

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

- Actuating force 1000 N
- Nominal voltage AC/DC 24 V
- Control modulating 2...10 V
- Stroke 20 mm



## 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	4.5 W
	Power consumption in rest position	1.5 W
	Power consumption for wire sizing	9 VA
	Connection supply / control	Terminals with cable 1 m, 4x 0.75 mm <sup>2</sup> (Terminal 4 mm <sup>2</sup> )
	Parallel operation	Yes (note the performance data)
<b>Functional data</b>	Actuating force motor	1000 N
	Operating range Y	2...10 V
	Input impedance	100 kΩ
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Setting fail-safe position	Stem 0...100%, adjustable (POP rotary knob)
	Bridging time (PF)	2 s
	Position accuracy	±5%
	Manual override	with push-button
	Stroke	20 mm
	Running time motor	35 s / 20 mm
	Running time fail-safe	35 s / 20 mm
	Sound power level, motor	60 dB(A)
	Sound power level, fail-safe	60 dB(A)
Adaptation setting range	manual (automatic on first power-up)	
Position indication	Mechanical, 5...20 mm stroke	
<b>Safety data</b>	Protection class IEC/EN	III, Safety Extra-Low Voltage (SELV)
	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2
	EMC	CE according to 2014/30/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14

**Technical data**

<b>Safety data</b>	UL Approval	cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case
	Type of action	Type 1.AA
	Rated impulse voltage supply / control	0.8 kV
	Pollution degree	3
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	0...50°C [32...122°F]
	Storage temperature	-40...80°C [-40...176°F]
	Servicing	maintenance-free
<b>Weight</b>	Weight	1.4 kg
<b>Terms</b>	Abbreviations	POP = Power off position / fail-safe position CPO = Controlled power off / controlled fail-safe PF = Power fail delay time / bridging time

**Safety notes**

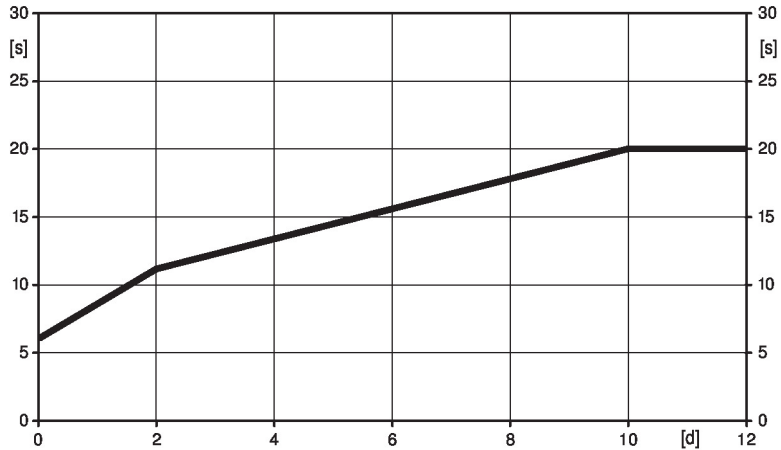

- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea) water, snow, ice, insolation or aggressive gases interfere directly with the device and that it is ensured that the ambient conditions remain within the thresholds according to the data sheet at any time.
- 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 and so the closing point may be adjusted only by authorised specialists. The direction of motion 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 must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

**Product features**

- Operating mode** The actuator is connected with a standard control signal of 0...10 V and moves to the position defined by the control signal at the same time as the integrated capacitors are loaded. Interrupting the supply voltage causes the valve to be moved to the selected fail-safe position 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 a power failure, the actuator can move at any time from its current position into the preset fail-safe position. The duration of the pre-charging time depends mainly on how long the power was interrupted.

Typical pre-charging time



[d] = Power failure in days  
[s] = Pre-charging time in seconds

	[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.

**Setting fail-safe position (POP)** The rotary knob fail-safe position can be used to adjust the desired fail-safe position from 0...100% in 10% increments. The rotary knob refers to the adapted or programmed height of stroke. In the event of a power failure, the actuator will move to the selected fail-safe position, taking into account the bridging time (PF) of 2 s set at the factory.

**Simple 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 control with push-button possible - temporary. The gear train 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 (4 mm), which is inserted into the top of the actuator. The stroke shaft 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.

**Home position** Factory setting: Actuator stem is retracted.

When valve-actuator combinations are shipped, the direction of motion is set in accordance with the closing point of the valve.

The first time the supply voltage is switched on, i.e. at the time of commissioning, the actuator carries out an adaptation, which is when the operating range and position feedback adjust themselves to the mechanical setting range.

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

**Adaptation and synchronisation** An adaptation can be triggered manually by pressing the "Adaptation" button. Both mechanical end stops are detected during the adaptation (entire setting range).

