

**Modulating globe valve actuator for 2-way and 3-way globe valves**

- Actuating force 2000 N
- Nominal voltage AC/DC 24 V
- Control: modulating DC (0) 0.5 V...10 V
- Nominal stroke 32 mm
- Design life SuperCaps 15 years


**Technical data**

<b>Electrical data</b>	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	5 W	
	Power consumption in rest position	2 W	
	Power consumption for wire sizing	9.5 VA	
	Connection supply / control	Terminals 4 mm <sup>2</sup> and cable 1 m, 4 x 0.75 mm <sup>2</sup>	
	Parallel operation	Yes	
	<b>Functional data</b>	Actuating force	2000 N
Positioning signal Y		DC 0...10 V	
Positioning signal Y note		Input impedance 100 kΩ	
Operating range Y		DC 0.5...10 V	
Position feedback U		DC 0.5...10 V	
Position feedback U note		max. 0.5 mA	
Setting emergency setting position		Actuator spindle 0...100%, adjustable (POP rotary knob)	
Position accuracy		5% absolute	
Manual override		Gear disengagement with push-button	
Nominal stroke		32 mm	
Actuating time		150 s / 32 mm	
Actuating time emergency control function		35 s / 32 mm	
Sound power level motor max.		60 dB (A)	
Sound power level motor note		60 dB (A) @ 90 s running time	
Sound power level emergency setting position max.		60 dB (A)	
Position indication		Mechanical 5 ... 32 mm stroke	
<b>Safety</b>		Protection class IEC/EN	III Safety extra-low voltage
		Degree of protection IEC/EN	IP54
		EMC	CE in accordance with 2004/108/EC
		Certification IEC/EN	Certified to: IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA	
	Rated impulse voltage supply / control	0.8 kV	
	Control pollution degree	3	
	Ambient temperature	0°C ... 50°C	
	Non-operating temperature	-40°C ... 80°C	
	Ambient humidity	95% r.h., non-condensing	
Maintenance	Maintenance-free		
<b>Weight</b>	Weight approx.	4.460 kg	

**Safety notes**


- This actuator has been designed for application in stationary heating, ventilation and air-conditioning systems and is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.

**Safety notes**

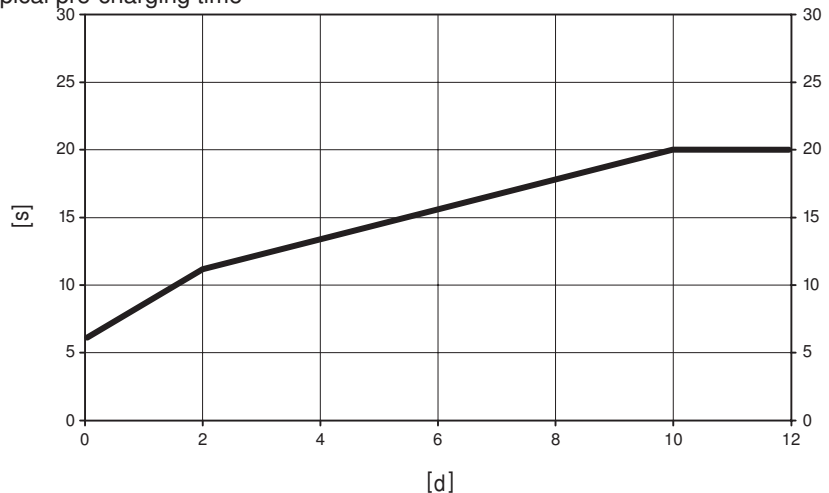
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- The switch for changing the direction of motion/the closing point may be adjusted only by authorised personnel. The direction of stroke is critical, particularly in connection with frost protection circuits.
- 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 is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

**Product features**

**Principle of operation** The actuator is connected with a standard modulating signal of DC 0 ... 10V and travels to the position defined by the positioning signal at the same time the integrated capacitors are being charged. Interrupting the supply voltage causes the valve to be moved to the selected emergency setting position (POP) by means of stored electrical energy.

