



· SYSTEM: HVAC



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MOTORIZED WATERTIGHT VALVES

REF.: D-MO5462-006



· SYSTEM: HVAC



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· SYSTEM: HVAC



1. TECHNICAL AND FUNCTIONAL DESCRIPTION

These valves have been designed for use in heating, ventilation and air conditioning systems. These valves are opened or closed completely by an open-close rotary actuator. Continuous rotary actuators are connected to the body valve and move it to any position desired.

Ventilation System

Each motorized control valve with the same classification of their associated fan will be operated by means of the system control cabinets, in such way they will be opened when their associated fan receives the start command, and they will be closed when their associated fan receives the stop command.

Notes:

-Motorized valves with a different classification of their associated fans and do not have a local operated panel (LOP) associated:

They will be opened when their associated fan receives the start command, and they will not be closed when their associated fan receives the stop command to avoid excessive overpressure in headquarters condition (but still not NBC, close down condition). “Open / Close” push buttons and “Local / Remote” switch are available in the local control panel (CTP).

-Motorized valves with a different classification of their associated fans and have a local operated panel (LOP) associated:

They will be opened when their associated fan receives the start command, and they will not be closed when their associated fan receives the stop command to avoid excessive overpressure in headquarters condition (but still not NBC, close down condition). In the local operated panel (LOP) “open” and “close” push buttons, and a “Local / Remote” switch are available (these operations are not available in the local control panel, CTP, associated).

- Motorized valves that are not associated to any fan. They have a local operated panel (LOP) associated:

These valves are not directly associated to any fan and a local operation panel (LOP) will be provided. In this panel “open” and “close” push buttons, and a “Local / Remote” switch are available (these operations are not available in the local control panel, CTP, associated).

Air Conditioning System

Each motorized valve will be locally controlled by means of the system control cabinets, in such way they will be opened when their associated fan coil/unit cooler receives the start command, and they will be closed when their associated fan coil/unit cooler receives the stop command.

Furthermore, they will be interlocked with their associated fan coils/unit coolers, so if a motorized valve is locally closed its associated fan coil/unit cooler will be stopped, and any other associated valve will be closed too.



· SYSTEM: HVAC



ANNEX A. DATA SHEET OF VALVES AND ACTUATORS

Butterfly valve with Wafer types

- For open and closed cold and warm water systems
- For switching heat generators or cooling machines on and off


Type overview

| Type | DN [] | PN [] | kvmax [m ³ /h] |
|--------|-----------|-------------|-------------------------------|
| D625N | 25 | 6 / 10 / 16 | 45 |
| D632N | 32 | 6 / 10 / 16 | 55 |
| D640N | 40 | 6 / 10 / 16 | 70 |
| D650N | 50 | 6 / 10 / 16 | 90 |
| D665N | 65 | 6 / 10 / 16 | 180 |
| D680N | 80 | 6 / 10 / 16 | 300 |
| D6100N | 100 | 6 / 10 / 16 | 580 |
| D6125N | 125 | 6 / 10 / 16 | 820 |
| D6150N | 150 | 6 / 10 / 16 | 1600 |
| D6200N | 200 | 6 / 10 / 16 | 2900 |
| D6250N | 250 | 10 / 16 | 4400 |
| D6300N | 300 | 10 / 16 | 7300 |
| D6350N | 350 | 10 / 16 | 10900 |
| D6400N | 400 | 16 | 14200 |
| D6450N | 450 | 16 | 18800 |
| D6500N | 500 | 16 | 24100 |
| D6600N | 600 | 16 | 37300 |
| D6700N | 700 | 16 | 42800 |

Technical data

| | | |
|------------------------|----------------------------|---|
| Functional data | Media | Cold and warm water, water with glycol up to max. 50% vol. |
| | Medium temperature | -20...120°C |
| | Permissible pressure ps | 1600 kPa |
| | Leakage rate | Leakage rate A, tight (EN 12266-1) |
| | Pipe connectors | DN 25...200: Flange PN 6/PN 10/PN16 (according to ISO 7005-2) DN 250...350: Flange PN 10 / PN 16 (according to ISO 7005-2) DN 400...700: Flange PN 16 (according to ISO 7005-2) |
| | Angle of rotation | 90° |
| | Installation position | Upright to horizontal (in relation to the stem) |
| | Suitable connection flange | In accordance with ISO 7005-2 and EN 1092-2 |
| | Maintenance | Maintenance-free |
| | Materials | Housing |
| Closing element | | 1.4301 (stainless steel) |
| Stem | | 1.4005 (stainless steel) |
| Stem seal | | O-ring EPDM |
| Spindle bearing | | RPTFE |
| Seat | | EPDM |

Safety notes



- The valve has been designed for use in stationary heating, ventilation and air-conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The valve does not contain any parts that can be replaced or repaired by the user.
- The valve may not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- When determining the flow rate characteristic of controlled devices, the recognised directives must be observed.
- The damper must be opened and closed slowly in order to avoid hydraulic shocks in the pipe system.

Product features

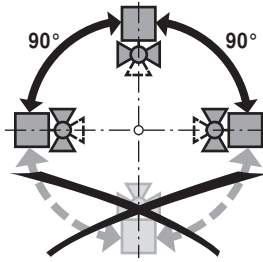
- Principle of operation** The butterfly valve is opened or closed completely by an open-close rotary actuator. Continuous rotary actuators are connected by a commercially available controller and move the valve to any position desired. The valve disk made of stainless steel is pressed into the soft-sealing EPDM seat by a rotary movement and ensures leakage rate A (tight). The pressure losses are slight in the open position and the kv value is at a maximum.
- Manual override** Manual throttling or shut-off can be carried out with a lever or a worm gear (see «Accessories»).
- With lever (DN25...150): Adjustable in 10 ratchet steps with position indication (0 = 0° (angle); 9 = 90° (angle))
 - With worm gear (DN25...700): steplessly adjustable (self-locking) with position indication.

