

**Rotary actuator for butterfly valves**

- Torque motor 160 Nm
- Nominal voltage AC 24...240 V / DC 24...125 V
- Control Open/close, 3-point
- with 2 integrated auxiliary switches


**RETROFIT**

**Technical data**

<b>Electrical data</b>	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 230 V 52 VA	
	Auxiliary switch	2 x SPDT, 1 x 10° / 1 x 0...90° (ex works 85°)	
	Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), AC 250 V	
	Connection supply / control	Terminals 2.5 mm <sup>2</sup>	
	Connection protective earth	earth terminal	
	Connection auxiliary switch	Terminals 2.5 mm <sup>2</sup>	
	Parallel operation	Yes (note the performance data)	
	<b>Functional data</b>	Torque motor	160 Nm
		Manual override	hand lever
Running time motor		35 s / 90°	
Running time motor variable		30...120 s	
Sound power level, motor		68 dB(A)	
Position indication		Mechanically (integrated)	
<b>Safety</b>	Protection class IEC/EN	I protective earth (PE)	
	Protection class UL	I protective earth (PE)	
	Degree of protection IEC/EN	IP66/67	
	Degree of protection NEMA/UL	NEMA 4X	
	Enclosure	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 UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1:02	
	Certification UL note	The UL marking on the actuator depends on the production site, the device is UL-compliant in any case	
	Mode of operation	Type 1	
	Rated impulse voltage supply	4 kV	
	Rated impulse voltage auxiliary switch	2.5 kV	
	Control pollution degree	3	
	Ambient temperature	-30...50 °C	
	Storage temperature	-40...80 °C	
	Ambient humidity	Max. 100% r.H.	
Servicing	maintenance-free		
<b>Mechanical data</b>	Connection flange	F07 (F05 only with accessory)	
<b>Weight</b>	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 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

<b>Fields of application</b>	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
<b>Parametrisable actuators</b>	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.
<b>Simple direct mounting</b>	Simple direct mounting on the butterfly valve. The mounting orientation in relation to the butterfly valve can be selected in 90° (angle) increments.
<b>Manual override</b>	The valve can be manually operated using a hand crank. Unlocking is carried out manually by removing the hand crank.
<b>Internal heating</b>	An internal heater prevents condensation buildup. Thanks to the integrated temperature and humidity sensor, the built-in heater automatically switches on/off.
<b>High functional reliability</b>	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
<b>Flexible signalization</b>	The actuator has one auxiliary switch with a fixed setting (10°) and one adjustable auxiliary switch (0...90°).

## Accessories

	Description	Type
<b>Electrical accessories</b>	Connection cable 5 m, A: RJ11 6/4 ZTH EU, B: 6-pin service socket for Belimo device	ZK1-GEN

## Electrical installation

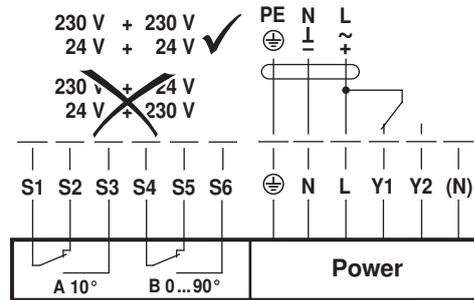
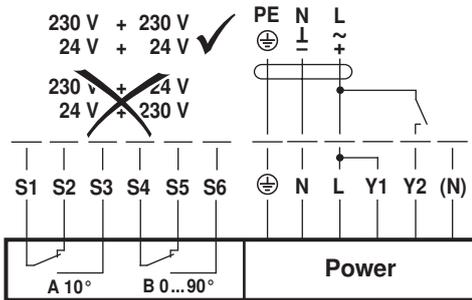


- Notes**
- Caution: Power supply voltage!
  - Parallel connection of other actuators possible. Observe the performance data.

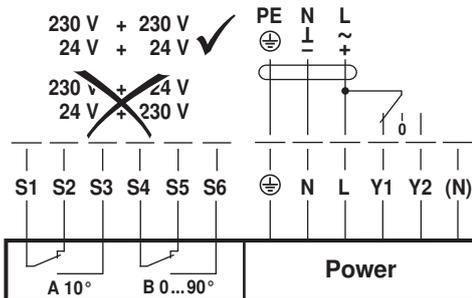
Electrical installation

Wiring diagrams

AC 24...240 V / DC 24...125 V, open/close, Auxiliary switches



AC 24...240 V / DC 24...125 V, 3-point, Auxiliary switches



Operating controls and indicators

Auxiliary switch settings



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

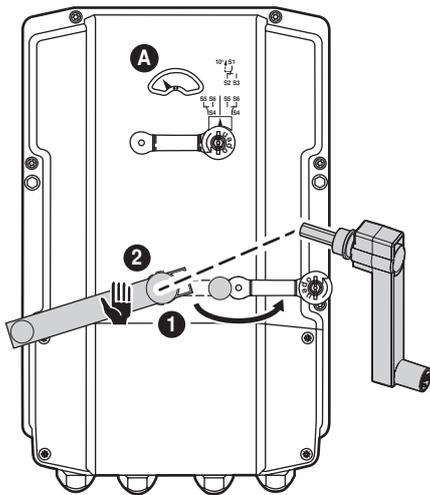
For the auxiliary switch position settings, carry out points 1 to 4 successively.

