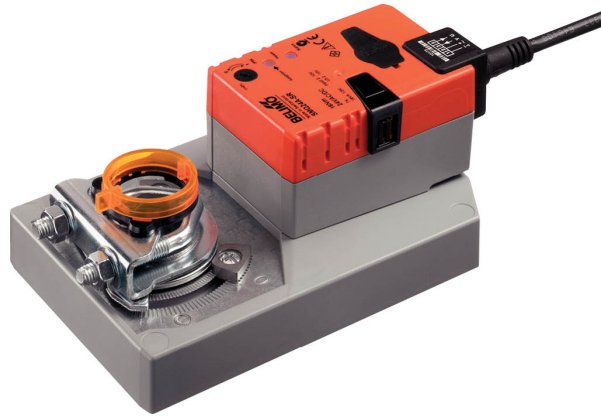


Modulating damper actuator for adjusting dampers in technical building installations

- Air damper size up to approx. 3.2 m<sup>2</sup>
- Torque motor 16 Nm
- Nominal voltage AC/DC 24 V
- Control modulating 2...10 V
- Position feedback 2...10 V
- Running time motor 7 s



## 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         | 15 W  |
|                        | Power consumption in rest position     | 2 W   |
|                        | Power consumption for wire sizing      | 26 VA   |
|                        | Power consumption for wire sizing note | Imax 20 A @ 5 ms  |
|                        | Connection supply / control            | Cable 1 m, 4x 0.75 mm <sup>2</sup>                                |
|                        | Parallel operation                     | Yes (note the performance data)                                   |
| <b>Functional data</b> | Torque motor                           | 16 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 0/1  |
|                        | Direction of motion note               | Y = 0 V: At switch position 0 (ccw rotation) / 1 (cw rotation)    |
|                        | Manual override                        | with push-button, can be locked                                   |
|                        | Angle of rotation                      | Max. 95°  |
|                        | Angle of rotation note                 | can be limited on both sides with adjustable mechanical end stops |
|                        | Minimum angle of rotation              | Min. 30°  |
|                        | Running time motor                     | 7 s / 90°   |
|                        | Adaptation setting range               | manual (automatic on first power-up)                              |
|                        | Sound power level, motor               | 63 dB(A)  |
|                        | Mechanical interface                   | Universal shaft clamp reversible 12...26.7 mm                     |
| Position indication    | Mechanical, pluggable                  |   |
| <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  |
|                        | Low voltage directive                  | CE according to 2006/95/EC  |
| 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<br>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 disinfected, low emission  |
|                    | Type of action                         | Type 1  |
|                    | Rated impulse voltage supply / control | 0.8 kV  |
|                    | Pollution degree                       | 3   |
|                    | Ambient humidity                       | Max. 95% RH, non-condensing   |
|                    | Ambient temperature                    | -30...40°C [-22...104°F]  |
|                    | Ambient temperature note               | Caution: 40...50°C utilisation possible only under certain restrictions. Please contact your supplier.  |
|                    | Storage temperature                    | -40...80°C [-40...176°F]  |
|                    | Servicing                              | maintenance-free  |
| <b>Weight</b>      | Weight                                 | 1.7 kg  |

**Safety notes**

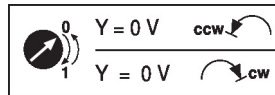

- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Outdoor application: only possible in case that no (sea) water, snow, ice, 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 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.
- Self adaptation is necessary when the system is commissioned and after each adjustment of the angle of rotation (press the adaptation push-button once).
- 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.

**Product features**

|                                     |   |
|-------------------------------------|---|
| <b>Operating mode</b>               | The actuator is connected with a standard control signal of 0...10 V and drives to the position defined by the control signal. Measuring voltage U serves for the electrical display of the damper position 0...100% and as control signal for other actuators. |
| <b>Simple direct mounting</b>       | Simple direct mounting on the damper shaft with a universal shaft clamp, supplied with an anti-rotation device to prevent the actuator from rotating.   |
| <b>Manual override</b>              | Manual override with push-button possible (the gear train is disengaged for as long as the button is pressed or remains locked).  |
| <b>Adjustable angle of rotation</b> | Adjustable angle of rotation with mechanical end stops. A minimum permissible angle of rotation of 30° must be allowed for.   |

**Product features**

- High functional reliability** The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.
- Home position** 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 detection of the mechanical end stops enables a gentle approach to the end positions, thus protecting the actuator mechanics.  
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). Automatic synchronisation after pressing the manual override button is configured. The synchronisation is in the home position (0%).  
The actuator then moves into the position defined by the control signal.