Accessories

| | Description | Type |
|-------------------------------|---|-----------|
| Electrical accessories | Stem heating flange ISO 5211, F05 (30W) | ZR24-F05 |
| | Description | Type |
| Mechanical accessories | Worm gear for D6.. butterfly valves, DN25...DN100 | ZD6N-S100 |
| | Manual control for D6.. butterfly valves, for DN25...DN100 | ZD6N-H100 |
| | Worm gear for D6.. butterfly valves, DN125...DN150 | ZD6N-S150 |
| | Manual control for D6.. butterfly valves, for DN125...DN150 | ZD6N-H150 |
| | Worm gear for D6.. butterfly valves, DN200 | ZD6N-S200 |
| | Worm gear for D6.. butterfly valves, DN250 | ZD6N-S250 |
| | Worm gear for D6.. butterfly valves, DN300...DN350 | ZD6N-S350 |
| | Worm gear for D6.. butterfly valves, DN400 | ZD6N-S400 |
| | Worm gear for D6.. butterfly valves, DN450 | ZD6N-S450 |
| | Worm gear for D6.. butterfly valves, DN500 | ZD6N-S500 |
| | Worm gear for D6.. butterfly valves, DN600 | ZD6N-S600 |
| | Worm gear for D6... butterfly valves, DN700 | ZD6N-S700 |

Installation notes

Recommended installation positions The butterfly valves may be mounted upright to horizontal. The butterfly valves may not be installed in a hanging position i.e. with the spindle pointing downwards.



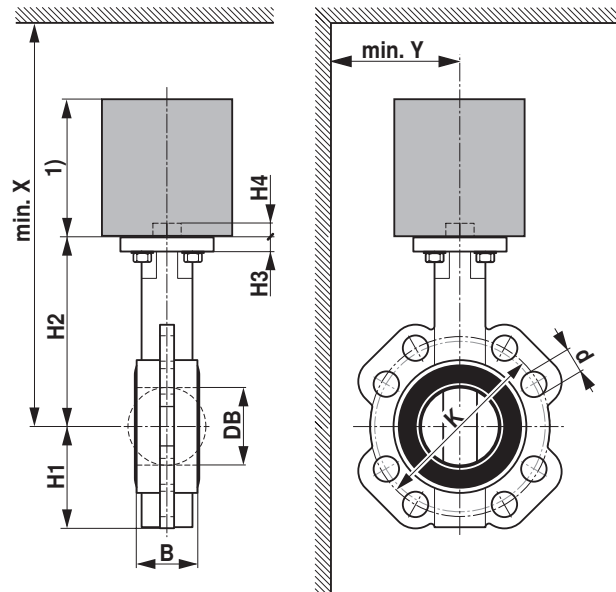
Water quality requirements The water quality requirements specified in VDI 2035 must be adhered to.

Stem heating In cold water applications and warm humid ambient air can cause condensation in the actuators. This can lead to corrosion in the gear box of the actuator and causes a breakdown of it. In such applications, the use of a stem heating is provided. The stem heating must be enabled only when the system is in operation, because it does not have temperature control.

Maintenance Butterfly valves and rotary actuators are maintenance-free. Before any kind of service work is carried out on the actuator, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable). Any pumps in the part of the piping system concerned must also be switched off and the appropriate slide valves closed (allow everything to cool down first if necessary and reduce the system pressure to ambient pressure level). The system must not be returned to service until the butterfly valve and the rotary actuator have been mounted properly in accordance with the instructions and the pipeline has been refilled in the proper manner. To avoid a torque increase during off season shut down, exercise the butterfly valve (full open and close) at least once a month.

Dimensions / Weight

Dimensional drawings



| Type | DN [] | B [mm] | DB [mm] | H1 [mm] | H2 [mm] | H3 [mm] | H4 [mm] | d (PN6) | K (PN6) [mm] |
|--------|-----------|------------|-------------|-------------|-------------|-------------|-------------|---------|------------------|
| D625N | 25 | 32 | 30 | 57 | 86 | 10 | 13 | 4 x 11 | 75 |
| D632N | 32 | 33 | 35 | 60 | 100 | 10 | 13 | 4 x 14 | 90 |
| D640N | 40 | 33 | 42 | 68 | 119 | 10 | 13 | 4 x 14 | 100 |
| D650N | 50 | 43 | 52 | 72 | 133 | 11 | 13 | 4 x 14 | 110 |
| D665N | 65 | 46 | 64 | 81 | 147 | 11 | 13 | 4 x 14 | 130 |
| D680N | 80 | 46 | 78 | 96 | 158 | 11 | 13 | 4 x 19 | 150 |
| D6100N | 100 | 52 | 103 | 106 | 170 | 11 | 13 | 4 x 19 | 170 |
| D6125N | 125 | 56 | 122 | 122 | 194 | 15 | 19 | 8 x 19 | 200 |
| D6150N | 150 | 56 | 155 | 140 | 202 | 15 | 19 | 8 x 19 | 225 |
| D6200N | 200 | 60 | 202 | 172 | 240 | 15 | 19 | 8 x 19 | 280 |
| D6250N | 250 | 68 | 250 | 206 | 268 | 15 | 24 | | |
| D6300N | 300 | 78 | 301 | 244 | 316 | 15 | 24 | | |
| D6350N | 350 | 78 | 333 | 267 | 361 | 15 | 24 | | |
| D6400N | 400 | 102 | 391 | 308 | 400 | 20 | 48 | | |
| D6450N | 450 | 114 | 442 | 337 | 422 | 22 | 48 | | |
| D6500N | 500 | 127 | 493 | 359 | 480 | 22 | 48 | | |
| D6600N | 600 | 154 | 594 | 454 | 562 | 25 | 48 | | |
| D6700N | 700 | 165 | 695 | 505 | 624 | 33 | 66 | | |

