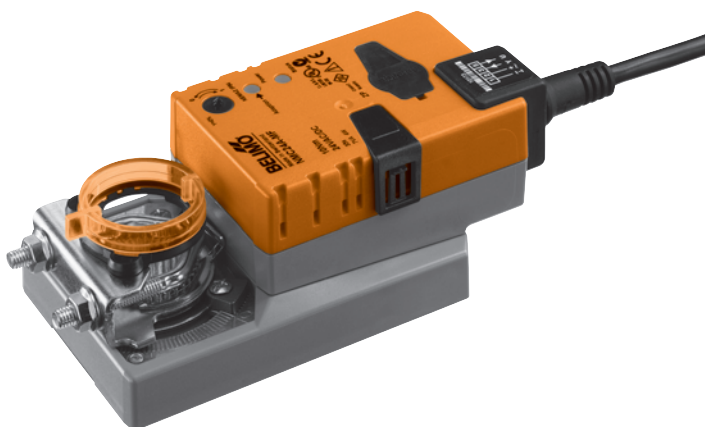


Multifunctional damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Air damper up to approx. 2 m²
- Torque 10 Nm
- Nominal voltage AC/DC 24 V
- Control: modulating DC 0 ... 10 V or variable
- Position feedback DC 2 ... 10 V or variable
- Running time 35 s



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	4 W @ nominal torque
At rest	1.5 W
Wire sizing	7 VA
Connection	Cable 1 m, 4 x 0.75 mm ²

Functional data	Factory settings	Variable	Settings
Torque (nominal torque)	Min. 10 Nm @ nominal voltage	25%, 50%, 75% reduced	.....
Control Control signal Y	DC 0 ... 10 V, input impedance 100 kΩ	Open-close / 3-point (only AC)	.....
Operating range	DC 2 ... 10 V	Starting point DC 0.5 ... 30 V	.....
		End point DC 2.5 ... 32 V	.....
Position feedback (measuring voltage U)	DC 2 ... 10 V, max. 0.5 mA	Starting point DC 0.5 ... 8 V	.....
		End point DC 2.5 ... 10 V	.....
Position accuracy	± 5%		
Direction of rotation	Reversible with switch 0 / 1		
Direction of motion at Y = 0 V	At switch position 0 ↺ resp. 1 ↻	Electronically reversible	.....
Manual override	Gearing latch disengaged with pushbutton, can be locked		
Angle of rotation	Max. 95° ↺, can be limited at both ends with adjustable mechanical end stops		
Running time	35 s / 90° ↺	20 ... 75 s	.....
Automatic adjustment of running time, operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the „Adaption“ button or with the PC-Tool	Automatic adaption whenever the supply voltage is switched on	.....
Override control	MAX (maximum position) = 100% MIN (minimum position) = 0% ZS (intermediate position, only AC) = 50%	MAX = (MIN + 30° ↺) ... 100% MIN = 0% ... (MAX – 30° ↺) ZS = MIN ... MAX	.....
Sound power level	Max. 55 dB (A)	With a 20 s = 55 dB (A) running time of 75 s = 35 dB (A)	
Position indication	Mechanical, pluggable		

Safety

Protection class	III Safety extra-low voltage
Degree of protection	IP54 in any mounting position
EMC	CE according to 2004/108/EC
Zertifizierung	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 and CSA C22.2 No. 24-93 certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation	Type 1 (EN 60730-1)
Rated impulse voltage	0.8 kV (EN 60730-1)
Control pollution degree	3 (EN 60730-1)
Ambient temperature	–30 ... +50 °C
Non-operating temperature	–40 ... +80 °C
Ambient humidity	95% RH, non-condensating (EN 60730-1)
Maintenance	Maintenance-free

Dimensions / Weight

Dimensions	See «Dimensions» on page 4
Weight	Approx. 870 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.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- The device 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.

