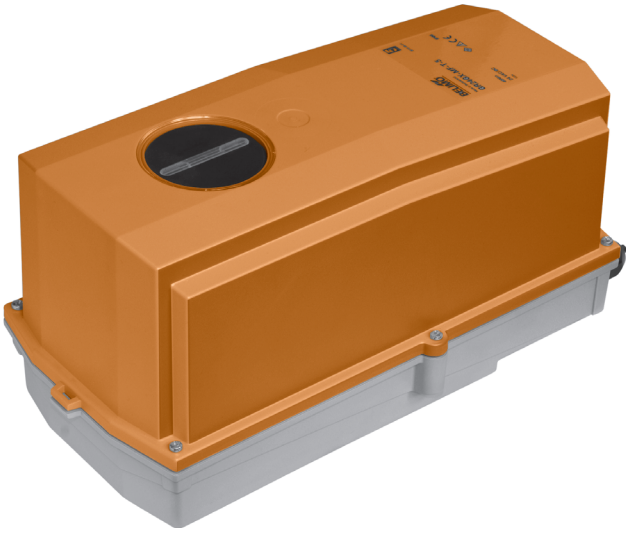
Spring return actuator with emergency function in the IP66 protective housing for adjusting air dampers in industrial plants and in technical building installations

- **For air dampers up to approx. 2 m²**
- **Torque 10 Nm**
- **Nominal voltage AC 24 ... 240 V / DC 24 ... 125 V**
- **Control: Open-close**
- **Two integrated auxiliary switches**

Optimum weather protection for outdoor applications



Technical data

Electrical data	Nominal voltage		AC 24 ... 240 V, 50/60 Hz / DC 24 ... 125 V
	Nominal voltage range		AC 19,2 ... 264 V / DC 21,6 ... 137,5 V
	Power consumption	In operation	6 W @ nominal torque
		At rest	2.5 W
		For wire sizing	9.5 VA (I_{max} 20 A @ 5 ms)
	Auxiliary switch		2 x SPDT, 1 mA ... 3 (0.5) A, AC 250 V ⧈ (1 x fix 10% / 1 x adjustable 10 ... 90%)
	Connection	Motor	Cable 1 m, 2 x 0.75 mm²
		Auxiliary switch	Cable 1 m, 6 x 0.75 mm²
Functional data	Torque	Motor	Min. 10 Nm @ nominal voltage
		Spring return	Min. 10 Nm
	Direction of rotation	Spring return	L (ccw)
	Manual override		With hand crank and interlocking switch
	Angle of rotation		Max. 95°∢, can be limited with adjustable mechanical end stop
	Running time	Motor	≤75 s (0 ... 10 Nm)
		Spring return	≤20 s @ –20 ... 50°C / max. 60 s @ –30°C
	Sound power level	Motor	≤45 dB (A)
		Spring return	≤62 dB (A)
	Service life		Min. 60,000 emergency positions
	Position indication		Mechanical
Safety	Protection class		**II** Totally insulated ⧈
	Degree of protection		IP66 NEMA 4, UL Enclosure Type 4
	EMC Low-voltage directive		CE according to 2004/108/EC CE according to 2006/95/EC
	Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation		Type 1.AA.B
	Rated impulse voltage	Actuator	4 kV
		Auxiliary switch	2.5 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 3
	Weight		Approx. 5.2 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.**
- **Caution: Power supply voltage possible!**
- **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 on the inside.**
- **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 integrated switches of this actuator have to be connected either to Power supply voltage or safety extra low voltage. The combination Power supply voltage / safety extra low voltage is not allowed.**
- **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 actuator is not designed for applications where chemical influences (gases, fluids) are present or for utilisation in corrosive environments in general.**
- **The materials used may be subjected to external influences (temperature, pressure, constructional fixture, effect of chemical substances, etc.), which cannot be simulated in laboratory tests or field trials.**
  In case of doubt, we definitely recommend that you carry out a test. This information does not imply any legal entitlement. Belimo will not be held liable and will provide no warranty.
- **For UL (NEMA) Type 4 applications flexible metallic cable conduits or threaded cable conduits of equal value are to be used.**
- **The actuator may not be used in plenum applications (e.g. suspended ceilings or raised floors).**

Product features

Fields of application

The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:
– UV radiation
– rain / snow
– dirt / dust
– humidity

Mode of operation

The actuator is equipped with a universal power module and can process supply voltages from AC 24 ... 240 V plus DC 24 ... 125 V.
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 emergency position by spring force if the supply voltage is interrupted.

