of protection	IP30
Dimensions (W x H x D)	82 x 82 x 47 mm

Stock No.	Product No.
S55770-T336	**RDD810KN/NF**

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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
Type of fixing	Wall mouting with screws
Degree of protection	IP30

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 on/off switch — RAA31

- 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**

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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	Data sheet	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**

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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
Digital inputs, number	1
Digital input, contact query	DC 3...6 mA DC 6...15 V
Digital input, application	Night setback
Type of fixing	Wall mounting with screw
Degree of protection	IP30
Dimensions (W x H x D)	97 x 114 x 43 mm

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
Power consumption	6 VA
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
Power consumption	6 VA
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**

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Accessories for RCU..

Product Title	Data sheet	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**

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Room thermostats with LCD — RDD100..

- 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 and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	5...35 °C
Switching differential	1 K
Relay outputs	Change-over contact, potential-free
Relay output, switching current	5 (2) A
Relay output, switching voltage	AC 24...230 V
Degree of protection	IP30

Room thermostat with LCD, AC 230 V — RDD100

- 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 and baseplate: signal white RAL9003 (NCS S 0502-G)

Data sheet	N1420
Operating voltage	AC 230 V
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.	Product No.
S55770-T275	**RDD100**

Room thermostat with LCD, battery — RDD100.1

- 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 and baseplate: signal white RAL9003 (NCS S 0502-G)

Data sheet	N1420
Operating voltage	DC 3 V
Voltage supply	Micro (2xAAA)
Dimensions (W x H x D)	85 x 106 x 21.5 mm

Stock No.	Product No.
S55770-T276	**RDD100.1**

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RDD100.1DHW

Room thermostat with LCD, battery, 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
Operating voltage	DC 3 V
Voltage supply	Micro (2xAAA)
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Stock No.	Product No.
S55770-T277	**RDD100.1DHW**

RDD100..RF..

Wireless room thermostat with LCD

Battery-powered DC 3 V thermostat, no time switch

- 2-position control with on / off control output
- Operating modes: Comfort, Economy and Protection mode
- Adjustable commissioning and control parameters
- Color of housing front: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	5...35 °C
Switching differential	1 K
Radio frequency	433 MHz
Degree of protection	IP30
Dimensions (W x H x D)	106 x 85 x 22 mm

RDD100.1RF

Wireless room thermostat with LCD

Battery-powered DC 3 V thermostat, no time switch

Data sheet	CB1N1424
Operating voltage	DC 3 V
Voltage supply	Micro (2xAAA)

Stock No.	Product No.
S55770-T319	**RDD100.1RF**

RDD100.1RFS

Wireless room thermostat with LCD, incl. receiver

Battery-powered DC 3V thermostat with mains-powered AC 230 V receiver, no time switch

Data sheet	CB1N1424
Operating voltage	DC 3 V for thermostat, AC 230 V for receiver
Voltage supply	Micro (2xAAA)
Relay outputs	Change-over contact, potential-free on receiver
Relay output, switching current	8 (2) A
Relay output, switching voltage	AC 24...230 V on receiver

Stock No.	Product No.
S55770-T281	**RDD100.1RFS**

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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)

Battery life	1 year
Setpoint setting range	5...30 °C
Switching differential	1 K
Relay outputs	Change-over contact, potential-free
Relay outputs, number	1
Relay output, switching voltage	24...250 V
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	Data sheet	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**

Flush-mount room thermostats

RDD310/EH

- Operating voltage AC 230 V
- 2-position control with On/Off control output
- Input for cable temperature sensor NTC 3k (QAP1030/UFH) for the floor
- Floor temperature limitation with cable temperature sensor
- Operating modes: Comfort, Energy Saving and Frost Protection
- Minimum and maximum setpoint setting range
- Backlit white LCD
- Protection class IP31, suitable for installation in wet rooms

Data sheet	N1440
Operating voltage	AC 230 V
Power consumption	Max. 4 VA
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Digital output, switching current	Max. 16 A res.
Degree of protection	IP31
Dimensions (W x H x D)	86 x 86 x 50 mm

Stock No.	Product No.
S55770-T296	**RDD310/EH**

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RDD310/MM

Flush-mount room thermostat

- Operating voltage AC 230 V
- 2-position control with On/Off control output
- Input for cable temperature sensor NTC 3k (QAP1030/UFH) for the floor
- Floor temperature limitation with cable temperature sensor
- Operating modes: Comfort, Energy Saving and Frost Protection
- Minimum and maximum setpoint setting range
- Backlit white LCD
- Protection class IP31, suitable for installation in wet rooms

Data sheet	N3066.1
Operating voltage	AC 230 V
Power consumption	Max. 8 VA
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 24 V - AC 230 V
Digital output, switching current	5 mA...4(2) A
Degree of protection	IP31
Dimensions (W x H x D)	86 x 86 x 40.5 mm

	Stock No.	Product No.
	S55770-T358	**RDD310/MM**

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Accessories for RDD310..

Product Title	Data sheet	Stock No.	Product No.
Cable temperature sensor PVC 4 m, NTC 3k	N1854	S55720-S289	**QAP1030/UFH**

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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

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Range overview REV..

Product Title	Dimensions (W x H 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, 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	134.5 x 94 x 30	N2206	BPZ:REV24RF/SET	**REV24RF/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	134.5 x 94 x 30	N2206	BPZ:REV24RFDC/SET	**REV24RFDC/SET**
7-day room thermostat	134.5 x 94 x 30	N2208	BPZ:REV34-XA	**REV34-XA**

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RDJ..

Electronic room thermostats with 24-hour time switch, LCD, setting knob

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)

Battery life	1 year
Setpoint setting range	5...30 °C
Switching differential	1 K
Relay outputs	Change-over contact, potential-free
Relay outputs, number	1
Relay output, switching voltage	AC 24...250 V
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**

RAV11.1

Room thermostat with 24-hour time switch

- 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 mode with heating periods according to the analog time switch
- Continuous Comfort mode
- Continuous Economy mode
- Stanby with frost protection

Data sheet	N2224
Voltage supply	Mignon (2xAA)
Battery life	2.5 years
Setpoint setting range	5...30 °C
Relay outputs	N.O. contact, Potential-free
Relay outputs, number	1
Relay output, switching voltage	AC 24...250 V
Relay output, switching current	8 (3.5) A
Degree of protection	IP30
Dimensions (W x H x D)	128 x 104 x 37 mm

Stock No.	Product No.
BPZ:RAV11.1	**RAV11.1**

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Room thermostats with auto time switch and LCD — RDE100..

- 2-position control with on/off output for heating
- Operating modes: Normal and energy-saving mode
- Auto time switch (individual day, 7 day or 5-2 day) and manual operation
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	5...35 °C
Switching differential	1 K
Degree of protection	IP30
Dimensions (W x H x D)	85 x 127 x 21.5 mm

Room thermostat with auto time switch and LCD, AC 230 V — RDE100

- 2-position control with on/off output for heating
- Operating modes: Normal and energy-saving mode
- Auto time switch (individual day, 7 day or 5-2 day) and manual operation
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Data sheet	N1422
Operating voltage	AC 230 V
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free

Stock No.	Product No.
S55770-T278	**RDE100**

Room thermostat with auto time switch and LCD, battery — RDE100.1

- 2-position control with on/off output for heating
- Operating modes: Normal and energy-saving mode
- Auto time switch (individual day, 7 day or 5-2 day) and manual operation
- Color of housing front and baseplate: signal white RAL9003 (NCS S 0502-G)

Data sheet	N1422
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	AC 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 auto time switch and LCD, battery, 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
- Auto time switch (individual day, 7 day or 5-2 day) and manual operation

Data sheet	N1423
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Change-over contact, potential-free

Stock No.	Product No.
S55770-T280	**RDE100.1DHW**

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Wireless room thermostat with auto timer — RDE100..RF..

Battery-powered DC 3 V thermostat, with time switch, optional external input
- 2-position control with on / off output for heating
- Operating modes: Comfort, Economy, Auto timer and Protection mode
- Auto time switch
- Adjustable commissioning and control parameters
- Multifunction input for external floor sensor, keycard contact, etc.
- Color of housing front: signal white RAL9003 (NCS S 0502-G)

Setpoint setting range	5..35 °C
Switching differential	1 K
Radio frequency	433 MHz
Degree of protection	IP30

Wireless room thermostat with auto timer — RDE100.1RF

Battery-powered DC 3 V thermostat, with time switch, optional external input

Data sheet	CB1N1425
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V
Dimensions (W x H x D)	127 x 85 x 22 mm

Stock No.	Product No.
S55770-T320	**RDE100.1RF**

Wireless room thermostat with auto timer, incl. receiver — RDE100.1RFS

Battery-powered DC 3V thermostat with mains-powered AC 230 V receiver, with time switch, optional external input

Data sheet	CB1N1425
Voltage supply	Micro (2xAAA)
Operating voltage	DC 3 V for thermostat, AC 230 V for receiver
Relay output, switching voltage	AC 24...230 V on receiver
Relay output, switching current	8 (2) A
Relay outputs	Change-over contact, potential-free on receiver
Dimensions (W x H x D)	127 x 85 x 22 mm

Stock No.	Product No.
S55770-T282	**RDE100.1RFS**

Accessories for RDE100..

Product Title	Data sheet	Stock No.	Product No.
Wireless Multizone Receiver	CB1N1428	S55770-T285	**RDE-MZ6**

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RDE410/EH

Flush-mount room thermostats with auto timer

- Operating voltage AC 230 V
- 2-position control with On/Off control output
- Input for cable temperature sensor NTC 3k (QAP1030/UFH) for the floor
- Floor temperature limitation with cable temperature sensor
- Operating modes: Comfort, Energy Saving and Frost Protection
- Minimum and maximum setpoint setting range
- Backlit white LCD
- Protection class IP31, suitable for installation in wet rooms
- Auto Timer with 8 programmable time switches

Data sheet	N1440
Operating voltage	AC 230 V
Power consumption	Max. 4 VA
Setpoint setting range	5...40 °C
Digital output, switching voltage	AC 230 V
Digital output, switching current	Max. 16 A res.
Degree of protection	IP31
Dimensions (W x H x D)	86 x 86 x 50 mm

	Stock No.	Product No.
	S55770-T333	**RDE410/EH**

Accessories for RDE410..

Product Title	Data sheet	Stock No.	Product No.
Cable temperature sensor PVC 4 m, NTC 3k	N1854	S55720-S289	**QAP1030/UFH**

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Application examples REV..

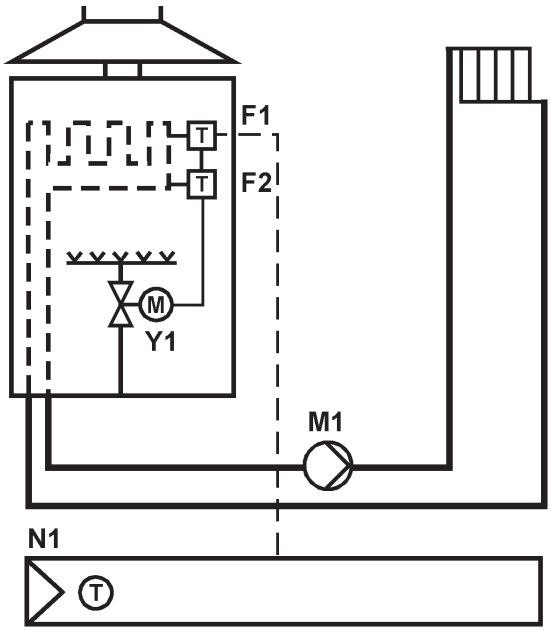
These are only a few examples of many applications that can be done with the thermostat REV...
More applications are described in "HIT" (the HVAC project engineering tool with a library of over 300 pre-configured HVAC-applications) and in the REV.. data sheet..

Room temperature controller with 7-day time switch, acting on on/off device

REV24

HAA001 EV2 HQ

- 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

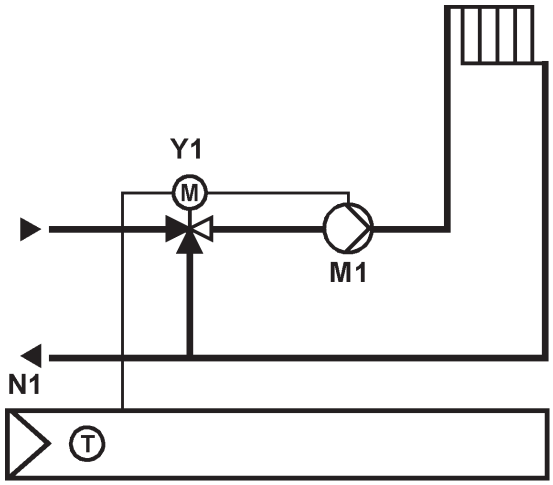


Room temperature controller with 7-day time switch, acting on 3-position valve actuator

REV34

H0C002 EV3 HQ

- 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



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RAB..1..

Electromechanical room thermostats for fan coils

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 24...250 V
Switching current	0.2...6 (2) A
Degree of protection	IP30

RAB11

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling

- 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
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T225	**RAB11**

RAB11.1

Electromechanical room thermostat for 2-pipe fan coils, selector heating/cooling/fan only

Same functionality and technical data as RAB11. Additional selector position for ventilation (heating and cooling inactive).

Data sheet	N3015
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T226	**RAB11.1**

RAB21

Electromechanical room thermostat for 2-pipe fan coils, basic model

- 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
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T227	**RAB21**

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Electromechanical room thermostat for 2-pipe fan coils, selector heating-cooling/fan only

RAB21.1

Same functionality and technical data as RAB21. Additional selector for changeover between heating / cooling and ventilation.

Data sheet	N3016
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T228	**RAB21.1**

Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling

RAB31

- 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
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T229	**RAB31**

Electromechanical room thermostat for 4-pipe fan coils, selector heating/cooling/fan only

RAB31.1

Same functionality and technical data as RAB31. Additional selector position for ventilation (heating and cooling inactive).

Data sheet	N3017
Dimensions (W x H x D)	99 x 110 x 35.3 mm

Stock No.	Product No.
S55770-T230	**RAB31.1**

Fan speed switch, 3-stage

RAB91

Selector for 3-speed fan operation

Data sheet	N3018
Dimensions (W x H x D)	96 x 97 x 36 mm

Stock No.	Product No.
S55770-T231	**RAB91**

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Accessories for RAB..1..

Product Title	Data sheet	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**

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Electronic room thermostats for fan coils

RCC..

- 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
Degree of protection	IP30

Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor

RCC10

- 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
Dimensions (W x H x D)	97 x 114 x 43 mm

Stock No.	Product No.
BPZ:RCC10	**RCC10**

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RCC20

Room thermostat for 2-pipe fan coils, AC 230 V, positioning signal 2 pt, return air sensor, el. heater

- 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
Dimensions (W x H x D)	97 x 114 x 43 mm

Stock No.	Product No.
BPZ:RCC20	**RCC20**

RCC30

Room thermostat for 4-pipe fan coils, AC 230 V, positioning signal 2pt, return air sensor

- 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
Dimensions (W x H x D)	97 x 114 x43 mm

Stock No.	Product No.
BPZ:RCC30	**RCC30**

Accessories for RCC..

Product Title	Data sheet	Stock No.	Product No.
Changeover cable holder for QAH11..	N3009	BPZ:ARG86.3	**ARG86.3**
Cable temperature sensor PVC 2.5 m, NTC 3 kOhm, without connectors	N1840	BPZ:QAH11.1	**QAH11.1**

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Application examples RAB..

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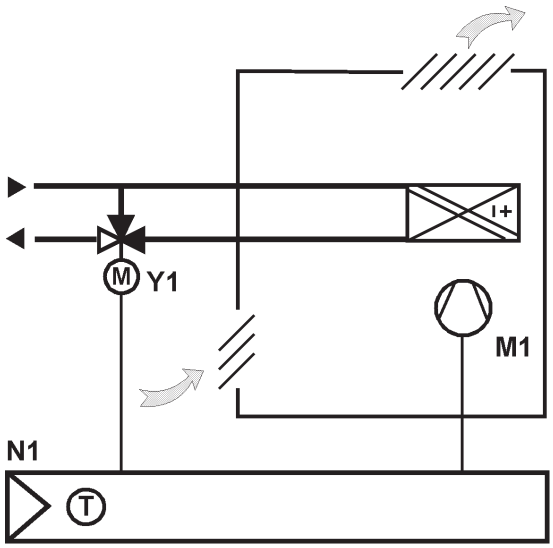
2-pipe fan coil, manual heating / cooling changeover

RAB11

- 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)

TAAE01 AB1 HQ

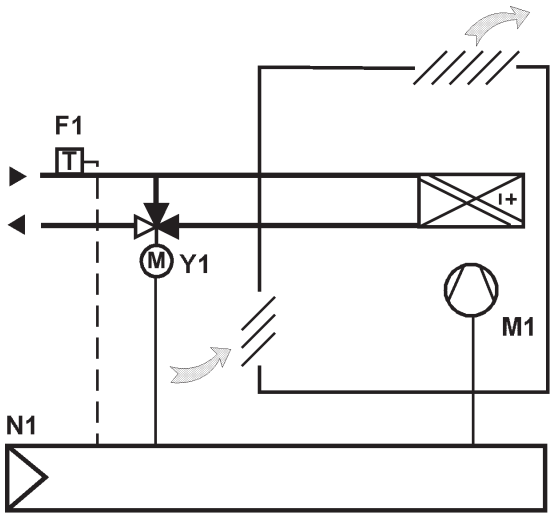


2-pipe fan coil, automatic heating / cooling changeover

RAB21

- 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)

TAAE01 AB2 HQ



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Application examples RCC..

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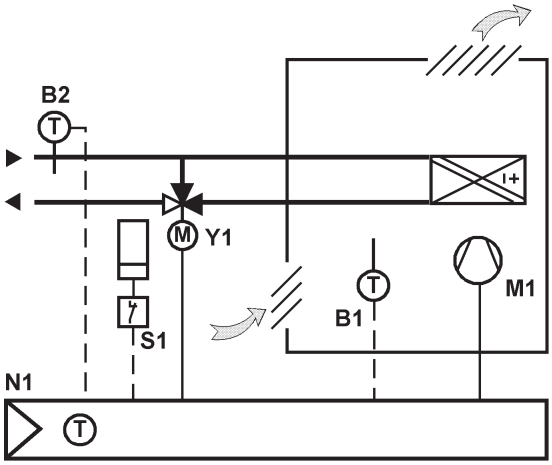
RCC10

TAAE01 CC1 HQ

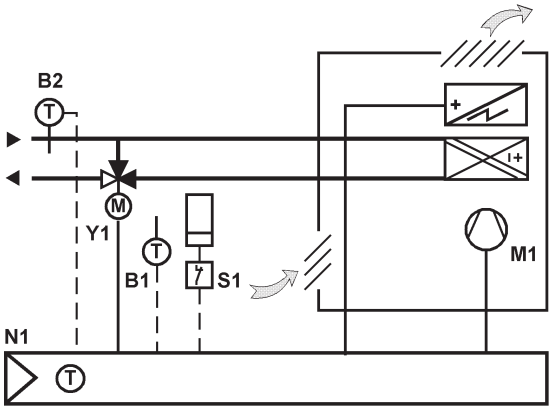


2-pipe fan coil, automatic heating / cooling changeover on/ off output

- 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)

RCC20

TAAZ01 CC2 HQ



2-pipe fan coil, automatic heating / cooling changeover and electrical heater

- 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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Room thermostats for fan coil units, universal applications and heat pump applications

RDG1..

Data sheet	N3181
Setpoint setting range	5...40 °C
Type of fixing	Wall mounting with screws
Degree of protection	IP30

Room thermostat, AC 230 V, for fan coil units and universal applications

RDG100

- Operating modes: Comfort, Energy Saving and Protection
- 2-position, 3-position or PWM 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
- 2-stage heating or cooling system

Data sheet	N3181
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
Switching differential	Heating: 0,5...6 K Cooling: 0,5...6 K
Analog inputs, number	2
Digital inputs, number	1
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.	Product No.
S55770-T158	**RDG100**

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RDG110

Room thermostat, AC 230 V, for fan coil units and heat pump applications

- Operating modes: Comfort, Energy Saving and Protection
- 2-position 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
- 2-stage heating or cooling system

Data sheet	N3181
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
Switching differential	Heating: 0,5...6 K Cooling: 0,5...6 K
Analog inputs, number	2
Digital inputs, number	1
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.	Product No.
S55770-T160	**RDG110**

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Room thermostat, AC 24 V, for fan coil units and heat pump applications

RDG110U

- Operating modes: Comfort, Energy Saving and Protection
- 2-position 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
- 2-stage heating or cooling system

Data sheet	N3181
Operating voltage	AC 24 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 24 V
Relay output, switching current	Valve, compressor or el. heater: 5 (3) A Fan: 5 (4) A
Switching differential	Heating: 0,5...6 K Cooling: 0,5...6 K
Analog inputs, number	2
Digital inputs, number	1
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.	Product No.
S55770-T361	RDG110U

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New Product

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RDG1..0T..

Room thermostat for fan coil units and universal applications, 7-day time switch

Data sheet	N3181
Setpoint setting range	5...40 °C
Type of fixing	Wall mounting with screws
Degree of protection	IP30

RDG100T

Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, vertical

- 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

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
Digital inputs, number	1
Operating voltage	AC 230 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Analog input, signal	NTC 3k Switch
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 output, switching current	Max. 1 A
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Dimensions (W x H x D)	93 x 128 x 30.8 mm

Stock No.	Product No.
S55770-T159	**RDG100T**

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Room thermostat, AC 230 V, for fan coil units and universal applications, 7-day time switch, horizontal

RDG100T/H

- 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

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
Digital inputs, number	1
Operating voltage	AC 230 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Analog input, signal	NTC 3k Switch
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 output, switching current	Max. 1 A
Triac outputs	Valve, el. heater 2-position, PWM, 3-position
Triac output, switching voltage	AC 230 V
Dimensions (W x H x D)	128 x 93 x 30.8 mm

Stock No.	Product No.
S55770-T235	**RDG100T/H**

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RDG160T

Room thermostat, AC 24 V, for fan coil units (3-speed or ECM fan), universal applications and heat pump applications. 7-day time switch. Outputs DC 0..10V or ON/OFF

- Operating modes: Auto timer, Comfort, Energy Saving and Protection
- Auto Timer mode with 8 programmable timers
- 2-position or DC 0...10V control outputs
- ECM fan or 3-speed fan 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, supply air temperature sensor
- 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

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	N3181
Digital inputs, number	1
Operating voltage	AC 24 V DC 24 V
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Analog input, signal	NTC 3k Switch
Relay outputs, number	3
Relay outputs	Fan: 1- or 3- speed Valve: N.O. contacts El. heater and external equipment: N.O. contacts
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (4) A
Analog outputs	Valve, el. heater: 2 Fan: 1 (ECM)
Analog output, signal	DC 0...10 V
Analog output, current	Valve, el. heater: Max. ±1 mA Fan: Max. ±5 mA
Dimensions (W x H x D)	93 x 128 x 30.8 mm

	Stock No.	Product No.
	S55770-T343	RDG160T

Accessories for RDG1..0T..

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**
Infrared Remote Control for room thermostats	N3060	S55770-T166	**IRA211**

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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 outputs	Fan: N.O. contacts, non-floating Valve: change-over contact, non-floating
Relay output, switching voltage	AC 230 V
Relay output, switching current	4 (2) A
Degree of protection	IP30
Dimensions (W x H x D)	86 x 86 x 39 mm

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
Degree of protection	IP30
Dimensions (W x H x D)	102 x 128 x 30 mm

	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**

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RDF..Flush Mount

Flush-mount room thermostat

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

RDF300.02

Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils or DX type equipment, backlit LCD

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)
- 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
Analog inputs, number	2
Relay outputs, number	5
Type of fixing	Recessed rectangular conduit box BS4662 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**

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Flush-mount room thermostat for rectangular conduit box, for 2-/4-pipe fan coils

RDF340

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 output, current	Max. ±1 mA
Analog outputs	Heating/Cooling
Relay output, switching voltage	AC 24...230 V
Relay output, switching current	5 (2) A
Relay outputs	Fan: N.O. contacts, floating
Analog inputs, number	2
Analog outputs, number	2
Relay outputs, number	3
Type of fixing	Recessed rectangular conduit box BS4662 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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RDF600

Flush-mount room thermostat for round conduit box for 2-/4-pipe fan coils or DX type equipment, backlit LCD

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
Analog inputs, number	2
Relay outputs, number	5
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**

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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

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

Infrared remote IRA211 not included. Order separatly.

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
Analog inputs, number	2
Relay outputs, number	5
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**

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RDF310.2/MM

Flush mount room thermostat for 2-pipe fan coils

Flush-mount room temperature controller with LCD for fan coil units
- Output for on/off valve actuator, 3-wire on/off valve or 1-stage compressor
- 3-speed fan control: Automatic or manual
- Manual heating / cooling changeover or continuous Cooling only / Heating only
- Operation modes: Comfort and Protection
- Adjustable commissioning and control parameters
- Optional display of room temperature or setpoint
- Minimum and maximum setpoint limitation
- Display temperature in increments of 0.5 °C or °F
- Color of housing: signal white (RAL 9003)

Data sheet	N3066
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: changeover contacts, non-floating
Relay outputs, number	4
Type of fixing	Recessed rectangular conduit box BS4662 with fixing centres of 60.3 mm
Dimensions (W x H x D)	86 x 86 x 40.5 mm

Stock No.	Product No.
S55770-T187	**RDF310.2/MM**

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Accessories

Product Title	Data sheet	Stock No.	Product No.
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**
Infrared Remote Control for room thermostats	N3060	S55770-T166	**IRA211**
Room temperature sensor NTC 3 kOhm	N1747	BPZ:QAA32	**QAA32**

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Electronic room thermostat for VAV and CAV systems

RCU..VAV

- Electronic room thermostat for heating and cooling operation
- P control
- Setpoint shifting
- Color of housing front: signal white RAL9003 (NCS S 0502-G)
- Color of baseplate: light grey RAL7035 (NCS 2801-Y43R)

Power consumption	6 VA
Setpoint setting range	8...30 °C
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Type of fixing	Wall mounting with screw
Degree of protection	IP30
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, 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
Operating voltage	AC 24 V

Stock No.	Product No.
BPZ:RCU50.2	**RCU50.2**

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RDG400

Room thermostat, AC 24 V, VAV heating and cooling systems

- 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/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
- 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	N3182
Operating voltage	AC 24 V
Power consumption	2 VA
Setpoint setting range	5...40 °C
Switching differential	Heating: 0.5...6 K Cooling: 0.5...6 K
Analog inputs, number	2
Analog outputs	VAV actuator, electric heater, valve
Analog outputs, number	1
Analog output, signal	DC 0...10 V
Analog output, current	Max. ±1 mA
Digital inputs, number	1
Triac outputs	VAV actuator, valve, el. heater 2-position, PWM, 3-position
Triac outputs, number	1
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**

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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

Data sheet	N3078
Setpoint setting range	5...40 °C
Operating voltage	AC 24 V
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 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.
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**

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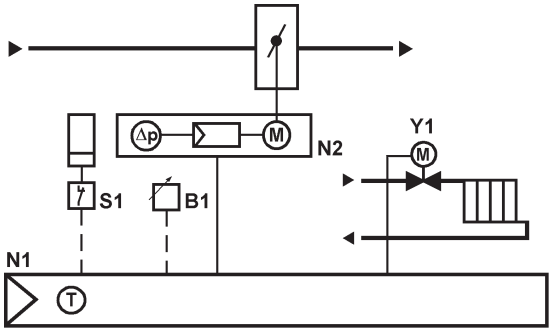
Application examples RDG..

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

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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
Switching differential	6 K
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (2.5) A
Digital outputs	1-pin Potential-free Changeover contact
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
Switching differential	6 K
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
Digital outputs	1-pin Potential-free Changeover contact
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		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.

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RAK-TW.1..H..

Thermal reset limit thermostat

Immersion, strap-on and remote thermostat in one

Data sheet	N1202
Sensing element	Liquid expansion sensor
Switching differential	6 K
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
Digital outputs	1-pole Potential-free Changeover contact
Degree of protection	IP65
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, G½"	700	S55700-P115	**RAK-TW.1000HB**
40...120	PN 10, 100 mm, G½"	700	S55700-P118	**RAK-TW.1200HP**

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
Reset temperature	Min. 15 K under the switch-off point
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
Digital outputs	1-pin Potential-free Switchover contact
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.

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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
Reset temperature	Min. 15 K under the switch-off point
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
Digital outputs	1-pin Potential-free Switchover contact
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**
110...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
Reset temperature	~7 K under the switch-off point
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
Digital outputs	1-pole Potential-free Changeover contact
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: 40...70		700	S55700-P105	**RAK-ST.1385M**
Adjustable: 95...130	PN 10, 100 mm, G ½"	700	S55700-P107	**RAK-ST.1600MP**

Note to protection pocket: Brass, nickel-plated.

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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 output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Ambient temperature head	Max. 100 °C
Digital outputs	1-pin Potential-free Changover contact
Degree of protection	IP54
Dimensions (W x H x D)	60 x 120 x 55 mm

Stock No.	Product No.
BPZ:TKM2	**TKM2**

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Protection pockets for RAK-T and RAK-S

Packaging unit	Protection pocket	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	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**
	3 capillary supports and 3 spacers for QAF.. Mounting		N1821	BPZ:AQM63.2	**AQM63.2**
1 box	Terminal housing		N1207	S55700-P131	**RAK-H-M**

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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
Immersion length	100 mm
Sensing element	Liquid expansion sensor
Reset temperature	Min. 15 Kelvin under the switch-off point
Switching differential	6 K
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.1...16 (4) A
Digital outputs	1-pin Potential-free Changeover contact
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.

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RAZ-ST..J

Temperature controller/ safety limit thermostat

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
Immersion length	100 mm
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 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)
Digital outputs	1-pin Potential-free Changeover contact
Degree of protection	IP40
Dimensions (W x H x D)	120 x 106 x 70 mm

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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-T.., RAZ-S.. and RAK..

Product Title	Material	PN class	Data sheet	Stock No.	Product No.
Mounting kit for RAK../RAZ..			N1193	BPZ:ALT-C001	**ALT-C001**
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**

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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
Setpoint setting range	20...90 °C
Sensing element	Bimetall
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Digital outputs	1-pin Potential-free Changeover contact
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
Setpoint setting range	20...90 °C
Sensing element	Bimetal
Digital output, switching voltage	AC 24...250 V
Digital output, switching current	0.2...16 A
Digital outputs	1-pin Potential-free Changeover contact
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**

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QAF63..J

Frost detector, modulating

- For fitting to the air duct
- Fully active capillary tube sensor
- With capillary tube entry

In addition to direct mounting, the frost sensor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

Data sheet	A6V10432020
Operating voltage	AC 24 V
Power consumption	5 VA
Min. active length	250 mm
Measuring range, temperature	0...15 °C
Ambient temperature, operation	-15...60 °C
Connection cable	3-wire
Analog output, signal	DC 0...10 V
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

5

Range overview QAF63..J

Capillary length [mm]	Stock No.	Product No.
2000	S55700-P153	**QAF63.2-J**
6000	S55700-P154	**QAF63.6-J**

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Frost detector, air side, 2-point

QAF64..J

- 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

In addition to direct mounting, the frost monitor can be fitted to the air duct using the AQM63.0 snap-on mounting flange (accessory).

Data sheet	A6V10432022
Operating voltage	AC 24 V
Power consumption	6.6 VA
Min. active length	250 mm
Setpoint setting range	1...10 °C
Measuring range, temperature	0...15 °C
Ambient temperature, operation	-15...55 °C
Connection cable	6 (8)-wire
Digital output, switching voltage	DC 5 V / AC 5...250 V
Digital output, switching current	6 (4) A
Analog inputs	Control input
Analog output, signal	DC 0...10 V
Digital outputs	Potential-free Switchover contact
Degree of protection	IP42
Dimensions (W x H x D)	96 x 136 x 67 mm

5

Range overview QAF64..J

Capillary length [mm]	Stock No.	Product No.
2000	S55700-P155	**QAF64.2-J**
6000	S55700-P156	**QAF64.6-J**

Accessories for QAF63.. and QAF64..

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**

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Capillary and clamp-on thermostats
Frost protection units

QAF81..

Frost monitor, 2-point

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
Min. active length	300 mm
Switching differential	2 K
Digital output, switching voltage	AC 250 V
Digital output, switching current	10 (2) A
Mounting position	Any
Digital outputs	1-pin Potential-free Switchover contact
Degree of protection	IP54
Dimensions (W x H x D)	106 x 113 x 37 mm

5

Range overview QAF81.

Capillary length [mm]	Stock No.	Product No.
3000	BPZ:QAF81.3	**QAF81.3**
6000	BPZ:QAF81.6	**QAF81.6**
6000	BPZ:QAF81.6M	**QAF81.6M**

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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Frost protection monitor

RAK-TW.5..H

Internal scale, 1 changeover contact, immersion and strap-on thermostat in one.

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Data sheet	N1203
Sensing element	Liquid expansion sensor
Switching differential	5 K
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
Digital outputs	1-pin Potential-free Switching contact
Degree of protection	IP43
Dimensions (W x H x D)	55 x 156 x 64 mm

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**

5

Frost protection monitor

RAK-TW.5..H..

Immersion, strap-on and remote thermostat in one

Perforated protection pocket must be ordered as a separate item: ALT-AB200

Data sheet	N1203
Sensing element	Liquid expansion sensor
Switching differential	5 K
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
Digital outputs	1-pole Potential-free Changeover contact
Degree of protection	IP65
Dimensions (W x H x D)	55 x 156 x 64 mm

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	Data sheet	Stock No.	Product No.
Protection pocket, perforated, 200 mm	N1193	BPZ:ALT-AB200	**ALT-AB200**

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TRG22

Room thermostat with helix sensor, TR -5..50 °C, 2 switches on 2 steps 2..12 K difference

For commercial and industrial applications.

Note on switching interval:
Adjustable temperature difference between step 1 and step 2.

Data sheet	N1329
Setpoint setting range	-5...50 °C
Switching differential	2 K
Digital output, switching voltage	AC 250 V
Switching interval	2...12 K
Digital output, switching current	0.2...10 (2) A
Digital outputs	2 Changeover contacts, 1-pole Potential-free
Mounting position	Horizontal
Degree of protection	IP54
Dimensions (W x H x D)	98 x 135 x 67 mm

Stock No.	Product No.
BPZ:TRG22	**TRG22**

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 output, switching voltage	AC 250 V
Digital output, switching current	0.2...10 (2) A
Digital outputs	Changeover contact 1-pin Potential-free
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**

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Sensors

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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		QPA1..	QPA2..	QPA..D	QPM1..	QPM2..	QPM..D
Measured value	VOC	■			■		
	CO2		■			■	
	CO2 / VOC		■	■		■	■
	CO2 / T		■	■		■	■
	CO2 / 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	QBE2x03-P	QBE2x04-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					■	

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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					Display	Selection tool controller range						
Basic module	+	Front module	CO2	VOC	Relative humidity	Active temp.	Passive temp.	CO2 -indicator	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2540Nx	+	AQR2532NNW				■			■					■	■
AQR2540Nx	+	AQR2535NNW			■	■			■					■	■
AQR2546Nx	+	AQR2530NNW	■						■					■	■
AQR2546Nx	+	AQR2532NNW	■			■			■					■	■
AQR2546Nx	+	AQR2535NNW	■		■	■ [2)]			■					■	■
AQR2546Nx	+	AQR2535NNWQ	■		■	■ [2)]		■	■					■	■
AQR2547Nx	+	AQR2530NNW		■					■					■	■
AQR2547Nx	+	AQR2532NNW		■		■			■					■	■
AQR2547Nx	+	AQR2535NNW		■	■	■ [2)]			■					■	■
AQR2548Nx	+	AQR2530NNW	■	■[1)]					■					■	■
AQR2548Nx	+	AQR2532NNW	■	■[1)2)]		■			■					■	■
AQR2548Nx	+	AQR2535NNW	■	■[1)2)]	■	■ [2)]			■					■	■
AQR2548Nx	+	AQR2535NNWQ	■	■[1)2)]	■	■ [2)]		■	■					■	■

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.

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Passive sensors														
Mounting plate	+	Front module	CO2	VOC	Relative humidity	Active temp.	Passive temp.	Desigo PX	RXL	RXB	RXC	RVL4, RVP3	Synco 200	Synco 700
AQR2500Nx	+	AQR2531ANW					LG-Ni1000	■	■	■	■	■	■	■

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	+	AQR2535NNW		■	■		■	■
AQR2576Nx	+	AQR2530NNW	■				■	■
AQR2576Nx	+	AQR2532NNW	■		■		■	■
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)

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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 [K]	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

For Synco™ and Desigo™ PX applications

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

	Stock No.	Product No.
	BPZ:QAA25	**QAA25**

Room unit with room temperature sensor and setpoint adjuster 5..30 °C

QAA26

For Desigo™ PX applications

Data sheet	N1721
Measuring range, temperature	0...50 °C
Sensing element, temperature	LG-Ni1000
Time constant	7 min
Setpoint setting range	5...30 °C
Degree of protection	IP30
Dimensions (W x H x D)	90 x 100 x 36 mm

	Stock No.	Product No.
	BPZ:QAA26	**QAA26**

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QAA27

Room unit with room temperature sensor and setpoint readjuster -3...3 K

For Synco™, Desigo™ PX and Desigo™ RXA applications

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

Stock No.	Product No.
BPZ:QAA27	**QAA27**

QAA20..1

Room temperature sensor, active

Data sheet	N1749
Measuring range, temperature	0...50 °C
Time constant	7 min
Measurement accuracy	at AC 24 V in the range of -25 °C...+25 °C ± 0.75 K -50 °C...+50 °C ±0.9 K
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 [V]	Display	Stock No.	Product No.
DC 0...10 V	AC 24 DC 13.5...35		BPZ:QAA2061	**QAA2061**
DC 0...10 V	AC 24 DC 13.5...35	LCD	BPZ:QAA2061D	**QAA2061D**
DC 4...20 mA	DC 13.5...35		BPZ:QAA2071	**QAA2071**

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
Time constant	6.5 min
Measurement accuracy	At 0...50 °C: ±0.8 K
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**

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Room temperature sensor NTC 3 kOhm

QAA32

Data sheet	N1747
Measuring range, temperature	0...40 °C
Sensing element, temperature	NTC 3k
Time constant	6 min
Measurement accuracy	At 25 °C: ±0.3 K
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	Data sheet	Stock No.	Product No.
Mounting plate 120 x 120 mm for 4 x 4" housing	N3009	BPZ:ARG70	**ARG70**

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AQR253..

Front modules for base modules

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

Frames for front modules AQR253..

Product Title	Data sheet	Stock No.	Product No.
Frame DELTA miro for front module	N1410	S55720-S159	**AQR2510NHW**
Frame DELTA line for front module	N1410	S55720-S158	**AQR2510NFW**
Frame DELTA azio for front module	N1410	S55720-S160	**AQR2510NGW**

6

AQR2540..

Base modules for temperature and humidity measurement

- Base module without sensor for plugging onto a front module

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Connection, electrical	Screw terminals
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
Digital outputs	1-pin Potential-free Changeover contact

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**
IT (3 modular)	110 x 64 mm	S55720-S144	**AQR2540NG**
UK (British Standard)	83 x 83 mm	S55720-S143	**AQR2540NH**

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Base module with KNX for temperature and humidity measurement — AQR2570..

- Base module without sensor for plugging onto a front module
- 1 analog input to connect temperature sensors with NTC 10k sensing element to measure room, floor, or ceiling temperature
- 2 multifunctional binary inputs to connect window contacts or buttons
- Power supply via KNX bus, bus load < 5 mA

Data sheet	N1411
Voltage supply	KNX bus
Analog inputs, number	1
Analog inputs	Passive temperature sensor NTC 10k
Digital inputs, number	2
Digital inputs	Potential-free contacts

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**
IT (3 Modular)	110 x 64 mm	S55720-S205	**AQR2570NG**
UK (British Standard)	83 x 83 mm	S55720-S204	**AQR2570NH**
US (UL)	64 x 110 mm	S55720-S206	**AQR2570NJ**

Front modules with passiv temperature measurement — AQR2531..

Front module with passiv sensor.

Data sheet	N1408
Measuring range, temperature	0...50 °C
Connection, electrical	Screw terminals
Color	Titanium white
Degree of protection	IP30

Range overview AQR2531..

Sensing element, temperature	Dimensions (W x H)	Stock No.	Product No.
LG-Ni1000	55 x 55 mm	S55720-S133	**AQR2531ANW**

Mounting plates for front modules AQR2531..

Product Title	Data sheet	Stock No.	Product No.
Mounting plate EU (CEE/VDE)	N1408	S55720-S161	**AQR2500NF**
Mounting plate IT (3 modular)	N1408	S55720-S163	**AQR2500NG**
Mounting plate UK (British Standard)	N1408	S55720-S162	**AQR2500NH**
Mounting plate US (UL)	N1408	S55720-S164	**AQR2500NJ**

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QAM21..

Duct temperature sensor, passive

Fully active, flexible probe for averaging.

Note on fixing:
Supplied complete with mounting flange.

Data sheet	N1761
Time constant	At v = 2 m/s: 30 s
Connection, electrical	Screw terminals
Type of fixing	Flange
Degree of protection	IP42
Dimensions (W x H x D)	80 x 61 x 31 mm

Range overview QAM21..

Probe length [mm]	Sensing element, temperature	Measuring range, temperature [°C]	Measurement accuracy [K]	Stock No.	Product No.
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	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	NTC 10k	-40...80	At -40...80 °C: ±1.2	BPZ:QAM2130.040	**QAM2130.040**

6

QAM21..1..

Duct temperature sensor active

Fully active, flexible probe for averaging.

Note on fixing:
Supplied complete with mounting flange.

Data sheet	N1762
Power consumption	≤ 1 VA
Measuring range, temperature	-50...50 °C
Measurement accuracy	At -50...50 °C: ±0.9 K
Time constant	30 s at v = 2 m/s
Immersion length	400 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 QAM21..1..

Analog output, signal	Operating voltage [V]	Probe length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 DC 13.5...35	400	BPZ:QAM2161.040	**QAM2161.040**
DC 4...20 mA	DC 13.5...35	400	BPZ:QAM2171.040	**QAM2171.040**

Accessories for QAM21.. and QAM21..1

Product Title	Data sheet	Stock No.	Product No.
6 Capillary tube clamps for QAF../QAM.. mounting	N1284	BPZ:AQM63.3	**AQM63.3**
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**

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Duct temperature sensor Pt100, for high temperature

FK-TP/200

With connecting head to DIN.
No protection pocket required.

Supplied complete with mounting flange.

Data sheet	N1778
Measuring range, temperature	-60...300 °C
Sensing element, temperature	Pt100
Time constant	<100 s at v = 1 m/s
Type of fixing	Flange
Connection, electrical	Screw terminals
Material, immersion pocket	Stainless steel
PN class	PN 40
Degree of protection	IP54
Dimensions (W x H x D)	60 x 80 x 83 mm

Stock No.	Product No.
BPZ:FK-TP/200	**FK-TP/200**

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QAE1612.010

Immersion temperature sensor

Passive sensor for acquiring the water temperature in pipes and tanks

Data sheet	Q3730
Sensing element	Pt1000
Measuring range, temperature	0...100 °C
Measurement accuracy	±2 % FS
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**

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Immersion temperature sensor, passive

QAE21..

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).

Data sheet	N1781
Time constant	With protection pocket: 30 s Without protection pocket: 8 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Degree of protection	IP42
Dimensions (W x H x D)	80 x 60 x 31 mm

Range overview QAE21..

Sensing element, temperature	Measuring range, temperature	Measurement accuracy	Immersion length	Protection pocket	Stock No.	Product No.
Pt100	-30...130	At -30...130 °C: ±0,95	100	Not included	BPZ:QAE2111.010	**QAE2111.010**
Pt100	-30...130	At -30...130 °C: ±0.95	150	Not included	BPZ:QAE2111.015	**QAE2111.015**
Pt1000	-30...130	At -30...130 °C: ±0.95	100	Not included	BPZ:QAE2112.010	**QAE2112.010**
Pt1000	-30...130	At -30...130 °C: ±0.95	150	Not included	BPZ:QAE2112.015	**QAE2112.015**
LG-Ni1000	-30...130	At -30...130 °C: ±1.3	100	Protection pocket included, PN 10	BPZ:QAE2120.010	**QAE2120.010**
LG-Ni1000	-30...130	At -30...130 °C: ±1.3	150	Protection pocket included, PN 10	BPZ:QAE2120.015	**QAE2120.015**
LG-Ni1000	-30...130	At -30...130 °C: ±1.3	100	Not included	BPZ:QAE2121.010	**QAE2121.010**
LG-Ni1000	-30...130	At -30...130 °C: ±1,3	150	Not included	BPZ:QAE2121.015	**QAE2121.015**
NTC 10k	-30...125	At -30...125 °C: ±1.7	100	Not included	BPZ:QAE2130.010	**QAE2130.010**
NTC 10k	-30...125	At -30...125 °C: ±1.7	150	Not included	BPZ:QAE2130.015	**QAE2130.015**

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QAE21..4

Immersion temperature sensor active

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).

Data sheet	N1782
Power consumption	≤ 1 VA
Measuring range, temperature	-10...120 °C
Measurement accuracy	At 0...70 °C: ±1 K At -10...120 °C: ±1.4 K
Time constant	With protection pocket: 30 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QAE21..4

Analog output, signal	Operating voltage [V]	Immersion length [mm]	Stock No.	Product No.
DC 0...10 V	AC 24 DC 13.5...35	100	BPZ:QAE2164.010	**QAE2164.010**
DC 0...10 V	AC 24 DC 13.5...35	150	BPZ:QAE2164.015	**QAE2164.015**
DC 4...20 mA	DC 13.5...35	100	BPZ:QAE2174.010	**QAE2174.010**
DC 4...20 mA	DC 13.5...35	150	BPZ:QAE2174.015	**QAE2174.015**

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Protection pocket for QAE21..

Packaging unit	Protection pocket	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	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	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**

Accessories for QAE21..

Product Title	Data sheet	Stock No.	Product No.
Compression fitting with threaded nipple ½"	N1781	BPZ:AQE2102	**AQE2102**

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Immersion temperature sensor Ø 6 mm with cable and fitting — QAE26.9

With connecting cable.

Data sheet	N1790
Measuring range, temperature	-40...180 °C
Sensing element, temperature	LG-Ni1000
Time constant	<3 s
Immersion length	25...260 mm
Material, immersion pocket	Stainless steel
Connection cable	Silicone, 2-wire
Cable length	1.2 m
Type of fixing	Thread R ¼ "
PN class	PN 40
Diameter	6 mm
Degree of protection	IP64

	Stock No.	Product No.
	BPZ:QAE26.9	**QAE26.9**

Immersion temperature sensur Ø 4 mm with cable and fitting — QAE26.9..

With connecting cable.

Other technical data identical to QAE26.9

Packaging unit QAE1020.024 100 pieces

Data sheet	N1790
Sensing element, temperature	LG-Ni1000
Measurement accuracy	At -50...180 °C: ±1.75 K
Time constant	<2.5 s
Material, immersion pocket	Stainless steel
Cable length	2 m
Type of fixing	R¼ " thread
PN class	PN 16
Diameter	4 mm
Degree of protection	IP64

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**

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QAE3..

Immersion temperature sensor for high temperature

With connection head made of die-cast aluminium.
No protection pocket required.

Data sheet	N1794
Sensing element, temperature	Pt100
Time constant	25 s
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Type of fixing	Protection pocket G½ "
PN class	PN 40
Material, housing	Die-cast aluminum
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 [V]	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**

FT-TP/..

Immersion temperature sensor Pt100, short time constant, for high temperature

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
Material, immersion pocket	Stainless steel
Connection, electrical	Screw terminals
Type of fixing	Protection pocket G ½ "
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**

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Strap-on temperature sensor

QAD2..

Supplied complete with strap for pipe diameters from 15...140 mm.

Data sheet	N1801
Connection, electrical	Screw terminals
Degree of protection	IP42
Dimensions (W x H x D)	60 x 67 x 43 mm

Range overview QAD2..

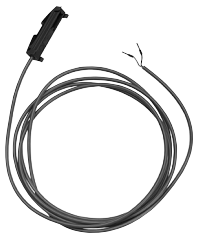
Sensing element, temperature	Measuring range, temperature [°C]	Time constant [s]	Stock No.	Product No.
LG-Ni1000	-30...130	3	BPZ:QAD22	**QAD22**
Pt100	-30...130	3	BPZ:QAD2010	**QAD2010**
Pt1000	-30...130	3	BPZ:QAD2012	**QAD2012**
NTC 10k	-30...125	6	BPZ:QAD2030	**QAD2030**

Strap-on temperature sensor with cable LG-Ni1000

QAD26.220

With cable, without housing

Supplied complete with strap for pipe diameters from 10...50 mm.



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

Stock No.	Product No.
BPZ:QAD26.220	**QAD26.220**

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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
Material	Plastic (ASA)
Degree of protection	IP54
Dimensions (W x H x D)	80 x 92 x 50 mm

Range overview QAC..

Measuring range, temperature [°C]	Sensing element, temperature	Measurement accuracy [K]	Time constant [min]	Stock No.	Product No.
-50...70	Pt100	At 0 °C: ±0.3	14	BPZ:QAC2010	**QAC2010**
-50...70	Pt1000	At 0 °C: ±0.3	14	BPZ:QAC2012	**QAC2012**
-50...70	LG-Ni1000	At 0 °C: ±0.4	14	BPZ:QAC22	**QAC22**
-50...70	NTC 575	At -10...20 °C: ±1	12	BPZ:QAC32	**QAC32**
-40...70	NTC 10k	At 25 °C: ±0,46	14	BPZ:QAC2030	**QAC2030**

QAC31..

Outside temperature sensor active

Active sensor for acquiring the outside temperature. For use in heating, ventilation and air conditioning plants.

The QAC31.. may be used as an high-quality room sensor.

Data sheet	N1814
Sensing element, temperature	Pt1000
Measuring range, temperature	-50...50 °C
Time constant	20 min
Connection, electrical	Screw terminals
Degree of protection	IP65
Dimensions (W x H x D)	80 x 88 x 39 mm

Range overview QAC31..

Analog output, signal	Operating voltage [V]	Measurement accuracy [K]	Stock No.	Product No.
DC 0...10 V	AC 24 DC 13.5...35	At -50...50 °C: ±0.9	BPZ:QAC3161	**QAC3161**
DC 4...20 mA	DC 13.5...35	At -50...50 °C: ±0.9	BPZ:QAC3171	**QAC3171**

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Window pane temperature sensor

QAT22

Data sheet	N1830
Measuring range, temperature	-10...50 °C
Sensing element, temperature	LG-Ni1000
Measurement accuracy	At 0 °C: ±0.4 K
Time constant	30 s
Connection cable	2-wire
Cable length	1.5 m
Degree of protection	IP65
Dimensions (W x H x D)	19 x 12 x 37 mm

	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
Measuring range, temperature	-20...400 °C
Sensing element, temperature	Pt1000
Immersion length	65 mm
Material, immersion pocket	Sensor sleeve, stainless steel
Connection cable	2-wire, 1.5 m, teflon with steel wire mesh
Cable length	1.5 m
Material	Stainless steel V4A
Dimensions (W x H x D)	150 x 80 x 30 mm

	Stock No.	Product No.
	BPZ:FGT-PT1000	**FGT-PT1000**

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QAP..

Cable temperature sensor (6 x 40.5 mm) for HVAC applications

Data sheet	N1831
Time constant	Fitted to pipe: <20 s
Protection pocket	40,5 x 6 mm
Material, protection pocket	Stainless steel
Type of fixing	Cable tie or with accessories
Degree of protection	IP65

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**

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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	1 box	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
Sensing element, temperature	LG-Ni1000
Measurement accuracy	At -30...180 °C: ±1.65 K
Time constant	Fitted to pipe: <20 s
Protection pocket	50 x 6 mm
Material, protection pocket	Stainless steel
Connection cable	Silicone
Cable length	1.5 m
Degree of protection	IP67

Stock No.	Product No.
BPZ:QAP21.2	**QAP21.2**

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Cable temperature sensor for use in refrigeration plants (-50 °C) QAZ21.68..

Supplied complete with 2 cable ties and sleeve coated with thermal conductive wax for fitting to pipework.

Data sheet	N1848
Measuring range, temperature	-50...80 °C
Sensing element, temperature	LG-Ni1000
Time constant	Fitted to pipework <20 s
Material, protection pocket	Stainless steel
Protection pocket	50 x 6 mm
Connection cable	Silicone, 2-wire
Degree of protection	IP67

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**

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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
Type of fixing	Screws
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 [V]	Measuring range, temperature [°C]	Display	Stock No.	Product No.
DC 0...10 V		AC 24 DC 13.5...35			BPZ:QFA2000	**QFA2000**
DC 4...20 mA		DC 13.5...35			S55720-S114	**QFA2001**
DC 0...10 V	LG-Ni1000	AC 24 DC 13.5...35	0...50		BPZ:QFA2020	**QFA2020**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70		BPZ:QFA2060	**QFA2060**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	LCD	BPZ:QFA2060D	**QFA2060D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 -35...35 -40...70		S55720-S115	**QFA2071**

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Room sensors for rel. humidity / temperature for demanding requirements

QFA31..

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 [V]	Measuring range, temperature [°C]	Display	Stock No.	Product No.
DC 0...10 V		AC 24 DC 13.5...35			BPZ:QFA3100	**QFA3100**
DC 4...20 mA		DC 13.5...35			BPZ:QFA3101	**QFA3101**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70		BPZ:QFA3160	**QFA3160**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	LCD	BPZ:QFA3160D	**QFA3160D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 -35...35 -40...70		BPZ:QFA3171	**QFA3171**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35	0...50 -35...35 -40...70	LCD	BPZ:QFA3171D	**QFA3171D**

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QFA41..

Room sensors for rel. humidity / temperature for demanding requirements, with calibration certificate

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
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 [V]	Measuring range, temperature	Display	Stock No.	Product No.
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 °C -35...35 °C -40...70 °C	---	BPZ:QFA4160	**QFA4160**
DC 0...10 V	DC 0...10 V	AC 24 DC 13,5...35	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA4160D	**QFA4160D**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 °C -35...35 °C -40...70 °C	---	BPZ:QFA4171	**QFA4171**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35	0...50 °C -35...35 °C -40...70 °C	LCD	BPZ:QFA4171D	**QFA4171D**

Accessories for QFA..

Product Title	Data sheet	Stock No.	Product No.
Service-Set		BPZ:AQF3153	**AQF3153**
Radiation shield for exterior wall mounting	N1858	BPZ:AQF3100	**AQF3100**
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**
Remote sensing cable 3 m for sensor tip.	N1859	BPZ:AQY2010	**AQY2010**

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Front modules for base modules

AQR253..

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

Frames for front modules AQR253..

Product Title	Color	Dimensions (W x H)	Data sheet	Stock No.	Product No.
Frame DELTA line for front module	Titanium white	80.2 x 80.2 mm	N1410	S55720-S158	**AQR2510NFW**
Frame DELTA azio for front module	Titanium white	80 x 120 mm / 120 x 80 mm	N1410	S55720-S160	**AQR2510NGW**
Frame DELTA miro for front module	Titanium white	90 x 90 mm	N1410	S55720-S159	**AQR2510NHW**

Base modules for temperature and humidity measurement

AQR2540..

- Base module without sensor for plugging onto a front module

Data sheet	N1410
Operating voltage	AC 24 V DC15...36 V
Connection, electrical	Screw terminals
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
Digital outputs	1-pin Potential-free Changeover contact

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**
IT (3 modular)	110 x 64 mm	S55720-S144	**AQR2540NG**
UK (British Standard)	83 x 83 mm	S55720-S143	**AQR2540NH**

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AQR2570..

Base module with KNX for temperature and humidity measurement

- Base module without sensor for plugging onto a front module
- 1 analog input to connect temperature sensors with NTC 10k sensing element to measure room, floor, or ceiling temperature
- 2 multifunctional binary inputs to connect window contacts or buttons
- Power supply via KNX bus, bus load < 5 mA

Data sheet	N1411
Voltage supply	KNX bus
Analog inputs, number	1
Analog inputs	Passive temperature sensor NTC 10k
Digital inputs, number	2
Digital inputs	Potential-free contacts

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**
IT (3 Modular)	110 x 64 mm	S55720-S205	**AQR2570NG**
UK (British Standard)	83 x 83 mm	S55720-S204	**AQR2570NH**
US (UL)	64 x 110 mm	S55720-S206	**AQR2570NJ**

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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**

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.
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**

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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
Measurement range humidity	10...90% r. h.
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.
Analog output, signal	DC 0...10 V
Signal output temperature	DC 0...10 V
Signal output humidity	DC 0...10 V
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
Analog output, signal	DC 0...10 V DC 4...20 mA
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 [V]	Measuring range, temperature [°C]	Stock No.	Product No.
DC 0...10 V		AC 24 DC 13.5...35		BPZ:QFM2100	**QFM2100**
DC 4...20 mA		DC 13.5...35		BPZ:QFM2101	**QFM2101**
DC 0...10 V	LG-Ni1000	AC 24 DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM2120	**QFM2120**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM2160	**QFM2160**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM2171	**QFM2171**

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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
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 [V]	Measuring range, temperature [°C]	Stock No.	Product No.
DC 0...10 V		AC 24 DC 13.5...35		BPZ:QFM3100	**QFM3100**
DC 4...20 mA		DC 13.5...35		BPZ:QFM3101	**QFM3101**
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM3160	**QFM3160**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 -35...35 0...70	BPZ:QFM3171	**QFM3171**

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Duct sensors for rel. humidity / temperature for demanding requirements — QFM31..D

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
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..D

Signal output humidity	Signal output temperature	Operating voltage [V]	Measuring range, temperature [°C]	Display	Stock No.	Product No.
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	LCD	BPZ:QFM3160D	**QFM3160D**
DC 4...20 mA	DC 4...20 mA	DC 13,5...35	0...50 -35...35 -40...70	LCD	BPZ:QFM3171D	**QFM3171D**

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QFM41..