Product features

Mode of operation	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% and as slave control signal for other actuators.
Parameterisable actuators	The factory settings cover the most common applications. Input and output signals and other parameters can be altered with the MFT-H parameterising device or the BELIMO Service Tool, MFT-P.
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 pushbutton possible (the gear is disengaged for as long as the button is pressed or remains locked).
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.
High functional reliability	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.
Home position	When the supply voltage is switched on for the first time, i.e. at commissioning or after pressing the „gear disengagement“ switch, the actuator travels to the home position.

Pos. Direction of rotation switch	Home position
 Y = 0  Y = 1 	ccw  Left stop  cw Right stop

The actuator then moves into the position defined by the control signal.

Accessories

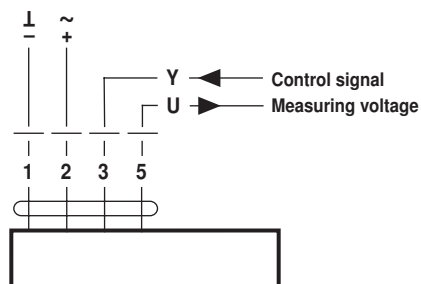
	Description	Data sheet
Electrical accessories	Auxiliary switch S..A..	T2 - S..A..
	Feedback potentiometer P..A..	T2 - P..A..
	Manual parameterising device MFT-H	T2 - MFT-H
	PC-Tool MFT-P	T2 - MFT-P
	Positioner SG..24	T2 - SG..24
	Digital position indication ZAD24	T2 - ZAD24
Mechanical accessories	Various accessories (clamps, shaft extensions etc.)	T2 - Z-NM..A..

Electrical installation

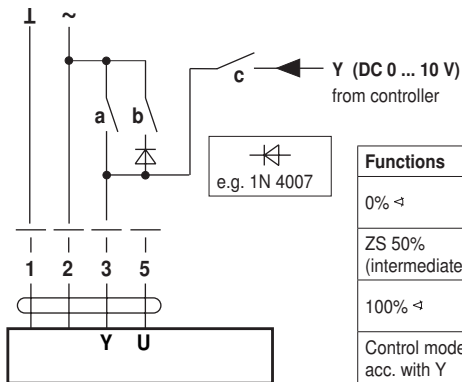
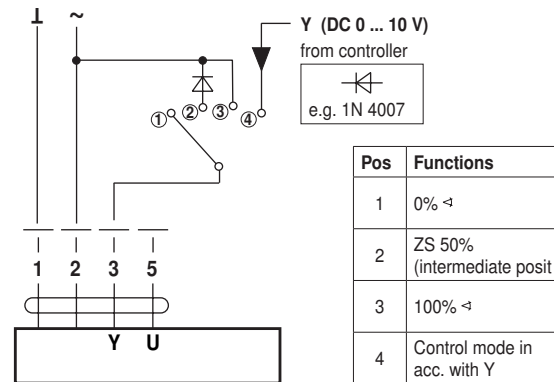
Wiring diagram

Note

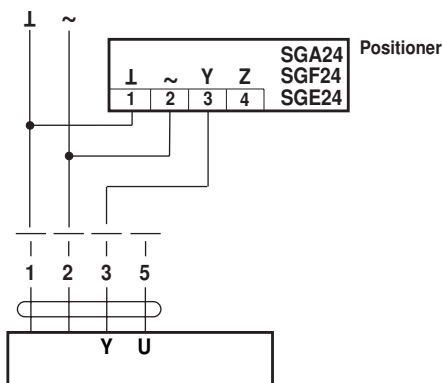
- Connect via safety isolation transformer.
- Other actuators can be connected in parallel. Note the performance data.