**Accessories**

| Electrical accessories | Description   | Type     |
|------------------------|---|----------|
|                        | Auxiliary switch 1x SPDT add-on   | S1A      |
|                        | Auxiliary switch 2x SPDT add-on   | S2A      |
|                        | Feedback potentiometer 140 Ω add-on   | P140A    |
|                        | Feedback potentiometer 1 kΩ add-on  | P1000A   |
|                        | Feedback potentiometer 10 kΩ add-on   | P10000A  |
|                        | Adapter for auxiliary switch and feedback potentiometer, Multipack 20 pcs.  | Z-SPA    |
|                        | 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     |
|                        | Actuator arm for standard shaft clamp   | AH-GMA   |
|                        | Ball joint suitable for damper crank arm KH8 / KH10   | KG10A    |
|                        | Damper crank arm Slot width 8.2 mm, clamping range ø14...25 mm  | KH10     |
|                        | Anti-rotation mechanism 230 mm, Multipack 20 pcs.   | Z-ARS230 |
|                        | Mounting kit for linkage operation for flat installation  | ZG-GMA   |
|                        | Position indicator, Multipack 20 pcs.   | Z-PI     |
|                        | * Adapter Z-SPA   |          |
|                        | It is imperative that this adapter will be ordered if an auxiliary switch or a feedback potentiometer is required and if at the same time the shaft clamp is installed on the rear side of the actuator (e.g. with short shaft installation). |          |

**Electrical installation**


**Supply from isolating transformer.**  
**Parallel connection of other actuators possible. Observe the performance data.**

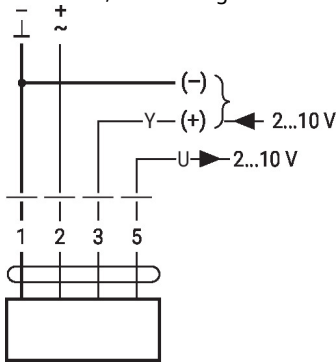
**Wire colours:**

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

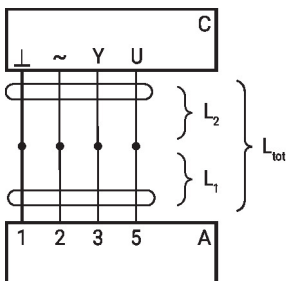
**Electrical installation**

**Wiring diagrams**

AC/DC 24 V, modulating



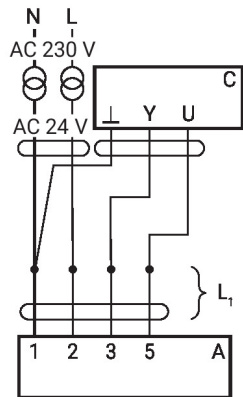
Signal cable lengths



| L <sub>2</sub>       | L <sub>tot</sub> = L <sub>1</sub> + L <sub>2</sub> |       |
|----------------------|--|-------|
|                      | AC   | DC    |
| 0.75 mm <sup>2</sup> | ≤30 m  | ≤5 m  |
| 1.00 mm <sup>2</sup> | ≤40 m  | ≤8 m  |
| 1.50 mm <sup>2</sup> | ≤70 m  | ≤12 m |
| 2.50 mm <sup>2</sup> | ≤100 m   | ≤20 m |

A = Actuator  
 C = Control unit (controlling unit)  
 L1 = Connecting cable of the actuator  
 L2 = Customer cable  
 Ltot = Maximum signal cable length

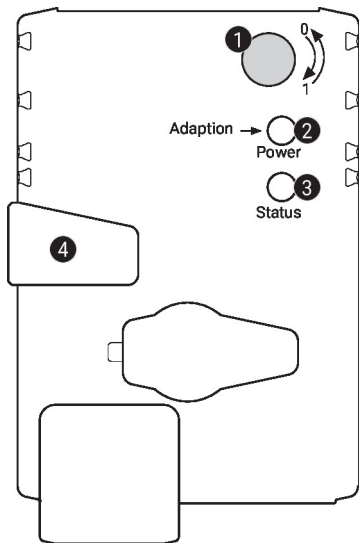
**Note:**  
 When several actuators are connected in parallel, the maximum signal cable length must be divided by the number of actuators.



A = Actuator  
 C = Control unit (controlling unit)  
 L1 = Connecting cable of the actuator

**Note:**  
 There are no special restrictions on installation if the supply and the data cable are routed separately.

## Operating controls and indicators


**1 Direction of rotation switch**

Switch over: Direction of rotation changes

**2 Push-button and LED display green**

Off: No power supply or malfunction

On: In operation

Press button: Triggers angle of rotation adaptation, followed by standard mode

**3 Push-button and LED display yellow**

Off: Standard mode

On: Adaptation or synchronisation process active

Press button: No function

**4 Manual override button**

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

Release button: Gear train engages, synchronisation starts, followed by standard mode

**Check power supply connection**

**2** Off and **3** On Possible wiring error in power supply

## Installation notes

**Negative torque** Max. 50% of the torque (Caution: Application possible only with restrictions. Please contact your supplier.)

## Dimensions

## Spindle length

|  |         |
|--|---------|
|  | Min. 52 |
|  | Min. 20 |

## Clamping range

|  |           |         |
|--|-----------|---------|
|  |           |         |
|  | 12...22   | 12...18 |
|  |           |         |
|  | 22...26.7 | 12...18 |

\*Option: Shaft clamp mounted below: If an auxiliary switch or a feedback potentiometer is used the adapter Z-SPA is required.