Duct sensor for rel. humidity/temperature for demanding requirements, with calibration certificate

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 [V]	Measuring range, temperature [°C]	Stock No.	Product No.
DC 0...10 V	DC 0...10 V	AC 24 DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM4160	**QFM4160**
DC 4...20 mA	DC 4...20 mA	DC 13.5...35	0...50 -35...35 -40...70	BPZ:QFM4171	**QFM4171**

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Accessories for duct sensors QFM..

Product Title	Data sheet	Stock No.	Product No.
Service-Set		BPZ:AQF3153	**AQF3153**
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**

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Duct hygrostat, setpoint setting range 15...95 % r.h. — QFM81.2

On / off hygrostat with humidity sensor.
External setpoint adjustment.

Supplied complete with mounting flange.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Immersion length	130...156 mm
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
Degree of protection	IP30
Dimensions (W x H x D)	73 x 140 x 64 mm

Stock No.	Product No.
BPZ:QFM81.2	**QFM81.2**

Room hygrostat, setpoint setting range 15...95 % r.h., setpoint adjuster inside device — QFM81.21

On / off hygrostat with humidity sensor.
Setpoint adjuster inside device.

Supplied complete with mounting flange.

Data sheet	N1514
Setpoint setting range	15...95 % r.h.
Switching differential	4 % r.h.
Digital outputs	1-pin Potential-free Changeover contact
Immersion length	130...156 mm
Digital output, switching voltage	AC 250 V
Digital output, switching current	5 (3) A
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**

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QXA21..

Condensation monitor

For preventing condensation in buildings with chilled ceilings or in cooling plants.

Data sheet	A6V10741072_en-_a
Operating voltage	AC 24 V DC 24 V
Power consumption	1 VA
Digital outputs	1-pin Potential-free Changeover contact
Switching point	95 ± 4 % r.h.
Connection, electrical	Screw terminals
Digital output, switching voltage	AC/DC 1...30 V
Digital output, switching current	0.02...1 (1) A
Degree of protection	IP40
Dimensions (W x H x D)	60 x 83 x 37 mm

Range overview QXA21..

Product Title	Stock No.	Product No.
Condensation monitor	S55770-T375	QXA2100
Condensation monitor with remote sensor head (cable length 1 m)	S55770-T376	QXA2101

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Room air quality sensor CO_2 / temperature / rel. Humidity / VOC

QPA..

Note: Not suited for safety-related applications!

Data sheet	N1961
Operating voltage	AC 24 V DC 15...35 V
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

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 -35...35			BPZ:QPA2060	**QPA2060**
CO_2: 0...2000 ppm	0...50 -35...35		LCD	BPZ:QPA2060D	**QPA2060D**
CO_2: 0...2000 ppm	0...50 -35...35	0...95 % r.H.		BPZ:QPA2062	**QPA2062**
CO_2: 0...2000 ppm	0...50 -35...35	0...95 % r.H.	LCD	BPZ:QPA2062D	**QPA2062D**
CO_2: 0...2000 ppm				S55720-S121	**QPA2080**
CO_2: 0...2000 ppm			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.

Indoor air quality controller with integrated VOC sensor for mixed gas

QPA84

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 current	8 (6.8) A
Digital output, switching voltage	AC 230 V
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**

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AQR253..

Front modules for base modules

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

Frames for front modules AQR253..

Product Title	Data sheet	Stock No.	Product No.
Frame DELTA miro for front module	N1410	S55720-S159	**AQR2510NHW**
Frame DELTA line for front module	N1410	S55720-S158	**AQR2510NFW**
Frame DELTA azio for front module	N1410	S55720-S160	**AQR2510NGW**

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AQR2547..

Base modules with integrated VOC measurement

- Base module with VOC sensing element to plug onto a front module

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
Digital outputs	1-pin Potential-free Changeover contact

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**

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Front modules for base modules

AQR253..

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

Frames for front modules AQR253..

Product Title	Data sheet	Stock No.	Product No.
Frame DELTA miro for front module	N1410	S55720-S159	**AQR2510NHW**
Frame DELTA line for front module	N1410	S55720-S158	**AQR2510NFW**
Frame DELTA azio for front module	N1410	S55720-S160	**AQR2510NGW**

Base modules with integrated CO_2 measurement

AQR2546..

- Base module with maintenance-free CO2 sensing element to plug onto a front module

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
Digital outputs	1-pin Potential-free Changeover contact

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**
IT (3 modular)	110 x 64 mm	S55720-S153	**AQR2546NG**
UK (British Standard)	83 x 83 mm	S55720-S150	**AQR2546NH**

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AQR2576..

Base modules with KNX for CO_2 measurement

- Base module with maintenance and recalibration-free CO2 sensor to plug onto a front module
- 1 analog input to connect temperature sensors with NTC 10k sensing element to measure room, floor, or ceiling temperature
- 2 multifunctional binary inputs to connect window contacts or buttons
- Power supply via KNX bus, bus load < 5 mA

Data sheet	N1411
Voltage supply	KNX bus
Measuring range	CO_2: 0...5000 ppm
Analog inputs, number	1
Analog inputs	Passive temperature sensor NTC 10k
Digital inputs, number	2
Digital inputs	Potential-free contacts

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**
IT (3 Modular)	110 x 64 mm	S55720-S209	**AQR2576NG**
UK (British Standard)	83 x 83 mm	S55720-S208	**AQR2576NH**
US (UL)	64 x 110 mm	S55720-S210	**AQR2576NJ**

AQR253..

Front modules for base modules

- Front module with sensors

Data sheet	N1410
Color	Titanium white
Degree of protection	IP30
Dimensions (W x H)	55 x 55 mm

Range overview AQR253..

Measuring range, temperature [°C]	Signal output temperature	Measurement range humidity [%]	Display	Stock No.	Product No.
				S55720-S137	**AQR2530NNW**
0...50	Active LG-Ni1000	0...100		S55720-S138	**AQR2534ANW**
0...50	Active			S55720-S136	**AQR2532NNW**
0...50	Active	0...100		S55720-S141	**AQR2535NNW**
0...50	Active	0...100	CO2 indicator by LED	S55720-S219	**AQR2535NNWQ**

The matching design frame must be ordered separately.

Frames for front modules AQR253..

Product Title	Data sheet	Stock No.	Product No.
Frame DELTA miro for front module	N1410	S55720-S159	**AQR2510NHW**
Frame DELTA line for front module	N1410	S55720-S158	**AQR2510NFW**
Frame DELTA azio for front module	N1410	S55720-S160	**AQR2510NGW**

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Base modules with integrated CO_2 and VOC measurement

AQR2548..

- Base module with maintenance-free CO2/VOC sensing element to plug onto a front module

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
Digital outputs	1-pin Potential-free Changeover contact

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**

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QPM..

Duct air quality sensor CO_2/ temperature / rel. humidity / VOC

Note: Not suited for safety-related applications!

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
Max. air velocity	≤ 10 m/s
Ambient temperature, operation	-5...45 °C
Connection, electrical	Screw terminals
Time constant	CO_2: <5 min Humidity: <20 s Temperature: <3.5 min
Degree of protection	IP54
Dimensions (W x H x D)	80 x 88 x 274 mm

Range overview QPM..

Measuring range	Measuring range, temperature [°C]	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 -35...35		100...165		BPZ:QPM2160	**QPM2160**
CO_2: 0...2000 ppm	0...50 -35...35		100...165	LCD	BPZ:QPM2160D	**QPM2160D**
CO_2: 0...2000 ppm	0...50 -35...35	0...95 % r.H.	100...165		BPZ:QPM2162	**QPM2162**
CO_2: 0...2000 ppm	0...50 -35...35	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.

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Air duct differential pressure sensor, DC 0...10 V

QBM3020..

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.

CE-, UL listed.
Supplied complete with PVC connecting tube of 2 m.

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

Range overview QBM3020..

Measuring range, pressure [Pa]	Display	Stock No.	Product No.
0...100		S55720-S234	**QBM3020-1**
0...100	LCD	S55720-S239	**QBM3020-1D**
-50...50		S55720-S233	**QBM3020-1U**
0...300		S55720-S235	**QBM3020-3**
0...300	LCD	S55720-S240	**QBM3020-3D**
0...500		S55720-S236	**QBM3020-5**
0...500	LCD	S55720-S241	**QBM3020-5D**
0...1000		S55720-S237	**QBM3020-10**
0...1000	LCD	S55720-S242	**QBM3020-10D**
0...2500		S55720-S238	**QBM3020-25**
0...2500	LCD	S55720-S243	**QBM3020-25D**

Note on max. permissible pressure: overpressure on one side.

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QBM400..

Air duct differential pressure sensor with calibration certificate

Technical data and accessories identical to QBM3...
With plug-in connection.

Data sheet	N1919_01
Mounting position	Membrane vertical, pressure connection nipples at the bottom
Degree of protection	IP54
Dimensions (W x H x D)	186 x 86 x 49 mm

Range overview QBM400..

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**

Note on max. permissible pressure: overpressure on one side.

QBM2030..

Differential pressure sensor, DC 0...10 V

With pressure-linear characteristic.
For use with air or nonaggressive gases, for general HVAC applications. With diaphragm sensing element and selectable pressure measuring ranges.

Supplied complete with set of 2 air duct connectors and PVC tube of 2 m.

Data sheet	N1910_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
Time constant	1 s
Pressure conneciton	Connection branch, 6.2 mm dia.
Connection, electrical	Screw terminals
Degree of protection	IP42
Dimensions (W x H x D)	92 x 94 x 49 mm

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**

Note on max. permissible pressure: overpressure on one side.

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Air duct differential pressure sensor, DC 4...20 mA, with calibration certificate

QBM410..

For use with air and nonaggressive gases. For extremely demanding accuracy and high requirements.
With diaphragm sensing element.

CE-, UL listed.
Supplied complete with PVC connecting tube of 2 m.

Accessories for QBM41 are identical to those for QBM3...

Data sheet	N1919_01
Operating voltage	DC 8...33 V
Analog output, signal	DC 4...20 mA
Sensing element	Pressure diaphragm
Pressure conneciton	Connecting branch, 6.2 mm dia.
Connection, electrical	Screw terminals
Mounting position	Membrane vertical, pressure connection nipples at the bottom
Degree of protection	IP54
Dimensions (W x H x D)	186 x 86 x 49 mm

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**

Note on max. permissible pressure: overpressure on one side.

Accessories for QBM..

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**

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QBM81..

Differential pressure monitor

Used as a flow switch or filter monitor in air ducts.

Supplied complete with set of 2 air duct connectors (plastic) and 2 m long PVC tube.

Data sheet	N1552
Digital outputs	1-pin Potential-free Switchover contact
Permissible operating pressure	7500 Pa
Ambient temperature, operation	-30...85 °C
Mounting position	Diaphragm vertical, pressure connection pointing downward
Digital output, switching voltage	DC 24 V / AC 24...250 V
Digital output, switching current	0.01...5 (3) A
Pressure conneciton	Connection branch, 6.2 mm dia.
Degree of protection	IP54
Dimension (Ø x L)	81 x 90 mm

Range overview QBM81..

Measuring range, pressure [Pa]	Stock No.	Product No.
20...300	BPZ:QBM81-3	**QBM81-3**
50...500	BPZ:QBM81-5	**QBM81-5**
100...1000	BPZ:QBM81-10	**QBM81-10**
500...2000	S55720-S125	**QBM81-20**
1000...5000	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**

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Pressure sensor for neutral and slightly aggressive liquids and gases (0...10 V) QBE2003-P..

With threaded connection G½" and plug DIN EN175301-803A.

Suited for use with oil-containing media.

Data sheet	A6V10432494
Operating voltage	AC 24 V DC 12...33 V
Analog output, signal	DC 0...10 V
Time constant	<2 ms
Pressure conneciton	External thread G½ "
Connection, electrical	Plug-in connection
Medium temperature	-15...125 °C
Max. permissible pressure	2.5 x scale end value (FS)
Mounting position	Any
Degree of protection	IP65
Dimension (Ø x L)	24 x 101 mm

Range overview QBE2003-P..

Measuring range, pressure	Stock No.	Product No.
0...100 kPa 0...1 bar	S55720-S290	**QBE2003-P1**
0...160 kPa 0...1.6 bar	S55720-S291	**QBE2003-P1.6**
0...250 kPa 0...2.5 bar	S55720-S292	**QBE2003-P2.5**
0...400 kPa 0...4 bar	S55720-S293	**QBE2003-P4**
0...600 kPa 0...6 bar	S55720-S294	**QBE2003-P6**
0...1 MPa 0...10 bar	S55720-S295	**QBE2003-P10**
0...1.6 MPa 0...16 bar	S55720-S296	**QBE2003-P16**
0...2.5 MPa 0...25 bar	S55720-S297	**QBE2003-P25**
0...4 MPa 0...40 bar	S55720-S298	**QBE2003-P40**
0...6 MPa 0...60 bar	S55720-S299	**QBE2003-P60**

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QBE2103-P..

Pressure sensor for neutral and slightly aggressive liquids and gases (4...20 mA)

With threaded connection G½" and plug DIN EN175301-803A.

Suited for use with oil-containing media.

Data sheet	A6V10432494
Operating voltage	DC 7...33 V
Analog output, signal	DC 4...20 mA
Time constant	<2 ms
Pressure conneciton	External thread G½ "
Connection, electrical	Plug-in connection
Medium temperature	-15...125 °C
Max. permissible pressure	2.5 x scale end value (FS)
Mounting position	Any
Degree of protection	IP65
Dimension (Ø x L)	24 x 101 mm

Range overview QBE2103-P..

Measuring range, pressure	Stock No.	Product No.
0...100 kPa 0...1 bar	S55720-S300	**QBE2103-P1**
0...160 kPa 0...1.6 bar	S55720-S301	**QBE2103-P1.6**
0...250 kPa 0...2.5 bar	S55720-S302	**QBE2103-P2.5**
0...400 kPa 0...4 bar	S55720-S303	**QBE2103-P4**
0...600 kPa 0...6 bar	S55720-S304	**QBE2103-P6**
0...1 MPa 0...10 bar	S55720-S305	**QBE2103-P10**
0...1.6 MPa 0...16 bar	S55720-S306	**QBE2103-P16**
0...2.5 MPa 0...25 bar	S55720-S307	**QBE2103-P25**
0...4 MPa 0...40 bar	S55720-S308	**QBE2103-P40**
0...6 MPa 0...60 bar	S55720-S309	**QBE2103-P60**

Accessories for QBE200..-P.. and QBE210..-P..

Product Title	Data sheet	Stock No.	Product No.
Connection kit to mount QBE2x03..	A6V10434028	S55720-S116	**AQB2001**
Mounting bracket for pressure sensor QBE2x03..	A6V10434028	S55720-S318	**AQB2004**

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Differential pressure sensor for liquids and gases

QBE61.3-DP..

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.

Not suitable for use with ammonia or freones.

For a smaller measuring range see QBE63-DP...
Note on max. permissible pressure: overpressure on one side.

Data sheet	N1923
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Sensing element	Pressure diaphragm
Pressure conneciton	External thread G ½ "
Connection, electrical	Screw-free terminals
Medium temperature	-15...80 °C
PN class	PN 40
Mounting position	Any
Degree of protection	IP54
Dimensions (W x H x D)	126 x 135 x 60 mm

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**

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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.

Not suitable for use with ammonia or freones.

Data sheet	N1920
Operating voltage	AC 24 V DC 20...30 V
Analog output, signal	DC 0...10 V
Pressure conneciton	Internal thread G 1/8 "
Connection, electrical	Screw terminals
Medium temperature	-10...80 °C
Mounting position	any
Degree of protection	IP65
Dimension (Ø x L)	65 x 94 mm

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.

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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.

Not suitable for use with ammonia or freones.

Data sheet	N1922
Operating voltage	AC 24 V DC 18...33 V
Analog output, signal	DC 0...10 V
Pressure conneciton	Internal thread G 1/8 "
Connection, electrical	Plug-in connection
Medium temperature	-15...80 °C
Degree of protection	IP65

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.

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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.

Not suitable for use with ammonia or freones.

Data sheet	N1922
Operating voltage	DC 11...33 V
Analog output, signal	DC 4...20 mA
Pressure conneciton	Internal thread G 1/8 "
Connection, electrical	Plug-in connection
Medium temperature	-15...80 °C
Degree of protection	IP65

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**

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Pressure sensor for refrigerants (0...10 V) QBE2004-P..U

With internally threaded pressure connection UNF7/16-20.

For use with all media, including ammonia.

Data sheet	A6V10434676
Operating voltage	AC 24 V DC 16...33 V
Current consumption	<4 mA
Analog output, signal	DC 0...10 V
Time constant	<2 ms
Pressure conneciton	Internal thread UNF7/16-20
Connection cable	3-wire
Cable length	1.5 m
Connection, electrical	Cable
Medium temperature	-40...135 °C
Max. permissible pressure	3 x scale end value (FS)
Mounting position	Any
Degree of protection	IP67
Dimension (Ø x L)	24 x 68 mm

Range overview QBE2004-P..

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	S55720-S310	**QBE2004-P10U**
-1...24 bar -100...2400 kPa	S55720-S311	**QBE2004-P25U**
-1...29 bar -100...2900 kPa	S55720-S312	**QBE2004-P30U**
-1...59 bar -100...5900 kPa	S55720-S313	**QBE2004-P60U**

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QBE2104-P..U

Pressure sensors for refrigerants (4...20 mA)

With internally threaded pressure connection UNF7/16-20.

For use with all media, including ammonia.

Data sheet	A6V10434676
Operating voltage	DC 8...33 V
Analog output, signal	DC 4...20 mA
Time constant	<2 ms
Pressure conneciton	Internal thread UNF7/16-20
Connection cable	2-wire
Cable length	1.5 m
Connection, electrical	Cable
Medium temperature	-40...135 °C
Max. permissible pressure	3 x scale end value (FS)
Mounting position	Any
Degree of protection	IP67
Dimension (Ø x L)	24 x 68 mm

Range overview QBE2104-P..

Measuring range, pressure	Stock No.	Product No.
-1...9 bar -100...900 kPa	S55720-S314	**QBE2104-P10U**
-1...24 bar -100...2400 kPa	S55720-S315	**QBE2104-P25U**
-1...29 bar -100...2900 kPa	S55720-S316	**QBE2104-P30U**
-1...59 bar -100...5900 kPa	S55720-S317	**QBE2104-P60U**

Accessories for QBE200..-P..U and QBE210..-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**

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Flow sensor for liquids in DN 10...25 pipes (plastic fitting, DC 0...10V) 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
Connection cable	2 m, with 3 pin plug M12x1
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Degree of protection	IP65

Range overview QVE2000.0..

Nominal size, piping	Connecting thread ["]	Measuring range [l/min]	Stock No.	Product No.
DN 10	G½	1.8...32	S55720-S189	**QVE2000.010**
DN 15	G¾	3.5...50	S55720-S190	**QVE2000.015**
DN 20	G1	5.0...85	S55720-S191	**QVE2000.020**
Dn 25	G1¼	9.0...150	S55720-S192	**QVE2000.025**

Flow sensor for liquids in DN 10...25 pipes (plastic fitting, DC 4...20 mA) 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
Connection cable	2 m, with 3 pin plug M12x1
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Material	Housing under pressure: Fiberglass-reinforced plastic PA6T / 6I, Sensor: ETFE
Degree of protection	IP65

Range overview QVE2100.0..

Nominal size, piping	Connecting thread ["]	Measuring range [l/min]	Stock No.	Product No.
DN 10	G½	1.8...32	S55720-S193	**QVE2100.010**
DN 15	G¾	3.5...50	S55720-S194	**QVE2100.015**
DN 20	G1	5.0...85	S55720-S195	**QVE2100.020**
DN 25	G1¼	9.0...150	S55720-S196	**QVE2100.025**

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QVE3000.0..

Flow sensor for liquids in DN 10...25 pipes (red brass fitting, DC 0...10V)

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
Connection cable	2 m, with 3 pin plug M12x1
Analog outputs	DC 0...10 V
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Material	Housing under pressure: red brass, Sensor: ETFE
Degree of protection	IP65

Range overview QVE3000.0..

Nominal size, piping	Connecting thread ["]	Measuring range [l/min]	Stock No.	Product No.
DN 10	G¾	1.8...32	S55720-S211	**QVE3000.010**
DN 15	G¾	3.5...50	S55720-S212	**QVE3000.015**
DN 20	G1	5.0...85	S55720-S213	**QVE3000.020**
DN 25	G1¼	9.0...150	S55720-S214	**QVE3000.025**

QVE3100.0..

Flow sensor for liquids in DN 10...25 pipes (red brass fitting, DC 4...20 mA)

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
Connection cable	2 m, with 3 pin plug M12x1
Analog outputs	DC 4...20 mA
Medium temperature	-15...125 °C
Ambient temperature, operation	-15...85 °C
Material	Housing under pressure: red brass, Sensor: ETFE
Degree of protection	IP65

Range overview QVE3100.0..

Nominal size, piping	Connecting thread ["]	Measuring range [l/min]	Stock No.	Product No.
DN 10	G¾	1.8...32	S55720-S215	**QVE3100.010**
DN 15	G¾	3.5...50	S55720-S216	**QVE3100.015**
DN 20	G1	5.0...85	S55720-S217	**QVE3100.020**
DN 25	G1¼	9.0...150	S55720-S218	**QVE3100.025**

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Flow switch for use in hydraulic systems, PN10, DN32...200

QVE1900

For monitoring operation of systems using liquids or gases.

Data sheet	N1592
Digital output, switching voltage	250 VAC
Digital output, switching current	15 (8) A
Connection, electrical	Screw terminals
Nominal size, piping	DN32 - DN200
Connecting thread	R 1 " thread
Digital outputs	1-pin Potential-free Changeover contact
Medium temperature	-20...120 °C
PN class	PN 10
Ambient temperature, operation	-20...85 °C
Material, valve body	Brass
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.

Maximum switching capacity AC 26 VA, DC 20 W

Data sheet	N1594
Digital output, switching voltage	230 VAC, 48 VDC
Digital output, switching current	1 A
Connection, electrical	Screw terminals
Type of fixing	Thread G ½ "
Nominal size, piping	DN20 - DN200
Connecting thread	G ½ " thread
Digital outputs	1-pin Potential-free On / Off
Medium temperature	-20...110 °C
PN class	PN 25
Ambient temperature, operation	-20...80 °C
Material, valve body	Brass
Degree of protection	IP65
Dimensions (W x H x D)	120 x 38 x 92 mm

Stock No.	Product No.
BPZ:QVE1901	**QVE1901**

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QVE1902.0..

Flow switch for liquids in piping DN 10...25

For monitoring the flow of liquid medium in HVAC plants

Maximum switching capacity AC 26 VA, DC 20 W

Data sheet	N1596
Digital output, switching voltage	AC 230 V, DC 48 V
Digital output, switching current	1 A
Type of fixing	Thread
Digital outputs	1-pin Potential-free reed contact
Medium temperature	-20...100 °C
Ambient temperature, operation	0...70 °C
Material	Piping: Brass, Switching unit: Polyamid, Housing and paddle system: PPO Noryl GFN3
Degree of protection	IP65

Range overview QVE1902.0..

Nominal size, piping	Connecting thread ["]	Qmax [l/min]	Stock No.	Product No.
DN 10	G⅜	20	S55720-S199	**QVE1902.010**
DN 15	G½	30	S55720-S200	**QVE1902.015**
DN 20	G¾	80	S55720-S201	**QVE1902.020**
DN 25	G1	130	S55720-S202	**QVE1902.025**

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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).

Sensor detached, ready wired, including pipe extension for different immersion lengths and mounting flange.

Data sheet	N1932
Operating voltage	AC / DC 24 V
Power consumption	5 VA
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
Connection, electrical	Screw terminals
Cable length	1 m
Immersion length	30...300 mm
Analog output, signal	DC 0...10 V DC 4...20 mA
Degree of protection	IP42
Dimensions (W x H x D)	86 x 43 x 117 mm

	Stock No.	Product No.
	BPZ:QVM62.1	**QVM62.1**

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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
Measuring range	0...1000 W/m²
Time constant	≤2 s
Connection, electrical	Screw terminals
Analog output, signal	DC 0...10 V DC 4...20 mA
Degree of protection	IP65
Dimensions (W x H x D)	51 x 92 x 46 mm

	Stock No.	Product No.
	BPZ:QLS60	**QLS60**

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Valves and actuators

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											Recommended media												
		2-port valve	3-port valve	4-port valve	6-port valve	PN class	Type of connection	Silicon-free grease	Closed circuits	Open circuits	Chilled water	Cooling water [1]	Drinking water	Low-temperature hot water	High-temperature hot water	Water glycol mixture	Saturated steam	Superheated steam	Heat transfer oil	Media containing mineral oils	Safety refrigerants	R744 (CO_2)	R717 (ammonia)
Globe valves	VDN../VEN../VUN..	■				10	ET		■		■			■		■							
	VD1..CLC	■				10	ET		■		■			■		■							
	VVP45..	■				16	ET		■		■			■		■							
	VXP45..		■			16	ET		■		■			■		■							
	VMP45..		■			16	ET		■		■			■		■							
	VVP47..	■				16	ET		■		■			■		■							
	VXP47..		■			16	ET		■		■			■		■							
	VMP47..		■			16	ET		■		■			■		■							
	VVG41..	■				16	ET	■	■	■	■	■		■	■	■	■	■					
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	VXG41..01 [4]		■			16	ET	■	■	■	■	■	■	■	■	■							
	VVG44..	■				16	ET	■	■		■			■		■							
	VXG44..		■			16	ET	■	■		■			■		■							
	VVG549..	■				25	ET		■		■	■		■	■	■							
	VVI46..	■				16	IT		■		■			■		■							
	VXI46..		■			16	IT		■		■			■		■							
	VVF22..	■				6	F	■	■		■			■	■	■							
	VXF22..		■			6	F	■	■		■			■	■	■							
	VVF32..	■				10	F	■	■		■			■	■	■							
	VXF32..		■			10	F	■	■		■			■	■	■							
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	VXF42..		■			16	F	■	■		■			■	■	■							
	VVF43..	■				16	F	■	■	■	■	■		■	■	■	■	■	■				
	VXF43..		■			16	F	■	■	■	■	■		■	■	■			■				
	VVF53..	■				25	F	■	■	■	■	■		■	■	■	■	■	■				
	VXF53..		■			25	F	■	■	■	■	■		■	■	■			■				
	VVF61..	■				40	F		■	■	■	■		■	■	■	■	■	■				
	VVF61..2	■				40	F		■	■	■	■		■	■	■			■				
	VXF61..		■			40	F		■	■	■	■		■	■	■			■				
	VXF61..2		■			40	F		■	■	■	■		■	■	■			■				
PICV	VPD../VPE..	■				10	ET		■		■			■		■							
	VPP46..	■				25	ET		■		■			■		■							
	VPI46..	■				25	IT		■		■			■		■							
	VPF43..	■				16	F	■	■		■			■		■							
	VPF53..	■				25	F	■	■		■			■		■							
Control ball valves	VAG61..	■				40	ET	■	■		■			■	■	■							
	VBG61..		■			40	ET	■	■		■			■	■	■							
	VAI61..	■				40	IT	■	■		■			■	■	■							
	VBI61..		■			40	IT	■	■		■			■	■	■							
	VWG41.20..				■	16	ET/IT	■	■		■			■	■	■							
Magnetic valves	MXG461..	■	■			16	ET		■		■			■		■							
	MXG461..P	■	■			16	ET		■										■	■			
	MXG461B..	■	■			16	ET		■	■	■	■	■	■		■							
	MXG461S..	■	■			16	ET		■	■	■	■		■		■							
	MXG462S..	■	■			16	ET		■	■	■	■		■		■							
	MXF461..	■	■			16	F		■		■			■		■							
	MXF461..P	■	■			16	F		■										■	■			
	M3P..FY	■	■			16	F		■		■			■		■							
	M3P..FYP	■	■			16	F		■										■	■			
	MVF461H..	■				16	F		■		■			■	■	■	■	■					
Rotary valves	VBG31..		■			10	ET		■					■	■								
	VBI31..		■			10	IT		■					■	■								
	VCI31..			■		10	IT		■					■	■								
	VBF21..		■			6	F		■					■	■								
	VKF41..	■				16	F		■		■			■	■	■							
	VKF46..	■				16	F		■	■	■	■		■		■							
	VAG60..	■				40	ET	■	■		■			■	■	■							
	VBG60..		■			40	ET	■	■		■			■	■	■							
	VAI60..	■				40	IT	■	■		■			■	■	■							
	VBI60..		■			40	IT	■	■		■			■	■	■							
Refrige-rant valves	M2FP03GX					32	–		■												■		■
	M3FK..LX..		■			32	S		■												■		
	M3FB..LX..		■			PS 43	S		■												■		
	MVL661..	■				PS 45	S		■												■	■	
	MVS661..N	■				PS 53	W		■												■	■	■

Recommendation: water treatment according to VDI 2035

[1] Open circuits; [2] Not for drinking water circuit (open circuit) [3] Variable air volume; [4] Sealed bypass; [5] As zone valve for floor heating systems

IT = internally threaded connection, ET = externally threaded connection, F = flanged connection, S = soldered connection, W = welded connection

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Type	Product	Permissible medium temperature [°C]	Generation: District heating	Generation: Boiler plants	Generation: Chiller plants	Generation: Cooling towers [1]	Distribution: Domestic hot water [2]	Distribution: Heating groups	Distribution: Air handling units	Consumption/Use: Floor heating	Consumption/Use: Radiators	Consumption/Use: Chilled ceilings	Consumption/Use: Heated and chilled ceilings	Consumption/Use: VAV [3]	Consumption/Use: Fan coil units	Consumption/Use: Zone control
Globe valves	VDN../VEN../VUN..	1 … 120									■					
Globe valves	VD1..CLC	1 … 110								■		■		■	■	■
Globe valves	VVP45..	1 … 110	■	■			■	■	■	■		■		■	■	■
Globe valves	VXP45..	1 … 110		■			■	■	■	■				■	■	■
Globe valves	VMP45..	1 … 110												■	■	■
Globe valves	VVP47..	1 … 110								■		■		■	■	■
Globe valves	VXP47..	1 … 110								■				■	■	■
Globe valves	VMP47..	1 … 110												■	■	■
Globe valves	VVG41..	-25 … 150	■	■	■		■	■	■							
Globe valves	VXG41..	-25 … 150		■	■		■	■	■							
Globe valves	VXG41..01 [4]	-25 … 150		■	■		■	■	■							
Globe valves	VVG44..	1 … 120	■	■	■		■	■	■							
Globe valves	VXG44..	1 … 120		■	■		■	■	■							
Globe valves	VVG549..	1 … 130	■	■												
Globe valves	VVI46..	1 … 110								■		■		■	■	■
Globe valves	VXI46..	1 … 110								■		■		■	■	■
Globe valves	VVF22..	-10 … 130		■	■		■	■	■							
Globe valves	VXF22..	-10 … 130		■	■		■	■	■							
Globe valves	VVF32..	-10 … 150	■	■	■		■	■	■							
Globe valves	VXF32..	-10 … 150		■	■		■	■	■							
Globe valves	VVF42..	-10 … 150	■	■	■		■	■	■							
Globe valves	VXF42..	-10 … 150		■	■		■	■	■							
Globe valves	VVF43..	-20 … 220	■	■	■		■	■	■							
Globe valves	VXF43..	-20 … 220		■	■		■	■	■							
Globe valves	VVF53..	-20 … 220	■	■	■		■	■	■							
Globe valves	VXF53..	-20 … 220		■	■		■	■	■							
Globe valves	VVF61..	-25 … 220	■	■	■		■	■	■							
Globe valves	VVF61..2	220 … 350		■				■								
Globe valves	VXF61..	-25 … 220		■	■		■	■	■							
Globe valves	VXF61..2	220 … 350		■				■								
PICV	VPD../VPE..	1 … 90									■	■		■	■	■
PICV	VPP46..	1 … 110	■					■	■	■ [5]		■		■	■	■
PICV	VPI46..	1 … 110	■					■	■	■ [5]		■		■	■	■
PICV	VPF43..	1 … 120	■					■	■							
PICV	VPF53..	1 … 120	■					■	■							
Control ball valves	VAG61..	-10 … 120					■	■	■			■		■	■	■
Control ball valves	VBG61..	-10 … 120					■	■	■						■	■
Control ball valves	VAI61..	-10 … 120					■	■	■			■		■	■	■
Control ball valves	VBI61..	-10 … 120					■	■	■						■	■
Control ball valves	VWG41.20..	1 … 90											■			
Magnetic valves	MXG461..	1 … 130	■		■		■	■	■							
Magnetic valves	MXG461..P	1 … 130						■								
Magnetic valves	MXG461B..	-20 … 130			■		■	■								
Magnetic valves	MXG461S..	1 … 130			■			■	■							
Magnetic valves	MXG462S..	-20 … 130			■			■	■							
Magnetic valves	MXF461..	1 … 130	■		■		■	■	■							
Magnetic valves	MXF461..P	1 … 130						■								
Magnetic valves	M3P..FY	1 … 120	■		■		■	■	■							
Magnetic valves	M3P..FYP	1 … 120						■								
Magnetic valves	MVF461H..	1 … 180	■	■	■		■	■	■							
Rotary valves	VBG31..	1 … 120		■				■								
Rotary valves	VBI31..	1 … 120		■				■								
Rotary valves	VCI31..	1 … 120		■				■								
Rotary valves	VBF21..	1 … 120		■				■								
Rotary valves	VKF41..	-10 … 120		■	■			■								
Rotary valves	VKF46..	-10 … 120		■	■	■	■	■								
Rotary valves	VAG60..	-10 … 120		■	■		■	■								
Rotary valves	VBG60..	-10 … 120		■	■		■	■								
Rotary valves	VAI60..	-10 … 120		■	■		■	■								
Rotary valves	VBI60..	-10 … 120		■	■		■	■								
Refrigerant valves	M2FP03GX	-40 … 100			■											
Refrigerant valves	M3FK..LX..	-40 … 120			■											
Refrigerant valves	M3FB..LX..	-40 … 120			■											
Refrigerant valves	MVL661..	-40 … 120			■											
Refrigerant valves	MVS661..N	-40 … 120			■											

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Threaded globe valves

Typical applications	Actuators	Data sheet	RTN51/RTN51G	RTN71	RTN81
– Radiators	RTN..	N2111			

Typical applications	Actuators	Data sheet			4.5 mm	2.5 mm	4.5 mm
– Radiators	STA.. SSA..	N4884 N4893			100 N	100 N	90 N
	Operating voltage	Positioning signal	Positioning time [s]				
	AC 230 V	2-position	210		STA23	–	STA23HD [1]
		3-position	150		–	SSA31	–
	AC 24 V	3-position	150		–	SSA81	–
		0...10 V	270 [2]		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	–	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

Presettings for radiator valves VEN... VDN... VUN..

k_v values [m³/h] at the different preadjusted positions (XP=2K)

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 (k_{vs})
VDN110/VDN210/VEN110/VEN210	0.072	0.17	0.24	0.28	0.37	0.43	0.63
VDN115/VDN215/VEN115/VEN215	0.07	0.17	0.28	0.36	0.45	0.50	0.89
VDN120/VDN220/VEN120/VEN220	0.22	0.35	0.44	0.52	0.60	0.71	1.41
VUN210	0.14	0.26	0.34	0.39	0.40	0.43	0.60
VUN215	0.13	0.22	0.30	0.39	0.45	0.50	0.77

Threaded globe valves

Typical applications	Actuators	Data sheet			4.5 mm	2.5 mm
– Chilled ceilings	STA.. SSA..	N4884 N4893			100 N	100 N
	Operating voltage	Positioning signal	Positioning time [s]			
	AC 230 V	2-position	210		STA23	–
		3-position	150		–	SSA31
	AC 24 V	3-position	150		–	SSA81
		0...10 V	270 [2]		STA63	–
	AC/DC 24 V	2-position/PDM	270		STA73	–
		0...10 V	34		–	SSA61
	Normally open/normally closed (for radiator valves)				NC	–

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

[1] Optimized for floor heating systems
[2] In control mode (warm-up time) min. running time approx. 30 s/mm
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)

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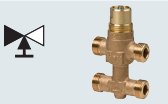
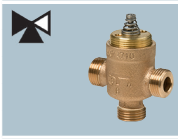
Threaded globe valves

Typical applications	Actuators	Data sheet			5.5 mm	
– Floor heating – Chilled ceilings – VAV – Fan coil units – Zone control	SSB..	N4891			200 N	200 N
	Operating voltage	Positioning signal	Positioning time [s]	Auxiliary switch SSB..1.1		
	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	1...110 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4845					
	VVP45.10-.. [1]	10	G ½B	0.25 / 0.4 / 0.63 / 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 / 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 / 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

Typical applications	Actuators	Data sheet			4.5 mm	2.5 mm	
– Chilled ceilings – VAV – Fan coil units	STP.. SFP.. SSP..	N4884 N4865 N4864			100 N	135 N	160 N
	Operating voltage	Positioning signal	Positioning time [s]	Spring return function [s]			
	AC 230 V	2-position	210	–	STP23	–	–
		2-position	10	30-50	–	SFP21/18	–
		3-position	150	–	–	–	SSP31
	AC 24 V	2-position	10	30-50	–	SFP71/18	–
		3-position	43	–	–	–	SSP81.04
		3-position	150	–	–	–	SSP81
		0...10 V	270 [2]	–	STP63	–	–
	AC/DC 24 V	2-position/PDM	270	–	STP73	–	–
		0...10 V	34	–	–	–	SSP61

PN 16	1...110 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4847							
	VVP47.10-.. [1]	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
	VXP47.15-2.5	15	G ¾B	2.5	–	150	–	300
	VXP47.20-4	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 12

VVP45..N with Serto compression fittings, k_{vs} = 2.5 / 4 / 6.3 m³/h
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
[1] .. = k_{vs} value
[2] In control mode (warm-up time) min. running time approx. 30 s/mm

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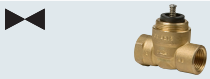
Threaded globe valves

Typical applications	Actuators	Data sheet			2.5 mm		4.5 mm	2.5 mm
– Floor heating – Fan coil units – Zone control	**SFA..** **SUA21/1** **STA..** **SSA31.04** [1]	N4863 N4830 N4884 N4860			200 N	150 N	100 N	160 N
	Operating voltage	**Positioning signal**	**Positioning time [s]**	**Spring return function [s]**				
	AC 230 V	2-position	10	30-50	**SFA21/18**	–	–	–
		2-position	210	–	–	–	**STA23**	–
		2-position/SPST [2]	10	–	–	**SUA21/3**	–	–
		3-position/SPDT [2]	43	–	–	–	–	**SSA31.04**
	AC 24 V	2-position	10	30-50	**SFA71/18**	–	–	–
		0...10 V	270 [3]	–	–	–	**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 [4]	15	Rp ½	2	–	300	–	300	–	200
	VXI46.20 [4]	20	Rp ¾	3.5	–	300	–	300	–	200
	VXI46.25 [4]	25	Rp 1	5	–	300	–	300	–	200
	VXI46.25T [5]	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	–
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)
		[STA.., NC]	[STA.., NC]	–	[STA.., NC]	–	[STA.., NC]	[STA.., NC]
		[STP.., NO]	–	[STP.., NO]	–	[STP.., NO]	[STP.., NO]	[STP.., NO]
Standard PVC cables	1 m				**ASA23U10**	**ASP23U10**		
	2 m	**ASY23L20**	**ASY6AL20**	**ASY6PL20**			**ASY23L20LD**	
	3 m							**ASY23L30B**
	5 m	**ASY23L50**						**ASY23L50B**
	7 m	**ASY23L70**						
	10 m	**ASY23L100**						
	15 m	**ASY23L150**						
Halogen-free cables	2 m	**ASY23L20HF**	**ASY6AL20HF**	**ASY6PL20HF**				
	5 m	**ASY23L50HF**						
	10 m	**ASY23L100HF**						
Actuator								
STA73/00		■	■		■		■	
STA23/00		■			■			
STP73/00		■		■		■	■	
STP23/00		■				■		
STA73PR/00 [6]		■			■		■	
STP73PR/00 [6]		■				■	■	
STA73MP/00 [7]		■	■		■		■	
STA23MP/00 [7]		■			■			
STA73B/00								■
STA23B/00								■

[1] Not suited for radiator valves
[2] SPST = single-pole single-throw, SPDT = single-pole double-throw
[3] In control mode (warm-up time) min. running time approx. 30 s/mm
[4] 70% k_{vs} in bypass, leakage rate in bypass 2...5% of k_{vs} value
[5] 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.**
[6] Actuators ideal for parallel running. Pulse duration modulation (PDM) in connection with Siemens room controllers of the Desigo™ range and room thermostats.
[7] Multipack with 50 actuators (OEM) NC: normally closed, NO: normally open

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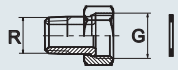
Threaded globe valves

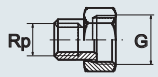
Typical applications	Actuators	Data sheet
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units	SAX.. SKD.. SKB..	N4501 N4561 N4564

Operating voltage	Positioning signal	Positioning time [s]			Spring return function [s]		20 mm		
		SAX	SKD	SKB	SKD	SKB	800 N	1000 N	2800 N
AC 230 V	3-position	120	120	120	–	–	**SAX31.00**	**SKD32.50**	**SKB32.50**
	3-position	–	120	120	8	10	–	**SKD32.51**	**SKB32.51**
	3-position	30	–	–	–	–	**SAX31.03**	–	–
	3-position	–	30	–	8	–	–	**SKD32.21**	–
AC 24 V [1]	3-position	120	120	120	–	–	**SAX81.00**	**SKD82.50**	**SKB82.50**
	3-position	–	120	120	8	10	–	**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	15	10	–	**SKD62**	**SKB62**
AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	–	**SAX61.03**	–	–

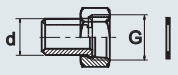
PN 16	-25...150 °C [2]			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4363		N4463									
	VVG41.11..12		–	–	15	G 1B	0.63 / 1	1600	800	1600	800	1600	800
	VVG41.13		–	**VXG41.1301**	15	G 1B	1.6	1600	800	1600	800	1600	800
	VVG41.14		–	**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

Union nuts for threaded valves [3]





Type Set of 2	Type Set of 3	G [inch]	R, Rp [inch]	Material
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 Set of 2	G [inch]	Ø d [mm]	Material
ALS152	G ¾B	21.3	Steel, weldable
ALS202	G 1B	26.8	Steel, weldable
ALS252	G 1¼B	33.7	Steel, weldable

[1] SAX81..: AC/DC 24 V;
[2] SAX.. max. 130 °C;
[3] 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

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Threaded globe valves

Typical applications	Actuators	Data sheet		Spring return function [s]	5.5 mm		
– Boiler plants – Domestic hot water – Heating groups – Air handling units	SAS..	N4581	400N				
	Operating voltage	Positioning signal	Positioning time [s]	SQS..5.5/ SAS..1.3/5			
	AC 230 V	3-position	120	–	**SAS31.00**	–	–
		3-position	30	–	**SAS31.03**	–	–
		3-position	120	28	–	**SAS31.50**	–
		3-position	30	14	–	**SAS31.53**	–
	AC/DC 24 V	0...10 V,	30	–	**SAS61.03**	–	–
		4...20 mA,	30	14	–	–	**SAS61.33**
		0...1000 Ω	30	14	–	**SAS61.53**	–
		3-position	120	–	**SAS81.00**	–	–
		3-position	30	–	**SAS81.03**	–	–
		3-position	30	14	–	–	**SAS81.33**

PN 16	1...120 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4364		N4464					
	VVG44.15-.. [1]		**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

Typical applications	Actuators	Data sheet			5.5 mm
– Boiler plants – Heating groups – Air handling units	SSC..	N4895			300 N
	Operating voltage	Positioning signal	Positioning time [s]	Spring return function [s]	
	AC 230 V	3-position	150	–	**SSC31**
	AC 24 V	3-position	150	–	**SSC81**
	AC/DC 24 V	0...10 V	30	–	**SSC61**
		0...10 V	30	30	**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

Typical applications	Actuators	Data sheet			Spring return function [s]	5.5 mm	
– District heating – Boiler plants	SAT..	N4584	300N				
	Operating voltage	Positioning signal	Positioning time [s]				
	AC 230 V	3-position	8		–	**SAT31.008**	–
		3-position	15		8	–	**SAT31.51**
	AC/DC 24 V	0...10 V, 4...20 mA, 0...1000 Ω	8		–	**SAT61.008**	–
			15		8	–	**SAT61.51**

PN 25	1...130 °C	DN	G [inch]	k_{vs}	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4380					
	VVG549.15-.. [1]	15	G ¾B	0.25 / 0.4 / 0.63	2500	1200
	VVG549.15-..	15	G ¾B	1 / 1.6 / 2.5	2000	1200
	VVG549.20-4K	20	G 1B	5	1600	1200
	VVG549.25-6.3K	25	G 1¼B	6.3	1600	1200

[1] .. = insert k_{vs} value

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Flanged globe valves

Typical applications	Actuators	Data sheet				Spring return function [s]		20 mm			40 mm
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units	**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/C	SKD	SKB/C				
	AC 230 V	3-position	120	120	120	–	–	**SAX31.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
		3-position	–	120	120	8	10/18	**–**	**SKD32.51**	**SKB32.51**	**SKC32.61**
		3-position	30	–	–	–	–	**SAX31.03**	**–**	**–**	**–**
		3-position	–	30	–	8	–	**–**	**SKD32.21**	**–**	**–**
	AC 24 V [1]	3-position	120	120	120	–	–	**SAX81.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
		3-position	–	120	120	8	10/18	**–**	**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	15	10/20	**–**	**SKD62**	**SKB62**	**SKC62**
	AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	–	**SAX61.03**	**–**	**–**	**–**

PN 6	-10...130 °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	N4401		N4401										
	VVF22.25-.. [2]		**VXF22.25-..**	25	2.5 / 4 / 6.3 / 10	600	300	600	300	600	300	–	–
	VVF22.40-..		**VXF22.40-..**	40	16 / 25	550	300	600	300	600	300	–	–
	VVF22.50-40		**VXF22.50-40**	50	40	350	300	450	300	600	300	–	–
	VVF22.65-63		**VXF22.65-63**	65	63	200	150	250	200	600	300	–	–
	VVF22.80-100		**VXF22.80-100**	80	100	125	75	175	125	450	300	–	–
	VVF22.100-160		**VXF22.100-160**	100	160	–	–	–	–	–	–	300	250
PN 10	-10...150 °C [3]			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	N4402		N4402										
	VVF32.15-.. [2]		**VXF32.15-..**	15	1.6 / 2.5 / 4	1000	400	1000	400	1000	400	–	–
	VVF32.25-..		**VXF32.25-..**	25	6.3 / 10	1000	400	1000	400	1000	400	–	–
	VVF32.40-..		**VXF32.40-..**	40	16 / 25	550	400	750	400	1000	400	–	–
	VVF32.50-40		**VXF32.50-40**	50	40	350	300	450	400	1000	400	–	–
	VVF32.65-63		**VXF32.65-63**	65	63	200	150	250	200	700	400	–	–
	VVF32.80-100		**VXF32.80-100**	80	100	125	75	175	125	450	400	–	–
	VVF32.100-160		**VXF32.100-160**	100	160	–	–	–	–	–	–	300	250
	VVF32.125-250		**VXF32.125-250**	125	250	–	–	–	–	–	–	190	160
	VVF32.150-400		**VXF32.150-400**	150	400	–	–	–	–	–	–	125	100
PN 16	-10...150 °C [3]			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	N4403		N4403										
	VVF42.15-.. [2]		**VXF42.15-..**	15	1.6 / 2.5 / 4	1600	400	1600	400	1600	400	–	–
	VVF42.20-6.3		**VXF42.20-6.3**	20	6.3	1600	400	1600	400	1600	400	–	–
	VVF42.25-..		**VXF42.25-..**	25	6.3 / 10	1600	400	1600	400	1600	400	–	–
	VVF42.32-16		**VXF42.32-16**	32	16	900	400	1200	400	1600	400	–	–
	VVF42.40-..		**VXF42.40-..**	40	16 / 25	550	400	750	400	1600	400	–	–
	VVF42.50-..		**VXF42.50-..**	50	31.5 / 40	350	300	450	400	1200	400	–	–
	VVF42.65-..		**VXF42.65-..**	65	50 / 63	200	150	250	200	700	400	–	–
	VVF42.80-..		**VXF42.80-..**	80	80 / 100	125	75	175	125	450	400	–	–
	VVF42.100-..		**VXF42.100-..**	100	125 / 160	–	–	–	–	–	–	300	250
	VVF42.125-..		**VXF42.125-..**	125	200 / 250	–	–	–	–	–	–	190	160
	VVF42.150-..		**VXF42.150-..**	150	315 / 400	–	–	–	–	–	–	125	100
	VVF42.50-40K		–	50	40	1600	400	1600	400	1600	400	–	–
	VVF42.65-63K		–	65	63	1600	400	1600	400	1600	400	–	–
	VVF42.80-100K		–	80	100	1600	400	1600	400	1600	400	–	–
	VVF42.100-160K		–	100	160	–	–	–	–	–	–	1600	400
	VVF42.125-250K		–	125	250	–	–	–	–	–	–	1600	400
	VVF42.150-360K		–	150	360	–	–	–	–	–	–	1600	400

[1] SAX81..: AC/DC 24 V
[2] .. = insert k_{vs} value
[3] SAX.. max. 130 °C
VVF43.., VXF43..: For DN 15...50 and k_{vs} values ≤ 40 m³/h see V..F53..