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 operation of the damper with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.
The housing cover must be removed to set the manual override.

Adjustable angle of rotation

Adjustable angle of rotation with mechanical end stop.
The housing cover must be removed to set the angle of rotation.

High operational reliability

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

Flexible signalization

The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 10 ... 90% angle of rotation to be signalled.

Accessories

Electrical accessories

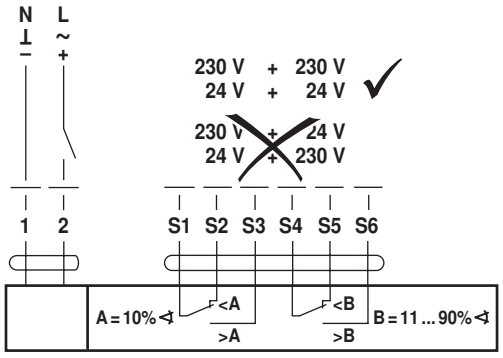
Description	Data sheet
Auxiliary switch unit S2A-F *	T2 - S2A-F
Feedback potentiometer unit P200A-F *	T2 - P200A-F
Cable socket IP66/NEMA4 housing Z-KB-PG11	

* further versions on request

Electrical installation

Wiring diagram

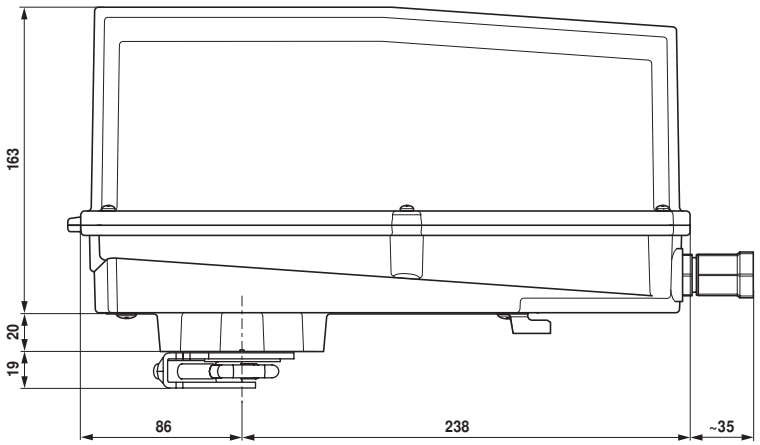
Notes
- Caution: Power supply voltage possible!
- Parallel connection of other actuators possible. Note the performance data.



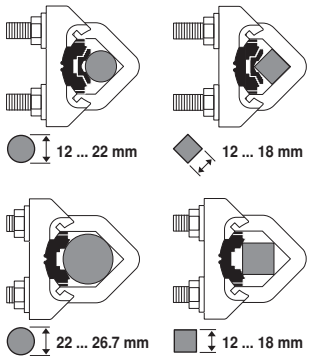
Cable colours:
1 = blue
2 = brown
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey

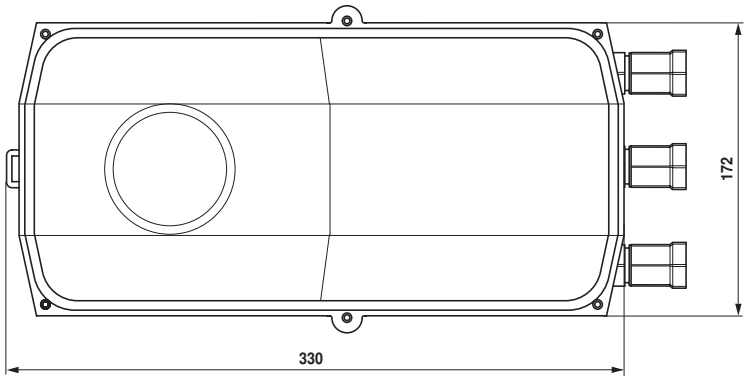
Dimensions [mm]