| Type | d (PN10) | K (PN10) [mm] | d (PN16) | K (PN16) [mm] | X [mm] | Y [mm] | Weight approx. [kg] |
|--------|----------|-------------------|----------|-------------------|------------|------------|-------------------------|
| D625N | 4 x 14 | 85 | 4 x 14 | 85 | 320 | 150 | 1.1 |
| D632N | 4 x 19 | 100 | 4 x 19 | 100 | 340 | 150 | 1.5 |
| D640N | 4 x 19 | 110 | 4 x 19 | 110 | 350 | 160 | 1.6 |
| D650N | 4 x 19 | 125 | 4 x 19 | 125 | 370 | 160 | 2.4 |
| D665N | 4 x 19 | 145 | 4 x 19 | 145 | 380 | 170 | 3.0 |
| D680N | 8 x 19 | 160 | 8 x 19 | 160 | 390 | 180 | 3.3 |
| D6100N | 8 x 19 | 180 | 8 x 19 | 180 | 410 | 190 | 4.0 |
| D6125N | 8 x 19 | 210 | 8 x 19 | 210 | 530 | 210 | 6.7 |
| D6150N | 8 x 23 | 240 | 8 x 23 | 240 | 540 | 220 | 7.4 |
| D6200N | 8 x 23 | 295 | 12 x 23 | 295 | 580 | 250 | 12 |
| D6250N | 12 x 23 | 350 | 12 x 28 | 355 | 630 | 280 | 20 |
| D6300N | 12 x 23 | 400 | 12 x 28 | 410 | 680 | 310 | 30 |
| D6350N | 16 x 23 | 460 | 16 x 28 | 470 | 730 | 340 | 34 |
| D6400N | | | 4 x 31 | 525 | 1300 | 1300 | 60 |
| D6450N | | | 4 x 31 | 585 | 1300 | 1400 | 73 |
| D6500N | | | 4 x 33 | 650 | 1700 | 1500 | 98 |
| D6600N | | | 16 x 37 | 770 | 1800 | 1800 | 190 |
| D6700N | | | 20 x 37 | 840 | 1800 | 1900 | 330 |

Further documentation

- Overview Valve-actuator combinations
- Data sheets for actuators
- Installation instructions for actuators and/or butterfly valves
- General notes for project planning

DECLARATION OF CONFORMITY

BELIMO Automation
Brunnenbachstrasse 1
CH-8340 Hinwil / Switzerland

We declare that the products

D6..N Butterfly valves (Nominal width: DN 25 – DN 700)
D6..NL Butterfly valves (Nominal width: DN 50 – DN 700)

to which this declaration relates, are in conformity with the following directive(s), standard(s) or normative documents:

DIN EN 1563, DIN EN 12266-1, DIN 3840, DIN 17006,
DIN 17007, DIN 17440, ISO 273, ISO 2768, ISO 5211, ISO 5752,
ISO 7005-2, VDI/VDE 2176, API 598

Pipe Connection: Wafer type (D6..N)
Lug type (D6..NL)


Products: According to Pressure Equipment Directive 97/23/CE (PED) art. 3 §3

| Ps | DN 25 – DN 50 | DN 65 – DN 700 |
|----------|---------------|----------------|
| 1600 kPa | Art. 3 §3 | CE marked |

Products according to PED – Article 3 §3 are NOT CE marked:

- Max. Temperature of Medium T_{max} (medium) $\leq 110^{\circ}\text{C}$
- $P_{abs} \leq 1,5$ bar or
- $PS \leq 0.5$ bar above Atmospheric Pressure

Hinwil, June 29, 2011
(Place and date of issue)


Dieter Müller
(name and signature)

Rotary actuator for butterfly valves

- Nominal torque 160 Nm
- Nominal voltage AC 24...240 V / DC 24...125 V
- Control modulating, communicative
- with 2 integrated auxiliary switches
- Conversion of sensor signals
- Communication via BACnet MS/TP, Belimo MP-Bus or conventional control
- Design life SuperCaps: 15 years


Technical data

| | | |
|--|--|---|
| Electrical data | Nominal voltage | AC 24...240 V / DC 24...125 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...264 V / DC 19.2...137.5 V |
| | Power consumption in operation | 52 W |
| | Power consumption in rest position | 7 W |
| | Power consumption for wire sizing | with 24 V 54 VA / with 230 V 68 VA |
| | Power consumption for wire sizing note | I _{max} 20 A @ 5 ms |
| | Auxiliary switch | 2 x SPDT, 1 x 10° / 1 x 0...90° (ex works 85°) |
| | Switching capacity auxiliary switch | 1 mA...3 (0.5 inductive) A, AC 250 V |
| | Connection supply | Terminals 2.5 mm ² |
| | Connection control | Terminals 1.5 mm ² |
| | Connection auxiliary switch | Terminals 2.5 mm ² |
| | Parallel operation | Yes (note the performance data) |
| Functional data | Torque motor | 160 Nm |
| | Communicative control | MP-Bus BACnet MS/TP (Details see separate document "PICS") |
| | Positioning signal Y | DC 0...10 V |
| | Positioning signal Y note | Input impedance 100 kΩ |
| | Operating range Y | DC 2...10 V |
| | Operating range Y variable | DC 0.5...10 V 4...20 mA |
| | Position feedback U | DC 2...10 V |
| | Position feedback U note | Max. 0.5 mA |
| | Position feedback U variable | DC 0.5...10 V |
| | Setting emergency setting position (POP) | 0...100%, adjustable (ex works 0%) |
| | Bridging time (PF) variable | 0...10 s (ex works 2s) |
| | Position accuracy | ±5% |
| | Manual override | with hand crank, can be fixed in any position |
| | Running time motor | 35 s / 90° |
| | Motor running time variable | 30...120 s |
| | Running time emergency control position | 30 s / 90° |
| | Sound power level motor | 68 dB(A) |
| Sound power level emergency control position | 61 dB(A) | |
| Position indication | Mechanically (integrated) | |
| Safety | Protection class IEC/EN | II reinforced insulation |
| | Protection class UL | II reinforced insulation |
| | Protection class auxiliary switch IEC/EN | II reinforced insulation |
| | Degree of protection IEC/EN | IP66 + IP67 |
| | Degree of protection NEMA/UL | NEMA 4X, UL Enclosure Type 4X |
| | EMC | CE according to 2014/30/EU |
| | Low voltage directive | CE according to 2014/35/EU |
| | Certification IEC/EN | IEC/EN 60730-1 and IEC/EN 60730-2-14 |
| | Certification UL | cULus according to UL 60730-1A, UL 60730-2-14 and CAN/CSA E60730-1:02 |
| | Mode of operation | Type 1.AA |
| Rated impulse voltage supply | 4 kV | |
| Rated impulse voltage control | 0.8 kV | |

