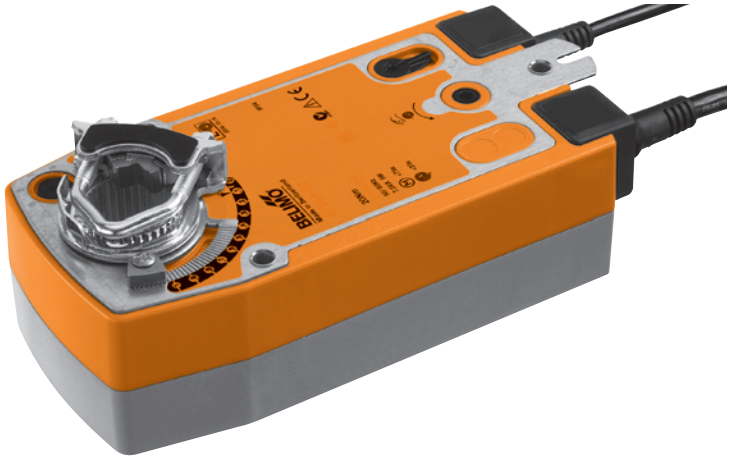
BELIMO

# Technical data sheet NF24A-S2

**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 m²**
- **Torque 10 Nm**
- **Nominal voltage AC/DC 24 V**
- **Control: Open-close**
- **Two integrated auxiliary switches**



## Technical data

| | | | |
|---|---|---|---|
| **Electrical data** | 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 | 6 W @ nominal torque |
| | | At rest | 2.5 W |
| | | For wire sizing | 8.5 VA |
| | Auxiliary switch | | 2 x SPDT, 1 mA ... 3 (0.5) A, AC 250 V ⧈<br>(1 x fix 10% / 1 x adjustable 10 ... 90%) |
| | Connection | Motor | Cable 1 m, 2 x 0.75 mm² |
| | | Auxiliary switch | Cable 1 m, 6 x 0.75 mm² |
| **Functional data** | Torque | Motor | Min. 10 Nm @ nominal voltage |
| | | Spring return | Min. 10 Nm |
| | Direction of rotation | | 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 | ≤75 s (0 ... 10 Nm) |
| | | Spring return | ≤20 s @ –20 ... 50°C / max. 60 s @ –30°C |
| | Sound power level | Motor | ≤45 dB (A) |
| | | Spring return | ≤62 dB (A) |
| | Service life | | Min. 60,000 emergency positions |
| | Position indication | | Mechanical |
| **Safety** | Protection class | | **III** Extra low voltage<br>UL Class 2 Supply |
| | Degree of protection | | IP54<br>NEMA2, UL Enclosure Type 2 |
| | EMC<br>Low-voltage directive | | CE according to 2004/108/EC<br>CE according to 2006/95/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.B |
| | Rated impulse voltage | Actuator | 0.8 kV |
| | | 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-condensating |
| | Maintenance | | Maintenance-free |
| **Dimensions / Weight** | Dimensions | | See «Dimensions» on page 3 |
| | Weight | | Approx. 2.0 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 integrated switches of this actuator have to be connected either to Power supply voltage or safety extra low voltage. The combination Power supply voltage / safety extra low voltage is not allowed.**
- **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

**Mode of operation**
The actuator 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.

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

**Manual override**
Manual operation of the damper with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

**Adjustable angle of rotation**
Adjustable angle of rotation with mechanical end stop.

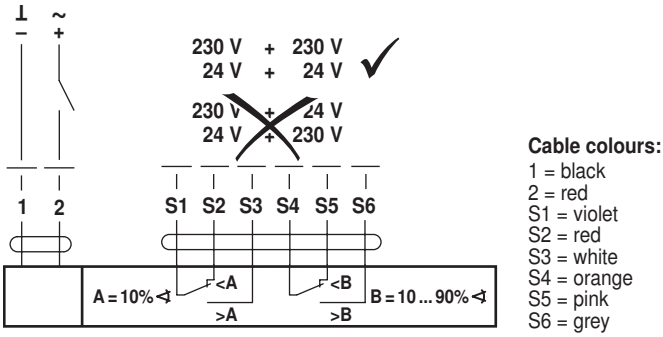
**High operational reliability**
The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

**Flexible signalization**
The actuator has one auxiliary switch with a fixed setting and one adjustable auxiliary switch. They permit a 10% or 10 ... 90% angle of rotation to be signalled.

