

Modulating spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- For air dampers up to approx. 2 m<sup>2</sup>
- **Torque 10 Nm**
- Nominal voltage AC/DC 24 V
- **Control: modulating DC 0 ... 10 V**
- Position feedback DC 2 ... 10 V


**Technical data**

|                            |   |  |
|----------------------------|---|--|
| <b>Electrical data</b>     | Nominal voltage                         | AC 24 V, 50/60 Hz / DC 24 V  |
|                            | Nominal voltage range                   | AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V  |
|                            | Power consumption                       | In operation 3.5 W @ nominal torque<br>At rest 2.5 W<br>For wire sizing 5.5 VA   |
|                            | Connection                              | Cable 1 m, 4 x 0.75 mm <sup>2</sup>  |
| <b>Functional data</b>     | Torque Motor                            | Min. 10 Nm @ nominal voltage   |
|                            | Spring return                           | Min. 10 Nm   |
|                            | Control Control signal Y                | DC 0 ... 10 V, input impedance 100 kΩ  |
|                            | Operating range                         | DC 2 ... 10 V  |
|                            | Position feedback (measuring voltage U) | DC 2 ... 10 V, max. 0.5 mA   |
|                            | Position accuracy                       | ±5%  |
|                            | Direction of rotation Motor             | Reversible with switch ↻ / ↻   |
|                            | Spring return                           | Can be selected by mounting L / R  |
|                            | Manual override                         | With hand crank and interlocking switch  |
|                            | Angle of rotation                       | Max. 95°↔, can be limited with adjustable mechanical end stop  |
|                            | Running time Motor                      | ≤150 s (0 ... 10 Nm)   |
|                            | Spring return                           | ≤20 s @ -20 ... 50°C / max. 60 s @ -30°C   |
|                            | Sound power level Motor                 | ≤40 dB (A) @ 150 s running time  |
| Spring return              | ≤62 dB (A)                              |  |
| Service life               | Min. 60,000 emergency positions         |  |
| Position indication        | Mechanical                              |  |
| <b>Safety</b>              | Protection class                        | III Extra low voltage<br>UL Class 2 Supply   |
|                            | Degree of protection                    | IP54<br>NEMA2, UL Enclosure Type 2   |
|                            | EMC                                     | CE according to 2004/108/EC  |
|                            | Certification                           | Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14<br>cULus according to UL 60730-1A and UL 60730-2-14<br>and CAN/CSA E60730-1:02 |
|                            | Mode of operation                       | Type 1.AA  |
|                            | Rated impulse voltage                   | 0.8 kV   |
|                            | Control pollution degree                | 3  |
|                            | Ambient temperature                     | -30 ... +50°C  |
|                            | Non-operating temperature               | -40 ... +80°C  |
|                            | Ambient humidity                        | 95% r.h., non-condensating   |
| Maintenance                | Maintenance-free                        |  |
| <b>Dimensions / Weight</b> | Dimensions                              | See «Dimensions» on page 3   |
|                            | Weight                                  | Approx. 1.8 kg   |

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.
- 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 cable must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper manufacturers (cross-section, design, installation site), and the air flow conditions must be observed.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

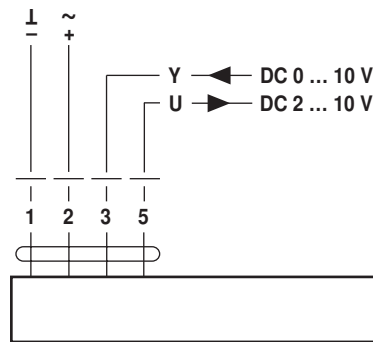
|                                     |   |
|-------------------------------------|---|
| <b>Mode of operation</b>            | The actuator is controlled with a standard signal of DC 0 ... 10 V and moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the emergency position by spring force if the supply voltage is interrupted. |
| <b>Simple direct mounting</b>       | Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.  |
| <b>Manual override</b>              | Manual operation of the damper with the hand crank, locking in any position with the interlocking switch.   |
| <b>Adjustable angle of rotation</b> | Adjustable angle of rotation with mechanical end stop.  |
| <b>High operational reliability</b> | The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.  |

Electrical installation

Wiring diagram

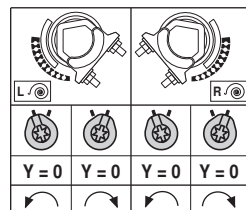
**Notes**

- Connect via safety isolation transformer.
- Parallel connection of other actuators possible. Note the performance data.



