

Modulating spring-return actuator with emergency control function for adjusting dampers in technical building installations

- Air damper size up to approx. 6 m<sup>2</sup>
- Nominal torque 30 Nm
- Nominal voltage AC/DC 24 V
- Control Modulating DC (0)2...10 V
- Position feedback DC 2...10 V
- with 2 integrated auxiliary switches


**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	7 W
	Power consumption in rest position	4.5 W
	Power consumption for wire sizing	12 VA
	Auxiliary switch	2 x SPDT, 1 x 10% / 1 x 11...90%
	Switching capacity auxiliary switch	1 mA...3 (0.5 inductive) A, AC 250 V
	Connection supply / control	Cable 1 m, 4 x 0.75 mm <sup>2</sup>
	Connection auxiliary switch	Cable 1 m, 6 x 0.75 mm <sup>2</sup>
	Parallel operation	Yes (note the performance data)
	<b>Functional data</b>	Torque motor
Torque spring return		Min. 30 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
Position accuracy		±5%
Direction of motion motor		Selectable with switch L / R
Direction of motion emergency control function		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 5% steps (with mechanical end stop)
Running time motor		150 s / 90°
Running time emergency control position		<20 s / 90°
Running time emergency setting position note		<20 s @ -20...50 °C / <60 s @ -30 °C
Sound power level motor		45 dB(A)
Sound power level emergency control position		71 dB(A)
Spindle driver		Universal spindle clamp 12...26.7 mm
Position indication		Mechanical
Service life	Min. 60,000 emergency positions	
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Protection class auxiliary switch IEC/EN	II Protective insulated
	Degree of protection IEC/EN	IP54
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA.B
	Rated impulse voltage supply / control	0.8 kV
	Rated impulse voltage auxiliary switch	2.5 kV
	Control pollution degree	3
	Ambient temperature	-30...50 °C
	Non-operating temperature	-40...80 °C
Ambient humidity	95% r.h., non-condensing	

## Technical data

<b>Safety</b>	Maintenance	Maintenance-free
<b>Weight</b>	Weight	5.4 kg

## Safety notes



- The device must not be used outside the specified field of application, especially not 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 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, the design, the installation site and the ventilation conditions must be observed.
- The two switches integrated in the actuator are to be operated either on power supply voltage or at safety extra-low voltage. The combination power supply voltage/ safety extra-low voltage is not permitted.
- 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

<b>Mode of operation</b>	The actuator is connected with a standard modulating signal of DC 0 ... 10 V and moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the emergency position by spring force when the supply voltage is interrupted.
<b>Simple direct mounting</b>	Simple direct mounting on the damper spindle with an universal spindle clamp, supplied with an anti-rotation device to prevent the actuator from rotating.
<b>Spindle stabiliser</b>	The spindle clamp of the spring-return actuator is factory-equipped with an axis stabiliser for the stabilisation of the combination of damper, damper spindle and actuator. This is comprised of two plastic support rings and must be left in place, partially or completely removed, depending on the installation situation and the axis diameter.
<b>Manual override</b>	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.
<b>High functional reliability</b>	The actuator is overload protected and automatically stops when the end stop is reached.
<b>Adjustable angle of rotation</b>	Adjustable angle of rotation with mechanical end stops.
<b>Flexible signalization</b>	The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 11...90% angle of rotation to be signaled.

Accessories

	Description	Type
<b>Electrical accessories</b>	Signal converter voltage/current, supply AC/DC 24V	Z-UIC
	Digital position indicator for front-panel mounting, 0...99%, front mass 72 x 72 mm	ZAD24
	Range controller for wall mounting, adjustable electron. Min./max. angle of rotation limitation	SBG24
	Positioner for wall mounting, range 0...100%	SGA24
	Positioner in a conduit box, range 0...100%	SGE24
	Positioner for front-panel mounting, range 0...100%	SGF24
	Positioner for wall mounting, range 0...100%	CRP24-B1
<b>Mechanical accessories</b>	End stop indicator for EF..A	IND-EFB
	Spindle clamp set for EF..A (1", 3/4"), for damper spindles Ø 12...26.7	K9-2
	Damper crank arm, for damper spindles	KH10
	Actuator arm for EF..A	KH-EFB
	Mounting kit for linkage operation	ZG-EFB

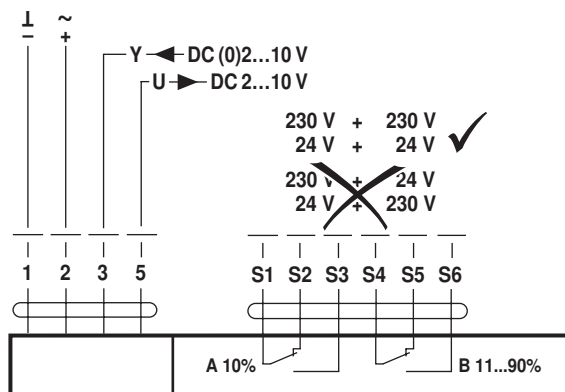
Electrical installation

**Notes**

- Connection via safety isolating transformer.
- Parallel connection of other actuators possible. Observe the performance data.

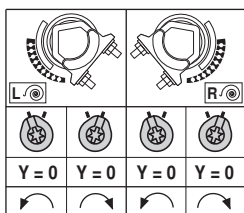
Wiring diagrams

AC/DC 24 V, modulating



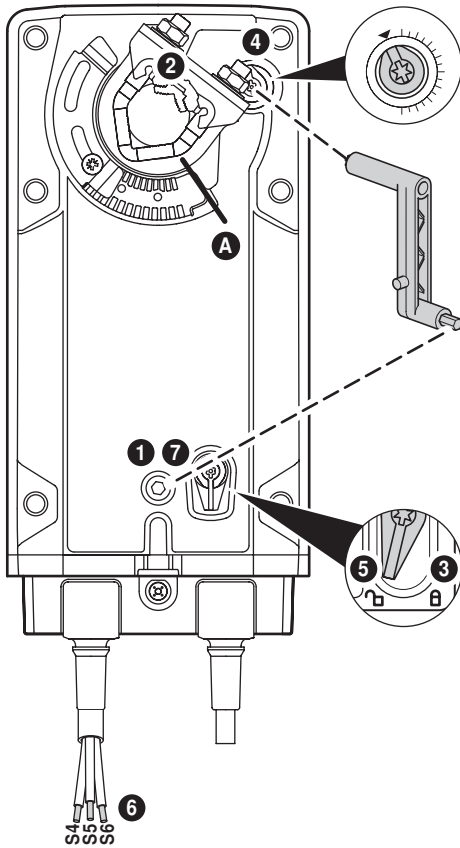
Cable colours:

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



## Operating controls and indicators

### Auxiliary switch settings



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

- 1 Manual override**  
Turn the hand crank until the desired switching position is set.
- 2 Spindle 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.

## Installation notes



### Notes

- The spindle stabiliser must nevertheless be used with installation of the anti-rotation device on the opposite side of the spindle clamp and a spindle diameter <20 mm.

### Spindle stabiliser long spindle mounting

In the case of long spindle installation the use of the spindle stabiliser at a spindle diameter of

- 12 to 20 mm is necessary
- 21 to 26.7 mm is not necessary and can be removed

### Spindle stabiliser short spindle mounting

In the case of short spindle installation, the necessity of the spindle stabiliser is dispensed with. It can be removed or – if the spindle length permits this – left in the clamp.

Dimensions [mm]

Spindle length

		Min. 117
		Min. 20

Clamping range

	12...22	12...18
	22...26.7	12...18

Dimensional drawings