## 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
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey

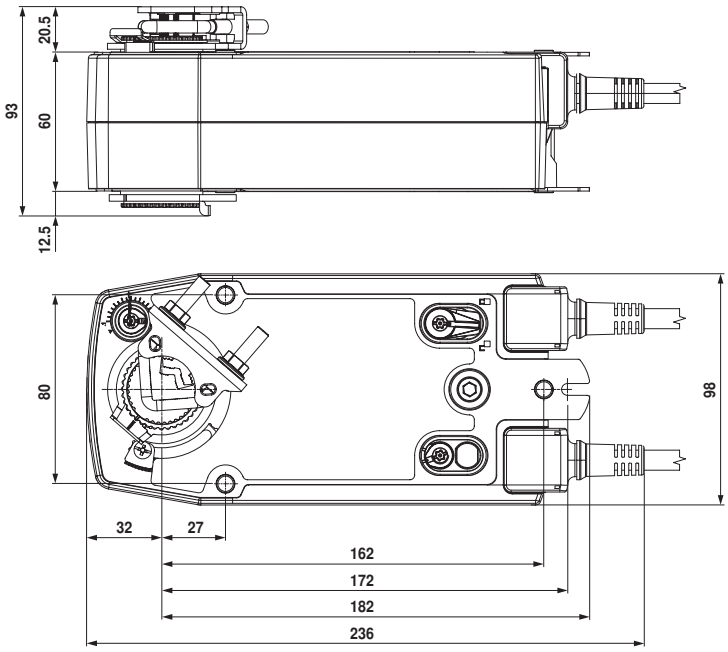
## Accessories

| | Description | Data sheet |
|---|---|---|
| **Electrical accessories** | Auxiliary switch unit S2A-F * | T2 - S2A-F |
| | Feedback potentiometer unit P200A-F * | T2 - P200A-F |
| **Mechanical accessories** | Various accessories | |

* further versions on request

## Dimensions [mm]

### Dimensional drawings




Variant 1a:
**¾“-spindle clamp** (with insertion part) EU Standard

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

Variant 1b:
**1“-spindle clamp** (without insertion part) EU Standard

| Damper spindle | Length | ◉ | ■ |
|---|---|---|---|
| | ≥85 | 19 ... 25.4 (26.7) | 12 ... 18 |
| | ≥15 | | |

Variant 2:
**½“-spindle clamp** (optional via configuration)

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

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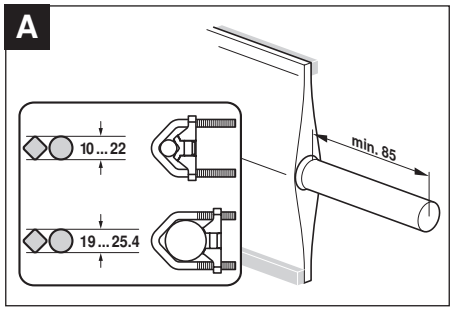
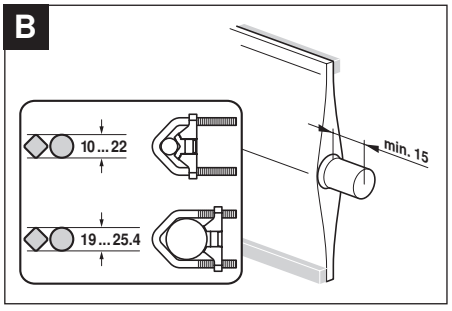
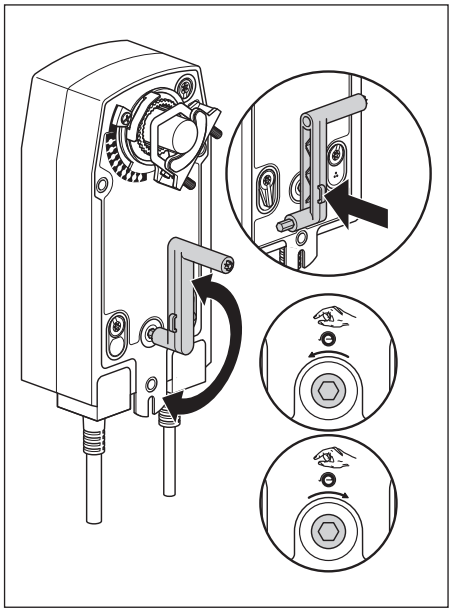
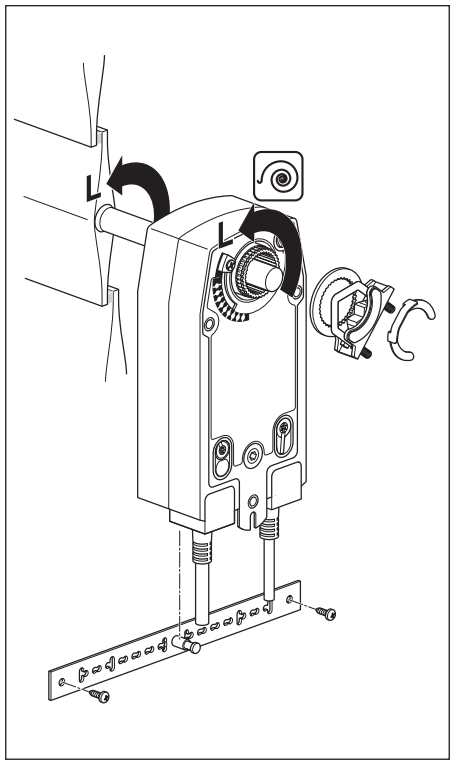
A