Dimensional drawings



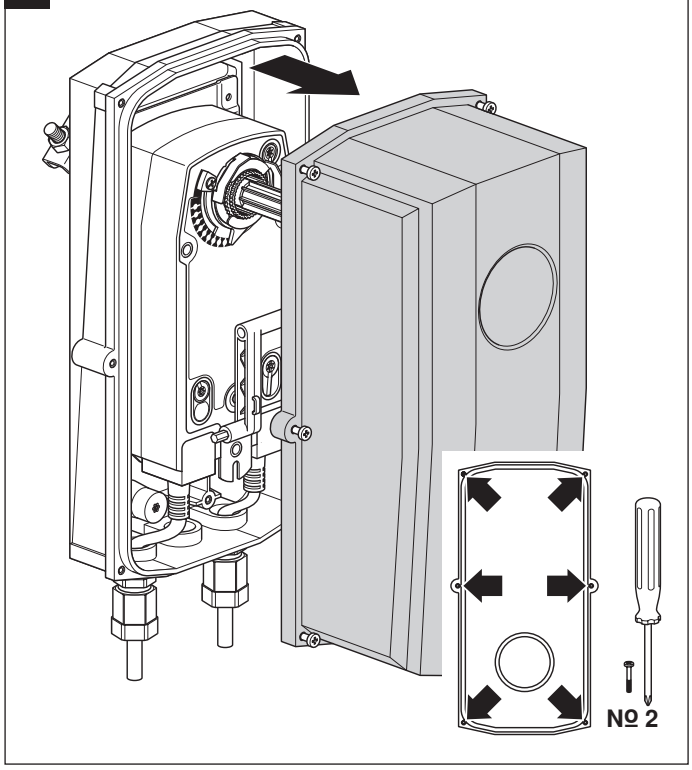
Damper spindle	Length	
	16 ... 105 16 ... 45	12 ... 19 19 ... 26,7



