

GKB24-SR-T N4

NEMA 4, Proportional Control, Electric Fail-Safe, Direct Coupled, 24V, for 2 to 10 VDC and 4 to 20 mA



| Technical Data | GKB24-SR-T N4 |
|-----------------------|---|
| Power supply | 24 VAC \pm 20% 50/60 Hz 24 VDC \pm 10% |
| Power consumption | 12 W (3 W) |
| Transformer sizing | 21 VA (Class 2 power source) |
| Electrical connection | screw terminal (for 26 to 14 GA wire) $\frac{1}{2}$ " conduit connector |
| Overload protection | electronic throughout 0 to 95° rotation |
| Operating range Y | 2 to 10 VDC, 4 to 20 mA |
| Input impedance | 100 k Ω |
| Feedback output U | 2 to 10 VDC (max 0.5 mA) |
| Angle of rotation | max. 95°, adjustable with mechanical stop |
| Torque | 360 in-lb [40 Nm] |
| Direction of rotation | reversible with switch |
| Position indication | dial |
| Running time | 150 seconds, constant independent of load |
| Motor fail-safe | 35 seconds |
| Humidity | 5 to 100% RH (UL Type 4) |
| Ambient temperature | -22°F to 122°F [-30°C to 50°C] |
| Storage temperature | -40°F to 176°F [-40°C to 80°C] |
| Housing | UL Type 4, NEMA 4, IP66 |
| Housing material | polycarbonate |
| Agency listings† | cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC |
| Noise level | <45dB(A) |
| Servicing | maintenance free |
| Quality standard | ISO 9001 |
| Weight | 10.4 lbs [4.71 kg] |

†Rated Impulse Voltage 800V, Type of action 1, Control Pollution Degree 3.

Torque min. 360 in-lb for control of damper surfaces up to 90 sq ft.

Application

For proportional modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft up to 1.05" in diameter by a universal clamp.

The actuator operates in response to a 2 to 10 VDC, or with the addition of a 500 Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication or master-slave applications.

Operation

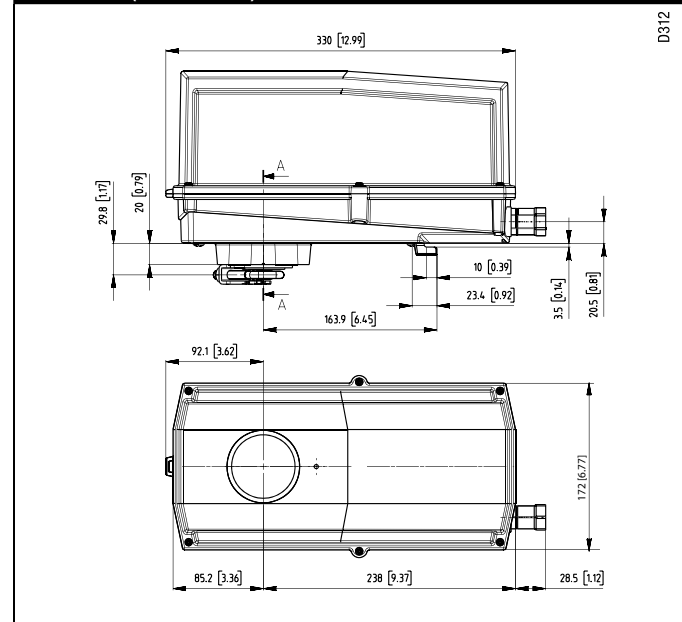
The actuator is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.

The GKB24-SR-T N4 provides 95° of rotation and a visual indicator shows the position of the actuator. When reaching the damper or actuator end position, the actuator automatically stops. The gears can be manually disengaged by pressing the button located on the actuator cover.

The GKB24-SR-T N4 actuator uses a sensorless brushless DC motor, which is controlled by an Application Specific Integrated Circuit (ASIC). The ASIC monitors and controls the actuator's rotation and provides a digital rotation sensing (DRS) function to prevent damage to the actuator in a stall condition. Power consumption is reduced in holding mode.

Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.

Dimensions (inches [mm])



M40024 - 05/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

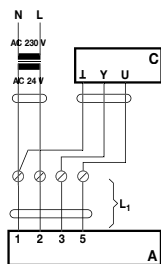
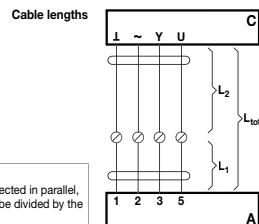
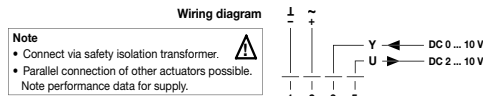
| Accessories | |
|-------------|--|
| S1A, S2A | Auxiliary Switch(es) |
| P...A | Feedback Potentiometers |
| SGA24 | Min positioners for surface mounting |
| SGF24 | Min positioners for flush panel mounting |
| PTA-250 | Pulse Width Modulation Interface |
| IRM-100 | Input Rescaling Module |
| ADS-100 | Analog to Digital Switch |
| ZG-R01 | Resistor for 4 to 20 mA Conversion |
| NSV24 US | Battery Back-Up Module |
| ZG-X40 | Transformer |
| 43442-00001 | Gland (needed for additional wires) |
| 11097-00001 | Gasket for Gland |

Note: When using GKB24-SR-T N4 actuators, only use accessories listed on this page.

Typical Specification

Proportional control damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to a shaft up to 3/4" diameter. Actuators must provide proportional damper control in response to a 2 to 10 VDC or, with the addition of a 500 Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. Actuators shall have brushless DC motor technology and be protected from overload at all angles of rotation. Actuators shall have reversing switch and manual override on the cover. Run time shall be constant and independent of torque. A 2 to 10 VDC feedback signal shall be provided for position indication. Actuators shall be cULus listed, have a 5-year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

Electrical Installation



Cable colors:
 1 = black
 2 = red
 3 = white
 5 = orange

A = Actuator
C = Control unit
L1 = Belimo connecting cable, 1 m (4 x 0.75 mm²)
L2 = Customer cable
Ltot = Maximum cable length

| Cross section L ₂ 1 / ~ | Max. cable length L _{tot} = L ₁ + L ₂ | | Example for DC |
|--|---|-------|--|
| | AC | DC | |
| 0.75 mm ² | ≤30 m | ≤5 m | 1 m (L ₁) + 4 m (L ₂) |
| 1.00 mm ² | ≤40 m | ≤8 m | 1 m (L ₁) + 7 m (L ₂) |
| 1.50 mm ² | ≤70 m | ≤12 m | 1 m (L ₁) + 11 m (L ₂) |
| 2.50 mm ² | ≤100 m | ≤20 m | 1 m (L ₁) + 19 m (L ₂) |

A = Actuator
C = Control unit
L1 = Belimo connecting cable, 1 m (4 x 0.75 mm²)

Wiring Diagrams

INSTALLATION NOTES

- Provide overload protection and disconnect as required.
- CAUTION Equipment Damage!**
Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- Actuators may also be powered by 24 VDC.
- Only connect common to neg. (-) leg of control circuits

APPLICATION NOTES

The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

WARNING Live Electrical Components!
 During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

