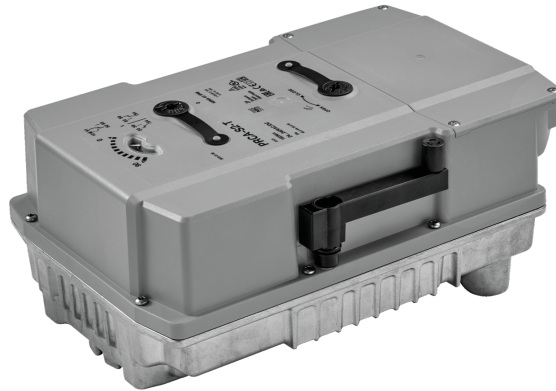


Rotary actuator for butterfly valves

- Torque motor 160 Nm
- Nominal voltage AC 24...240 V / DC 24...125 V
- Control modulating, communicative, hybrid
- With 2 integrated auxiliary switches
- Conversion of sensor signals
- Communication via BACnet MS/TP, Modbus RTU, Belimo-MP-Bus or conventional control



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	20 W
	Power consumption in rest position	6 W
	Power consumption for wire sizing	with 24 V 20 VA / with 240 V 52 VA
	Auxiliary switch	2x SPDT, 1 x 10° / 1 x 0...90° (default setting 85°)
	Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V
	Connection supply	Terminals 2.5 mm ²
	Connection protective earth	earth terminal
	Connection control	Terminals 1.5 mm ²
	Connection auxiliary switch	Terminals 2.5 mm ²
	Parallel operation	Yes (note the performance data)
Data bus communication	Communicative control	BACnet MS/TP Modbus RTU MP-Bus
	Number of nodes	BACnet / Modbus see interface description MP-Bus max. 8
Functional data	Torque motor	160 Nm
	Operating range Y	2...10 V
	Input impedance	100 kΩ
	Operating range Y variable	0.5...10 V 4...20 mA
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Position feedback U variable	0.5...10 V
	Position accuracy	±5%
	Manual override	hand crank
	Running time motor	35 s / 90°
	Running time motor variable	30...120 s
	Sound power level, motor	68 dB(A)
	Position indication	Mechanical, integrated
Safety data	Protection class IEC/EN	I, protective earth (PE)
	Degree of protection IEC/EN	IP66/67
	Degree of protection NEMA/UL	NEMA 4X

Technical data

Safety data	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
	Type of action	Type 1
	Rated impulse voltage supply	4 kV
	Rated impulse voltage control	0.8 kV
	Rated impulse voltage auxiliary switch	2.5 kV
	Pollution degree	3
	Ambient humidity	Max. 100% RH
	Ambient temperature	-30...50°C [-22...122°F]
	Storage temperature	-40...80°C [-40...176°F]
	Servicing	maintenance-free
Mechanical data	Connection flange	F07 (F05/F10 only with accessory)
	Weight	Weight
		5.8 kg

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!
- The device has a protective earthing. Incorrect connection of the protective earth can lead to hazards due to electrical shock.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with 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.
- The two switches integrated in the actuator are to be operated either on power supply voltage or at safety extra-low voltage. The combination power supply voltage/safety extra-low voltage is not permitted.

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 - Air humidity
Converter for sensors	Connection option for two sensors (passive, active or switching contacts). In this way, the analogue sensor signal can be easily digitised and transferred to the bus systems BACnet or Modbus.
Internal heating	An internal heater prevents condensation buildup. Thanks to the integrated temperature and humidity sensor, the built-in heater automatically switches on/off.

Product features

- Parametrisable actuators** The factory settings cover the most common applications.
The Belimo Assistant App is required for parametrisation 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.
- Combination analogue - communicative (hybrid mode)** With conventional control by means of an analogue control signal, BACnet or Modbus can be used for the communicative position feedback
- 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.
- High functional reliability** The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
- Flexible signalling** The actuator has one auxiliary switch with a fixed setting (10°) and one adjustable auxiliary switch (0...90°).