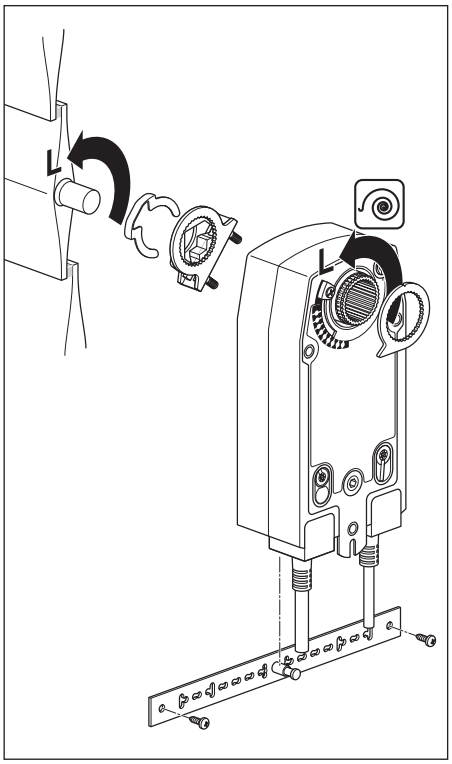


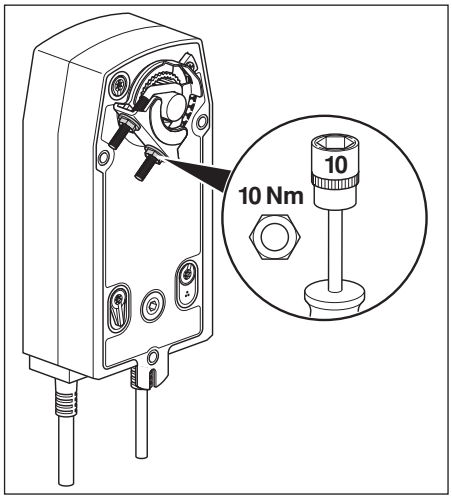

B

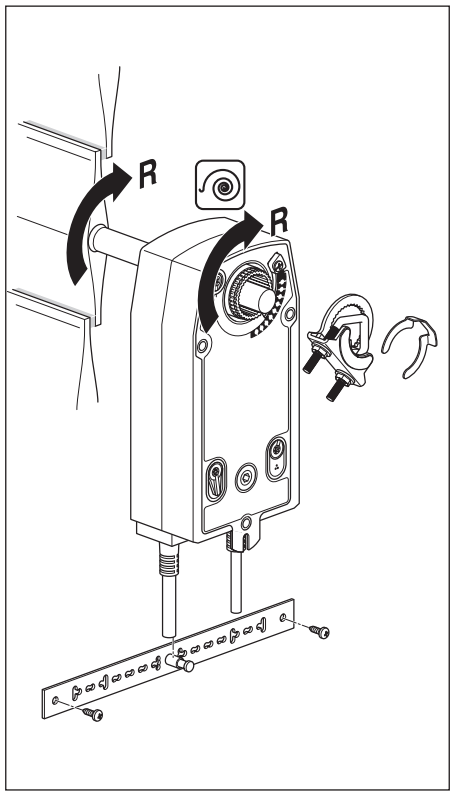


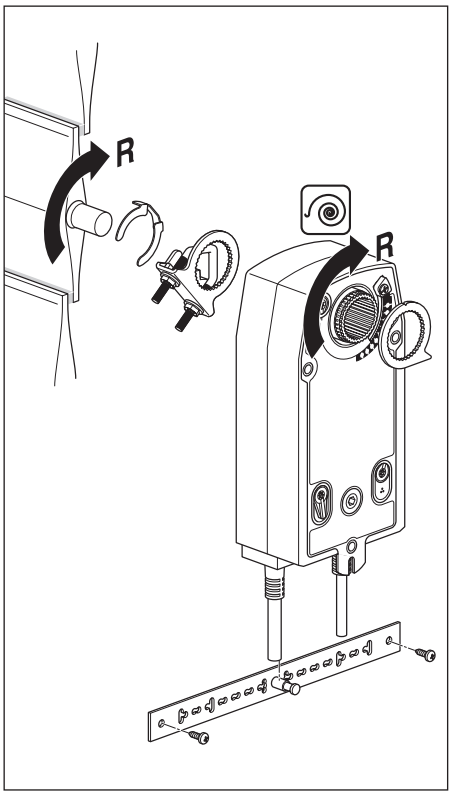



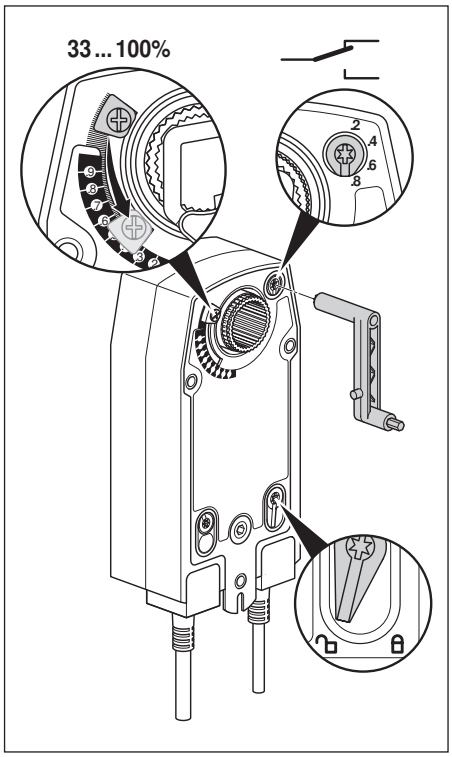


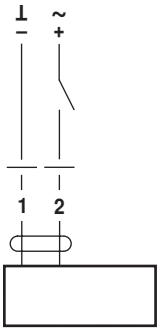



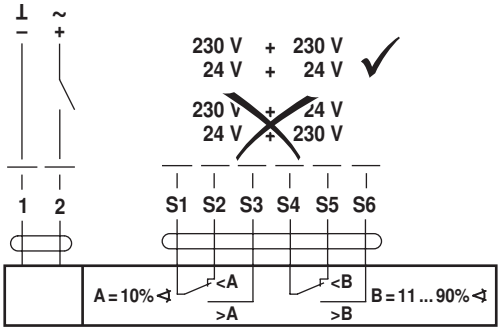



**AC 24 V / DC 24 V**

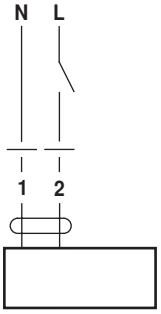