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Flanged globe valves

Typical applications	Actuators	Data sheet
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units	**SAX..**	N4501
	SKD..	N4561
	SKB..	N4564
	SKC..	N4566

Operating voltage	Positioning signal	Positioning time [s]			Spring return function [s]		20 mm			40 mm
		SAX	SKD	SKB/C	SKD	SKB/C	800 N	1000 N	2800 N	2800 N
AC 230 V	3-position	120	120	120	–	–	**SAX31.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
	3-position	–	120	120	8	10/18	–	**SKD32.51**	**SKB32.51**	**SKC32.61**
	3-position	30	–	–	–	–	**SAX31.03**	–	–	–
	3-position	–	30	–	8	–	–	**SKD32.21**	–	–
AC 24 V [1]	3-position	120	120	120	–	–	**SAX81.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
	3-position	–	120	120	8	10/18	–	**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	15	10/20	–	**SKD62**	**SKB62**	**SKC62**
AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	–	**SAX61.03**	–	–	–

PN 16 Data sheet	-20...220 °C N4404		N4404	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]
	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	–	–	–	–	–	–	190	160
	VVF43.125-250		**VXF43.125-250**	125	250	–	–	–	–	–	–	190	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
	VVF43.100-150K		–	100	150	–	–	–	–	–	–	1600	800
	VVF43.125-220K		–	125	220	–	–	–	–	–	–	1600	800
	VVF43.150-315K		–	150	315	–	–	–	–	–	–	1600	800
	VVF43.200-450K		–	200	450							1200	800
	VVF43.250-630K		–	250	630							1000	800

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[1] SAX81..: AC/DC 24 V

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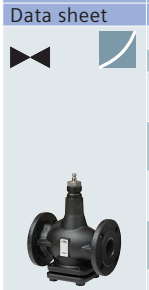
Flanged globe valves

Typical applications	Actuators	Data sheet
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units	**SAX..**	N4501
	SKD..	N4561
	SKB..	N4564
	SKC..	N4566

Operating voltage	Positioning signal	Positioning time [s]			Spring return function [s]		20 mm			40 mm
		SAX	SKD	SKB/C	SKD	SKB/C	800 N	1000 N	2800 N	2800 N
AC 230 V	3-position	120	120	120	–	–	**SAX31.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
	3-position	–	120	120	8	10/18	–	**SKD32.51**	**SKB32.51**	**SKC32.61**
	3-position	30	–	–	–	–	**SAX31.03**	–	–	–
	3-position	–	30	–	8	–	–	**SKD32.21**	–	–
AC 24 V [1]	3-position	120	120	120	–	–	**SAX81.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
	3-position	–	120	120	8	10/18	–	**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	15	10/20	–	**SKD62**	**SKB62**	**SKC62**
AC/DC 24 V	0...10 V, 4...20 mA	30	–	–	–	–	**SAX61.03**	–	–	–

PN 25	-20...220 °C [2]			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-.. [3]		–	15	0.16 / 0.2 / 0.25 / 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-..**	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	–	–	–	–	–	–	190	160
	VVF53.150-400		**VXF53.150-400**	150	400	–	–	–	–	–	–	125	100
	VVF53.50-40K		–	50	36	–	–	2500	1250	2500	1250	–	–
	VVF53.65-63K		–	65	63	–	–	–	–	–	–	2500	1250
	VVF53.80-100K		–	80	100	–	–	–	–	–	–	2500	1250
	VVF53.100-150K		–	100	150	–	–	–	–	–	–	2500	1250
	VVF53.125-220K		–	125	220	–	–	–	–	–	–	2500	1250
	VVF53.150-315K		–	150	315	–	–	–	–	–	–	2500	1250
	VVF53.200-450K		–	200	450							1200	800
	VVF53.250-630K		–	250	630							1000	800
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** [4]		–	15	0.19 / 0.3 / 0.45	–	–	4000	1600	4000	1600	–	–
	VVF61.12..13 [4]		–	15	0.7 / 1.2	–	–	4000	1600	4000	1600	–	–
	VVF61.14..15 [4]		**VXF61.14..15** [4]	15	1.9 / 3	–	–	4000 –	1600 1200	4000 –	1600 1600	–	–
	VVF61.23..25 [4]		**VXF61.24..25** [4]	25	3 / 5 / 7.5 5 / 7.5	–	–	2250 –	1600 1200	4000 –	1600 1600		
	VVF61.39..40 [4]		**VXF61.39..40** [4]	40	12 / 19	–	–	–	–	4000 –	1600 1200	–	–
	VVF61.49..50 [4]		**VXF61.49..50** [4]	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] SAX.. max. 130 °C
[3] .. = insert k_{vs} value
[4] For 09...15, 14...15, 23...25, 24...25, 39...40, 49...50 = insert number in place of k_{vs} value

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Threaded combi valves

Typical applications	Actuators	Data sheet			4.5 mm	2.5 mm
– Radiators – Chilled ceilings – Fan coil units	**RTN..** **STA..** **SSA..**	N2111 N4884 N4893			100 N	100 N
	Operating voltage	**Positioning signal**	**Positioning time [s]**			
	AC 230 V	2-position	210		–	**STA23**	–
		3-position	150		–	–	**SSA31**
	AC 24 V	3-position	150		–	–	**SSA81**
		0...10 V	270 [1]		–	**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} [2]			Δp_{min} [kPa]			Δp_{max} [kPa]
Data sheet	N2185		[inch]	[l/h]	[l/h]						
VPD110A-..[2]	10	Rp/R ⅜	25...318	45	90	145	6 [3]	8 [3]	10 [3]	200
VPD115A-..	15	Rp/R ½	25...318	45	90	145	6 [3]	8 [3]	10 [3]	200
VPD110B-200	10	Rp/R ⅜	95...483	200			20			200
VPD115B-200	15	Rp/R ½	95...483	200			20			200
VPE110A-..	10	Rp/R ⅜	25...318	45	90	145	6 [3]	8 [3]	10 [3]	200
VPE115A-..	15	Rp/R ½	25...318	45	90	145	6 [3]	8 [3]	10 [3]	200
VPE110B-200	10	Rp/R ⅜	95...483	200			20			200
VPE115B-200	15	Rp/R ½	95...483	200			20			200

Typical applications	Actuators	Data sheet				4.5 mm	2.5 / 5 mm	15 mm
– Heating groups – Air handling units – Chilled ceilings – VAV – Fan coil units – Zone control	**STA.,** **SSA..** **SAY..P..**	N4884 N4893 AGV10628469				100 N	100 N	200 N
	Operating voltage	**Positioning signal**	**Positioning time [s]**					
			STA/STP	SSA	SAY			
	AC 230 V	3-position	–	150/300	30	–	**SSA31**	**SAY31P03**
		2-position	210	–	–	**STA23**	–	–
	AC 24 V	0...10 V	270 [1]	–	30	**STA63**	–	**SAY61P03**
	AC/DC 24 V	3-position	–	150/300	30	–	**SSA81**	**SAY81P03**
		2-position/PDM	270	–	–	**STA73**	–	–
		0...10 V	–	34/70	–	–	**SSA61/SSA61EP**	–

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_{max} [kPa]	Δp_{min} [kPa]	Δp_{max} [kPa]	Δp_{min} [kPa]	Δp_{max} [kPa]
Data sheet	N4855											
	VPP46.10L0.2	**VPP46.10L0.2Q**	10	½	30	200	16	600	16	600	–	–
	VPP46.15L0.2	**VPP46.15L0.2Q**	15	¾	30	200	16	600	16	600	–	–
	VPP46.15L0.6	**VPP46.15L0.6Q**	15	¾	100	575	19	600	19	600	–	–
	VPP46.20F1.4	**VPP46.20F1.4Q**	20	1	200	1190	21	600	–	–	–	–
			20	1	220	1330	–	–	22	600	–	–
	VPP46.25F1.8	**VPP46.25F1.8Q**	25	1 ¼	204	1470	39	600	–	–	–	–
			25	1 ¼	250	1800	–	–	39	600	–	–
	VPP46.32F4	**VPP46.32F4Q**	32	1 ½	450	3270	24	600	–	–	–	–
			32	1 ½	550	4001	–	–	28	600	–	–

PN 25 1...110 °C	Without pressure 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]	Δp_{min} [kPa]	Δp_{max} [kPa]
Data sheet	N4855											
	VPI46.15L0.2	**VPI46.15L0.2Q**	15	½	30	200	16	600	16	600	–	–
	VPI46.15L0.6	**VPI46.15L0.6Q**	15	½	100	575	19	600	19	600	–	–
	VPI46.20F1.4	**VPI46.20F1.4Q**	20	¾	200	1190	21	600	–	–	–	–
			20	¾	220	1330	–	–	22	600	–	–
	VPI46.25F1.8	**VPI46.25F1.8Q**	25	1 ¼	204	1470	39	600	–	–	–	–
			25	1 ¼	250	1800	–	–	39	600	–	–
	VPI46.32F4	**VPI46.32F4Q**	32	1 ½	450	3270	24	600	–	–	–	–
			32	1 ½	550	4001	–	–	28	600	–	–
	–	**VPI46.40F9.5Q**	40	1 ½	1370	9500	–	–	–	–	25	600
	–	**VPI46.50F12Q**	50	2	1400	11500	–	–	–	–	36	600

[1] In control mode (warm-up time) min. running time approx. 30 s/mm
[2] .. = insert V_{nom} V_{nom} = factory setting = volumetric flow at 0.5 mm stroke or setting mark 3 of the presetting
[3] Δp_{min} is valid for V_{nom} 45/90/145 l/h

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Flanged combi valves

Typical applications	Actuators	Data sheet
– District heating – Heating groups – Air handling units	**SAX..P..**	N4509
	SQV91P..	N4833
	SAV..P..	N4510

Operating voltage	Positioning signal	Positioning time [s] SAX	SQV	SAV	Spring return function [s]	20 mm 500 N	20 / 40 mm 1100 N	40 mm 1100 N
AC 230 V	3-position	30	–	120	–	**SAX31P03**	–	**SAV31P00**
	3-position	–	40/80	–	30	–	**SQV91P40** [3]	–
	3-position	–	40/80	–	30	–	**SQV91P30** [4]	–
AC/DC 24 V	3-position	30	–	120	–	**SAX81P03**	–	**SAV81P00**
	3-position	–	40/80	–	30	–	**SQV91P40** [3]	–
	3-position	–	40/80	–	30	–	**SQV91P30** [4]	–
	0...10 V, 4...20 mA	30	–	120	–	**SAX61P03**	–	**SAV61P00**
	0...10 V, 4...20 mA	–	40/80	–	30	–	**SQV91P40** [3]	–
	0...10 V, 4...20 mA	–	40/80	–	30	–	**SQV91P30** [4]	–

PN 16 Data sheet 1...120 °C N4315	DN	V_{min} [m³/h]	V_{100} [m³/h]	Δp_{min} [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]
VPF43.50F16	50	2.3	15	35	600	600	–
VPF43.50F25	50	4.3	25	70	600	600	–
VPF43.65F24	65	4.4	24	35	600	600	–
VPF43.65F35	65	6	35	70	600	600	–
VPF43.80F35	80	5.3	34	35	600	600	–
VPF43.80F45	80	7	43	70	600	600	–
VPF43.100F70	100	12.1	68	35	–	600	600
VPF43.100F90	100	14.8	90	75	–	600	600
VPF43.125F110	125	18.5	110	35	–	600	600
VPF43.125F135	125	23	135	53	–	600	600
VPF43.150F160	150	25.6	148	35	–	600	600
VPF43.150F200	150	32	195	65	–	600	600

PN 25 Data sheet 1...120 °C N4316	DN	V_{min} [m³/h]	V_{100} [m³/h]	Δp_{min} [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]	$\Delta p_s/\Delta p_{max}$ [kPa]
VPF53.50F16	50	2.3	15	35	600	600	–
VPF53.50F25	50	4.3	25	70	600	600	–
VPF53.65F24	65	4.4	24	35	600	600	–
VPF53.65F35	65	6	35	70	600	600	–
VPF53.80F35	80	5.3	34	35	600	600	–
VPF53.80F45	80	7	43	70	600	600	–
VPF53.100F70	100	12.1	68	35	–	600	600
VPF53.100F90	100	14.8	90	75	–	600	600
VPF53.125F110	125	18.5	110	35	–	600	600
VPF53.125F135	125	23	135	53	–	600	600
VPF53.150F160	150	25.6	148	35	–	600	600
VPF53.150F200	150	32	195	65	–	600	600

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[1] For equal-percentage valve characteristic;
[2] For AC 230 V use of accessory ASP1.1 required; [3] Fail-safe function: valve closed; [4] Fail-safe function: valve open

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2-port and 3-port control ball valves with rotary actuators

Typical applications	Actuators	Data sheet					Spring return function [s]	2 Nm	2 Nm	7 Nm	10 Nm
– Heating plants – Ventilation and air conditioning plants – Heat and cooling generation – Heat and cooling distribution	**GQD..9A** **GSD..9A** **GMA..9E** **GLB..9E**	N4659 A6V10636056 N4658 N4657									
	Operating voltage	**Positioning signal**	**Positioning time [s]**								
			GQD	GSD	GMA	GLB					
	AC 100...240 V	(2)/3-position	–	30	–	150	–	–	**GSD341.9A**	–	**GLB341.9E**
	AC/DC 24 V	(2)/3-position	–	30	–	150	–	–	**GSD141.9A**	–	**GLB141.9E**
		0...10 V	–	30	–	150	–	–	**GSD161.9A**	–	**GLB161.9E**
	AC/DC 24 V	(2)/3-position	30	–	90	–	15	**GQD131.9A**	–	**GMA131.9E**	–
		0...10 V	30	–	90	–	15	**GQD161.9A**	–	**GMA161.9E**	–

PN 40	-10...120 °C			DN	G [Zoll]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4211		N4211							
	VAG61.15-..[1]		**VBG61.15-..**	15	G 1B	1,6 / 2,5 / 4 / 6,3	1400	350	1400	350
	VAG61.15-..		–	15	G 1B	1	1400	350	1400	350
	VAG61.20-..		**VBG61.20-..**	20	G 1 ¼B	4 / 6,3	1400	350	1400	350
	VAG61.20-10		–	20	G 1 ¼B	10	1400	350	1400	350
	VAG61.25-10		**VBG61.25-10**	25	G 1 ½B	10	1400	350	1400	350
	VAG61.25-..		–	25	G 1 ½B	6,3 / 16	1400	350	1400	350
	VAG61.32-10		–	32	G 2B	10	–	–	1000	350
	VAG61.32-16		**VBG61.32-16**	32	G 2B	16	–	–	1000	350
	VAG61.32-25		–	32	G 2B	25	–	–	1000	350
	VAG61.40-16		–	40	G 2 ¼B	16	–	–	800	350
	VAG61.40-25		**VBG61.40-25**	40	G 2 ¼B	25	–	–	800	350
	VAG61.40-40		–	40	G 2 ¼B	40	–	–	800	350
	VAG61.50-25		–	50	G 2 ¾B	25	–	–	600	350
	VAG61.50-40		**VBG61.50-40**	50	G 2 ¾B	40	–	–	600	350
	VAG61.50-63		–	50	G 2 ¾B	63	–	–	600	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]
Data sheet	N4211		N4211							
	VAI61.15-..[1]		**VBI61.15-..**	15	Rp ½	1.6 / 2.5 / 4 / 6.3	1400	350	1400	350
	VAI61.15-..		–	15	Rp ½	1 / 10	1400	350	1400	350
	VAI61.20-..		**VBI61.20-..**	20	Rp ¾	4 / 6.3	1400	350	1400	350
	VAI61.20-10		–	20	Rp ¾	10	1400	350	1400	350
	VAI61.25-10		**VBI61.25-10**	25	Rp 1	10	1400	350	1400	350
	VAI61.25-..		–	25	Rp 1	6.3 / 16	1400	350	1400	350
	VAI61.32-10		–	32	Rp 1 ¼	10	–	–	1000	350
	VAI61.32-16		**VBI61.32-16**	32	Rp 1 ¼	16	–	–	1000	350
	VAI61.32-25		–	32	Rp 1 ¼	25	–	–	1000	350
	VAI61.40-16		–	40	Rp 1 ½	16	–	–	800	350
	VAI61.40-25		**VBI61.40-25**	40	Rp 1 ½	25	–	–	800	350
	VAI61.40-40		–	40	Rp 1 ½	40	–	–	800	350
	VAI61.50-25		–	50	Rp 2	25	–	–	600	350
	VAI61.50-40		**VBI61.50-40**	50	Rp 2	40	–	–	600	350
	VAI61.50-63		**VBI61.50-63**	50	Rp 2	63	–	–	600	350

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[1] .. = insert k_{vs} value
VBI61..: For noiseless operation, the Δp_{max} value of 200 kPa should not be exceeded

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6-port control ball valves

Typical applications	Actuators	Data sheet		5 Nm	5 Nm
– Heated and chilled ceilings	**GDB161.9E** **GDB111.9E/KN**	A6V10636150 A6V10301232			
	Operating voltage	**Positioning signal**	**Positioning time [s]**		
	AC/DC 24 V	DC 0/2...10 V	150	**GDB161.9E**	–
		KNX-TP	150	–	**GDB111.9E/KN**

PN 16	5...90 °C	DN	k_{vs} left [m³/h]	k_{vs} right [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	A6V10564480							
	VWG41.20-0.25-0.4	20	0,25	0,4	–	200	–	200
	VWG41.20-0.25-0.65	20	0,25	0,65	–	200	–	200
	VWG41.20-0.25-1.0	20	0,25	1	–	200	–	200
	VWG41.20-0.4-1.0	20	0,4	1	–	200	–	200
	VWG41.20-0.4-1.3	20	0,4	1,3	–	200	–	200
	VWG41.20-0.4-1.6	20	0,4	1	–	200	–	200
	VWG41.20-0.65-1.0	20	0,65	1	–	200	–	200
	VWG41.20-0.65-1.6	20	0,65	1,6	–	200	–	200
	VWG41.20-0.65-2.5	20	0,65	2,5	–	200	–	200
	VWG41.20-1.0-1.6	20	1	1,6	–	200	–	200
	VWG41.20-1.0-2.5	20	1	2,5	–	200	–	200
	VWG41.20-1.6-2.5	20	1,6	2,5	–	200	–	200
	VWG41.20-1.6-3.45	20	1,6	3,45	–	200	–	200
	VWG41.20-2.5-3.45	20	2,5	3,45	–	200	–	200
	VWG41.20-2.5-4.25	20	2,5	4,25	–	200	–	200
	VWG41.20-4.25-4.25	20	4,25	4,25	–	200	–	200

Fittings for 6-port control ball valves

	Type	Description
	ALN15.152B	Fittings set made of brass for media temperatures up to 90 °C, consisting of 2x cap nuts 2x inserts with external threading per ISO 228-1 2x flat seals
	ALN15.202B	
	ALG15.152B	Fittings set made of brass for media temperatures up to 90 °C, consisting of 2x cap nuts with sleeves and insert per ISO 7-1 2x flat seals
	ALG15.202B	
	ALG15.252B	

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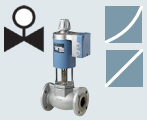
Magnetic valves

Typical applications	Valve type	Operating voltage	Positioning signal	Type suffix
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units	**MXF461..**	AC/DC 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/DC 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/DC 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-.. [2]	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-..** [2]	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-.. [2]	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-.. [2]	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. [3]
	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] .. = insert k_{vs} value
[3] Parts that are in contact with medium in stainless steel

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Slipper valves

Typical applications	Actuators	Data sheet				5 Nm	5 Nm	10 Nm
– Boiler plants – Heating groups	**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	–

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[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.

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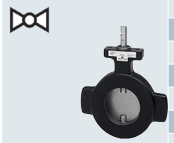
Butterfly valves

Typical applications	Actuators	Data sheet	Rotation angle	90°	
				10 Nm	40 Nm
– Boiler plants – Chiller plants – Heating groups	**SAL..**	N4502			
	Operating voltage	**Positioning signal**	**Positioning time [s]**		
	AC 230 V	3-position	120	**SAL31.00T10**	**SAL31.00T40**
		3-position	125	**–**	**–**
		3-position	30	**SAL31.03T10**	**–**
	AC/DC 24 V	3-position	120	**SAL81.00T10**	**SAL81.00T40**
		3-position	30	**SAL81.03T10**	**–**
		0...10 V, 4...20 mA	120	**SAL61.00T10**	**SAL61.00T40**
		0...10 V, 4...20 mA	30	**SAL61.03T10**	**–**
	Mounting set			**ASK33N**	**ASK33N**

PN 16	-10...120 °C	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]
Data sheet	N4131				
	**VKF41.40**	40	50	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	400
	VKF41.200	200	4000	125	300

Typical applications	Actuators	Data sheet	Rotation angle	90°						
				20 Nm	40 Nm	40 Nm		100 Nm	400 Nm	1200 Nm
– Boiler plants – Chiller plants – Cooling towers – Domestic hot water – Heating groups	**SAL..** **SQL36..**	N4502 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	SAL31.00T40	–	–	–	–	–
	AC/DC 24 V	3-position	120	SAL81.00T20	SAL81.00T40	–	–	–	–	–
		0...10 V, 4...20 mA	120	SAL61.00T20	SAL61.00T40	–	–	–	–	–

PN 16	-10...120 °C	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]
Data sheet	N4136									
	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	–	1200	–	1600	–	–	–
	VKF46.125	125	1010	–	800	–	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

[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

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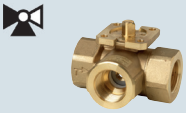
Changeover and open/close ball valves

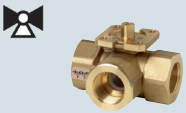
Typical applications	Actuators	Data sheet					Spring return function [s]	2 Nm	7 Nm	10 Nm
– Boiler plants – Chiller plants – Domestic hot water – Heating groups	**GSD..9A** **GQD..9A** **GMA..9E** **GLB..9E**	N4655 N4659 N4658 N4657								
	Operating voltage	Positioning signal	Positioning time [s]							
			GSD	GLB	GQD	GMA				
	AC/DC 24 V	(2)/3-position	30	–	–	–	–	**GSD141.9A**	–	–
	AC 230 V	(2)/3-position	30	–	–	–	–	**GSD341.9A**	–	–
	AC/DC 24 V	(2)/3-position	–	150	–	–	–	–	–	**GLB141.9E**
	AC 230 V	(2)/3-position	–	150	–	–	–	–	–	**GLB341.9E**
	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 Data sheet	-10...120 °C N4213	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]
	VAG60.15-9	15	G 1B	9	1400	350	1400	350	1400	350
	VAG60.20-17	20	G 1 ¼B	17	1400	350	1400	350	1400	350
	VAG60.25-22	25	G 1 ½B	22	1400	350	1400	350	1400	350
	VAG60.32-35	32	G 2B	35	–	–	1000	350	1000	350
	VAG60.40-68	40	G 2 ¼B	68	–	–	800	350	800	350
	VAG60.50-96	50	G 2 ¾B	96	–	–	600	350	600	350

PN 40 Data sheet	-10...120 °C N4213	DN	G [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
	VBG60.15-8T	15	G 1B	8	350	350	350
	VBG60.20-13T	20	G 1 ¼B	13	350	350	350
	VBG60.25-13T	25	G 1 ½B	13	350	350	350
	VBG60.32-25T	32	G 2B	25	–	350	350
	VBG60.40-49T	40	G 2 ¼B	49	–	350	350
	VBG60.50-73T	50	G 2 ¾B	73	–	350	350

PN 40 Data sheet	-10...120 °C N4213	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]
	VAI60.15-15	15	Rp ½	15	1400	350	1400	350	1400	350
	VAI60.20-22	20	Rp ¾	22	1400	350	1400	350	1400	350
	VAI60.25-22	25	Rp 1	22	1400	350	1400	350	1400	350
	VAI60.32-35	32	Rp 1 ¼	35	–	–	1000	350	1000	350
	VAI60.40-68	40	Rp 1 ½	68	–	–	800	350	800	350
	VAI60.50-96	50	Rp 2	96	–	–	600	350	600	350

PN 40 Data sheet	-10...120 °C N4213	DN	G [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
	**VBI60.15-12T**	15	Rp ½	12	350	350	350
	VBI60.20-16T	20	Rp ¾	16	350	350	350
	VBI60.25-16T	25	Rp 1	16	350	350	350
	VBI60.32-25T	32	Rp 1 ¼	25	–	350	350
	VBI60.40-49T	40	Rp 1 ½	49	–	350	350
	VBI60.50-73T	50	Rp 2	73	–	350	350

PN 40 Data sheet	-10...120 °C N4213	DN	G [inch]	k_{vs} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
	**VBI60.15-5L**	15	Rp ½	5	350	350	350
	VBI60.20-9L	20	Rp ¾	9	350	350	350
	VBI60.25-9L	25	Rp 1	9	350	350	350
	VBI60.32-13L	32	Rp 1 ¼	13	–	350	350
	VBI60.40-25L	40	Rp 1 ½	25	–	350	350
	VBI60.50-37L	50	Rp 2	37	–	350	350

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Refrigerant valves

Typical applications	Valve	Operating voltage	Positioning signal	Auxiliary functions
– Chiller 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
	MVL661.32-10	32	Sleeve	1⅜	10	6.3	1600
	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

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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 exchanger, 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 or 6-port control ball valve in the respective 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.

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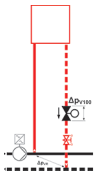
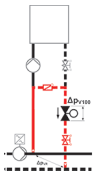
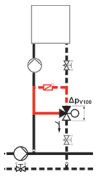
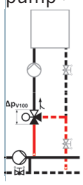
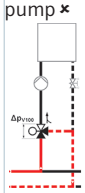
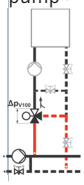
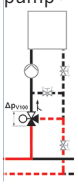
Valve sizing and actuator selection

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	–	dehumidifying	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	–	■	–	–	–	■	–	–

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	$k_V = \frac{V_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}}$ => $k_{VS} \geq 0.85 \cdot k_V$ value							
6	Check resulting Δp_{V100}	$\Delta p_{V100} = 100 \cdot \left(\frac{V_{100}}{k_{VS}}\right)^2$							

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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) 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

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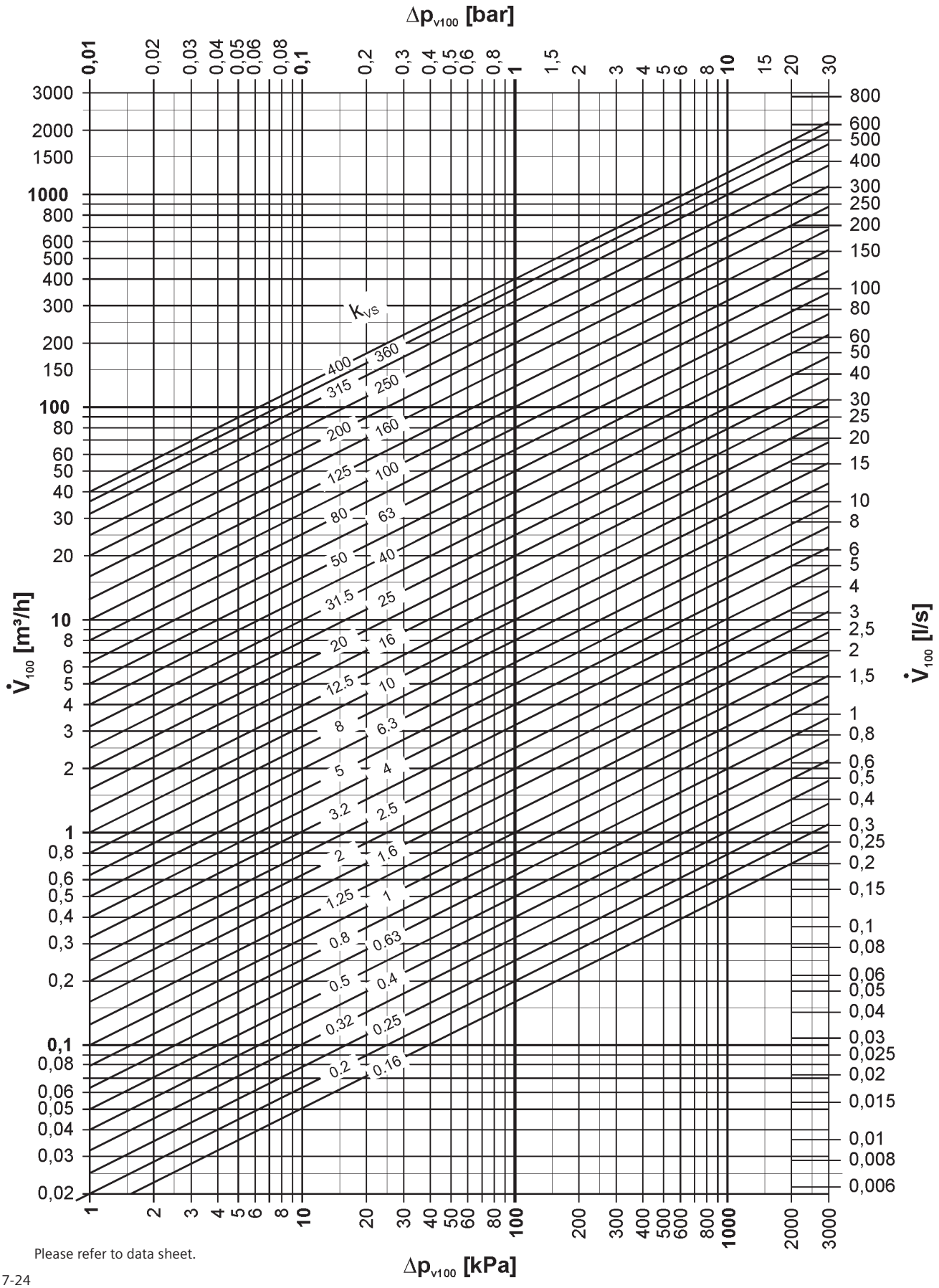
Sizing chart for flanged and threaded valves



Please refer to data sheet.

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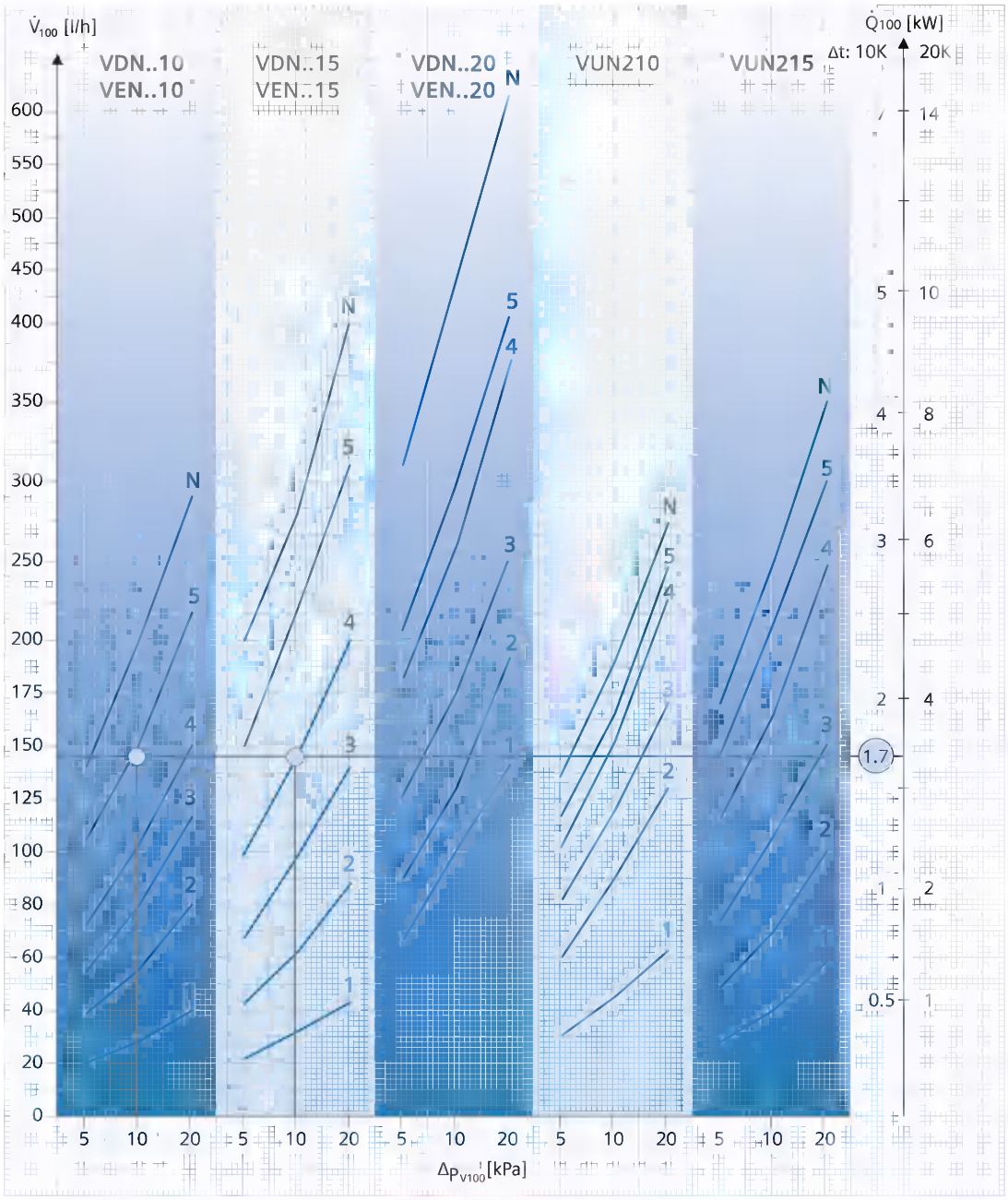
Sizing chart / Presetting for radiator valves VDN../VEN../VUN..



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.

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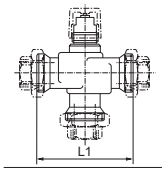
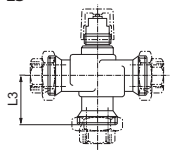
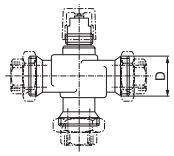
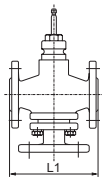
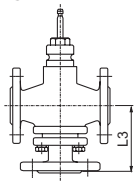
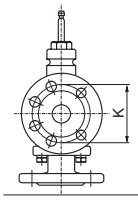
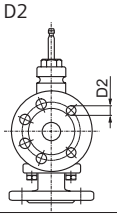
Dimensions threaded valves [mm]

	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	DN200	DN250
L1 	V..F22..	6	–	–	150	–	180	200	240	260	300	–	–	–	–
	V..F32..	10	130	–	160	–	200	230	290	310	350	400	480	–	–
	V..F42..	16	130	150	160	180	200	230	290	310	350	400	480	–	–
	V..F43..	16	–	–	–	–	–	–	290	310	350	400	480	600	730
	V..F53..	25	130	150	160	180	200	230	290	310	350	400	480	600	730
	V..F61..	40	130	–	160	–	200	230	290	310	350	400	480	–	–
L3 	VXF22..	6	–	–	75	–	90	100	120	130	150	–	–	–	–
	VXF32..	10	65	–	80	–	100	115	145	155	175	200	240	–	–
	VXF42..	16	65	75	80	90	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..F22..	6	–	–	75	–	100	110	130	150	170	–	–	–	–
	V..F32..	10	65	–	85	–	110	125	145	160	180	210	240	–	–
	V..F42..	16	65	75	85	100	110	125	145	160	180	210	240	–	–
	V..F43..	16	–	–	–	–	–	–	145	160	180	210	240	295	355
	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..F22..	6	–	–	11 (4x)	–	14 (4x)	14 (4x)	14 (4x)	19 (4x)	19 (4x)	–	–	–	–
	V..F32..	10	14 (4x)	–	14 (4x)	–	19 (4x)	19 (4x)	19 (4x)	19 (8x)	19 (8x)	19 (8x)	23 (8x)	–	–
	V..F42..	16	14 (4x)	14 (4x)	14 (4x)	19 (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)	22 (12x)	26 (12x)
	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)	26 (12x)	30 (12x)
	V..F61..	40	14 (4x)	–	14 (4x)	–	18 (4x)	18 (4x)	18 (8x)	22 (8x)	22 (8x)	26 (8x)	26 (8x)	–	–

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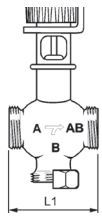
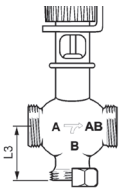
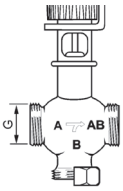
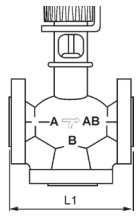
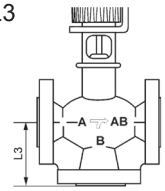
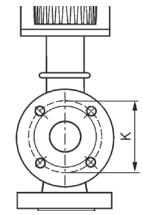
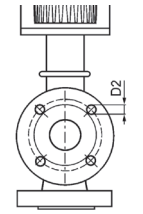
Dimensions threaded valves [mm]

	Type	PN	DN15	DN20	DN25	DN32	DN40	DN50
L1 	MXG461..	16	80	95	110	125	140	170
	MXG461S..	16	80	–	110	125	–	–
	MXG461B..	16	80	95	110	125	140	170
	MXG462S..	16	–	–	–	–	–	170
L3 	MXG461..	16	42,5	52,5	56,5	67,5	80,5	93,5
	MXG461S..	16	42,5	–	56,5	67,5	–	–
	MXG461B..	16	42,5	52,5	56,5	67,5	80,5	93,5
	MXG462S..	16	–	–	–	–	–	93,5
G 	MXG461..	16	G1	G 1¼	G 1½	G2	G 2¼	G 2¾
	MXG461S..	16	G1	–	G1½	G2	–	–
	MXG461B..	16	G1	G 1¼	G 1½	G2	G 2¼	G 2¾
	MXG462S..	16	–	–	–	–	–	G 2¾

Dimensions flanged valves [mm]

	Type	PN	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
L1 	MXF461..	16	130	150	160	180	200	230	290	–	–
	M3P..	16	–	–	–	–	–	–	–	310	350
	MVF461H..	16	130	150	160	180	200	230	–	–	–
L3 	MXF461..	16	65	75	80	90	100	105	125	–	–
	M3P..	16	–	–	–	–	–	–	–	140	160
K 	MXF461..	16	65	75	85	100	110	125	145	–	–
	M3P..	16	–	–	–	–	–	–	–	160	180
	MVF461H..	16	65	75	85	100	110	125	–	–	–
D2 	MXF461..	16	14 (4x)	14 (4x)	14 (4x)	18 (4x)	18 (4x)	18 (4x)	18 (4x)	–	–
	M3P..	16	–	–	–	–	–	–	–	19 (8x)	19 (8x)
	MVF461H..	16	14 (4x)	14 (4x)	14 (4x)	18 (4x)	18 (4x)	18 (4x)	–	–	–

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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..

Adapter for third-party valves, see overview AV..
The radiator valves can be closed with the thermostatic actuators RTN51.. and RTN71..

Data sheet N2111

Range overview RTN..

Product Title	Design	Setpoint setting range [°C]	Surface treatment	Stock No.	Product No.
Thermostatic actuator, RAL 9016, matt	Frost protection position Closing position	12...28	RAL 9016, matt	BPZ:RTN51	**RTN51**
Thermostatic actuator, RAL 9016, glossy	Frost protection position Closing position	12...28	RAL 9016, glossy	BPZ:RTN51G	**RTN51G**
Thermostatic actuator with remote sensor	Remote sensor Frost protection position Closing position	12...28	RAL 9016, matt	BPZ:RTN71	**RTN71**
Thermostatic actuator with remote adjuster	Remote sensor Frost protection position	8...28	RAL 9016, matt	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..**
Tamper-proof fitting	N2100	BPZ:ATN2	**ATN2**

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Actuators for globe and pressure independent combi valves (PICV)
Electrothermal

STA..3

Electrothermal actuators with/ without connecting cable for radiator, small, and zone valves

Electrothermal actuators, stem opened in a deenergized state, with or without connection 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

The given positioning time refers to the maximum stroke of 4.5 mm.

Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview STA..3

Operating voltage [V]	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230	210	2-position	1	S55174-A101	**STA23**
AC 24	270	DC 0...10 V	2	S55174-A104	**STA63**
AC 24 DC 24	270	2-position PDM	1	S55174-A100	**STA73**
AC 230	210	2-position	0.8	S55174-A107	**STA23HD**
AC 24 DC 24	270	2-position	0.8	S55174-A106	**STA73HD**
AC 230	210	2-position		S55174-A110	**STA23/00**
AC 230	210	2-position		S55174-A118	**STA23B/00**
AC 230	210	2-position		S55174-A114	**STA23MP/00**
AC 24 DC 24	270	2-position PDM		S55174-A109	**STA73/00**
AC 24 DC 24	270	2-position PDM		S55174-A117	**STA73B/00**
AC 24 DC 24	270	2-position PDM		S55174-A113	**STA73MP/00**
AC 24 DC 24	270	2-position PDM/parallel operation		S55174-A115	**STA73PR/00**

The given positioning time is related to the maximum stoke of 4.5 mm.
/00 = without cable
xxB = color black
xxMP = multi pack 50 pce

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Connection cable for STA..3

Positioning signal	Auxiliary switch	Display	Color	Cable length [m]	Material	Stock No.	Product No.
2-position	0		White	2	PVC	S55174-A123	**ASY23L20**
2-position	0		White	5	PVC	S55174-A126	**ASY23L50**
2-position	0		White	10	PVC	S55174-A129	**ASY23L100**
2-position	0		White	15	PVC	S55174-A130	**ASY23L150**
2-position	0		White	2	Halogen-free	S55174-A134	**ASY23L20HF**
2-position	0		White	5	Halogen-free	S55174-A135	**ASY23L50HF**
2-position	0		White	10	Halogen-free	S55174-A136	**ASY23L100HF**
DC 0...10 V	0		White	2	PVC	S55174-A137	**ASY6AL20**
DC 0...10 V	0		White	2	Halogen-free	S55174-A147	**ASY6AL20HF**
2-position	1		White	1	PVC	S55174-A153	**ASA23U10**
2-position	0	LED	White	2	PVC	S55174-A157	**ASY23L20LD**
2-position	0		Black	3	PVC	S55174-A131	**ASY23L30B**
2-position	0		Black	5	PVC	S55174-A132	**ASY23L50B**

Accessories for STA..3

Product Title	Data sheet	Stock No.	Product No.
Third-party valve adapter on Danfoss RA-N (RA2000)	N2100	BPZ:AV53	**AV53**
Adapter for Vaillant	N2100	BPZ:AV59	**AV59**
Adapter for Giacomini	N4884	S55174-A165	**AV63**
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	**AV64**
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**
Adapter various (5 pieces)	N4884	S55174-A167	**AV304**
Standard adapter, M30x1,5	N4884	S55174-A169	**AV305**
Theft protection	N4884	S55174-A168	**AL431**

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Actuators for globe and pressure independent combi valves (PICV)
Electrothermal

STP..3

Electrothermal actuators with and without connecting cable for small valves

Electrothermal actuators, stem closed in a deenergized state, with or without connection 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

The given positioning time refers to the maximum stroke of 4.5 mm.

Data sheet	N4884
Stroke	4.5 mm
Degree of protection	IP54
Mounting position	Any, 360°
Power consumption	2.5 W

Range overview STP..3

Operating voltage [V]	Positioning time [s]	Positioning signal	Cable length [m]	Stock No.	Product No.
AC 230	210	2-position	1	S55174-A103	**STP23**
AC 24	270	DC 0...10 V	2	S55174-A105	**STP63**
AC 24 DC 24	270	2-position PDM	1	S55174-A102	**STP73**
AC 230	210	2-position		S55174-A112	**STP23/00**
AC 24 DC 24	270	2-position PDM		S55174-A111	**STP73/00**
AC 24 DC 24	270	2-position PDM/parallel operation		S55174-A116	**STP73PR/00**

The given positioning time is related to the maximum stoke of 4.5 mm.
/00 = without cable

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Connection cable for STP..3

Positioning signal	Auxiliary switch	Display	Color	Cable length [m]	Material	Stock No.	Product No.
2-position	0		White	2	PVC	S55174-A123	**ASY23L20**
2-position	0		White	5	PVC	S55174-A126	**ASY23L50**
2-position	0		White	10	PVC	S55174-A129	**ASY23L100**
2-position	0		White	15	PVC	S55174-A130	**ASY23L150**
2-position	0		White	2	Halogen-free	S55174-A134	**ASY23L20HF**
2-position	0		White	5	Halogen-free	S55174-A135	**ASY23L50HF**
2-position	0		White	10	Halogen-free	S55174-A136	**ASY23L100HF**
DC 0...10 V	0		White	2	PVC	S55174-A140	**ASY6PL20**
DC 0...10 V	0		White	2	Halogen-free	S55174-A150	**ASY6PL20HF**
2-position	1		White	1	PVC	S55174-A155	**ASP23U10**
2-position	0	LED	White	2	PVC	S55174-A157	**ASY23L20LD**
2-position	0		Black	3	PVC	S55174-A131	**ASY23L30B**
2-position	0		Black	5	PVC	S55174-A132	**ASY23L50B**

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Accessories for STP..3

Product Title	Data sheet	Stock No.	Product No.
Third-party valve adapter on Danfoss RA-N (RA2000)	N2100	BPZ:AV53	**AV53**
Adapter for Vaillant	N2100	BPZ:AV59	**AV59**
Adapter for Giacomini	N4884	S55174-A165	**AV63**
Adapter for Pettinaroli M28 x 1.5	N4884	S55174-A166	**AV64**
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**
Adapter various (5 pieces)	N4884	S55174-A167	**AV304**
Standard adapter, M30x1,5	N4884	S55174-A169	**AV305**
Theft protection	N4884	S55174-A168	**AL431**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

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 and 5 mm stroke.

For fitting to the valve: Cap nut M30 x 1.5
SSA61..: 1.5 mm minimal stroke required for self calibration

Data sheet	N4893
Stroke	2.5 mm 5 mm
Positioning force	100 N
Degree of protection	IP40
Medium temperature	1...110 °C
Mounting position	Upright to 90° inclined

Range overview SSA..

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230	3-position	6 VA	0	1.5	BPZ:SSA31	**SSA31**
AC 230	3-position	6 VA	1	1.5	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	2.5 VA	0	1.5	BPZ:SSA61	**SSA61**
AC 24 DC 24	DC 0...10 V	2.5	0	1.5	BPZ:SSA61EP	**SSA61EP**
AC 24	3-position	0.8 VA	0	1.5	BPZ:SSA81	**SSA81**
AC 24	3-position	0.8 VA	1	1.5	BPZ:SSA81.1	**SSA81.1**

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 %

Connection cable and terminal block connectors for SSA..

Product Title	Data sheet	Stock No.	Product No.
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 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 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**

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Adapter for SSA.. actuators

Product Title	Data sheet	Stock No.	Product No.
Adapter for tamper-proof fitting for SSA.. actuators	N4893	BPZ:AL40	**AL40**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

AV..

Adapter for valves of other manufacture

For fitting actuators to radiator valves of other manufacture.

Data sheet N2179

Range overview AV..

Product Title	Stock No.	Product No.
Third-party valve adapter on Comap valve	BPZ:AV52	**AV52**
Third-party valve adapter on Danfoss RA-N (RA2000)	BPZ:AV53	**AV53**
Third-party valve adapter on Danfoss RAVL	BPZ:AV54	**AV54**
Third-party valve adapter on Danfoss RAV	BPZ:AV55	**AV55**
Third-party valve adapter on Giacomini valve	BPZ:AV56	**AV56**
Third-party valve adapter on Herz valve	BPZ:AV57	**AV57**
Third-party valve adapter on Oventrop M30x1	BPZ:AV58	**AV58**
Third-party valve adapter on TA to 2002	BPZ:AV60	**AV60**
Third-party valve adapter on MMA Markaryd	BPZ:AV61	**AV61**
Adapter for Vaillant	BPZ:AV59	**AV59**
Adapter for Giacomini	S55174-A165	**AV63**
Adapter for Pettinaroli M28 x 1.5	S55174-A166	**AV64**
Adapter for valves with M30 x 1.5	S55174-A159	**AV301**
Adapter for valves with M28 x 1.5, Comap, Markaryd, Herz	S55174-A160	**AV302**
Adapter for valves with M30 x 1, TA	S55174-A161	**AV303**
Adapter various (5 pieces)	S55174-A167	**AV304**

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

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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.

For fitting to the valve: Cap nut M30 x 1.5

Data sheet	N4865
Positioning force	135 N
Stroke	2.5 mm
Positioning time	10 s
Degree of protection	IP30
Mounting position	Upright to 85° inclined
Positioning signal	2-position

Range overview SFP21../SFP71..

Operating voltage [V]	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230	9.8	Optional	1.8	BPZ:SFP21/18	**SFP21/18**
AC 24	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**

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SSA31.04

Electromotoric actuator, 160 N, 2.5 mm, 1.5 m, AC 230 V, 3P, SPDT

For V..I46.. 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).

For fitting to the valve: Cap nut M30 x 1.5

Data sheet	N4860
Positioning force	160 N
Stroke	2.5 mm
Power consumption	6 VA
Positioning time	43 s
Cable length	1.5 m
Positioning signal	3-position SPDT
Degree of protection	IP40
Medium temperature	1...110 °C
Ambient humidity, operation	5...85 % r.h.
Mounting position	Upright to 90° inclined
Operating voltage	AC 230 V

	Stock No.	Product No.
	BPZ:SSA31.04	**SSA31.04**

Accessories for SSA31.04

Product Title	Data sheet	Stock No.	Product No.
Retaining screw for cable connector		BPZ:ASY98	**ASY98**

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Electromotoric actuator 150 N for zone and Combi valves

SUA..

Electromotoric actuators without spring return for VVI46.. and VXI46.. 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

For fitting to the valve: plastic union nut M30 x 1.5

Positioning force	150 N
Stroke	2.5 mm
Degree of protection	IP40
Medium temperature	1...110 °C
Mounting position	Upright to 85 ° horizontal, do not suspend

Range overview SUA..

Operating voltage [V]	Positioning signal	Power consumption	Spring return function	Cable length [m]	Stock No.	Product No.
AC 230	2-position (SPST)	6 VA @ 50 Hz	No	0.8	S55176-A104	SUA21/3

New Product

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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.

For fitting to the valve: Cap nut M30 x 1.5.
SSP81.., SSP61.. are CE, C-tick, UL and cUL listed.

Data sheet	N4864
Positioning force	160 N
Stroke	2.5 mm
Degree of protection	IP40
Medium temperature	1...110 °C
Mounting position	Upright to 90° inclined

Range overview SSP..

Operating voltage [V]	Power consumption [VA]	Positioning signal	Positioning time [s]	Cable length [m]	Stock No.	Product No.
AC 230	6	3-position	150	1.5	BPZ:SSP31	**SSP31**
AC 24 DC 24	2.5	DC 0...10 V	34	1.5	BPZ:SSP61	**SSP61**
AC 24	0.8	3-position	150	1.5	BPZ:SSP81	**SSP81**
AC 24	0.8	3-position	43	1.5	BPZ:SSP81.04	**SSP81.04**

Positioning time for 2.5 mm stroke.

Accessories for SSP..

Product Title	Stock No.	Product No.
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 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 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**

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Electromotoric actuators 200 N for small valves V..I46..

SFA21.. / SFA71..

For VVI46.. and VXI46.. 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.

For fitting to the valve: Cap nut M30 x 1.5

Data sheet	N4863
Positioning force	200 N
Positioning signal	2-position
Positioning time	10 s
Stroke	2.5 mm
Degree of protection	IP30
Medium temperature	1...110 °C
Mounting position	Upright to 85° inclined

Range overview SFA21.. / SFA71..

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 %.

Accessories for SFA21.. / SFA71..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

SSB..

Electromotoric actuators 200 N for valves with 5.5 mm stroke

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.

For fitting to the valve: Cap nut G¾"
SSB61.., SSB81.. are CE, C-tick, UL and cUL listed.

Data sheet	N4891
Positioning force	200 N
Stroke	5.5 mm
Degree of protection	IP40
Medium temperature	1...110 °C
Ambient humidity, operation	5...85 % r.h.
Mounting position	Upright to 90° inclined

Range overview SSB..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Auxiliary switch	Cable length [m]	Stock No.	Product No.
AC 230	3-position	6	0	1.5	BPZ:SSB31	**SSB31**
AC 230	3-position	6	1	1.5	BPZ:SSB31.1	**SSB31.1**
AC 24 DC 24	DC 0...10 V	2.5	0	1.5	BPZ:SSB61	**SSB61**
AC 24	3-position	0.8	0	1.5	BPZ:SSB81	**SSB81**
AC 24	3-position	0.8	1	1.5	BPZ:SSB81.1	**SSB81.1**

Auxilary switch: Changeover contact AC 250 V, 1 A res., 0.5 A ind., adjustable switching point 0...100 %.

Accessories for SSB..

Product Title	Stock No.	Product No.
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 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 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**

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Electromotoric actuators 300 N for valves with 5.5 mm stroke

SSC..

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
Medium temperature	1...110 °C
Mounting position	Upright to horizontal

Range overview SSC..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Spring return function	Stock No.	Product No.
AC 230	3-position	6	No	BPZ:SSC31	**SSC31**
AC 24 DC 24	DC 0...10 V	2	No	BPZ:SSC61	**SSC61**
AC 24 DC 24	DC 0...10 V	2	Yes (15 s)	BPZ:SSC61.5	**SSC61.5**
AC 24	3-position	0.8	No	BPZ:SSC81	**SSC81**

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**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

SAS..

Electromotoric actuators 400 N for valves with 5.5 mm stroke

Electromotoric actuator for the operation of Siemens 2-port and 3-port valves, types VVG44.., VXG44.. and VVG549.. with 5.5 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.

SA..81.., SA..61.. are UL listed.

Data sheet	N4581
Positioning force	400 N
Stroke	5.5 mm
Degree of protection	IP54
Medium temperature	1...130 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAS..

Operating voltage [V]	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230	2.8	3-position	120	No	S55158-A106	**SAS31.00**
AC 230	3.5	3-position	30	No	S55158-A107	**SAS31.03**
AC 230	3.5	3-position	120	Yes (28 s)	S55158-A108	**SAS31.50**
AC 230	5.5	3-position	30	Yes (14 s)	S55158-A109	**SAS31.53**
AC 24 DC 24	5.3	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	No	S55158-A100	**SAS61.03**
AC 24 DC 24	5.9	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	Yes (14 s)	S55158-A101	**SAS61.33**
AC 24 DC 24	5.8	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	Yes (14 s)	S55158-A102	**SAS61.53**
AC 24 DC 24	2.2	3-position	120	No	S55158-A103	**SAS81.00**
AC 24 DC 24	2.5	3-position	30	No	S55158-A104	**SAS81.03**
AC 24 DC 24	3.4	3-position	30	Yes (14 s)	S55158-A105	**SAS81.33**

Actuators with spring-return function have a position indication in place of the manual control lever.

Accessories for SAS..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	**ASK30**
Weathershild for SAS../SAT../SAK..		S55845-Z155	ASK39.2

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Electromotoric actuators 300 N for valves with 5.5 mm stroke

SAT..

Electromotoric actuators for the operation of Siemens 2-port valves VVG549.., kvs value 0.25-6.3 m³/h with 5.5 mm stroke as control valve in district heating applications. With manual adjuster and position indicator, status indication per LED. Optional functions with auxiliary switches.

SA..61.. are UL listed.

Data sheet	N4584
Positioning force	300 N
Stroke	5.5 mm
Degree of protection	IP54
Medium temperature	1...150 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAT..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230	3-position	5.0	8	No	S55158-A119	**SAT31.008**
AC 230	3-position	5.5	15	Yes (8 s)	S55158-A120	**SAT31.51**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	7.1	8	No	S55158-A117	**SAT61.008**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	6.4	15	Yes (8 s)	S55158-A118	**SAT61.51**

Actuators with spring-return function have a position indication in place of the manual control lever.

Accessories for SAT..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Adapter to upgrade older Landis&Gyr valves	N4573	BPZ:ASK30	**ASK30**
Weathershild for SAS../SAT../SAK..		S55845-Z155	ASK39.2

New Product

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

SBX..

Electromotoric actuators for seat valves

For operation with Siemens 2-port and 3-port valves, types VVF47.., VXF47.. with 20 mm stroke as control valves in heating, ventilation and air conditioning systems

Data sheet	N4519
Positioning force	700 N
Nominal stroke	20 mm
Positioning time	120 s
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal

Range overview SBX..

For customers in Asia / Australia

Operating voltage [V]	Positioning signal	Power consumption [VA]	Stock No.	Product No.
AC 230	3-position	9	S55160-A102	**SBX31**
AC 24	DC 0...10 V	5	S55160-A100	**SBX61**
AC 24	3-position	4	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**

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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	-5...55 °C
Medium temperature	-25...130 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)
Spring return function	No

Range overview SAX..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230	3-position	3.5	120	S55150-A105	**SAX31.00**
AC 230	3-position	6	30	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	30	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	3.5	120	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	5	30	S55150-A103	**SAX81.03**

Accessories for 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**
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**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

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.

SA..81P.., SA..61P.. are UL listed.

Data sheet	N4509
Positioning force	500 N
Stroke	20 mm
Degree of protection	IP54
Ambient temperature, operation	-5...55 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SAX6..)

Range overview SAX..P..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230	3-position	8	30	S55150-A118	**SAX31P03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	30	S55150-A114	**SAX61P03**
AC 24 DC 24	3-position	5	30	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**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

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Electromotoric actuators 200 N for Combi valves VPI46 with a 15 mm stroke

SAY..P..

Electromotoric actuator for the operation of Siemens Combi valves, types VPI46.40F9.5Q and VPI46.50F12Q with 15 mm stroke as control valves in ventilation, air conditioning, district heating and cooling systems. With manual adjuster and position indicator, status indication per LED. Optional functions with auxiliary switches, potentiometer, functional module and stem heater.

Data sheet	A6V10628469
Positioning force	200 N
Stroke	15 mm
Spring return function	No
Degree of protection	IP54
Ambient temperature, operation	5...55 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal

Range overview SAY..P..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230	3-position	6	30	S55150-A132	**SAY31P03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	30	S55150-A133	**SAY61P03**
AC 24 DC 24	3-position	5	30	S55150-A134	**SAY81P03**

Accessories for SAY..P..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SA..31../SA..61../SA..81..	N4501	S55845-Z103	**ASC10.51**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

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SAV..

Electromotoric actuators 1600 N for valves with 20/40 mm stroke

Electromotoric actuator for the operation of Siemens 2-port and 3-port valves, types VVF.. and VXF.. with 20/40 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	N4503
Positioning force	1600 N
Stroke	40 mm
Degree of protection	IP54
Ambient temperature, operation	-5...55 °C
Medium temperature	-25...130 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAV..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230	3-position	6.5	120	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	9.5	120	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	7	120	S55150-A111	**SAV81.00**

Accessories for SAV..

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**
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**

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Electromotoric actuators 1100 N for Combi valves VPF43../53..

SAV..P..

Electromotoric actuators for the operation of Siemens combi valves of types VPF43.. and VPF53.. with 40 mm stroke as control and safety shut-off valves in ventilation, air conditioning, district heating and refrigerating systems. With manual adjuster and position indicator, status indication per LED. Optional functions with auxiliary switches, potentiometer and functional module.

SA..61P.., SA..81P.. are UL listed.

Data sheet	N4510
Positioning force	1100 N
Stroke	40 mm
Spring return function	No
Degree of protection	IP54
Ambient temperature, operation	-5...55 °C
Medium temperature	1...120 °C
Mounting position	Upright to horizontal

Range overview SAV..P..

Operating voltage	Positioning signal	Power consumption [VA]	Positioning time [s]	Stock No.	Product No.
AC 230	3-position	6.5	120	S55150-A121	**SAV31P00**
AC 24 V DC 24 V	DC 0...10 V DC 4...20 mA 0...1000 Ohm	9.5	120	S55150-A119	**SAV61P00**
AC 24 V DC 24 V	3-position	7	120	S55150-A120	**SAV81P00**

Accessories for SAV..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**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

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Actuators for globe and pressure independent combi valves (PICV)
Electromotoric

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.

Actuators SQV..P.. are UL-listed

Data sheet	N4833
Positioning force	1100 N
Stroke	20 mm 40 mm
Positioning time	20 mm: 40 s 40 mm: 80 s
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

Range overview SQV..P..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Spring return function	Stock No.	Product No.
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20	Yes (30 s) Stem retracted	S55150-A130	**SQV91P30**
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20	Yes (30 s) Stem extended	S55150-A131	**SQV91P40**

Accessories for 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 for SQV..P..	N4833	S55845-Z138	**ASP1.1**

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Electromotoric actuators for seat valves

SBV..

For operation with Siemens 2-port and 3-port valves, types VVF47.., VXF47.. with 40 mm stroke as control valves in heating, ventilation and air conditioning systems

Data sheet	N4519
Positioning force	1600 N
Stroke	40 mm
Positioning time	180 s
Degree of protection	IP54
Ambient temperature, operation	-10...55 °C
Medium temperature	1...95 °C
Mounting position	Upright to horizontal

Range overview SBV..

For customers in Asia / Australia

Operating voltage [V]	Positioning signal	Power consumption [VA]	Stock No.	Product No.
AC 230	3-position	9	S55160-A105	**SBV31**
AC 24	DC 0...10 V	7	S55160-A103	**SBV61**
AC 24	3-position	7	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**

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Actuators for globe and pressure independent combi valves (PICV)
Electrohydraulic

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.

SKD..U are UL listed. Control devices MK..5.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Degree of protection	IP54
Medium temperature	-25...150 °C
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal

Range overview SKD32../SKD82..

Operating voltage [V]	Power consumption [VA]	Positioning signal	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230	16	3-position	Open 30 Close 10	Yes (8 s)	BPZ:SKD32.21	**SKD32.21**
AC 230	11	3-position	120	No	BPZ:SKD32.50	**SKD32.50**
AC 230	17	3-position	120	Yes (8 s)	BPZ:SKD32.51	**SKD32.51**
AC 24	9	3-position	120	No	BPZ:SKD82.50	**SKD82.50**
AC 24	9	3-position	120	No	BPZ:SKD82.50U	**SKD82.50U**
AC 24	14	3-position	120	Yes (8 s)	BPZ:SKD82.51	**SKD82.51**
AC 24	14	3-position	120	Yes (8 s)	BPZ:SKD82.51U	**SKD82.51U**

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Electrohydraulic actuators 1000 N for valves with 20 mm stroke

SKD60/SKD62..

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.

SKD..U, SKD..UA are UL listed. Control devices MK..5.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4561
Positioning force	1000 N
Stroke	20 mm
Position feedback	DC 0...10 V DC 4...20 mA
Degree of protection	IP54
Medium temperature	-25...150 °C
Ambient temperature, operation	-15...50 °C
Mounting position	Upright to horizontal

Range overview SKD60/SKD62..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	10	Open 30 Close 15	No	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	10	Open 30 Close 15	No	BPZ:SKD60U	**SKD60U**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	14	Open 30 Close 15	Yes (15 s)	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	14	Open 30 Close 15	Yes (15 s)	BPZ:SKD62U	**SKD62U**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	14	Open 30 Close 15	Yes (15 s)	BPZ:SKD62UA	**SKD62UA**

Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

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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.

SKB82..U are UL listed. Control devices MK..6.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4564
Positioning force	2800 N
Stroke	20 mm
Degree of protection	IP54
Medium temperature	-25...220 °C (350 °C)
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal

Range overview SKB32../SKB82..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230	3-position	10	120	No	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	16	120	Yes (10 s)	BPZ:SKB32.51	**SKB32.51**
AC 24	3-position	8	120	No	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	12	120	Yes (10 s)	BPZ:SKB82.51	**SKB82.51**
AC 24	3-position	8	120	No	BPZ:SKB82.50U	**SKB82.50U**
AC 24	3-position	12	120	Yes (10 s)	BPZ:SKB82.51U	**SKB82.51U**

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Electrohydraulic actuators 2800 N for valves with 20 mm stroke

SKB60/62..