Technical data

| | | |
|------------------------|--|---|
| Safety | Rated impulse voltage auxiliary switch | 2.5 kV |
| | Control pollution degree | 3 |
| | Ambient temperature | -30...50 °C |
| | Non-operating temperature | -40...80 °C |
| | Ambient humidity | 95% r.h., non-condensing |
| | Maintenance | Maintenance-free |
| Mechanical data | Connection flange | F07 (F05 only with accessory) |
| Weight | Weight | 8.5 kg |
| Terms | Abbreviations | POP = Power off position / emergency setting position CPO = Controlled power off / controlled emergency control function PF = Power fail delay time / bridging time |

Safety notes



- This device has been designed for use in stationary heating, ventilation and air conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- Apart from the connection box, the device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

- Fields of application** The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:
- UV radiation
 - dirt / dust
 - rain / snow
 - Humidity

Product features

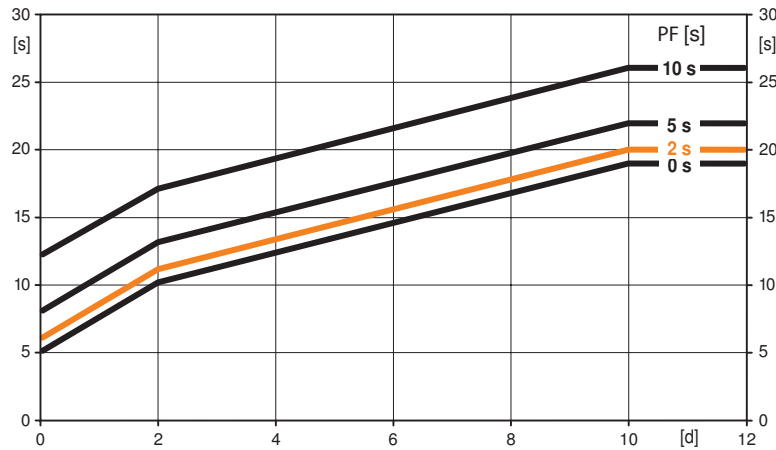
Pre-charging time (start up)

The capacitor actuators require a pre-charging time. This time is used for charging the capacitors up to a usable voltage level. This ensures that, in the event of an electricity interruption, the actuator can move at any time from its current position into the preset emergency setting position (POP).

The duration of the pre-charging time depends mainly on following factors:

- Duration of the electricity interruption
- PF delay time (bridging time)

Typical pre-charging time



[d] = Electricity interruption in days
[s] = Pre-charging time in seconds
PF[s] = Bridging time

Calculation example: Given an electricity interruption of 3 days and a bridging time (PF) set at 5 s, the actuator requires a pre-charging time of 14 s after the electricity has been reconnected (see graphic).

| PF [s] | [d] | | | | |
|--------|-----|----|----|----|-----|
| | 0 | 1 | 2 | 7 | ≥10 |
| 0 | 5 | 8 | 10 | 15 | 19 |
| 2 | 6 | 9 | 11 | 16 | 20 |
| 5 | 8 | 11 | 13 | 18 | 22 |
| 10 | 12 | 15 | 17 | 22 | 26 |

Delivery condition (capacitors)

The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 20 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

Converter for sensors

Connection option for two passive sensors. This means the analogue sensor signal can be easily digitised and transferred via field bus to the higher level system.

Parameterisable actuators

The factory settings cover the most common applications. The Belimo Assistant App is required for parameterisation via Near Field Communication (NFC) and simplifies commissioning. Moreover, it provides a variety of diagnostic options. The ZTH EU service tool provides a selection of both diagnostic and setting options.

Simple direct mounting

Simple direct mounting on the butterfly valve. The mounting orientation in relation to the butterfly valve can be selected in 90° (angle) increments.

Manual override

The valve can be manually operated using a hand crank. Unlocking is carried out manually by removing the hand crank.

Internal heating

An internal heater prevents condensation buildup. Thanks to the integrated temperature and humidity sensor the built-in heater automatically switches on and off.

High functional reliability

The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Setting emergency setting position (POP)

The desired emergency setting position (POP) can be set between 0 and 100% with the "Belimo Assistant App" or ZTH EU. The setting always refers to the adapted angle of rotation range. In the event of an electricity interruption, the actuator will move into the selected emergency setting position (POP).

Product features

| | |
|-------------------------------|--|
| Bridging time | Electricity interruptions can be bridged up to a maximum of 10 s. In the event of an electricity interruption, the actuator will remain stationary in accordance with the set bridging time. If the electricity interruption is greater than the set bridging time, then the actuator will move into the selected emergency setting position (POP). The pre-programmed bridging time is set to 2 s. This can be modified on site in operation with the use of the "Belimo Assistant App". |
| Flexible signalization | The actuator has one auxiliary switch with a fixed setting (10°) and one adjustable auxiliary switch (0...90°). |

