

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

- Torque 18/12 Nm
- Nominal voltage AC 230 V
- Control: Open/close
- Damper rotation: 12 mm form-fit



Technical Data

Electrical data	Nominal voltage	AC 230 V, 50/60 Hz
	Nominal voltage range	AC 198 ... 264 V
	Power consumption	8 W @ nominal torque
	holding	3 W
	for wire sizing	12.5 VA / I _{max} . 500 mA @ 5 ms
Functional data	Auxiliary switch	2 x 1 SPDT
	Contact rating (contacts gold plate on silver)	1 mA ... 6 A (3 A), DC 5 V ... AC 250 V □
	Switching points	5° / 80°
	Connecting cable motor	1 m, 2 x 0.75 mm ² (halogen-free)
	auxiliary switch	1 m, 6 x 0.75 mm ² (halogen-free)
	Torque motor	Min. 18 Nm
	spring-return	Min. 12 Nm
	Direction of rotation	Selected by mounting L/R
	Angle of rotation	Max. 95° (incl. 5° spring pretensioning)
	Running time motor	140 s
	spring-return	~16 s (t _{amb} = 20°C)
	Sound power level motor	Max. 45 dB (A)
	spring-return	~62 dB (A)
	Damper rotation	Form-fit 12 mm (10 with adapter supplied)
	Position indication	Mechanical with pointer
	Service life	Min. 60'000 safe positions
Safety	Protection class	II totally insulated □
	Degree of protection	IP54 in all mounting positions
	EMC	CE according to 2004/108/EC
	low-voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1.AA.B (EN60730-1)
	Rated impulse voltage	4 kV (EN60730-1)
	Control pollution degree	3 (EN60730-1)
	Ambient temperature range	normal duty safety duty
		–30 ... +50°C
		The safe position will be attained up to max. 75°C when initiated by a thermal trip
	Non-operating temperature	–40 ... +80°C
	Ambient humidity range	EN 60730-1
Dimensions / weight	Maintenance	Maintenance-free
	Dimensions	See «Dimensions» on page 2
	Weight	Approx. 3'100 g

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- The actuator is adapted and mounted to the fire and smoke damper by the damper manufacturer. For this reason, the actuator is only supplied direct to safety damper manufacturers. The manufacturer then bears full responsibility for the proper functioning of the damper.
- 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 electronic and electrical components and may not be disposed of with the household waste. Observe local regulations and valid laws.

Product features

- Mode of operation** The actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.
- 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. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.


Accessories

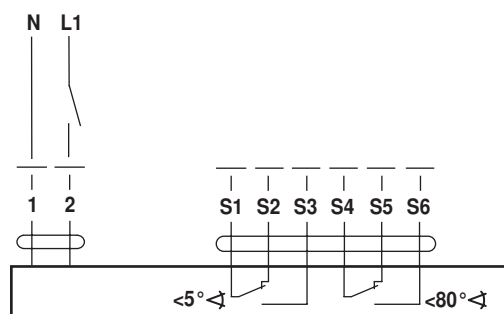
	Description	Type
Electrical accessories	Auxiliary switch, 1 x SPDT 6 A (2.5 A), AC 250 V	SN1
	Auxiliary switch, 2 x SPDT 6 A (2.5 A), AC 250 V	SN2
Mechanical accessories	Adapter with clamp for rotary axes up to 20 mm for BF.. and BLF..	ZK-BF
	Adapter with DM18 rotary axis, L = 33 mm, for BF.. and BLF..	ZA18-BF
	Adapter 12/8 mm for BF.. and BLF..	ZA8-BF
	Adapter 12/11 mm for BF.. and BLF..	ZA11-BF
	Bracket for SN1 and SN2 auxiliary switches for BF..	ZSN-BF