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.

SKB..U, SKB..UA are UL listed. Control devices MK..6.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4564
Stroke	20 mm
Position feedback	DC 0...10 V DC 4...20 mA
Degree of protection	IP54
Medium temperature	-25...220 °C (350 °C)
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal

Range overview SKB60/SKB62..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	10	Open 120 Close 10	No	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	14	Open 120 Close 10	Yes (10 s)	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	14	Open 120 Close 10	Yes (10 s)	BPZ:SKB62U	**SKB62U**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	14	Open 120 Close 10	Yes (10 s)	BPZ:SKB62UA	**SKB62UA**

Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

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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.

SKC..U are UL listed. Control devices MK..6.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4566
Positioning force	2800 N
Stroke	40 mm
Degree of protection	IP54
Medium temperature	-25...220 °C (350 °C)
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal

Range overview SKC32../SKC82..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 230	3-position	18	120	No	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	24	120	Yes (18 s)	BPZ:SKC32.61	**SKC32.61**
AC 24	3-position	15	120	No	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	19	120	Yes (18 s)	BPZ:SKC82.61	**SKC82.61**
AC 24	3-position	15	120	No	BPZ:SKC82.60U	**SKC82.60U**
AC 24	3-position	19	120	Yes (18 s)	BPZ:SKC82.61U	**SKC82.61U**

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Electrohydraulic actuators 2800 N for valves with 40 mm stroke

SKC60/SKC62..

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.

SKC..U, SKC..UA are UL listed. Control devices MK..6.. are control devices with safety shut-off function per DIN EN 14597.

Data sheet	N4566
Stroke	40 mm
Position feedback	DC 0...10 V DC 4...20 mA
Degree of protection	IP54
Medium temperature	-25...220 °C (350 °C)
Ambient temperature, operation	-15...55 °C
Mounting position	Upright to horizontal

Range overview SKC60/SKC62..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Spring return function	Stock No.	Product No.
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	17	Open 120 Close 20	No	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	21	Open 120 Close 20	Yes (20 s)	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	21	Open 120 Close 20	Yes (20 s)	BPZ:SKC62U	**SKC62U**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	21	Open 120 Close 20	Yes (20 s)	BPZ:SKC62UA	**SKC62UA**

Actuators type ..UA provide additional functions: Signal inversion, stroke limitation, and adjustable starting point and operating range.

Accessories for SKD../SKB../SKC..

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**
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**
Stem heating element for media < 0 °C	N4501	S55845-Z108	**ASZ6.6**
Potentiometer 0...200 Ohm for SKB/ C/ D32../82..	N4564	BPZ:ASZ7.32	**ASZ7.32**

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Globe and pressure independent combi valves (PICV)
2-port flanged valves

VVF22..

2-port valves with flanged connections, PN 6

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4401
Stroke	to DN80: 20 mm DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-10...130 °C
Valve characteristic	Equal percentage
Rangeability	DN 25: >50 DN 40...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN40: CrNi steel / bronze
PN class	PN 6

Range overview VVF22..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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	2.5	S55200-V100	**VVF22.25-2.5**
300	600			300	600	300	600			25	4	S55200-V101	**VVF22.25-4**
300	600			300	600	300	600			25	6.3	S55200-V102	**VVF22.25-6.3**
300	600			300	600	300	600			25	10	S55200-V103	**VVF22.25-10**
300	550	300	600	300	600	300	600			40	16	S55200-V104	**VVF22.40-16**
300	550	300	600	300	600	300	600			40	25	S55200-V105	**VVF22.40-25**
300	350	300	600	300	450	300	600			50	40	S55200-V106	**VVF22.50-40**
150	200	300	450	200	250	300	600			65	63	S55200-V107	**VVF22.65-63**
75	125	225	250	125	175	300	450			80	100	S55200-V108	**VVF22.80-100**
		125	160					250	300	100	160	S55200-V109	**VVF22.100-160**

For media <0 °C, stem heating element ASZ6.6 is required.

Replacement sealing glands for VVF22..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VVF22..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VVF22..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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2-port valves with flanged connections, PN 10

VVF32..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4402
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	DN 15 .. 25: >50 DN 40...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN50: CrNi steel / bronze
PN class	PN 10

Range overview VVF32..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
400	1000			400	1000	400	1000			15	1.6	S55202-V100	**VVF32.15-1.6**
400	1000			400	1000	400	1000			15	2.5	S55202-V101	**VVF32.15-2.5**
400	1000			400	1000	400	1000			15	4	S55202-V102	**VVF32.15-4**
400	1000			400	1000	400	1000			25	6.3	S55202-V103	**VVF32.25-6.3**
400	1000			400	1000	400	1000			25	10	S55202-V104	**VVF32.25-10**
400	550	400	1000	400	750	400	1000			40	16	S55202-V105	**VVF32.40-16**
400	550	400	1000	400	750	400	1000			40	25	S55202-V106	**VVF32.40-25**
300	350	400	750	400	450	400	1000			50	40	S55202-V107	**VVF32.50-40**
150	200	400	450	200	250	400	700			65	63	S55202-V108	**VVF32.65-63**
75	125	225	250	125	175	400	450			80	100	S55202-V109	**VVF32.80-100**
		125	160					250	300	100	160	S55202-V110	**VVF32.100-160**
		90	125					160	190	125	250	S55202-V111	**VVF32.125-250**
		60	80					100	125	150	400	S55202-V112	**VVF32.150-400**

For media < 0° C, stem heating element ASZ 6.6 is required.

Replacement sealing glands for VVF32..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VVF32..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VVF32..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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Globe and pressure independent combi valves (PICV)
2-port flanged valves

VVF42..

2-port valves with flanged connections, PN 16

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4403
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	DN 15...25: >50 DN 32...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN50: CrNi steel / bronze
PN class	PN 16

Range overview VVF42..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
400	1600			400	1600	400	1600			15	1.6	S55204-V100	**VVF42.15-1.6**
400	1600			400	1600	400	1600			15	2.5	S55204-V101	**VVF42.15-2.5**
400	1600			400	1600	400	1600			15	4	S55204-V102	**VVF42.15-4**
400	1600			400	1600	400	1600			20	6.3	S55204-V103	**VVF42.20-6.3**
400	1600			400	1600	400	1600			25	6.3	S55204-V104	**VVF42.25-6.3**
400	1600			400	1600	400	1600			25	10	S55204-V105	**VVF42.25-10**
400	900			400	1200	400	1600			32	16	S55204-V106	**VVF42.32-16**
400	550	400	1250	400	750	400	1600			40	16	S55204-V107	**VVF42.40-16**
400	550	400	1250	400	750	400	1600			40	25	S55204-V108	**VVF42.40-25**
300	350	400	750	400	450	400	1200			50	31.5	S55204-V109	**VVF42.50-31.5**
300	350	400	750	400	450	400	1200			50	40	S55204-V110	**VVF42.50-40**
150	200	400	450	200	250	400	700			65	50	S55204-V111	**VVF42.65-50**
150	200	400	450	200	250	400	700			65	63	S55204-V112	**VVF42.65-63**
75	125	225	250	125	175	400	450			80	80	S55204-V113	**VVF42.80-80**
75	125	225	250	125	175	400	450			80	100	S55204-V114	**VVF42.80-100**
		125	160					250	300	100	125	S55204-V115	**VVF42.100-125**
		125	160					250	300	100	160	S55204-V116	**VVF42.100-160**
		90	125					160	190	125	200	S55204-V117	**VVF42.125-200**
		90	125					160	190	125	250	S55204-V118	**VVF42.125-250**
		60	80					100	125	150	315	S55204-V119	**VVF42.150-315**
		60	80					100	125	150	400	S55204-V120	**VVF42.150-400**

For media < 0° C, stem heating element ASZ 6.6 is required.

Replacement sealing glands for VVF42..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VVF42..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VVF42..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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2-port valves with flanged connections, PN 16

VVF42..C

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	A6V10794157
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage k_{vs} 250/400 linear
Rangeability	DN25: >50 DN 32...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Grey cast iron EN-GJL-250 or higher
Material, inside set	≤ DN32: CrNi steel / brass ≥ DN25: CrNi steel / CrNi steel
PN class	PN 16

Range overview VVF42..C

For customers in Asia / Australia

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
400	1600			400	1600	400	1600			25	6.3	S55204-V148	VVF42.25-6.3C
400	1600			400	1600	400	1600			25	10	S55204-V149	VVF42.25-10C
400	900			400	1200	400	1600			32	16	S55204-V150	VVF42.32-16C
400	550	400	1250	400	750	400	1600			40	16	S55204-V151	VVF42.40-16C
400	550	400	1250	400	750	400	1600			40	25	S55204-V152	VVF42.40-25C
300	350	400	750	400	450	400	1200			50	31.5	S55204-V153	VVF42.50-31.5C
300	350	400	750	400	450	400	1200			50	40	S55204-V154	VVF42.50-40C
150	200	400	450	200	250	400	700			65	50	S55204-V155	VVF42.65-50C
150	200	400	450	200	250	400	700			65	63	S55204-V156	VVF42.65-63C
75	125	225	250	125	175	400	450			80	80	S55204-V157	VVF42.80-80C
75	125	225	250	125	175	400	450			80	100	S55204-V158	VVF42.80-100C
		125	160					250	300	100	125	S55204-V159	VVF42.100-125C
		125	160					250	300	100	160	S55204-V160	VVF42.100-160C
		90	125					160	190	125	200	S55204-V161	VVF42.125-200C
		90	125					160	190	125	250	S55204-V162	VVF42.125-250C
		60	80					100	125	150	315	S55204-V163	VVF42.150-315C
		60	80					100	125	150	400	S55204-V164	VVF42.150-400C

Replacement sealing glands for VVF42..C

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

New Product

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Combinable actuator for VVF42..C

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VVF42..C

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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VVF42..K

2-port valves pressure compensated with flanged connections, PN 16

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4403
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-5...150 °C
Valve characteristic	Equal percentage k_{vs} 250/360 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≥ DN 50: CrNi steel / bronze
PN class	PN 16

Range overview VVF42..K

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
400	1600	400	1600	400	1600	400	1600			50	40	S55204-V121	**VVF42.50-40K**
400	1600	400	1600	400	1600	400	1600			65	63	S55204-V122	**VVF42.65-63K**
400	1600	400	1600	400	1600	400	1600			80	100	S55204-V123	**VVF42.80-100K**
		400	1600					400	1600	100	160	S55204-V124	**VVF42.100-160K**
		400	1600					400	1600	125	250	S55204-V125	**VVF42.125-250K**
		400	1400					400	1600	150	360	S55204-V126	**VVF42.150-360K**

For media < 0° C, stem heating element ASZ6.6 is required.

Replacement sealing glands for VVF42..K

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**

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Combinable actuator for VVF42..K

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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VVF42..KC

2-port valves pressure compensated with flanged connections, PN 16

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	A6V10794157
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Medium temperature	-10...150 °C
Valve characteristic	Equal percentage k_{vs} 250/360 linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJS-400-18LT
Material, inside set	≥ DN 50: CrNi steel / CrNi Steel
PN class	PN 16

Range overview VVF42..KC

For customers in Asia / Australia

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
800	1600			800	1600	800	1600			65	63	S55204-V182	VVF42.65KC
800	1600			800	1600	800	1600			80	100	S55204-V183	VVF42.80KC
		500	1600					800	1600	100	160	S55204-V184	VVF42.100KC
		500	1600					800	1600	125	220	S55204-V185	VVF42.125KC
		500	1400					800	1600	150	315	S55204-V186	VVF42.150KC

Replacement sealing glands for VVF42..KC

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VVF42..KC

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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Globe and pressure independent combi valves (PICV)
2-port flanged valves

VVF43..

2-port seat valve PN16 with flanged connections

- 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
Absolute pressure p1 steam	1600 kPa abs

Range overview VVF43..

SAV.. Δp_{max} [kPa]	SAV.. Δp_s [kPa]	SKC.. Δp_{max} [kPa]	SKC.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	450	650	700	65	50	S55206-V100	**VVF43.65-50**
400	450	650	700	65	63	S55206-V101	**VVF43.65-63**
225	250	400	450	80	80	S55206-V102	**VVF43.80-80**
225	250	400	450	80	100	S55206-V103	**VVF43.80-100**
125	160	250	300	100	125	S55206-V104	**VVF43.100-125**
125	160	250	300	100	160	S55206-V105	**VVF43.100-160**
90	125	160	175	125	200	S55206-V106	**VVF43.125-200**
90	125	160	175	125	250	S55206-V107	**VVF43.125-250**
60	80	100	125	150	315	S55206-V108	**VVF43.150-315**
60	80	100	125	150	400	S55206-V109	**VVF43.150-400**

Replacement sealing glands for VVF43..

Product Title	Data sheet	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**

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Combinable actuator for VVF43..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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VVF43..K

2-port seat valve PN16 with flanged connections, pressure compensated

- 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	-5...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
Absolute pressure p1 steam	1600 kPa abs

Range overview 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	150	S55206-V120	**VVF43.100-150K**
800	1600	125	220	S55206-V121	**VVF43.125-220K**
800	1600	150	315	S55206-V122	**VVF43.150-315K**
800	1200	200	450	S55206-V123	**VVF43.200-450K**
800	1000	250	630	S55206-V124	**VVF43.250-630K**

Replacement sealing glands for VVF43..K

Product Title	Data sheet	Stock No.	Product No.
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**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE, up to 220 °C		BPZ:467956300	**467956300**

Combinable actuator for VVF43..K

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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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 VVF47..

For customers in Asia / Australia

SBX.. Δp_{max} [kPa]	SBX.. Δp_s [kPa]	SBV.. Δp_{max} [kPa]	SBV.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300	300			50	40	S55220-V106	**VVF47.50**
175	175	300	400	65	63	S55220-V107	**VVF47.65**
100	100	250	250	80	100	S55220-V108	**VVF47.80**
		300	400	100	160	S55220-V109	**VVF47.100**
		300	400	125	250	S55220-V110	**VVF47.125**
		300	400	150	315	S55220-V111	**VVF47.150**

Combinable actuator for VVF47..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	180	N4519	S55160-A105	**SBV31**
AC 230	3-position	120	N4519	S55160-A102	**SBX31**
AC 24	DC 0...10 V	180	N4519	S55160-A103	**SBV61**
AC 24	DC 0...10 V	120	N4519	S55160-A100	**SBX61**
AC 24	3-position	180	N4519	S55160-A104	**SBV81**
AC 24	3-position	120	N4519	S55160-A101	**SBX81**

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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

When using valves of the V..F43.., V..F53.. lines with a stem heating element and a medium temperature of below -5 °C, the stem sealing gland must be replaced.

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
Absolute pressure p1 steam	1600 kPa abs

Range overview VVF53..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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	10	S55208-V120	**VVF53.25-10**
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**
750	900			1100	1200	1200	2500			32	16	S55208-V122	**VVF53.32-16**
500	550	1150	1250	650	750	1200	2000			40	12.5	S55208-V123	**VVF53.40-12.5**
500	550	1150	1250	650	750	1200	2000			40	16	S55208-V124	**VVF53.40-16**

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Range overview VVF53..

SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. 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.
500	550	1150	1250	650	750	1200	2000			40	20	S55208-V125	**VVF53.40-20**
500	550	1150	1250	650	750	1200	2000			40	25	S55208-V126	**VVF53.40-25**
300	350	700	750	400	450	1150	1200			50	31.5	S55208-V127	**VVF53.50-31.5**
300	350	700	750	400	450	1150	1200			50	40	S55208-V128	**VVF53.50-40**
		400	450					650	700	65	63	S55208-V129	**VVF53.65-63**
		225	250					400	450	80	100	S55208-V130	**VVF53.80-100**
		125	160					250	300	100	160	S55208-V131	**VVF53.100-160**
		90	125					160	175	125	250	S55208-V132	**VVF53.125-250**
		60	80					100	125	150	400	S55208-V133	**VVF53.150-400**

Replacement sealing glands for VVF53..

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**

Combinable actuator for VVF53..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**

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Combinable actuator for VVF53..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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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...0.01 % of k_{vs} value
Medium temperature	-5...220 °C
Valve characteristic	Equal percentage k_{vs} 220/315 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
Absolute pressure p1 steam	1600 kPa abs

Range overview VVF53..K

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.
1250	2500	1250	2500			50	40	S55208-V134	**VVF53.50-40K**
				1250	2500	65	63	S55208-V135	**VVF53.65-63K**
				1250	2500	80	100	S55208-V136	**VVF53.80-100K**
				1250	2500	100	150	S55208-V158	**VVF53.100-150K**
				1250	2500	125	220	S55208-V159	**VVF53.125-220K**
				1250	2500	150	315	S55208-V160	**VVF53.150-315K**
				800	1200	200	450	S55208-V161	**VVF53.200-450K**
				800	1000	250	630	S55208-V162	**VVF53.250-630K**

Replacement sealing glands for VVF53..K

Product Title	Stock No.	Product No.
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**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE, up to 220 °C	BPZ:467956300	**467956300**

New Product

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Combinable actuator for VVF53..K

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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2-port seat valves PN40 with flanged connections

VVF61..

- 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
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 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**

Replacement sealing glands for VVF61..

Product Title	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material PTFE, up to 220 °C	BPZ:428488290	**428488290**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE with silicon-free grease, up to 220°C	BPZ:428495400	**428495400**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE, up to 220 °C	BPZ:467956300	**467956300**

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Combinable actuator for VVF61..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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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
PN class	PN 16
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
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
Absolute pressure p1 steam	900 kPa abs
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

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Range overview MVF461H..

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

Δp_{max} [kPa]	Δp_s [kPa]	k_{vs} [m³/h]	DN	Stock No.	Product No.
1000	1000	0.6	15	BPZ:MVF461H15-0.6	**MVF461H15-0.6**
1000	1000	1.5	15	BPZ:MVF461H15-1.5	**MVF461H15-1.5**
1000	1000	3	15	BPZ:MVF461H15-3	**MVF461H15-3**
1000	1000	5	20	BPZ:MVF461H20-5	**MVF461H20-5**
1000	1000	8	25	BPZ:MVF461H25-8	**MVF461H25-8**
1000	1000	12	32	BPZ:MVF461H32-12	**MVF461H32-12**
1000	1000	20	40	BPZ:MVF461H40-20	**MVF461H40-20**
1000	1000	30	50	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**

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VDN1..

2-port valves PN10, to DIN

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

The valves can be combined with Siemens actuators RTN../SSA../STA..

Data sheet	N2105
Stroke	>1.2 mm
Medium	Water with anti-freeze
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VDN1..

kv relation of Xp	Connecting thread	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.072...0.43 m³/h / 2 K 0.057...0.33 m³/h / 1.5 K 0.037...0.22 m³/h /1 K	Rp/R ⅜ "	60	10	BPZ:VDN110	**VDN110**
0.073...0.50 m³/h / 2 K 0.058...0.40 m³/h / 1.5 K 0.038...0.27 m³/h / 1 K	Rp/R ½ "	60	15	BPZ:VDN115	**VDN115**
0.22...0.70 m³/h / 2 K 0.17...0.55 m³/h /1.5 K 0.11...0.36 m³/h / 1 K	Rp/R ¾ "	60	20	BPZ:VDN120	**VDN120**

VEN1..

Angle valves PN10, to DIN

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

The valves can be combined with Siemens actuators RTN../SSA../STA..

Data sheet	N2105
Stroke	>1.2 mm
Medium	Water with anti-freeze
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VEN1..

kv relation of Xp	Connecting thread	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.072...0.43 m³/h / 2 K 0.057...0.33 m³/h / 1.5 K 0.037...0.22 m³/h /1 K	Rp/R ⅜ "	60	10	BPZ:VEN110	**VEN110**
0.073...0.50 m³/h / 2 K 0.058...0.40 m³/h / 1.5 K 0.038...0.27 m³/h / 1 K	Rp/R ½ "	60	15	BPZ:VEN115	**VEN115**
0.22...0.70 m³/h / 2 K 0.17...0.55 m³/h /1.5 K 0.11...0.36 m³/h / 1 K	Rp/R ¾ "	60	20	BPZ:VEN120	**VEN120**

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Combinable actuator for VDN1../VEN1..

Operating voltage [V]	Positioning signal	Positioning time [s]	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	3-position	150	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	1	N4884	S55174-A101	**STA23**
AC 24	DC 0...10 V	270	2	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	1	N4884	S55174-A100	**STA73**
AC 230	2-position	210		N4884	S55174-A110	**STA23/00**
AC 230	2-position	210		N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210		N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270		N4884	S55174-A115	**STA73PR/00**

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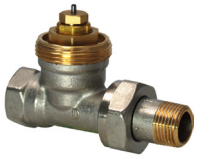
VDN2..



2-port seat valves PN10, to NF

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

The valves can be combined with Siemens actuators RTN../SSA.../STA..

Data sheet	N2106
Stroke	>1.2 mm
Medium	Water with anti-freeze
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VDN2..

kv relation of Xp	Connecting thread	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.072...0.43 m³/h / 2 K 0.057...0.33 m³/h / 1.5 K 0.037...0.22 m³/h /1 K	Rp/R ⅜ "	60	10	BPZ:VDN210	**VDN210**
0.073...0.50 m³/h / 2 K 0.058...0.40 m³/h / 1.5 K 0.038...0.27 m³/h / 1 K	Rp/R ½ "	60	15	BPZ:VDN215	**VDN215**
0.22...0.70 m³/h / 2 K 0.17...0.55 m³/h /1.5 K 0.11...0.36 m³/h / 1 K	Rp/R ¾ "	60	20	BPZ:VDN220	**VDN220**

VEN2..

Angle valves PN10, to NF

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

The valves can be combined with Siemens actuators RTN../SSA.../STA..

Data sheet	N2106
Stroke	>1.2 mm
Medium	Water with anti-freeze
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VEN2..

kv relation of Xp	Connecting thread	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.072...0.43 m³/h / 2 K 0.057...0.33 m³/h / 1.5 K 0.037...0.22 m³/h /1 K	Rp/R ⅜ "	60	10	BPZ:VEN210	**VEN210**
0.073...0.50 m³/h / 2 K 0.058...0.40 m³/h / 1.5 K 0.038...0.27 m³/h / 1 K	Rp/R ½ "	60	15	BPZ:VEN215	**VEN215**
0.22...0.70 m³/h / 2 K 0.17...0.55 m³/h /1.5 K 0.11...0.36 m³/h / 1 K	Rp/R ¾ "	60	20	BPZ:VEN220	**VEN220**

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Reverse angle valves PN10, to NF

VUN2..

Radiator valves for 2-pipe heating systems for room temperature control. Adjustable flow.
Permissible media: water (to VDI 2035), water with anti-freeze

The valves can be combined with Siemens actuators RTN../SSA.../STA..

Data sheet	N2106
Stroke	>1.2 mm
Medium	Water with anti-freeze
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VUN2..

kv relation of Xp	Connecting thread	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.14...0.43 m³/h / 2 K 0.12...0.37 m³/h /1.5 K 0.08...0.24 m³/h / 1 K	Rp/R ⅜ "	60	10	BPZ:VUN210	**VUN210**
0.13...0.50 m³/h / 2 K 0.11...0.43 m³/h /1.5 K 0.07...0.28 m³/h / 1 K	Rp/R ½ "	60	15	BPZ:VUN215	**VUN215**

Combinable actuator for VDN2../VEN2../VUN2..

Operating voltage [V]	Positioning signal	Positioning time [s]	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	3-position	150	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	1	N4884	S55174-A101	**STA23**
AC 24	DC 0...10 V	270	2	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	1	N4884	S55174-A100	**STA73**
AC 230	2-position	210		N4884	S55174-A110	**STA23/00**
AC 230	2-position	210		N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210		N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270		N4884	S55174-A115	**STA73PR/00**

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ATN4

Manual knob, white, for VDN../VEN../VUN../VPD../VPE..

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**

AVN1

Valve insert for VDN../VEN.. und VUN..

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**

AVN1..-1..

Compression fittings for copper and soft steel pipes

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 AVN1..-1..

Pipe diameter [mm]	Stock No.	Product No.
15	BPZ:AVN15-15	**AVN15-15**

AVN15A..

Compression fittings plastic pipes with aluminum foil

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 AVN15A..

Pipe diameter [mm]	Stock No.	Product No.
16	BPZ:AVN15A16	**AVN15A16**

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Two-port seat lockshield valves

ADN..

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
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
Valve design	Throughput

Range overview ADN..

k_v [m³/h]	Connecting thread	Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
0...1.8	Rp/R ⅜ "	60	10	0...1.8	BPZ:ADN10	**ADN10**
0...2.5	Rp/R ½ "	60	15	0...2.5	BPZ:ADN15	**ADN15**
0...3.0	Rp/R ¾ "	60	20	0...3.0	BPZ:ADN20	**ADN20**

Angle lockshield valves

AEN..

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
Permissible operating pressure	1000 kPa
Material, valve body	Brass Ms58, mat nickel-plated
PN class	PN 10
Valve design	Angle

Range overview AEN..

k_v [m³/h]	Connecting thread	Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
0...1.8	Rp/R ⅜ "	60	10	0...1.8	BPZ:AEN10	**AEN10**
0...2.5	Rp/R ½ "	60	15	0...2.5	BPZ:AEN15	**AEN15**
0...3.0	Rp/R ¾ "	60	20	0...3.0	BPZ:AEN20	**AEN20**

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VD1..CLC..

2-port small valves PN10, DIN, 2.5 mm stroke

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.

The valves can be combined with Siemens actuators SSA.../STA..

Data sheet	N2103
Stroke	2.5 mm
Medium temperature	1...110 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass, mat, nickel plated
PN class	PN 10
ΔP_{100}	5...20 kPa

Range overview VD1..CLC..

k_V [m³/h]	Connecting thread ["]	Δp_{max} [kPa]	DN	Stock No.	Product No.
0.25...1.9	Rp/R ½	150	15	BPZ:VD115CLC	**VD115CLC**
0.25...2.6	Rp/R ¾	150	20	BPZ:VD120CLC	**VD120CLC**
0.25...2.6	Rp/R 1	150	25	BPZ:VD125CLC	**VD125CLC**

Combinable actuator for VD1..CLC..

Operating voltage [V]	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	1	N4884	S55174-A101	**STA23**
AC 24	DC 0...10 V	270	2	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	1	N4884	S55174-A100	**STA73**
AC 230	2-position	210		N4884	S55174-A110	**STA23/00**
AC 230	2-position	210		N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210		N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270		N4884	S55174-A115	**STA73PR/00**

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2-port seat valves, PN16

VVP45..

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.

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.

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
Rangeability	From k_{vs}>6.3: >100 To k_{vs}=6.3: >50
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
PN class	PN 16
Material, inside set	CrNi steel / Rg5 / brass

Range overview VVP45..

Connecting thread ["]	SSB.. Δp_{max} [kPa]	SSB.. Δp_s [kPa]	SSC.. Δp_s [kPa]	SSC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ½ B	400	725			10	0.25	BPZ:VVP45.10-0.25	**VVP45.10-0.25**
G ½ B	400	725			10	0.4	BPZ:VVP45.10-0.4	**VVP45.10-0.4**
G ½ B	400	725			10	0.63	BPZ:VVP45.10-0.63	**VVP45.10-0.63**
G ½ B	400	725			10	1	BPZ:VVP45.10-1	**VVP45.10-1**
G ½ B	400	725			10	1.6	BPZ:VVP45.10-1.6	**VVP45.10-1.6**
G ¾ B	350	350			15	2.5	BPZ:VVP45.15-2.5	**VVP45.15-2.5**
G 1 B	350	350	350	350	20	4	BPZ:VVP45.20-4	**VVP45.20-4**
G 1¼ B	300	300	300	300	25	6.3	BPZ:VVP45.25-6.3	**VVP45.25-6.3**
G 1½ B			300	300	25	10	BPZ:VVP45.25-10	**VVP45.25-10**
G 2 B			175	175	32	16	BPZ:VVP45.32-16	**VVP45.32-16**
G 2¼ B			75	75	40	25	BPZ:VVP45.40-25	**VVP45.40-25**

70 % k_{vs} in bypass for all types.

Combinable actuator for VVP45..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4891	BPZ:SSB31	**SSB31**
AC 24 DC 24	DC 0...10 V	75	N4891	BPZ:SSB61	**SSB61**
AC 24	3-position	150	N4891	BPZ:SSB81	**SSB81**
AC 230	3-position	150	N4895	BPZ:SSC31	**SSC31**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61	**SSC61**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61.5	**SSC61.5**
AC 24	3-position	150	N4895	BPZ:SSC81	**SSC81**

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Globe and pressure independent combi valves (PICV)
2-port threaded valves

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	Water Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Equal percentage
Rangeability	> 50
Permissible operating pressure	1600 kPa
Material, valve body	Red brass (CC499K)
Material, inside set	CrNi steel, brass
PN class	PN 16

Range overview 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**

Combinable actuator for VVP45..N

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4895	BPZ:SSC31	**SSC31**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61	**SSC61**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61.5	**SSC61.5**
AC 24	3-position	150	N4895	BPZ:SSC81	**SSC81**

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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.

VXP47.. and VMP47.. 3-port valves are only used as mixing valves.
They are also suitable for SERTO® compression fittings.

Data sheet	N4847
Stroke	2.5 mm
Leakage rate	0...0.05 % of k_{vs} value
Medium	Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
PN class	PN 16
Characteristic	linear
Material, inside set	CrNi steel, brass

Range overview VVP47..

STP.. Δp_{max} [kPa]	STP.. Δp_s [kPa]	SFP../SSP.. Δp_{max} [kPa]	SFP../SSP.. Δp_s [kPa]	Connecting thread ["]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	700	400	1000	G ½ B	10	0.25	BPZ:VVP47.10-0.25	**VVP47.10-0.25**
400	700	400	1000	G ½ B	10	0.4	BPZ:VVP47.10-0.4	**VVP47.10-0.4**
250	250	400	500	G ½ B	10	0.63	BPZ:VVP47.10-0.63	**VVP47.10-0.63**
250	250	400	500	G ½ B	10	1	BPZ:VVP47.10-1	**VVP47.10-1**
150	150	300	300	G ½ B	10	1.6	BPZ:VVP47.10-1.6	**VVP47.10-1.6**
150	150	300	300	G ¾ B	15	2.5	BPZ:VVP47.15-2.5	**VVP47.15-2.5**
100	100	175	175	G 1 B	20	4	BPZ:VVP47.20-4	**VVP47.20-4**
250	250	400	500	G ½ B	10	1	BPZ:VVP47.10-1S	**VVP47.10-1S**
150	150	300	300	G ½ B	10	1.6	BPZ:VVP47.10-1.6S	**VVP47.10-1.6S**

70 % k_{vs} in bypass for all types.
VVP47..S for Conex compression fittings.

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Combinable actuator for VVP47..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	2-position	10	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24	2-position	10	N4865	BPZ:SFP71/18	**SFP71/18**
AC 230	2-position	210	N4884	S55174-A103	**STP23**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A102	**STP73**
AC 230	2-position	210	N4884	S55174-A112	**STP23/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A111	**STP73/00**
AC 24 DC 24	2-position PDM/parallel operation	270	N4884	S55174-A116	**STP73PR/00**
AC 230	3-position	150	N4864	BPZ:SSP31	**SSP31**
AC 24 DC 24	DC 0...10 V	34	N4864	BPZ:SSP61	**SSP61**
AC 24	3-position	150	N4864	BPZ:SSP81	**SSP81**

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2-port zone valves, internally threaded, PN16, on/off characteristic

VVI46..

2-port valves, internally threaded connections, for the control of zones or terminal units. Suitable media: water (to VDI 2035), water with anti-freeze.

Stroke	2.5 mm
Medium	Water Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Non-linear (on/off)
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
PN class	PN 16
Material, inside set	Stainless steel, brass
Leakage rate	0...0.05% of rated valve capacity

Range overview VVI46..

STA.. Δp_{max} [kPa]	STA.. Δp_s [kPa]	SFA.. Δp_{max} [kPa]	SFA.. Δp_s [kPa]	SUA21.. Δp_s [kPa]	SUA21.. Δp_{max} [kPa]	SSA31.04.. Δp_s [kPa]	SSA31.04.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Connecting thread ["]	Stock No.	Product No.
200	200	300	300	300	300	200	200	15	2	Rp ½	BPZ:VVI46.15	**VVI46.15**
200	200	300	300	300	300	200	200	15	2.15	Rp ½	S55249-V106	**VVI46.15/2**
200	200	300	300	300	300	200	200	20	3.5	Rp ¾	BPZ:VVI46.20	**VVI46.20**
200	200	300	300	300	300	200	200	20	3.5	Rp ¾	S55249-V107	**VVI46.20/2**
200	200	200	200	200	200	200	200	25	5	Rp 1	BPZ:VVI46.25	**VVI46.25**
150	150	250	250	230	230	200	200	25	5	Rp 1	S55249-V108	**VVI46.25/2**

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.

Combinable actuator for VVI46..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	2-position	10	N4863	BPZ:SFA21/18	**SFA21/18**
AC 24	2-position	10	N4863	BPZ:SFA71/18	**SFA71/18**
AC 230	2-position	210	N4884	S55174-A101	**STA23**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A100	**STA73**
AC 230	2-position	210	N4884	S55174-A110	**STA23/00**
AC 230	2-position	210	N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210	N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A113	**STA73MP/00**

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Globe and pressure independent combi valves (PICV)
2-port threaded valves

C/VVI41..

2-port seat valves PN16 with internally threaded connections

- 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
Absolute pressure p1 steam	150 kPa abs

Range overview C/VVI41..

For customers in Asia / Australia

Connecting thread ["]	SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SKD.. Δp_{max} [kPa]	SKD.. Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	400	1600	400	1600	15	2.5	BPZ:C/VVI41.15-2.5	**C/VVI41.15-2.5**
Rp ½	400	1600	400	1600	15	4.0	BPZ:C/VVI41.15-4	**C/VVI41.15-4**
Rp ¾	400	1600	400	1600	20	6.3	BPZ:C/VVI41.20-6.3	**C/VVI41.20-6.3**
Rp 1	400	1550	400	1600	25	10	BPZ:C/VVI41.25-10	**C/VVI41.25-10**
Rp 1¼	400	875	400	1275	32	16	BPZ:C/VVI41.32-16	**C/VVI41.32-16**
Rp 1½	400	525	400	775	40	25	BPZ:C/VVI41.40-25	**C/VVI41.40-25**
Rp 2	300	300	400	450	50	40	BPZ:C/VVI41.50-40	**C/VVI41.50-40**

Replacement sealing glands for C/VVI41..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM, up to 150 °C		BPZ:428488740	**428488740**

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Combinable actuator for C/VVI41..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**

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MVI421..

On/off 2-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
PN class	PN 16
Operating voltage	AC 230 V
Power consumption	12 VA
Positioning signal	2-position
Positioning time	10 s
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright up to 85° inclined
Leakage rate	0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview MVI421..

For customers in Asia / Australia

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	300	Rp 1/2	2.0	15	BPZ:MVI421.15	**MVI421.15**
300	300	Rp 3/4	3.5	20	BPZ:MVI421.20	**MVI421.20**
300	300	Rp 1	5.0	25	BPZ:MVI421.25	**MVI421.25**

Accessories for MVI421..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SFA21.../ SFA71.../ SFP21.../ SFP71...	N4863	BPZ:ASC2.1/18	**ASC2.1/18**

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2-port seat valves PN16 with externally threaded connections

VVG41..

- 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
Absolute pressure p1 steam	300 kPa abs

Range overview 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 glands for VVG41..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM, up to 150 °C		BPZ:428488740	**428488740**

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Combinable actuator for VVG41..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**

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2-port seat valves PN16 with externally threaded connections

VVG44..

- 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 VVG44..

DN	SAS.. Δp_s [kPa]	SAS.. Δp_{max} [kPa]	Connecting thread ["]	k_{vs} [m³/h]	Stock No.	Product No.
15	1600	400	G 1 B	0.25	BPZ:VVG44.15-0.25	**VVG44.15-0.25**
15	1600	400	G 1 B	0.4	BPZ:VVG44.15-0.4	**VVG44.15-0.4**
15	1600	400	G 1 B	0.63	BPZ:VVG44.15-0.63	**VVG44.15-0.63**
15	725	400	G 1 B	1	BPZ:VVG44.15-1	**VVG44.15-1**
15	725	400	G 1 B	1.6	BPZ:VVG44.15-1.6	**VVG44.15-1.6**
15	400	400	G 1 B	2.5	BPZ:VVG44.15-2.5	**VVG44.15-2.5**
15	400	400	G 1 B	4	BPZ:VVG44.15-4	**VVG44.15-4**
20	750	400	G 1¼ B	6.3	BPZ:VVG44.20-6.3	**VVG44.20-6.3**
25	400	400	G 1½ B	10	BPZ:VVG44.25-10	**VVG44.25-10**
32	250	250	G 2 B	16	BPZ:VVG44.32-16	**VVG44.32-16**
40	125	125	G 2¼ B	25	BPZ:VVG44.40-25	**VVG44.40-25**

$\Delta p_{max}/\Delta p_s$-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.

Accessories for VVG44..

Product Title	Data sheet	Stock No.	Product No.
Fittings, pipe-side with threaded connection		BPZ:ALG..2	**ALG..2**

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Combinable actuator for VVG44..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	120	N4581	S55158-A106	**SAS31.00**
AC 230	3-position	30	N4581	S55158-A107	**SAS31.03**
AC 230	3-position	120	N4581	S55158-A108	**SAS31.50**
AC 230	3-position	30	N4581	S55158-A109	**SAS31.53**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A100	**SAS61.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A101	**SAS61.33**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A102	**SAS61.53**
AC 24 DC 24	3-position	120	N4581	S55158-A103	**SAS81.00**
AC 24 DC 24	3-position	30	N4581	S55158-A104	**SAS81.03**
AC 24 DC 24	3-position	30	N4581	S55158-A105	**SAS81.33**

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2-port seat valves, externally threaded, PN25

VVG549..

- 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	CA1Q4380
Medium temperature	1...150 °C
PN class	PN 25

Range overview VVG549..

Connecting thread ["]	SAT.. Δp_s [kPa]	SAT.. Δp_{max} [kPa]	SAS.. Δp_s [kPa]	SAS.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G ¾ B	2500	1200	2500	1200	15	0.25	BPZ:VVG549.15-0.25	**VVG549.15-0.25**
G ¾ B	2500	1200	2500	1200	15	0.4	BPZ:VVG549.15-0.4	**VVG549.15-0.4**
G ¾ B	2500	1200	2500	1200	15	0.63	BPZ:VVG549.15-0.63	**VVG549.15-0.63**
G ¾ B	1500	1200	2000	1200	15	1	BPZ:VVG549.15-1	**VVG549.15-1**
G ¾ B	1500	1200	2000	1200	15	1.6	BPZ:VVG549.15-1.6	**VVG549.15-1.6**
G ¾ B	1500	1200	2000	1200	15	2.5	BPZ:VVG549.15-2.5	**VVG549.15-2.5**
G 1 B	1600	1200	1600	1200	20	4	BPZ:VVG549.20-4K	**VVG549.20-4K**
G 1¼ B	1600	1200	1600	1200	25	6.3	BPZ:VVG549.25-6.3K	**VVG549.25-6.3K**

Accessories for VVG549..

Product Title	Data sheet	Stock No.	Product No.
Fittings, pipe-side with threaded connection		BPZ:ALG..2	**ALG..2**
Fittings, pipeside with welding connection		BPZ:ALS..	**ALS..**

Combinable actuator for VVG549..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	8	N4584	S55158-A119	**SAT31.008**
AC 230	3-position	15	N4584	S55158-A120	**SAT31.51**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	8	N4584	S55158-A117	**SAT61.008**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	15	N4584	S55158-A118	**SAT61.51**

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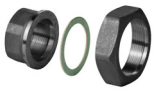
ALG..2



Fittings, pipe-side with threaded connection

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.

Range overview ALG..2

Connecting thread, pipe side ["]	Connecting thread, valve side	Material	Stock No.	Product No.
Rp ⅜	G ¾ "	Malleable cast iron, phosphated	BPZ:ALG122	**ALG122**
R ⅜	G ½ "	Brass	BPZ:ALG132	**ALG132**
R ½	G ¾ "	Brass	BPZ:ALG142	**ALG142**
Rp ½	G 1 "	Phosphated malleable cast iron	BPZ:ALG152	**ALG152**
Rp ¾	G 1¼ "	Phosphated malleable cast iron	BPZ:ALG202	**ALG202**
Rp 1	G 1½ "	Phosphated malleable cast iron	BPZ:ALG252	**ALG252**
Rp 1¼	G 2 "	Phosphated malleable cast iron	BPZ:ALG322	**ALG322**
Rp 1½	G 2¼ "	Phosphated malleable cast iron	BPZ:ALG402	**ALG402**
Rp 2	G 2¾ "	Phosphated malleable cast iron	BPZ:ALG502	**ALG502**
Rp ½	G 1 "	Brass	S55846-Z100	**ALG152B**
Rp ¾	G 1¼ "	Brass	S55846-Z102	**ALG202B**
Rp 1	G 1½ "	Brass	S55846-Z104	**ALG252B**
Rp 1¼	G 2 "	Brass	S55846-Z106	**ALG322B**
Rp 1½	G 2¼ "	Brass	S55846-Z108	**ALG402B**
Rp 2	G 2¾ "	Brass	S55846-Z110	**ALG502B**

ALG132 and ALG142: pipe connecting thread externally threaded.
For the VMP45.. and VMP47.. valves, 2 sets of 2 fittings must be ordered

ALS..

Fittings, pipeside with welding connection

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.

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Fittings with weldable connections: Set of 2

Pipe diameter [mm]	Connecting thread, pipe side	Connecting thread, valve side ["]	Material	Stock No.	Product No.
21.3		G ¾	Weldable steel	BPZ:ALS152	**ALS152**
26.8		G 1	Weldable steel	BPZ:ALS202	**ALS202**
33.7		G 1¼	Weldable steel	BPZ:ALS252	**ALS252**

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3-port valves with flanged connections, PN 6

VXF22..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4401
Stroke	to DN80: 20 mm DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Leakage rate bypass	0.5...2 % of the k_{vs}-value
Medium temperature	-10...130 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	DN 25: >50 DN 40...100: >100
Permissible operating pressure	600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN50: CrNi steel / bronze
PN class	PN 6

Range overview VXF22..

SAX.. Δp_{max} [kPa]	SAV.. 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	2.5	S55200-V110	**VXF22.25-2.5**
300		300	300		25	4	S55200-V111	**VXF22.25-4**
300	300	300	300		25	6.3	S55200-V112	**VXF22.25-6.3**
300		300	300		25	10	S55200-V113	**VXF22.25-10**
300		300	300		40	16	S55200-V114	**VXF22.40-16**
300	300	300	300		40	25	S55200-V115	**VXF22.40-25**
300	300	300	300		50	40	S55200-V116	**VXF22.50-40**
150	300	200	300		65	63	S55200-V117	**VXF22.65-63**
75	225	125	300		80	100	S55200-V118	**VXF22.80-100**
	125			250	100	160	S55200-V119	**VXF22.100-160**

Δp_{max}-ratings are valid for mixing applications.

Replacement sealing glands for VXF22..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VXF22..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VXF22..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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VXF32..

3-port valves with flanged connections, PN10

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4402
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Leakage rate bypass	0.5...2 % of the k_{vs}-value
Medium temperature	-10...150 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	DN 15 .. 25: >50 DN 40...150: >100
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN50: CrNi steel / bronze
PN class	PN 10

Range overview VXF32..

SAX.. Δp_{max} [kPa]	SAV.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400		400	400		15	1.6	S55202-V113	**VXF32.15-1.6**
400		400	400		15	2.5	S55202-V114	**VXF32.15-2.5**
400		400	400		15	4	S55202-V115	**VXF32.15-4**
400		400	400		25	6.3	S55202-V116	**VXF32.25-6.3**
400		400	400		25	10	S55202-V117	**VXF32.25-10**
400	400	400	400		40	16	S55202-V118	**VXF32.40-16**
400	400	400	400		40	25	S55202-V119	**VXF32.40-25**
300	400	400	400		50	40	S55202-V120	**VXF32.50-40**
150	400	200	400		65	63	S55202-V121	**VXF32.65-63**
75	225	125	400		80	100	S55202-V122	**VXF32.80-100**
	125			250	100	160	S55202-V123	**VXF32.100-160**
	90			160	125	250	S55202-V124	**VXF32.125-250**
	60			100	150	400	S55202-V125	**VXF32.150-400**

Δp_{max}-ratings are valid for mixing applications.

Replacement sealing glands for VXF32..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VXF32..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VXF32..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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3-port valves with flanged connections, PN 16

VXF42..

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	N4403
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Leakage rate bypass	0.5...2 % of the k_{vs}-value
Medium temperature	-10...150 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	DN 15...25: >50 DN 32...150: >100
Permissible operating pressure	1600 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	≤ DN40: CrNi steel / brass ≥ DN50: CrNi steel / bronze
PN class	PN 16

Range overview VXF42..

SAX.. Δp_{max} [kPa]	SAV.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400		400	400		15	1.6	S55204-V127	**VXF42.15-1.6**
400		400	400		15	2.5	S55204-V128	**VXF42.15-2.5**
400		400	400		15	4	S55204-V129	**VXF42.15-4**
400		400	400		20	6.3	S55204-V130	**VXF42.20-6.3**
400		400	400		25	6.3	S55204-V131	**VXF42.25-6.3**
400		400	400		25	10	S55204-V132	**VXF42.25-10**
400		400	400		32	16	S55204-V133	**VXF42.32-16**
400	400	400	400		40	16	S55204-V134	**VXF42.40-16**
400	400	400	400		40	25	S55204-V135	**VXF42.40-25**
300	400	400	400		50	31.5	S55204-V136	**VXF42.50-31.5**
300	400	400	400		50	40	S55204-V137	**VXF42.50-40**
150	400	200	400		65	50	S55204-V138	**VXF42.65-50**
150	400	200	400		65	63	S55204-V139	**VXF42.65-63**
75	225	125	400		80	80	S55204-V140	**VXF42.80-80**
75	225	125	400		80	100	S55204-V141	**VXF42.80-100**
	125			250	100	125	S55204-V142	**VXF42.100-125**
	125			250	100	160	S55204-V143	**VXF42.100-160**
	90			160	125	200	S55204-V144	**VXF42.125-200**
	90			160	125	250	S55204-V145	**VXF42.125-250**
	60			100	150	315	S55204-V146	**VXF42.150-315**
	60			100	150	400	S55204-V147	**VXF42.150-400**

Δp_{max}-ratings are valid for mixing applications.

Replacement sealing glands for VXF42..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VXF42..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VXF42..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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VXF42..C

3-port valves with flanged connections, PN 16

- With flanged connections to ISO 7005
- For chilled, low and high temperature water and brine in closed circuits

Data sheet	A6V10794157
Stroke	to DN80: 20 mm from DN100: 40 mm
Leakage rate	0...0.02% of the kvs value
Leakage rate bypass	0.5...2 % of the k_{vs}-value
Medium temperature	-10...150 °C
Valve characteristic	Through-port: equal percentage Through-port: k_{vs} 250/400 linear Bypass: linear
Rangeability	DN 25: >50 DN 32...150: >100
Permissible operating pressure	1600 kPa
Material, inside set	≤ DN32: CrNi steel / brass ≥ DN25: CrNi steel / CrNi steel
PN class	PN 16

Range overview VXF42..C

For customers in Asia / Australia

SAX.. Δp_{max} [kPa]	SAV.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400		400	400		25	6.3	S55204-V165	VXF42.25-6.3C
400		400	400		25	10	S55204-V166	VXF42.25-10C
400		400	400		32	16	S55204-V167	VXF42.32-16C
400	400	400	400		40	16	S55204-V168	VXF42.40-16C
400	400	400	400		40	25	S55204-V169	VXF42.40-25C
300	400	400	400		50	31.5	S55204-V170	VXF42.50-31.5C
300	400	400	400		50	40	S55204-V171	VXF42.50-40C
150	400	200	400		65	50	S55204-V172	VXF42.65-50C
150	400	200	400		65	63	S55204-V173	VXF42.65-63C
75	225	125	400		80	80	S55204-V174	VXF42.80-80C
75	225	125	400		80	100	S55204-V175	VXF42.80-100C
	125			250	100	125	S55204-V176	VXF42.100-125C
	125			250	100	160	S55204-V177	VXF42.100-160C
	90			160	125	200	S55204-V178	VXF42.125-200C
	90			160	125	250	S55204-V179	VXF42.125-250C
	60			100	150	315	S55204-V180	VXF42.150-315C
	60			100	150	400	S55204-V181	VXF42.150-400C

Replacement sealing glands for VXF42..C

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM		BPZ:428488060	**428488060**
Sealing gland complete, stem diameter 14 mm, sealing material EPDM, up to 150 °C		BPZ:467956290	**467956290**

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Combinable actuator for VXF42..C

Product Title	Data sheet	Stock No.	Product No.
Electromotoric actuator, 800 N, 20 mm, AC 230 V, 3P	N4501	S55150-A105	**SAX31.00**
Electromotoric actuator, 800 N, 20 mm, AC 230 V, 3P, 30 s	N4501	S55150-A106	**SAX31.03**
Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, DC 0...10 V / DC 4...20 mA, 30 s	N4501	S55150-A100	**SAX61.03**
Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P	N4501	S55150-A102	**SAX81.00**
Electromotoric actuator, 800 N, 20 mm, AC/DC 24 V, 3P, 30 s	N4501	S55150-A103	**SAX81.03**
Electromotoric actuator, 1600 N, 20/40 mm, AC 230 V, 3P	N4503	S55150-A112	**SAV31.00**
Electromotoric actuator, 1600 N, 20/40 mm, AC/DC 24 V, DC 0...10 V / DC 4...20 mA	N4503	S55150-A110	**SAV61.00**
Electromotoric actuator, 1600 N, 20/40 mm, AC/DC 24 V, 3P	N4503	S55150-A111	**SAV81.00**
Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P, spring return	N4561	BPZ:SKD32.21	**SKD32.21**
Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P	N4561	BPZ:SKD32.50	**SKD32.50**
Electrohydraulic actuator, 1000 N, 20 mm, AC 230 V, 3P, spring return	N4561	BPZ:SKD32.51	**SKD32.51**
Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10/V 4...20 mA	N4561	BPZ:SKD60	**SKD60**
Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4561	BPZ:SKD62	**SKD62**
Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4561	BPZ:SKD62UA	**SKD62UA**
Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P	N4561	BPZ:SKD82.50	**SKD82.50**
Electrohydraulic actuator, 1000 N, 20 mm, AC 24 V, 3P, spring return	N4561	BPZ:SKD82.51	**SKD82.51**
Electrohydraulic actuator, 2800 N, 20 mm, AC 230 V, 3P	N4564	BPZ:SKB32.50	**SKB32.50**
Electrohydraulic actuator, 2800 N, 20 mm, AC 230 V, 3P, spring return	N4564	BPZ:SKB32.51	**SKB32.51**
Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA	N4564	BPZ:SKB60	**SKB60**
Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4564	BPZ:SKB62	**SKB62**
Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4564	BPZ:SKB62UA	**SKB62UA**
Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P	N4564	BPZ:SKB82.50	**SKB82.50**
Electrohydraulic actuator, 2800 N, 20 mm, AC 24 V, 3P, spring return	N4564	BPZ:SKB82.51	**SKB82.51**
Electrohydraulic actuator, 2800 N, 40 mm, AC 230 V, 3P	N4566	BPZ:SKC32.60	**SKC32.60**
Electrohydraulic actuator, 2800 N, 40 mm, AC 230 V, 3P, spring return	N4566	BPZ:SKC32.61	**SKC32.61**
Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA	N4566	BPZ:SKC60	**SKC60**
Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return	N4566	BPZ:SKC62	**SKC62**
Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, DC 0...10 V/4...20 mA, spring return, UL	N4566	BPZ:SKC62UA	**SKC62UA**
Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P	N4566	BPZ:SKC82.60	**SKC82.60**
Electrohydraulic actuator, 2800 N, 40 mm, AC 24 V, 3P, spring return	N4566	BPZ:SKC82.61	**SKC82.61**

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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

When using valves of the V..F43.., V..F53.. lines with a stem heating element and a medium temperature of below -5 °C, the stem sealing gland must be replaced.

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 VXF43..

SAV.. Δp_{max} [kPa]	SKC.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
400	650	65	63	S55206-V115	**VXF43.65-63**
225	400	80	100	S55206-V116	**VXF43.80-100**
125	250	100	160	S55206-V117	**VXF43.100-160**
90	160	125	250	S55206-V118	**VXF43.125-250**
60	100	150	400	S55206-V119	**VXF43.150-400**

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Replacement sealing glands for VXF43..

Product Title	Data sheet	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**

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Combinable actuator for VXF43..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

Bypass extension for VXF43..

Product Title	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN65	N4404	S55845-Z114	**ALF41B65**
Bypass extension, flanged connections, DN80	N4404	S55845-Z115	**ALF41B80**
Bypass extension, flanged connections, DN100	N4404	S55845-Z116	**ALF41B100**
Bypass extension, flanged connections, DN125	N4404	S55845-Z117	**ALF41B125**
Bypass extension, flanged connections, DN150	N4404	S55845-Z118	**ALF41B150**

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Globe and pressure independent combi valves (PICV)
3-port flanged valves

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
Leakage rate bypass	0.5...2% of Kvs value
Medium temperature	1...95 °C
Valve characteristic	Throughport: equal percentage Bypass: linear
Rangeability	DN 50...150: > 50
Material, valve body	Grey cast iron EN-GJL-250
Material, inside set	Stainless Steel/RG5
PN class	PN 16

Range overview VXF47..

For customers in Asia / Australia

SBX.. Δp_{max} [kPa]	SBV.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
300		50	40	S55220-V100	**VXF47.50**
175	300	65	63	S55220-V101	**VXF47.65**
100	250	80	100	S55220-V102	**VXF47.80**
	200	100	160	S55220-V103	**VXF47.100**
	100	125	250	S55220-V104	**VXF47.125**
	75	150	315	S55220-V105	**VXF47.150**

Combinable actuator for VXF47..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	180	N4519	S55160-A105	**SBV31**
AC 230	3-position	120	N4519	S55160-A102	**SBX31**
AC 24	DC 0...10 V	180	N4519	S55160-A103	**SBV61**
AC 24	DC 0...10 V	120	N4519	S55160-A100	**SBX61**
AC 24	3-position	180	N4519	S55160-A104	**SBV81**
AC 24	3-position	120	N4519	S55160-A101	**SBX81**

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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

When using valves of the V..F43.., V..F53.. lines with a stem heating element and a medium temperature of below -5 °C, the stem sealing gland must be replaced.

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 VXF53..

SAX.. Δp_{max} [kPa]	SAV.. 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	1150	650	1200		40	16	S55208-V149	**VXF53.40-16**
500	1150	650	1200		40	25	S55208-V150	**VXF53.40-25**
300	700	400	1150		50	40	S55208-V152	**VXF53.50-40**
	400			650	65	63	S55208-V153	**VXF53.65-63**
	225			400	80	100	S55208-V154	**VXF53.80-100**
	125			250	100	160	S55208-V155	**VXF53.100-160**
	90			160	125	250	S55208-V156	**VXF53.125-250**
	60			100	150	400	S55208-V157	**VXF53.150-400**

Accessories for VXF53..

Product Title	Data sheet	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**

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Combinable actuator for VXF53..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	120		N4503	S55150-A112	**SAV31.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4503	S55150-A110	**SAV61.00**
AC 24 DC 24	3-position	120		N4503	S55150-A111	**SAV81.00**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**

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Combinable actuator for VXF53..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

Bypass extension for VXF53..

Product Title	Data sheet	Stock No.	Product No.
Bypass extension, flanged connections, DN15	N4404	S55845-Z110	**ALF41B15**
Bypass extension, flanged connections, DN25	N4404	S55845-Z111	**ALF41B25**
Bypass extension, flanged connections, DN40	N4404	S55845-Z112	**ALF41B40**
Bypass extension, flanged connections, DN50	N4404	S55845-Z113	**ALF41B50**

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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

- VXF61...2: With teflon sleeve for temperatures of 220...350 °C, k_{vs} ≥ 1,2 m^3/h

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
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 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..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material PTFE, up to 220 °C		BPZ:428488290	**428488290**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE with silicon-free grease, up to 220°C		BPZ:428495400	**428495400**
Sealing gland complete, stem diameter 14 mm, sealing material PTFE, up to 220 °C		BPZ:467956300	**467956300**

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Combinable actuator for VXF61..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**
AC 230	3-position	120	No	N4566	BPZ:SKC32.60	**SKC32.60**
AC 230	3-position	120	Yes (18 s)	N4566	BPZ:SKC32.61	**SKC32.61**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	No	N4566	BPZ:SKC60	**SKC60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62	**SKC62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 20	Yes (20 s)	N4566	BPZ:SKC62UA	**SKC62UA**
AC 24	3-position	120	No	N4566	BPZ:SKC82.60	**SKC82.60**
AC 24	3-position	120	Yes (18 s)	N4566	BPZ:SKC82.61	**SKC82.61**

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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.