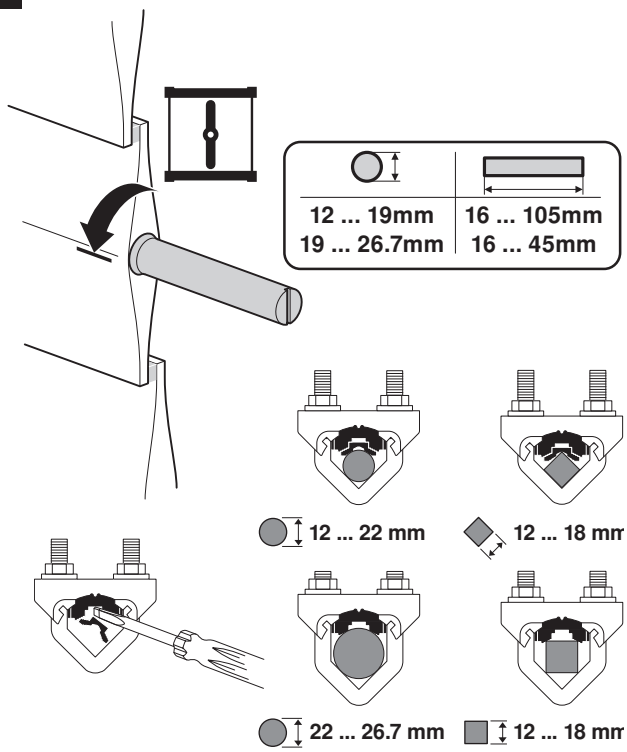


71228-00001.C

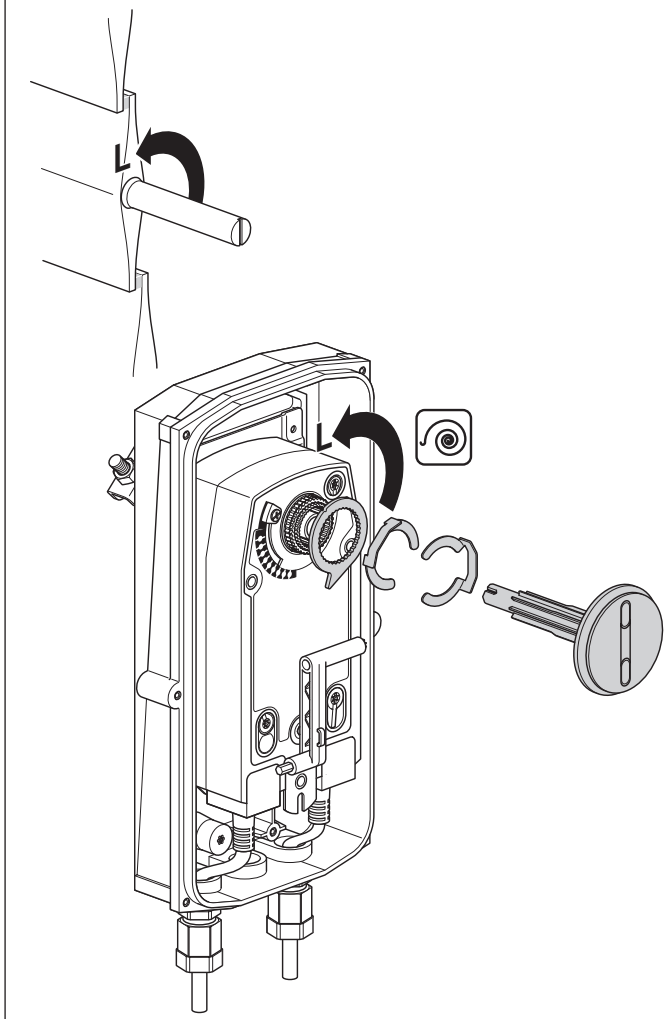
1



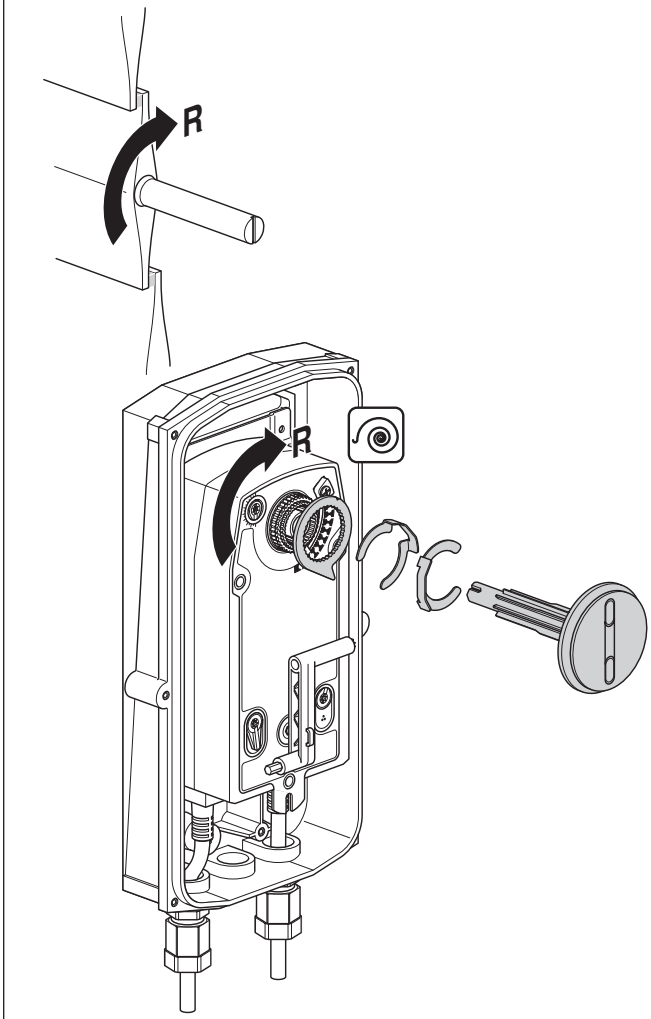
2



3A

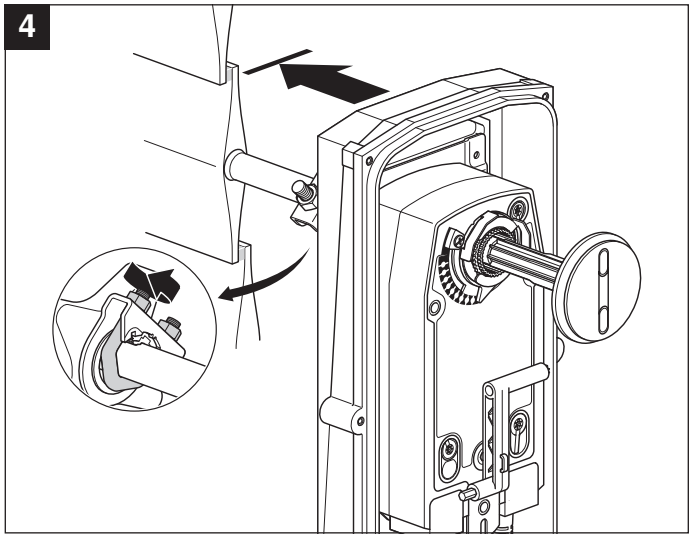


3B

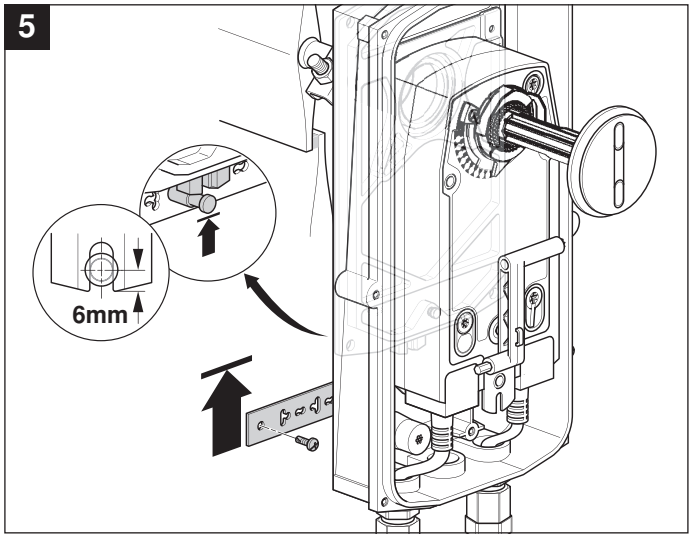


