

Modulating rotary actuator fail-safe for adjusting dampers in technical building installations

- Air damper size up to approx. 4 m²
- Torque motor 20 Nm
- Nominal voltage AC/DC 24 V
- Control modulating 2...10 V
- Position feedback 2...10 V
- With 2 integrated auxiliary switches



Picture may differ from product

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
	5 W
	Power consumption in rest position
	3 W
	Power consumption for wire sizing
	7 VA
	Auxiliary switch
	2x SPDT, 1x 10% / 1x 11...100%
	Switching capacity auxiliary switch
	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V
	Connection supply / control
	Cable 1 m, 4x 0.75 mm ²
	Connection auxiliary switch
	Cable 1 m, 6x 0.75 mm ²
	Parallel operation
	Yes (note the performance data)
Functional data	
	Torque motor
	20 Nm
	Torque fail-safe
	20 Nm
	Operating range Y
	2...10 V
	Input impedance
	100 kΩ
	Position feedback U
	2...10 V
	Position feedback U note
	Max. 0.5 mA
	Position accuracy
	±5%
	Direction of motion motor
	selectable with switch L/R
	Direction of motion fail-safe
	selectable by mounting L/R
	Manual override
	by means of hand crank and locking switch
	Angle of rotation
	Max. 95°
	Angle of rotation note
	adjustable starting at 33% in 2.5% steps (with mechanical end stop)
	Running time motor
	150 s / 90°
	Running time fail-safe
	<20 s @ -20...50°C, <60 s @ -30°C
	Sound power level, motor
	40 dB(A)
	Mechanical interface
	Universal shaft clamp 10...25.4 mm
	Position indication
	Mechanical
	Service life
	Min. 60'000 fail-safe positions
Safety data	
	Protection class IEC/EN
	III, Safety Extra-Low Voltage (SELV)
	Power source UL
	Class 2 Supply
	Protection class auxiliary switch IEC/EN
	II, reinforced insulation
	Degree of protection IEC/EN
	IP54
	Degree of protection NEMA/UL
	NEMA 2

Safety data	Housing	UL Enclosure Type 2
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	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
	Hygiene test	According to VDI 6022 Part 1 / SWKI VA 104-01, cleanable and disinfectable, low emission
	Type of action	Type 1.AA.B
	Rated impulse voltage supply / control	0.8 kV
	Rated impulse voltage auxiliary switch	2.5 kV
	Pollution degree	3
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-30...50°C [-22...122°F]
	Storage temperature	-40...80°C [-40...176°F]
	Servicing	maintenance-free
Weight	Weight	2.3 kg

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, insulation 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 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.
- To calculate the torque required, the specifications supplied by the damper manufacturers concerning the cross-section and the design, as well as the installation situation and the ventilation conditions must be observed.
- 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.
- The two switches integrated in the actuator are to be operated either on mains voltage or on safety extra-low voltage. The combination mains voltage/safety extra-low voltage is not permitted.

Product features

Operating mode The actuator is controlled with a control signal Y (note the operating range) and moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the fail-safe position by spring force when the supply voltage is interrupted.

Simple direct mounting Simple direct mounting on the damper shaft with a universal shaft clamp, supplied with an anti-rotation mechanism to prevent the actuator from rotating.

Product features

Manual override	By using the hand crank the damper can be actuated manually and engaged with the locking switch at any position. Unlocking is carried out manually or automatically by applying the operating voltage.
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.
Flexible signalling	The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 11...100% angle of rotation to be signaled.

Accessories

Electrical accessories	Description	Type
Auxiliary switch 2x SPDT		S2A-F
Feedback potentiometer 1 kΩ		P1000A-F
Signal converter voltage/current 100 kΩ 4...20 mA, Supply AC/DC 24 V		Z-UIC
Positioner for wall mounting		SGA24
Positioner for built-in mounting		SGE24
Positioner for front-panel mounting		SGF24
Positioner for wall mounting		CRP24-B1
Mechanical accessories	Description	Type
Shaft extension 240 mm ø20 mm for damper shaft ø8...22.7 mm		AV8-25
End stop indicator		IND-AFB
Shaft clamp reversible, for central mounting, for damper shafts ø12.7 / 19.0 / 25.4 mm		K7-2
Ball joint suitable for damper crank arm KH8 / KH10		KG10A
Ball joint suitable for damper crank arm KH8		KG8
Damper crank arm Slot width 8.2 mm, clamping range ø10...18 mm		KH8
Actuator arm, for 3/4" shafts, clamping range ø10...22 mm, Slot width 8.2 mm		KH-AFB
Form fit insert 10x10 mm, Multipack 20 pcs.		ZF10-NSA-F
Form fit insert 12x12 mm, Multipack 20 pcs.		ZF12-NSA-F
Form fit insert 15x15 mm, Multipack 20 pcs.		ZF15-NSA-F
Form fit insert 16x16 mm, Multipack 20 pcs.		ZF16-NSA-F
Mounting kit for linkage operation for flat and side installation		ZG-AFB
Baseplate extension		Z-SF
Anti-rotation mechanism 230 mm, Multipack 20 pcs.		Z-ARS230L
Hand crank 63 mm		ZKN2-B

