

Damper actuator in the IP66/67 protective housing for adjusting dampers in HVAC plants, comparable industrial plants and technical building installations

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



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 19 VA / with 240 V 49 VA
	Auxiliary switch	2x SPDT, 1x 10° / 1x 0...90°
	Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V
	Connection protective earth	earth terminal
	Connection supply / control	Terminals 2.5 mm ²
	Connection auxiliary switch	Terminals 2.5 mm ²
	Parallel operation	Yes (note the performance data)
	Functional data	Torque motor
Inhibiting torque static (voltage-free)		50 Nm
Direction of motion motor		electronically reversible
Manual override		hand lever
Angle of rotation		Max. 95°
Angle of rotation note		can be limited on both sides with adjustable electrical end stops
Running time motor		35 s / 90°
Running time motor variable		30...120 s
Sound power level, motor		68 dB(A)
Mechanical interface		Form fit 17x17 mm
Position indication	Scale plate 0...90	
Safety data	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
	Housing	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

Technical data

Safety data	UL Approval	cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case
	Type of action	Type 1
	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
Weight	Weight	6.0 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.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- Caution: Mains voltage!
- The device has a protective earthing. Incorrect connection of the protective earth can lead to hazards due to electrical shock.
- Apart from the wiring compartment, 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section and the design, as well as the installation situation and the ventilation conditions must be observed.
- The materials used may be subject to external influences (temperature, pressure, construction fastening, effect of chemical substances, etc.), which cannot be simulated in laboratory tests or field trials. In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- If cables which are not authorised for UL (NEMA) Type 4X applications are used, then flexible metallic cable conduits or suitable threaded cable conduits of equal value are to be used.
- The two switches integrated in the actuator are to be operated either on mains voltage or on safety extra-low voltage. The combination mains 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
Operating mode	The actuator is equipped with a universal power supply module that can utilise supply voltages of AC 24...240 V and DC 24...125V.

Product features

Internal heating	An internal heater prevents condensation buildup. Thanks to the integrated temperature and humidity sensor, the built-in heater automatically switches on/off.
Parametrisable actuators	The factory settings cover the most common applications. Belimo Assistant 2 is required for parametrisation via Near Field Communication (NFC) and simplifies commissioning. Moreover, Belimo Assistant 2 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 damper shaft with form fit insert.
Manual override	The damper 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

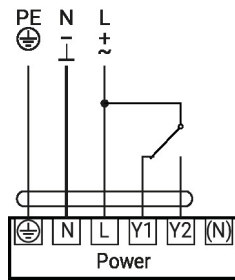
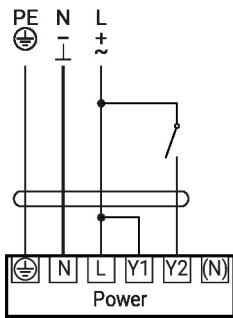
Tools	Description	Type
	Service tool for wired and wireless setup, on-site operation, and troubleshooting.	Belimo Assistant 2
	Converter Bluetooth / NFC	ZIP-BT-NFC
	Service tool, with ZIP-USB function, for parametrisable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH EU
	Connecting cable 5 m, A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket	ZK1-GEN
Mechanical accessories	Description	Type
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), flat head/square, SW 17	ZPR05
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 14	ZPR06
	Adapter kit with spacer ring, F07, square 45° offset, SW 17	ZPR08
	RetroFIT+ adapter kit, F07/F05/F10 (incl. screws F07), flat head/square, SW 14	ZPR09
	RetroFIT+ adapter kit, F05/F07/F10 (incl. screws F05), flat head/square, SW 14	ZPR10
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), square 45° offset, SW 18	ZPR11
	RetroFIT+ adapter kit, F07/F10 (incl. screws F07), flat head/square, SW 16	ZPR12
	Hand crank for PR/PM actuator	ZPR20

Electrical installation

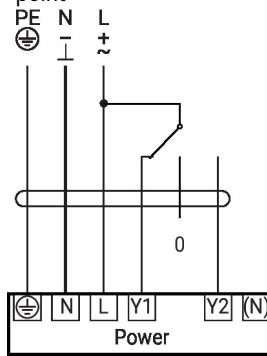
Caution: Mains voltage!
Parallel connection of other actuators possible. Observe the performance data.

