

Modulating SuperCap rotary actuator with emergency control function and extended functionalities for rotary valves and butterfly valves

- Nominal torque 40 Nm
- Nominal voltage AC/DC 24 V
- Control modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- Design life SuperCaps: 15 years


Technical data

Electrical data	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	11 W
	Power consumption in rest position	3 W
	Power consumption for wire sizing	21 VA
	Power consumption for wire sizing note	I _{max} 20 A @ 5 ms
	Connection supply / control	Cable 1 m, 4 x 0.75 mm ²
	Parallel operation	Yes (note the performance data)
Functional data	Torque motor	Min. 40 Nm
	Positioning signal Y	DC 0...10 V
	Positioning signal Y note	Input impedance 100 kΩ
	Operating range Y	DC 2...10 V
	Position feedback U	DC 2...10 V
	Position feedback U note	Max. 0.5 mA
	Setting emergency setting position (POP)	NC / NO or adjustable 0...100% (POP rotary button)
	Position accuracy	±5%
	Manual override	with push-button
	Running time motor	150 s / 90°
	Running time emergency control position	35 s / 90°
	Running time emergency setting position note	<35 s @ 0...50 °C
	Sound power level motor	52 dB(A)
	Sound power level emergency control position	61 dB(A)
Position indication	Mechanical	
Safety	Protection class IEC/EN	III Safety Extra-Low Voltage (SELV)
	Protection class UL	UL Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2014/30/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Certification UL	cULus according to UL 60730-1A, UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1.AA
	Rated impulse voltage supply / control	0.8 kV
	Control pollution degree	3
Ambient temperature	-30...50 °C	
Non-operating temperature	-40...80 °C	
Ambient humidity	95% r.h., non-condensing	
Maintenance	Maintenance-free	
Mechanical data	Connection flange	F05

Technical data

Weight	Weight	2.9 kg
Terms	Abbreviations	POP = Power off position / emergency setting position CPO = Controlled power off / controlled emergency control function PF = Power fail delay time / bridging time

Safety notes

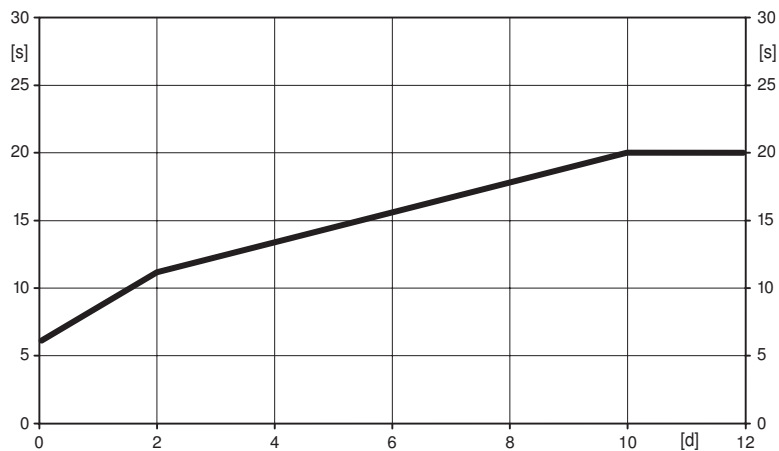


- This device has been designed for use in stationary heating, ventilation and air conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea)water, snow, ice, insolation or aggressive gases interfere directly with the actuator and that is ensured that the ambient conditions remain at any time within the thresholds according to the data sheet.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The switch for changing the direction of rotation may only be operated by authorised specialists. The direction of rotation must not in particular be reversed in a frost protection circuit.
- 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.
- Cables must not be removed from the device.
- 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

- Mode of operation** The actuator moves the valve to the desired operating position at the same time as the integrated capacitors are loaded. 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

Product features

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.
Simple direct mounting	Simple direct mounting on the rotary valve or butterfly valve with mounting flange. The mounting orientation in relation to the fitting can be selected in 90° steps.
Manual override	Manual control with push-button possible - temporary. The gear is disengaged and the actuator decoupled for as long as the button is pressed.
Adjustable angle of rotation	Adjustable angle of rotation with mechanical end stops.
High functional reliability	The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
Combination valve/actuator	For valves with the following mechanical specifications in accordance with ISO 5211 F05: - Square stem head SW = 14 mm for form-fit coupling of the rotary actuator. - Hole circle d = 50 mm
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 knob	The «Emergency setting position» rotary knob can be used to adjust the desired emergency setting position (POP) between 0 and 100% in 10% increments. The rotary knob always refers to the adapted angle of rotation range. In the event of an electricity interruption, the actuator will move into the selected emergency setting position (POP).