Accessories

| | Description | Type |
|-------------------------------|--|----------------------|
| Gateways | Gateway MP for BACnet MS/TP, AC/DC 24 V | UK24BAC |
| | Gateway MP to Modbus RTU, AC/DC 24 V | UK24MOD |
| | Gateway MP to LonWorks, AC/DC 24 V, LonMark certified | UK24LON |
| | Gateway MP to KNX, AC/DC 24 V, EIBA certified | UK24EIB |
| Electrical accessories | Description | Type |
| | Connection cable 5 m, A+B: RJ12 6/6, To ZTH/ZIP-USB-MP | ZK1-GEN |
| Mechanical accessories | Description | Type |
| | Position indicator and tappet shaft, F07, square, SW 17 | ZPR01 |
| | Tappet shaft, F07, square, SW 17 | ZPR02 |
| | Position indicator and tappet shaft, F05, square, SW 14 | ZPR03 |
| | Retrofit adapter kit, F05/F07, flat head/ square, SW 17 | ZPR05 |
| | Retrofit adapter kit, F05/F07, square 45° turned, SW 14 | ZPR06 |
| | Retrofit adapter kit with ring, F07, square 45° turned, SW 17 | ZPR08 |
| | Retrofit adapter kit with ring, F07, flat head/ square, SW 14 | ZPR09 |
| | Retrofit adapter kit, F05/F07, flat head/ square, SW 14 | ZPR10 |
| | Retrofit adapter kit, F05/F07, square 45° turned, SW 18 | ZPR11 |
| | Retrofit adapter kit, F05/F07, flat head/ square, SW 16 | ZPR12 |
| Hand crank for PR-actuator | ZPR20 | |
| Service Tools | Description | Type |
| | Smartphone app for easy commissioning, parameterising and maintenance | Belimo Assistant App |
| | Service tool for parametrisable and communicative Belimo actuators / VAV controller and HVAC performance devices | ZTH EU |
| Sensors | Description | Type |
| | Duct/Immersion Temperature Sensor 50 mm x 6 mm PT1000 | 01DT-1BH |
| | Duct/Immersion Temperature Sensor 100 mm x 6 mm PT1000 | 01DT-1BL |
| | Duct/Immersion Temperature Sensor 150 mm x 6 mm PT1000 | 01DT-1BN |
| | Duct/Immersion Temperature Sensor 200 mm x 6 mm PT1000 | 01DT-1BP |
| | Duct/Immersion Temperature Sensor 300 mm x 6 mm PT1000 | 01DT-1BR |
| | Duct/Immersion Temperature Sensor 450 mm x 6 mm PT1000 | 01DT-1BT |
| | Duct/Immersion Temperature Sensor 50 mm x 6 mm Ni1000 | 01DT-1CH |
| | Duct/Immersion Temperature Sensor 100 mm x 6 mm Ni1000 | 01DT-1CL |
| | Duct/Immersion Temperature Sensor 150 mm x 6 mm Ni1000 | 01DT-1CN |
| | Duct/Immersion Temperature Sensor 200 mm x 6 mm Ni1000 | 01DT-1CP |
| | Duct/Immersion Temperature Sensor 300 mm x 6 mm Ni1000 | 01DT-1CR |
| | Duct/Immersion Temperature Sensor 450 mm x 6 mm Ni1000 | 01DT-1CT |

Electrical installation

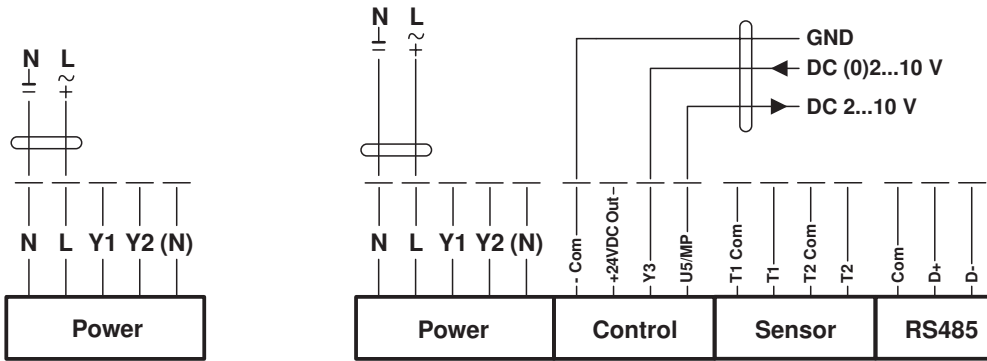


Notes

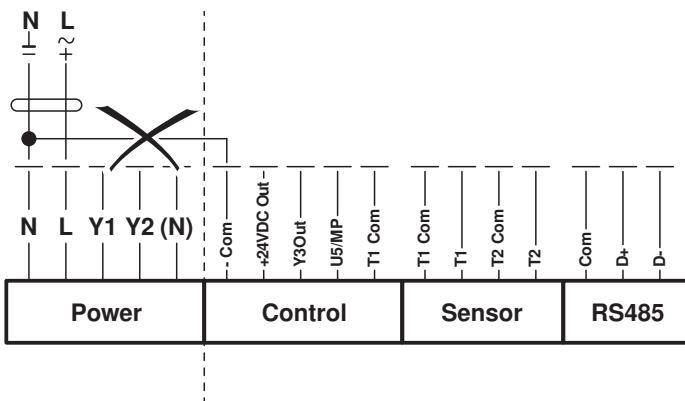
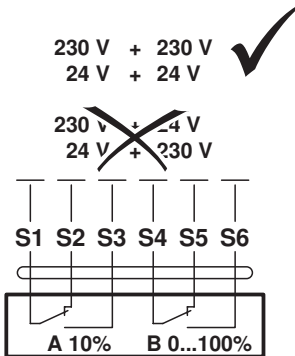
- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Observe the performance data.
- The main power supply for the actuator and for the auxiliary switches shall be from the same phase.
- The wiring of the line for BACnet (MS/TP) has to be carried out in accordance with applicable RS485 regulations.