**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 an electricity interruption, the actuator can move 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 time



[d] = Electricity interruption in days  
 [s] = Pre-charging time in seconds  
 PF[s] = Bridging time

	[d]				
	0	1	2	7	≥10
[s]	6	9	11	16	20

**Delivery condition (capacitors)** The actuator is completely discharged after delivery from the factory, which is why the actuator requires approximately 20 s pre-charging time before initial commissioning in order to bring the capacitors up to the required voltage level.

**Direct mounting** Simple direct mounting on the globe valve by means of form-fit hollow clamping jaws. The actuator can be rotated by 360° on the valve neck.

**Manual override** Manual override with push-button possible - temporary. The gear is disengaged and the actuator decoupled for as long as the button is pressed. The stroke can be adjusted by using a hexagon socket screw key (5 mm), which is inserted into the top of the actuator. The stroke spindle extends when the key is rotated clockwise.

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

**Combination valve/actuator** Refer to the valve documentation for suitable valves, their permitted medium temperatures and closing pressures.

## Product features

<b>Position indication</b>	The stroke is indicated mechanically on the bracket with tabs. The stroke range adjusts itself automatically during operation.
<b>Home position</b>	Setting ex-works: Actuator spindle is retracted. When valve-actuator combinations are shipped, the direction of motion is set in accordance with the closing point of the valve.
<b>Direction of stroke switch</b>	When actuated, the direction of stroke switch changes the running direction in normal operation. The direction of stroke switch has no influence on the emergency setting position (POP) which has been set
<b>Adaption of stroke range</b>	The first time the supply voltage is switched on, i.e. at the time of commissioning, the actuator carries out a stroke adaption, which is when the operating range and position feedback adjust themselves to the mechanical stroke. Manual triggering of the adaption can be carried out by pressing the "Adaption" button. The actuator then moves into the position defined by the positioning signal.
<b>Rotary knob emergency setting position</b>	The "Emergency setting position" rotary knob can be used to adjust the desired emergency setting position (POP) from 0% to 100% in 10% increments. The rotary knob is in reference to the adapted or programmed height of stroke. In the event of an electricity interruption, the actuator will move into the selected emergency setting position, taking into account the bridging time (PF) of 2 s which was set ex-works.

## Accessories

	Description	Type
Electrical accessories	Auxiliary switch add-on, 2 x SPDT	S2A-H

**Electrical installation**

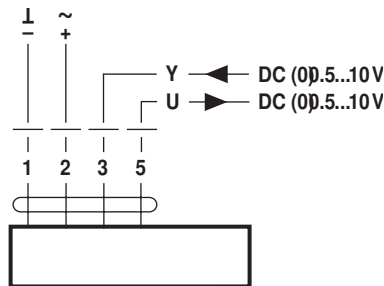


**Notes**

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible.
- Direction of stroke switch factory setting: Actuator spindle retracted.