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.

Data sheet	N4455
PN class	PN 16
Operating voltage	AC / DC 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
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

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Range overview MXF461..

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

Δp_{max} [kPa]	Δp_s [kPa]	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	300	0.6	15	BPZ:MXF461.15-0.6	**MXF461.15-0.6**
300	300	1.5	15	BPZ:MXF461.15-1.5	**MXF461.15-1.5**
300	300	3	15	BPZ:MXF461.15-3.0	**MXF461.15-3.0**
300	300	5	20	BPZ:MXF461.20-5.0	**MXF461.20-5.0**
300	300	8	25	BPZ:MXF461.25-8.0	**MXF461.25-8.0**
300	300	12	32	BPZ:MXF461.32-12	**MXF461.32-12**
300	300	20	40	BPZ:MXF461.40-20	**MXF461.40-20**
300	300	30	50	BPZ:MXF461.50-30	**MXF461.50-30**
300	300	50	65	BPZ:MXF461.65-50	**MXF461.65-50**

Δp_s for use as 2-port valve.

Accessories for MXF461..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**

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Blanking flanges for MXF461..

Product Title	Stock No.	Product No.
Blanking flange, DN15	BPZ:Z155/15F	**Z155/15F**
Blanking flange, DN20	BPZ:Z155/20F	**Z155/20F**
Blanking flange, DN25	BPZ:Z155/25F	**Z155/25F**
Blanking flange, DN32	BPZ:Z155/32F	**Z155/32F**
Blanking flange, DN40	BPZ:Z155/40	**Z155/40**
Blanking flange, DN50	BPZ:Z155/50	**Z155/50**
Blanking flange, DN65	BPZ:Z155/65	**Z155/65**

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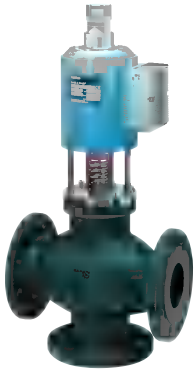
M3P..FY..



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.

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.

Data sheet	N4454
PN class	PN 16
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
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

Range overview M3P..FY

Scope of delivery: 1 blanking flange, 1 seal, screws, spring washers and nuts.

Δp_{max} [kPa]	Δp_s [kPa]	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	300	80	80	BPZ:M3P80FY	**M3P80FY**
200	200	130	100	BPZ:M3P100FY	**M3P100FY**

Δp_s for use as 2-port valve.

Accessories for M3P..FY..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for M3P..GY, M3P..FY, M2H..FY.., M3B..GY.., M2S..FY and M2FE..	N4348	BPZ:ZM150	**ZM150**
Replacement electronic for M3P..FY..	N4454	BPZ:ZM250	**ZM250**
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**

Blanking flanges for M3P..FY..

Product Title	Stock No.	Product No.
Blanking flange, DN100	BPZ:Z155/100	**Z155/100**
Blanking flange, DN80	BPZ:Z155/80	**Z155/80**

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3-port seat valves, PN16

VXP45..

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.

V..P45.. valves are only used as mixing or 2-port valves, not as diverting valves.

Data sheet	N4845
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...110 °C
Valve characteristic	Throughport up to k_{vs} 6.3: equal-percentage Throughport from [kvs/] 10: linear Bypass: linear
Rangeability	From k_{vs}>6,3: >100 To k_{vs}=6,3: >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 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**

70 % k_{vs} in bypass for all types.

Combinable actuator for VXP45..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4891	BPZ:SSB31	**SSB31**
AC 24 DC 24	DC 0...10 V	75	N4891	BPZ:SSB61	**SSB61**
AC 24	3-position	150	N4891	BPZ:SSB81	**SSB81**
AC 230	3-position	150	N4895	BPZ:SSC31	**SSC31**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61	**SSC61**
AC 24 DC 24	DC 0...10 V	30	N4895	BPZ:SSC61.5	**SSC61.5**
AC 24	3-position	150	N4895	BPZ:SSC81	**SSC81**

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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.

V..P45.. valves are only used as mixing valves, not as diverting valves.

Data sheet	N4845
Stroke	5.5 mm
Leakage rate	0...0.02 % of k_{vs} value
Leakage rate bypass	0...0.02 % of k_{vs} value
Medium	Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Equal-percentage: Bypass: linear
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC499K (Rg5)
Material, inside set	CrNi steel, brass
PN class	PN 16

Range overview 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	350	15	2.5	BPZ:VMP45.15-2.5	**VMP45.15-2.5**
G 1 B	350	20	4	BPZ:VMP45.20-4	**VMP45.20-4**

70 % k_{vs} in bypass for all types.

Combinable actuator for VMP45..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4891	BPZ:SSB31	**SSB31**
AC 24 DC 24	DC 0...10 V	75	N4891	BPZ:SSB61	**SSB61**
AC 24	3-position	150	N4891	BPZ:SSB81	**SSB81**

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3-port valves, PN16

VXP47..

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.

VXP47.. and VMP47.. 3-port valves are only used as mixing valves.
They are also suitable for SERTO® compression fittings.

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	Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
PN class	PN 16
Characteristic	linear
Material, inside set	CrNi steel, brass

Range overview VXP47..

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:VXP47.10-0.25	**VXP47.10-0.25**
G ½ B	400	250	10	0.4	BPZ:VXP47.10-0.4	**VXP47.10-0.4**
G ½ B	400	250	10	0.63	BPZ:VXP47.10-0.63	**VXP47.10-0.63**
G ½ B	400	250	10	1	BPZ:VXP47.10-1	**VXP47.10-1**
G ½ B	300	150	10	1.6	BPZ:VXP47.10-1.6	**VXP47.10-1.6**
G ¾ B	300	150	15	2.5	BPZ:VXP47.15-2.5	**VXP47.15-2.5**
G 1 B	175	100	20	4	BPZ:VXP47.20-4	**VXP47.20-4**

70 % k_{vs} in bypass for all types.

Combinable actuator for VXP47..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	2-position	10	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24	2-position	10	N4865	BPZ:SFP71/18	**SFP71/18**
AC 230	2-position	210	N4884	S55174-A103	**STP23**
AC 24	DC 0...10 V	270	N4884	S55174-A105	**STP63**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A102	**STP73**
AC 230	2-position	210	N4884	S55174-A112	**STP23/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A111	**STP73/00**
AC 24 DC 24	2-position PDM/parallel operation	270	N4884	S55174-A116	**STP73PR/00**
AC 230	3-position	150	N4864	BPZ:SSP31	**SSP31**
AC 24 DC 24	DC 0...10 V	34	N4864	BPZ:SSP61	**SSP61**
AC 24	3-position	150	N4864	BPZ:SSP81	**SSP81**

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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.

VXP47.. and VMP47.. 3-port valves are only used as mixing valves.
They are also suitable for SERTO® compression fittings.

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	Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Throughport: linear Bypass: linear
Permissible operating pressure	1600 kPa
Material, valve body	Red brass CC491K (Rg5)
PN class	PN 16
Characteristic	linear
Material, inside set	CrNi steel, brass

Range overview 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	0.63	BPZ:VMP47.10-0.63S	**VMP47.10-0.63S**
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**
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.

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Combinable actuator for VMP47..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	2-position	10	N4865	BPZ:SFP21/18	**SFP21/18**
AC 24	2-position	10	N4865	BPZ:SFP71/18	**SFP71/18**
AC 230	2-position	210	N4884	S55174-A103	**STP23**
AC 24	DC 0...10 V	270	N4884	S55174-A105	**STP63**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A102	**STP73**
AC 230	2-position	210	N4884	S55174-A112	**STP23/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A111	**STP73/00**
AC 24 DC 24	2-position PDM/parallel operation	270	N4884	S55174-A116	**STP73PR/00**
AC 230	3-position	150	N4864	BPZ:SSP31	**SSP31**
AC 24 DC 24	DC 0...10 V	34	N4864	BPZ:SSP61	**SSP61**
AC 24	3-position	150	N4864	BPZ:SSP81	**SSP81**

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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 VDI 2035), water with anti-freeze.

Stroke	2.5 mm
Leakage rate bypass	2...5% of k_{vs} value
Medium	Water Water with anti-freeze
Medium temperature	1...110 °C
Valve characteristic	Non-linear (on/off)
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass
PN class	PN 16
Material, inside set	Stainless steel, brass
Leakage rate	0...0.05% of k_{vs} value
Mounting position	Upright to horizontal

Range overview VXI46..

Connecting thread ["]	SFA.. Δp_{max} [kPa]	SUA21.. Δp_{max} [kPa]	STA.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	300	300	200	15	2	BPZ:VXI46.15	**VXI46.15**
Rp ½	300	300	200	15	2.15	S55249-V109	**VXI46.15/2**
Rp ¾	300	300	200	20	3.5	BPZ:VXI46.20	**VXI46.20**
Rp ¾	300	300	200	20	3.5	S55249-V110	**VXI46.20/2**
Rp 1	300	300	200	25	5	BPZ:VXI46.25	**VXI46.25**
Rp 1	250	230	150	25	5	S55249-V111	**VXI46.25/2**
Rp 1	200	200	200	25	5	BPZ:VXI46.25T	**VXI46.25T**

To ensure noiseless operation, Δp_{max} should not exceed 100 kPa.

Combinable actuator for VXI46..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	2-position	10	N4863	BPZ:SFA21/18	**SFA21/18**
AC 24	2-position	10	N4863	BPZ:SFA71/18	**SFA71/18**
AC 230	2-position	210	N4884	S55174-A101	**STA23**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A100	**STA73**
AC 230	2-position	210	N4884	S55174-A110	**STA23/00**
AC 230	2-position	210	N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210	N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A113	**STA73MP/00**

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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 C/VXI41..

For customers in Asia / Australia

Connecting thread ["]	SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	400	400	15	2.5	BPZ:C/VXI41.15-2.5	**C/VXI41.15-2.5**
Rp ½	400	400	15	4.0	BPZ:C/VXI41.15-4	**C/VXI41.15-4**
Rp ¾	400	400	20	6.3	BPZ:C/VXI41.20-6.3	**C/VXI41.20-6.3**
Rp 1	400	400	25	10	BPZ:C/VXI41.25-10	**C/VXI41.25-10**
Rp 1¼	400	400	32	16	BPZ:C/VXI41.32-16	**C/VXI41.32-16**
Rp 1½	400	400	40	25	BPZ:C/VXI41.40-25	**C/VXI41.40-25**
Rp 2	300	400	50	40	BPZ:C/VXI41.50-40	**C/VXI41.50-40**

Δp_{max}-ratings in kPa are valid for mixing applications.

Replacement sealing glands for C/VXI41..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM, up to 150 °C		BPZ:428488740	**428488740**

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Combinable actuator for C/VXI41..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**

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On/off 3-port valve with spring return

MXI421..

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
PN class	PN 16
Operating voltage	AC 230 V
Power consumption	12 VA
Positioning signal	2-position
Positioning time	10 s
Degree of protection	IP30
Ambient temperature, operation	1...50 °C
Mounting position	Upright up to 85° inclined
Leakage rate	< 0.05% of k_{vs} value
Leakage rate bypass	2...5 % of k_{vs} value
Medium temperature	1...110 °C
Material, valve body	Brass
Material, inside set	Stainless steel/brass/bronze Rg5

Range overview MXI421..

For customers in Asia / Australia

Δp_{max} [kPa]	Connecting thread	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	Rp 1/2	2.0	15	BPZ:MXI421.15	**MXI421.15**
300	Rp 3/4	2.0	20	BPZ:MXI421.20	**MXI421.20**
300	Rp 1	2.0	25	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**

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VXG41..

3-port seat valves PN16 with externally threaded connections

- 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

VXG41..01 are DVGW approved

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 VXG41..

Connecting thread ["]	SAX.. Δp_{max} [kPa]	SKD.. Δp_{max} [kPa]	SKB.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1 B	800	800	800	15	1.6	BPZ:VXG41.1301	**VXG41.1301**
G 1 B	800	800	800	15	2.5	BPZ:VXG41.1401	**VXG41.1401**
G 1 B	800	800	800	15	4	BPZ:VXG41.15	**VXG41.15**
G 1 B	800	800	800	15	4	BPZ:VXG41.1501	**VXG41.1501**
G 1¼ B	800	800	800	20	6.3	BPZ:VXG41.20	**VXG41.20**
G 1¼ B	800	800	800	20	6.3	BPZ:VXG41.2001	**VXG41.2001**
G 1½ B	800	800	800	25	10	BPZ:VXG41.25	**VXG41.25**
G 1½ B	800	800	800	25	10	BPZ:VXG41.2501	**VXG41.2501**
G 2 B	800	800	800	32	16	BPZ:VXG41.32	**VXG41.32**
G 2 B	800	800	800	32	16	BPZ:VXG41.3201	**VXG41.3201**
G 2¼ B	525	775	800	40	25	BPZ:VXG41.40	**VXG41.40**
G 2¼ B	525	775	800	40	25	BPZ:VXG41.4001	**VXG41.4001**
G 2¾ B	300	450	800	50	40	BPZ:VXG41.50	**VXG41.50**
G 2¾ B	300	450	800	50	40	BPZ:VXG41.5001	**VXG41.5001**

VXG41..01 are DVGW (drinking water) 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 glands for VXG41..

Product Title	Data sheet	Stock No.	Product No.
Sealing gland complete, stem diameter 10 mm, sealing material EPDM, up to 150 °C		BPZ:428488740	**428488740**

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Combinable actuator for VXG41..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120	no	N4501	S55150-A105	**SAX31.00**
AC 230	3-position	30	no	N4501	S55150-A106	**SAX31.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	no	N4501	S55150-A100	**SAX61.03**
AC 24 DC 24	3-position	120	no	N4501	S55150-A102	**SAX81.00**
AC 24 DC 24	3-position	30	no	N4501	S55150-A103	**SAX81.03**
AC 230	3-position	Open 30 Close 10	Yes (8 s)	N4561	BPZ:SKD32.21	**SKD32.21**
AC 230	3-position	120	No	N4561	BPZ:SKD32.50	**SKD32.50**
AC 230	3-position	120	Yes (8 s)	N4561	BPZ:SKD32.51	**SKD32.51**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	No	N4561	BPZ:SKD60	**SKD60**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62	**SKD62**
AC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	Open 30 Close 15	Yes (15 s)	N4561	BPZ:SKD62UA	**SKD62UA**
AC 24	3-position	120	No	N4561	BPZ:SKD82.50	**SKD82.50**
AC 24	3-position	120	Yes (8 s)	N4561	BPZ:SKD82.51	**SKD82.51**
AC 230	3-position	120	No	N4564	BPZ:SKB32.50	**SKB32.50**
AC 230	3-position	120	Yes (10 s)	N4564	BPZ:SKB32.51	**SKB32.51**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	No	N4564	BPZ:SKB60	**SKB60**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62	**SKB62**
AC 24	DC 0...10 V 4...20 mA 0...1000 Ohm	Open 120 Close 10	Yes (10 s)	N4564	BPZ:SKB62UA	**SKB62UA**
AC 24	3-position	120	No	N4564	BPZ:SKB82.50	**SKB82.50**
AC 24	3-position	120	Yes (10 s)	N4564	BPZ:SKB82.51	**SKB82.51**

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VXG44..

3-port seat valves PN16 with externally threaded connections

- 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 VXG44..

Connecting thread ["]	SAS.. Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1 B	400	15	0.25	BPZ:VXG44.15-0.25	**VXG44.15-0.25**
G 1 B	400	15	0.4	BPZ:VXG44.15-0.4	**VXG44.15-0.4**
G 1 B	400	15	0.63	BPZ:VXG44.15-0.63	**VXG44.15-0.63**
G 1 B	400	15	1	BPZ:VXG44.15-1	**VXG44.15-1**
G 1 B	400	15	1.6	BPZ:VXG44.15-1.6	**VXG44.15-1.6**
G 1 B	400	15	2.5	BPZ:VXG44.15-2.5	**VXG44.15-2.5**
G 1 B	400	15	4	BPZ:VXG44.15-4	**VXG44.15-4**
G 1¼ B	400	20	6.3	BPZ:VXG44.20-6.3	**VXG44.20-6.3**
G 1½ B	400	25	10	BPZ:VXG44.25-10	**VXG44.25-10**
G 2 B	250	32	16	BPZ:VXG44.32-16	**VXG44.32-16**
G 2¼ B	125	40	25	BPZ:VXG44.40-25	**VXG44.40-25**

Accessories for VXG44..

Product Title	Data sheet	Stock No.	Product No.
Fittings, pipe-side with threaded connection		BPZ:ALG..3	**ALG..3**

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Combinable actuator for VXG44..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	120	N4581	S55158-A106	**SAS31.00**
AC 230	3-position	30	N4581	S55158-A107	**SAS31.03**
AC 230	3-position	120	N4581	S55158-A108	**SAS31.50**
AC 230	3-position	30	N4581	S55158-A109	**SAS31.53**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A100	**SAS61.03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A101	**SAS61.33**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4581	S55158-A102	**SAS61.53**
AC 24 DC 24	3-position	120	N4581	S55158-A103	**SAS81.00**
AC 24 DC 24	3-position	30	N4581	S55158-A104	**SAS81.03**
AC 24 DC 24	3-position	30	N4581	S55158-A105	**SAS81.33**

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MXG461..

Modulating control valves with magnetic actuator, PN16, external thread

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.

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.

Data sheet	N4455
PN class	PN 16
Operating voltage	AC / DC 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
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

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Range overview MXG461..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread ["]	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	300	G 1 B	0.6	15	BPZ:MXG461.15-0.6	**MXG461.15-0.6**
300	300	G 1 B	1.5	15	BPZ:MXG461.15-1.5	**MXG461.15-1.5**
300	300	G 1 B	3	15	BPZ:MXG461.15-3.0	**MXG461.15-3.0**
300	300	G 1¼ B	5	20	BPZ:MXG461.20-5.0	**MXG461.20-5.0**
300	300	G 1½ B	8	25	BPZ:MXG461.25-8.0	**MXG461.25-8.0**
300	300	G 2 B	12	32	BPZ:MXG461.32-12	**MXG461.32-12**
300	300	G 2¼ B	20	40	BPZ:MXG461.40-20	**MXG461.40-20**
300	300	G 2¾ B	30	50	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

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Accessories for MXG461..

Product Title	Data sheet	Stock No.	Product No.
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**
Malleable cast iron fitting G 1" / Rp ½", set of 3	N4463	BPZ:ALG153	**ALG153**
Malleable cast iron fitting G 1¼" / Rp ¾", set of 3	N4463	BPZ:ALG203	**ALG203**
Malleable cast iron fitting G 1½" / Rp 1", set of 3	N4463	BPZ:ALG253	**ALG253**
Malleable cast iron fitting G 2" / Rp 1¼", set of 3	N4463	BPZ:ALG323	**ALG323**
Malleable cast iron fitting G 2¼" / Rp 1½", set of 3	N4463	BPZ:ALG403	**ALG403**
Malleable cast iron fitting G 2¾" / Rp 2", set of 3	N4463	BPZ:ALG503	**ALG503**

Fittings: Set of 3

Product Title	Data sheet	Stock No.	Product No.
Malleable cast iron fitting G 1" / Rp ½", set of 3	N4463	BPZ:ALG153	**ALG153**
Malleable cast iron fitting G 1¼" / Rp ¾", set of 3	N4463	BPZ:ALG203	**ALG203**
Malleable cast iron fitting G 1½" / Rp 1", set of 3	N4463	BPZ:ALG253	**ALG253**
Malleable cast iron fitting G 2" / Rp 1¼", set of 3	N4463	BPZ:ALG323	**ALG323**
Malleable cast iron fitting G 2¼" / Rp 1½", set of 3	N4463	BPZ:ALG403	**ALG403**
Malleable cast iron fitting G 2¾" / Rp 2", set of 3	N4463	BPZ:ALG503	**ALG503**

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MXG461B..

Modulating control valves with magnetic actuator, PN16, external thread, DVGW

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.

MXG461B... valves are UL listed

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve.

Data sheet	N4461
PN class	PN 16
Operating voltage	AC 24 V DC 20...30 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
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

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Range overview MXG461B..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread ["]	k_{vs} [m³/h]	DN	Stock No.	Product No.
1000	1000	G 1 B	0.6	15	BPZ:MXG461B15-0.6	**MXG461B15-0.6**
1000	1000	G 1 B	1.5	15	BPZ:MXG461B15-1.5	**MXG461B15-1.5**
1000	1000	G 1 B	3	15	BPZ:MXG461B15-3	**MXG461B15-3**
800	800	G 1¼ B	5	20	BPZ:MXG461B20-5	**MXG461B20-5**
700	700	G 1½ B	8	25	BPZ:MXG461B25-8	**MXG461B25-8**
600	600	G 2 B	12	32	BPZ:MXG461B32-12	**MXG461B32-12**
600	600	G 2¼ B	20	40	BPZ:MXG461B40-20	**MXG461B40-20**
600	600	G 2¾ B	30	50	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.

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Accessories for MXG461B..

Product Title	Data sheet	Stock No.	Product No.
Stem heating element for media temperatures 0 °C, 30 W, AC 24 V		BPZ:Z366	**Z366**
Replacement electronic for MXG461B.., MVF461H.. and MXG462S..		BPZ:ASE12	**ASE12**

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MXG461S..

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.

MXG461S... valves are UL listed.

CAUTION!
Valve may only be used as a mixing or 2-port valve, not as a diverting valve. When used as a 2-port seat valve, port B must be closed off by means of the supplied cover and the cap nut for the fitting.

Data sheet	N4465
PN class	PN 16
Operating voltage	AC / DC 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
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

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Range overview MXG461S..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread ["]	k_{vs} [m³/h]	DN	Stock No.	Product No.
300	300	G 1 B	1.5	15	BPZ:MXG461S15-1.5	**MXG461S15-1.5**
300	300	G 1¼ B	5.0	20	BPZ:MXG461S20-5.0	**MXG461S20-5.0**
300	300	G 1½ B	8.0	25	BPZ:MXG461S25-8.0	**MXG461S25-8.0**
300	300	G 2 B	12	32	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.
Replacement electronic for MXG461.., MXF461.. and MXG461S.., DN15...32	N4455	BPZ:ASE1	**ASE1**
Replacement electronic for MXG461.., MXF461.., DN40...65	N4455	BPZ:ASE2	**ASE2**
Signal converter DC 0...20 V Phs to DC 0...10 V	N5143	BPZ:SEZ91.6	**SEZ91.6**

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Modulating control valves with magnetic actuator, PN16, external thread, stainless steel

MXG462S..

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.

MXG462S.. valves are UL listed

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.

Data sheet	N4466
PN class	PN 16
Operating voltage	AC 24 V DC 20...30 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
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

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Range overview MXG462S..

Δp_{max} [kPa]	Δp_s [kPa]	Connecting thread ["]	k_{vs} [m³/h]	DN	Stock No.	Product No.
600	600	G 2¾ B	30	50	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.
Stem heating element for media temperatures 0 °C, 30 W, AC 24 V		BPZ:Z366	**Z366**

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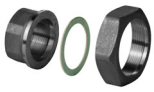
ALG..3



Fittings, pipe-side with threaded connection

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.

Range overview ALG..3

Connecting thread, pipe side ["]	Connecting thread, valve side	Material	Stock No.	Product No.
Rp ⅜	G ¾ "	Malleable cast iron, phosphated	BPZ:ALG123	**ALG123**
R ⅜	G ½ "	Brass	BPZ:ALG133	**ALG133**
R ½	G ¾ "	Brass	BPZ:ALG143	**ALG143**
Rp ½	G 1 "	Phosphated malleable cast iron	BPZ:ALG153	**ALG153**
Rp ¾	G 1¼ "	Phosphated malleable cast iron	BPZ:ALG203	**ALG203**
Rp 1	G 1½ "	Phosphated malleable cast iron	BPZ:ALG253	**ALG253**
Rp 1¼	G 2 "	Phosphated malleable cast iron	BPZ:ALG323	**ALG323**
Rp 1½	G 2¼ "	Phosphated malleable cast iron	BPZ:ALG403	**ALG403**
Rp 2	G 2¾ "	Phosphated malleable cast iron	BPZ:ALG503	**ALG503**
Rp ½	G 1 "	Brass	S55846-Z101	**ALG153B**
Rp ¾	G 1¼ "	Brass	S55846-Z103	**ALG203B**
Rp 1	G 1½ "	Brass	S55846-Z105	**ALG253B**
Rp 1¼	G 2 "	Brass	S55846-Z107	**ALG323B**
Rp 1½	G 2¼ "	Brass	S55846-Z109	**ALG403B**
Rp 2	G 2¾ "	Brass	S55846-Z111	**ALG503B**

ALS..

Fittings, pipeside with welding connection

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.

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Fittings with weldable connections: Set of 2

Pipe diameter [mm]	Connecting thread, pipe side	Connecting thread, valve side ["]	Material	Stock No.	Product No.
21.3		G ¾	Weldable steel	BPZ:ALS152	**ALS152**
26.8		G 1	Weldable steel	BPZ:ALS202	**ALS202**
33.7		G 1¼	Weldable steel	BPZ:ALS252	**ALS252**

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Combi valves (PICV) PN16 with flanged connections

VPF43..

For use in heating, ventilating, air conditioning systems and district heating as a control valve in closed circuits.

Data sheet	N4315
Leakage rate	Class IV (0...0.01% of volumetric flow)
PN class	PN 16
Medium	Water Water with anti-freeze
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	1600 kPa
Material, valve body	Gray cast iron
Material, inside set	Stainless steel, Brass (DZR)
Mounting position	Upright to 90° inclined

Range overview VPF43..

DN	Volumetric flow Vmin [m³/h]	Volumetric flow V [m³/h]	Δp_{min} [kPa]	SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. Δp_s [kPa]	SQV.. Δp_{max} [kPa]	SQV.. Δp_s [kPa]	Stock No.	Product No.
50	2.3	15	35	600	600			600	600	S55266-V100	**VPF43.50F16**
50	4.3	25	70	600	600			600	600	S55266-V101	**VPF43.50F25**
65	4.4	25	35	600	600			600	600	S55266-V102	**VPF43.65F24**
65	6	35	70	600	600			600	600	S55266-V103	**VPF43.65F35**
80	5.3	34	35	600	600			600	600	S55266-V104	**VPF43.80F35**
80	7	43	70	600	600			600	600	S55266-V105	**VPF43.80F45**
100	12.1	68	35			600	600	600	600	S55266-V106	**VPF43.100F70**
100	14.8	90	75			600	600	600	600	S55266-V107	**VPF43.100F90**
125	18.5	110	35			600	600	600	600	S55266-V108	**VPF43.125F110**
125	23	135	53			600	600	600	600	S55266-V109	**VPF43.125F135**
150	25.6	148	35			600	600	600	600	S55266-V110	**VPF43.150F160**
150	32	195	65			600	600	600	600	S55266-V111	**VPF43.150F200**

Further information to the actuators please see "Actuators for combi valves".

Accessories for VPF43..

Product Title	Data sheet	Stock No.	Product No.
Electronic manometer for Siemens combi valves		BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves		BPZ:ALE11	**ALE11**
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**

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Combinable actuator for VPF43..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	30	N4509	S55150-A118	**SAX31P03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4509	S55150-A114	**SAX61P03**
AC 24 DC 24	3-position	30	N4509	S55150-A116	**SAX81P03**
AC 230	3-position	120	N4510	S55150-A121	**SAV31P00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4510	S55150-A119	**SAV61P00**
AC 24 DC 24	3-position	120	N4510	S55150-A120	**SAV81P00**
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	N4833	S55150-A130	**SQV91P30**
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	N4833	S55150-A131	**SQV91P40**

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Combi valves (PICV) PN25 with flanged connections

VPF53..

For use in heating, ventilating, air conditioning systems and district heating as a control valve in closed circuits

Data sheet	N4316
Leakage rate	Class IV (0...0.01% of volumetric flow)
PN class	PN 25
Medium	Water Water with anti-freeze
Medium temperature	1...120 °C
Valve characteristic	Linear
Rangeability	>100
Permissible operating pressure	2500 kPa
Material, valve body	Nodular cast iron GJS-400
Material, inside set	Stainless steel, Brass (DZR)
Mounting position	Upright to 90° inclined

Range overview VPF53..

DN	Volumetric flow Vmin [m³/h]	Volumetric flow V [m³/h]	Δp_{min} [kPa]	SAX.. Δp_{max} [kPa]	SAX.. Δp_s [kPa]	SAV.. Δp_{max} [kPa]	SAV.. Δp_s [kPa]	SQV.. Δp_{max} [kPa]	SQV.. Δp_s [kPa]	Stock No.	Product No.
50	2.3	15	35	600	600			600	600	S55266-V112	**VPF53.50F16**
50	4.3	25	70	600	600			600	600	S55266-V113	**VPF53.50F25**
65	4.4	25	35	600	600			600	600	S55266-V114	**VPF53.65F24**
65	6	35	70	600	600			600	600	S55266-V115	**VPF53.65F35**
80	5.3	34	35	600	600			600	600	S55266-V116	**VPF53.80F35**
80	7	43	70	600	600			600	600	S55266-V117	**VPF53.80F45**
100	12.1	68	35			600	600	600	600	S55266-V118	**VPF53.100F70**
100	14.8	90	75			600	600	600	600	S55266-V119	**VPF53.100F90**
125	18.5	110	35			600	600	600	600	S55266-V120	**VPF53.125F110**
125	23	135	53			600	600	600	600	S55266-V121	**VPF53.125F135**
150	25.6	148	35			600	600	600	600	S55266-V122	**VPF53.150F160**
150	32	195	65			600	600	600	600	S55266-V123	**VPF53.150F200**

Further information to the actuators please see "Actuators for combi valves".

Accessories for VPF53..

Product Title	Data sheet	Stock No.	Product No.
Electronic manometer for Siemens combi valves		BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves		BPZ:ALE11	**ALE11**
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**

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Combinable actuator for VPF53..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	30	N4509	S55150-A118	**SAX31P03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4509	S55150-A114	**SAX61P03**
AC 24 DC 24	3-position	30	N4509	S55150-A116	**SAX81P03**
AC 230	3-position	120	N4510	S55150-A121	**SAV31P00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4510	S55150-A119	**SAV61P00**
AC 24 DC 24	3-position	120	N4510	S55150-A120	**SAV81P00**
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	N4833	S55150-A130	**SQV91P30**
AC 24 DC 24	3-position DC 0...10 V DC 4...20 mA	20 mm: 40 40 mm: 80	N4833	S55150-A131	**SQV91P40**

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2-port seat MiniCombiValves (PICV)

VPD..

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

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..

Data sheet	N2185
Stroke	2.5 mm
PN class	PN 10
Medium	Water with anti-freeze
Medium temperature	1...90 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass, nickel-plated
Material, inside set	EPDM

Range overview VPD..

DN	Connecting thread	Volumetric flow V [l/h]	kv at 0.5 mm stroke [m³/h]	Δp_w [kPa]	Δp_{max} [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	45	0.045	5	200	6	BPZ:VPD110A-45	**VPD110A-45**
10	Rp/R ⅜ "	90	0.09	5	200	8	BPZ:VPD110A-90	**VPD110A-90**
10	Rp/R ⅜ "	145	0.145	5	200	10	BPZ:VPD110A-145	**VPD110A-145**
15	Rp/R ½ "	45	0.145	5	200	6	BPZ:VPD115A-45	**VPD115A-45**
15	Rp/R ½ "	90	0.045	5	200	8	BPZ:VPD115A-90	**VPD115A-90**
15	Rp/R ½ "	145	0.2	5	200	10	BPZ:VPD115A-145	**VPD115A-145**
15	Rp/R ½ "	200	0.09	10	200	20	BPZ:VPD115B-200	**VPD115B-200**

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Globe and pressure independent combi valves (PICV)
Threaded pressure independent combi valves

VPE..

Angle MiniCombiValves (PICV)

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

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..

Data sheet	N2185
Stroke	2.5 mm
PN class	PN 10
Medium	Water with anti-freeze
Medium temperature	1...90 °C
Permissible operating pressure	1000 kPa
Material, valve body	Brass, nickel-plated
Material, inside set	EPDM

Range overview VPE..

DN	Connecting thread	Volumetric flow V [l/h]	kv at 0.5 mm stroke [m³/h]	Δp_w [kPa]	Δp_{max} [kPa]	Δp_{min} [kPa]	Stock No.	Product No.
10	Rp/R ⅜ "	45	0.045	5	200	6	BPZ:VPE110A-45	**VPE110A-45**
10	Rp/R ⅜ "	90	0.09	5	200	8	BPZ:VPE110A-90	**VPE110A-90**
10	Rp/R ⅜ "	145	0.145	5	200	10	BPZ:VPE110A-145	**VPE110A-145**
15	Rp/R ½ "	45	0.045	5	200	6	BPZ:VPE115A-45	**VPE115A-45**
15	Rp/R ½ "	90	0.09	5	200	8	BPZ:VPE115A-90	**VPE115A-90**
15	Rp/R ½ "	145	0.145	5	200	10	BPZ:VPE115A-145	**VPE115A-145**
10	Rp/R ⅜ "	200	0.2	10	200	20	BPZ:VPE110B-200	**VPE110B-200**
15	Rp/R ½ "	200	0.2	10	200	20	BPZ:VPE115B-200	**VPE115B-200**

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Combinable actuator for VPD.. / VPE..

Operating voltage [V]	Positioning signal	Positioning time [s]	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	3-position	150	1.5	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	1.5	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	1.5	N4893	BPZ:SSA61	**SSA61**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	1.5	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	1	N4884	S55174-A101	**STA23**

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Combinable actuator for VPD.. / VPE..

Operating voltage [V]	Positioning signal	Positioning time [s]	Cable length [m]	Data sheet	Stock No.	Product No.
AC 24	DC 0...10 V	270	2	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	1	N4884	S55174-A100	**STA73**
AC 230	2-position	210		N4884	S55174-A110	**STA23/00**
AC 230	2-position	210		N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210		N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270		N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270		N4884	S55174-A115	**STA73PR/00**

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Globe and pressure independent combi valves (PICV)
Threaded pressure independent combi valves

VPP46..

Combi valves (PICV) PN25, externally threaded

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...4000 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	Up to DN 15: 2.5 mm DN 20: 5 mm DN 25-32: 5.5 mm
Leakage rate	Class IV (0...0.01% of volumetric flow V_{100})
PN class	PN 25
Medium	Water Water with anti-freeze
Medium temperature	1...120 °C
Ambient temperature, operation	1...50 °C
Valve characteristic	Linear
Permissible operating pressure	2500 kPa
Material, valve body	Dezincification resistant brass, DR, CW602N
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
Mounting position	Upright to 90° inclined

Range overview VPP46..

DN	Connecting thread	Volumetric flow V [l/h]	Volumetric flow Vmin [l/h]	STA..3.. Δp_{max} [kPa]	STA..3.. Δp_{min} [kPa]	SSA.. Δp_{max} [kPa]	SSA.. Δp_{min} [kPa]	Stock No.	Product No.
10	G ½ "	200	30	600	16	600	16	S55264-V101	**VPP46.10L0.2**
10	G ½ "	200	30	600	16	600	16	S55264-V105	**VPP46.10L0.2Q**
15	G ¾ "	200	30	600	16	600	16	S55264-V102	**VPP46.15L0.2**
15	G ¾ "	200	30	600	16	600	16	S55264-V106	**VPP46.15L0.2Q**
15	G ¾ "	575	100	600	19	600	19	S55264-V103	**VPP46.15L0.6**
15	G ¾ "	575	100	600	19	600	19	S55264-V107	**VPP46.15L0.6Q**
20	G 1 "	1330	220	600	21	600	22	S55264-V104	**VPP46.20F1.4**
20	G 1 "	1330	220	600	21	600	22	S55264-V108	**VPP46.20F1.4Q**
25	G 1 1/4 "	1800	280	600	39	600	39	S55264-V121	**VPP46.25F1.8**
25	G 1 1/4 "	1800	280	600	39	600	39	S55264-V123	**VPP46.25F1.8Q**
32	G 1 1/2 "	4000	550	600	24	600	28	S55264-V122	**VPP46.32F4**
32	G 1 1/2 "	4000	550	600	24	600	28	S55264-V124	**VPP46.32F4Q**

Further information to the actuators please see "Actuators for combi valves with 2.5 mm stroke" and "Actuators for combi valves with 2.5 / 5 mm stroke and radiator valves".
VPP46..Q: with testpoint

Accessories for VPP46..

Product Title	Data sheet	Stock No.	Product No.
Electronic manometer for Siemens combi valves		BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves		BPZ:ALE11	**ALE11**
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**

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Combinable actuator for VPP46..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	N4893	BPZ:SSA61	**SSA61**
AC 24 DC 24	DC 0...10 V	34	N4893	BPZ:SSA61EP	**SSA61EP**
AC 24	3-position	150	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	N4884	S55174-A101	**STA23**
AC 24	DC 0...10 V	270	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A100	**STA73**
AC 230	2-position	210	N4884	S55174-A110	**STA23/00**
AC 230	2-position	210	N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210	N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270	N4884	S55174-A115	**STA73PR/00**

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VPI46..

Combi valves (PICV) 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...11500 l/h. With or without differential pressure test points.

Data sheet	N4855
Stroke	Up to DN 15: 2.5 mm DN 20: 5 mm DN 25-32: 5.5 mm DN 40-50: 15 mm
Leakage rate	Class IV (0...0.01% of volumetric flow V_{100})
PN class	PN 25
Medium	Water Water with anti-freeze
Medium temperature	1...120 °C
Ambient temperature, operation	1...50 °C
Valve characteristic	Linear
Permissible operating pressure	2500 kPa
Material, valve body	Dezincification resistant brass (DR), CW602N DN 40-50: in nodular cast iron
Material, inside set	Dezincification resistant brass (DR), CW602N, stainless steel, PPS
Mounting position	Upright to 90° inclined

Range overview VPI46..

DN	Volumetric flow V [l/h]	Volumetric flow Vmin [l/h]	SSA.. Δp_{max} [kPa]	SSA.. Δp_{min} [kPa]	STA..3.. Δp_{max} [kPa]	STA..3.. Δp_{min} [kPa]	SAY..P.. Δp_{max} [kPa]	SAY..P.. Δp_{min} [kPa]	Stock No.	Product No.
15	200	30	600	16	600	16			S55264-V109	**VPI46.15L0.2**
15	200	30	600	16	600	16			S55264-V112	**VPI46.15L0.2Q**
15	575	100	600	19	600	19			S55264-V110	**VPI46.15L0.6**
15	575	100	600	19	600	19			S55264-V113	**VPI46.15L0.6Q**
20	1330	220	600	22	600	21			S55264-V111	**VPI46.20F1.4**
20	1330	220	600	22	600	21			S55264-V114	**VPI46.20F1.4Q**
25	1800	280	600	39	600	39			S55264-V125	**VPI46.25F1.8**
25	1800	280	600	39	600	39			S55264-V127	**VPI46.25F1.8Q**
32	4000	550	600	28	600	24			S55264-V126	**VPI46.32F4**
32	4000	550	600	28	600	24			S55264-V128	**VPI46.32F4Q**
40	9500	1370					600	25	S55264-V129	**VPI46.40F9.5Q**
50	11500	1400					600	36	S55264-V130	**VPI46.50F12Q**

Further information to the actuators please see "Actuators for combi valves with 2.5 mm stroke" and "Actuators for combi valves with 2.5 / 5 mm stroke and radiator valves".
VPI46..Q: with testpoint.

Accessories for VPI46..

Product Title	Data sheet	Stock No.	Product No.
Electronic manometer for Siemens combi valves		BPZ:ALE10	**ALE10**
Measuring lines and tips for Siemens combi valves		BPZ:ALE11	**ALE11**
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**

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Combinable actuator for VPI46..

Operating voltage [V]	Positioning signal	Positioning time [s]	Data sheet	Stock No.	Product No.
AC 230	3-position	150	N4893	BPZ:SSA31	**SSA31**
AC 230	3-position	150	N4893	BPZ:SSA31.1	**SSA31.1**
AC 24 DC 24	DC 0...10 V	34	N4893	BPZ:SSA61	**SSA61**
AC 24 DC 24	DC 0...10 V	34	N4893	BPZ:SSA61EP	**SSA61EP**
AC 24	3-position	150	N4893	BPZ:SSA81	**SSA81**
AC 24	3-position	150	N4893	BPZ:SSA81.1	**SSA81.1**
AC 230	2-position	210	N4884	S55174-A101	**STA23**
AC 24	DC 0...10 V	270	N4884	S55174-A104	**STA63**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A100	**STA73**
AC 230	2-position	210	N4884	S55174-A110	**STA23/00**
AC 230	2-position	210	N4884	S55174-A118	**STA23B/00**
AC 230	2-position	210	N4884	S55174-A114	**STA23MP/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A109	**STA73/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A117	**STA73B/00**
AC 24 DC 24	2-position PDM	270	N4884	S55174-A113	**STA73MP/00**
AC 24 DC 24	2-position PDM/parallel operation	270	N4884	S55174-A115	**STA73PR/00**
AC 230	3-position	30	A6V10628469	S55150-A132	**SAY31P03**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	A6V10628469	S55150-A133	**SAY61P03**
AC 24 DC 24	3-position	30	A6V10628469	S55150-A134	**SAY81P03**

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GQD..9A

Rotary actuators 2 Nm with spring return for ball valves

Electromotoric actuators for 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables, for the operation of Siemens 2-port and 3-port valves, types VAI61../VBI61.., VAG61../VBG61.., VAI60../VBI60.. and VAG60../VBG60.. .

Data sheet	N4659
Torque	2 Nm
Angular rotation	90 °
Positioning time	Opening with motor: 30 s Closing with spring: 15 s
Degree of protection	IP40
Dimensions (W x H x D)	75 x 113 x 136 mm
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (GQD161.9A)

Range overview GQD..9A

Operating voltage [V]	Positioning signal	Power consumption	Spring return function	Stock No.	Product No.
AC 24 DC 24	2-position	6.5 VA 4.5 W	Yes	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	3-position	4 VA 2.5 W	Yes	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	DC 0...10 V	4.5 VA 3 W	Yes	BPZ:GQD161.9A	**GQD161.9A**
AC 230	2-position	10 VA 4.5 W	Yes	BPZ:GQD321.9A	**GQD321.9A**

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Electromotoric rotary actuators without spring return for ball valves, 2 Nm, 30s

GSD..9A

Electromotoric rotary actuators without spring return, for On-Off control (2 wire SPDT), pre-wired with 0.9 m long connection cable, for the operation of Siemens 2-port and 3-port valves, types VAG61.., VAI61.., VBG61.. and VBI61.. .

Data sheet	A6V10636056
Torque	2 Nm
Angular rotation	90 °
Positioning time	30 s
Degree of protection	IP40
Dimensions (W x H x D)	75 x 113 x 136 mm
Mounting position	Upright to horizontal

Range overview GSD..9A

Operating voltage [V]	Positioning signal	Power consumption	Spring return function	Stock No.	Product No.
AC 24 DC 24	On-Off (2 wire SPDT)	2 VA 1.5 W	No	BPZ:GSD141.9A	**GSD141.9A**
AC 24 DC 24	DC 0/2..10 V	2.36 VA 1.32 W	No	S55499-D232	**GSD161.9A**
AC 230	On-Off (2 wire SPDT)	12 VA 2 W	No	BPZ:GSD341.9A	**GSD341.9A**

New Product

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GDB..9E

Electromotoric rotary actuators 5 Nm without spring return for ball valves

Electromotoric actuators for 3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables, for the operation of Siemens 6-port control ball valve VWG41.. .

Data sheet	A6V10636150
Torque	5 Nm
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	88 x 112 x 143 mm
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (GDB161.9E)

Range overview GDB..9E

Operating voltage [V]	Positioning signal [V]	Power consumption	Auxiliary switch	Spring return function	Cable length [m]	Stock No.	Product No.
AC 24 DC 24	DC 0/2...10	3 VA 1.5 W	0	No	0.9	S55499-D275	GDB161.9E

GDB111.9E/KN

Electromotoric rotary actuator for 6-way control ball valves with KNX S-Mode

Electromotoric rotary actuator
- for KNX S-Mode communication
- without spring-return
- pre-wired with two 0.9 m connection cables

Data sheet	A6V10725318
Torque	5 Nm
Angular rotation	90 °
Power consumption	3 VA 2.5 W
Cable length	0.9 m
Communication	KNX S-Mode
Positioning signal	KNX S-Mode
Spring return function	No
Degree of protection	IP54
Dimensions (W x H x D)	88 x 112 x 143 mm
Mounting position	Horizontal or vertical
Operating voltage	AC 24 V
Position feedback	KNX S-Mode
Auxiliary switch	0

Stock No.	Product No.
S55499-D203	GDB111.9E/KN

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Rotary actuators 7 Nm with spring return for ball valves

GMA..9E

Electromotoric actuators for 2-position, 3-position and modulating control, with spring-return, pre-wired with 0.9 m long connection cables, for the operation of Siemens 2-port and 3-port valves, types VAG60../VBG60.., VAI60../VBI60.., VAG61../VBG61.. and VAI61../VBI61.. .

Data sheet	N4658
Torque	7 Nm
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)	93 x 112 x 184 mm
Mounting position	Upright to horizontal

Range overview GMA..9E

Operating voltage [V]	Positioning signal	Power consumption	Spring return function	Stock No.	Product No.
AC 24 DC 24	2-position	5 VA 3.5 W	Yes	BPZ:GMA121.9E	**GMA121.9E**
AC 24 DC 24	3-position	5 VA 3.5 W	Yes	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	DC 0...10 V	5 VA 3.5 W	Yes	BPZ:GMA161.9E	**GMA161.9E**
AC230	2-position	7 VA 4.5 W	Yes	BPZ:GMA321.9E	**GMA321.9E**

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GLB..9E

Electromotoric rotary actuators 10 Nm without spring return for ball valves

Electromotoric actuators for 2-position/3-position and modulating control, without spring return, pre-wired with 0.9 m long connection cables, for the operation of Siemens 2-port and 3-port valves, types VAG60../VBG60.., VAI60../VBI60.., VAG61../VBG61.., VAI61../VBI61.. and VWG41.. .

Data sheet	A6V10636203
Torque	10 Nm
Angular rotation	90 °
Positioning time	150 s
Degree of protection	IP54
Dimensions (W x H x D)	88 x 112 x 143 mm
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (GLB161.9E)

Range overview GLB..9E

Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Spring return function	Cable length [m]	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	3 VA 1.3 W	0	No	0.9	S55499-D204	GLB141.9E
AC 24 DC 24	DC 0/2...10 V	2.5 VA 1.5 W	0	No	0.9	S55499-D277	GLB161.9E
AC 230	2-position/3-position	5.8 VA 1.9 W	0	No	0.9	S55499-D205	GLB341.9E

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Rotary air damper actuators 25 Nm, without spring return

GBB..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 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

Rotary actuators 25 Nm for ball valves VAF51..

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 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**
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**

Types GBB135.1E and GBB335.1E have a feedback potentiometer.
Basic Documentation No.: Z4626

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GIB..1E

Rotary air damper actuators 35 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 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

Rotary actuators 35 Nm for ball valves VAF51..

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 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**
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**

Types GIB135.1E and 335.1E have a feedback potentiometer.
Basic Documentation No.: Z4626

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Electromotoric actuators 10...40 Nm for slipper and butterfly valves

SAL..

Rotary actuator for the operation of 3-port slipper valves VBF21.. and butterfly valves VKF41.. + VKF46.. 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
Medium temperature	-10...120 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SA..6..)

Range overview SAL..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230	3-position	3.5	120	10	S55162-A108	**SAL31.00T10**
AC 230	3-position	4.5	120	20	S55162-A110	**SAL31.00T20**
AC 230	3-position	5.5	30	10	S55162-A109	**SAL31.03T10**
AC 230	3-position	7	120	40	S55162-A111	**SAL31.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	6	120	20	S55162-A102	**SAL61.00T20**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	9	120	40	S55162-A103	**SAL61.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	5	120	10	S55162-A100	**SAL61.00T10**
AC 24 DC 24	3-position	4	120	20	S55162-A106	**SAL81.00T20**
AC 24 DC 24	3-position	6	120	40	S55162-A107	**SAL81.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	7.5	30	10	S55162-A101	**SAL61.03T10**
AC 24 DC 24	3-position	3	120	10	S55162-A104	**SAL81.00T10**
AC 24 DC 24	3-position	5	30	10	S55162-A105	**SAL81.03T10**

Accessories for 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**
Funtion module for SA..61.., sequence control/changeover of acting direction	N4501	S55845-Z107	**AZX61.1**
Weathershield for SAX../SAL..	N4501	S55845-Z109	**ASK39.1**

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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**
Mounting set for SAL.. onto VKF45..	N4502	S55845-Z102	**ASK35N**

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Electromotoric actuators 5...20 Nm for rotary valves

SQK..

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°.

All actuators have 2 built-in end switches and space for 1 ancillary unit (auxiliary switch or potentiometer).

Positioning signal	3-position
Angular rotation	90 °
Degree of protection	IP44
Medium temperature	≤120 °C
Mounting position	Upright to horizontal

Range overview SQK..

for VBF21.., VBG31.., VBI31.., VCI31..

Operating voltage [V]	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230	3	125	5	BPZ:SQK33.00	**SQK33.00**
AC 230	3	135	5	BPZ:SQK34.00	**SQK34.00**
AC 230	3	135	5	BPZ:SQK34.00S	**SQK34.00S**
AC 24	3	135	5	BPZ:SQK84.00	**SQK84.00**
AC 24	3	135	5	BPZ:SQK84.00S	**SQK84.00S**

Accessories for SQK34../84..

Product Title	Data sheet	Stock No.	Product No.
Auxiliary switch for SQK33.., SQL33../83../35../85.., SQX32../82..	N4554	BPZ:ASC9.5	**ASC9.5**
Auxiliary switch for SQK34../84..	N4508	BPZ:ASC9.7	**ASC9.7**

Mounting kits

Product Title	Data sheet	Stock No.	Product No.
Mounting set for SQK33.. / SQL33.. / 83.. and slipper valves VBI31.. / VBG31.. / VCI31.. / VBF21.. up to DN50	N4506	BPZ:ASK32	**ASK32**

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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.

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer and 1 positioning time module (without SQL36E50..) can be retrofitted.

Data sheet	N4505
Angular rotation	90 °
Degree of protection	IP67
Medium temperature	≤120 °C
Mounting position	Any

Range overview SQL36..

Operating voltage [V]	Positioning signal	Power consumption [VA]	Positioning time [s]	Torque [Nm]	Stock No.	Product No.
AC 230	3-position	25	25	40	BPZ:SQL36E50F04	**SQL36E50F04**
AC 230	3-position	25	25	40	BPZ:SQL36E50F05	**SQL36E50F05**
AC 230	3-position	166	6	100	BPZ:SQL36E65	**SQL36E65**
AC 230	3-position	235	12	400	BPZ:SQL36E110	**SQL36E110**
AC 230	3-position	235	24	1200	BPZ:SQL36E160	**SQL36E160**

Running time with auxiliary module SEZ31.1: variable positioning time 30...180 s (SQL36E65), 60...360 s (SQL36E110) resp. 120...720 s (SQL36E160).

Accessories for SQL36E..

Product Title	Data sheet	Stock No.	Product No.
Double auxiliary switch for SQL36E	N4505	BPZ:ASC36	**ASC36**
Potentiometer 1000 Ohm for SQL36E..	N4505	BPZ:ASZ36	**ASZ36**
Auxiliary module, variable positioning time for SQL36E..	N4505	BPZ:SEZ31.1	**SEZ31.1**

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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.

The actuators have built-in end switches. 1 double auxiliary switch, 1 potentiometer 1000 Ohm can be retrofitted.

Data sheet	N4520
Angular rotation	90 °
Degree of protection	IP67
Medium temperature	-10...80 °C
Mounting position	Upright to horizontal
Position feedback	DC 0...10 V (SQL361..)

Range overview SQL..B..

For customers in Asia / Australia

Operating voltage [V]	Positioning signal	Power consumption [VA]	Spring return function	Stock No.	Product No.
AC 220	2-position (SPDT)	40	No	S55164-A100	**SQL321B25**
AC 220	2-position (SPDT)	88	No	S55164-A101	**SQL321B50**
AC 220	DC 0...10 V	88	No	S55164-A102	**SQL361B50**
AC 220	2-position (SPDT)	91	No	S55164-A103	**SQL321B150**
AC 220	DC 0...10 V	91	No	S55164-A104	**SQL361B150**
AC 220	2-position (SPDT)	165	No	S55164-A105	**SQL321B270**
AC 220	DC 0...10 V	165	No	S55164-A106	**SQL361B270**
AC 220	2-position (SPDT)	194	No	S55164-A107	**SQL321B570**
AC 220	DC 0...10 V	194	No	S55164-A108	**SQL361B570**
AC 220	2-position (SPDT)	390	No	S55164-A109	**SQL321B1400**
AC 220	DC 0...10 V	390	No	S55164-A110	**SQL361B1400**
AC 220	2-position (SPDT)	436	No	S55164-A111	**SQL321B2650**
AC 220	DC 0...10 V	436	No	S55164-A112	**SQL361B2650**

Accessories for SQL..B..

Product Title	Data sheet	Stock No.	Product No.
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**

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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.

Ball valve VAF51.150-360 requires two actuators GIB131.1E

Do not operate GBB331.1E, GBB131.1E, GIB331.1E and GIB131.1E actuators with 2-position control signal. It will damage these rotary actuators.

Data sheet	N4120
Angular rotation	90 °
Leakage rate	0...0.01 % of k_{vs} value
Medium	Water Water with anti-freeze
Medium temperature	2...80 °C
Valve characteristic	Equal-percentage
Rangeability	> 200
Permissible operating pressure	2500 kPa
Material, valve body	EN-GJL-250
Material, inside set	Stainless steel (SS-340)
PN class	PN 25

Range overview VAF51..

For customers in Asia / Australia

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**

Accessories for VAF51..

Product Title	Data sheet	Stock No.	Product No.
Ball valve mounting set, DN65, DN80, DN100	N4120	BPZ:ASK77.6	**ASK77.6**
Ball valve mounting set, DN125	N4120	BPZ:ASK77.7	**ASK77.7**
Ball valve mounting set, DN150	N4120	BPZ:ASK77.8	**ASK77.8**

Combinable actuator for VAF51..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24	3-position	150		N4626	BPZ:GBB131.1E	**GBB131.1E**
AC 24	DC 0...10 V	150		N4626	BPZ:GBB161.1E	**GBB161.1E**
AC 230	3-position	150		N4626	BPZ:GBB331.1E	**GBB331.1E**
AC 24	3-position	150		N4626	BPZ:GIB131.1E	**GIB131.1E**
AC 24	DC 0...10 V	150		N4626	BPZ:GIB161.1E	**GIB161.1E**
AC 230	3-position	150		N4626	BPZ:GIB331.1E	**GIB331.1E**

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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 valve.
For closed circuits.

Data sheet	N4211
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 5
Medium	Water Water with anti-freeze
Medium temperature	-10...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..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	GSD..9A Δp_s [kPa]	GSD..9A Δp_{max} [kPa]	GMA../ GLB..9E Δp_{max} [kPa]	GMA../ GLB..9E Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	350	1400	1400	350	350	1400	15	1	BPZ:VAI61.15-1	**VAI61.15-1**
Rp ½	350	1400	1400	350	350	1400	15	1.6	BPZ:VAI61.15-1.6	**VAI61.15-1.6**
Rp ½	350	1400	1400	350	350	1400	15	2.5	BPZ:VAI61.15-2.5	**VAI61.15-2.5**
Rp ½	350	1400	1400	350	350	1400	15	4	BPZ:VAI61.15-4	**VAI61.15-4**
Rp ½	350	1400	1400	350	350	1400	15	6.3	BPZ:VAI61.15-6.3	**VAI61.15-6.3**
Rp ½	350	1400	1400	350	350	1400	15	10	BPZ:VAI61.15-10	**VAI61.15-10**
Rp ¾	350	1400	1400	350	350	1400	20	4	BPZ:VAI61.20-4	**VAI61.20-4**
Rp ¾	350	1400	1400	350	350	1400	20	6.3	BPZ:VAI61.20-6.3	**VAI61.20-6.3**
Rp ¾	350	1400	1400	350	350	1400	20	10	BPZ:VAI61.20-10	**VAI61.20-10**
Rp 1	350	1400	1400	350	350	1400	25	6.3	BPZ:VAI61.25-6.3	**VAI61.25-6.3**
Rp 1	350	1400	1400	350	350	1400	25	10	BPZ:VAI61.25-10	**VAI61.25-10**
Rp 1	350	1400	1400	350	350	1400	25	16	BPZ:VAI61.25-16	**VAI61.25-16**
Rp 1¼					350	1000	32	10	BPZ:VAI61.32-10	**VAI61.32-10**
Rp 1¼					350	1000	32	16	BPZ:VAI61.32-16	**VAI61.32-16**
Rp 1¼					350	1000	32	25	BPZ:VAI61.32-25	**VAI61.32-25**
Rp 1½					350	800	40	16	BPZ:VAI61.40-16	**VAI61.40-16**
Rp 1½					350	800	40	25	BPZ:VAI61.40-25	**VAI61.40-25**
Rp 1½					350	800	40	40	BPZ:VAI61.40-40	**VAI61.40-40**
Rp 2					350	600	50	25	BPZ:VAI61.50-25	**VAI61.50-25**
Rp 2					350	600	50	40	BPZ:VAI61.50-40	**VAI61.50-40**
Rp 2					350	600	50	63	BPZ:VAI61.50-63	**VAI61.50-63**

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Accessories for VAI61..