Accessories

Mechanical accessories	Description	Type
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 14	1 7711 48
Tools	Description	Type
	Belimo Assistant App, Smartphone app for easy commissioning, parametrising and maintenance	Belimo Assistant App
	Converter Bluetooth / NFC	ZIP-BT-NFC

Electrical installation

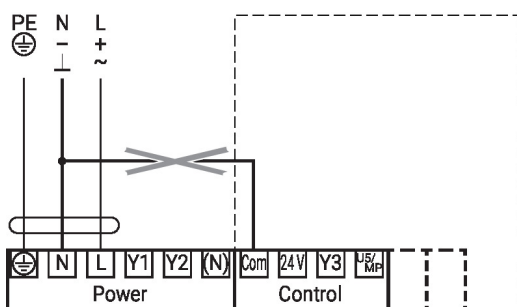
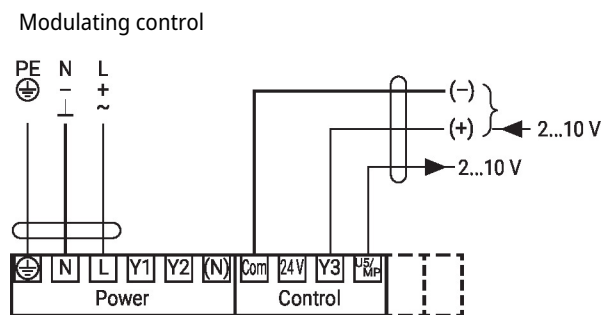
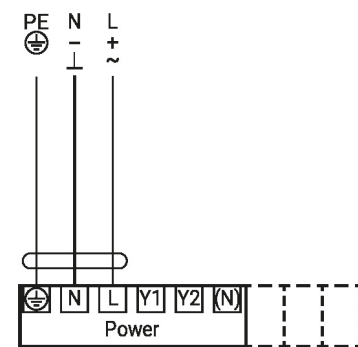
Caution: Power supply voltage!

Parallel connection of other actuators possible. Observe the performance data.

The wiring of the line for BACnet MS/TP / Modbus RTU is to be carried out in accordance with applicable RS-485 regulations.

Wiring diagrams

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

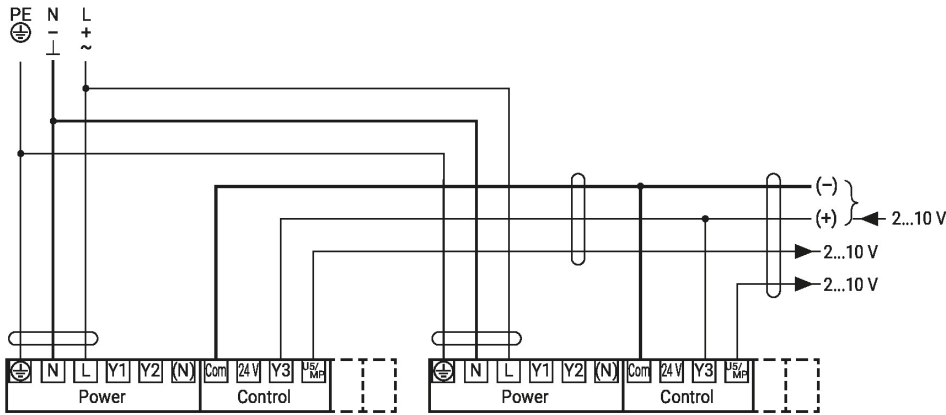


Power supply must not be connected to the signal terminals!