**1 Gear 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.

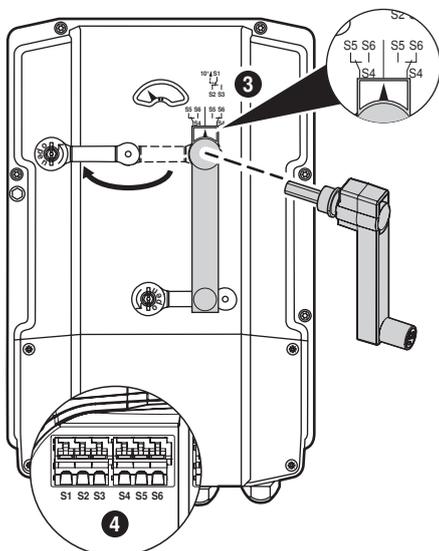


**3 Auxiliary switch**

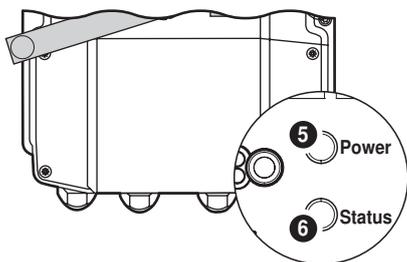
For the auxiliary switch position settings, carry out points 1 to 4 successively.  
Opening the auxiliary switch adjustment cover and adjusting the hand crank.  
Turn the crank until the arrow points to the vertical line

**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-button 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  
On: Test run active

**Service**

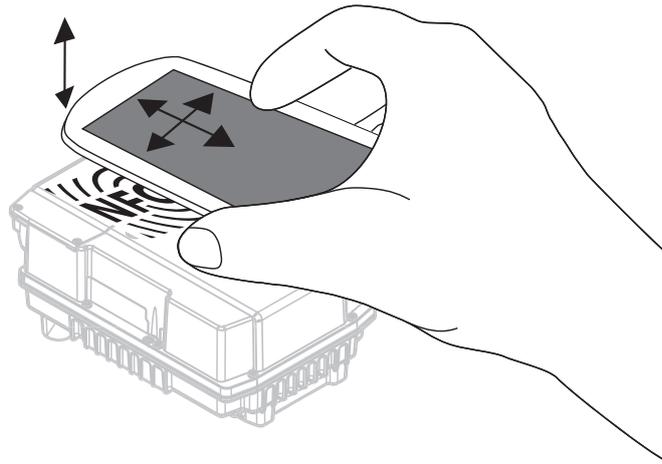
**NFC connection** Belimo equipment marked with the NFC logo can be operated with the Belimo Assistant App.

Requirement:

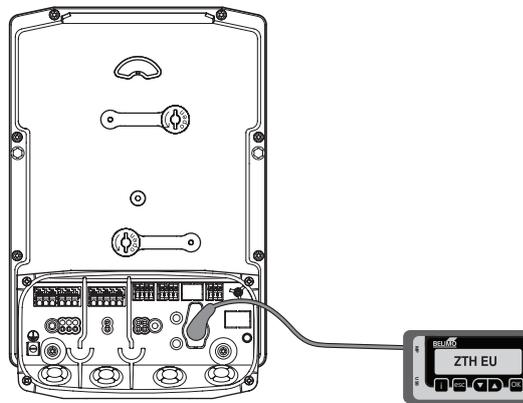
- NFC- or Bluetooth-capable smartphone
- Belimo Assistant App (Google Play & Apple AppStore)

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

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

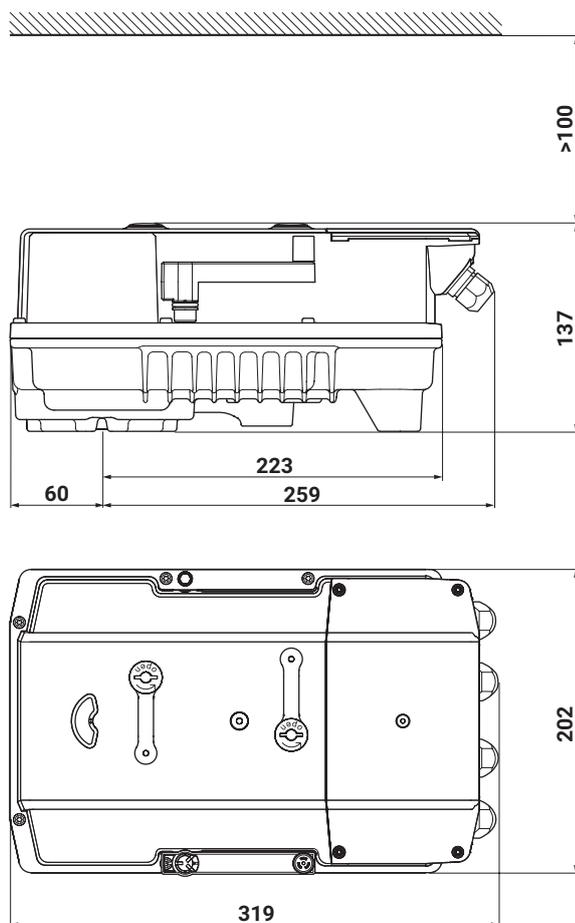


**Service Tools connection** The actuator can be configured by the ZTH EU via the service socket.



## Dimensions [mm]

## Dimensional drawings



## Further documentation

- The complete product range for water applications
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- General notes for project planning