BELIMO

Technical data sheet BF24-SR

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

- Torque 18 Nm / 12 Nm
- Nominal voltage AC/DC 24 V
- Control modulating
- Mechanical interface Form fit 12x12 mm, non-continuous hollow shaft

Technical data

Electrical data	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	7 W
	Power consumption in rest position	2 W
	Power consumption for wire sizing	10 VA
	Power consumption for wire sizing note	Imax 8.3 A @ 5 ms
	Auxiliary switch	2 x SPDT
	Switching capacity auxiliary switch	1 mA...6 A (3 A inductive), DC 5 V...AC 250 V (II, reinforced insulation)
	Switching points auxiliary switch	5° / 80°
	Connection supply / control	Cable 1 m, 4 x 0.75 mm² (halogen-free)
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm² (halogen-free)
Functional data	Torque motor	18 Nm
	Torque fail-safe	12 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	<120 s / 90°
	Running time fail-safe	16 s @ 20°C
	Sound power level, motor	45 dB(A)
	Sound power level, fail-safe	63 dB(A)
	Mechanical interface	Form fit 12x12 mm, non-continuous hollow shaft
	Position indication	Mechanically, with pointer
	Service life	Min. 60'000 safety positions
Safety data	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 IP protection 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	0.8 kV

Safety data	Pollution degree	3
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature normal operation	-30...50°C
	Ambient temperature safety operation	The safety position will be attained up to max. 75°C
	Storage temperature	-40...50°C [-40...122°F]
	Servicing	maintenance-free
Weight	Weight	2.6 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 must not 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 0...10 V and 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 if the supply voltage is interrupted.

Manual override

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.

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 milliampere 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.

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

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".

Delivery notes

Incl. Hand crank, Pointer, Protective bag, Form fit insert 12/10 mm

Accessories

Electrical accessories

Description	Type
Auxiliary switch 2 x SPDT	SN2-C7
Thermoelectric tripping device with control key, Duct inside temperature 72°C (colour black), Duct outside temperature 72°C	BAT72
Thermoelectric tripping device with control key, Duct inside temperature 72°C (colour black), Duct outside temperature 72°C	BAT72/9

Mechanical accessories

Description	Type
Bracket for SN2-C7 for BF	ZSN-BF
Adapter, for form fit 12 mm on round shaft 18 mm, L = 33 mm	ZA18-BF
Adapter, for form fit with clamp for round shaft 10...20 mm / square 10...16 mm	ZK-BF
Pointer 12x12 mm	ZZ12-B
Hand crank 40 mm	ZK1-B
Hand crank 70 mm	ZK2-B
Protective bag with wire, Multipack 100 pcs.	ZSD-B.1

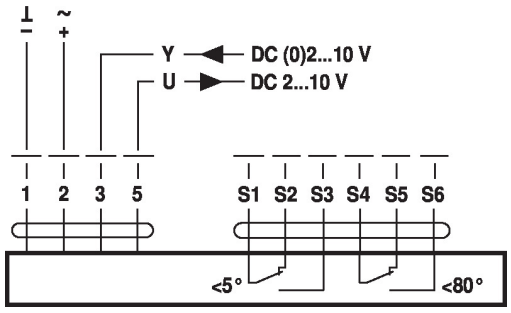
Electrical installation

Supply from isolating transformer.

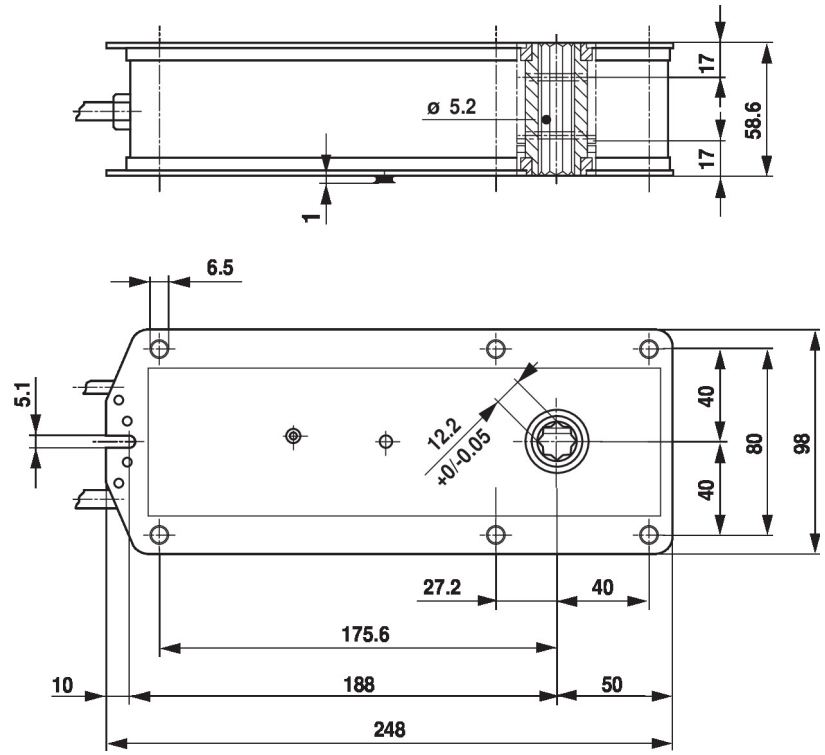
Parallel connection of other actuators possible. Observe the performance data.

Wiring diagrams

AC/DC 24 V, modulating



Cable colours:

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

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