Product Title	Data sheet	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 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**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

Combinable actuator for VAI61..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	**GLB141.9E**
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	**GLB161.9E**
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	**GLB341.9E**
AC 24 DC 24	3-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	DC 0...10 V	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 DC 24	3-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	DC 0...10 V	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**

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3-port control ball valves, internally threaded, PN40

VBI61..

Internally threaded connections Rp.. as per ISO 7-1.
For use in heating, ventilating and air conditioning plants as a control.
For closed circuits.

Data sheet	N4211
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 4
Leakage rate bypass	< 1 % of k_{vs} value
Medium	Water Water with anti-freeze
Medium temperature	-10...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..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GDB..9E Δp_{max}	GSD..9A Δp_{max} [kPa]	GMA../GLB..9E Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	350		350	350	15	1.6	BPZ:VBI61.15-1.6	**VBI61.15-1.6**
Rp ½	350		350	350	15	2.5	BPZ:VBI61.15-2.5	**VBI61.15-2.5**
Rp ½	350		350	350	15	4	BPZ:VBI61.15-4	**VBI61.15-4**
Rp ½	350		350	350	15	6.3	BPZ:VBI61.15-6.3	**VBI61.15-6.3**
Rp ¾	350		350	350	20	4	BPZ:VBI61.20-4	**VBI61.20-4**
Rp ¾	350		350	350	20	6.3	BPZ:VBI61.20-6.3	**VBI61.20-6.3**
Rp 1	350		350	350	25	10	BPZ:VBI61.25-10	**VBI61.25-10**
Rp 1¼				350	32	16	BPZ:VBI61.32-16	**VBI61.32-16**
Rp 1½				350	40	25	BPZ:VBI61.40-25	**VBI61.40-25**
Rp 2				350	50	40	BPZ:VBI61.50-40	**VBI61.50-40**
Rp 2				350	50	63	BPZ:VBI61.50-63	**VBI61.50-63**

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Accessories for VBI61..

Product Title	Data sheet	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**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

Combinable actuator for VBI61..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	**GLB141.9E**
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	**GLB161.9E**
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	**GLB341.9E**
AC 24 DC 24	3-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	DC 0...10 V	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 DC 24	3-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	DC 0...10 V	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**

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2-port ball open/close valves, internally threaded, PN40

VAI60..

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
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 5
Medium	Cooling water Chilled water Water with anti-freeze Low-temperature hot water High-temperature hot water
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..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	GSD..9A Δp_s [kPa]	GSD..9A Δp_{max} [kPa]	GMA../ GLB..9E Δp_{max} [kPa]	GMA../ GLB..9E Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	350	1400	1400	350	350	1400	15	15	BPZ:VAI60.15-15	**VAI60.15-15**
Rp ¾	350	1400	1400	350	350	1400	20	22	BPZ:VAI60.20-22	**VAI60.20-22**
Rp 1	350	1400	1400	350	350	1400	25	22	BPZ:VAI60.25-22	**VAI60.25-22**
Rp 1¼					350	1000	32	35	BPZ:VAI60.32-35	**VAI60.32-35**
Rp 1½					350	800	40	68	BPZ:VAI60.40-68	**VAI60.40-68**
Rp 2					350	600	50	96	BPZ:VAI60.50-96	**VAI60.50-96**

Accessories for VAI60..

Product Title	Data sheet	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 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**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

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Combinable actuator for VAI60..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	GLB141.9E
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	GLB161.9E
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	GLB341.9E
AC 24 DC 24	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 DC 24	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD141.9A	**GSD141.9A**
AC 230	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD341.9A	**GSD341.9A**
AC 230	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**

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3-port changeover ball valve, internally threaded, PN40

VBI60..

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
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 4
Leakage rate bypass	< 1 % of k_{vs} value
Medium	Cooling water Chilled water Water with anti-freeze Low-temperature hot water High-temperature hot water
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..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GSD..9A Δp_{max} [kPa]	GMA../GLB..9E Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
Rp ½	350	350	350	15	5	BPZ:VBI60.15-5L	**VBI60.15-5L**
Rp ½	350	350	350	15	12	BPZ:VBI60.15-12T	**VBI60.15-12T**
Rp ¾	350	350	350	20	9	BPZ:VBI60.20-9L	**VBI60.20-9L**
Rp ¾	350	350	350	20	16	BPZ:VBI60.20-16T	**VBI60.20-16T**
Rp 1	350	350	350	25	9	BPZ:VBI60.25-9L	**VBI60.25-9L**
Rp 1	350	350	350	25	16	BPZ:VBI60.25-16T	**VBI60.25-16T**
Rp 1¼			350	32	13	BPZ:VBI60.32-13L	**VBI60.32-13L**
Rp 1¼			350	32	25	BPZ:VBI60.32-25T	**VBI60.32-25T**
Rp 1½			350	40	25	BPZ:VBI60.40-25L	**VBI60.40-25L**
Rp 1½			350	40	49	BPZ:VBI60.40-49T	**VBI60.40-49T**
Rp 2			350	50	37	BPZ:VBI60.50-37L	**VBI60.50-37L**
Rp 2			350	50	73	BPZ:VBI60.50-73T	**VBI60.50-73T**

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Accessories for VBI60..

Product Title	Data sheet	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 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**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

Combinable actuator for VBI60..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	**GLB141.9E**
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	**GLB161.9E**
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	**GLB341.9E**
AC 24 DC 24	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 DC 24	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD141.9A	**GSD141.9A**
AC 230	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD341.9A	**GSD341.9A**
AC 230	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**

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2-port control ball valves, externally threaded, PN 40

VAG61..

For use in heating, ventilating and air conditioning plants as a control valve. For closed circuits.

- Brass CW602N (DZR) ball valve body
- Flat sealing connections with external thread G..B to ISO 228-1
- Applications with auxiliary functions (e.g., switch, potentiometer) can also be combined with standard rotary actuators belonging to the DAC range

Data sheet	N4212
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 5
Medium	Water Chilled water Cooling water Low-temperature hot water High-temperature hot water Water with anti-freeze
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Brass CW602N (DZR)
Material, inside set	Brass CW602N (DZR), chromium-plated
PN class	PN 40

Range overview VAG61..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	GDB..9E Δp_{max} [kPa]	GDB..9E Δp_s [kPa]	GMA../ GLB..9E Δp_{max} [kPa]	GMA../ GLB..9E Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1 B	350	1400	350	1400	350	1400	15	1.0	S55230-V100	**VAG61.15-1**
G 1 B	350	1400	350	1400	350	1400	15	1.6	S55230-V101	**VAG61.15-1.6**
G 1 B	350	1400	350	1400	350	1400	15	2.5	S55230-V102	**VAG61.15-2.5**
G 1 B	350	1400	350	1400	350	1400	15	4.0	S55230-V103	**VAG61.15-4**
G 1 B	350	1400	350	1400	350	1400	15	6.3	S55230-V104	**VAG61.15-6.3**
G 1¼ B	350	1400	350	1400	350	1400	20	4.0	S55230-V105	**VAG61.20-4**
G 1¼ B	350	1400	350	1400	350	1400	20	6.3	S55230-V106	**VAG61.20-6.3**
G 1¼ B	350	1400	350	1400	350	1400	20	10	S55230-V107	**VAG61.20-10**
G 1½ B	350	1400	350	1400	350	1400	25	6.3	S55230-V108	**VAG61.25-6.3**
G 1½ B	350	1400	350	1400	350	1400	25	10	S55230-V109	**VAG61.25-10**
G 1½ B	350	1400	350	1400	350	1400	25	16	S55230-V110	**VAG61.25-16**
G 2 B					350	1000	32	10	S55230-V111	**VAG61.32-10**
G 2 B					350	1000	32	16	S55230-V112	**VAG61.32-16**
G 2 B					350	1000	32	25	S55230-V113	**VAG61.32-25**
G 2¼ B					350	800	40	16	S55230-V114	**VAG61.40-16**
G 2¼ B					350	800	40	25	S55230-V115	**VAG61.40-25**
G 2¼ B					350	800	40	40	S55230-V116	**VAG61.40-40**
G 2¾ B					350	600	50	25	S55230-V117	**VAG61.50-25**
G 2¾ B					350	600	50	40	S55230-V118	**VAG61.50-40**
G 2¾ B					350	600	50	63	S55230-V119	**VAG61.50-63**

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Accessories for VAG61..

Product Title	Data sheet	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 VAG60/61, DN15		S55845-Z162	**ALI15VAG60/61**
Insulation Cover for VAG60/61, DN20		S55845-Z163	**ALI20VAG60/61**
Insulation Cover for VAG60/61, DN25		S55845-Z164	**ALI25VAG60/61**
Insulation Cover for VAG60/61, DN32		S55845-Z165	**ALI32VAG60/61**
Insulation Cover for VAG60/61, DN40		S55845-Z166	**ALI40VAG60/61**
Insulation Cover for VAG60/61, DN50		S55845-Z167	**ALI50VAG60/61**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

Combinable actuator for VAG61..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	**GLB141.9E**
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	**GLB161.9E**
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	**GLB341.9E**
AC 24 DC 24	3-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	DC 0...10 V	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 DC 24	3-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	DC 0...10 V	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**

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3-port control ball valves, externally threaded, PN 40

VBG61..

For use in heating, ventilating and air conditioning plants as a control valve. For closed circuits.

- Brass CW602N (DZR) ball valve body
- Flat sealing connections with external thread G..B to ISO 228-1
- Applications with auxiliary functions (e.g., switch, potentiometer) can also be combined with standard rotary actuators belonging to the DAC range

Data sheet	N4212
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 4
Medium	Water Chilled water Cooling water Low-temperature hot water High-temperature hot water Water with anti-freeze
Medium temperature	-10...120 °C
Permissible operating pressure	1600 kPa
Material, valve body	Brass CW602N (DZR)
Material, inside set	Brass CW602N (DZR), chromium-plated
PN class	PN 40

Range overview VBG61..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GDB..9E Δp_{max} [kPa]	GMA../GLB..9E Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1	350	350	350	15	1.6	S55230-V120	**VBG61.15-1.6**
G 1	350	350	350	15	2.5	S55230-V121	**VBG61.15-2.5**
G 1	350	350	350	15	4.0	S55230-V122	**VBG61.15-4**
G 1	350	350	350	15	6.3	S55230-V123	**VBG61.15-6.3**
G 1¼	350	350	350	20	4.0	S55230-V124	**VBG61.20-4**
G 1¼	350	350	350	20	6.3	S55230-V125	**VBG61.20-6.3**
G 1½	350	350	350	25	10	S55230-V126	**VBG61.25-10**
G 2			350	32	16	S55230-V127	**VBG61.32-16**
G 2¼			350	40	25	S55230-V128	**VBG61.40-25**
G 2¾			350	50	40	S55230-V129	**VBG61.50-40**

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Accessories for VBG61..

Product Title	Data sheet	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 VBG60/61, DN15		S55845-Z168	**ALI15VBG60/61**
Insulation Cover for VBG60/61, DN20		S55845-Z169	**ALI20VBG60/61**
Insulation Cover for VBG60/61, DN25		S55845-Z170	**ALI25VBG60/61**
Insulation Cover for VBG60/61, DN32		S55845-Z171	**ALI32VBG60/61**
Insulation Cover for VBG60/61, DN40		S55845-Z172	**ALI40VBG60/61**
Insulation Cover for VBG60/61, DN50		S55845-Z173	**ALI50VBG60/61**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

Combinable actuator for VBG61..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	**GLB141.9E**
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	**GLB161.9E**
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	**GLB341.9E**
AC 24 DC 24	3-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA131.9E	**GMA131.9E**
AC 24 DC 24	DC 0...10 V	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA161.9E	**GMA161.9E**
AC 24 DC 24	3-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD131.9A	**GQD131.9A**
AC 24 DC 24	DC 0...10 V	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD161.9A	**GQD161.9A**

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6-port control ball valves, externally threaded, PN16, DN20

VWG41.20..

Used in heated/chilled ceilings as control ball valve. For closed circuits.
- Control ball valve body made of hot-pressed brass CW617N
- Flat sealing, external threaded connections G..B, as per ISO 228-1
- Can be combined with standard electromotoric rotary actuators from the DAC product range for applications with additional functions (such as auxiliary switches, potentiometers)

Data sheet	A6V10564480
Angular rotation	90 °
Leakage rate	"Air tight" per EN 12266-1, class A
Medium	Water with anti-freeze Water Low-temperature hot water
Medium temperature	5...90 °C
Permissible operating pressure	1600 kPa
Material, valve body	Hot-pressed brass CW617N
Material, inside set	Brass CW614N, chrome plated
PN class	PN 16

Range overview VWG41.20..

DN	k_{vs} right [m³/h]	k_{vs} left [m³/h]	Connecting thread ["]	GDB..9E Δp_{max} [kPa]	Stock No.	Product No.
20	0.4	0.25	G 1	200	S55230-V142	VWG41.20-0.25-0.4
20	0.65	0.25	G 1	200	S55230-V143	VWG41.20-0.25-0.65
20	1	0.25	G 1	200	S55230-V144	VWG41.20-0.25-1.0
20	1	0.4	G 1	200	S55230-V145	VWG41.20-0.4-1.0
20	1.3	0.4	G 1	200	S55230-V146	VWG41.20-0.4-1.3
20	1.6	0.4	G 1	200	S55230-V147	VWG41.20-0.4-1.6
20	1	0.65	G 1	200	S55230-V148	VWG41.20-0.65-1.0
20	1.6	0.65	G 1	200	S55230-V149	VWG41.20-0.65-1.6
20	2.5	0.65	G 1	200	S55230-V150	VWG41.20-0.65-2.5
20	1.6	1	G 1	200	S55230-V151	VWG41.20-1.0-1.6
20	2.5	1	G 1	200	S55230-V152	VWG41.20-1.0-2.5
20	2.5	1.6	G 1	200	S55230-V153	VWG41.20-1.6-2.5
20	3.45	1.6	G 1	200	S55230-V154	VWG41.20-1.6-3.45
20	3.45	2.5	G 1	200	S55230-V155	VWG41.20-2.5-3.45
20	4.25	2.5	G 1	200	S55230-V156	VWG41.20-2.5-4.25
20	4.25	4.25	G 1	200	S55230-V157	VWG41.20-4.25-4.25

New Product

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Accessories for VWG41..

Product Title	Data sheet	Stock No.	Product No.
Brass fitting G 1" / G ½", 5 °C - 90 °C, set of 2	A6V10564480	S55845-Z156	ALN15.152B
Brass fitting G 1" / G ¾", 5 °C - 90 °C, set of 2	A6V10564480	S55845-Z157	ALN15.202B
Brass fitting G 1" / Rp ½", set of 2		S55845-Z158	ALG15.152B
Brass fitting G 1" / Rp ¾", set of 2		S55845-Z159	ALG15.202B
Brass fitting G 1" / Rp 1", set of 2		S55845-Z160	ALG15.252B
Insulation cover for VWG41.20 6-Way ball valve		S55845-Z161	ALI20VWG41
Strainer, inside threaded, DN15		S55845-Z174	ALX15
Strainer, inside threaded, DN20		S55845-Z175	ALX20
Strainer, inside threaded, DN25		S55845-Z176	ALX25

Combinable actuator for VWG41..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24	KNX S-Mode	150	No	A6V10725318	S55499-D203	GDB111.9E/KN
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636150	S55499-D275	GDB161.9E

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2-port open/close ball valves, externally threaded, PN 40

VAG60..

For use in heating, ventilating and air conditioning plants as open/close ball valve. For closed circuits.

- Brass CW602N (DZR) ball valve body
- Flat sealing connections with external thread G..B to ISO 228-1
- Applications with auxiliary functions (e.g., switch, potentiometer) can also be combined with standard rotary actuators belonging to the DAC range

Data sheet	N4214
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 5
Medium	Water Chilled water Cooling water Low-temperature hot water High-temperature hot water Water with anti-freeze
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 VAG60..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GQD..9A Δp_s [kPa]	GMA../ GLB..9E Δp_{max} [kPa]	GMA../ GLB..9E Δp_s [kPa]	GSD..9A Δp_s [kPa]	GSD..9A Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1 B	350	1400	350	1400	1400	350	15	9	S55230-V130	**VAG60.15-9**
G 1¼ B	350	1400	350	1400	1400	350	20	17	S55230-V131	**VAG60.20-17**
G 1½ B	350	1400	350	1400	1400	350	25	22	S55230-V132	**VAG60.25-22**
G 2 B			350	1000			32	35	S55230-V133	**VAG60.32-35**
G 2¼ B			350	800			40	68	S55230-V134	**VAG60.40-68**
G 2¾ B			350	600			50	96	S55230-V135	**VAG60.50-96**

Accessories for VAG60..

Product Title	Data sheet	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 VAG60/61, DN15		S55845-Z162	**ALI15VAG60/61**
Insulation Cover for VAG60/61, DN20		S55845-Z163	**ALI20VAG60/61**
Insulation Cover for VAG60/61, DN25		S55845-Z164	**ALI25VAG60/61**
Insulation Cover for VAG60/61, DN32		S55845-Z165	**ALI32VAG60/61**
Insulation Cover for VAG60/61, DN40		S55845-Z166	**ALI40VAG60/61**
Insulation Cover for VAG60/61, DN50		S55845-Z167	**ALI50VAG60/61**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

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Combinable actuator for VAG60..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	GLB141.9E
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	GLB161.9E
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	GLB341.9E
AC 24 DC 24	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 DC 24	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD141.9A	**GSD141.9A**
AC 230	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD341.9A	**GSD341.9A**
AC 230	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**

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3-port changeover ball valves, externally threaded, PN 40

VBG60..

For use in heating, ventilating and air conditioning plants as changeover ball valve. For closed circuits.

- Brass CW602N (DZR) ball valve body
- Flat sealing connections with external thread G..B to ISO 228-1
- Applications with auxiliary functions (e.g., switch, potentiometer) can also be combined with standard rotary actuators belonging to the DAC range

Data sheet	N4214
Angular rotation	90 °
Leakage rate	„Waterproof" as per EN 60534-4 L/1, better than class 4
Medium	Water Chilled water Cooling water Low-temperature hot water High-temperature hot water Water with anti-freeze
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 VBG60..

Connecting thread ["]	GQD..9A Δp_{max} [kPa]	GSD..9A Δp_{max} [kPa]	GMA../GLB..9E Δp_{max} [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
G 1	350	350	350	15	8	S55230-V136	**VBG60.15-8T**
G 1¼	350	350	350	20	13	S55230-V137	**VBG60.20-13T**
G 1½	350	350	350	25	13	S55230-V138	**VBG60.25-13T**
G 2			350	32	25	S55230-V139	**VBG60.32-25T**
G 2¼			350	40	49	S55230-V140	**VBG60.40-49T**
G 2¾			350	50	73	S55230-V141	**VBG60.50-73T**

Accessories for VBG60..

Product Title	Data sheet	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 VBG60/61, DN15		S55845-Z168	**ALI15VBG60/61**
Insulation Cover for VBG60/61, DN20		S55845-Z169	**ALI20VBG60/61**
Insulation Cover for VBG60/61, DN25		S55845-Z170	**ALI25VBG60/61**
Insulation Cover for VBG60/61, DN32		S55845-Z171	**ALI32VBG60/61**
Insulation Cover for VBG60/61, DN40		S55845-Z172	**ALI40VBG60/61**
Insulation Cover for VBG60/61, DN50		S55845-Z173	**ALI50VBG60/61**
Strainer, inside threaded, DN15		S55845-Z174	**ALX15**
Strainer, inside threaded, DN20		S55845-Z175	**ALX20**
Strainer, inside threaded, DN25		S55845-Z176	**ALX25**
Strainer, inside threaded, DN32		S55845-Z177	**ALX32**
Strainer, inside threaded, DN40		S55845-Z178	**ALX40**
Strainer, inside threaded, DN50		S55845-Z179	**ALX50**

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Combinable actuator for VBG60..

Operating voltage [V]	Positioning signal	Positioning time [s]	Spring return function	Data sheet	Stock No.	Product No.
AC 24 DC 24	2-position/3-position	150	No	A6V10636203	S55499-D204	GLB141.9E
AC 24 DC 24	DC 0/2...10 V	150	No	A6V10636203	S55499-D277	GLB161.9E
AC 230	2-position/3-position	150	No	A6V10636203	S55499-D205	GLB341.9E
AC 24 DC 24	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA121.9E	**GMA121.9E**
AC230	2-position	Opening with motor: 90 Closing withpring: 15	Yes	N4658	BPZ:GMA321.9E	**GMA321.9E**
AC 24 DC 24	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD121.9A	**GQD121.9A**
AC 24 DC 24	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD141.9A	**GSD141.9A**
AC 230	On-Off (2 wire SPDT)	30	No	A6V10636056	BPZ:GSD341.9A	**GSD341.9A**
AC 230	2-position	Opening with motor: 30 Closing withpring: 15	Yes	N4659	BPZ:GQD321.9A	**GQD321.9A**

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3-port slipper valves PN 6 with flanged connections

VBF21..

- With flanged connections to ISO 7005
- For chilled or low-temperature hot water in closed circuits

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

Data sheet	N4241
Angular rotation	90 °
Medium temperature	1...120 °C
Valve characteristic	Linear
Permissible operating pressure	600 kPa
Material, inside set	< DN 100: CrNi steel/brass > DN 125: CrNi steel/Rg5
PN class	PN 6
Leakage rate	DN40...100: 0...0.1 % of k_{vs} value DN125...150: 0...0,5 % of k_{vs} value

Range overview 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 for VBF21..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	120		N4502	S55162-A108	**SAL31.00T10**
AC 230	3-position	30		N4502	S55162-A109	**SAL31.03T10**
AC 230	3-position	125		N4506	BPZ:SQK33.00	**SQK33.00**
AC 230	3-position	135		N4508	BPZ:SQK34.00	**SQK34.00**
AC 24	3-position	135		N4508	BPZ:SQK84.00	**SQK84.00**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120		N4502	S55162-A100	**SAL61.00T10**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30		N4502	S55162-A101	**SAL61.03T10**
AC 24 DC 24	3-position	120		N4502	S55162-A104	**SAL81.00T10**
AC 24 DC 24	3-position	30		N4502	S55162-A105	**SAL81.03T10**

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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

VBG31.. are supplied with malleable cast iron fittings.

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

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

Range overview 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 for VBG31..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	125		N4506	BPZ:SQK33.00	**SQK33.00**
AC 230	3-position	135		N4508	BPZ:SQK34.00	**SQK34.00**
AC 24	3-position	135		N4508	BPZ:SQK84.00	**SQK84.00**

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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

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

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

Range overview 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 for VBI31..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	125		N4506	BPZ:SQK33.00	**SQK33.00**
AC 230	3-position	135		N4508	BPZ:SQK34.00	**SQK34.00**
AC 24	3-position	135		N4508	BPZ:SQK84.00	**SQK84.00**

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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

SQK34.., SQK84..: Direct mounting
SQK33.00 requires mounting set ASK32

Data sheet	N4252
Valve characteristic	Linear
Angular rotation	90 °
PN class	PN 10
Medium temperature	1...120 °C
Permissible operating pressure	1000 kPa
Material, valve body	Cast iron EN-GJL-250
Material, inside set	Brass

Range overview 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 for VCI31..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 230	3-position	125		N4506	BPZ:SQK33.00	**SQK33.00**
AC 230	3-position	135		N4508	BPZ:SQK34.00	**SQK34.00**
AC 24	3-position	135		N4508	BPZ:SQK84.00	**SQK84.00**

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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

SAL..T10, SAL..T40 require mounting set ASK33N

Data sheet	N4131
Angular rotation	90 °
Material, inside set	Stainless steel
Medium temperature	-10...120 °C
Material, valve body	Cast iron EN-GJL-250
PN class	PN 16

Range overview VKF41..

SAL..T10 Δp_s [kPa]	SAL..T40 Δp_s [kPa]	DN	k_{vs} [m³/h]	Leakage rate	Required mounting set	Stock No.	Product No.
500		40	50	0.22% of k_{vs}	ASK33N	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	400	150	2100	0.02% of k_{vs}	ASK33N	BPZ:VKF41.150	**VKF41.150**
125	300	200	4000	0.01% of k_{vs}	ASK33N	BPZ:VKF41.200	**VKF41.200**

VKF41... will be phased-out around spring 2017. Replacement products are VFW41... (wafer type) and VFL41... (lug type).
It will be availlable at the same time.

Combinable actuator for VKF41..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	120	N4502	S55162-A108	**SAL31.00T10**
AC 230	3-position	30	N4502	S55162-A109	**SAL31.03T10**
AC 230	3-position	120	N4502	S55162-A111	**SAL31.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A103	**SAL61.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A100	**SAL61.00T10**
AC 24 DC 24	3-position	120	N4502	S55162-A107	**SAL81.00T40**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	30	N4502	S55162-A101	**SAL61.03T10**
AC 24 DC 24	3-position	120	N4502	S55162-A104	**SAL81.00T10**
AC 24 DC 24	3-position	30	N4502	S55162-A105	**SAL81.03T10**

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VKF42..

Butterfly valves PN16 for flanged connections, with tight shutoff

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 °
Leakage rate	A to ISO 5208 (tight-closing)
Medium	Water Water with anti-freeze
Medium temperature	-10...80 °C
Valve characteristic	Non-linear
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
Mounting position	Upright to horizontal
Required mounting set	Direct

Range overview VKF42..

SQL321B25/ SQL361B50 Δp_s [kPa]	SQL..B50 Δp_s [kPa]	SQL..B150 Δp_s [kPa]	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							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**
			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**

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Combinable actuator for VKF42..

Operating voltage	Positioning signal	Positioning time	Spring return function	Data sheet	Stock No.	Product No.
AC 220	2-position (SPDT)	11	No	N4520	S55164-A100	**SQL321B25**
AC 220	2-position (SPDT)	19	No	N4520	S55164-A101	**SQL321B50**
AC 220	DC 0...10	19	No	N4520	S55164-A102	**SQL361B50**
AC 220	2-position (SPDT)	39	No	N4520	S55164-A103	**SQL321B150**
AC 220	DC 0...10	39	No	N4520	S55164-A104	**SQL361B150**
AC 220	2-position (SPDT)	39	No	N4520	S55164-A105	**SQL321B270**
AC 220	DC 0...10	39	No	N4520	S55164-A106	**SQL361B270**
AC 220	2-position (SPDT)	47	No	N4520	S55164-A107	**SQL321B570**
AC 220	DC 0...10	47	No	N4520	S55164-A108	**SQL361B570**
AC 220	2-position (SPDT)	47	No	N4520	S55164-A109	**SQL321B1400**
AC 220	DC 0...10	47	No	N4520	S55164-A110	**SQL361B1400**
AC 220	2-position (SPDT)	105	No	N4520	S55164-A111	**SQL321B2650**
AC 220	DC 0...10	105	No	N4520	S55164-A112	**SQL361B2650**

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VKF46..

Butterfly valves PN6/10/16 for flanged connections, with tight shutoff

- 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 °
Material, inside set	From DN350: Nickel-plated steel To DN300: Stainless steel
Medium temperature	-10...120 °C
Material, valve body	From DN350: Nodular cast iron EN-GJS-400-15 To DN300: Grey cast iron EN-GJL-250
PN class	PN 16

Range overview VKF46..

SAL..T20 Δp_s [kPa]	SAL..T40 Δp_s [kPa]	SQL36E50F04 Δp_s [kPa]	SQL36E50F05 Δp_s [kPa]	SQL36E65 Δp_s [kPa]	SQL36E110 Δp_s [kPa]	SQL36E160 Δp_s [kPa]	DN	k_{vs} [m³/h]	Stock No.	Product No.
1600		1600					40	50	BPZ:VKF46.40	**VKF46.40**
1600		1600					50	85	BPZ:VKF46.50	**VKF46.50**
1600		1600					65	215	BPZ:VKF46.65	**VKF46.65**
	1600		1600				80	420	BPZ:VKF46.80	**VKF46.80**
	1200		1600				100	800	BPZ:VKF46.100	**VKF46.100**
	800		1000				125	1010	BPZ:VKF46.125	**VKF46.125**
				1600			150	2100	BPZ:VKF46.150	**VKF46.150**
				1000			200	4000	BPZ:VKF46.200	**VKF46.200**
					1000		250	6400	BPZ:VKF46.250	**VKF46.250**
					1000		300	8500	BPZ:VKF46.300	**VKF46.300**
					600		350	11500	BPZ:VKF46.350	**VKF46.350**
					300		400	14500	BPZ:VKF46.400	**VKF46.400**
						300	450	20500	BPZ:VKF46.450	**VKF46.450**
						300	500	21000	BPZ:VKF46.500	**VKF46.500**
						300	600	29300	BPZ:VKF46.600	**VKF46.600**

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Combinable actuator for VKF46..

Operating voltage	Positioning signal	Positioning time	Data sheet	Stock No.	Product No.
AC 230	3-position	120	N4502	S55162-A110	**SAL31.00T20**
AC 230	3-position	25	N4505	BPZ:SQL36E50F04	**SQL36E50F04**
AC 230	3-position	120	N4502	S55162-A111	**SAL31.00T40**
AC 230	3-position	25	N4505	BPZ:SQL36E50F05	**SQL36E50F05**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A102	**SAL61.00T20**
AC 230	3-position	6	N4505	BPZ:SQL36E65	**SQL36E65**
AC 24 DC 24	DC 0...10 V DC 4...20 mA 0...1000 Ohm	120	N4502	S55162-A103	**SAL61.00T40**
AC 230	3-position	12	N4505	BPZ:SQL36E110	**SQL36E110**
AC 24 DC 24	3-position	120	N4502	S55162-A106	**SAL81.00T20**
AC 230	3-position	24	N4505	BPZ:SQL36E160	**SQL36E160**
AC 24 DC 24	3-position	120	N4502	S55162-A107	**SAL81.00T40**

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**

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MVL661..-..

Modulating refrigerant valves with magnetic actuator, PS45, hermetically sealed, for safety refrigerants

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.

The MVL661..-.. refrigerant valve is used in conjunction with PolyCool for superheat control or Climatix 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.

Data sheet	N4714
PN class	---
Operating voltage	AC 24 V DC 20...30 V
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

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Range overview MVL661..

Δp_{max} [kPa]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	DN	Stock No.	Product No.
2500	0.4	0.25	15	BPZ:MVL661.15-0.4	**MVL661.15-0.4**
2500	1	0.63	15	BPZ:MVL661.15-1.0	**MVL661.15-1.0**
2500	2.5	1.6	20	BPZ:MVL661.20-2.5	**MVL661.20-2.5**
2500	6.3	4	25	BPZ:MVL661.25-6.3	**MVL661.25-6.3**
1600	10	6.3	32	S55320-M105	**MVL661.32-10**
200	12	8	32	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.

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Modulating refrigerant valves with magnetic actuator, PN 63, hermetically sealed

MVS661..N

Hermetically sealed 2-port valves for modulating control of refrigerant circuits including chillers and heat pumps.
- Expansion gas, flash gas and suction throttle applications with one type of valve
- PN 63, 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.

"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."

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	6300 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

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Range overview MVS661..N

Δp_{max} [kPa]	k_{vs} [m³/h]	k_{vs} reduced [m³/h]	DN	Stock No.	Product No.
2500	0.16	0.10	25	BPZ:MVS661.25-016N	**MVS661.25-016N**
2500	0.40	0.25	25	BPZ:MVS661.25-0.4N	**MVS661.25-0.4N**
2500	1	0.63	25	BPZ:MVS661.25-1.0N	**MVS661.25-1.0N**
2500	2.5	1.6	25	BPZ:MVS661.25-2.5N	**MVS661.25-2.5N**
2500	6.3	4.0	25	BPZ:MVS661.25-6.3N	**MVS661.25-6.3N**

k_{vs}-reduced selectable with DIP switch.

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Accessories for MVL661..-../ MVS661..N

Product Title	Data sheet	Stock No.	Product No.
Valve insert	N4716	BPZ:ASR0.16N	**ASR0.16N**
Valve insert	N4716	BPZ:ASR0.4N	**ASR0.4N**
Valve insert	N4716	BPZ:ASR1.0N	**ASR1.0N**
Valve insert	N4716	BPZ:ASR2.5N	**ASR2.5N**
Valve insert	N4716	BPZ:ASR6.3N	**ASR6.3N**
Replacement electronic for MVL661.. and MVS661..N	N4714	BPZ:ASR61	**ASR61**

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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
Power consumption	13 VA
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Positioning time	<1 s
Spring return function	Closed
Degree of protection	IP54
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	3200 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
Δp_{max}	1800 kPa
k_{vs}	0.3 m³/h

	Stock No.	Product No.
	BPZ:M2FP03GX	**M2FP03GX**

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Matching ZM.. electronics

Product Title	Data sheet	Stock No.	Product No.
Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	BPZ:ZM100/A	**ZM100/A**
Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	BPZ:ZM101/A	**ZM101/A**
Terminal housing for control of valves with magnetic actuator, 0...20 V Phs		BPZ:ZM110	**ZM110**
Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	BPZ:ZM111	**ZM111**
Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	BPZ:ZM120/A	**ZM120/A**
Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	BPZ:ZM121/A	**ZM121/A**
Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	BPZ:ZM200/A	**ZM200/A**
Terminal housing for control of valves with magnetic actuator, 0...20 V Phs		BPZ:ZM210	**ZM210**
Terminal housing for control of valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	BPZ:ZM220/A	**ZM220/A**

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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)

Modulating control valves for hot-gas control, without ZM.. electronics housing
For use with Staefa controllers (working range 4...8 V)

Data sheet	N4721
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Positioning time	< 1 s
Spring return function	AB-> A closed
Degree of protection	IP54
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	4300 kPa
Leakage rate	< 0.05% 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

Range overview M3FB..LX..

Power consumption [VA]	Δp_{max} [kPa]	k_{vs} [m³/h]	DN	Stock No.	Product No.
26	2200	0.6	15	BPZ:M3FB15LX06/A	**M3FB15LX06/A**
26	2200	1.5	15	BPZ:M3FB15LX15/A	**M3FB15LX15/A**
26	2200	3	15	BPZ:M3FB15LX/A	**M3FB15LX/A**
26	1800	5	20	BPZ:M3FB20LX/A	**M3FB20LX/A**
40	1200	8	25	BPZ:M3FB25LX/A	**M3FB25LX/A**
40	800	12	32	BPZ:M3FB32LX	**M3FB32LX**

Δp_{max} across control port AB -> A.

Matching ZM.. electronics

Product Title	Data sheet	Stock No.	Product No.
Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	BPZ:ZM101/A	**ZM101/A**
Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	BPZ:ZM111	**ZM111**
Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	BPZ:ZM121/A	**ZM121/A**

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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)

For use with Staefa controllers (working range 4...8 V)

Data sheet	N4722
PN class	PN 32
Operating voltage	AC 24 V
Positioning signal	DC 0...10 V DC 4...20 mA DC 0...20 V Phs
Positioning time	< 1 s
Spring return function	1-> 3 closed
Degree of protection	IP54
Ambient temperature, operation	-40...50 °C
Mounting position	Any
Permissible operating pressure	3200 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

Range overview M3FK..LX..

Power consumption [VA]	k_{vs} [m³/h]	DN	Stock No.	Product No.
13	0.6	15	BPZ:M3FK15LX06	**M3FK15LX06**
13	1.5	15	BPZ:M3FK15LX15	**M3FK15LX15**
13	3	15	BPZ:M3FK15LX	**M3FK15LX**
16	5	20	BPZ:M3FK20LX	**M3FK20LX**
16	8	25	BPZ:M3FK25LX	**M3FK25LX**
20	12	32	BPZ:M3FK32LX	**M3FK32LX**
40	20	40	BPZ:M3FK40LX	**M3FK40LX**
40	30	50	BPZ:M3FK50LX	**M3FK50LX**

With types ZM101/A and ZM121/A, the DC 0...20 V Phs positioning signal is also possible without operating voltage.

Matching ZM.. electronics

Product Title	Data sheet	Stock No.	Product No.
Terminal housing for valves with magnetic actuator, AC 24 V, DC 0...10 V / 0...20 V Phs	N4591	BPZ:ZM101/A	**ZM101/A**
Terminal housing for valves with magnetic actuator, 0...20 V Phs	N4591	BPZ:ZM111	**ZM111**
Terminal housing for valves with magnetic actuator, AC 24 V, DC 4...20 mA / 0...20 V Phs	N4591	BPZ:ZM121/A	**ZM121/A**

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Damper actuators

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Actuators for HVAC applications

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 dam-per 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	2-position 3-position	AC/DC 24 V AC 230 V	GDB141.1E GDB341.1E	GDB142.1E	–	–	–	GDB146.1E GDB346.1E	8...16	6...12.8
		Modulating DC 0/2...10 V	AC/DC 24 V AC 230 V	GDB161.1E GDB361.1E	–	GDB163.1E	GDB164.1E	–	GDB166.1E		
		Modbus RTU	AC 24 V	GDB111.1E/MO	–	–	–	–	–		
	GLB series 10 Nm for approx. 1.5 m² damper area 150 s running time	2-position 3-position	AC/DC 24 V AC 230 V	GLB141.1E GLB341.1E	GLB142.1E	–	–	–	GLB146.1E GLB346.1E	8...16	6...12.8
		Modulating DC 0/2...10 V	AC/DC 24 V AC 230 V	GLB161.1E GLB361.1E	–	GLB163.1E	GLB164.1E	–	GLB166.1E		
		Modbus RTU	AC 24 V	GLB111.1E/MO	–	–	–	–	–		
	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	–	–	–		
	GQD series 2 Nm for approx. 0.3 m² damper area 30 s running time 15 s spring return 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 spring return 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 spring return 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		

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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
	GRA actuator [1] 4 Nm for approx. 0.6 m² damper area 90 s running time 15 s spring return time	2-position	AC/DC 24 V AC 230 V	GRA126.1E/... [2] GRA326.1E/... [2]	GRA126.1E/T... [2] GRA326.1E/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		
		Modbus RTU	AC 24 V	GDB181.1E/MO		
		BACnet MS/TP	AC 24 V	GDB181.1E/BA		
	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		
		Modbus RTU	AC 24 V	GLB181.1E/MO		
		BACnet MS/TP	AC 24 V	GLB181.1E/BA		
	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

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[1] Available to OEMs only

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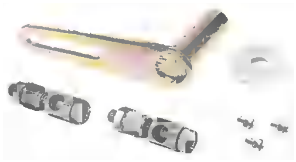
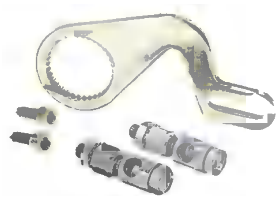
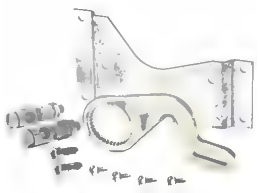
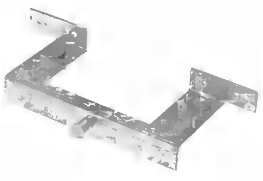
Accessories for actuators

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

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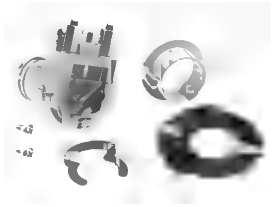
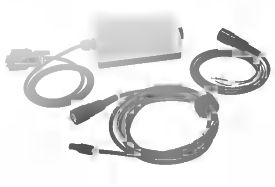
Description		GDB/ GLB	GEB/ GMA	GCA/GIB GBB	Type reference
	Rotary to linear set for frame mounting For direct mounting to damper frame. Includes a crank arm to generate a linear stroke, a Teflon support-bearing ring to minimize side-loading on the actuator's output bearing, and other mounting fasteners. **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.	 ■	■ ■	 ■ ■ ■	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/xx	■			AST20
	**Interface converter for VAV compact controller** Interface converter for use with GDB/GLB/ASV181.1E/xx	■			AST11

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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)

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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
Cable length	0.9 m
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 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**
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**

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GMA..1E

Rotary air damper actuators 7 Nm, with spring return

- 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
Medium temperature	-32...55 °C
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 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**
AC 230	2-position	7 VA 4.5 W	0	BPZ:GMA321.1E	**GMA321.1E**
AC 230	2-position	7 VA 4.5 W	2	BPZ:GMA326.1E	**GMA326.1E**

Type GMA132.1E has a feedback potentiometer.
Basic Documentation No.: Z4614

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Rotary air damper actuators 18 Nm, with spring return

GCA..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
- 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
Medium temperature	-32...55 °C
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 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**
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**

Type GCA135.1E has a feedback potentiometer.
Basic Documentation No.: Z4613

Accessories for rotary air damper actuators GMA..1E

Product Title	Data sheet	Stock No.	Product No.
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**
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	**ASK71.11**
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	**ASK71.14**
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield	N4697	BPZ:ASK75.3	**ASK75.3**
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	**ASK71.13**
Bracket for power pack	N4697	BPZ:ASK73.3	**ASK73.3**

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Accessories for rotary air damper actuators GCA..1E

Product Title	Data sheet	Stock No.	Product No.
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**
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	**ASK71.1**
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**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	**ASK75.1**
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**
Flexible bracket for power pack	N4699	BPZ:ASK73.2	**ASK73.2**
Special shaft adapter	N4699	BPZ:ASK74.1	**ASK74.1**

Caution!
- ASK73.1 is only valid for GCA12..1E, GCA13..1E, GCA32..1E
- ASK73.2 is only valid for GCA16..1E

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Rotary air damper actuators 2 Nm, without spring return

GSD..1A

- 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
Cable length	0.9 m
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**

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GDB..1E

Rotary air damper actuators 5 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	A6V10636149
Torque	5 Nm
Air damper area	0.8 m²
Angular rotation	90 °
Positioning time	150 s
Cable length	0.9 m
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 DC 24	2-position/3-position	2.5 VA 1.1 W	0	S55499-D184	GDB141.1E
AC 24 DC 24	2-position/3-position	2.5 VA 1.1 W	0	S55499-D185	GDB142.1E
AC 24 DC 24	2-position/3-position	2.5 VA 1.1 W	2	S55499-D186	GDB146.1E
AC 24 DC 24	DC 0/2...10 V	2.1 VA 1.2 W	0	S55499-D266	GDB161.1E
AC 24 DC 24	DC 0...35 V Adjustable	2.1 VA 1.2 W	0	S55499-D267	GDB163.1E
AC 24 DC 24	DC 0...35 V Adjustable	2.1 VA 1.2 W	2	S55499-D268	GDB164.1E
AC 24 DC 24	DC 0/2...10 V	3.3 VA 1.3 W	2	S55499-D269	GDB166.1E
AC 230	2-position/3-position	5.0 VA 1.6 W	0	S55499-D187	GDB341.1E
AC 230	2-position/3-position	5.0 VA 1.6 W	2	S55499-D188	GDB346.1E
AC 230	DC 0/2...10 V	2.1 VA 1.2 W	0	S55499-D189	GDB361.1E

Type GDB142.1E has a feedback potentiometer.
Basic Documentation No.: A6V10636139.
Additional variants of actuators can be configured in Product Configurator.

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Rotary air damper actuators 10 Nm, without spring return

GLB..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	A6V10636202
Torque	10 Nm
Air damper area	1.5 m²
Angular rotation	90 °
Positioning time	150 s
Cable length	0.9 m
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 DC 24	2-position/3-position	2 VA 1.3 W	0	S55499-D192	GLB141.1E
AC 24 DC 24	2-position/3-position	2 VA 1.3 W	0	S55499-D193	GLB142.1E
AC 24 DC 24	2-position/3-position	2 VA 1.3 W	2	S55499-D194	GLB146.1E
AC 24 DC 24	DC 0/2...10 V	2.5 VA 1.5 W	0	S55499-D270	GLB161.1E
AC 24 DC 24	DC 0...35 V Adjustable	2.5 VA 1.5 W	0	S55499-D271	GLB163.1E
AC 24 DC 24	DC 0...35 V Adjustable	2.5 VA 1.5 W	2	S55499-D272	GLB164.1E
AC 24 DC 24	DC 0/2...10 V	2.5 VA 1.5 W	2	S55499-D273	GLB166.1E
AC 230	2-position/3-position	5.8 VA 1.9 W	0	S55499-D195	GLB341.1E
AC 230	2-position/3-position	5.8 VA 1.9 W	2	S55499-D196	GLB346.1E
AC 230	DC 0/2...10 V	4.0 VA 1.6 W	0	S55499-D197	GLB361.1E

Type GLB142.1E has a feedback potentiometer.
Basic Documentation No.: A6V10636196.
Additional variants of actuators can be configured in Product Configurator.

New Product

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GEB..1E

Rotary air damper actuators 15 Nm, without spring return

- 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 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**
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**

Types GEB132.1E and 332.1E have a feedback potentiometer.
Basic Documentation No.: Z4621

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Rotary air damper actuators 25 Nm, without spring return

GBB..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 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

Rotary actuators 25 Nm for ball valves VAF51..

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 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**
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**

Types GBB135.1E and GBB335.1E have a feedback potentiometer.
Basic Documentation No.: Z4626

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GIB..1E

Rotary air damper actuators 35 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 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

Rotary actuators 35 Nm for ball valves VAF51..

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 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**
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**

Types GIB135.1E and 335.1E have a feedback potentiometer.
Basic Documentation No.: Z4626

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Accessories for rotary air damper actuators GDB..1E and GLB..1E

Product Title	Data sheet	Stock No.	Product No.
Centering insert 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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**

Accessories for rotary air damper actuators GEB..1E

Product Title	Data sheet	Stock No.	Product No.
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**
Rotary/linear mounting kit for duct or frame mounting	N4697	BPZ:ASK71.11	**ASK71.11**
Rotary/linear mounting kit with lever	N4697	BPZ:ASK71.14	**ASK71.14**
Universal lever	N4697	BPZ:ASK71.9	**ASK71.9**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield	N4697	BPZ:ASK75.3	**ASK75.3**
Rotary/linear mounting kit with lever and bracket	N4697	BPZ:ASK71.13	**ASK71.13**
Bracket for power pack	N4697	BPZ:ASK73.3	**ASK73.3**

Accessories for rotary air damper actuators GBB..1E and GIB..1E

Product Title	Data sheet	Stock No.	Product No.
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**
Rotary/linear mounting kit for duct mounting	N4699	BPZ:ASK71.1	**ASK71.1**
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**
Shaft extension	N4699	BPZ:ASK74.7	**ASK74.7**
Weather shield for rotary actuator	N4699	BPZ:ASK75.1	**ASK75.1**
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**
Flexible bracket for power pack	N4699	BPZ:ASK73.2	**ASK73.2**
Special shaft adapter	N4699	BPZ:ASK74.1	**ASK74.1**

Caution!
- ASK73.1 is only valid for GIB13..1E and GIB33..1E
- ASK73.2 is only valid for GIB16..1E

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G..B111.1E/MO

Rotary air damper actuator, with Modbus RTU

- 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
- Nominal torque 5 or 10 Nm

Data sheet	A6V10881141
Angular rotation	90 °
Positioning time	150 s
Communication	Modbus RTU
Degree of protection	IP54
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B111.1E/MO

Torque [Nm]	Operating voltage [V]	Positioning signal	Power consumption	Auxiliary switch	Cable length [m]	Stock No.	Product No.
5	AC 24	Modbus RTU	3.0 VA 2.5 W	0	0.9	S55499-D191	GDB111.1E/MO
10	AC 24	Modbus RTU	3.0 VA 2.5 W	0	0.9	S55499-D199	GLB111.1E/MO

Accessories for rotary damper actuators with Modbus RTU communication

Product Title	Data sheet	Stock No.	Product No.
Centering insert 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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**

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Rotary air damper actuators 6 Nm, with electronic fail-save function

GNP..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
- 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
Cable length	0.9 m
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	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**

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GAP..1E

Rotary air damper actuators 6 Nm, without 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
- 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
Cable length	0.9 m
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	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**

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Linear air damper actuators 125 N, without spring return

GDB..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	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 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**
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**

Basic Documentation No.: Z4664.

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GLB..2E

Linear air damper actuators 250 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	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 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**
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**

Basis Documentation No.: Z4664.

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**

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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
Communication	KNX S-Mode KNX LTE-Mode KNX PL-Link
Cable length	0.9 m
Degree of protection	IP54
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	Stock No.	Product No.
5	AC 24	0.8	3 VA 2.5 W	S55499-D134	**GDB181.1E/KN**
10	AC 24	1.5	3 VA 2.5 W	S55499-D135	**GLB181.1E/KN**

Basic Documentation No.: P3547.

Accessories for G..B181.1E/KN

Product Title	Data sheet	Stock No.	Product No.
Interface converter	N5852	BPZ:AST11	**AST11**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Handheld tool for VAV compact controllers	A6V10631836	S55499-D165	**AST20**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**

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G..B181.1E/BA

VAV compact controller BACnet

- Networked compact controller with BACnet MS/TP (BTL-listed) 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 bus cable

Data sheet	A6V10631834
Angular rotation	90 °
Positioning time	150 s
Communication	BACnet MS/TP
Cable length	0.9 m
Degree of protection	IP54
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/BA

Torque [Nm]	Operating voltage [V]	Air damper area [m²]	Power consumption	Stock No.	Product No.
5	AC 24	0.8	3 VA 2.5 W	S55499-D168	**GDB181.1E/BA**
10	AC 24	1.5	3 VA 2.5 W	S55499-D169	**GLB181.1E/BA**

Accessories for G..B181.1E/BA

Product Title	Data sheet	Stock No.	Product No.
Interface converter	N5852	BPZ:AST11	**AST11**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Handheld tool for VAV compact controllers	A6V10631836	S55499-D165	**AST20**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**

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VAV compact controller Modbus

G..B181.1E/MO

- Networked compact controller with Modbus RTU 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 bus cable

Data sheet	A6V10631832
Angular rotation	90 °
Positioning time	150 s
Communication	Modbus RTU
Cable length	0.9 m
Degree of protection	IP54
Dimensions (W x H x D)	71 x 158 x 61 mm

Range overview G..B181.1E/MO

Torque [Nm]	Operating voltage [V]	Air damper area [m²]	Power consumption	Stock No.	Product No.
5	AC 24	0.8	3 VA 2.5 W	S55499-D166	**GDB181.1E/MO**
10	AC 24	1.5	3 VA 2.5 W	S55499-D167	**GLB181.1E/MO**

Accessories for G..B181.1E/MO

Product Title	Data sheet	Stock No.	Product No.
Interface converter	N5852	BPZ:AST11	**AST11**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Handheld tool for VAV compact controllers	A6V10631836	S55499-D165	**AST20**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**

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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
Positioning signal	DC 0...10 V DC 2...10 V 3-position
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]	Power consumption	Stock No.	Product No.
5	AC 24	0.8	3 VA 2.5 W	BPZ:GDB181.1E/3	**GDB181.1E/3**
10	AC 24	1.5	3 VA 2.5 W	BPZ:GLB181.1E/3	**GLB181.1E/3**

Basic Documentation No.: P3544.

Accessories for G..B181.1E/3

Product Title	Data sheet	Stock No.	Product No.
Interface converter	N5852	BPZ:AST11	**AST11**
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**
Centering insert D-profile fixed 12 mm dia. × 9 mm	N4698	BPZ:ASK78.12	**ASK78.12**
Handheld tool for VAV compact controllers	A6V10631836	S55499-D165	**AST20**
Insert for small shaft dia.	N4698	BPZ:ASK78.3	**ASK78.3**
Weather shield for rotary-/linear-type actuator GDB/GLB/GSF...E	N4698	BPZ:ASK75.5	**ASK75.5**
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 8 mm square	N4698	BPZ:ASK78.14	**ASK78.14**

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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
Angular rotation	90 °
Power consumption	1 VA 0.5 W
Positioning time	150 s
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
Operating voltage	AC 24 V

	Stock No.	Product No.
	BPZ:ASV181.1E/3	**ASV181.1E/3**

Accessories for ASV181.1E/3

Product Title	Data sheet	Stock No.	Product No.
Interface converter	N5852	BPZ:AST11	**AST11**
Handheld tool for VAV compact controllers	A6V10631836	S55499-D165	**AST20**

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GND..1U

OpenAir Damper Actuator, SR, UL Smoke 53lb-in, Fire/Smoke

Torque	53 lb-in
Angular rotation	90 °
Positioning time	Runtime 15 s, Spring Return Time 15 s
Cable length	3 ft
Connection cable	FEP Teflon® jacketed, 19/30 strand, 18 GA ft
Dimensions (W x H x D)	Actuator: 3-1/4 W x 9 H x 3 D in. Shaft Diameter: 1/4 in. round; Shaft Length Min: 1.4 in
Position feedback	No

Range overview GND..1U with or without fuse link

Operating voltage	Power consumption	Auxiliary switch	Stock No.	Product No.
24 Vac/Vdc	Running: 20 VA / 12W, Holding: 8 VA / 6 W	2	BPZ:GND126.1U	**GND126.1U**
24 Vac/Vdc	Running: 20 VA / 12W, Holding: 8 VA / 6 W	2	BPZ:GND126.1U/F	**GND126.1U/F**
230 Vac	Running: 20 VA, Holding: 9 VA	2	BPZ:GND326.1U	**GND326.1U**
230 Vac	Running: 20 VA, Holding: 9 VA	2	BPZ:GND326.1U/F	**GND326.1U/F**

Types GND126.1U/F and GND326.1U/F are equipped with a fuse link.

Accessories for GND..

Product Title	Data sheet	Stock No.	Product No.
OpenAir Electronic Fusible Link.	155-746	BPZ:ASK79.165	**ASK79.165**
Electronic Fusible Link (EFL).		BPZ:ASK79.212	**ASK79.212**
OpenAir Electronic Fusible Link.	155-746	BPZ:ASK79.250	**ASK79.250**
OpenAir Electronic Fusible Link.	155-746	BPZ:ASK79.350	**ASK79.350**

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Actuators for fire protection dampers

GRA..26.1E

- 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	A6V10888424
Torque	4 Nm
Air damper area	0.6 m²
Positioning time	Open with motor: 90 s Close with spring return: 15 s
Connection cable	Supply: 2 x 0.75 mm² / auxiliary switch: 6 x 0.75 mm²
Degree of protection	IP54
Medium temperature	≤72 °C
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GRA..26.1E

Operating voltage [V]	Positioning signal	Power consumption	Cable length [m]	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	2-position	5 VA 3.5 W	0.9	10 x 10	S55499-D294	**GRA126.1E/10**
AC 230	2-position	7 VA 4.5 W	0.9	10 x 10	S55499-D295	**GRA326.1E/10**
AC 24 DC 24	2-position	5 VA 3.5 W	0.9	12 x 12	S55499-D296	**GRA126.1E/12**
AC 230	2-position	7 VA 4.5 W	0.9	12 x 12	S55499-D297	**GRA326.1E/12**
AC 24 DC 24	2-position	5 VA 3.5 W	0.9	10 x 10	S55499-D290	**GRA126.1E/T10**
AC 230	2-position	7 VA 4.5 W	0.9	10 x 10	S55499-D291	**GRA326.1E/T10**
AC 24 DC 24	2-position	5 VA 3.5 W	0.9	12 x 12	S55499-D292	**GRA126.1E/T12**
AC 230	2-position	7 VA 4.5 W	0.9	12 x 12	S55499-D293	**GRA326.1E/T12**

The 2 final figures of the classification correspond to the square of axis in mm.
Types GRA../T10 and GRA../T12 are equipped with a temperature monitoring unit.

Accessories for GRA..26.1E

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

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Actuators for fire and smoke protection dampers
Fire damper actuators

GNA..26.1E

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 (10 x 10, 12 x 12)
- 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
Connection cable	Supply: 2 x 0.75 mm² / auxiliary switch: 6 x 0.75 mm²
Degree of protection	IP54
Dimensions (W x H x D)	81 x 178 x 63 mm

Range overview GNA..26.1E with or without temperature monitoring unit

Operating voltage [V]	Positioning signal	Power consumption	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	2-position	5 VA 3.5 W	10 x 10	BPZ:GNA126.1E/10	**GNA126.1E/10**
AC 230	2-position	7 VA 4.5 W	10 x 10	BPZ:GNA326.1E/10	**GNA326.1E/10**
AC 24 DC 24	2-position	5 VA 3.5 W	12 x 12	BPZ:GNA126.1E/12	**GNA126.1E/12**
AC 230	2-position	7 VA 4.5 W	12 x 12	BPZ:GNA326.1E/12	**GNA326.1E/12**
AC 24 DC 24	2-position	5 VA 3.5 W	10 x 10	BPZ:GNA126.1E/T10	**GNA126.1E/T10**
AC 230	2-position	7 VA 4.5 W	10 x 10	BPZ:GNA326.1E/T10	**GNA326.1E/T10**
AC 24 DC 24	2-position	7 VA 4.5 W	12 x 12	BPZ:GNA126.1E/T12	**GNA126.1E/T12**
AC 230	2-position	7 VA 4.5 W	12 x 12	BPZ:GNA326.1E/T12	**GNA326.1E/T12**

The 2 final figures of the classification correspond to the square of axis in mm.
Types GNA../T10 and GNA../T12 are equipped with a temperature monitoring unit.

