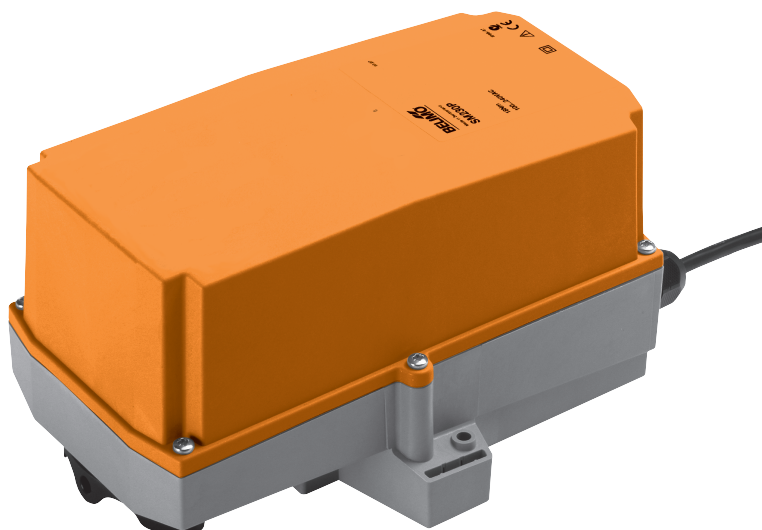


Modulating Robustline SuperCap actuator with emergency setting function and extended functionalities for adjusting air dampers in ventilation and air-conditioning systems for building services installations and in laboratories

- For air dampers up to approx. 1.2 m²
- Torque 6 Nm
- Nominal voltage AC/DC 24 V
- Control: modulating DC 0 ... 10 V
- Position feedback DC 2 ... 10 V
- Running time 4 s
- Design life SuperCaps 15 years

Optimum protection against

- Corrosion and chemical influences
- UV radiation
- Damp and condensation



Technical data

Electrical data	Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range	AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V
	Power consumption	In operation 11 W @ nominal torque At rest 3 W For wire sizing 22 VA (I _{max} 20 A @ 5 ms)
	Connection	Halogen-free cable 1 m, 4 x 0.75 mm ²
Functional data	Torque	≥6 Nm
	Inhibiting torque	≥6 Nm
	Control Control signal Y	DC 0 ... 10 V, input impedance 100 kΩ
	Operating range	DC 2 ... 10 V
	Position feedback (Measuring voltage U)	DC 2 ... 10 V, max. 0.5 mA
	Emergency setting position (POP)	0 ... 100%, adjustable in increments of 10% (POP rotary button)
	Position accuracy	±5%
	Direction of rotation	Motor Reversible with switch ↻ / ↺ Emergency setting position Reversible with switch 0 ... 100%, Adjustable in increments of 10%
	Direction of motion at Y = 0 V	At switch position 1 ↻ or 0 ↺, respectively
	Manual override	Gearing latch disengaged with push button
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Angle of rotation limiting	min. 30°↔
	Running time	Motor 4 s / 90°↔ Emergency setting function 4 s @ 0 ... 50°C
	Sound power level	Motor ≤60 dB (A) @ 4 s running time Emergency setting function ≤60 dB (A) @ 4 s running time
Position indication	Mechanical, pluggable	
Safety	Protection class	III Safety extra-low voltage
	Degree of protection	IP66 + IP67
	EMC	CE according to 2004/108/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA
	Rated impulse voltage	0.8 kV
	Control pollution degree	4
	Ambient temperature	-30 ... +50°C
	Non-operating temperature	-40 ... +80°C
	Ambient humidity	100% r.h.
Maintenance	Maintenance-free	
Dimensions / Weight	Dimensions	See «Dimensions» on page 6
	Weight	Approx. 2 kg

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.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during installation.
- The cover of the protective housing may be opened for adjustment and servicing. When it is closed afterwards, the housing must seal tight (see installation instructions).
- The device on the inside may only be opened up in the factory. It does not contain any parts that can be replaced or repaired by the user.
- The cable must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper manufacturers (cross section, design, installation site), and the air flow conditions must be observed.
- 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.
- The information on chemical resistance refers to laboratory tests with raw materials and finished products and to trials in the field in the areas of application indicated.
- The materials used may be subjected to external influences (temperature, pressure, constructional fixture, effect of chemical substances etc.), that cannot be simulated in laboratory test or field trials.
- The information regarding areas of application and resistance can therefore only serve as a guideline. In case of doubt, we recommend that you definitely carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty. The chemical or mechanical resistance of the materials used is not alone sufficient for judging the suitability of a product. Regulations pertaining to combustible liquids such as solvents etc. must be taken into account with special reference to explosion protection.