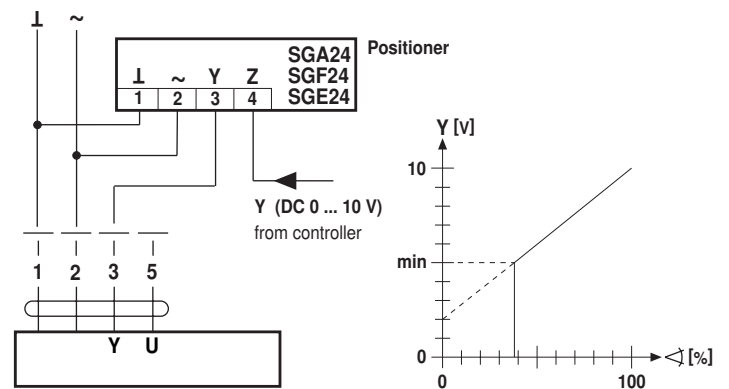
Functions with basic values

Override control with AC 24 V
with relay contactsOverride control with AC 24 V
with rotary control switch

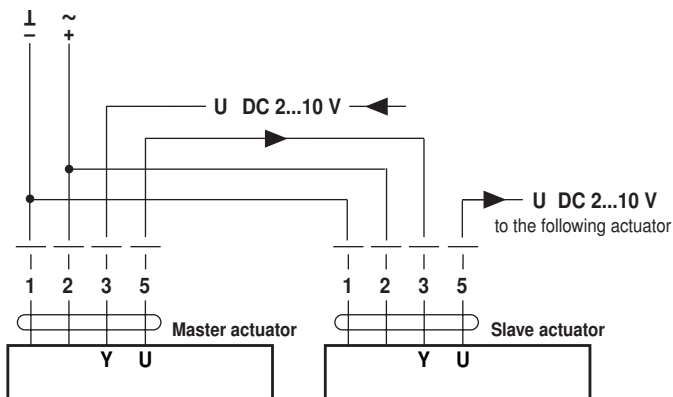
Remote control 0 ... 100%



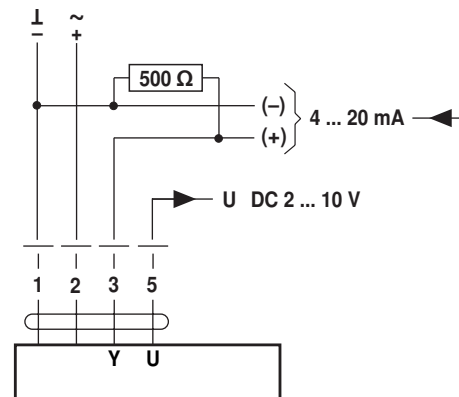
Minimum limit



Master/Slave control (position-dependent)

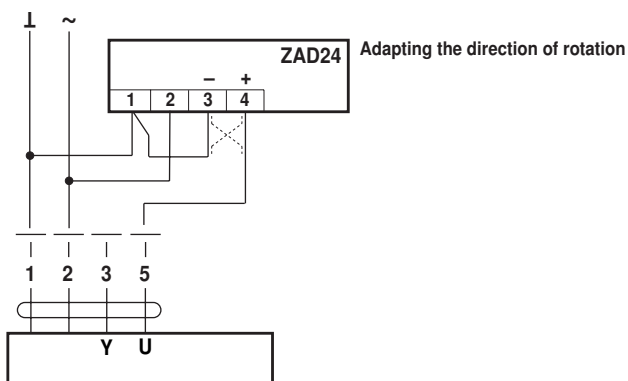


Control with 4 ... 20 mA via external resistance

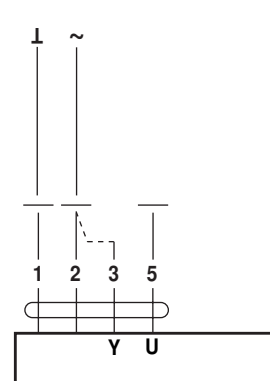


The 500 Ω resistor converts the 4 ... 20 mA current signal into a voltage signal DC 2 ... 10 V