Accessories for GNA..26.1E

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**

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OpenAir Damper Actuator, SR, 142 lb-in, Fire/Smoke

GGD..1U

Torque	142 lb-in
Angular rotation	90 °
Positioning time	Runtime 15 s, Spring Return Time 15 s
Cable length	3 ft
Connection cable	18 AWG, Teflon® insulated lead wires 3 ft
Dimensions (W x H x D)	Actuator: 3-15/16 W x 11 H x 2-15/16 D in. Shaft Diameter: 3/8 to 1 in. standard, 1.05 in. oversize; Shaft Length Min: 3/4 in
Position feedback	No

Range overview GGD..1U

Operating voltage	Power consumption	Auxiliary switch	Stock No.	Product No.
24 Vac	Running: 150 VA @ 60 Hz or 160 VA @ 50 Hz, Holding: 10 VA		BPZ:GGD121.1U	**GGD121.1U**
24 Vac	Running: 150 VA @ 60 Hz or 160 VA @ 50 Hz, Holding: 10 VA	2	S55450-D159	**GGD126.1U**
230 Vac	Running: 150 VA @ 60 Hz or 160 VA @ 50 Hz, Holding: 10 VA		BPZ:GGD321.1U	**GGD321.1U**
120 Vac	Running: 150 VA @ 60 Hz or 160 VA @ 50 Hz, Holding: 10 VA	2	S55450-D161	**GGD326.1U**

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GGA..26.1E

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 (10 x 10, 12 x 12)
- 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
Connection cable	Supply: 2 x 0.75 mm² / auxiliary switch: 6 x 0.75 mm²
Degree of protection	IP54
Medium temperature	≤72 °C
Dimensions (W x H x D)	100 x 264 x 71 mm

Range overview GGA..26.1E with or without temperature monitoring unit

Operating voltage [V]	Positioning signal	Power consumption	Shaft linkage [mm]	Stock No.	Product No.
AC 24 DC 24	2-position	7 VA 5 W	10 x 10	BPZ:GGA126.1E/10	**GGA126.1E/10**
AC 24 DC 24	2-position	7 VA 5 W	12 x 12	BPZ:GGA126.1E/12	**GGA126.1E/12**
AC 230	2-position	8 VA 6 W	10 x 10	BPZ:GGA326.1E/10	**GGA326.1E/10**
AC 230	2-position	8 VA 6 W	12 x 12	BPZ:GGA326.1E/12	**GGA326.1E/12**
AC 24 DC 24	2-position	7 VA 5 W	10 x 10	BPZ:GGA126.1E/T10	**GGA126.1E/T10**
AC 230	2-position	8 VA 6 W	10 x 10	BPZ:GGA326.1E/T10	**GGA326.1E/T10**
AC 24 DC 24	2-position	7 VA 5 W	12 x 12	BPZ:GGA126.1E/T12	**GGA126.1E/T12**
AC 230	2-position	8 VA 6 W	12 x 12	BPZ:GGA326.1E/T12	**GGA326.1E/T12**

The 2 final figures of the classification correspond to the square of axis in mm.
Types GGA../T10 and GGA../T12 are equipped with a temperature monitoring unit.

Accessories for GGA..26.1E

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**

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Variable speed drives

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Order instruction

G120P Bundle

Control Unit
CU230P-2 BT
incl. shield connection kit

Power Module
PM230
3 AC 380 ... 480 V
0.75 ... 75 kW (IP20)
0.75 ... 90 kW (IP55)

order separately

Operator panel
IOP-2
Intelligent
Operator Panel
or
BOP-2
Basic Operator Panel
or
Blanking cover

Optional accessory	Spare parts
Memory cards CU230P-2 DP (PROFIBUS DP) CU230P-2 CAN (CANopen) CU230P-2 PN (PROFINET IO) Air guide sheets Door mounting kits	Small mounting parts Fan units

Power range G120P

		Dimension / WxHxD			
		IP55		IP20	
kW	Frame size	Filter A	Filter B	Filter A	Filter B
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	275x512x253	375x419x253
30	D	320x640x329	320x640x329	275x512x253	375x419x253
37	E	320x751x329	320x751x329	275x635x253	385x499x253
45	E	320x751x329	320x751x329	275x635x253	385x499x253
55	F	410x915x416	410x915x416	350x934x365	500x634x365
75	F	410x915x416	410x915x416	350x934x365	500x634x365
90	F	410x915x416	410x915x416	not available	not available

IP20: The depth increases when using a BOP-2/Blanking Cover by +12mm and with an IOP +22mm
Remark IP55: The depth increases by 7mm if BOP-2 or blind cover is used. The Depth increases by 17mm 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.

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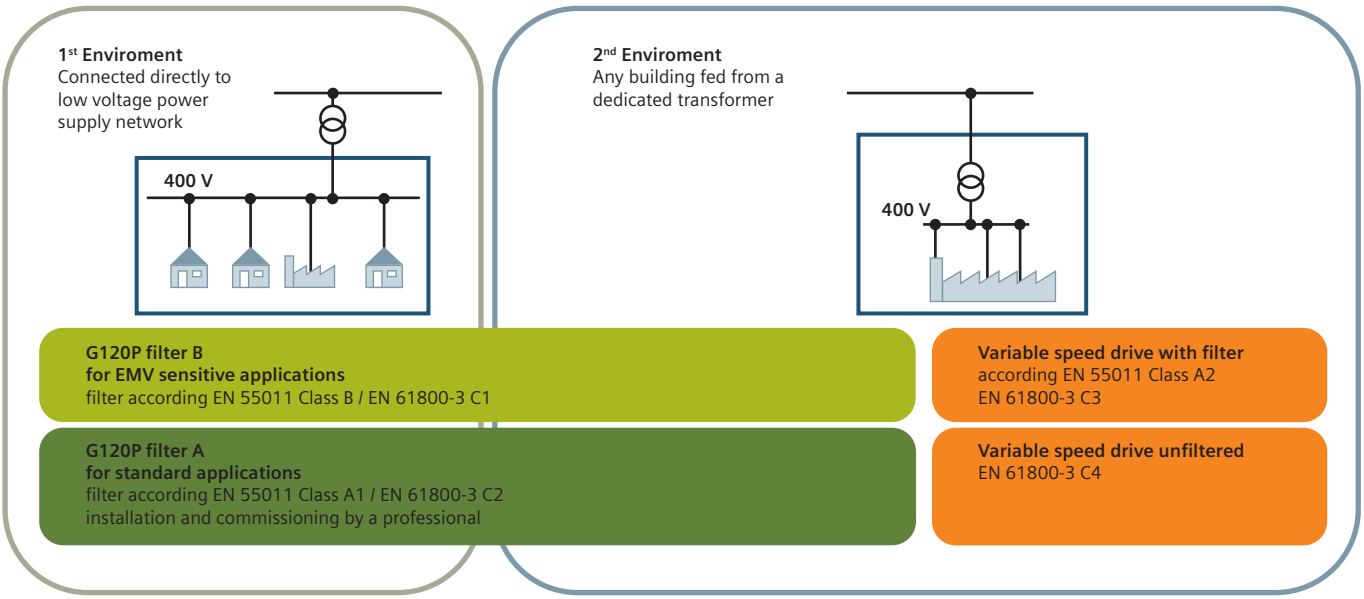
Filter



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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
Frequency	47...63 Hz
Communication	Modbus/RTU RS485/USS BACnetMS/TP PROFIBUS (optional) PROFINET (optional) CANopen (optional) P1 FLN
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.
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
PWM frequency	4 kHz...16 kHz (2 kHz steps)
Output frequency	0...550 Hz
Analog inputs	Switchable, programmable scaling
Analog inputs, number	4
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	Programmable scaling Switchable
Analog outputs, number	2
Analog output, signal	DC 0...10 V DC 2...10 V DC 0...20 mA DC 4...20 mA
Digital inputs, number	6
Digital inputs	Potential-free input signal Programmable
Relay outputs	Potential-free switchover contacts Programmable
Relay outputs, number	3
Relay output, switching voltage	AC 250 V DC 30 V
Relay output, switching current	AC 2 A DC 5 A
Operating temperature	0...60 °C
Product conformity	CE C-TIC
Standard	EN 61800-3

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G120P..AM..B..

Variable Speed Drive for pumps and fans, IP55, Filter B

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.

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.

Range overview G120P..AM..B..

Power output [kW]	Operating voltage [V]	Output current [A]	Filter type	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.75	400	2.2	B	154 x 460 x 249	5.01	6SL3200-6AM12-2BH0	**G120P-0.75/35B**
1.1	400	3.1	B	154 x 460 x 249	5.01	6SL3200-6AM13-1BH0	**G120P-1.1/35B**
1.5	400	4.1	B	154 x 460 x 249	5.01	6SL3200-6AM14-1BH0	**G120P-1.5/35B**
2.2	400	5.9	B	154 x 460 x 249	5.01	6SL3200-6AM15-8BH0	**G120P-2.2/35B**
3	400	7.7	B	154 x 460 x 249	5.01	6SL3200-6AM17-7BH0	**G120P-3/35B**
4	400	10.2	B	180 x 540 x 249	7.01	6SL3200-6AM21-0BH0	**G120P-4/35B**
5.5	400	13.2	B	180 x 540 x 249	7.01	6SL3200-6AM21-3BH0	**G120P-5.5/35B**
7.5	400	18	B	180 x 540 x 249	7.01	6SL3200-6AM21-8BH0	**G120P-7.5/35B**
11	400	26	B	230 x 620 x 249	10.21	6SL3200-6AM22-6BH0	**G120P-11/35B**
15	400	32	B	230 x 620 x 249	10.21	6SL3200-6AM23-2BH0	**G120P-15/35B**
18.5	400	38	B	320 x 640 x 329	31.71	6SL3200-6AM23-8BH0	**G120P-18.5/35B**
22	400	45	B	320 x 640 x 329	31.71	6SL3200-6AM24-5BH0	**G120P-22/35B**
30	400	60	B	320 x 640 x 329	31.71	6SL3200-6AM26-0BH0	**G120P-30/35B**
37	400	75	B	320 x 751 x 329	37.71	6SL3200-6AM27-5BH0	**G120P-37/35B**
45	400	90	B	320 x 751 x 329	37.71	6SL3200-6AM28-8BH0	**G120P-45/35B**
55	400	110	B	410 x 915 x 416	70.71	6SL3200-6AM31-1BH0	**G120P-55/35B**
75	400	145	B	410 x 915 x 416	70.71	6SL3200-6AM31-4BH0	**G120P-75/35B**
90	400	178	B	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 +7mm and with an IOP +17mm.

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Variable Speed Drive for pumps and fans, IP55, Filter A

G120P..AM..A..

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.

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.

Range overview G120P..AM..A..

Power output [kW]	Operating voltage [V]	Output current [A]	Filter type	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.75	400	2.2	A	154 x 460 x 249	5.01	6SL3200-6AM12-2AH0	**G120P-0.75/35A**
1.1	400	3.1	A	154 x 460 x 249	5.01	6SL3200-6AM13-1AH0	**G120P-1.1/35A**
1.5	400	4.1	A	154 x 460 x 249	5.01	6SL3200-6AM14-1AH0	**G120P-1.5/35A**
2.2	400	5.9	A	154 x 460 x 249	5.01	6SL3200-6AM15-8AH0	**G120P-2.2/35A**
3	400	7.7	A	154 x 460 x 249	5.01	6SL3200-6AM17-7AH0	**G120P-3/35A**
4	400	10.2	A	180 x 540 x 249	7.01	6SL3200-6AM21-0AH0	**G120P-4/35A**
5.5	400	13.2	A	180 x 540 x 249	7.01	6SL3200-6AM21-3AH0	**G120P-5.5/35A**
7.5	400	18	A	180 x 540 x 249	7.01	6SL3200-6AM21-8AH0	**G120P-7.5/35A**
11	400	26	A	230 x 620 x 249	10.21	6SL3200-6AM22-6AH0	**G120P-11/35A**
15	400	32	A	230 x 620 x 249	10.21	6SL3200-6AM23-2AH0	**G120P-15/35A**
18.5	400	38	A	230 x 620 x 249	10.21	6SL3200-6AM23-8AH0	**G120P-18.5/35A**
22	400	45	A	320 x 640 x 329	31.71	6SL3200-6AM24-5AH0	**G120P-22/35A**
30	400	60	A	320 x 640 x 329	31.71	6SL3200-6AM26-0AH0	**G120P-30/35A**
37	400	75	A	320 x 751 x 329	37.71	6SL3200-6AM27-5AH0	**G120P-37/35A**
45	400	90	A	320 x 751 x 329	37.71	6SL3200-6AM28-8AH0	**G120P-45/35A**
55	400	110	A	410 x 915 x 416	70.71	6SL3200-6AM31-1AH0	**G120P-55/35A**
75	400	145	A	410 x 915 x 416	70.71	6SL3200-6AM31-4AH0	**G120P-75/35A**
90	400	178	A	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 +7mm and with an IOP +17mm.

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G120P..AE..B..

Variable Speed Drive for pumps and fans, IP20, Filter B

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.

Range overview G120P..AE..B..

Power output [kW]	Operating voltage [V]	Output current [A]	Filter type	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.75	400	2.2	B	73 x 202 x 288	4.06	6SL3200-6AE12-2BH0	**G120P-0.75/32B**
1.1	400	3.1	B	73 x 202 x 288	4.06	6SL3200-6AE13-1BH0	**G120P-1.1/32B**
1.5	400	4.1	B	73 x 202 x 288	4.06	6SL3200-6AE14-1BH0	**G120P-1.5/32B**
2.2	400	5.9	B	73 x 202 x 288	4.06	6SL3200-6AE15-8BH0	**G120P-2.2/32B**
3	400	7.7	B	73 x 202 x 288	4.06	6SL3200-6AE17-7BH0	**G120P-3/32B**
4	400	10.2	B	100 x 297 x 308	7.71	6SL3200-6AE21-0BH0	**G120P-4/32B**
5.5	400	13.2	B	100 x 297 x 308	7.71	6SL3200-6AE21-3BH0	**G120P-5.5/32B**
7.5	400	18	B	100 x 297 x 308	7.71	6SL3200-6AE21-8BH0	**G120P-7.5/32B**
11	400	26	B	140 x 359 x 318	13.11	6SL3200-6AE22-6BH0	**G120P-11/32B**
15	400	32	B	140 x 359 x 318	13.11	6SL3200-6AE23-2BH0	**G120P-15/32B**
18.5	400	38	B	140 x 359 x 318	13.11	6SL3200-6AE23-8BH0	**G120P-18.5/32B**
22	400	45	B	375 x 419 x 253	21.5	6SL3200-6AE24-5BH0	**G120P-22/32B**
30	400	60	B	375 x 419 x 253	21.5	6SL3200-6AE26-0BH0	**G120P-30/32B**
37	400	75	B	385 x 499 x 253	34.3	6SL3200-6AE27-5BH0	**G120P-37/32B**
45	400	90	B	385 x 499 x 253	34.3	6SL3200-6AE28-8BH0	**G120P-45/32B**
55	400	110	B	500 x 634 x 365	70.6	6SL3200-6AE31-1BH0	**G120P-55/32B**
75	400	145	B	500 x 634 x 365	70.6	6SL3200-6AE31-4BH0	**G120P-75/32B**

IP20: The depth increases when using a BOP-2/Blanking Cover by +12mm and with an IOP +22mm.

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Variable Speed Drive for pumps and fans, IP20, Filter A

G120P..AE..A..

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.

Range overview G120P..AE..A..

Power output [kW]	Operating voltage [V]	Output current [A]	Filter type	Dimensions (W x H x D) [mm]	Weight [kg]	Stock No.	Product No.
0.75	400	2.2	A	73 x 196 x 223	2.31	6SL3200-6AE12-2AH0	**G120P-0.75/32A**
1.1	400	3.1	A	73 x 196 x 223	2.31	6SL3200-6AE13-1AH0	**G120P-1.1/32A**
1.5	400	4.1	A	73 x 196 x 223	2.31	6SL3200-6AE14-1AH0	**G120P-1.5/32A**
2.2	400	5.9	A	73 x 196 x 223	2.31	6SL3200-6AE15-8AH0	**G120P-2.2/32A**
3	400	7.7	A	73 x 196 x 223	2.31	6SL3200-6AE17-7AH0	**G120P-3/32A**
4	400	10.2	A	100 x 292 x 223	3.71	6SL3200-6AE21-0AH0	**G120P-4/32A**
5.5	400	13.2	A	100 x 292 x 223	3.71	6SL3200-6AE21-3AH0	**G120P-5.5/32A**
7.5	400	18	A	100 x 292 x 223	3.71	6SL3200-6AE21-8AH0	**G120P-7.5/32A**
11	400	26	A	140 x 355 x 223	5.81	6SL3200-6AE22-6AH0	**G120P-11/32A**
15	400	32	A	140 x 355 x 223	5.81	6SL3200-6AE23-2AH0	**G120P-15/32A**
18.5	400	38	A	140 x 355 x 223	5.81	6SL3200-6AE23-8AH0	**G120P-18.5/32A**
22	400	45	A	275 x 512 x 253	14	6SL3200-6AE24-5AH0	**G120P-22/32A**
30	400	60	A	275 x 512 x 253	14	6SL3200-6AE26-0AH0	**G120P-30/32A**
37	400	75	A	275 x 635 x 253	22	6SL3200-6AE27-5AH0	**G120P-37/32A**
45	400	90	A	275 x 635 x 253	22	6SL3200-6AE28-8AH0	**G120P-45/32A**
55	400	110	A	350 x 934 x 365	48	6SL3200-6AE31-1AH0	**G120P-55/32A**
75	400	145	A	350 x 934 x 365	48	6SL3200-6AE31-4AH0	**G120P-75/32A**

IP20: The depth increases when using a BOP-2/Blanking Cover by +12mm and with an IOP +22mm.

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Variable speed drives
Accessories and spare parts for G120P..

Available operator panels for G120P..

Product Title	Data sheet	Stock No.	Product No.
G120P blanking cover, IP55		6SL3256-6BA00-0AA0	**G120P-BCOVER**
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**

Accessories and spare parts for IP55

Product Title	Data sheet	Stock No.	Product No.
G120P PM Fan IP55, external, FSA		6SL3200-0SF21-0AA1	**G120P-FExtFSA-IP55**
G120P PM Fan IP55, external, FSB		6SL3200-0SF22-0AA1	**G120P-FExtFSB-IP55**
G120P PM Fan IP55, external, FSC		6SL3200-0SF23-0AA1	**G120P-FExtFSC-IP55**
G120P air guide sheet PM230, IP55, FSA	N5111	6SL3266-7SA00-0MA0	**G120P-AIRSHEET-FSA**
G120P air guide sheet PM230, IP55, FSB	N5111	6SL3266-7SB00-0MA0	**G120P-AIRSHEET-FSB**
G120P air guide sheet PM230, IP55, FSC	N5111	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**
Operator Panel Extension cable for G120P IP55		6SL3256-1BA00-4HB0	**G120P-IP55-PAN-EXT**
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, FSD		6SL3200-0SK05-0AA0	**G120P-MSetFSD-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**

Accessories and spare parts for IP20

Product Title	Data sheet	Stock No.	Product No.
G120P Door mounting kit for IOP or BOP-2		6SL3256-6AP00-0JA0	**G120P-DOOR-KIT**
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**
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 PM Fan IP20, external, FSA		6SL3200-0SF21-0AA0	**G120P-FExtFSA-IP20**
G120P PM Fan IP20, external, FSB		6SL3200-0SF22-0AA0	**G120P-FExtFSB-IP20**
G120P PM Fan IP20, external, FSC		6SL3200-0SF23-0AA0	**G120P-FExtFSC-IP20**

Accessories and spare parts for IP55 and IP20

Product Title	Data sheet	Stock No.	Product No.
G120P Control Unit, USS, Modb, BacNet		S55529-E100	**CU230P-2-BT**
G120P Control Unit, CanOpen		6SL3243-0BB30-1CA3	**CU230P-2 CAN**
G120P Control Unit, Profibus		6SL3243-0BB30-1PA3	**CU230P-2 DP**
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, Profinet		6SL3243-0BB30-1FA0	**CU230P-2 PN**
G120P CU230P-2 Screening Kit		6SL3264-1EA00-0FA0	**G120P-CUScreen**

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Meter

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Heat cost allocators WHE5..

	1 sensor	2 sensors	Communication	Summer switch off	Due date
WHE502-D10		■	none	■ [1]	31.12
WHE542-0001S		■	AMR & walk-by		31.12
WHE542-D100S		■	AMR & walk-by	■ [1]	31.12
WHE542-D291D		■	AMR & walk-by	■ [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 or AMR or M-Bus [1]	G 3/4"
WFK30.D110	Cold water up to 30° C	2.5 m³/h	110 mm	walk-by or AMR or M-Bus [1]	G 3/4"
WFK30.E130	Cold water up to 30 °C	4 m³/h	130 mm	walk-by or AMR or M-Bus [1]	G 1"
WFW30.D080	Hot water up to 90° C	2.5 m³/h	80 mm	walk-by or AMR or M-Bus [1]	G 3/4"
WFW30.D110	Hot water up to 90° C	2.5 m³/h	110 mm	walk-by or AMR or M-Bus [1]	G 3/4"
WFW30.E130	Hot water up to 90 °C	4 m³/h	130 mm	walk-by or AMR or M-Bus [1]	G 1"

[1] With add-on module: AMR (WFZ16.MO), walk-by (WFZ166.MO), M-Bus (WFZ31)

Hot and cold water meters

	Type of meter	Q3	Mounting length	Communication	Connection
WFK40.D080	Cold water up to 50° C	2.5 m³/h	80 mm	Reed contact or Namur [2]	G 3/4"
WFK40.D110	Cold water up to 50° C	2.5 m³/h	110 mm	Reed contact or Namur [2]	G 3/4"
WFK40.E130	Cold water up to 50° C	4.0 m³/h	130 mm	Reed contact or Namur [2]	G 1"
WFW40.D080	Hot water from 30 to 90° C	2.5 m³/h	80 mm	Reed contact or Namur [2]	G 3/4"
WFW40.D110	Hot water from 30 to 90° C	2.5 m³/h	110 mm	Reed contact or Namur [2]	G 3/4"
WFW40.E130	Hot water from 30 to 90° C	4.0 m³/h	130 mm	Reed contact or Namur [2]	G 1"

[2] With impulse module: Reed contact (WFZ44), reed contact with Namur (WFZ43)

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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 or M-Bus [3])	Battery	Impeller meter	G 3/4"	110 mm
	WFM541-G000H0	Heat	0.6 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN541-G000H0	Combi	0.6 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN571-E000H0	Combi	0.6 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WMF571-E000H0	Heat	0.6 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFM502-E000H0	Heat	1.5 m³/h	walk-by or AMR or M-Bus [3])	Battery	Impeller meter	G 3/4"	110 mm
	WFM542-G000H0	Heat	1.5 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN542-G000H0	Combi	1.5 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	110 mm
	WFN572-E000H0	Combi	1.5 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WMF572-E000H0	Heat	1.5 m³/h	AMR	Battery	Impeller meter	G 3/4"	110 mm
	WFM542-C000H0	Heat	1.5 m³/h	M-Bus	Battery	Impeller meter	G 3/4"	80 mm
	WFM503-J000H0	Heat	2.5 m³/h	walk-by or AMR or M-Bus [3])	Battery	Impeller meter	G 1"	130 mm
	WFM543-L000H0	Heat	2.5 m³/h	M-Bus	Battery	Impeller meter	G 1"	130 mm
	WFN543-L000H0	Combi	2.5 m³/h	M-Bus	Battery	Impeller meter	G 1"	130 mm
	WFN573-J000H0	Combi	2.5 m³/h	AMR	Battery	Impeller meter	G 1"	130 mm
	WMF573-J000H0	Heat	2.5 m³/h	AMR	Battery	Impeller meter	G 1"	130 mm

[3]) With add-on module: AMR (WFZ56.OK), walk-by (WFZ566.OK), M-Bus (WFZ51)

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Ultrasonic heat meters

		Type of meter	Nominal flow rate	Communication	Power supply	Type	Conn-ection	Mounting length
	WSM506-0E	Heat	0.6 m³/h	none	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM506-BE	Heat	0.6 m³/h	M-Bus	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM515-0E	Heat	1.5 m³/h	none	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM515-BE	Heat	1.5 m³/h	M-Bus	Battery [1]	Ultrasonic meter	G 3/4"	110 mm
	WSM525-0E	Heat	2.5 m³/h	none	Battery [1]	Ultrasonic meter	G 1"	130 mm
	WSM525-BE	Heat	2.5 m³/h	M-Bus	Battery [1]	Ultrasonic meter	G 1"	130 mm
	2WR605-MBE	Heat	0.6 m³/h	M-Bus	Battery [1]	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-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 [1]	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-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 [1]	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-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 [2]	none [2]	Ultrasonic meter	G 3/4"	110 mm
	UH50-C05-00	Combi	0.6 m³/h	none [2]	none [2]	Ultrasonic meter	G 3/4"	110 mm
	UH50-A21-00	Heat	1.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 3/4"	110 mm
	UH50-C21-00	Combi	1.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 3/4"	110 mm
	UH50-A36-00	Heat	2.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 1"	130 mm
	UH50-C36-00	Combi	2.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 1"	130 mm
	UH50-A45-00	Heat	3.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C45-00	Combi	3.5 m³/h	none [2]	none [2]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A50-00	Heat	6.0 m³/h	none [2]	none [2]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-C50-00	Combi	6.0 m³/h	none [2]	none [2]	Ultrasonic meter	G 1 1/4"	260 mm
	UH50-A61-00	Heat	10 m³/h	none [2]	none [2]	Ultrasonic meter	DN 40	300 mm
	UH50-C61-00	Combi	10 m³/h	none [2]	none [2]	Ultrasonic meter	DN 40	300 mm
	UH50-A65-00	Heat	15 m³/h	none [2]	none [2]	Ultrasonic meter	DN 50	270 mm
	UH50-C65-00	Combi	15 m³/h	none [2]	none [2]	Ultrasonic meter	DN 50	270 mm
	UH50-A70-00	Heat	25 m³/h	none [2]	none [2]	Ultrasonic meter	DN 65	300 mm
	UH50-C70-00	Combi	25 m³/h	none [2]	none [2]	Ultrasonic meter	DN 65	300 mm
	UH50-A74-00	Heat	40 m³/h	none [2]	none [2]	Ultrasonic meter	DN 80	300 mm
	UH50-C74-00	Combi	40 m³/h	none [2]	none [2]	Ultrasonic meter	DN 80	300 mm
	UH50-A83-00	Heat	60 m³/h	none [2]	none [2]	Ultrasonic meter	DN 100	360 mm
	UH50-C83-00	Combi	60 m³/h	none [2]	none [2]	Ultrasonic meter	DN 100	360 mm

[1] Battery life: 11 years
[2] Various communication and power supply modules available

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Electronic heat cost allocator

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.
- Available as a two-sensor device or with remote sensor.

All heat cost allocators are supplied without mounting plate. The mounting plate must be ordered as a separate item.

Data sheet	A6V10786229
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

Range overview WHE50..

Product Title	Stock No.	Product No.
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31	S55562-F101	**WHE502-D10**

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WHE54..

Electronic heat cost allocators (RF)

Device for heat cost allocation by acquiring the amount of heat emitted by radiators.
The heat cost allocators transmit simultaneously walk-by and AMR telegrams in S-mode (RF 868 MHz). Readout is performed via walk-by, the consumption data are collected on site using a mobile data collector. If the data shall be read out from a remote location (AMR), they are collected by a network node, stored and periodically sent to the customer via gateway.

- Programming is performed with the ACT50 software.
- Available as a two-sensor device or with remote sensor
- Communication in S-mode or C-mode

All heat cost allocators are supplied without mounting plate. The mounting plate must be ordered as a separate item.

Data sheet	A6V10786229
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

Range overview WHE54..

Product Title	Stock No.	Product No.
Electronic heat cost allocator, double sensor, due date 12/31, meter reading by walk-by: Monthly, S-mode	S55562-F126	WHE542-0001S
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 08/31, due date 12/31, meter reading by walk-by: Annualy, S-mode	S55562-F127	WHE542-D100S
Electronic heat cost allocator with watchdog timer, Double sensor, Summer switch-off: 06/01 – 09/30, due date 09/30, meter reading by walk-by: Monthly, S-mode	S55562-F128	WHE542-D291S

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Parts for fixing

Product Title	Packaging unit	Stock No.	Product No.
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**

Parts for mounting

Product Title	Packaging unit	Stock No.	Product No.
Mounting plate (P3)	50 pieces	S55563-F115	**FKA0017**
Mounting plate wide	25 pieces	JXF:FKA0022	**FKA0022**
Prism for installation plate	1 piece	JXF:FKA0001	**FKA0001**
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**
Wall bracket (P3)	10 pieces	JXF:FKK0044	**FKK0044**
Contact screw	10 pieces	JXF:FKA0010	**FKA0010**
Contact screw long	10 pieces	JXF:FKA0011	**FKA0011**

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**

New Product

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Electronic heat cost allocators
Accessories and mounting material for WHE5..

Miscellaneous accessory

Product Title	Packaging unit	Stock No.	Product No.
Dowel 6 mm	100 pieces	JXF:FNU0001	**FNU0001**
Kit remote sensor 1.5 m	1 piece	JXF:HCAIK0100S1	**HCAIK0100S1**
Kit remote sensor 2.5 m	1 piece	JXF:HCAIK0100S2	**HCAIK0100S2**
Kit remote sensor 5 m	1 piece	JXF:HCAIK0100S5	**HCAIK0100S5**
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 tools and software

Product Title	Stock No.	Product No.
Parameterization and diagnostic software for heat cost allocators	JXF:ACT50-HCA	**ACT50-HCA**
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Programming adapter	JXF:HCAPH001001	**HCAPH001001**
Mobile data logger set	JXF:WTZ.WBSET-2/PC	**WTZ.WBSET-2/PC**

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Mechanical single-jet water meters (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) or walk-by (WFZ166.MO) or M-Bus (WFZ31) 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.

The meters are supplied with Installation Instructions in the following languages: English, French, German, Italian, Russian and Spanish.

Data sheet	N5326
PN class	PN 16
Pressure drop	250 mbar

Range overview WFK30.. / WFW30..

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**
4	130	G 1	30	BPZ:WFK30.E130	**WFK30.E130**
2.5	80	G ¾	90	S55560-F102	**WFW30.D080**
2.5	110	G ¾	90	S55560-F103	**WFW30.D110**
4	130	G 1	90	BPZ:WFW30.E130	**WFW30.E130**

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WFK40../WFW40..

Mechanical single-jet water meters

The mechanical single-jet impeller type meters are of compact design and used for measuring the consumption of cold water (WFK40..) or hot water (WFW40..). They are available as wall-mounted dry runner versions in different sizes, with a flow measuring section body made of brass. The cumulated consumption value acquired by the water meter can be read out on site. All water meters WFK40.. and WFW40.. can be retrofitted with a pulse module equipped with Reed contact (WFZ44) or Reed contact with Namur circuit (WFZ43). They conform to MID.
Metrologically, the water meters are classified as follows:

- Horizontal: R80
- Vertical: R50

They are used primarily in domestic water systems in residential or non-residential buildings and in water supply systems.

The meters are supplied with Installation Instructions in the following languages: Bulgarian, Croatian, Czech, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Lithuanian, Norwegian, Polish, Slovakian, Slovenian, Spanish, Turkish.

Data sheet	N5302
PN class	PN 16
Display	99999,999 m3

Range overview WFK40../WFW40..

Flow rate Q3 [m³/h]	Mounting length [mm]	Connecting thread ["]	Max. water temperature [°C]	Stock No.	Product No.
2.5	80	G ¾	50	S55560-F104	**WFK40.D080**
2.5	110	G ¾	50	S55560-F105	**WFK40.D110**
4	130	G 1	50	S55560-F106	**WFK40.E130**
2.5	80	G ¾	90	S55560-F107	**WFW40.D080**
2.5	110	G ¾	90	S55560-F108	**WFW40.D110**
4	130	G 1	90	S55560-F109	**WFW40.E130**

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M-bus add-on module for WFx30.. water meters — WFZ31

The add-on module acquires and processes the information from the WFx30../WMx10.D water meter. It is periodically read out by an M-bus master.

Data sheet A6V10443198

Stock No.	Product No.
S55563-F136	**WFZ31**

Add-on radio module WFZ166 for WFx30.. water meters — WFZ166.MO

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.

Data sheet N2879

Stock No.	Product No.
S55563-F101	**WFZ166.MO**

Add-on radio module WFZ16 for WFx30.. water meters — WFZ16.MO

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.

Data sheet N2879

Stock No.	Product No.
S55563-F100	**WFZ16.MO**

Pulse add-on module with reed contact for WFx40.. water meters — WFZ44

Data sheet N5302

Stock No.	Product No.
S55563-F134	**WFZ44**

Pulse add-on module with reed contact and namur circuit for WFx40.. water meters — WFZ43

Data sheet N5302

Stock No.	Product No.
S55563-F135	**WFZ43**

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Mounting material for single-jet water meters

Product Title	Stock No.	Product No.
Adapter set from G ¾" to 1", incl. gaskets	JXF:WZM-V110	**WZM-V110**
Extension set from 110 mm G ¾" to 130 mm G ¾", incl. gaskets	JXF:WZM-V130	**WZM-V130**
Extension set from 110 mm G ¾" to 165 mm G ¾", incl. gaskets	JXF:WZM-V165	**WZM-V165**
Extension set from 110 mm G ¾" to 190 mm G 1", incl. gaskets	JXF:WZM-V190	**WZM-V190**
Spacer G ¾", length 80 mm	JXF:WFZ.R80	**WFZ.R80**
Spacer G ¾", length 110mm	JXF:WFZ.R110	**WFZ.R110**
Spacer G 1", length 130 mm	JXF:WFZ.R130	**WFZ.R130**
Mounting set, pair of fittings G ¾" x R ½" with gaskets	JXF:WFZ.R2	**WFZ.R2**
Mounting set, pair of fittings G 1" x R ¾" with gaskets	JXF:WFZ.R2-1	**WFZ.R2-1**
Mounting kit for washstand water meter	JXF:WFZ.W	**WFZ.W**
Mounting kit for tap water meter	JXF:WFZ.Z	**WFZ.Z**
Self-lock seal with sealing wire	JXF:WFZ.P	**WFZ.P**
Torque Screwdriver, Torx Plus™	JXF:FZ201-009	**FZ201-009**

Software and Tools

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	JXF:WFZ.PS	**WFZ.PS**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	**WFZ.MBM-USB**

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Electronic impeller type heat meters

WFM5..

The compact, electronic and mains-independent impeller type meters WFM5.. are used for the physically correct acquisition of energy consumption. They are available as wall-mounting versions in different sizes and have been developed for heat, combined heat/cooling or solar energy metering.
The devices consist of flow measuring section, 2 ready connected temperature sensors and a processor which – based on flow rate and temperature differential – calculates the energy consumption.
The consumption values can be read out either on the meter itself or from a remote location. Using modules, the noncommunicating meters (WFM50..) can be upgraded for readout via AMR (WFZ56.OK), walk-by (WFZ566.OK) or M-bus (WFZ51).
The meters featuring AMR communication (WFM57..) are available as sets with premounted add-on modules (WFZ56.OK).
In addition to modules, the meters with M-bus communication (WFM54..) are equipped with 2 pulse inputs for reading out 2 water meters (Reed contact).
The WFx5.. are used primarily in plants with central production of heat or cooling energy, where the energy is supplied via zones to several individual consumers in the building.

The meters are supplied with Operating and Mounting 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	CE2N5323, A6V10800216, A6V10425530
Measurement accuracy	MID class 3
Standard	DIN EN 1434
Voltage supply	Lithium battery
Operating voltage	DC 3 V
Battery life	> 10 years
PN class	PN 16
Temperature response threshold	Heat: 1.0 K
Measuring range, temperature	15...105 °C
Sensing element, temperature	Pt1000
Due Date	12.31
Sensor	DS Ø5.0x45 mm
Cable length, sensor	1.5 m
Display	kWh
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 WFM5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Communication	Stock No.	Product No.
0.6	110	G ¾ "	IrDA + module interface	S55561-F177	**WFM501-E000H0**
0.6	110	G ¾ "	IrDA, M-bus & pulse inputs	S55561-F239	**WFM541-G000H0**
0.6	110	G ¾ "	IrDA & AMR radio	S55561-F188	**WFM571-E000H0**
1.5	110	G ¾ "	IrDA + module interface	S55561-F178	**WFM502-E000H0**
1.5	80	G ¾ "	IrDA, M-bus & pulse inputs	S55561-F240	**WFM542-C000H0**
1.5	110	G ¾ "	IrDA, M-bus & pulse inputs	S55561-F241	**WFM542-G000H0**
1.5	110	G ¾ "	IrDA & AMR radio	S55561-F189	**WFM572-E000H0**
2.5	130	G 1 "	IrDA + module interface	S55561-F179	**WFM503-J000H0**
2.5	130	G 1 "	IrDA, M-bus & pulse inputs	S55561-F242	**WFM543-L000H0**
2.5	130	G 1 "	IrDA & AMR radio	S55561-F190	**WFM573-J000H0**

Meter mounting for WFM542-C000H0: return; Sensor in the flow: directly immersed or in approved protection pockets; Sensor in the return: not integrated, directly immersed or in approved protection pockets.

New Product

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Impeller type heat/cooling energy meters
Impeller type heat/cooling energy meters WFM5.. / WFN5..

WFN5..

Electronic impeller type heat and cooling energy meters

The compact, electronic and mains-independent impeller type heat and cool energy meters WFN5.. are used for the physically correct acquisition of energy consumption. They are available as wall-mounting versions in different sizes and have been developed for heat, combined heat/cooling or solar energy metering.
The devices consist of flow measuring section, 2 ready connected temperature sensors and a processor which – based on flow rate and temperature differential – calculates the energy consumption.
The consumption values can be read out either on the meter itself or from a remote location. Using modules, the noncommunicating meters (WFN50..) can be upgraded for readout via AMR (WFZ56.OK), walk-by (WFZ566.OK) or M-bus (WFZ51).
The meters featuring AMR communication (WFN57..) are available as sets with premounted add-on modules (WFZ56.OK).
In addition to modules, the meters with M-bus communication (WFN54..) are equipped with 2 pulse inputs for reading out 2 water meters (Reed contact).
The WFx5.. are used primarily in plants with central production of heat or cooling energy, where the energy is supplied via zones to several individual consumers in the building.

The meters are supplied with Operating and Mounting 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	CE2N5323, A6V10800216, A6V10425530
Measurement accuracy	MID class 3
Standard	DIN EN 1434
Voltage supply	Lithium battery
Battery life	> 10 years
Operating voltage	DC 3 V
PN class	PN 16
Temperature response threshold	Heat: 1.0 K Cold: 0.2 K
Measuring range, temperature	Heat: 15...105 °C Refrigeration range: 0.2...24 °C
Sensing element, temperature	Pt1000
Due Date	12.31
Sensor	DS Ø5.0x45 mm
Cable length, sensor	1.5 m
Display	kWh
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 WFN5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread	Communication	Stock No.	Product No.
0.6	110	G ¾ "	IrDA, M-bus & pulse inputs	S55561-F243	**WFN541-G000H0**
1.5	110	G ¾ "	IrDA, M-bus & pulse inputs	S55561-F244	**WFN542-G000H0**
2.5	130	G 1 "	IrDA, M-bus & pulse inputs	S55561-F245	**WFN543-L000H0**
0.6	110	G ¾ "	IrDA & AMR radio	S55561-F191	**WFN571-E000H0**
1.5	110	G ¾ "	IrDA & AMR radio	S55561-F192	**WFN572-E000H0**
2.5	130	G 1 "	IrDA & AMR radio	S55561-F193	**WFN573-J000H0**

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Screwed type meters

Product Title	Stock No.	Product No.
Installation set Rp ½" - ball valve Rp ½" with coupling nut G ¾" and flat gaskets	JXF:HMXIK001-001	**HMXIK001-001**
Installation set Rp ¾"- ball valve Rp ¾" with coupling nut G ¾" and flat gaskets	JXF:HMXIK001-002	**HMXIK001-002**
Installation set Rp 1"- ball valve Rp 1" with coupling nut G ¾" and flat gaskets	JXF:HMXIK001-003	**HMXIK001-003**
Installation set Rp 1"- ball valve Rp 1" with coupling nut G 1" and flat gaskets	JXF:HMXIK001-004	**HMXIK001-004**
Installation set Rp ¾"- ball valve Rp ¾" with coupling nut G 1" and flat gaskets	JXF:HMXIK001-005	**HMXIK001-005**

Installation sets fittings

Product Title	Stock No.	Product No.
Installation set R ½" - fitting R ½" with coupling nut G ¾" and flat gaskets	JXF:HMXIK002-001	**HMXIK002-001**
Installation set R ¾" - fitting R ¾" with coupling nut G ¾" and flat gaskets	JXF:HMXIK002-002	**HMXIK002-002**
Installation set R 1" - fitting R 1" with coupling nut G ¾" and flat gaskets	JXF:HMXIK002-003	**HMXIK002-003**
Installation set R 1" - fitting R 1" with coupling nut G 1" and flat gaskets	JXF:HMXIK002-004	**HMXIK002-004**
Installation set R ¾" - fitting R ¾" with coupling nut G 1" and flat gaskets	JXF:HMXIK002-005	**HMXIK002-005**

Accessories

Product Title	Stock No.	Product No.
Fitting R ½" x G ¾"	JXF:FKM0018	**FKM0018**
Fitting R ¾" x G ¾"	JXF:FKM0019	**FKM0019**
Fitting R 1" x G ¾"	JXF:FKM0020	**FKM0020**
Fitting R ¾" x G 1"	JXF:FKM0021	**FKM0021**
Fitting R 1" x G 1"	JXF:FKM0022	**FKM0022**
Ball valve Rp ½" with thread	JXF:FKM0023	**FKM0023**
Ball valve Rp ¾" with thread	JXF:FKM0024	**FKM0024**
Ball valve Rp 1" with thread	JXF:FKM0025	**FKM0025**
Ball valve Rp ½" with coupling nut and thread	JXF:FKM0026	**FKM0026**
Ball valve R ½" with coupling nut G ¾"	JXF:FKM0027	**FKM0027**
Ball valve R ¾" with coupling nut G ¾"	JXF:FKM0028	**FKM0028**
Ball valve R 1" with coupling nut G ¾"	JXF:FKM0029	**FKM0029**
Ball valve R ¾" with coupling nut G 1"	JXF:FKM0030	**FKM0030**
Ball valve R 1" with coupling nut G 1"	JXF:FKM0031	**FKM0031**
T-piece R ½" x G ¼"	JXF:FKM0035	**FKM0035**
T-piece R ¾" x G ¼"	JXF:FKM0036	**FKM0036**
T-piece R 1" x G ¼"	JXF:FKM0037	**FKM0037**
Immersion sleeve G ¼"	JXF:FKM0038	**FKM0038**
Immersion sleeve G ¼"	JXF:FKM0039	**FKM0039**
Temperatur sensor sleeve G ¼"	JXF:FKM0049	**FKM0049**
Temperatur sensor sleeve M10x1 mm	JXF:FKM0050	**FKM0050**
Immersion sleeve 5.0 mm, M10x1 mm	JXF:FKM0051	**FKM0051**
Immersion sleeve 5.2 mm, M10x1 mm	JXF:FKM0052	**FKM0052**
Spacer G ¾", length 80 mm	JXF:FKM0070	**FKM0070**
Spacer G ¾", length 110 mm"	JXF:FKM0074	**FKM0074**
Spacer G 1", length 130 mm	JXF:FKM0075	**FKM0075**
Flat gasket ¾"	JXF:FKS0005	**FKS0005**

New Product

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Accessories

Product Title	Stock No.	Product No.
Flat gasket 1"	JXF:FKS0006	**FKS0006**
Seal	JXF:FNS0001	**FNS0001**
Wall bracket	JXF:HMRIK001-001	**HMRIK001-001**
Adapter set from G ¾" to G 1"	JXF:HMXIK003-001	**HMXIK003-001**
Extension set from G ¾" to G 1"	JXF:HMXIK003-002	**HMXIK003-002**
Extension set from 110 mm G ¾" to 130 mm G ¾"	JXF:HMXIK003-003	**HMXIK003-003**
Extension set from 110 mm G ¾" to 165 mm G ¾"	JXF:HMXIK003-004	**HMXIK003-004**
Extension set from 110 mm G ¾" to 190 mm G 1"	JXF:HMXIK003-005	**HMXIK003-005**
Temperature sensor screwed	JXF:HMXIK004-001	**HMXIK004-001**

WFZ51

M-bus add-on module for WFx5.. meters

The add-on module acquires and processes the consumption data and service information from the WFx5.. heat and heat/cooling energy meter. It is periodically read out by an M-bus master.

Data sheet N5323

Stock No.	Product No.
S55563-F131	**WFZ51**

WFZ566.OK

Walk-by add-on module with integrated antenna for WFx5.. meters

The walk-by add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat and heat/cooling meters and passes it on to the walk-by system.

Data sheet N5323

Stock No.	Product No.
S55563-F133	**WFZ566.OK**

WFZ56.OK

AMR add-on module with integrated antenna for WFx5.. meters

The add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat and cooling meters and passes it on to the AMR system.

Data sheet N5323

Stock No.	Product No.
S55563-F132	**WFZ56.OK**

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Programming tools and software for impeller type heat meters

Product Title	Stock No.	Product No.
Parameterization and diagnostics software for impeller type 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	JXF:WFZ.PS	**WFZ.PS**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	**WFZ.MBM-USB**

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Ultrasonic heat/cooling energy meters
Ultrasonic heat/cooling energy meters WSM5../WSB5..

WSM5../WSB5..

Ultrasonic heat and cooling energy meters

The WSM5.. heat meters and WSB5.. cooling energy meters 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 volume measuring section made of high-tech plastic, and wear resistance.
The consumption values acquired by the meter can be read out either on the meter itself or from a remote location. The meter transmits the current consumption value, the monthly values, the set day value and error messages to the respective data collector.
The processor can be removed (cable length 1.5 m). The display informs the user about the amount of energy consumed.

The WSM5.. and WSB5.. 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
Measurement accuracy	MID class 2
Standard	EN 1434
Voltage supply	Lithium battery
PN class	PN 16
Temperature response threshold	Heat: 0.2 K Cold: 0.2 K
Due Date	01.01
Sensing element, temperature	Pt500
Sensor	PL Ø5.2x45 mm
Cable length, sensor	1.5 m
Display	kWh
Temperature range electronic unit	0...180 °C
Temperature range volume measuring section	5...90 °C
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview WSM5../WSB5..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Communication	Battery life	Stock No.	Product No.
0.6	110	G ¾	None	11 Years	S55561-F133	**WSM506-0E**
0.6	110	G ¾	M-bus	11 years	S55561-F194	**WSM506-BE**
1.5	110	G ¾	None	11 Years	S55561-F135	**WSM515-0E**
1.5	110	G ¾	M-bus	11 years	S55561-F195	**WSM515-BE**
2.5	130	G 1	None	11 Years	S55561-F137	**WSM525-0E**
2.5	130	G 1	M-bus	11 years	S55561-F196	**WSM525-BE**

Accessories see Datasheet: N5372.

Mounting sets

Product Title	Stock No.	Product No.
Mounting kit, 2 coupling nuts G 1", 2 inserts R ¾", 2 EPDM packings	LYU:T23-E1	**T23-E1**
Mounting kit, 2 coupling nuts G ¾", 2 inserts R ½", 2 EPDM packings	LYU:T23-E34	**T23-E34**

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Ball valves

Product Title	Stock No.	Product No.
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K12	**WZT-K12**
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	LYU:WZT-K34	**WZT-K34**
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K1	**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 and accessories

Product Title	Stock No.	Product No.
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"	LYU:WZT-A12	**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	LYU:WZT-M35	**WZT-M35**
Pocket G½"B, stainless steel, 5.2 × 37 mm, with seal	LYU:WZT-S43V	**WZT-S43V**
Adapter kit for sensor Ø 5.2x45 mm, incl. 2 O-rings	LYU:9956230	**9956230**
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**
Wall adapter, incl. 2 screws and 2 dowels	LYU:T23-WA10	**T23-WA10**

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical read head with USB interface for PC	LYU:WZR-OP-USB	**WZR-OP-USB**

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Ultrasonic heat/cooling energy meters
Ultrasonic heat/cooling energy 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
Measurement accuracy	MID class 2
Standard	EN 1434
PN class	PN 16
Temperature response threshold	Heat: 0.2 K Cold: 0.2 K
Due Date	01.01
Sensing element, temperature	Pt500
Cable length, sensor	1.5 m
Communication	M-bus
Display	kWh
Temperature range electronic unit	2...180 °C
Temperature range volume measuring section	5...105 °C
Mounting location	Meter: return Sensor in the flow: selectable, directly/indirectly immersed Sensor in the return: integrated in the return, directly immersed

Range overview 2WR6..

Nominal flow rate [m³/h]	Mounting length [mm]	Connecting thread ["]	Sensor	Operating voltage [V]	Stock No.	Product No.
0.6	110	G ¾	DS M10 x 1 mm	AC 24 DC 24	S55561-F101	**2WR605-MBG**
0.6	110	G ¾	Ø5.2x45 mm	AC 24 DC 24	S55561-F103	**2WR605-MHG**
1.5	110	G ¾	DS M10 x 1 mm	AC 24 DC 24	S55561-F105	**2WR621-MBG**
1.5	110	G ¾	Ø5.2x45 mm	AC 24 DC 24	S55561-F107	**2WR621-MHG**
2.5	130	G 1	DS M10 x 1 mm	AC 24 DC 24	S55561-F109	**2WR636-MBG**
2.5	130	G 1	Ø5.2x45 mm	AC 24 DC 24	S55561-F111	**2WR636-MHG**

Cooling energy meters on request.

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Range overview ultrasonic heat meters with battery

Nominal flow rate	Mounting length	Connecting thread	Sensor	Voltage supply	Stock No.	Product No.
0.6	110	G ¾	DS M10 x 1 mm	Lithium battery	S55561-F100	**2WR605-MBE**
1.5	110	G ¾	DS M10 x 1 mm	Lithium battery	S55561-F104	**2WR621-MBE**
2.5	130	G 1	DS M10 x 1 mm	Lithium battery	S55561-F108	**2WR636-MBE**

Cooling energy meters on request

Fittings

Product Title	Stock No.	Product No.
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**
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	LYU:WZM-E34	**WZM-E34**
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	LYU:WZM-E1	**WZM-E1**
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**

Ball valves

Product Title	Stock No.	Product No.
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K12	**WZT-K12**
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	LYU:WZT-K34	**WZT-K34**
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K1	**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**

Accessories

Product Title	Stock No.	Product No.
Adapter G ½ B" with threaded hole to install sensor DS M10x1 mm, incl. gasket G ½"	LYU:WZT-A12	**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	LYU:WZT-M35	**WZT-M35**
Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	**WZT-M50**
Pocket G½"B, stainless steel, 5.2 × 37 mm, with seal	LYU:WZT-S43V	**WZT-S43V**
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**
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**
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**
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**

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Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical read head with USB interface for PC	LYU:WZR-OP-USB	**WZR-OP-USB**

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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 standard meter is supplied without power supply and without communication (see accessories).

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
Measurement accuracy	Heat: MID class 2 Cold: EN 1434
Standard	EN 1434
Voltage supply	Without, see accessories
Due Date	01.01
Temperature response threshold	Heat: 0.2 K Cold: 0.2 K
Sensing element, temperature	Pt500
Communication	Without, see accessories
Temperature range electronic unit	2...180 °C
Temperature range volume measuring section	5...130 °C
Mounting location	Meter: Return

Ultrasonic heating/cooling meters 0.6...2.5 m3/h

Nominal flow rate	Mounting length	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**

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, lenght = 27.5 mm
Cable length: 1.5 m
Display: kWh

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Ultrasonic heat/cooling energy meters
Ultrasonic heat/cooling energy meters UH50..

Ultrasonic heating/cooling meters 3.5..6 m3/h

Nominal flow rate	Mounting length	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**

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, lenght = 38 mm
Cable length: 1.5 m
Display: kWh

Ultrasonic heating/cooling meters 10 m3/h

Nominal flow rate	Mounting length	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**

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: Ø 6 mm, lenght = 100 mm
Cable length: 5 m
Display: kWh

Ultrasonic heating/cooling meters 15...25 m3/h

Nominal flow rate	Mounting length	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**

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: Ø 6 mm, lenght = 100 mm
Cable length: 5 m
Display: MWh

Ultrasonic heating/cooling meters 40...60 m3/h

Nominal flow rate	Mounting length	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**

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: Ø 6 mm, lenght = 150 mm
Cable length: 5 m
Display: MWh

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Communication modules

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:WZU-NE	**WZU-NE**

Power packs

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**

Temperature sensors (pairs)

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**

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Fittings

Product Title	Stock No.	Product No.
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**
Mounting kit, pair of fittings G ¾" x R ½" with gaskets	LYU:WZM-E34	**WZM-E34**
Mounting kit, pair of fittings G 1" x R ¾" with gaskets	LYU:WZM-E1	**WZM-E1**
Mounting kit, pair of fittings G 1¼ " x R 1" with gaskets	LYU:WZM-E54	**WZM-E54**
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**

Spacers and sealing disks

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 1¼", length 260 mm, incl. 2 flat gaskets	LYU:WZM-G260	**WZM-G260**
Spacer DN 50, length 270 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F270	**WZM-F270**
Spacer DN 40, length 300 mm, PN 16, incl. 2 flat gaskets	LYU:WZM-F300	**WZM-F300**
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**

Ball valves

Product Title	Stock No.	Product No.
Ball valve Rp ½" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K12	**WZT-K12**
Ball valve Rp ¾" for mount sensor DS M10x1 mm, length 28 mm	LYU:WZT-K34	**WZT-K34**
Ball valve Rp 1" to mount sensors DS M10x1 mm, length 28 mm	LYU:WZT-K1	**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**

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Accessories

Product Title	Stock No.	Product No.
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"	LYU:WZT-A12	**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	LYU:WZT-M35	**WZT-M35**
Protection pocket G ½B", brass, Ø 5.2x50 mm, for temperature sensor Ø 5.2x45 mm	LYU:WZT-M50	**WZT-M50**
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**
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**
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**
Adapter for ball valve to install sensor DS M10x1 mm, length 38 mm	LYU:9930128002	**9930128002**
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**
Self-lock seal with sealing wire	LYU:9956186001	**9956186001**
Mounting plate for wall mounting	LYU:WZU-WA	**WZU-WA**
Service-key for calibration modus	LYU:9089885	**9089885**

Programming accessories for ultrasonic meters

Product Title	Stock No.	Product No.
Optical read head with USB interface for PC	LYU:WZR-OP-USB	**WZR-OP-USB**

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AMR

AMR wireless system

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

	Stock No.	Product No.
	JXF:AMR	**AMR**

AMR main components

Product Title	Stock No.	Product No.
Electronic heat cost allocators (RF)	JXF:WHE54..	**WHE54..**
Electronic impeller type heat meters	JXF:WFM5..	**WFM5..**
Electronic impeller type heat and cooling energy meters	JXF:WFN5..	**WFN5..**

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Battery-powered network node

WTT561-AA1100

The WTT56.. network node is used to receive and handle the data transmitted by heat cost allocators, heat and water meters incorporated in a radio network.
The network node is a component of an M-bus radio network.
It receives the radio telegrams transmitted by the consumption meters and stores them locally. The WTT56.. can be read out either locally via M-bus or USB or from a remote location via gateway

- Storage of up to 500 metering devices
- Every network node installed in the system stores all consumption data of the entire system (mesh system)
- Secure data network: AES128 encryption, login and password
- Battery-powered

Data sheet	A6V10455680
Operating voltage	3.6 V
Voltage supply	Lithium battery
Battery life	Power supply main battery: Min. 5 years Power supply backup battery: Min. 10 years
Degree of protection	IP20
Dimensions (W x H x D)	200 x 200 x 57.1 mm

	Stock No.	Product No.
	S55563-F137	**WTT561-AA1100**

Tools for network nodes

Product Title	Stock No.	Product No.
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	**WFZ.MBM-USB**
USB programming adapter	JXF:RNNPH0010020	**RNNPH0010020**
M-bus adapter plug for WFZ.MBM-USB	JXF:RNNPH0020010	**RNNPH0020010**

M-bus RF gateway

WTT563-0C0000

The M-bus RF gateway WTT563-0C0000 collects the consumption data of all network nodes WTT561.. up to 4 times per month and transmits them via GSM/GPRS/EDGE to the portal. From there, the data are automatically transmitted to the respective clients. Hence, the device does not store any data.

- Each gateway is capable of reading a maximum of 2,500 meters.
- The transmission of meter data to the portal is based on secure data transfer in the GSM band. Data transmission via GSM/GPRS/EDGE (Quad band 850, 900, 1,800 and 1,900 MHz) plus connectivity through national and international roaming facilitate data transmission to the respective server from all European countries at no extra cost.
- Extra installations are not required, thanks to battery-powered operation (battery life 5 years) and communication via GSM/GPRS/EDGE.
- When purchasing the gateway, the price covers not only the product itself, but also the communication between gateway and portal (roaming costs) for a period of 5 years.