Accessories

Electrical accessories	Description	Type
	Auxiliary switch, add-on, 1 x SPDT	S1A
	Auxiliary switch, add-on, 2 x SPDT	S2A
	Feedback potentiometer 140 Ohm, add-on	P140A
	Feedback potentiometer 200 Ohm, add-on	P200A
	Feedback potentiometer 500 Ohm, add-on	P500A
	Feedback potentiometer 1 kOhm, add-on	P1000A
	Feedback potentiometer 2.8 kOhm, add-on	P2800A
	Feedback potentiometer 5 kOhm, add-on	P5000A
	Feedback potentiometer 10 kOhm, add-on	P10000A

Electrical installation

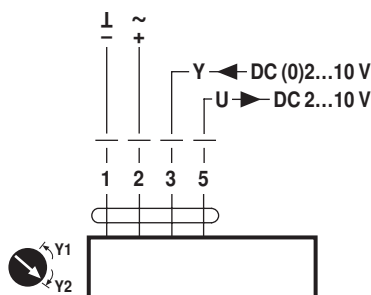


Notes

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.
- Direction of rotation switch Factory setting: Direction of rotation Y2.

Wiring diagrams

AC/DC 24 V, modulating

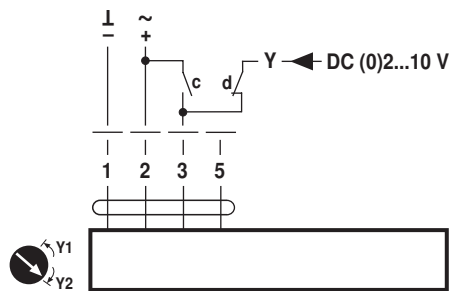


Cable colours:

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

Electrical installation

Override control (frost protection circuit)

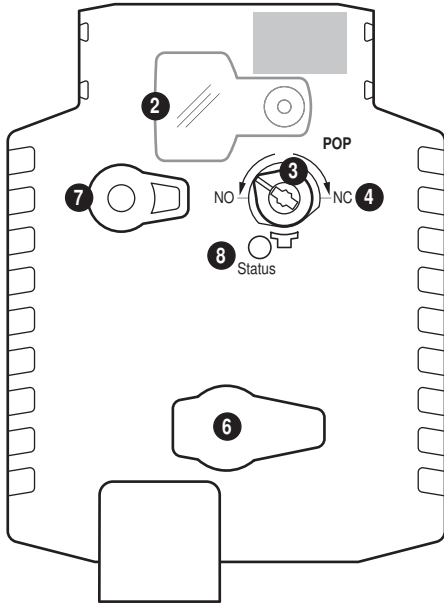


c	d	Y1 / Y2	
			A - AB = 100%
			A - AB = 0%
		DC (0)2...10 V	

Cable colours:

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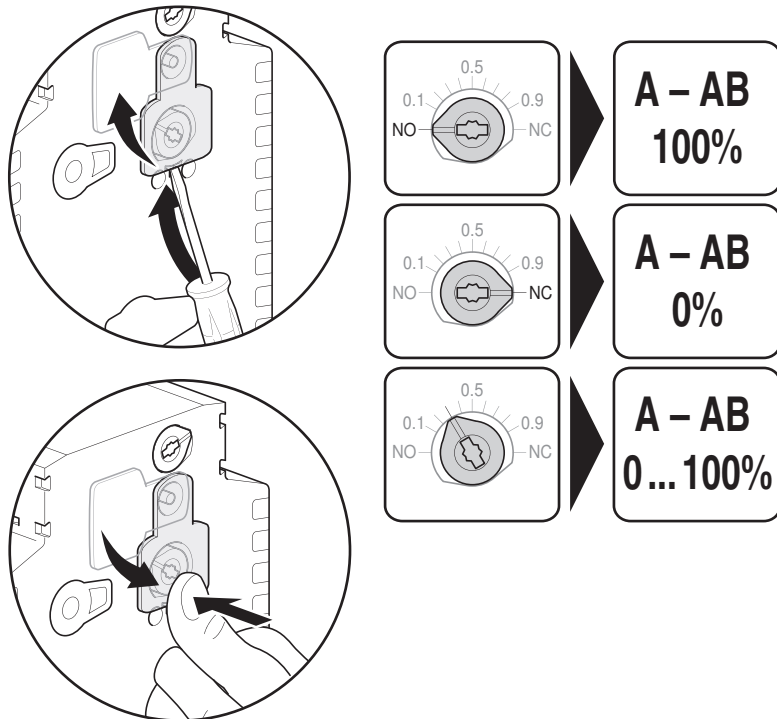
Operating controls and indicators



- 2 Cover, POP button
- 3 POP button
- 4 Scale for manual adjustment
- 6 (no function)
- 7 Disengagement button

LED display	Meaning / function
8 green	
On	Operation OK / without fault
Flashing	POP function active
Off	- Not in operation - Pre-charging time SuperCap - Fault SuperCap

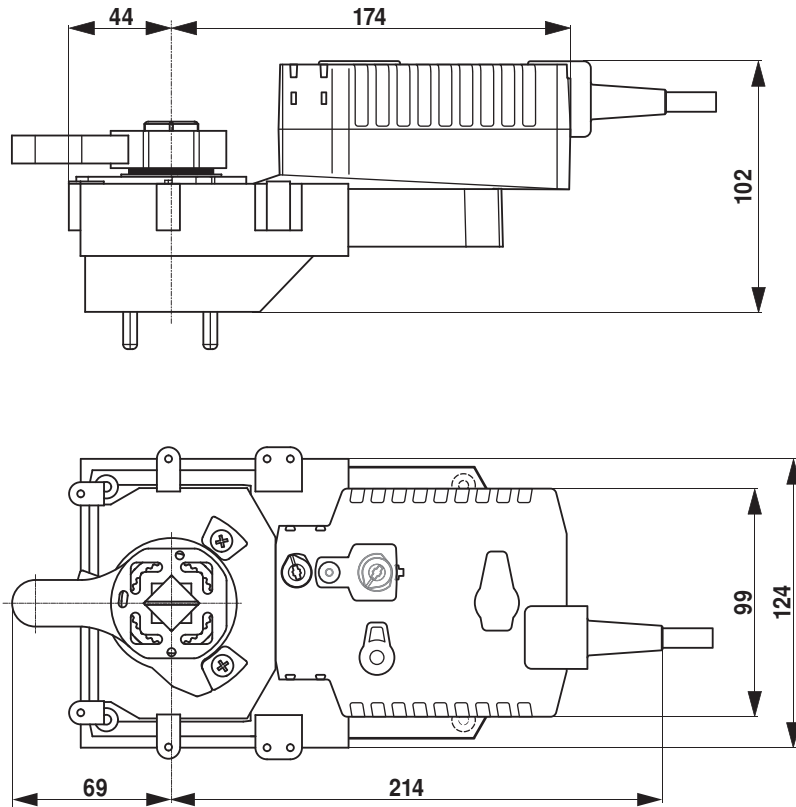
Setting emergency setting position (POP)



	<p>A - AB 100%</p>
	<p>A - AB 0%</p>
	<p>A - AB 0... 100%</p>

Dimensions [mm]

Dimensional drawings



Further documentation

- Overview Valve-actuator combinations
- Data sheets for rotary valves and butterfly valves
- Installation instructions for actuators and/or rotary valves and butterfly valves
- General notes for project planning