Electrical installation



Supply from isolating transformer.

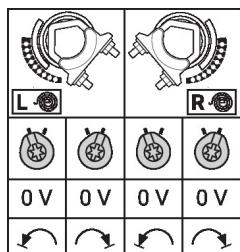
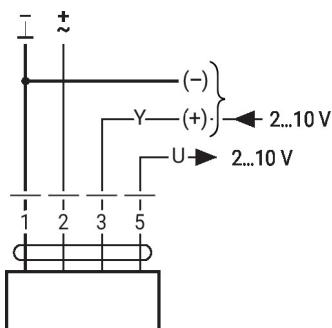
Parallel connection of other actuators possible. Observe the performance data.

Wire colours:

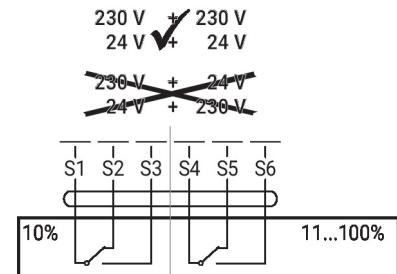
- 1 = black
- 2 = red
- 3 = white
- 5 = orange
- S1 = violet
- S2 = red
- S3 = white
- S4 = orange
- S5 = pink
- S6 = grey

Electrical installation

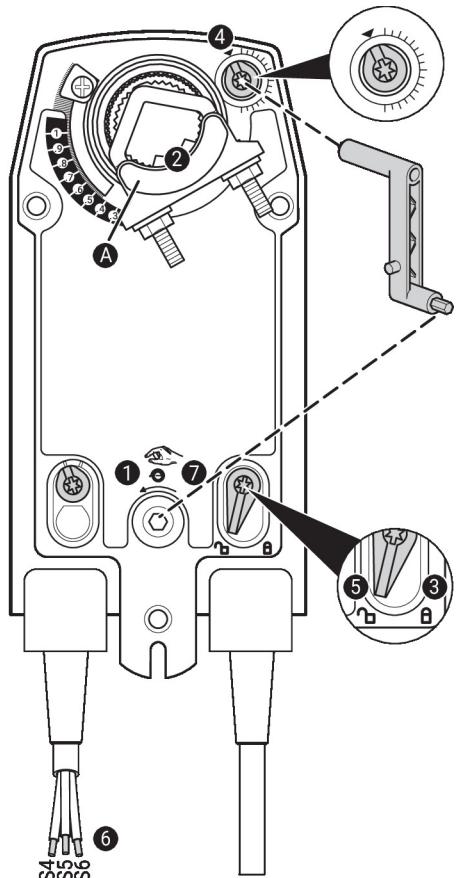
AC/DC 24 V, modulating



Auxiliary switch



Operating controls and indicators



Auxiliary switch settings



Note: Perform settings on the actuator only in deenergised state.

For the auxiliary switch position settings, carry out points 1 to 7 successively.

1 Manual override

Turn the hand crank until the desired switching position is set.

2 Shaft clamp

Edge line A displays the desired switching position of the actuator on the scale.

3 Fasten the locking device

Turn the locking switch to the „Locked padlock“ symbol.

4 Auxiliary switch

Turn rotary knob until the notch points to the arrow symbol.

5 Unlock the locking device

Turn the locking switch to the „Unlocked padlock“ symbol or unlock with the hand crank.

6 Cable

Connect continuity tester to S4 + S5 or to S4 + S6.

7 Manual override

Turn the hand crank until the desired switching position is set and check whether the continuity tester shows the switching point.

Dimensions

Spindle length

	Min. 85
	Min. 15

Clamping range

			
	10...22	10	14...25.4
			19...25.4
		12...18	

