

Modulating spring-return actuator, combined with thermoelectric tripping device (72 °C), for fire and smoke dampers 90° in ventilation and air-conditioning systems

- Nominal torque 18 Nm / 12 Nm
- Nominal voltage AC/DC 24 V
- Control modulating
- Damper rotation form fit 12 mm (10 mm with enclosed adapter)


Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2 V ... 28.8 V / DC 21.6 V ... 28.8 V
	Power consumption in operation	7 W
	Power consumption at rest	2 W
	Power consumption for wire sizing	9.5 VA
	Power consumption for wire sizing note	I _{max} 8.3 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	Contact gold-plated silver: 1 mA ... 3 (0.5) A, DC 5 V ... AC 250 V (II Totally insulated)
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 4 x 0.75 mm ² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm ² (halogen-free)
	Cable length thermoelectric tripping device	1 m
	Functional data	Torque motor
Torque spring-return		Min. 12 Nm
Control signal Y		DC 0 V ... 10 V
Control signal Y note		Input impedance 100 kΩ (0.1 mA)
Operating range Y		DC 2 V ... 10 V
Operating range Y note		For control signal Y
Position feedback U		DC 2 V ... 10 V
Position feedback U note		Max. 0.5 mA (for 0 ... 100% angle of rotation)
Position accuracy		±5%
Direction of rotation motor		Can be selected by mounting L / R
Angle of rotation		Max. 95°
Running time motor		<120 s / 90°
Running time spring-return		16 s (tamb = 20 °C)
Sound power level motor max.		45 dB (A)
Sound power level spring-return max.		63 dB (A)
Damper rotation		Form fit 12 mm (10 mm with enclosed adapter)
Position indication	Mechanically, with pointer	
Service life	Min. 60,000 safety positions	
Safety	Response temperature thermal fuse	Tf1: Duct outside temperature 72 °C Tf2 and Tf3: Duct inside temperature 72 °C
	Protection class IEC/EN	III Safety extra-low voltage
	Degree of protection IEC/EN	IP54 in all mounting positions
	EMC	CE according to 2014/30/EU
	Low-voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	Certified according to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
	Ambient temperature normal duty	-30 °C ... 50 °C
	Ambient temperature safety duty	The safety position will be attained up to max. 75 °C

Technical data

Safety	Non-operating temperature	-40°C ... 50°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight approx.	2.8 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 power supply voltage or at safety extra-low voltage. The combination power supply voltage/safety extra-low voltage is not permitted.
- 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 is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Mode of operation	The actuator is controlled with a standard signal of DC 0 ... 10 V and moves the damper to the operating position while tensioning the return spring at the same time. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted.
Thermoelectric tripping device	If the ambient temperature of 72°C is exceeded, the thermal fuse Tf1 responds. If the duct inside temperature of 72°C is exceeded, the exchangeable thermal fuse Tf2/Tf3 will respond. When the thermal fuses Tf1, Tf2 or Tf3 respond, the supply voltage is interrupted permanently and irreversibly. The LED is lit when <ul style="list-style-type: none"> – there is a supply voltage, – the temperature fuses are OK and – the test switch is not pressed. The function of the thermal fuse and the test button is only warranted if the actuator is connected to the power supply and has reached its operating position (LED on).
Signalling	Two microswitches with fixed settings are installed in the actuator for indicating the damper end positions. The position of the damper blade can be read off on a mechanical position indicator.
Manual operation	Without power supply, the damper can be operated manually and fixed in any required position. It can be unlocked manually or automatically 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 positioning signal Y. During this self-check, the motor running time is increased to 100 s and the measuring voltage remains at 2 V.

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 ducts and fire dampers)

Recommendation for application

Regular operational checks (open-close control of the fire damper) enhance 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 monthly operational checks. 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».

Accessories

	Description	Data sheet name
Electrical accessories	Auxiliary switch 2 x SPDT	SN2-C7
	Cable set with plug, L = 0.5 m for communication and power supply unit	ZST-BS
	Blanking cover for BAE (without thermal fuse for duct inside temperature)	ZBAE0
	Spare tripping element for BAE, duct inside temperature = 72 °C, sensor length = 65 mm	ZBAE72
	Spare tripping element for BAE, duct inside temperature = 95 °C, sensor length = 65 mm	ZBAE95
Mechanical accessories	Adapter with clamp for round spindle 10...20 mm / square 10...16 mm for BF	ZK-BF
	Adapter for form fit 12 mm with round spindle 18 mm, L = 33 mm for BF	ZA18-BF
	Adapter 12/8 mm for BF.. and BLF..	ZA8-BF
	Adapter 12/11 mm for BF.. and BLF..	ZA11-BF
	Bracket for auxiliary switch (SN2-C7) for BF, BR	ZSN-BF

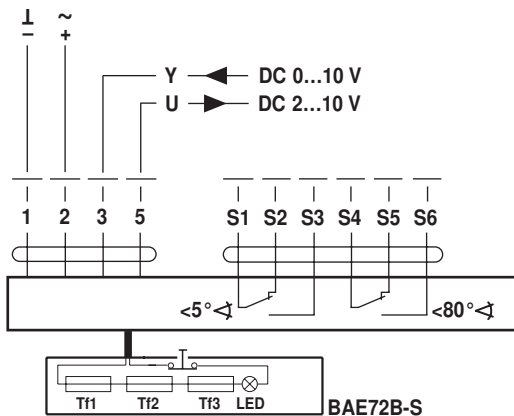
Electrical installation

Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Note the performance data.

Wiring diagrams

AC/DC 24 V, modulating



Cable colours:

- 1 = black
- 2 = red
- 3 = white
- 5 = white
- S1 = white
- S2 = white
- S3 = white
- S4 = white
- S5 = white
- S6 = white

Dimensions [mm]

Dimensional drawings

