

AFX24 N4 Damper Actuator Technical Data Sheet

NEMA 4, On/Off, Spring Return, 24 V



Technical Data

| | |
|------------------------------------|--|
| Power Supply | 24 VAC, ±20%, 50/60 Hz, 24 VDC, -10% / +20% |
| Power consumption in operation | 5 W |
| Power consumption in rest position | 2.5 W |
| Transformer sizing | 7.5 VA (class 2 power source) |
| Shaft Diameter | 1/2...1.05" round, centers on 3/4" with insert, 1.05" without insert |
| Electrical Connection | 18 GA appliance cables, 3 ft [1 m], 10 ft [3 m] or 16ft [5 m], with 1/2" conduit connector |
| Overload Protection | electronic throughout 0...95° rotation |
| Electrical Protection | actuators are double insulated |
| Angle of rotation | 95°, adjustable with mechanical end stop, 35...95° |
| Torque motor | 180 in-lb [20 Nm] |
| Direction of motion motor | selectable by ccw/cw mounting |
| Direction of motion fail-safe | reversible with cw/ccw mounting |
| Position indication | Mechanically, 5...20 mm stroke |
| Manual override | 5 mm hex crank (3/16" Allen), supplied |
| Running Time (Motor) | 75 s |
| Running time fail-safe | <20 s @ -4...122°F [-20...50°C], <60 s @ -22°F [-30°C] |
| Ambient humidity | max. 95% r.H., non-condensing |
| Ambient temperature | -22...122°F [-30...50°C] |
| Storage temperature | -40...176°F [-40...80°C] |
| Degree of Protection | IP66, NEMA 4X, UL Enclosure Type 4X |
| Housing material | Polycarbonate |
| Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC |
| Noise level, motor | 50 dB(A) |
| Noise level, fail-safe | 62 dB(A) |
| Servicing | maintenance-free |
| Quality Standard | ISO 9001 |
| Weight | 8.4 lb [3.8 kg] |

†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 4.

Torque min. 180 in-lb, for control of air dampers.

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. Maximum of two AF's can be piggybacked for torque loads of up to 266 in-lbs. Minimum 3/4" diameter shaft and parallel wiring.

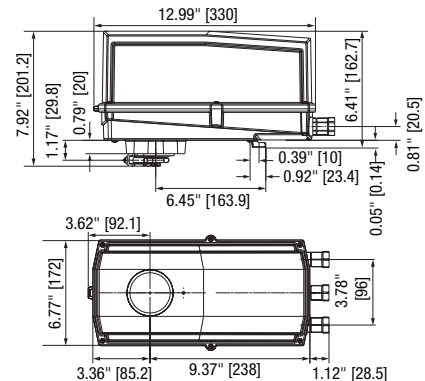
Operation

The AF.24 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 AF.24 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 AF.24 N4 actuator is shipped at 5° (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off.

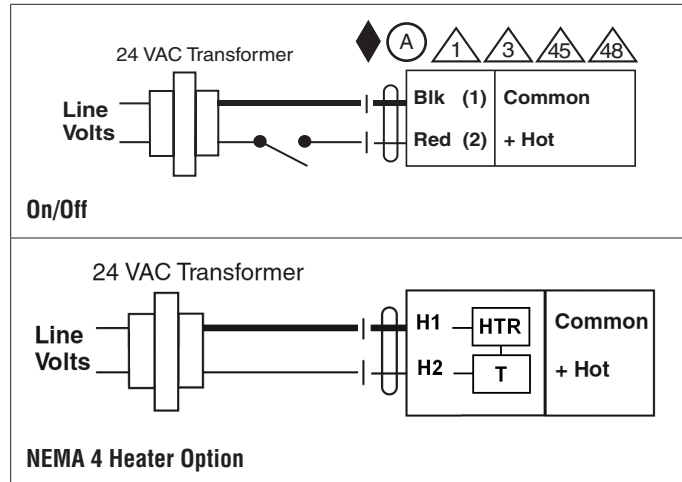
Installation Note: Use suitable flexible metallic conduit or its equivalent with the conduit fitting. Not suitable for plenum applications.

For low ambient temperatures, the optional supplemental (-Y) Heater add-on is available.

Dimensions (Inches[mm])



| Accessories | |
|-------------|--|
| AF-P | Anti-rotation bracket AF/NF. |
| KG10A | Ball joint |
| KH10 | Damper crank arm |
| SH10 | Push rod for KG10A ball joint (36" L, 3/8" diameter). |
| TOOL-06 | 8 mm and 10 mm wrench. |
| TOOL-07 | 13 mm wrench. |
| ZG-DC1 | Damper clip for damper blade, 3.5" width. |
| ZG-DC2 | Damper clip for damper blade, 6" width. |
| ZG-JSA-1 | 1" diameter jackshaft adaptor (11" L). |
| ZG-JSA-2 | 1-5/16" diameter jackshaft adaptor (12" L). |
| ZG-JSA-3 | 1.05" diameter jackshaft adaptor (12" L). |
| 11097-00001 | Gasket for cable gland (for NEMA 4 models). |
| 43442-00001 | Cable gland (for NEMA 4 models). |
| P475 | Shaft mount, non-Mercury aux. switch for 1/2" dia. shafts. |
| P475-1 | Shaft mount, non-Mercury aux. switch for 1" dia. shafts. |
| PS-100 | Low voltage and control signal simulator. |
| ZG-X40 | 120 to 24 VAC, 40 VA transformer. |



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.

Wiring Diagrams

! 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.

Ⓐ Actuators with appliance cables are numbered.

1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by 24 VDC.

45 Actuators may be powered in parallel. Power consumption must be observed.

48 Parallel wiring required for piggy-back applications.