

Customizable Fail-Safe actuator for controlling dampers in typical commercial HVAC applications.

- Torque motor 90 in-lb [10 Nm]
- Nominal voltage AC 24...240 V / DC 24...125 V
- Control On/Off
- 2 x SPDT
- NEMA 4X



5-year warranty



Technical data

| | | |
|------------------------|-------------------------------------|--|
| Electrical data | Nominal voltage | AC 24...240 V / DC 24...125 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...264 V / DC 21.6...137.5 V |
| | Power consumption in operation | 6 W |
| | Power consumption in rest position | 2.5 W |
| | Auxiliary switch | 2 x SPDT, 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V, one set at 10°, one adjustable 10...90° |
| | Switching capacity auxiliary switch | 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V |
| | Electrical Connection | (2) 18 GA appliance cables, 1 m, 3 m or 5 m, with 1/2" conduit connectors |
| | Overload Protection | electronic throughout 0...95° rotation |
| | Electrical Protection | actuators are double insulated |
| Functional data | Torque motor | 90 in-lb [10 Nm] |
| | Direction of motion motor | selectable by ccw/cw mounting |
| | Direction of motion fail-safe | reversible with cw/ccw mounting |
| | Manual override | 5 mm hex crank (3/16" Allen), supplied |
| | Angle of rotation | 95° |
| | Angle of rotation note | adjustable with mechanical end stop, 35...95° |
| | Running Time (Motor) | 75 s / 90° |
| | Running time fail-safe | <20 s @ -4...122°F [-20...50°C], <60 s @ -22°F [-30°C] |
| | Noise level, motor | 50 dB(A) |
| | Noise level, fail-safe | 62 dB(A) |
| Position indication | Mechanical, 5...20 mm stroke | |
| Safety data | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP66 |
| | Degree of protection NEMA/UL | NEMA 4X |
| | Enclosure | UL Enclosure Type 4X |
| | Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU |
| | Quality Standard | ISO 9001 |
| | Ambient humidity | Max. 100% RH |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Ambient temperature note | -40...50°C for actuator with integrated heating |
| | Storage temperature | -40...176°F [-40...80°C] |
| Servicing | maintenance-free | |
| Weight | Weight | 6.1 lb [2.7 kg] |

Materials Housing material Polycarbonate

Footnotes †Rated Impulse Voltage 4kV, Type of action 1.AA.B, Control Pollution Degree 4.

Product features

- Application** For On/Off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. Control is On/Off from an auxiliary contact or a manual switch. The actuator is mounted directly to a damper shaft up to 1.05" in diameter by means of its universal clamp.
- Operation** The NF..UP-S N4 series actuators provide true spring return operation for reliable fail-safe application and positive close off on air tight dampers. The spring return system provides constant torque to the damper with, and without, power applied to the actuator. The NF..UP-S N4 series provides 95° of rotation and is provided with a graduated position indicator showing 0° to 95°. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. The NF..UP-S N4 version are provided with two built-in auxiliary switches. These SPDT switches provide safety interfacing or signaling, for example, for fan start-up. The switching function at the fail-safe position is fixed at 10°, the other switch function is adjustable between 10° to 90°. The NF..UP-S N4 actuator is shipped at 5° (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off.
For low ambient temperatures, the optional supplemental (-Y) Heater add-on is available.
- Typical specification** On/Off spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a jackshaft up to a 1.05" diameter. The actuators must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, two SPDT auxiliary switch shall be provided having the capability of one being adjustable. Actuators with auxiliary switches must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus listed and have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

