

Spring-return actuator for fire and smoke dampers 90° in ventilation and air-conditioning systems

- Torque 9 Nm / 7 Nm
- Nominal voltage AC/DC 24 V
- Control modulating
- Mechanical interface Form fit 12x12 mm, continuous hollow shaft



Picture may differ from product

## Technical data

|                        |  |  |
|------------------------|--|--|
| <b>Electrical data</b> | Nominal voltage                          | AC/DC 24 V   |
|                        | Nominal voltage frequency                | 50/60 Hz   |
|                        | Nominal voltage range                    | AC 19.2...28.8 V / DC 21.6...28.8 V                |
|                        | Power consumption in operation           | 4.5 W  |
|                        | Power consumption in rest position       | 1.6 W  |
|                        | Power consumption for wire sizing        | 8.5 VA   |
|                        | Inrush current (I <sub>max</sub> )       | 8.3 A @ 5 ms                                       |
|                        | Auxiliary switch                         | 2x SPDT  |
|                        | Switching capacity auxiliary switch      | 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V    |
|                        | Switching points auxiliary switch        | 5° / 80°   |
|                        | Connection supply / control              | Cable 1 m, 4x 0.75 mm <sup>2</sup> (halogen-free)  |
|                        | Connection auxiliary switch              | Cable 1 m, 6x 0.75 mm <sup>2</sup> (halogen-free)  |
| <b>Functional data</b> | Torque motor                             | 9 Nm   |
|                        | Torque fail-safe                         | 7 Nm   |
|                        | Operating range Y                        | 2...10 V   |
|                        | Input impedance                          | 100 kΩ   |
|                        | Position feedback U                      | 2...10 V   |
|                        | Position feedback U note                 | Max. 0.5 mA  |
|                        | Position accuracy                        | ±5%  |
|                        | Direction of motion motor                | selectable by mounting L/R                         |
|                        | Manual override                          | with position stop                                 |
|                        | Angle of rotation                        | Max. 95°   |
|                        | Running time motor                       | <60 s / 90°  |
|                        | Running time fail-safe                   | 20 s @ -10...55°C, <60 s @ -30...-10°C             |
|                        | Sound power level, motor                 | 55 dB(A)   |
|                        | Sound power level, fail-safe             | 67 dB(A)   |
|                        | Mechanical interface                     | Form fit 12x12 mm, continuous hollow shaft         |
| Position indication    | Mechanical, with pointer                 |  |
| Service life           | Min. 60'000 safety positions             |  |
| <b>Safety data</b>     | Protection class IEC/EN                  | III, Safety Extra-Low Voltage (SELV)               |
|                        | Protection class auxiliary switch IEC/EN | II, reinforced insulation                          |
|                        | Degree of protection IEC/EN              | IP54<br>IP protection in all mounting orientations |
|                        | 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.AA.B  |
|                        | Rated impulse voltage supply / control   | 0.8 kV   |

**Technical data**

|                    |                                      |  |
|--------------------|--------------------------------------|--|
| <b>Safety data</b> | Pollution degree                     | 3  |
|                    | Ambient humidity                     | Max. 95% RH, non-condensing                                  |
|                    | Ambient temperature normal operation | -30...55°C [-22...131°F]                                     |
|                    | Ambient temperature safety operation | The safety position will be attained up to max. 75°C [167°F] |
|                    | Storage temperature                  | -40...80°C [-40...176°F]                                     |
|                    | Servicing                            | maintenance-free   |
| <b>Weight</b>      | Weight                               | 1.3 kg   |

**Safety notes**


- The device must not be used outside the specified field of application, especially not in aircraft or in any other airborne means of transport.
- The actuator is adapted and installed on the fire and smoke damper by the damper manufacturer. For this reason, the actuator is only supplied directly to safety damper manufacturers. The manufacturer then bears full responsibility for the proper functioning of the damper.
- 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.
- Cables must not be removed from the device.
- 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**