Wiring diagrams

AC 24...240 V / DC 24...125 V Modulating control



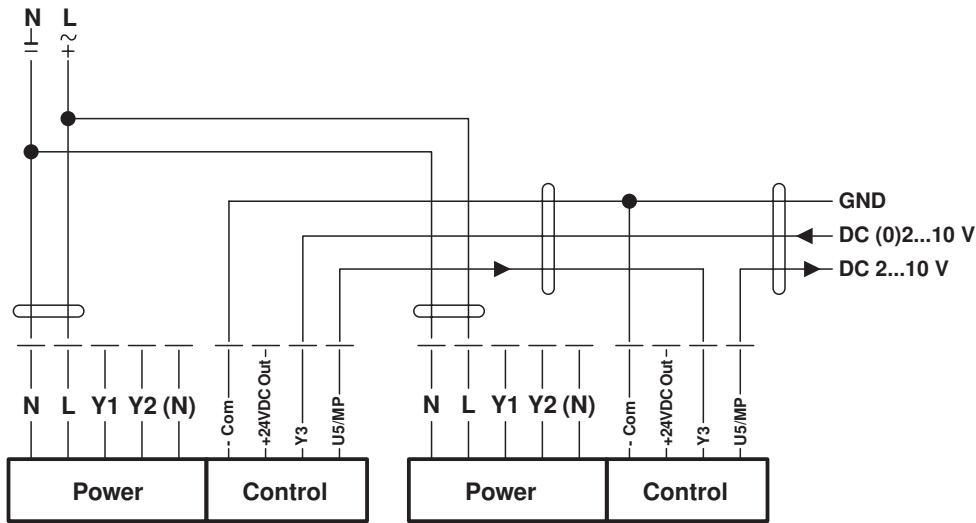
Connection auxiliary switch



Power supply must not be connected to the signal terminals!

Electrical installation

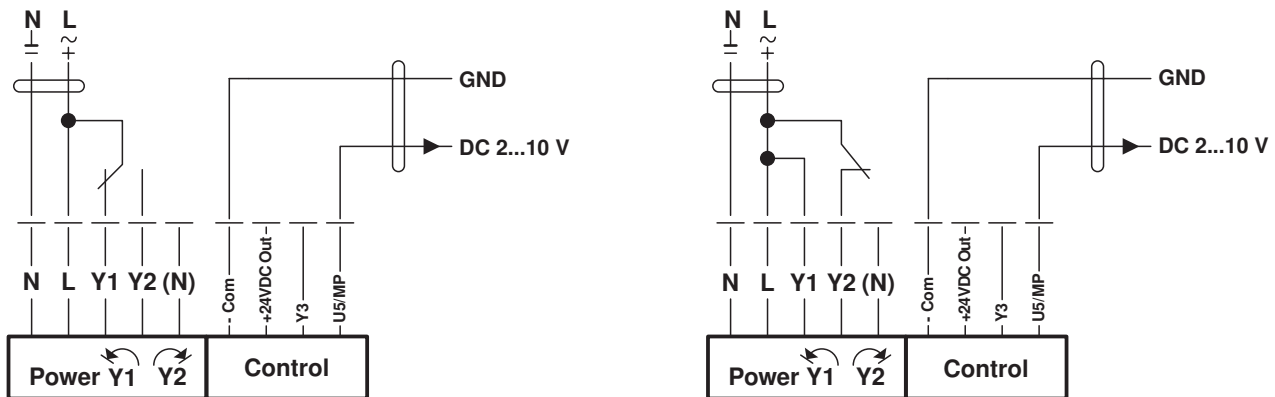
Follow-up control (position-dependent)



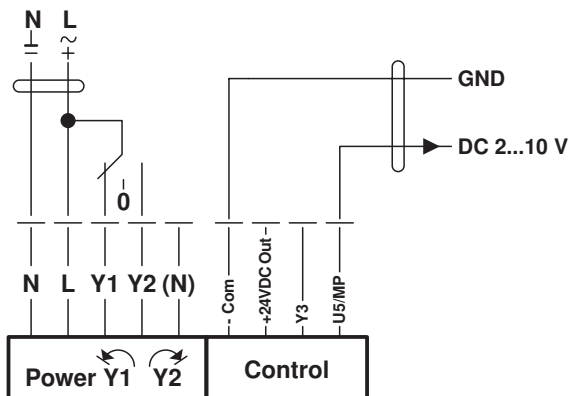
Functions

Functions for actuators with specific parameters (Parametrisation with Belimo Assistant App necessary)

Open-close control

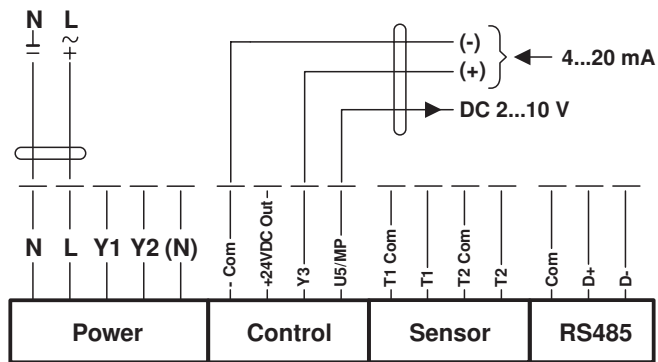


3-point control

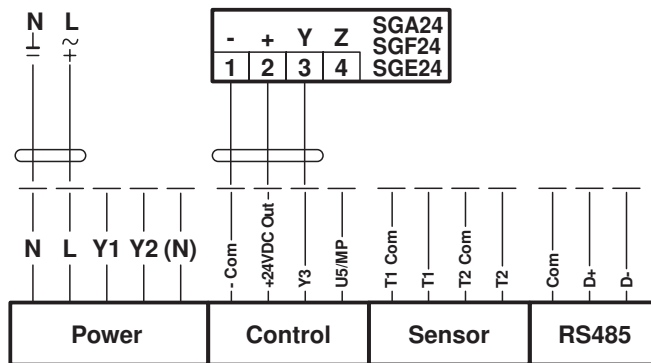


Functions

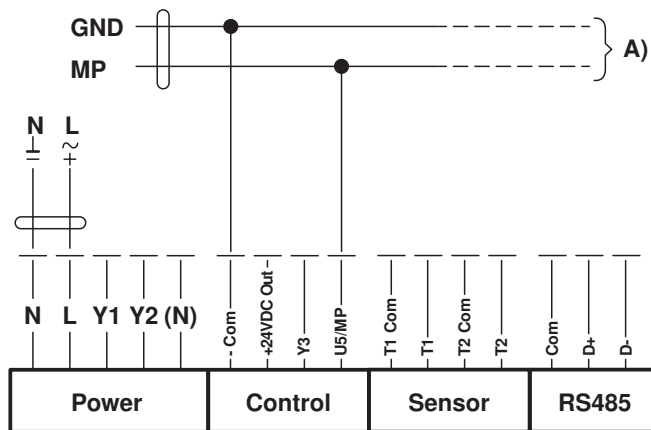
Control 4...20 mA



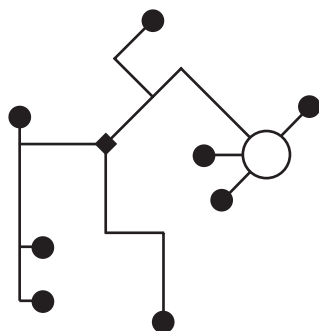
Positioner SG..