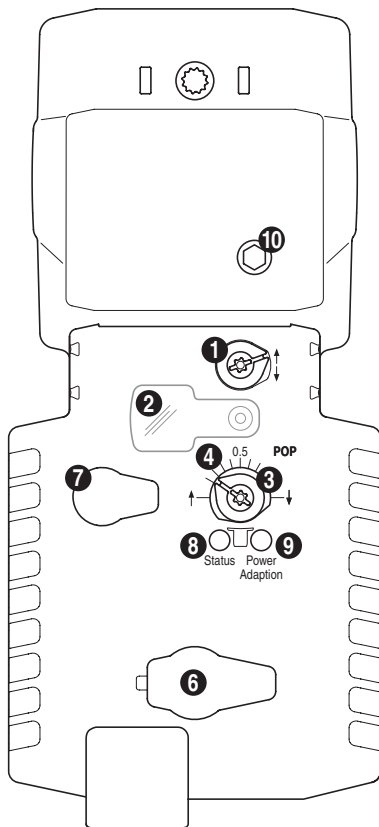
**Wiring diagrams**

**AC/DC 24V, modulating**



Cable colours:  
 1 = black  
 2 = red  
 3 = white  
 5 = orange

**Indicators and operating controls**



**(1) Direction of stroke switch**

Switching: Direction of stroke changes

**(2) Cover, POP button**

**(3) POP button**

**(4) Scale for manual adjustment**

**(6) No function**

**(7) Gear disengagement button, temporary**

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

Release button: Gear engages, standard mode

**(8) LED display, yellow**

**(9) Push-button and LED display green**

Press button: Triggers stroke adaption, followed by standard mode

**(10) Manual override**

Clockwise: Actuator spindle extends

Counterclockwise: Actuator spindle retracts

**LED displays (8, yellow) and (9, green)**

yellow: Off; green: Illuminated; In operation OK

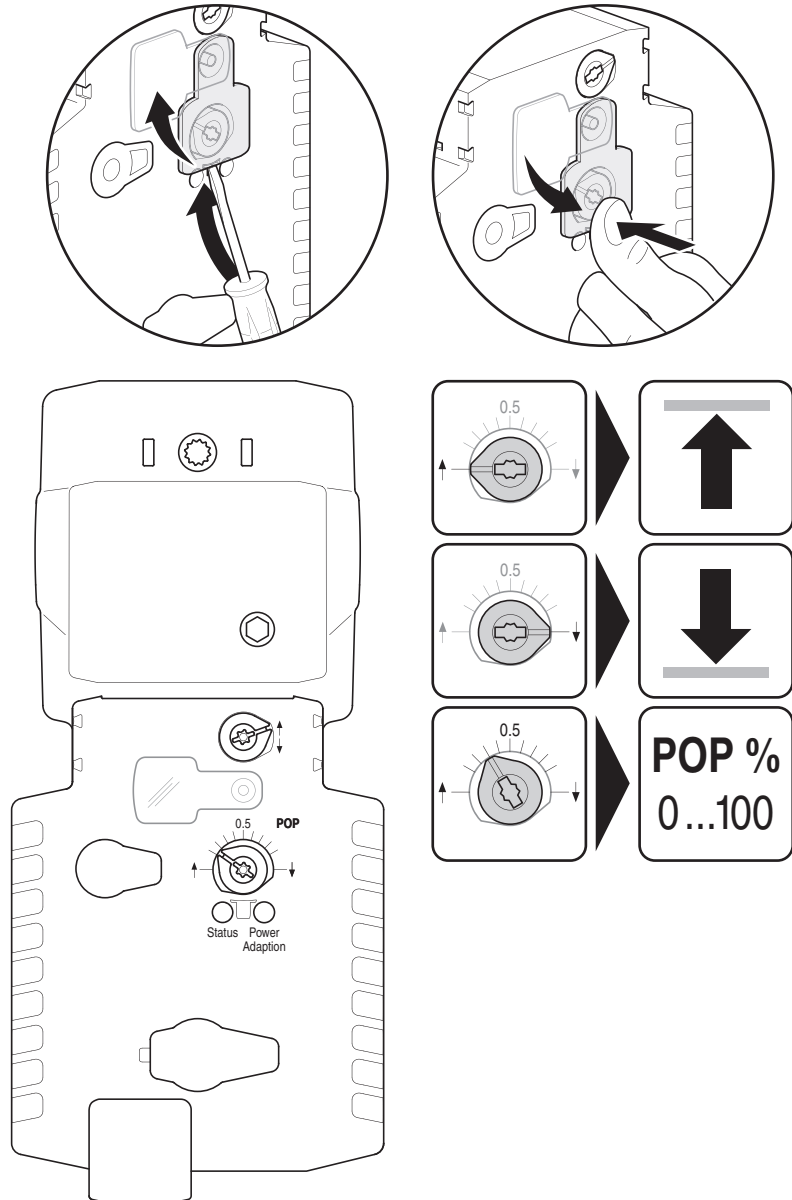
yellow: Off; green: Blinking; POP function active