BELIMO

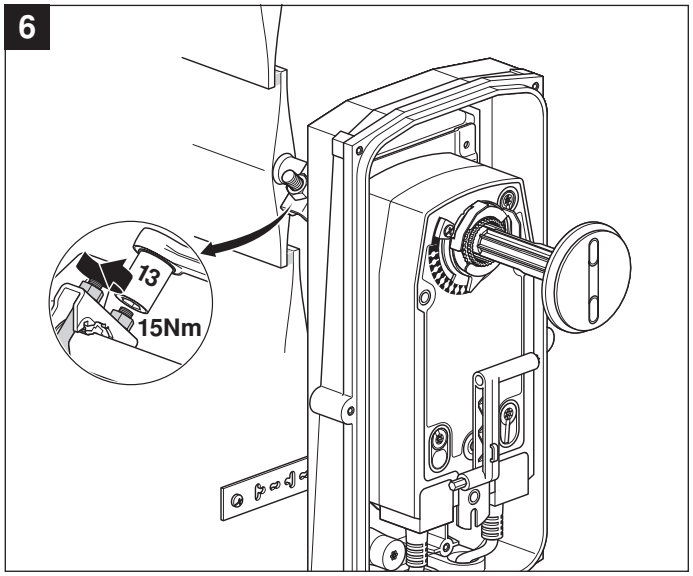
4



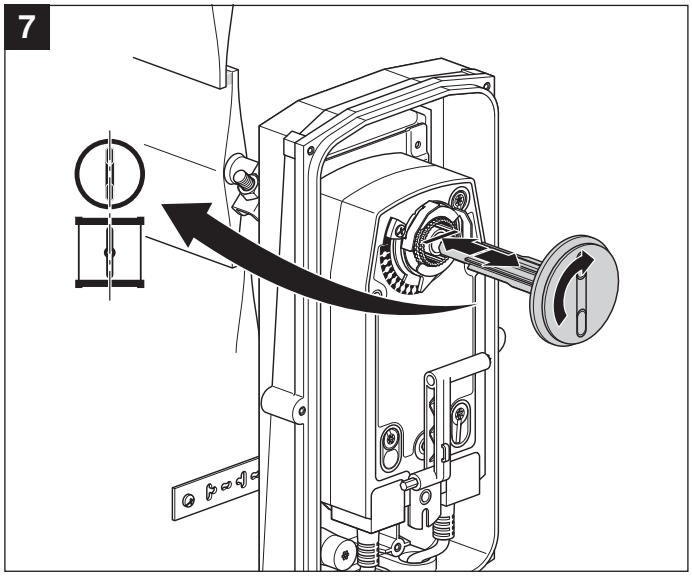
5



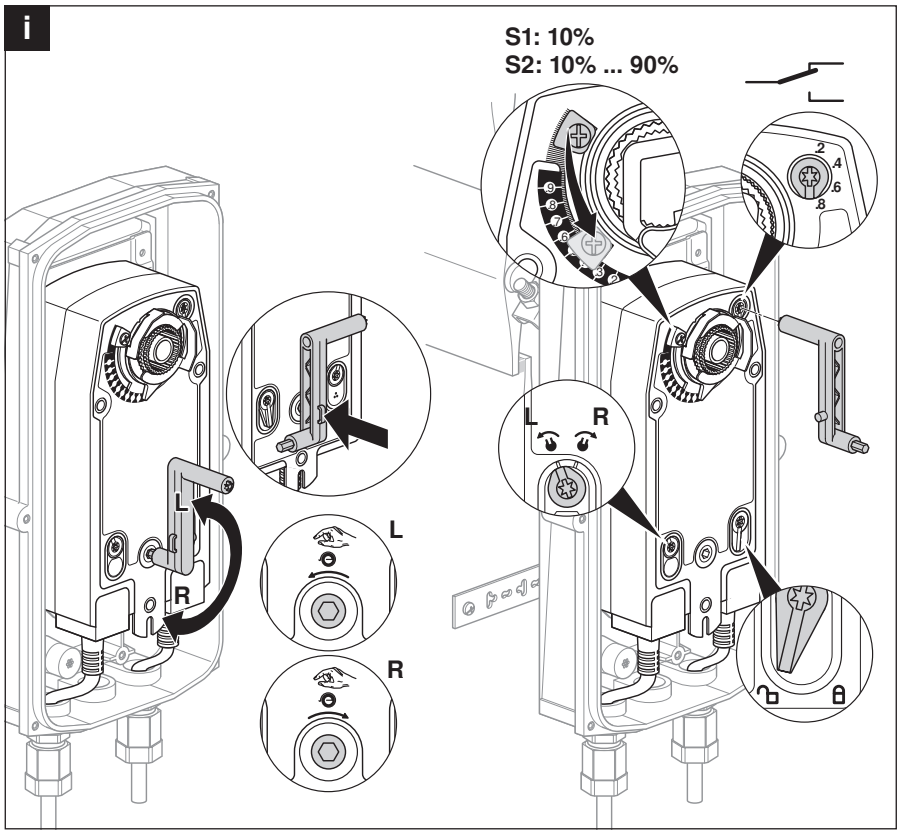
6



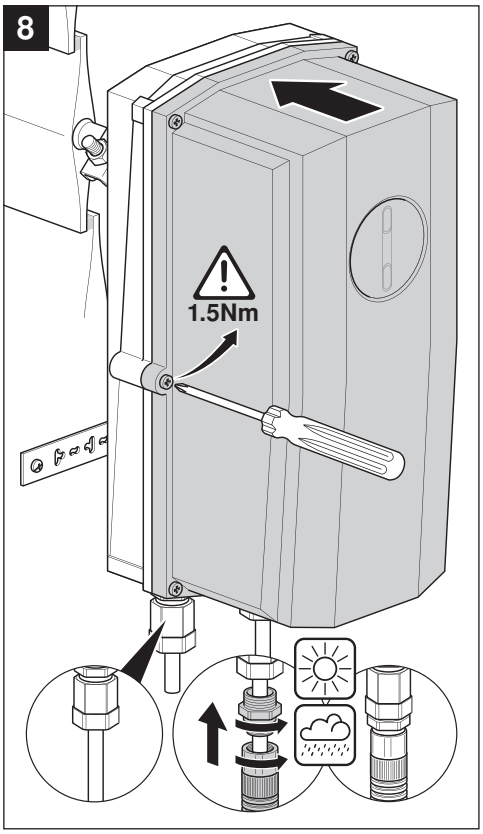
7