**NF24A**
**SF24A**

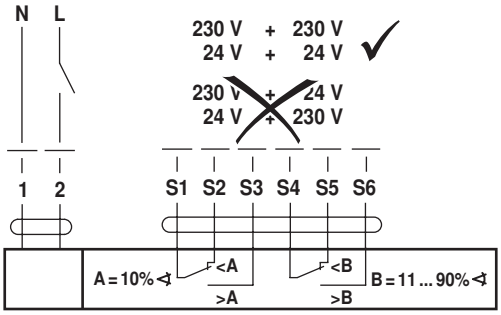



**NF24A-S2**
**SF24A-S2**

**AC 230 V** ⚠

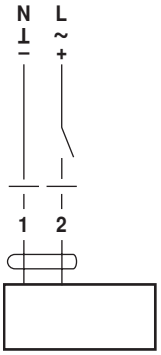



**NF230A**
**SF230A**

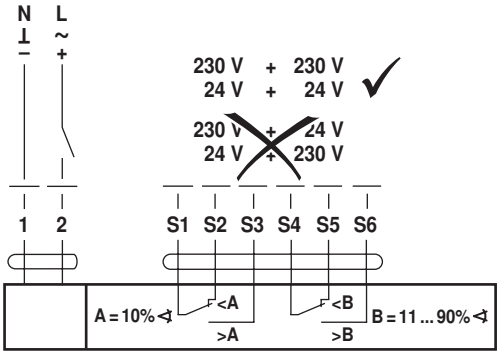



**NF230A-S2**
**SF230A-S2**

**AC 24 ... 240 V / DC 24 ... 125 V** ⚠




**NFA**
**SFA**




**NFA-S2**
**SFA-S2**