Position indication



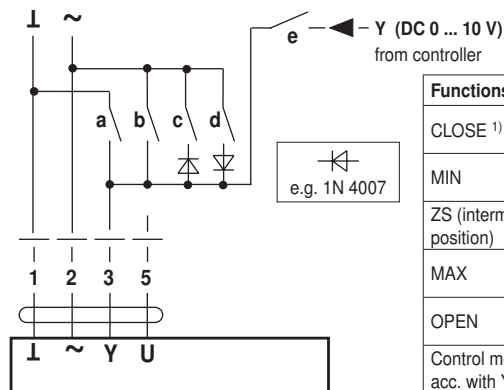
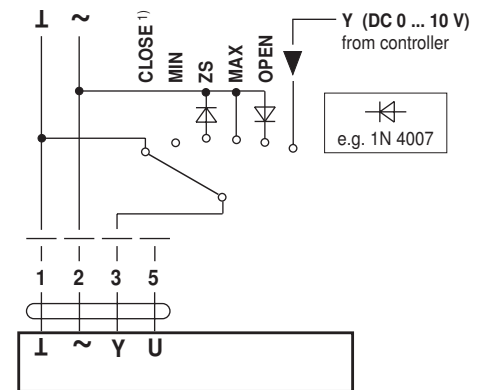
Functional check



Procedure

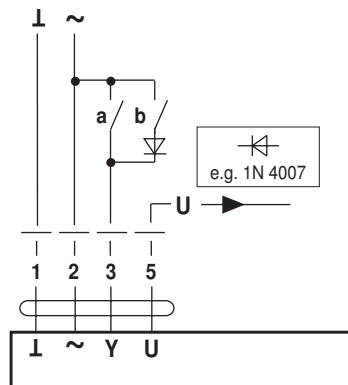
- Apply AC 24 V to connection 1 and 2
- Disconnect connection 3:
 - For direction of rotation 0: Actuator turns in the direction of ↺
 - For direction of rotation 1: Actuator turns in the direction of ↻
- Short circuit connections 2 and 3:
 - Actuator runs in the opposite direction

Functions for actuators with specific parameters

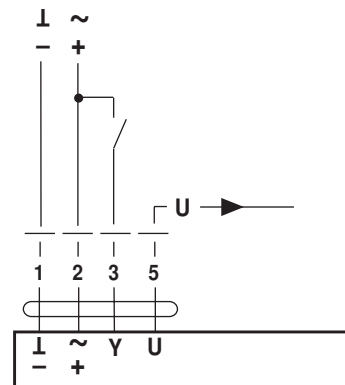
Override control and limiting with AC 24 V
with relay contactsOverride control and limiting with AC 24 V
with rotary switch

¹⁾ **Caution !** This function is only guaranteed if the start point of the operating range is defined as min. 0.6 V.

3-point control

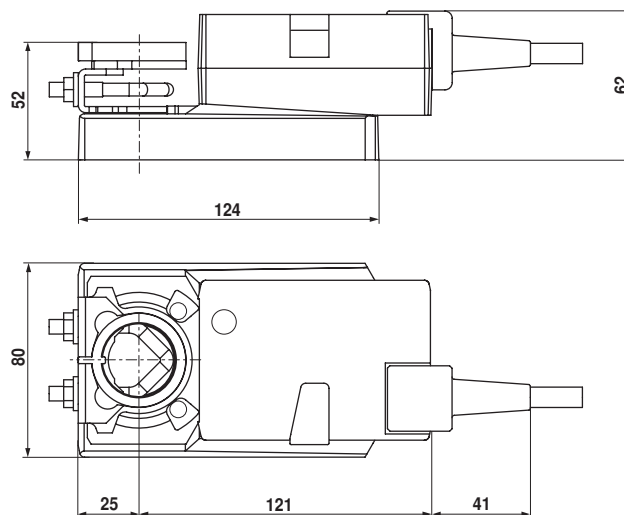


Open-close control



Dimensions [mm]

Dimensional drawings



Damper spindle	Length			
	≥40	8 ... 26,7	≥8	≤26,7
	≥20	8 ... 20	≥8	≤20

* Option (accessory K-NA)