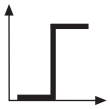


i

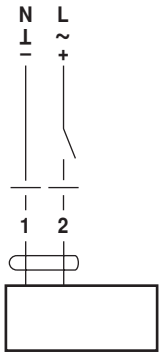


8

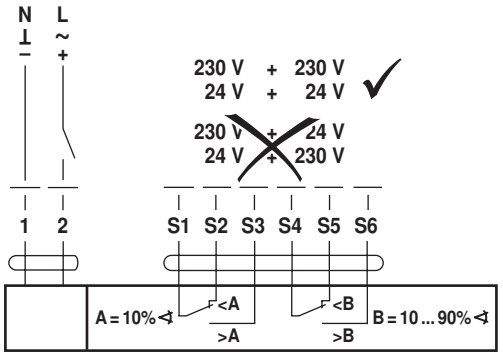




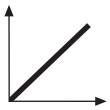
AC 24 ... 240 V
DC 24 ... 125 V



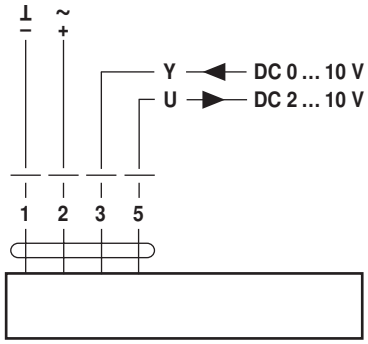