yellow: Illuminated; green: Off; Pre-charging time SuperCap / Fault SuperCap

yellow: Off; green: Off; Not in operation

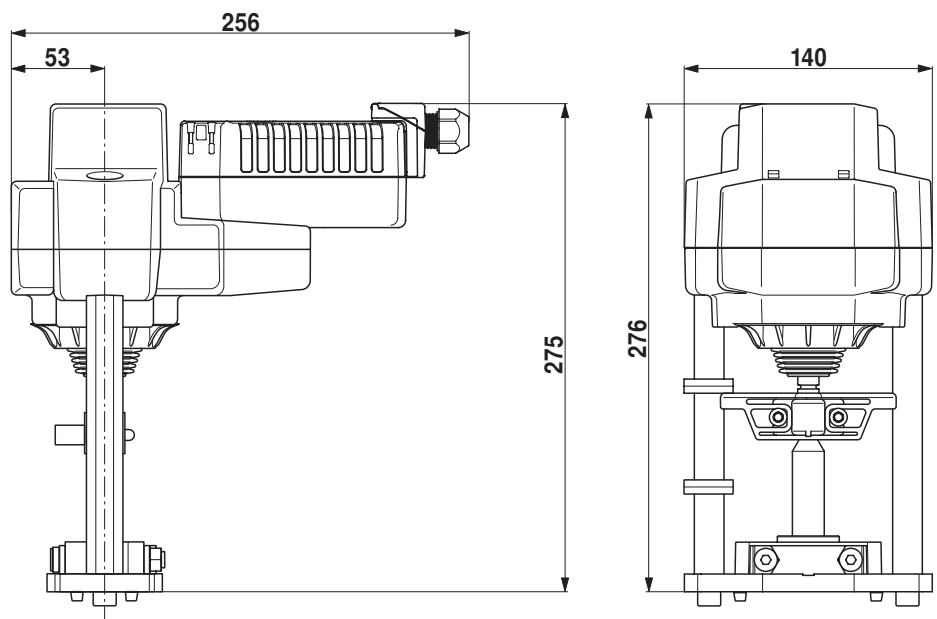
yellow: Illuminated; green: Illuminated; Adaption procedure active active