Connection on the MP-Bus



Network topology



There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).
Supply and communication in one and the same 3-wire cable

- no shielding or twisting necessary
- no terminating resistors required

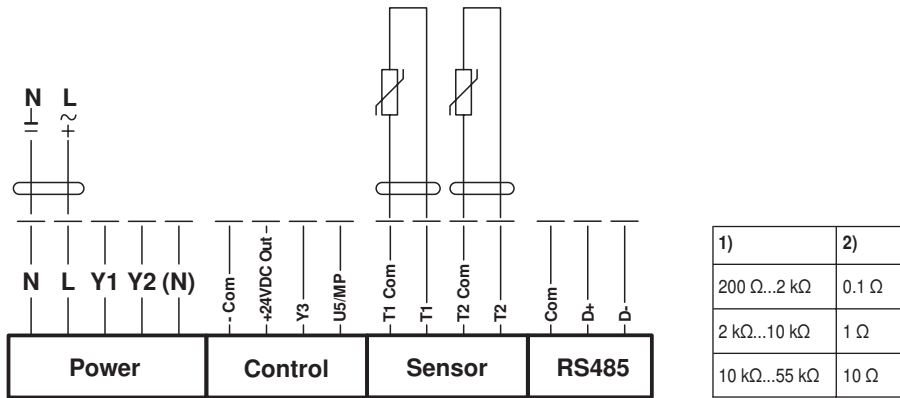
Note

Maximum output power «+ 24VDC out» 1.2 W @ 50 mA!
A separate safety transformer must be used for higher performance!

A) Additional actuators (max. 8)

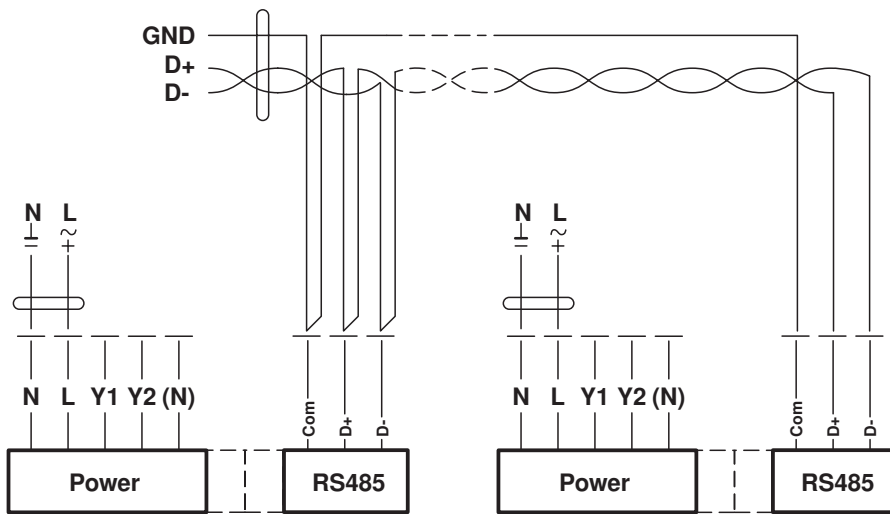
Functions

Connection of passive sensors (BACnet only)

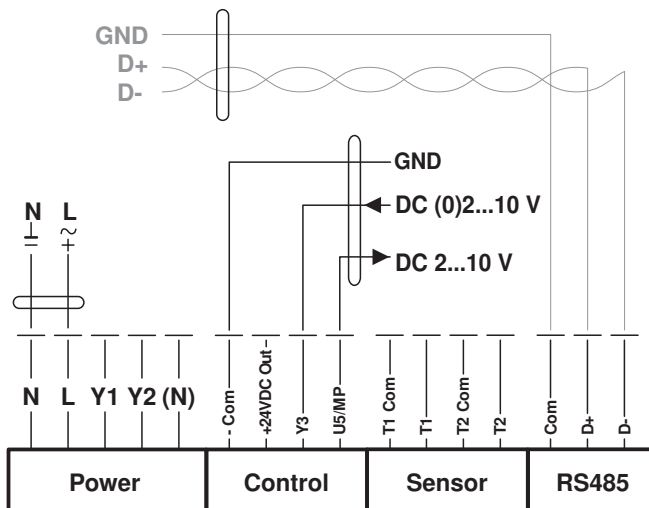


- 1) Resistance range
- 2) Resolution
- Suitable for Ni1000 and PT1000
- Suitable Belimo types 01DT-...

Connection BACnet MS/TP

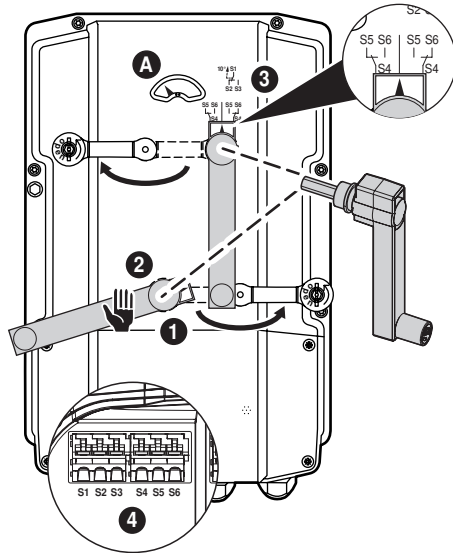


Connection BACnet MS/TP with analog setpoint (hybrid mode)



Operating controls and indicators

Auxiliary switch settings



Note Perform settings on the actuator only in deenergised state.