**Cable colours:**  
 1 = black  
 2 = red  
 3 = white  
 5 = orange

Direction of rotation



Accessories

|                               | Description                            | Data sheet   |
|-------------------------------|--|--------------|
| <b>Electrical accessories</b> | Auxiliary switch unit S2A-F *          | T2 - S2A-F   |
|                               | Feedback potentiometer unit P200A-F *  | T2 - P200A-F |
|                               | Range controller SBG24                 | T2 - SBG24   |
|                               | Position sensor SGA24, SGE24 and SGF24 | T2 - SG..24  |
|                               | Digital position indication ZAD24      | T2 - ZAD24   |
| <b>Mechanical accessories</b> | Various accessories                    |              |
|                               | * further versions on request          |              |

Dimensions [mm]

Dimensional drawings

Variant 1a:

3/4"-spindle clamp (with insertion part) EU Standard

| Damper spindle | Length | ● I     | ■ I | ◆ I       |
|----------------|--------|---------|-----|-----------|
|                | ≥85    | 10...22 | 10  | 14...25.4 |
|                | ≥15    |         |     |           |

Variant 1b:

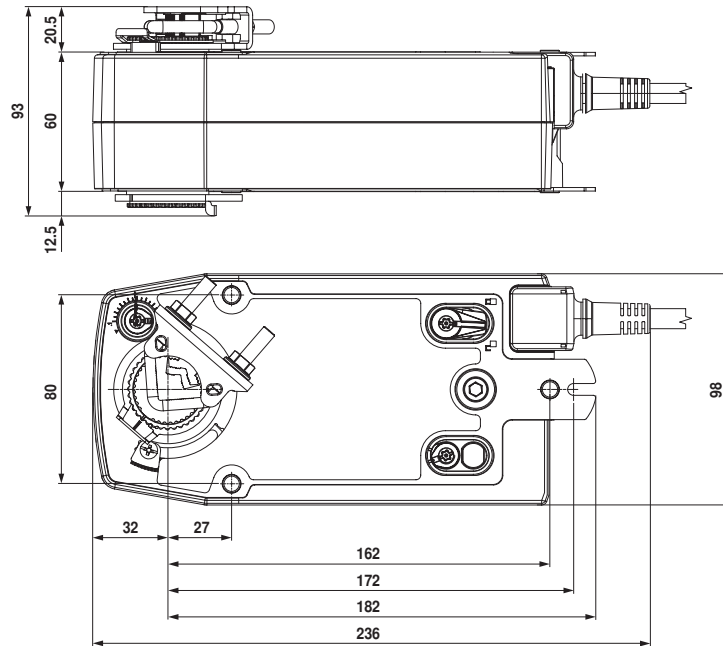
1"-spindle clamp (without insertion part) EU Standard