Product features

Fields of application	The actuator is particularly suited for use in difficult conditions, e.g. in the field of: <ul style="list-style-type: none"> – Wood drying – Animal breeding – Food processing – Agricultural – Swimming baths / Bathrooms – Rooftop units – General outdoor applications – Changing climate – Laboratories
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Resistances	Test	Test standard	Testing body
	Noxious gas tests	EN 60068-2-60	Fraunhofer Institute ICT / DE
	Salt fog spray test	EN 60068-2-52	Fraunhofer Institute ICT / DE
	Ammoniac test	DIN 50916-2	Fraunhofer Institute ICT / DE
	Climatic test	IEC 60068-2-30	Trikon Solutions AG / CH
	Disinfectants (animals)		Trikon Solutions AG / CH
	UV test	EN 60068-2-5	Quinel / Zug CH
	(Solar radiation at ground level)	EN 60068-2-63	

Used materials	Actuator parts	Material
	Actuator housing	Polypropylene (PP)
	Cable glands / hollow shaft	Polyamide (PA)
	Connection cable	FRNC
	Clamp / screws in general	Steel 1.4404
	Seals	EPDM
	Form-fit insert	Anodised aluminium

Product features

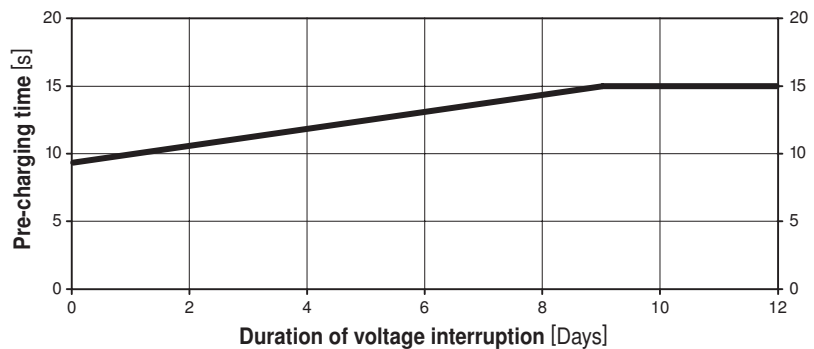
(continued)

Mode of operation The actuator moves the air damper to the desired operating position at the same time as the integrated capacitors are loaded. Interrupting the supply voltage causes the air damper to be rotated back into the emergency setting position by means of stored electrical energy. The actuator is controlled with a standard modulating signal of DC 0 ... 10 V and travels to the position defined by the control signal. The measuring voltage U serves for the electrical display of the damper position 0 ... 100%.

Pre-charging time (start up) The capacitor actuators require a pre-charging time. This time is used for charging the capacitors up to a usable voltage level. This ensures that, in the event of a voltage interruption, the actuator can be moved at any time from its current position into the preset emergency setting position (POP). The duration of the pre-charging time depends mainly on how long the power was interrupted.

Typical pre-charging times

Pre-charging time [s]	Duration of voltage interruption [Days]				
	0	1	2	7	≥10
	9	10	11	13	15



Delivery condition (capacitors) The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 15 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

Simple direct mounting Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.

Manual override Manual override with push button possible (the gear is disengaged for as long as the button remains pressed down).

High functional reliability The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Home position / Start The spindle clamp of the actuator is set ex-works to 0°↙. After the supply voltage has been applied, the actuator moves into the position defined by the control signal.

Direction of rotation switch When actuated, the direction of rotation switch changes the running direction in normal operation. The direction of rotation switch has no influence on the emergency setting position (POP) which has been set.

Emergency setting position (POP) rotary button The «Emergency setting position» rotary button can be used to adjust the desired emergency setting position (POP) between 0 and 100% in 10% increments. The rotary button is always in reference to the adapted angle of rotation range. In the event of a voltage interruption, the actuator will move immediately into the selected emergency setting position.

Adjustable angle of rotation Adjustable angle of rotation with mechanical end stops. A minimum permissible angle of rotation of 30°↙ must be allowed for.