Electrical installation

Wiring diagram

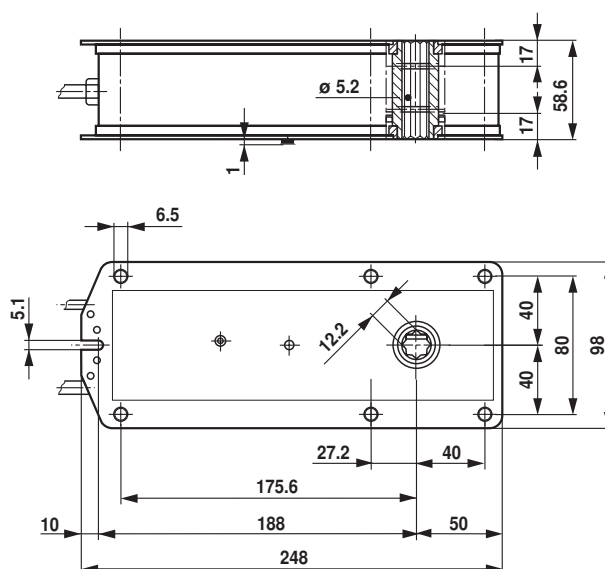
Note

- Caution Main power supply voltage! 
- Parallel connection of several actuators possible. Power consumption must be observed!



Dimensions [mm]

Dimensional diagrams



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

- Nominal Torque 4 Nm / 3 Nm
- Nominal voltage AC 230 V
- Control Open-close
- Spindle driver Form fit 12x12 mm, Continuous hollow shaft



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198...264 V
	Power consumption in operation	3 W
	Power consumption in rest position	0.9 W
	Power consumption for wire sizing	6.5 VA
	Power consumption for wire sizing note	I _{max} 4 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm ² (halogen-free)
Functional data	Torque motor	Min. 4 Nm
	Torque spring return	Min. 3 Nm
	Direction of rotation motor	Can be selected by mounting L/R
	Manual override	with position stop
	Angle of rotation	Max. 95°
	Running time motor	<60 s / 90°
	Running time spring-return	20 s @ -10...55°C / <60 s @ -30...-10°C
	Sound power level motor	<43 dB(A)
	Sound power level spring-return	<62 dB(A)
	Spindle driver	Form fit 12x12 mm, Continuous hollow shaft
	Position indication	Mechanically, with pointer
Safety	Service life	Min. 60,000 safety positions
	Protection class IEC/EN	II Protective insulated
	Protection class auxiliary switch IEC/EN	II Protective insulated
	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	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	4 kV
	Control pollution degree	3
	Ambient temperature normal operation	-30...55°C
	Ambient temperature safety operation	The safety position will be attained up to max. 75°C
	Non-operating temperature	-40...80°C
	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
Weight	Weight	1.1 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.
- Caution: Power supply voltage!
- 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.
- 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

Mode of operation	The actuator moves 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 when the supply voltage is interrupted.
Safety Position Lock	The Safety Position Lock™ reliably holds the fire damper in the safety position in case of fire therefor ensuring maximum safety. The technical solution for this function of the BFL and BFN actuators has a patent pending.
Signalling	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 milliamperere range after larger currents have been applied to them, even if this has taken place only once. The position of the damper blade can be read off on a mechanical position indication.
Manual operation	Without power supply, the actuator can be operated manually and fixed in any required position. It can be unlocked manually or automatically by applying the supply voltage.
Standards / regulations	The design of the actuator is based on the specific requirements from the European standards: <ul style="list-style-type: none"> - 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".
Delivery notes	Incl. Hand crank, pointer, protective bag, form fit insert 12/10 mm

Accessories

	Description	Type
Electrical accessories	Communication and power supply unit for integration in Modbus networks, for 230 V actuators	BKN230-MOD
	Auxiliary switch 2 x SPDT	SN2-C7
Mechanical accessories		
	Bracket for auxiliary switch (SN2-C7) for BFL, BFN	ZSN-B

Electrical installation

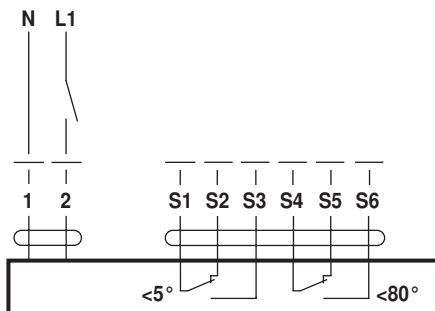


Notes

- Caution: Power supply voltage!
- The actuator must be protected by a fuse that does not exceed 16 A.
- Parallel connection of other actuators possible. Observe the performance data.
- Combination of power supply voltage and safety extra-low voltage not permitted at the both auxiliary switches.