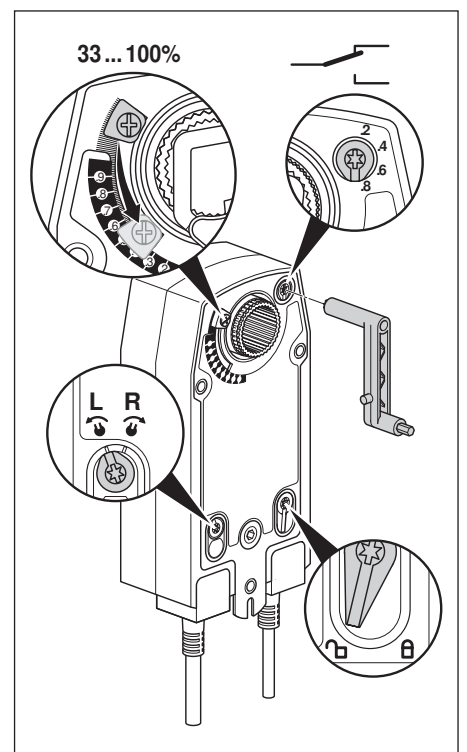
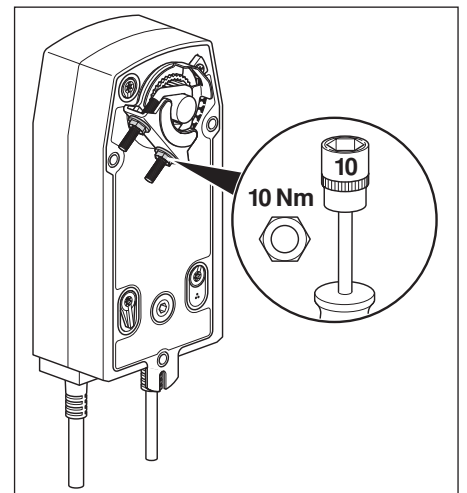
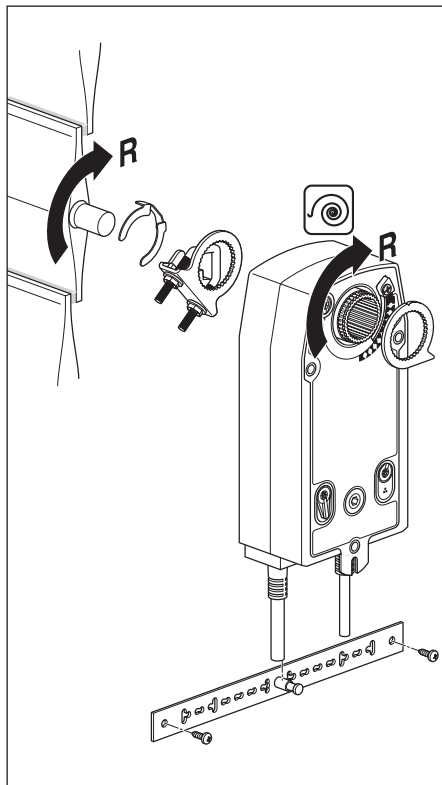
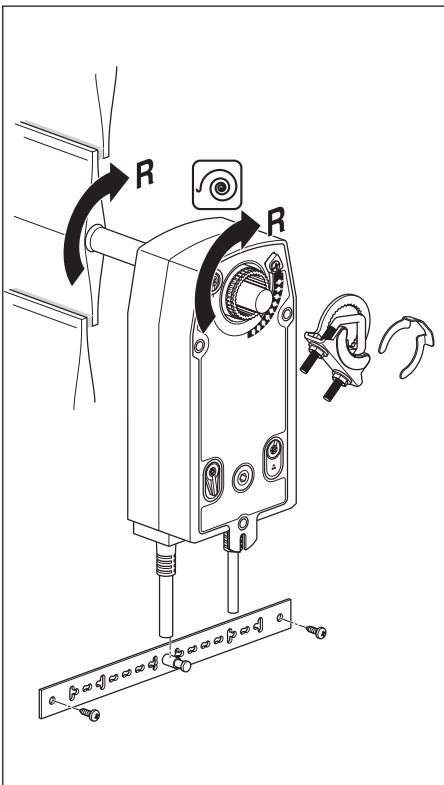
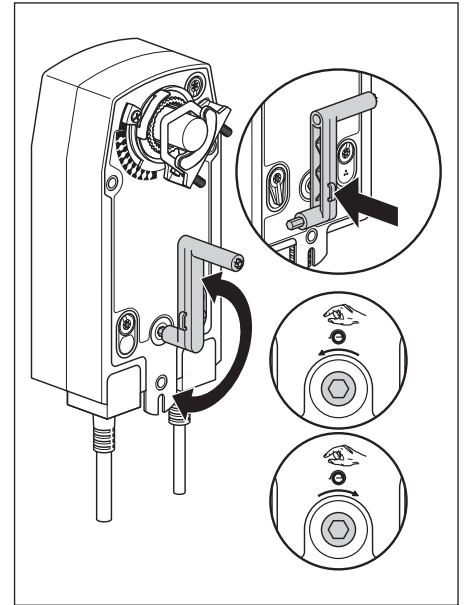
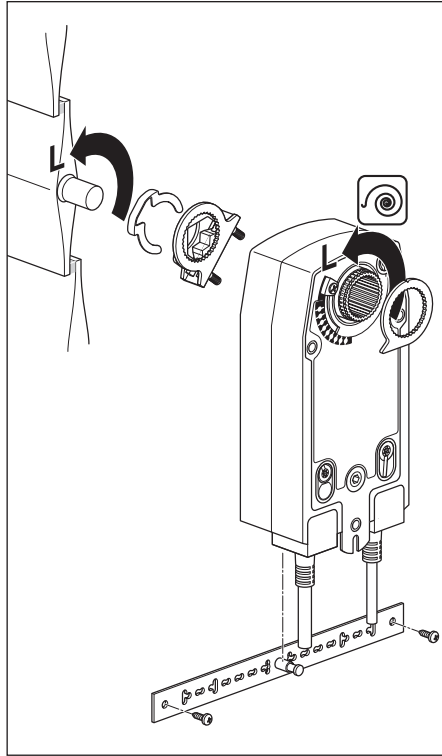
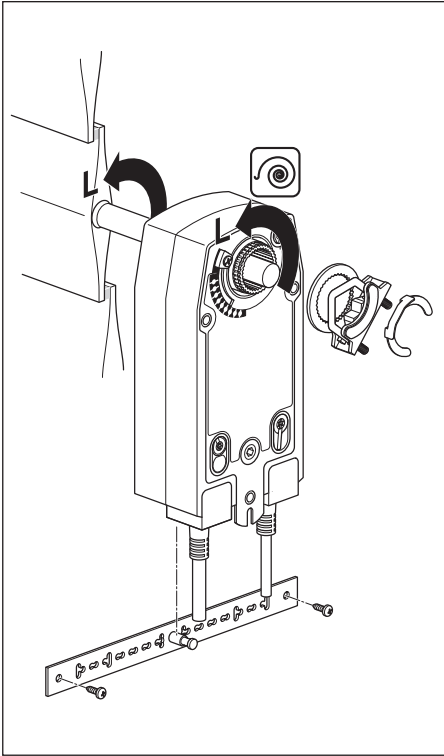
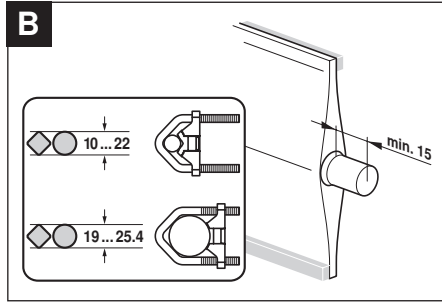
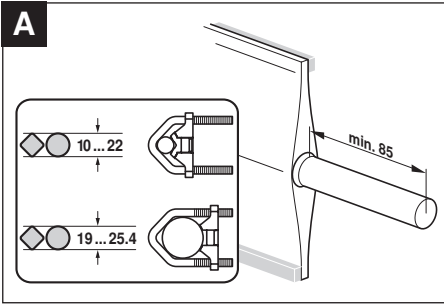
| Damper spindle | Length | ● I                 | ■ I     |
|----------------|--------|---------------------|---------|
|                | ≥85    | 19...25.4<br>(26.7) | 12...18 |
|                | ≥15    |                     |         |