|                              |   |
|------------------------------|---|
| <b>Operating mode</b>        | The actuator is connected with an analogue control signal Y (note the operating range) and drives the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy if the supply voltage is interrupted.  |
| <b>Safety Position Lock™</b> | The Safety Position Lock™ reliably holds the fire damper in the safety position in case of fire therefore ensuring maximum safety. The technical solution for this function of the BFL and BFN actuators has a patent pending.  |
| <b>Manual override</b>       | The damper can be actuated manually in the deenergised state and fixed in place at any position. Unlocking is manual or automatic by applying the supply voltage. If manual operation is used when supply voltage is present, the actuator first moves to the safety position for checking and then to the position as defined by control signal Y. During this self-check, the motor running time is increased to 100 s and the measuring voltage remains at 2 V.  |
| <b>Signalling</b>            | Two microswitches with fixed settings are installed in the actuator for indicating the damper end positions. The electrical contacts of these microswitches are equipped with a gold/silver coating that permits integration both in circuits with low currents (mA range) and in ones with larger-sized currents (A range) in accordance with the specifications in the data sheet. It should be noted with this application however that the contacts can no longer be used in the milliampere range after larger currents have been applied to them, even if this has taken place only once.<br><br>The position of the damper blade can be read off on a mechanical position indicator. |

**Product features**

**Standards / Regulations** The design of the actuator is based on the specific requirements from the European standards:

- EN 15650 Ventilation for buildings – Fire dampers
- EN 1366-2 Fire resistance tests on service installations (Part 2: Fire dampers)
- EN 13501-3 Fire classification of construction products and building elements - Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ventilation ducts and fire dampers and/or power, control and communication cables

**Recommendation for application** The regular operational check (open/close control of the fire damper) enhances the safety of people, animals, property and the environment. Unless other requirements are stipulated – e.g. in the damper manufacturer's operating instructions – Belimo recommends the performance of a monthly operational check. Fire damper actuators from Belimo are designed in accordance with service life specifications contained in the technical data sheet for regular operational checks. Notes for regular operational checks can be found in the European Product Standard for Fire Dampers (EN 15650) under "Maintenance information".

**Parts included**

Hand crank  
 Pointer  
 Protective bag

**Accessories**

| Electrical accessories | Description   | Type    |
|------------------------|---|---------|
|                        | Auxiliary switch 2x SPDT  | SN2-C7  |
|                        | Thermoelectric tripping device with test button, Duct inside temperature 72°C (colour black), Duct outside temperature 72°C, Probe length 65 mm | BAT72   |
|                        | Thermoelectric tripping device with test button, Duct inside temperature 72°C (colour black), Duct outside temperature 72°C, Probe length 90 mm | BAT72/9 |
| Mechanical accessories | Description   | Type    |
|                        | Bracket for SN2-C7 for BFN/BFL, BEN/BEE, BFA  | ZSN-B   |
|                        | Pointer 12x12 mm  | ZZN12-B |
|                        | Hand crank 40 mm  | ZKN1-B  |
|                        | Hand crank 63 mm  | ZKN2-B  |
|                        | Form fit insert 12/11 mm  | ZA11-B  |
|                        | Protective bag with wire, Multipack 100 pcs.  | ZSD-B.1 |

**Electrical installation**

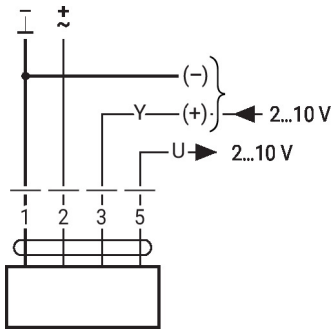

**Supply from isolating transformer.**  
**Parallel connection of other actuators possible. Observe the performance data.**  
**Combination of mains voltage and safety extra-low voltage not permitted at the two auxiliary switches.**

**Electrical installation**

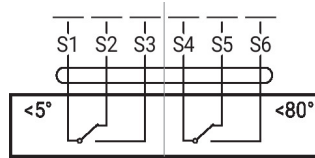
**Wire colours:**

- 1 = black
- 2 = red
- 3 = white
- 5 = orange
- S1 = violet
- S2 = red
- S3 = white
- S4 = orange
- S5 = pink
- S6 = grey

AC/DC 24 V, modulating



Auxiliary switch



**Service**

Fire damper actuator 90°, AC/DC 24 V, 9 Nm / 7 Nm

**Dimensions**