Accessories

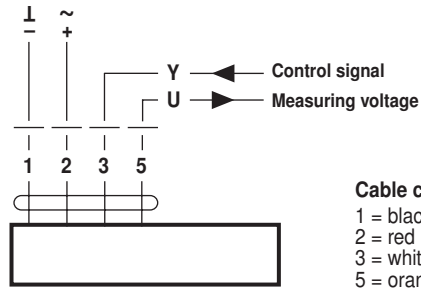
	Description	Data sheet
Electrical accessories	Positioner SGA24, SGE24 and SGF24	T2 - SG..24
	Digital position indicator ZAD24	T2 - ZAD24
	Room temperature controller CR24..	S4 - CR24..

Electrical installation

Wiring diagram

Note

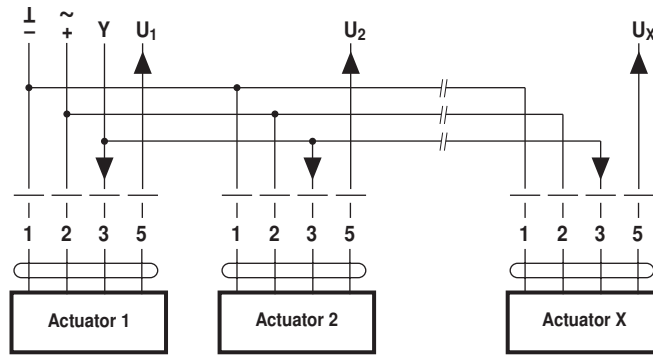
Connect via safety isolation transformer.



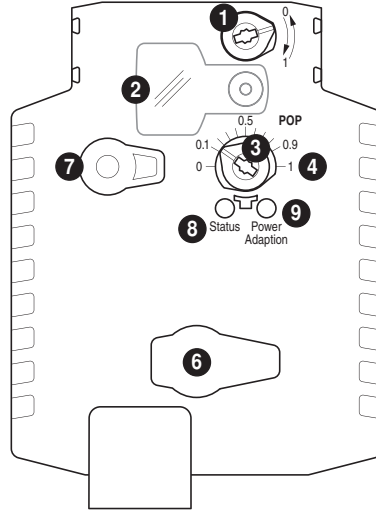
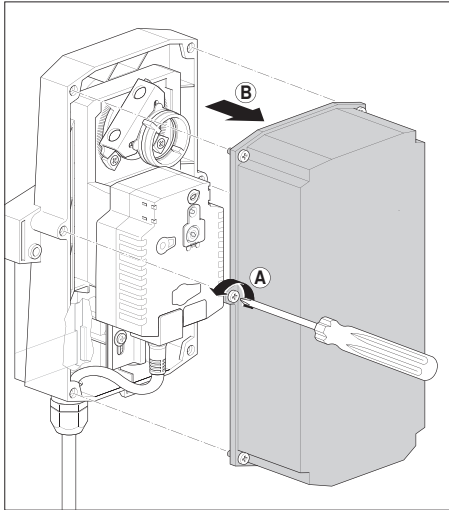
Wiring diagram for parallel operation

Information

- A maximum of eight actuators can be connected in parallel.
- Parallel operation is permitted only on separated axes.
- It is imperative that the performance data be observed with parallel operation.



Operating controls and indicators

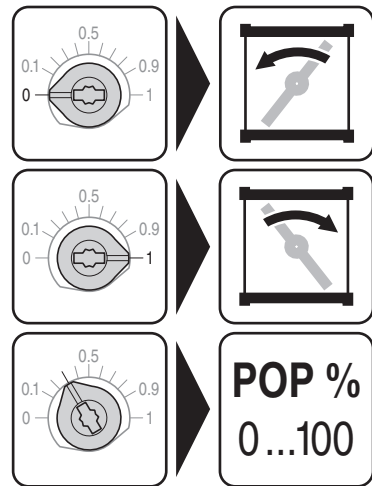
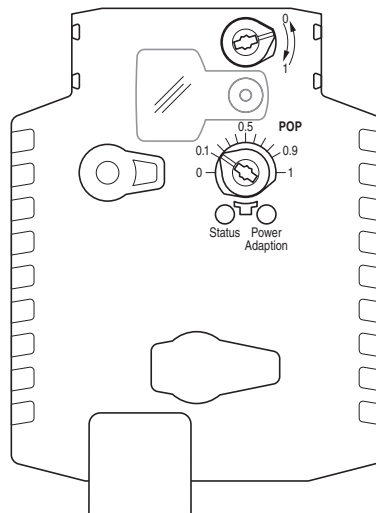
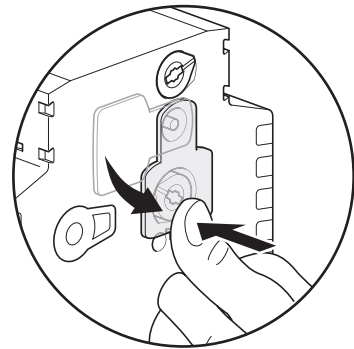
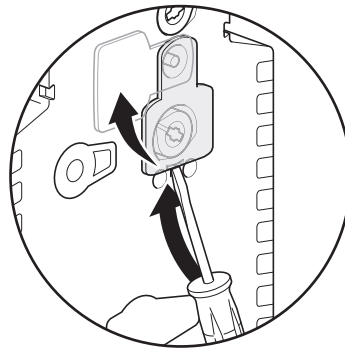