Electrical installation

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



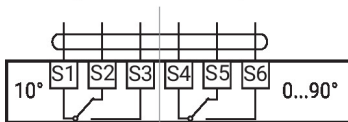
AC 24...240 V / DC 24...125 V, 3-
point



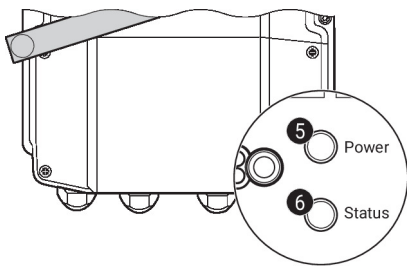
Auxiliary switch

230 V + 230 V
24 V ✓ + 24 V

~~230 V + 24 V~~
~~24 V + 230 V~~



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

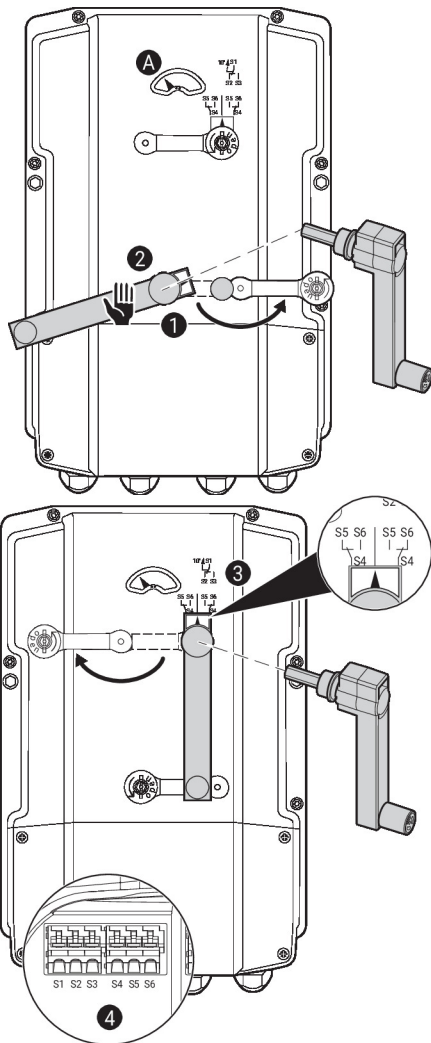
- Off: Standard mode
 On: Test run active

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

Rotary actuator, Open/close, 3-point, AC 24...240 V / DC 24...125 V, 160 Nm, Running time motor 35 s

Service

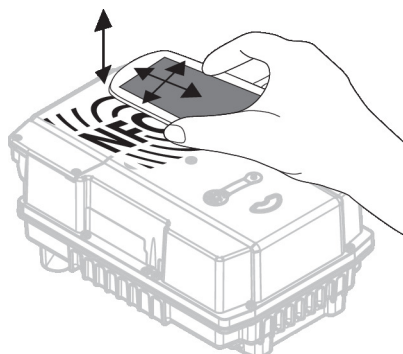
Wireless connection Belimo devices marked with the NFC logo can be operated with Belimo Assistant 2.

Requirement:

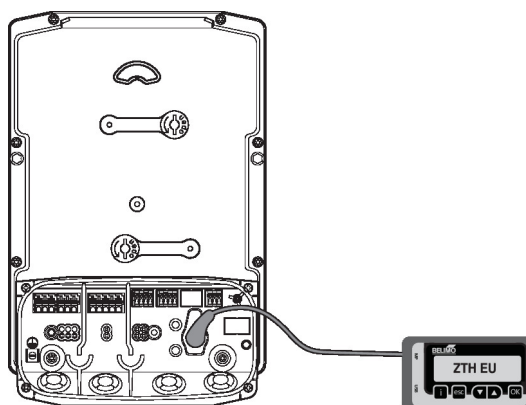
- NFC- or Bluetooth-capable smartphone
- Belimo Assistant 2 (Google Play and Apple AppStore)

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 operating instructions are shown in the ZIP-BT-NFC data sheet.



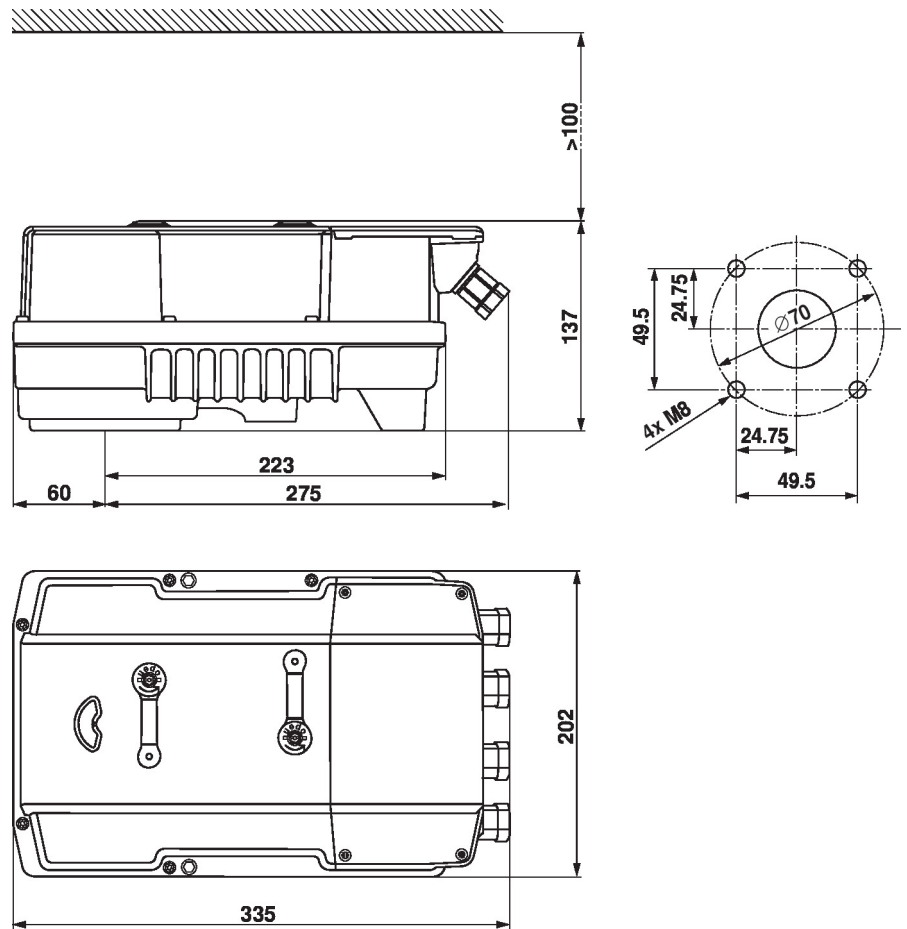
Wired connection The actuator can be configured by the ZTH EU via the service socket.



Dimensions

Spindle length

	-
	22.5...33



Further documentation

- Tool connections
- Installation instructions for actuators
- Quick Guide – Belimo Assistant 2