Operating controls and indicators



① Direction of rotation switch

Switching over:: Direction of rotation changes

② Push-button and green LED display

Off: No voltage supply or fault

On: Operation

Press button: Switches on angle of rotation adaptation followed by standard operation

③ Pushbutton and yellow LED display

Off: Standard operation

On: Adaptation or synchronising process active

Press button: No function

④ Gear disengagement switch

Press button: Gear disengaged, motor stops, manual override possible

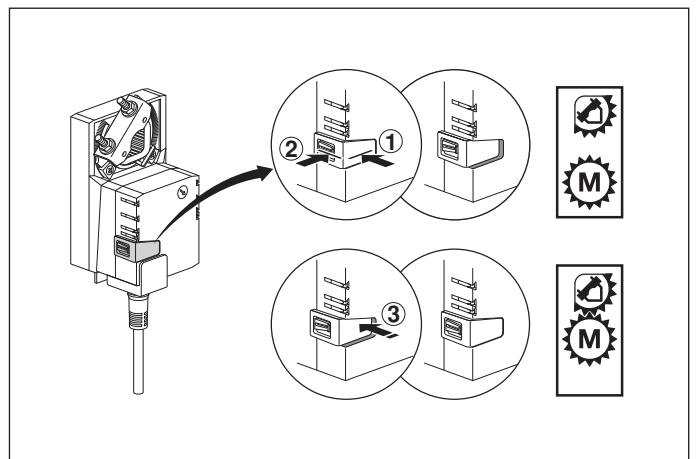
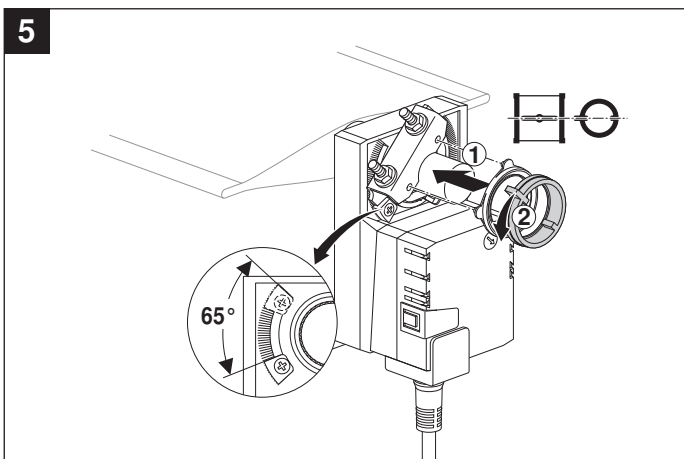
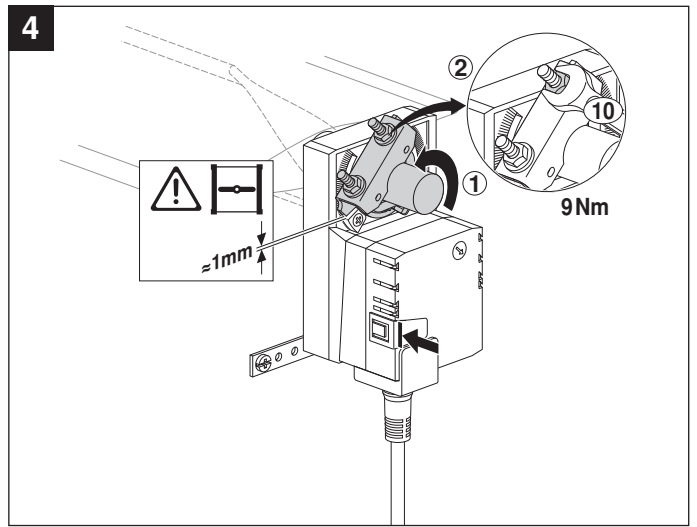
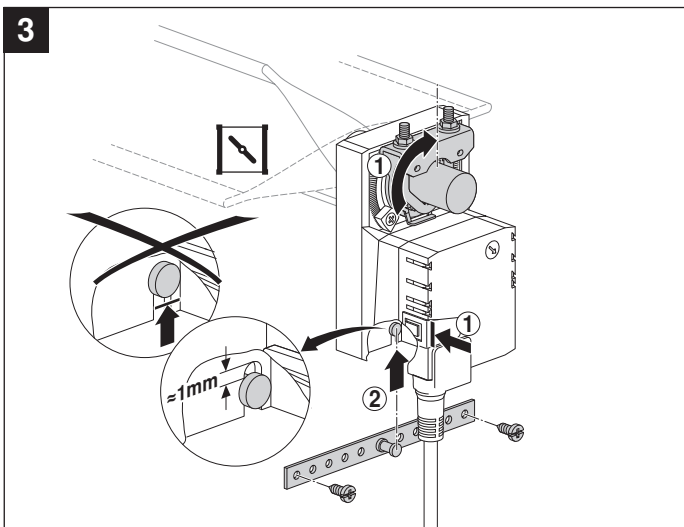
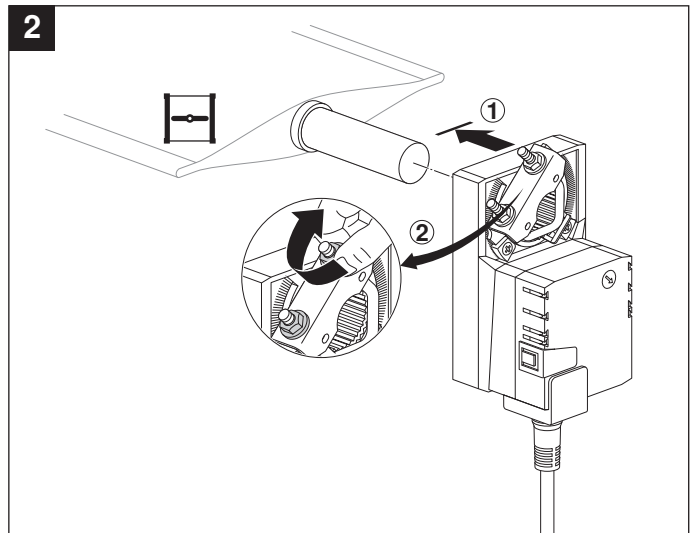
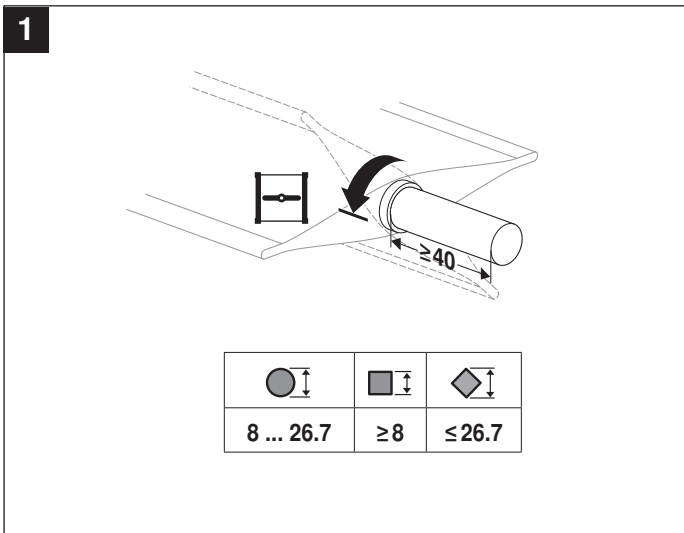
Release button: Gear engaged, synchronisation starts, followed by standard operation