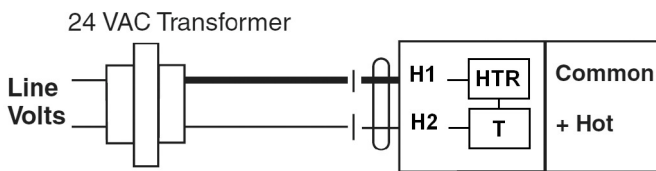
Accessories

| Electrical accessories | Description | Type |
|------------------------|--|-------------|
| | Gasket for cable gland (NEMA 4 models) | 11097-00001 |
| | Cable Gland (NEMA 4 models) | 43442-00001 |
| | Auxiliary switch, mercury-free | P475 |
| | Auxiliary switch, mercury-free | P475-1 |
| Mechanical accessories | Description | Type |
| | Anti-rotation bracket, for AF / NF | AF-P |
| | Ball joint suitable for damper crank arm KH8 / KH10, Multipack 10 pcs. | KG10A |
| | Damper crank arm Slot width 8.2 mm, clamping range ø14...25 mm | KH10 |
| | Push rod for KG10A ball joint 36" L, 3/8" diameter | SH10 |
| | Wrench 0.32 in and 0.39 in [8 mm and 10 mm] | TOOL-06 |
| | Wrench 0.512 in. [13 mm] | TOOL-07 |
| | Damper clip for damper blade, 3.5" width. | ZG-DC1 |
| | Damper clip for damper blade, 6" width. | ZG-DC2 |
| | 1" diameter jackshaft adaptor (11" L). | ZG-JSA-1 |
| | 1-5/16" diameter jackshaft adaptor (12" L). | ZG-JSA-2 |
| | 1.05" diameter jackshaft adaptor (12" L). | ZG-JSA-3 |
| Tools | Description | Type |
| | Signal simulator, Power supply AC 120 V | PS-100 |

| Factory add-on option only | Description | Type |
|----------------------------|------------------------------------|----------------------------|
| | Heater, with adjustable thermostat | N4 Heater Add-on 24V (-H) |
| | Heater, with adjustable thermostat | N4 Heater Add-on 230V (-Y) |

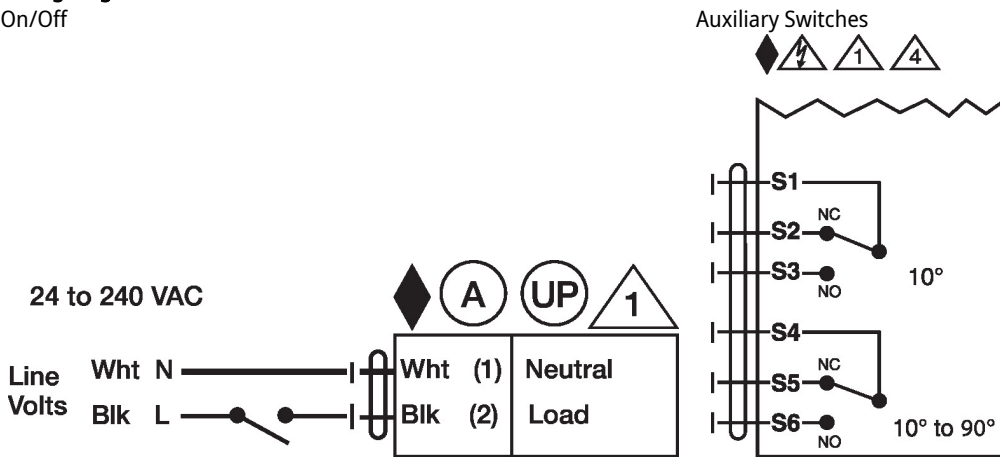
Electrical installation

- ⚠ 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.
- ◆ Meets cULus requirements without the need of an electrical ground connection.
- ⚡ Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.
- Ⓐ Actuators with appliance cables are numbered.
- Ⓢ UP Universal Power Supply (UP) models can be supplied with 24 VAC up to 240 VAC, or 24 VDC up to 125 VDC.
- ⚠ Provide overload protection and disconnect as required.
- ⚠ Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.

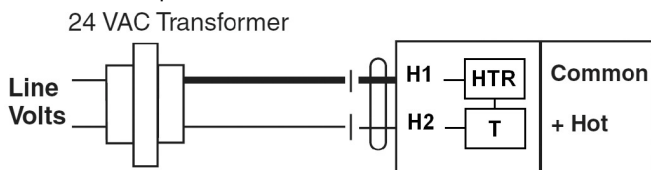


NEMA 4 Heater Option

Wiring diagrams
On/Off



NEMA 4 Heater Option



Dimensions