Data sheet	A6V10897694
Operating voltage	3.6 V
Voltage supply	Lithium battery
Battery life	Min. 5 years
Degree of protection	IP30
Dimensions (W x H x D)	203 x 203 x 57.5 mm

	Stock No.	Product No.
	S55563-F146	**WTT563-0C0000**

New Product

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Batteries for network nodes and gateways

Product Title	Stock No.	Product No.
Battery for WTT..	JXF:WTZ.BAT	**WTZ.BAT**
Backup battery for WTX16..	JXF:FBCRAA/KS	**FBCRAA/KS**
Backup battery for WTT561..	JXF:FBR0018	**FBR0018**

WFZ16.MO

Add-on radio module WFZ16 for WFx30.. water meters

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.

Data sheet N2879

Stock No.	Product No.
S55563-F100	**WFZ16.MO**

WFZ56.OK

AMR add-on module with integrated antenna for WFx5.. meters

The add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat and cooling meters and passes it on to the AMR system.

Data sheet N5323

Stock No.	Product No.
S55563-F132	**WFZ56.OK**

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.

Data sheet N2873

Stock No.	Product No.
S55563-F129	**AEW36.2**

Tools

Product Title	Stock No.	Product No.
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Triggering tool for radio telegrams	JXF:WFZ.PS	**WFZ.PS**
PC radio module	JXF:WTZ.RM	**WTZ.RM**
Torque Screwdriver, Torx Plus™	JXF:FZ201-009	**FZ201-009**

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Software

Product Title	Stock No.	Product No.
Parameterization and diagnostic software for heat cost allocators	JXF:ACT50-HCA	**ACT50-HCA**
Parameterization and diagnostics software for impeller type heating energy meters	JXF:ACT50-HEAT	**ACT50-HEAT**
Parameterizing and diagnostics software	JXF:ACT20	**ACT20**
Parameterization software	JXF:ACT21	**ACT21**
Readout software	JXF:ACS26	**ACS26**
Setup and service software	JXF:ACT26	**ACT26**

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walk-by

Walk-by radio system

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.

	Stock No.	Product No.
	JXF:walk-by	**walk-by**

Walk-by main components

Product Title	Stock No.	Product No.
Electronic heat cost allocators (RF)	JXF:WHE54..	**WHE54..**

WFZ166.MO

Add-on radio module WFZ166 for WFx30.. water meters

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.

Data sheet N2879

	Stock No.	Product No.
	S55563-F101	**WFZ166.MO**

WFZ566.OK

Walk-by add-on module with integrated antenna for WFx5.. meters

The walk-by add-on module acquires and handles the consumption data and service information delivered by the WFx5.. heat and heat/cooling meters and passes it on to the walk-by system.

Data sheet N5323

	Stock No.	Product No.
	S55563-F133	**WFZ566.OK**

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Walk-by pulse adapter

AEW366.2

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.

	Stock No.	Product No.
	JXF:AEW366.2	**AEW366.2**

Tools and software

Product Title	Stock No.	Product No.
Parameterization and diagnostic software for heat cost allocators	JXF:ACT50-HCA	**ACT50-HCA**
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
Triggering tool for radio telegrams	JXF:WFZ.PS	**WFZ.PS**
Mobile data logger set	JXF:WTZ.WBSET-2/PC	**WTZ.WBSET-2/PC**
Torque Screwdriver, Torx Plus™	JXF:FZ201-009	**FZ201-009**

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M-Bus

M-Bus metering system

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

	Stock No.	Product No.
	BPZ:M-Bus	**M-Bus**

M-bus meters

Product Title	Stock No.	Product No.
Electronic impeller type heat meters	JXF:WFM5..	**WFM5..**
Electronic impeller type heat and cooling energy meters	JXF:WFN5..	**WFN5..**
Ultrasonic heat and cooling energy meters	LYU:WSM5../WSB5..	**WSM5../WSB5..**
Ultrasonic heat and cooling energy meters	LYU:2WR6..	**2WR6..**
Ultrasonic heat and heating/cooling energy meters	LYU:UH50..	**UH50..**

WTV534-0B4022

M-bus web server

The web server WTV534-0B4022 reads up to 250 M-bus meters over Ethernet or the internet using a browser.
It is used:

- As a standalone device with up to 20 directly connected M-bus meters
- As a master on an M-bus network with up to 6 connected level converters and a total of 250 logical M-bus meters

The web server records the data from the connected M-bus meters, can evaluate them, and sends email notifications for events and alarms.
The device's internal storage can save data for a period of up to 10 years (where data are read once a day). A PC/browser reads the data and log files either locally over Ethernet or from any location over the internet. Also, the report files can be periodically transmitted with meter data to an email recipient or an FTP server.
The web server has 3 digital inputs and 2 digital outputs. Inputs and outputs are programmable via logic sequences to internal or external events.

Data sheet	A6V10844292
Operating voltage	24 V AC/DC
Frequency	50/60 Hz
Power consumption	Max. 15 VA

	Stock No.	Product No.
	S55563-F144	**WTV534-0B4022**

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Level converter — WTV531-GA5060

The level converter WTV531-GA6050 is an interface for use between M-bus meters and reading systems. The meter data can be read on site via PC software ACT531 or via internet using the optional web server. The level converter can read up to 60 M-bus devices (60 M-bus loads).
It is used:

- As a master on an M-bus network with up to 60 meters. It can read data on site from the level converter with the help of PC software ACT531
- As a slave to extend the M-bus network to up to 6 level converters (1 master and 5 slaves) with up to 60 devices each. It can read out a maximum of 360 M-bus loads and a maximum of 1,000 logical meters. Data are read locally via the master level converter
- As a slave on the optional M-bus web server to read data from remote locations

Data sheet	A6V10844290
Operating voltage	24 V AC/DC
Frequency	50/60 Hz
Power consumption	Max. 12 VA

	Stock No.	Product No.
	S55563-F145	WTV531-GA5060

Software and Tools

Product Title	Stock No.	Product No.
Parameterization and diagnostics software for impeller type heating energy meters	JXF:ACT50-HEAT	**ACT50-HEAT**
Readout software for WTV531-GA5060 level converter	JXF:ACT531	**ACT531**
Parameterizing and diagnostics software	JXF:ACT20	**ACT20**
Infrared read head (with USB interface)	JXF:WFZ.IRDA-USB	**WFZ.IRDA-USB**
M-bus programming adapter (USB)	JXF:WFZ.MBM-USB	**WFZ.MBM-USB**
USB programming adapter	JXF:RNNPH0010020	**RNNPH0010020**
M-bus adapter plug for WFZ.MBM-USB	JXF:RNNPH0020010	**RNNPH0020010**

M-bus add-on module for WFx30.. water meters — WFZ31

The add-on module acquires and processes the information from the WFx30../WMx10.D water meter. It is periodically read out by an M-bus master.

Data sheet	A6V10443198

	Stock No.	Product No.
	S55563-F136	**WFZ31**

M-bus add-on module for WFx5.. meters — WFZ51

The add-on module acquires and processes the consumption data and service information from the WFx5.. heat and heat/cooling energy meter. It is periodically read out by an M-bus master.

Data sheet	N5323

	Stock No.	Product No.
	S55563-F131	**WFZ51**

New Product

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AEW310.2

M-bus pulse adapter

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.

Data sheet	N5383

Stock No.	Product No.
S55563-F130	**AEW310.2**

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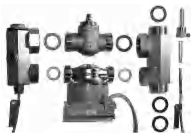
Mounting kit for WRV81/84 replacement

ALG80WRI



Using the ALG80WRI, heat meter and small valve (complete with actuator) can be installed in very confined spaces, analogous to the WRV mounting dimensions.
The ALG80WRI consists of 2 hydraulic diversion pieces with fittings, a built-in immersion sleeve and the necessary sealings.

Data sheet N2803

	Stock No.	Product No.
	BPZ:ALG80WRI	**ALG80WRI**

Mounting kit for WRV83 replacement

ALG83WRI

Using the ALG83WRI, a WRV83 valve can be hydraulically replaced by a heat meter without having to modify the existing piping.
The ALG83WRI consists of 2 threaded adapters (from ¾" to 1"), an immersion sleeve and the necessary sealings.

Data sheet N2803

	Stock No.	Product No.
	BPZ:ALG83WRI	**ALG83WRI**

Mounting kit

ALG10/20

Mounting kit for zone valve VVP47.10...; to be applied when replacing a valve WRV8... by an interface WRI80.

Data sheet N2803

	Stock No.	Product No.
	BPZ:ALG10/20	**ALG10/20**

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Practical tips

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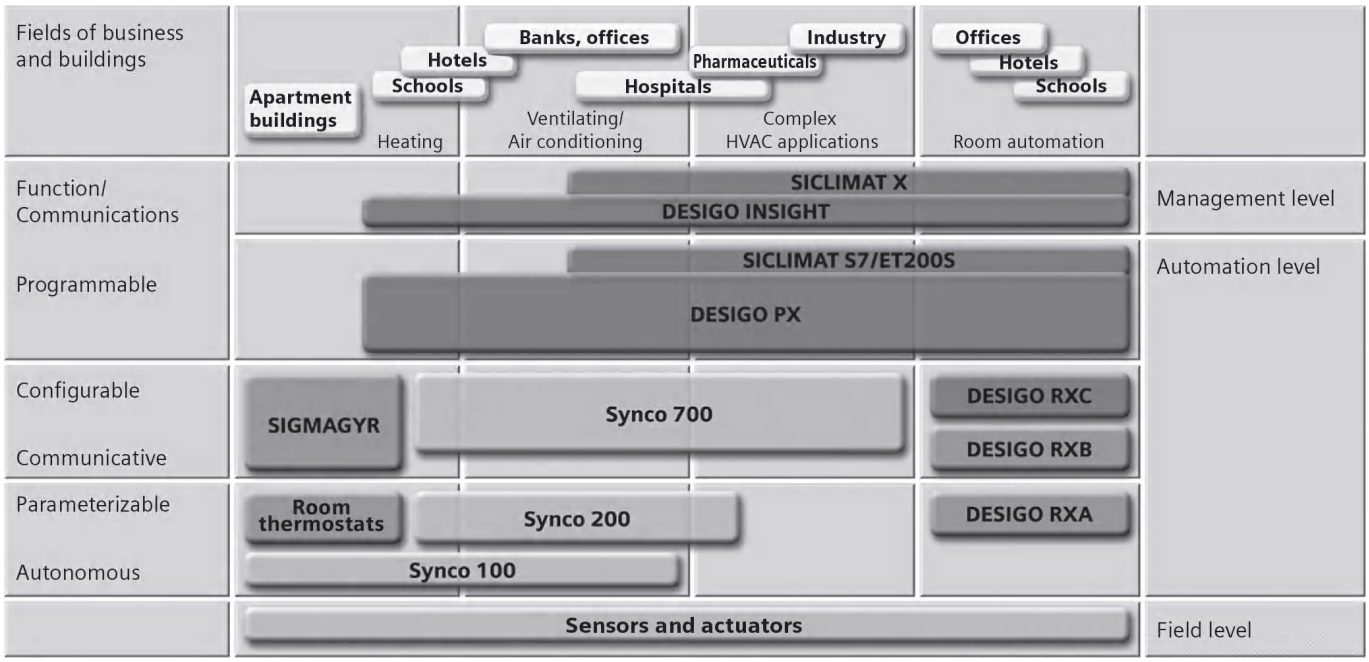
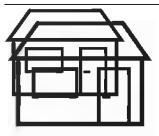
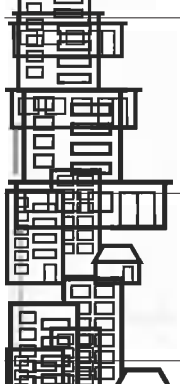
Overview
Control ranges

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** ■ Autonomous controller ■ Local operation ■ Preprogrammed solutions		SIGMAGYR RVP..					DESIGO™ RXA	
				Synco™ 100					
				Synco™ 200					
	Individual plant ■ Communicative controller ■ Local/remote operation ■ Preprogrammed solutions		SIGMAGYR RVL..				DESIGO™ RXB		
				Synco™ 700					
	**Distributed plants** ■ Communicative controller ■ Central/local operation ■ Preprogrammed solutions		Synco™ 700				DESIGO™ RXB		
	Complex plants ■ Communicative controller ■ Central/local operation ■ Customized solutions		DESIGO™ PX				DESIGO™ RXC		
	Complex plants with building automation and control system ■ Communicative controller ■ Central operation ■ Customized solutions ■ Cross-installation integration of third-party systems as well		DESIGO™ Insight DESIGO™ PX				DESIGO™ RXC		

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Control of mixing and injection circuit for floor heating

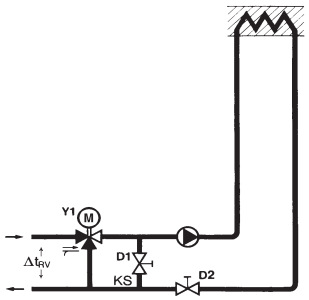
Application

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

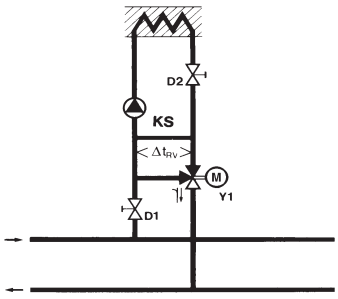


Mixing circuit with fixed premix for connection to heat generators or distributors without differential pressure

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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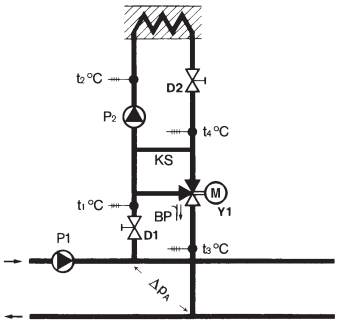
Injection control for radiated heat

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

$$\Delta p_A = \Delta p_{p2}$$

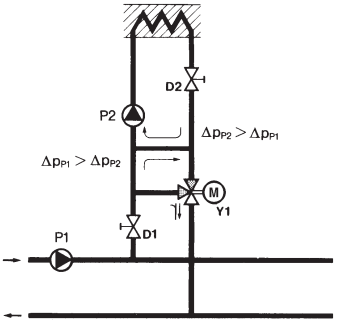
No heating water circulates in the bypass as well as in the short circuit and

$$t_1\ °C = t_2\ °C$$
$$t_3\ °C = t_4\ °C$$

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.

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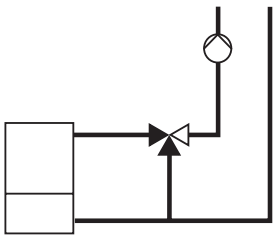
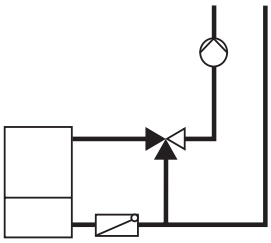
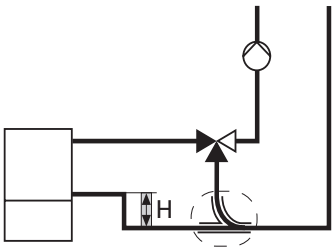
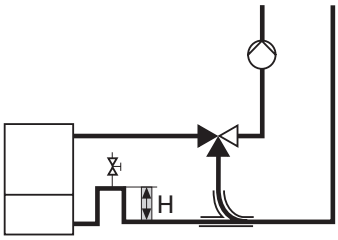
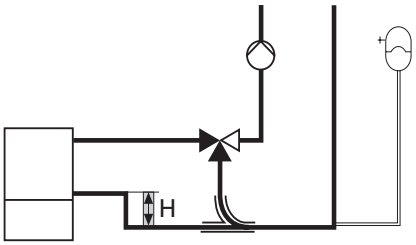
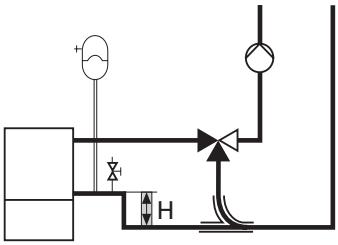
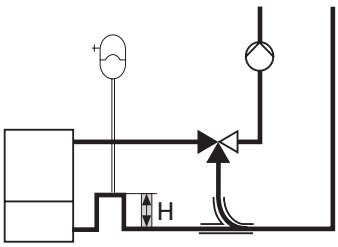
On the boiler

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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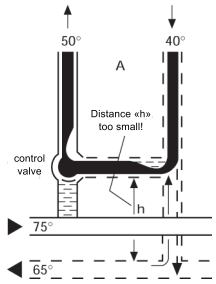
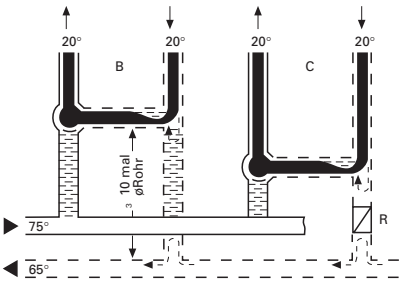
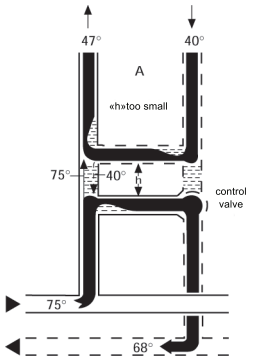
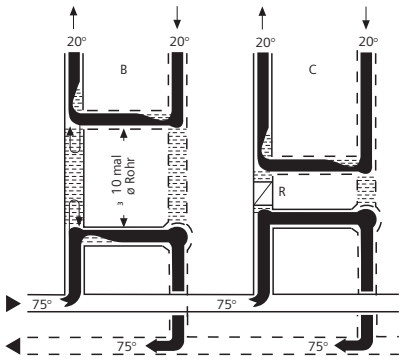
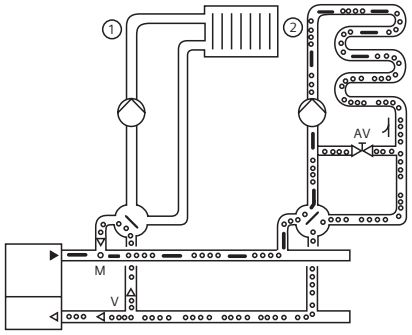
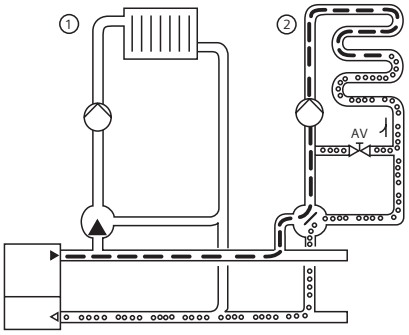
Faulty circulation
On distributor

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

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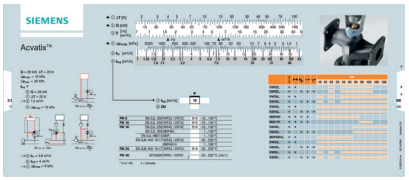
Technical information on sizing and selection of valves and actuators

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 program HVAC Integrated Tool (HIT) to simplify sizing and selection.

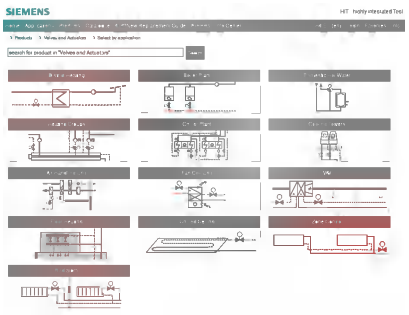
Valve calculator



Valves and actuators for HVAC plants.

The proven Acvatix valve calculator simplifies sizing and cover the selection for applications with water.

HIT (HVAC integrated tool)



HIT is a software program that simplifies the planning of HVAC plants.
It accesses the complete current product range of Siemens valves, actuators, sensors, thermostats, and variable speed
drives. The intuitive, user-friendly menus is designed for typical workflows within
the sector and makes it possible for you to get up to speed in no time.
In addition to providing a user search, HIT is a database that
includes the following documentation:
- Application data sheets
- Data sheets
- Basic documentation
- Engineering documentation
- Mounting and installation instructions
- User's guide
- Training documentation
- Environmental declarations

You can access HIT online at the following link:
www.siemens.com/HIT

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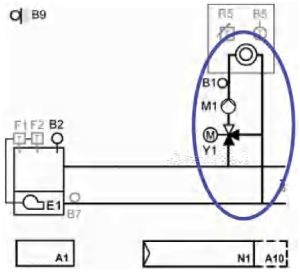
Example: Sizing a control valve

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}

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} \qquad \dot{V}_{100} = \frac{160\ kW}{1163 \cdot 15\ K} = 9.2\ m^3/h$$

2 Determine differential pressure Δp_{V100}

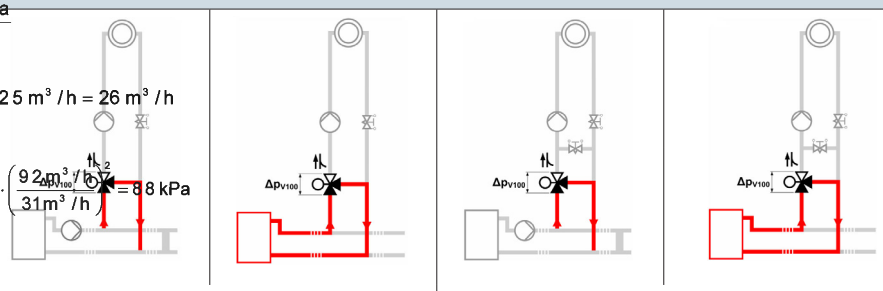
$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \qquad k_{vs} \geq \frac{9.2\ m^3/h}{\sqrt{\frac{8\ kPa}{100}}} = 32.5\ m^3/h$$

Determine the type of hydraulic circuit

$k_{vs} \geq 0.8 \cdot k_v$ Wert $\qquad k_{vs} \geq 0.8 \cdot 32.5\ m^3/h = 26\ m^3/h$

$$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2 \qquad \Delta p_{V100} = 100 \cdot \left(\frac{9.2\ m^3/h}{31\ m^3/h}\right)^2 = 8.8\ kPa$$

—— 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

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}		

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5	Check valve authority P_V (control stability)	
	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.3...0.6$	$\frac{\Delta p_{V100}}{p_{V100} + \Delta p_{MV}} = \frac{8.8\ kPa}{8.8\,kPa + 8\ kPa} = 0.52$
	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	VXF32
	Type of valve selected	VXF32.50-40	k_{vs} = 40 m³/h

7	Select the actuator			
	a) Supply voltage	AC 230 V		
	b) Control signal	3-position		
	c) Actuator positioning time	Available ranges	SAX..	30...120 s
			SKD.., SKB..	30...120 s
	d) Spring return facility	No		
	e) Auxiliary functions	Auxiliary switch, potentiometer, position checkback signal		
	Available types of actuators	SAX.., SKD.., SKB..		

8	Check the actuator's working range			
		SAX.. + VXF32.50-40	SKD.. + VXF32.50-40	SKB.. + VXF32.50-40
	a) Differential pressure $\Delta p_{max} \geq \Delta p_{V100}$	$\Delta p_{max} \geq 5{,}3$ kPa		
	Δp_{max}	300 kPa	400 kPa	400 kPa
	b) Closing pressure $\Delta p_s \geq H_0$	Not applicable to 3-port valves		
	Type of actuator selected	SAX31.00 (without spring return, running time 120 s, no auxiliary functions)		

Selection			
	Type of valve	VXF32.50-40	for details, refer to Data Sheet N4402
	Type of actuator	SAX31.00	for details, refer to Data Sheet N4501, P4040

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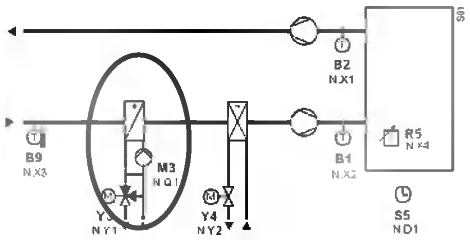
Example: Ventilation plant with supply air temperature control
Part 1 – hot water heating coil

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}

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} = \frac{Q_{100}}{1.163 \cdot \Delta T} \qquad \dot{V}_{100} = \frac{160 \cdot kW}{1163 \cdot 15\ K} = \frac{55\ kW}{1.163 \cdot 20\ K} = 2.4\ m^3/h$$

2 Determine differential pressure Δp_{V100}

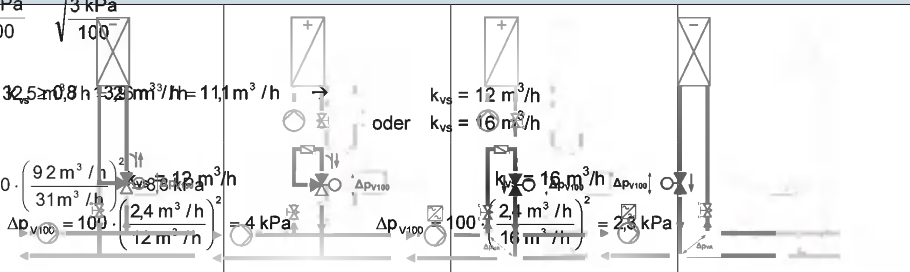
$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \qquad k_v = \frac{92\ m^3/h}{\sqrt{\frac{8\ kPa}{100}}} = \frac{2.4\ m^3/h}{\sqrt{\frac{3\ kPa}{100}}} = 13.9\ m^3/h$$

Determine the type of hydraulic circuit

$k_{vs} \geq 0.8 \cdot k_v$ Wert $\quad k_{vs} \geq 0.8 \cdot 32.5\ m^3/h = 11.1\ m^3/h \rightarrow$ $k_{vs} = 12\ m^3/h$ oder $k_{vs} = 16\ m^3/h$

$$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2 \qquad \Delta p_{V100} = 100 \cdot \left(\frac{92\ m^3/h}{31\ m^3/h}\right)^2 = 8.8\ kPa \qquad \Delta p_{V100} = 100 \cdot \left(\frac{2.4\ m^3/h}{12\ m^3/h}\right)^2 = 4\ kPa \qquad \Delta p_{V100} = 100 \cdot \left(\frac{2.4\ m^3/h}{16\ m^3/h}\right)^2 = 2.3\ kPa$$

Δp_{MV} — differential pressure 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

4 Select nominal flow value k_{vs} and determine resulting differential pressure Δp_{V100}

$k_{vs} \geq 0.8 \cdot k_v$-value	$k_{vs} \geq 0.8 \cdot 13.9\ m^3/h = 11.1\ m^3/h$ →	k_{vs} = 12 m³/h or k_{vs} = 16 m³/h	
Resulting Δp_{V100}	k_{vs} = 12 m³/h	k_{vs} = 16 m³/h	

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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
	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{4\ kPa}{4kPa + 3kPa} = 0{,}57$	$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} = \frac{2{,}3\ kPa}{2{,}3kPa + 3kPa} = 0{,}43$

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
		SAX..	30...120 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..: SAX.., SKD.., SKB..		
Type of actuator(s) selected	MXG461.32-12 SAX61.03		

9 Check the actuator's working range

		MXG461.32-12	VXG41.32 + SAX61.03
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 SAX61.03	actuator integrated without spring return, running time 30 s, no auxiliary functions, with position checkback signal

Selection

Type of valve Type of actuator	VXG41.32 SAX61.03	for details, refer to Data Sheet N4463 for details, refer to Data Sheet N4501	Suited for controlled systems with: ■ Usual degree of difficulty ■ Ease of service and repair
Valve and actuator	MXG461.32-12	for details, refer to Data Sheet N4455	Specially suited for controlled with: ■ High degree of difficulty ■ Demanding requirements for control accuracy ■ Fast load changes

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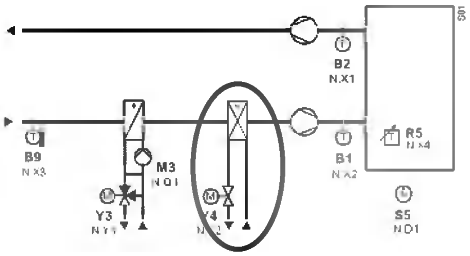
Example: Ventilation plant with supply air temperature control
Part 2 – chilled water cooling coil

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



$$\Delta p_{V100} = \frac{\Delta p_{VR}}{2} = \frac{30\,kPa}{2} = 15\,kPa$$

1 Determine volumetric flow V_{100}

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} = \frac{Q_{100}}{1.163 \cdot \Delta T} \qquad \dot{V}_{100} = \frac{160\,kW}{1163 \cdot 15\,K} = \frac{65\,kW}{1.163 \cdot 6\,K} = 9.3\,m^3/h$$

2 Determine differential pressure Δp_{V100}

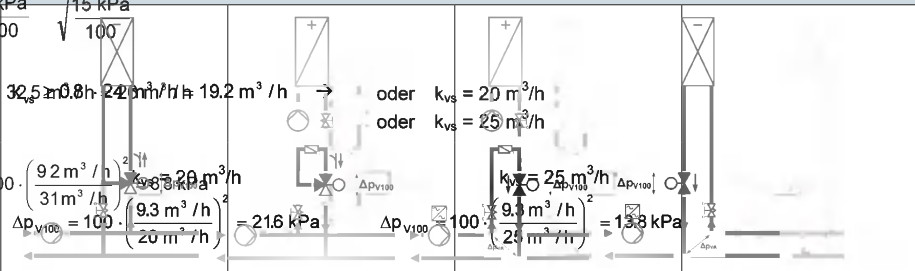
$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \qquad k_v = \frac{9.2\,m^3/h}{\sqrt{\frac{8\,kPa}{100}}} = 32.5\,m^3/h \qquad k_v = \frac{9.3\,m^3/h}{\sqrt{\frac{15\,kPa}{100}}} = 24\,m^3/h$$

Determine the type of hydraulic circuit

$k_{vs} \geq 0.8 \cdot k_v$ Wert $\qquad k_{vs} \geq 0.8 \cdot 32.5\,m^3/h = 24\,m^3/h \rightarrow$ oder $k_{vs} = 20\,m^3/h$ oder $k_{vs} = 25\,m^3/h$

$$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2 \qquad \Delta p_{V100} = 100 \cdot \left(\frac{9.2\,m^3/h}{31\,m^3/h}\right)^2 = 8.8\,kPa \qquad \Delta p_{V100} = 100 \cdot \left(\frac{9.3\,m^3/h}{20\,m^3/h}\right)^2 = 21.6\,kPa \qquad \Delta p_{V100} = 100 \cdot \left(\frac{9.3\,m^3/h}{25\,m^3/h}\right)^2 = 13.8\,kPa$$

Δp_{MV} differential pressure 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}		$\Delta p_{V100} \geq \Delta p_{MV}$		$\Delta p_{V100} \geq$	
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		→			

3 Determine the k_v-value

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}	$k_{vs} = 20\,m^3/h$ →	$k_{vs} = 25\,m^3/h$	

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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
		SAX..	30...120 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..: SAX.., SKD.., SKB..		
Type of actuator(s) selected	MXG461.40-20 SAX61.03		

9 Check the actuator's working range

		MXG461.40-20	VVG41.40 + SAX61.03
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
	SAX61.03	without spring return, running time 30 s, no auxiliary functions, with position checkback signal

Selection

Type of valve Type of actuator	VXG41.40 SAX61.03	for details, refer to Data Sheet N4463 for details, refer to Data Sheet N4501	Suited for controlled systems with: ■ Usual degree of difficulty ■ Ease of service and repair
Valves and actuators	MXG461.40-20 When used as a through-port valve, inlet B must be closed off with the accessories supplied with the valve (nuts, cover and gasket)	for details, refer to Data Sheet N4455	Specially suited for controlled systems with: ■ High degree of difficulty ■ Demanding requirements for control accuracy ■ Fast load changes

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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

$$\dot{V}_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T} \quad [m^3/h] \qquad \dot{V}_{100} = \frac{160\ kW}{1163 \cdot 15\ K} = 9.2\ m^3/h$$

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \qquad k_v = \frac{9.2\ m^3/h}{\sqrt{\frac{8\ kPa}{100}}} = 32.5\ m^3/h$$

= volumetric flow [m³/h]
= rated capacity of plant [kW]
= temperature difference of flow and return [K]
= specific heat capacity [kJ/kgK]
= specific density [kg/m³]

Water with antifreeze

The design temperature is the lowest medium temperature occurring in the valve.

$$k_{vs} \geq 0.8 \cdot k_v\ \text{Wert} \qquad \dot{V}_{100} \qquad k_{vs} \geq 0.8 \cdot 32.5\ m^3/h = 26\ m^3/h$$

$$\dot{V}_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \Delta T \cdot \rho}\ [m^3/h] \quad \text{or} \quad \frac{Q_{100}}{\Delta T} = \frac{Q_{100}}{1.163 \times \Delta T \times f_1}$$

$$\Delta p_{V100} = 100 \cdot \left(\frac{\dot{V}_{100}}{k_{vs}}\right)^2 \qquad \Delta p_{V100} = 100 \cdot \left(\frac{9.2\ m^3/h}{31\ m^3/h}\right)^2 = 8.8\ kPa$$

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

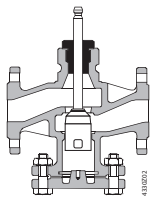
$$f_1 = \frac{c\left[\frac{kJ}{kgK}\right]}{4.18} \times \frac{\rho\left[\frac{kg}{m^3}\right]}{1000}$$

Kinematic viscosity

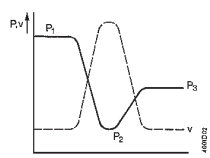
No corrections required for kinematic viscosity = of up to 10 mm²/s. Please contact your local representative on selecting control actuating devices equipment at other kinematic viscosity =.

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 17.



—— pressure profile
----- velocity profile

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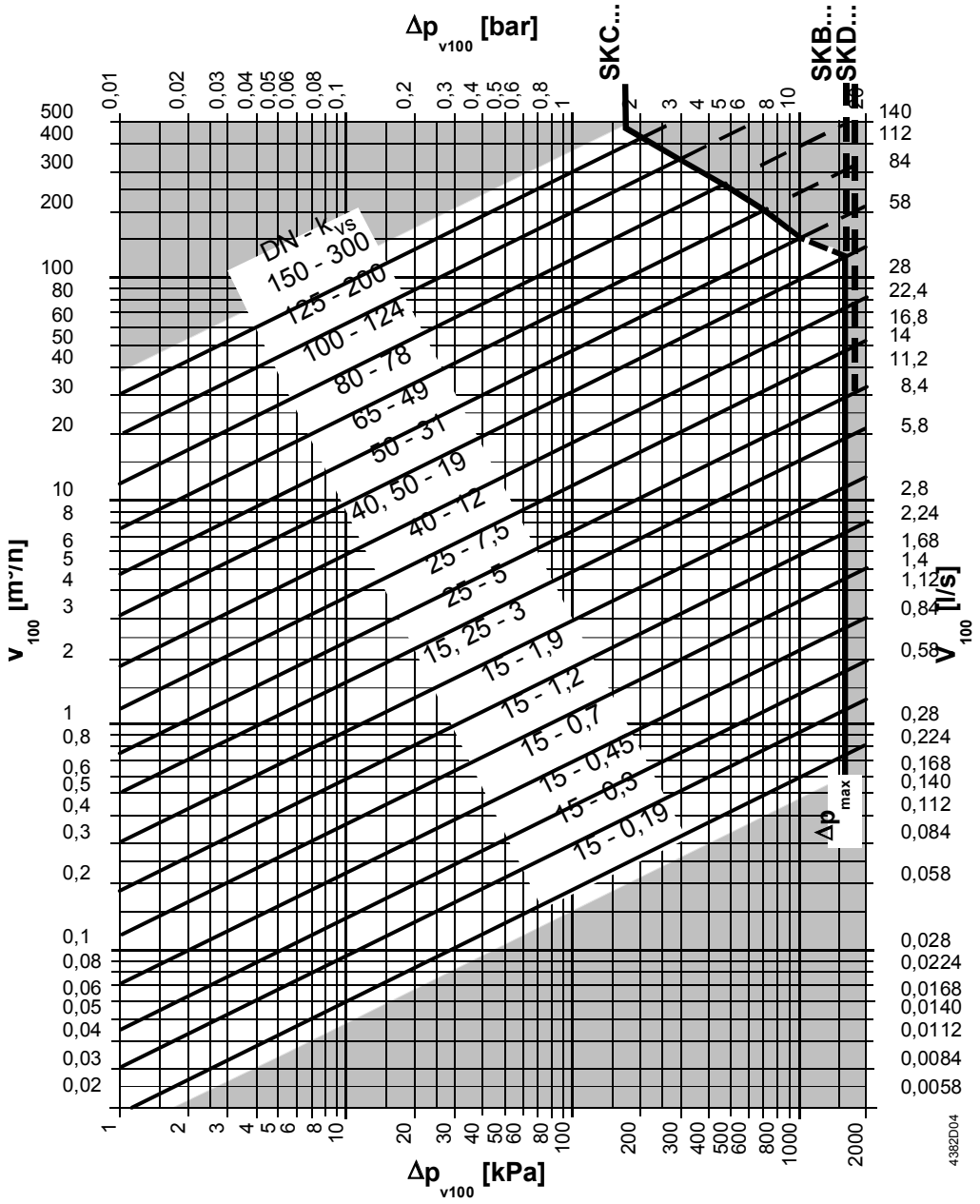
Example – Flow diagram for VVF61..



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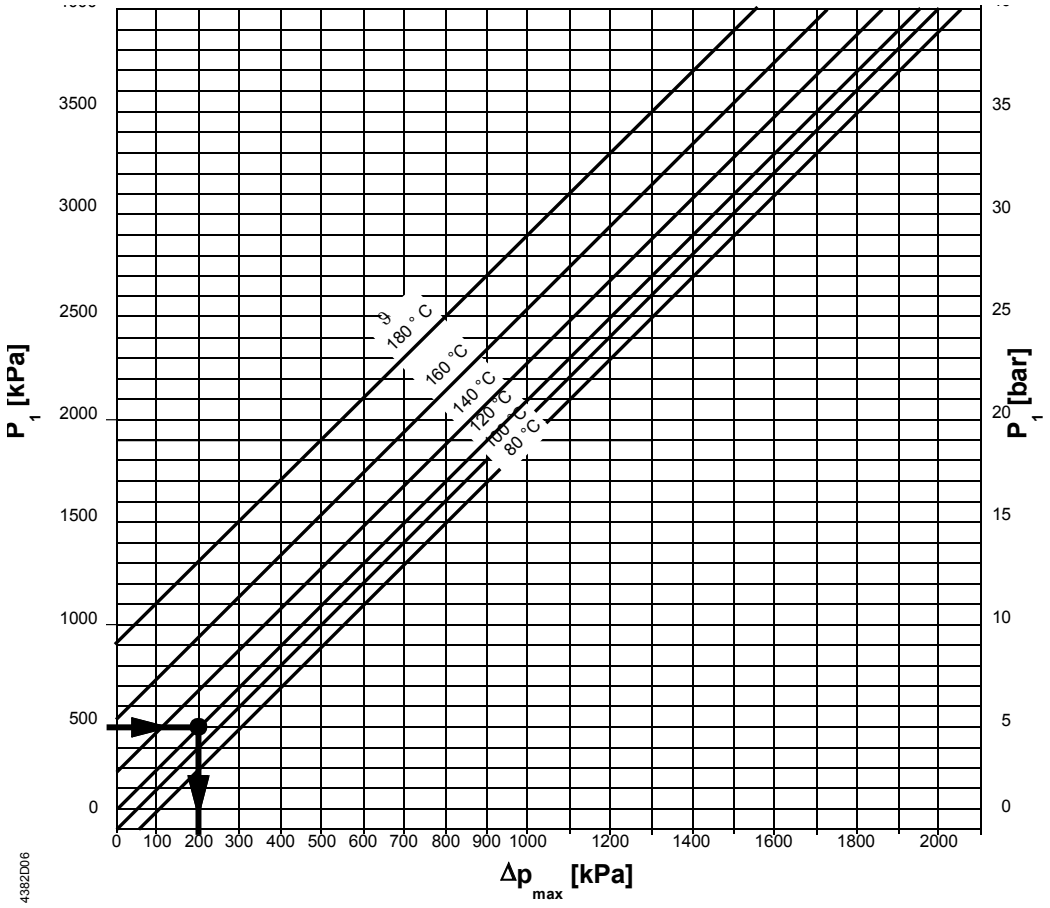
Cavitation

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.



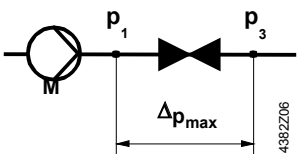
Pressure chart 2

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

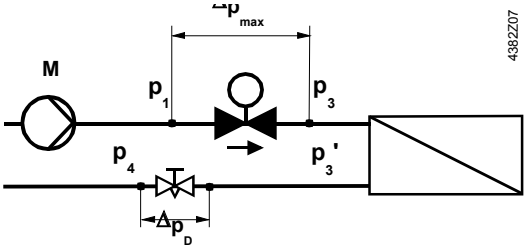
The above chart 2 shows that when the valve is nearly fully closed, a maximum differential pressure Δp_{max} of 200 kPa (2 bar) is permitted.



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



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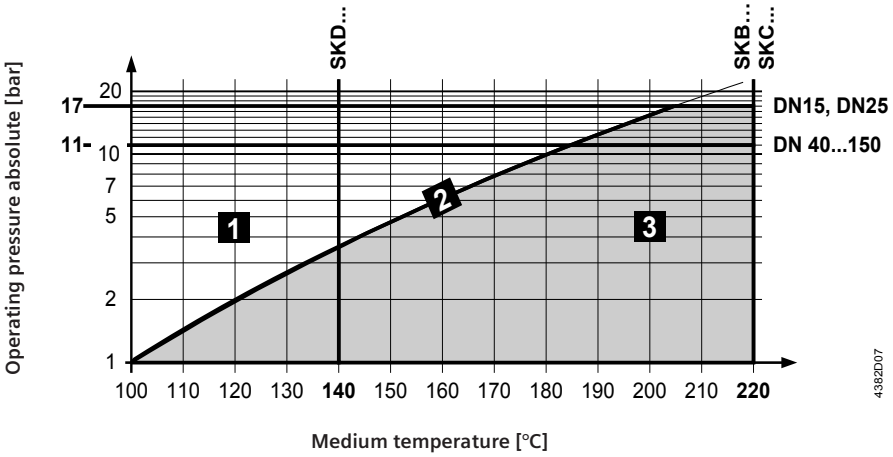
Valve design for saturated and super-heated steam

Saturated and super-heated steam in sub-critical range



1	wet steam	avoid
2	saturated steam	permissible range of use
3	superheated steam	

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.

$$\text{Pressure ratio} = \frac{p_1 - p_3}{p_1} \cdot 100\%$$

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	
$\frac{p_1 - p_3}{p_1} \cdot 100\% < 42\ \%$	Pressure ratio < 42% sub-critical	$\frac{p_1 - p_3}{p_1} \cdot 100\% \geq 42\ \%$	Pressure ratio ≥ 42% overcritical (not recommended)
$k_{VS} = 4.4 \cdot \frac{\dot{m}}{\sqrt{p_3 \cdot (p_1 - p_3)}} \cdot k$		$k_{VS} = 8.8 \cdot \frac{\dot{m}}{p_1} \cdot k$	

$\dot{m}$ $\dot{m}$ = 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 VVF42.., VXF42.., VVF43.., VVF53.., 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 VVF42.., VXF42.., VVF43.., VVF53.., 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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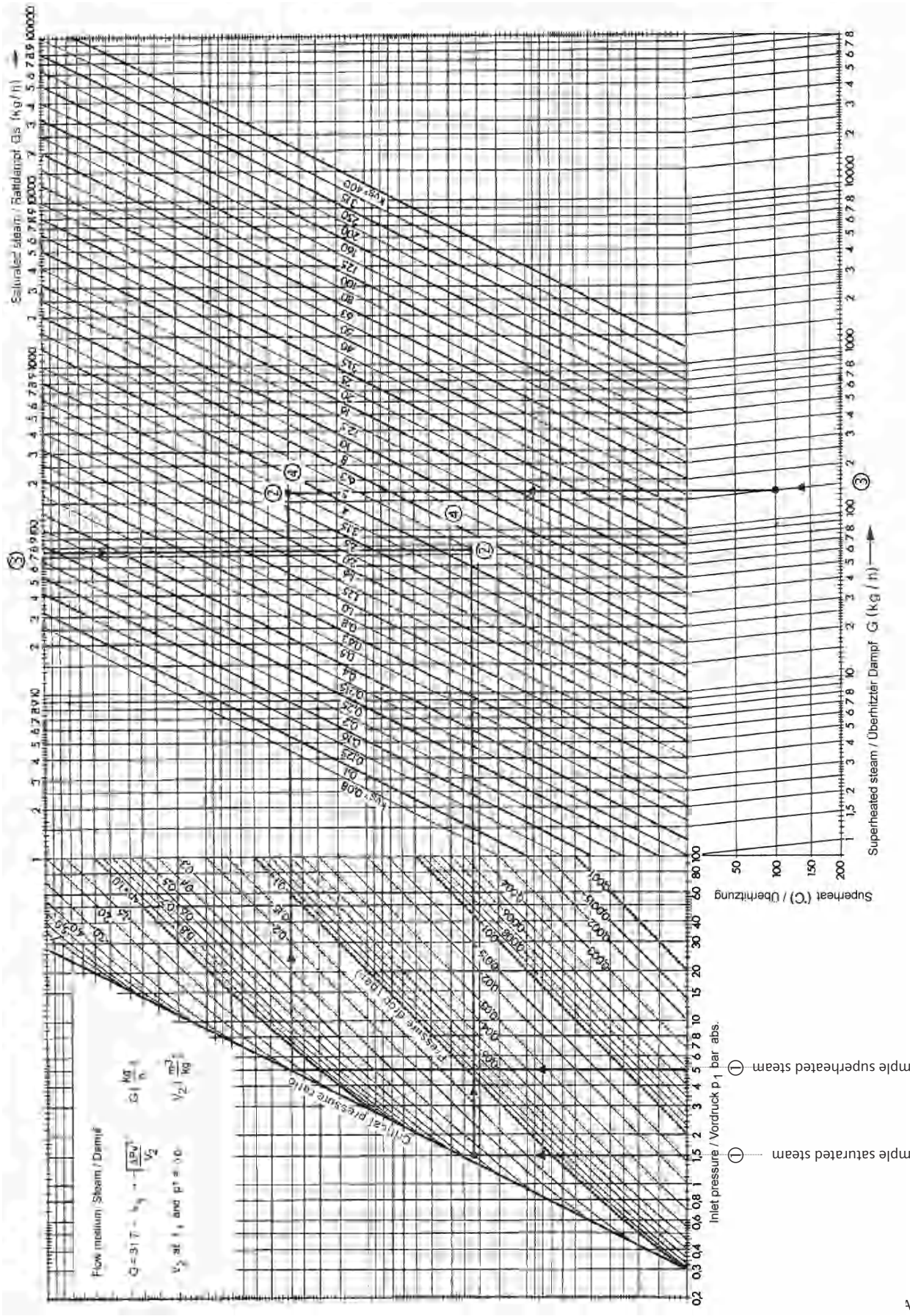
Diagram 3 on determining the kvs value for steam



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Water vapor table

pressure		temperature	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	°C	dm³/kg	m³/kg	kg/m³	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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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

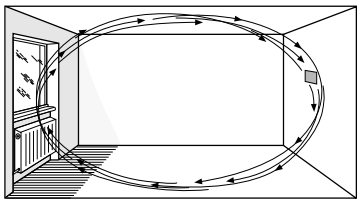
- Primarily in non-residential buildings for:
- Room max limits
- Monitoring room temperature for switched off heating (frost protection) and boost heating.
- Optimization

Select reference room

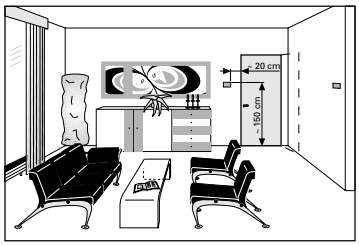
The reference room for placing the room temperature sensor
- For single-family homes and duplexes, in general in the main living room
- In non-residential buildings, the least favorable room from a thermal standpoint, e.g.:

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



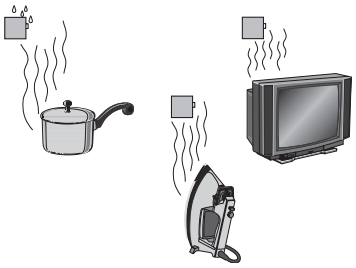
Best mounting location for room temperature sensor: The interior wall in the main living room opposite the radiator

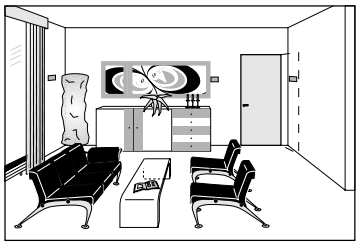


Proper placement of room temperature sensor

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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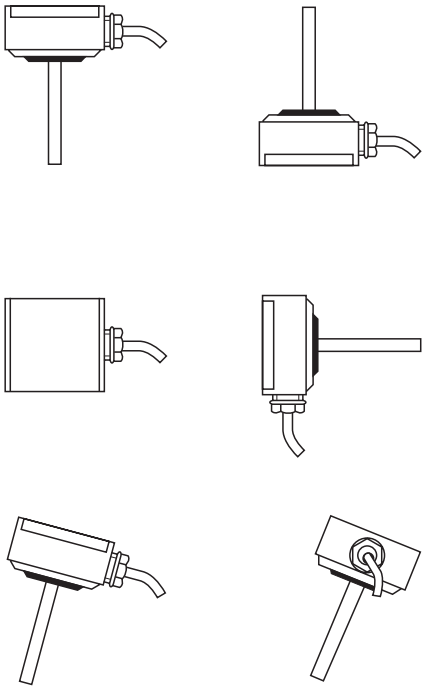
Flow and return temperature sensor immersion or strap-on temperature sensor

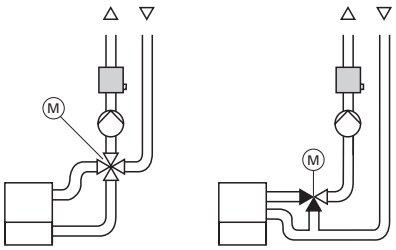
Installation position	Control sensor	Limitation sensor
To protect against humidity, install the sensor housing so that the lead for the electric wiring is not pointed up.	As a matter of principle, place the sensors so that the medium to be measured constantly circulates on the mounting location. Where not possible, mount the sensor as close as possible to the medium used to change temperature. (Example: See indirect district heating connection).	

Correct



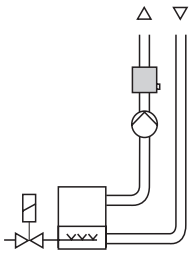
Mounting location for pump in flow

With four-port mixer

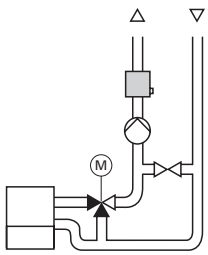


With three-port mixer

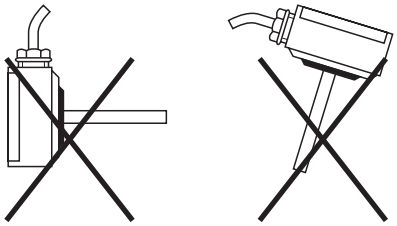
Without mixer



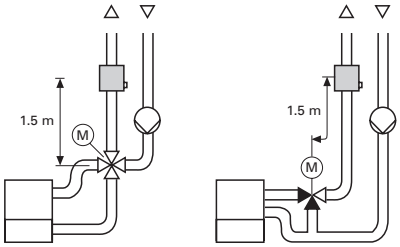
With three-port mixer (floor heating)



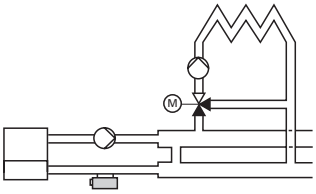
False



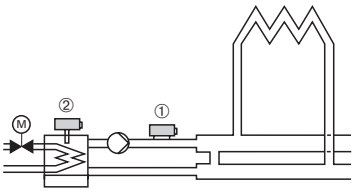
Mounting location for pump in return



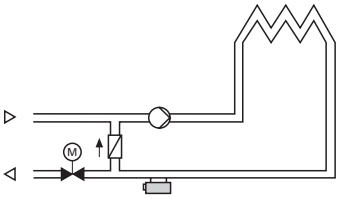
Minimum limitation of the boiler return temperature



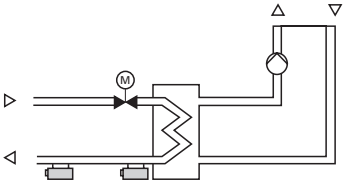
Min.- ① or maximum limitation ② of the heating flow temperature



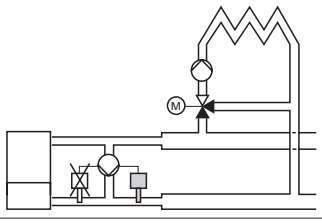
Maximum limitation of the district heating return (direct district heating connection)



Maximum limitation of the district heating return (indirect district heating connection)



Control of boiler mixing pump



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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.

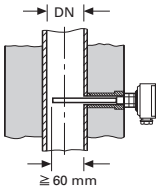
This sheet includes information on:
- Required minimum thickness of insulation for the heating pipes,
- Mounting possibilities for immersion sensors,
- Immersion sensor lengths per pipe nominal length and insulation thickness,
- And the required length of the sensor piece.

§6 the heating plant ordinance:
Heat insulation for heating distribution plants

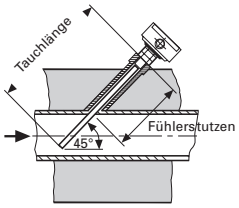
Pipe nominal length DN in mm	Minimum thickness of insulation layer in mm
to 20	20
22...35	30
40...100	same as DN
100...250	100

* at = 0.035 Wm $^{-1}$ K $^{-1}$

Immersion temperature sensor

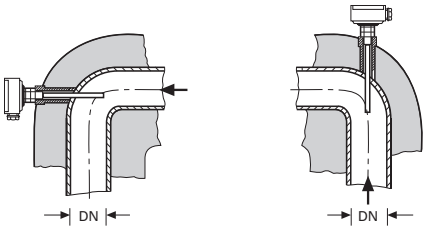


Pipe Ø DN [mm]	Insulation layer [mm]	**Sensor pieces in mm** for immersion sensor length 150	200	300 [mm]
80	80	80	-	-
100	100	-	110	-
125	100	-	100	120
150...250	100	-	100	120



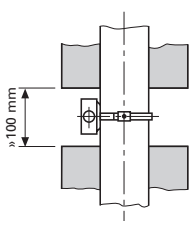
Pipe Ø DN [mm]	Insulation layer [mm]	**Sensor pieces in mm** for immersion sensor length 200	300 [mm]
80	80	130	130
100...250	100	-	160

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.

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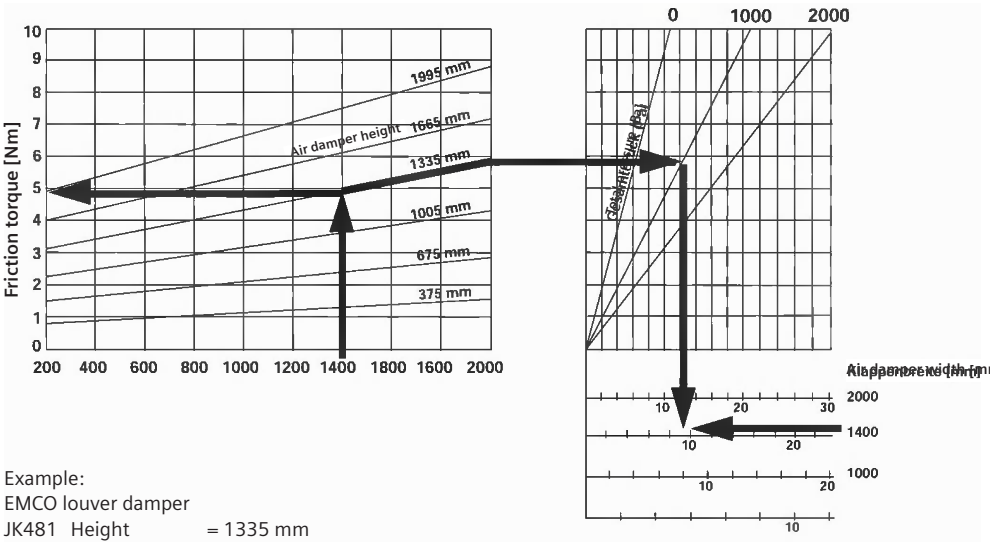
Select air damper actuator

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

$$\text{Number of actuators} = \frac{9{,}7\ \text{Nm}}{0{,}8 \times 20\ \text{Nm}} \leq 1 \rightarrow \underline{1}$$

Control signal

Control with Synco™ RMU7..
DC 0..10 V

Actuator: GBB161.1E

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