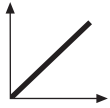
Variant 2:

1/2"-spindle clamp (optional via configuration)

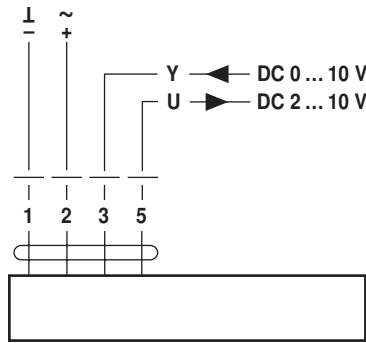
| Damper spindle | Length | ● I     | ◆ I     |
|----------------|--------|---------|---------|
|                | ≥85    | 10...19 | 14...20 |
|                | ≥15    |         |         |



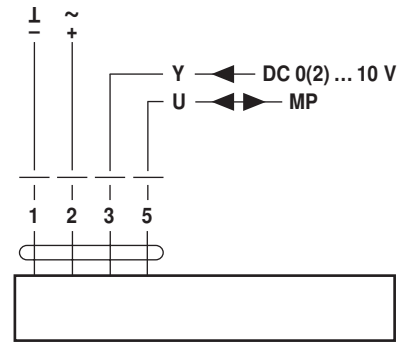




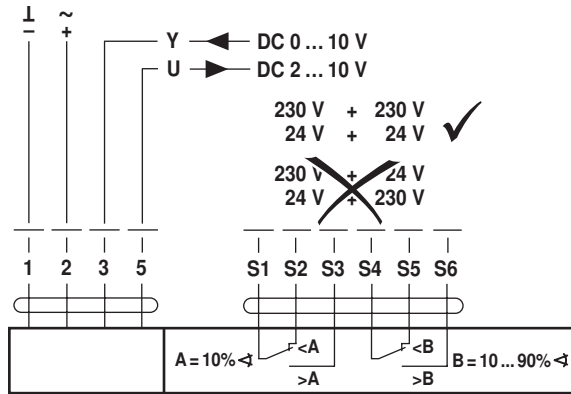
AC 24 V / DC 24 V



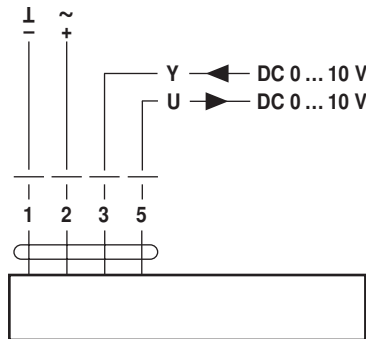
NF24A-SR  
NF24A-MF  
SF24A-SR  
SF24A-MF



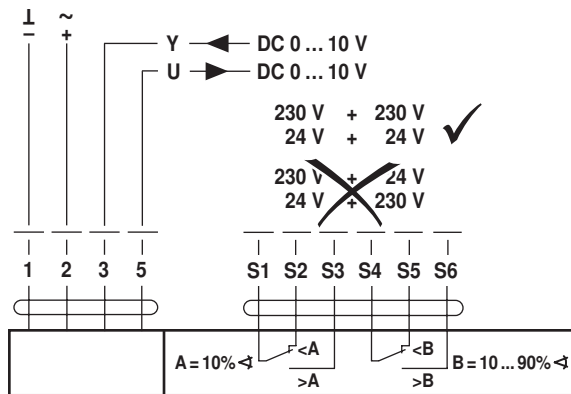
NF24A-MP  
SF24A-MP



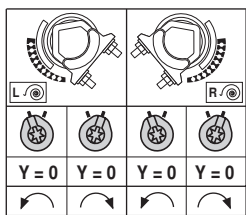
NF24A-SR-S2  
SF24A-SR-S2



NF24A-SZ  
SF24A-SZ



NF24A-SZ-S2  
SF24A-SZ-S2



..F24A-SR  
..F24A-SR-S2  
..F24A-SZ  
..F24A-SZ-S2