- 1 Direction of rotation switch
- 2 Cover, POP button
- 3 POP button
- 4 Scale for manual adjustment
- 6 (no function)
- 7 Disengagement button

LED displays		Meaning / function
8 yellow	9 green	
Off	Illuminated	Operation OK / without fault
Off	Blinking	POP function active
Illuminated	Off	Fault
Off	Off	Not in operation
Illuminated	Illuminated	Adaptation procedure running

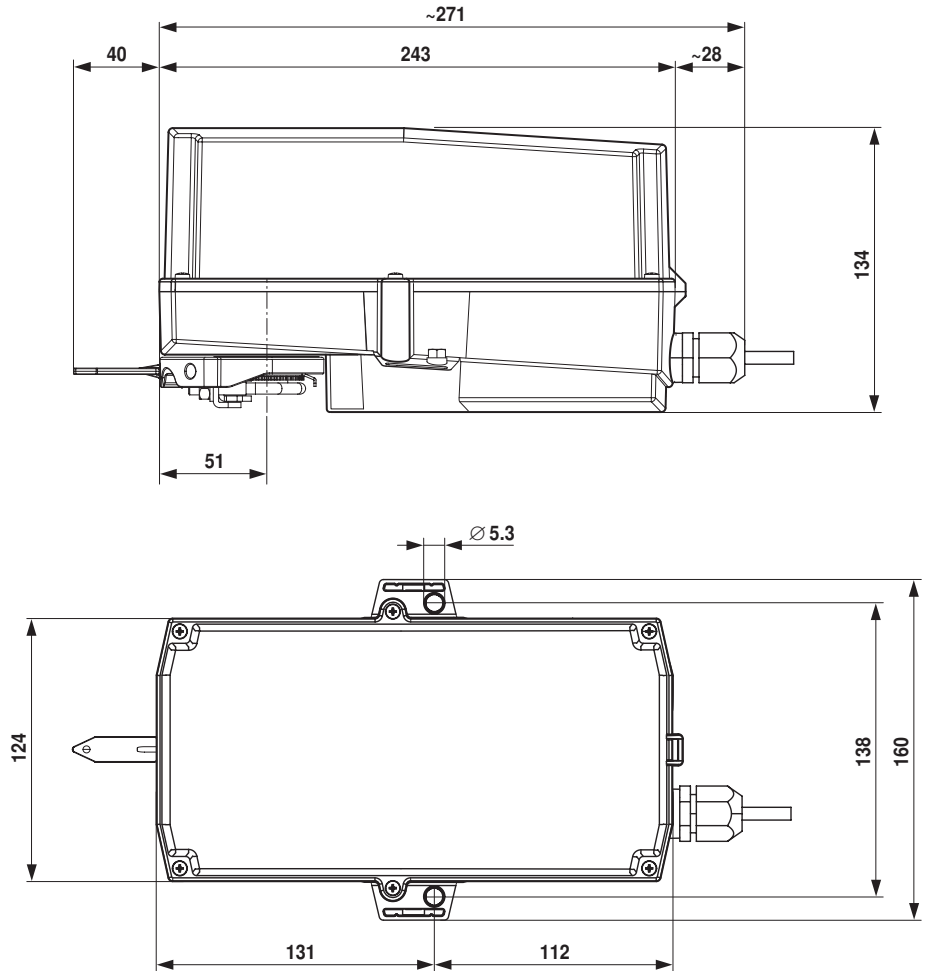
- 9 Press button: Triggers angle of rotation adaption, followed by standard operation

Setting the POP Power off position



Dimensions [mm]

Dimensional drawings



Damper spindle	Length	● I	■ I	◆ I
	20 ... 58	8 ... 20	8 ... 14	10 ... 20