Electrical installation

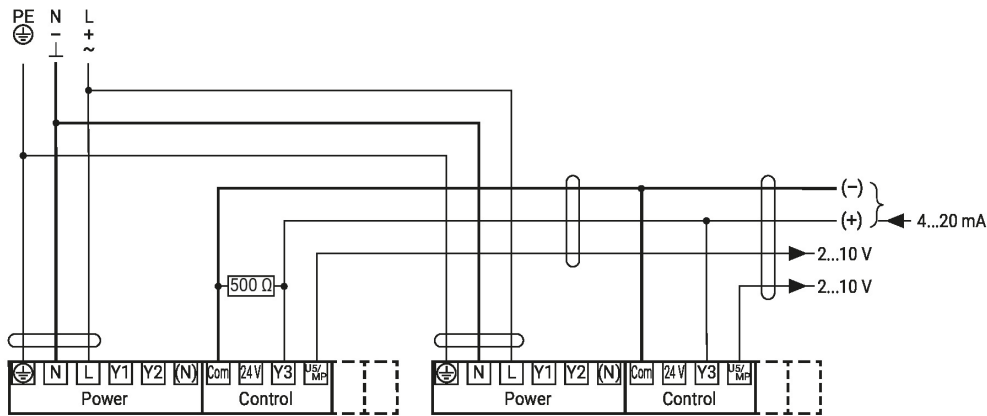
Wiring diagrams

Parallel circuit 2...10 V



Setpoint 2...10 V

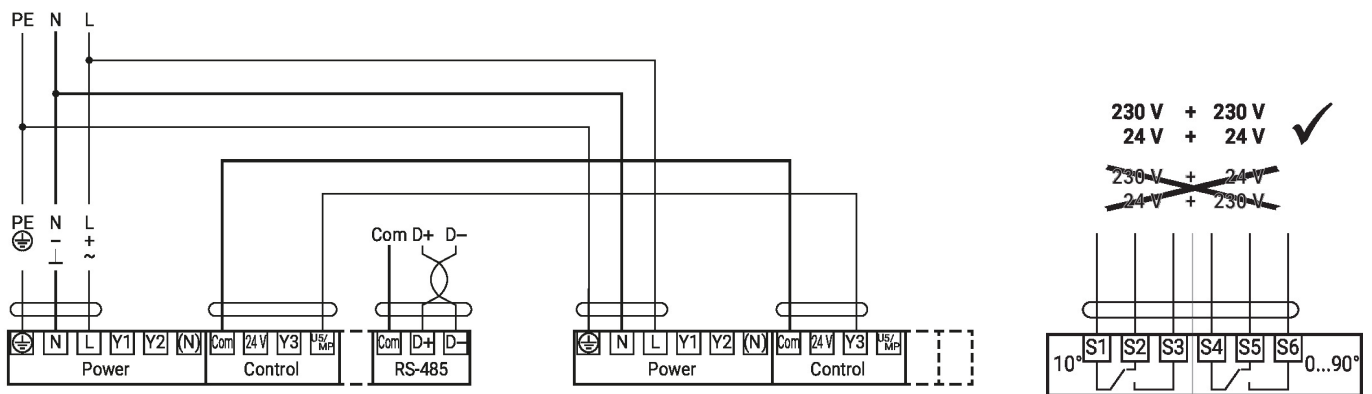
Parallel circuit 4...20 mA



Setpoint 2...10 V

Connection BACnet MS/TP / Modbus RTU with analogue primary/secondary operation

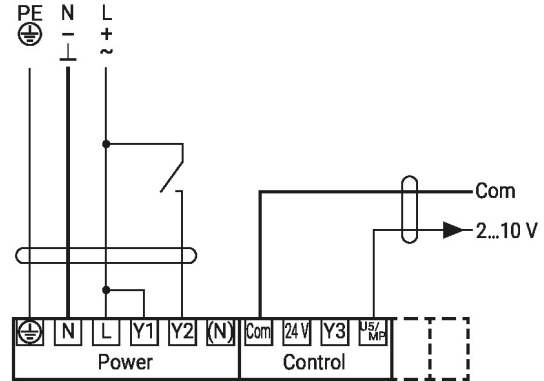
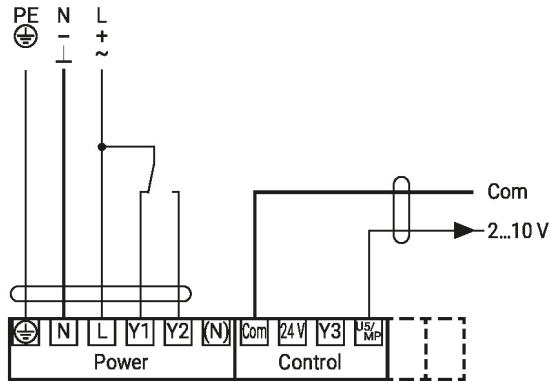
Auxiliary switch



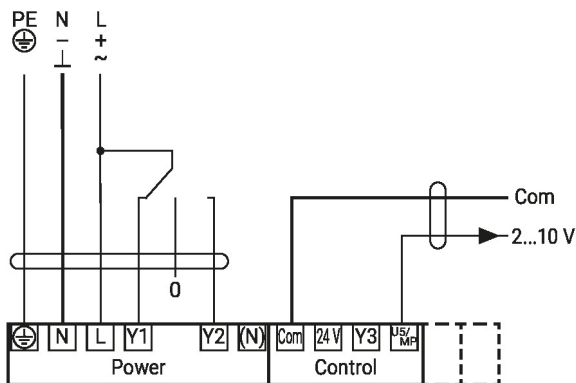
Functions

Functions with specific parameters (NFC)