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

## Product features

**Setting direction of motion** When actuated, the direction-of-stroke switch changes the direction of motion in normal operation. The direction-of-stroke switch has no influence on the fail-safe position that has been set.

## Accessories

Electrical accessories	Description	Type
	Auxiliary switch 2x SPDT add-on	S2A-H
	Stem heater for LV.., NV.., SV.. actuator, AC/DC 24 V, 30 W	ZH24-1-A

## Electrical installation



Supply from isolating transformer.

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

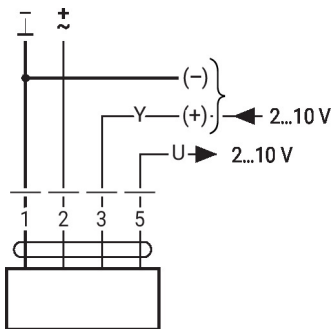
Direction of stroke switch factory setting: Actuator stem retracted (▲).

## Wire colours:

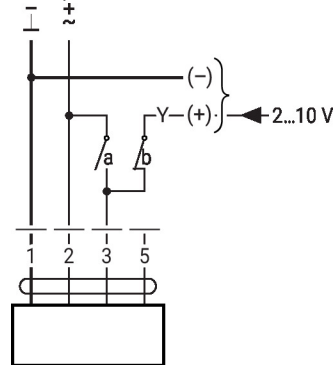
- 1 = black
- 2 = red
- 3 = white
- 5 = orange

## Wiring diagrams

AC/DC 24 V, modulating



Override control (frost protection circuit)

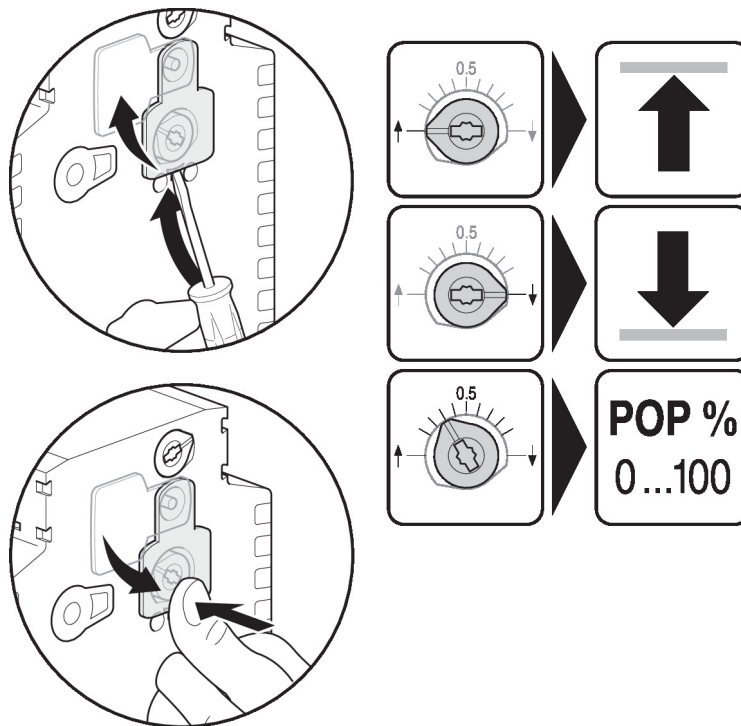


1	2	3 (a)	3 (b)		
				↓	↑
				↑	↓
				Y	Y

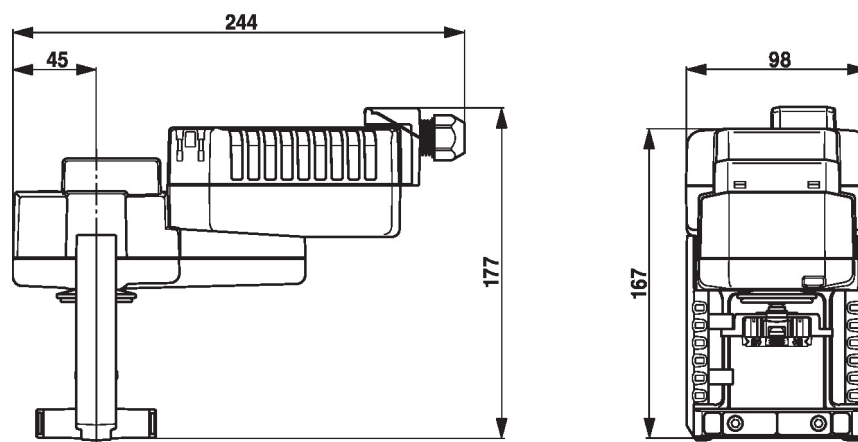


## Operating controls and indicators

Setting fail-safe position (POP)



## Dimensions



## Further documentation

- The complete product range for water applications
- Data sheets for globe valves
- Installation instructions for actuators and/or globe valves
- Notes for project planning 2-way and 3-way globe valves
- General notes for project planning