Indicators and operating controls



## Dimensions [mm]

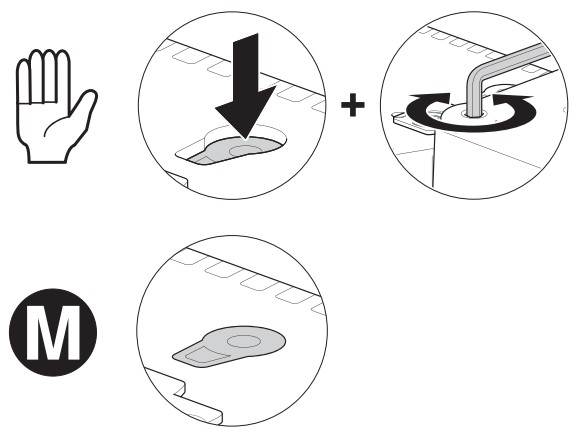
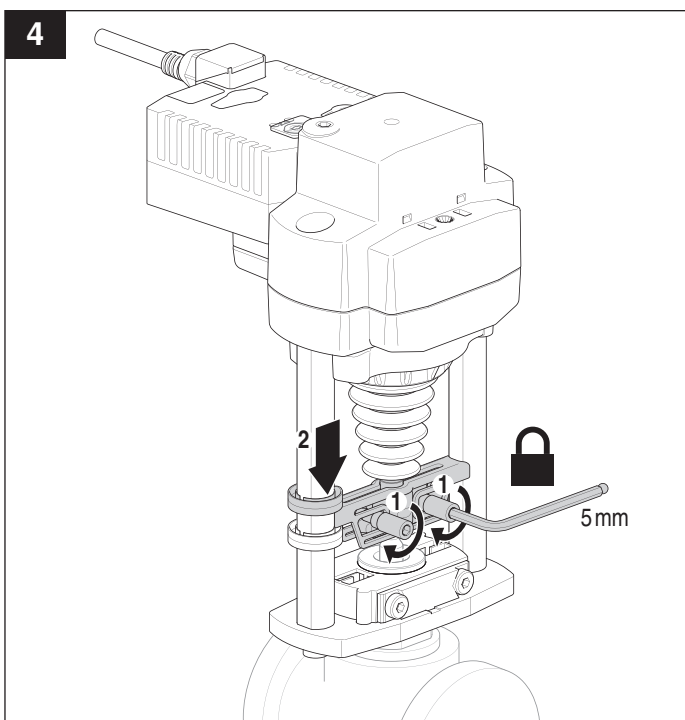
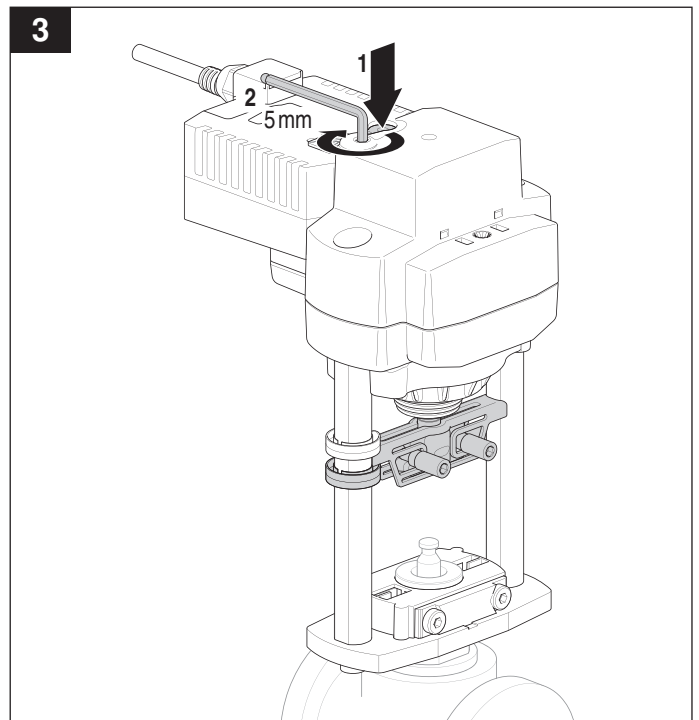
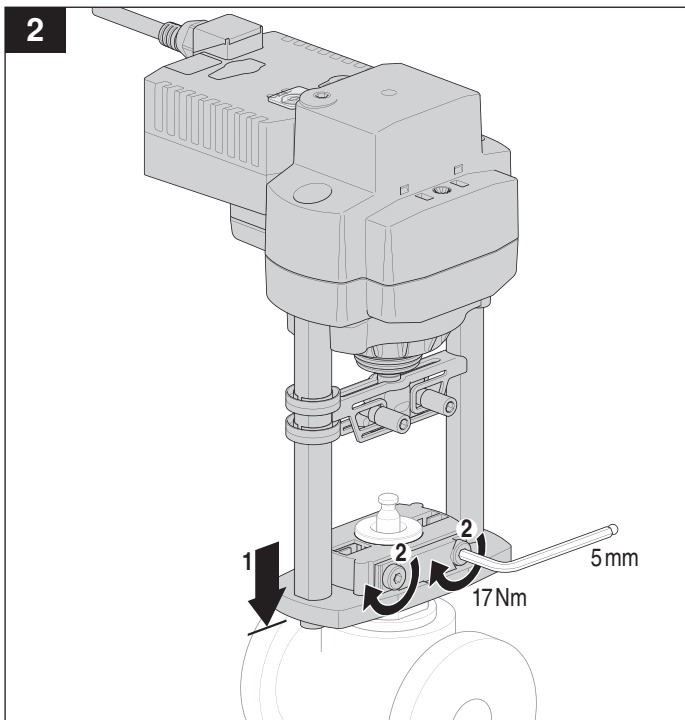
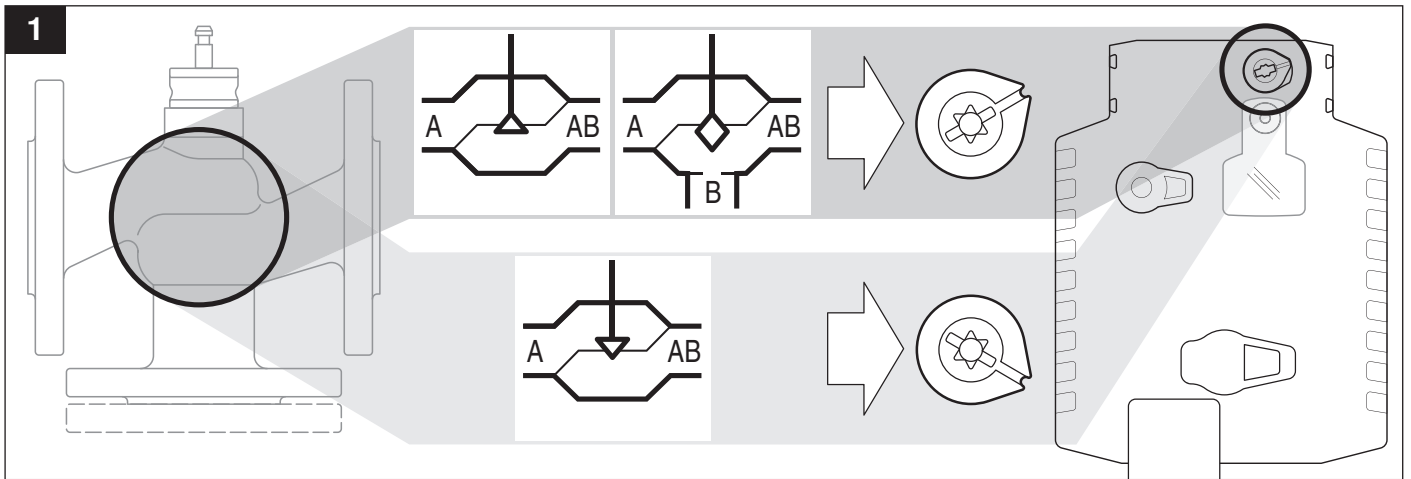
## Dimensional drawings