1 Gear disengagement

Opening the manual override cover and adjusting the hand crank. Manual override is possible.

2 Manual override control

Turn the hand crank until the desired switching position **A** is indicated and then remove the crank.

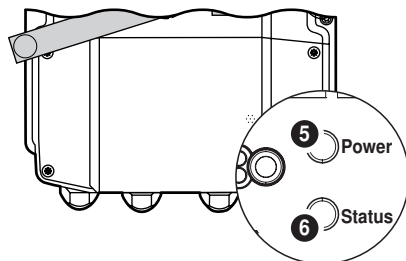
3 Auxiliary Switch

Opening the auxiliary switch adjustment cover and adjusting the hand crank. Turn the crank until the arrow points to the vertical line

4 Terminals

Connect continuity tester to S4 + S5 or to S4 + S6.
If the auxiliary switch should switch in the opposite direction, rotate the hand crank by 180°.

Push-buttons and display



5 Push-button and LED display green

Off: No power supply or malfunction
On: In operation
Press button: Triggers test run, followed by standard mode

6 Push-button and LED display yellow

Off: Standard mode
Flickering: MP communication active
On: Test run active
Flashing: Request for addressing from MP master
Press button: Confirmation of the MP addressing

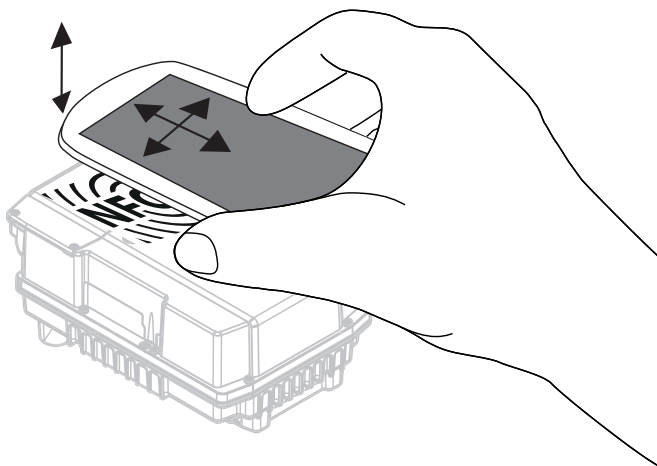
Service

NFC connection Belimo equipment marked with the NFC logo can be operated with the “Belimo Assistant App”.

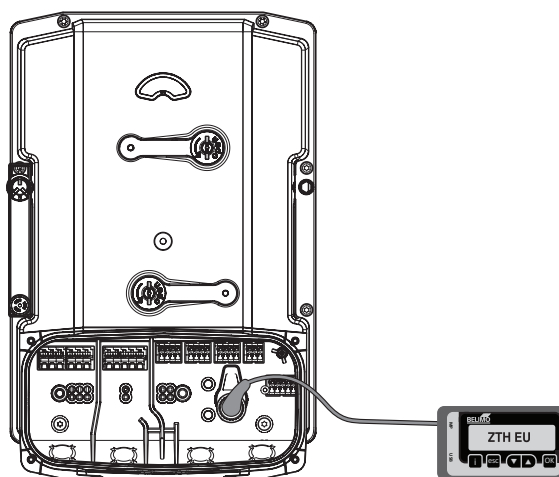
Requirement:

- NFC-capable Android smartphone
- Belimo Assistant App (Google Play Store)

Align smartphone on the actuator so that both NFC antennas are superposed.

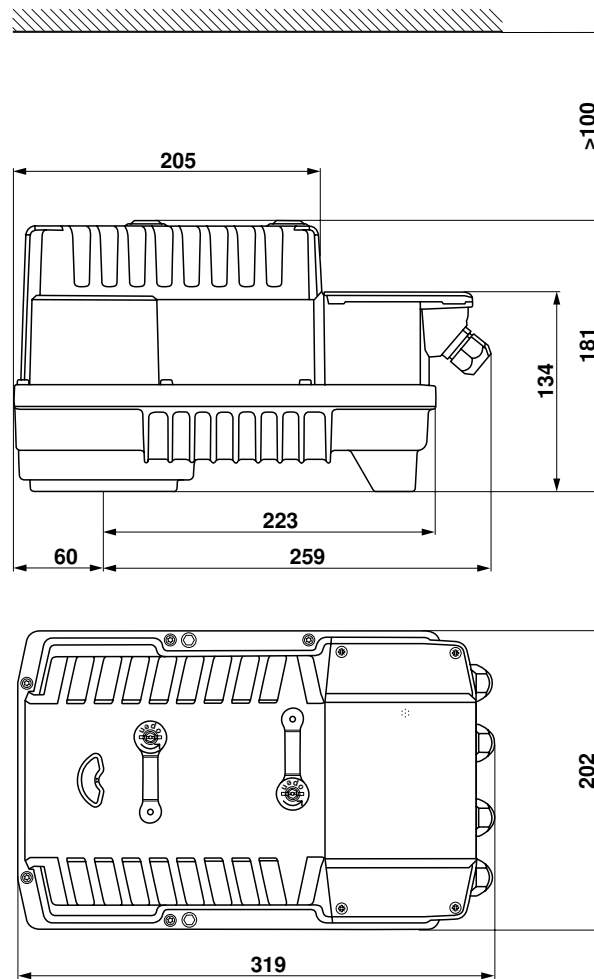


Service Tools connection The actuator can be parameterised by the ZTH EU via the service socket.



Dimensions [mm]

Dimensional drawings



Further documentation

- Overview Valve-actuator combinations
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- General notes for project planning
- Overview MP Cooperation Partners
- Tool connections
- Introduction to MP-Bus Technology