Wiring diagrams

AC 230 V, open-close

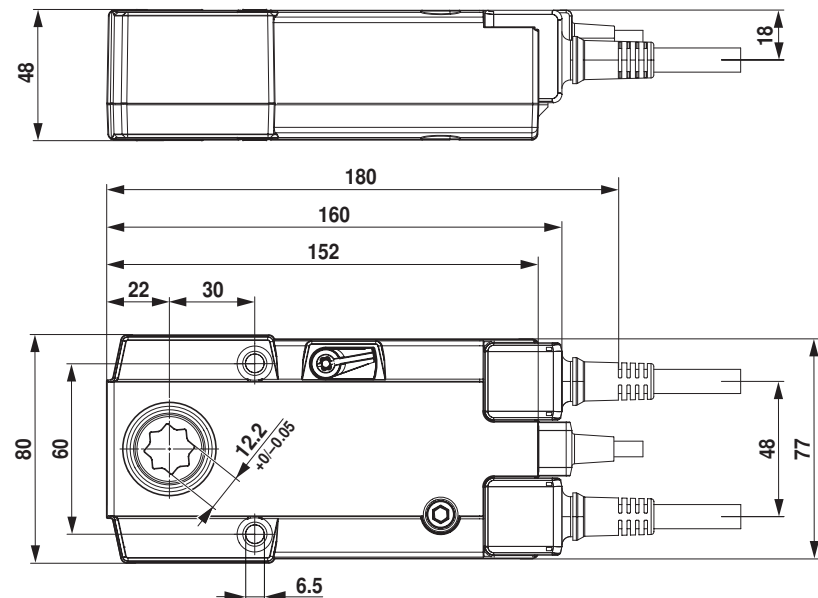


Cable colours:

- 1 = blue
- 2 = brown
- S1 = violet
- S2 = red
- S3 = white
- S4 = orange
- S5 = pink
- S6 = grey

Dimensions [mm]

Dimensional drawings



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

- Nominal Torque 9 Nm / 7 Nm
- Nominal voltage AC 230 V
- Control open-close
- Spindle driver form fit 12x12 mm, continuous hollow shaft



Technical data

Electrical data	Nominal voltage	AC 230 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 198...264 V
	Power consumption in operation	4.5 W
	Power consumption in rest position	2 W
	Power consumption for wire sizing	9 VA
	Power consumption for wire sizing note	I _{max} 4 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 2 x 0.75 mm ² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm ² (halogen-free)
Functional data	Torque motor	Min. 9 Nm
	Torque spring return	Min. 7 Nm
	Direction of rotation motor	Can be selected by mounting L/R
	Manual override	With position stop
	Angle of rotation	Max. 95°
	Running time motor	<60 s / 90°
	Running time spring-return	20 s @ -10...55°C / <60 s @ -30...-10°C
	Sound power level motor	<55 dB(A)
	Sound power level spring-return	<67 dB(A)
	Spindle driver	Form fit 12x12 mm, continuous hollow shaft
Safety	Position indication	Mechanically, with pointer
	Service life	Min. 60,000 safety positions
	Protection class IEC/EN	II Protective insulated
	Protection class auxiliary switch IEC/EN	II Protective insulated
	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	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	4 kV
	Control pollution degree	3
	Ambient temperature normal operation	-30...55°C
	Ambient temperature safety operation	The safety position will be attained up to max. 75°C
	Non-operating temperature	-40...80°C
Weight	Ambient humidity	95% r.h., non-condensing
	Maintenance	Maintenance-free
	Weight	1.4 kg

Safety notes



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- Caution: Power supply voltage!

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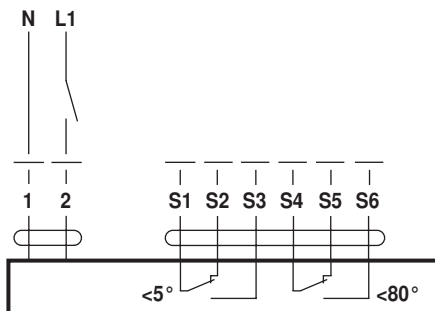


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AC 230 V, open-close



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- S6 = grey

Dimensions [mm]

Dimensional drawings