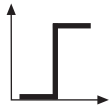
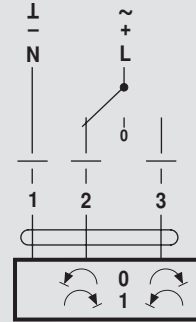
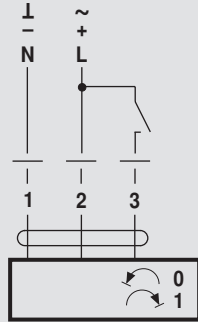
⑤ Service plug

For connecting parameterising and service tools

Check connection power supply

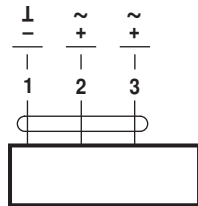
② Off } or flashing }
③ On } flashing } Check the power supply connections. $\perp$ and ∇ could be reverse.



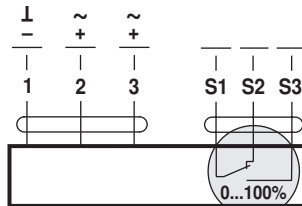


AC 24 V / DC 24 V

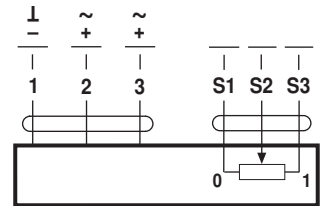
DC 48 ... 110 V
(NM72A..)



NM24A..
NM72A..

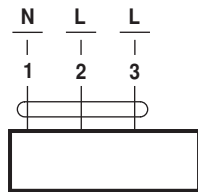


NM24A-S..

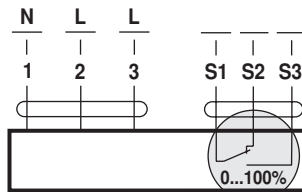


NM24AP5..

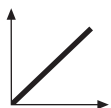
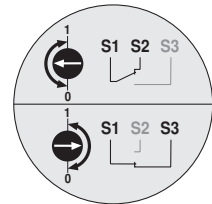
AC 100 ... 240 V



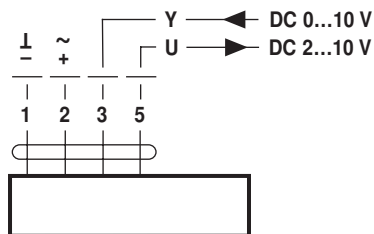
NM230A..



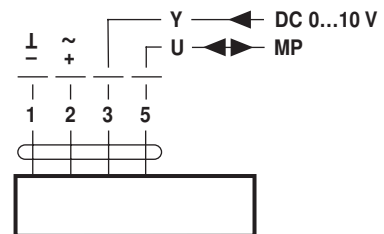
NM230A-S..



AC 24 V / DC 24 V

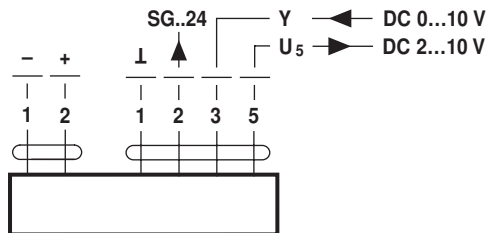


NM24A-SR..
NM24A-MF..



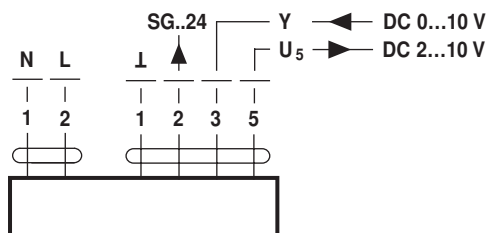
NM24A-MP..

DC 48 ... 110 V
(NM72A-SR..)



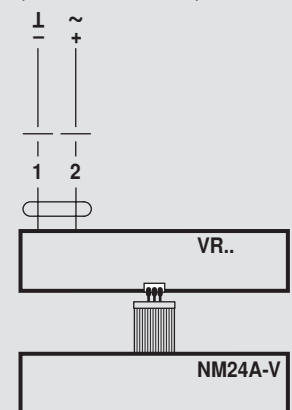
NM72A-SR..

AC 100 ... 240 V



NM230ASR..

AC 24 V / DC 24 V
(NM24A-V / VR..)



NM24A-V / VR..