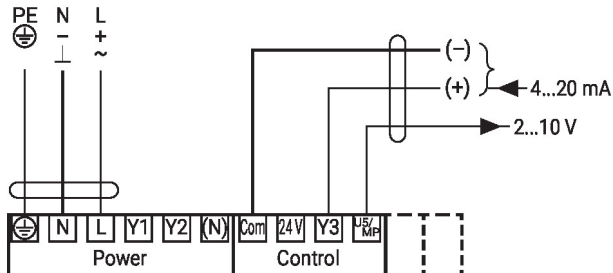
Control open/close



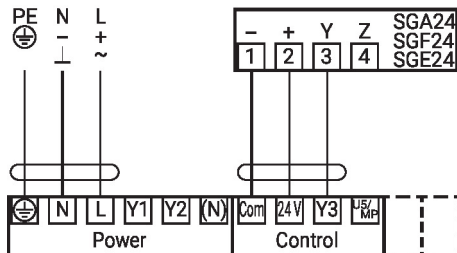
Control 3-point



Control 4...20 mA



Positioner SG..


Note

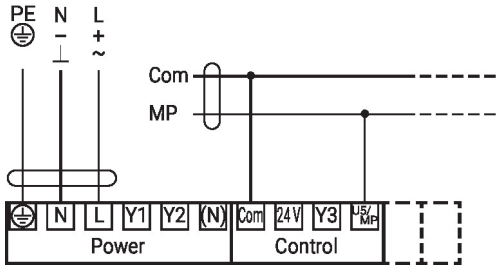
Maximum output power «DC 24 V out» 1.2 W @ 50 mA!

A separate isolating transformer must be used for higher performance!

Functions

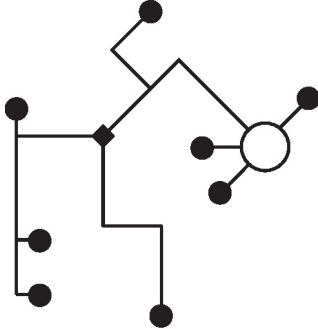
Functions with specific parameters (NFC)

Connection on the MP-Bus



Max. 8 additional actuators

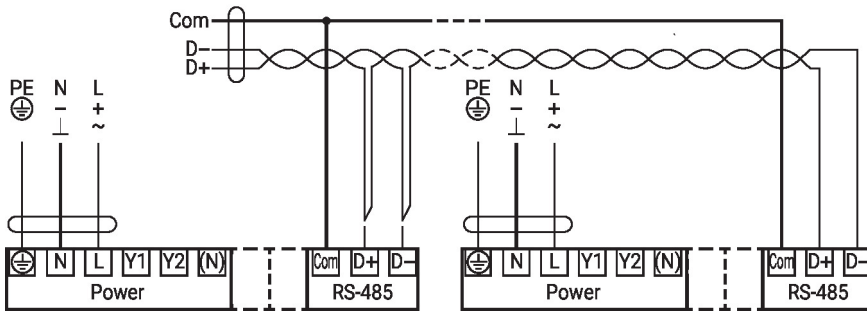
MP-Bus Network topology



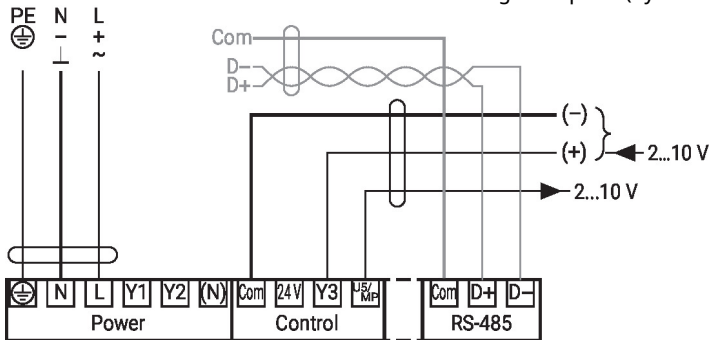
There are no restrictions for the network topology (star, ring, tree or mixed forms are permitted).
Supply and communication in one and the same 3-wire cable