NFG
SFG



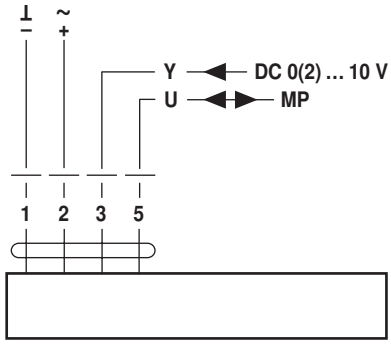
NFA-S2
SFA-S2



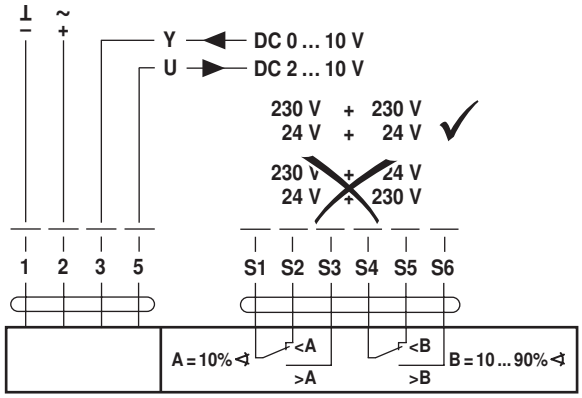
AC 24 V / DC 24 V



NF24G-SR
NF24G-MF
SF24G-SR
SF24G-MF



NF24G-MP
SF24G-MP



NF24G-SR-S2
SF24G-SR-S2