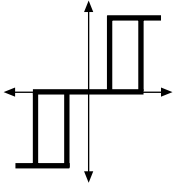


## Further documentation

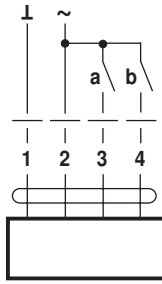
- Data sheets for globe valves
- Installation instructions for actuators and/or globe valves, respectively
- Notes for project planning, 2-way and 3-way globe valves
- Overview "Valve-actuator combinations"

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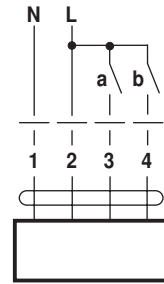


AC 24 V



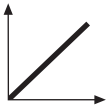
AVK(C)24A-3

AC 230 V

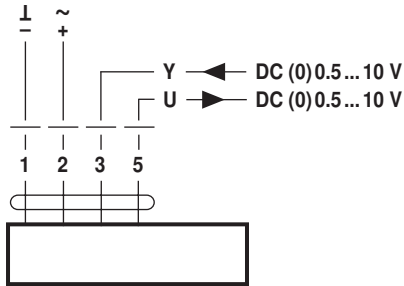


AVK230A-3

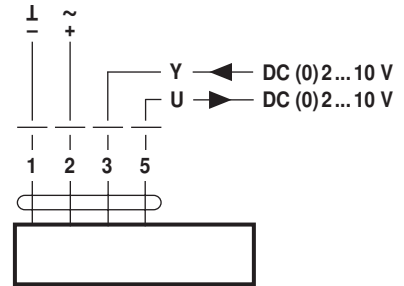
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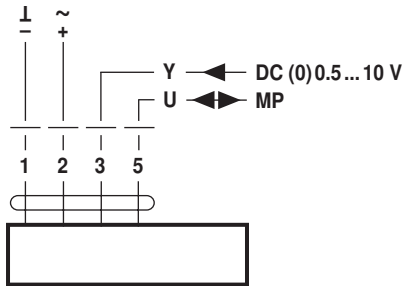
AC 24 V / DC 24 V



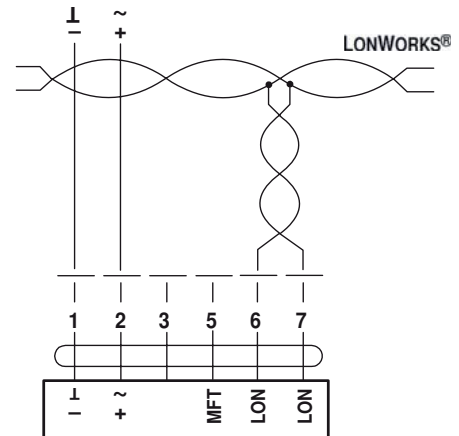
AVK(C)24A-SZ AVK(C)24A-MF



AVK(C)24A-SR



AVK(C)24A-MP



AVK24ALON