- no shielding or twisting necessary
- no terminating resistors required

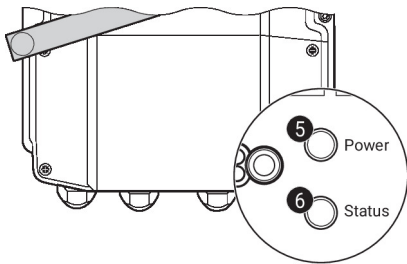
Connection BACnet MS/TP / Modbus RTU



Connection BACnet MS/TP / Modbus RTU with analogue setpoint (hybrid mode)



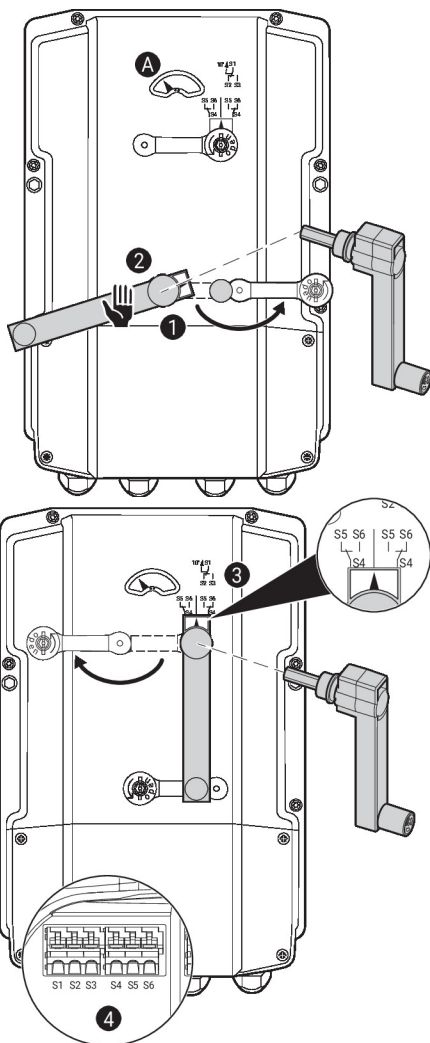
Operating controls and indicators


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
 On: Test run active
 Flickering: BACnet / Modbus communication active
 Flashing: Request for addressing from MP client
 Press button: Confirmation of the MP addressing


Auxiliary switch settings


Note: Perform settings on the actuator only in deenergised state.

For the auxiliary switch position settings, carry out points **1** to **4** successively.

1 Gear train disengagement

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

2 Manual override

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

3 Auxiliary switch

For the auxiliary switch position settings, carry out points **1** to **4** successively.
 Opening the auxiliary switch adjustment cover and adjusting the hand crank.
 Turn the hand 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°.

Service

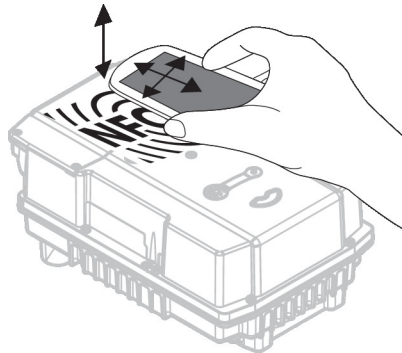
NFC connection Belimo devices marked with the NFC logo can be operated with the Belimo Assistant App.

Requirement:

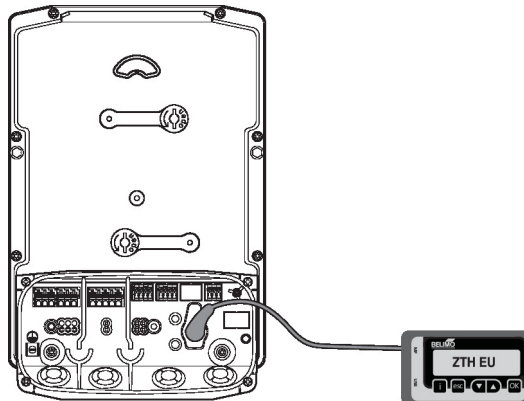
- NFC- or Bluetooth-capable smartphone
- Belimo Assistant App (Google Play & Apple AppStore)

Align NFC-capable smartphone on the device so that both NFC antennas are superposed.

Connect Bluetooth-enabled smartphone via the Bluetooth-to-NFC Converter ZIP-BT-NFC to the device. Technical data and operation instructions are shown in the ZIP-BT-NFC data sheet.



Tool connection The actuator can be configured by the ZTH EU via the service socket.



Dimensions

