NMB24-3-T N4
NEMA 4X, On/Off, Floating Point Control, Non-Spring Return, 24 V

BELIMO

Torque min. 90 in-lb, for control of damper surfaces up to 22 sq. ft.

Application
For on/off and floating point control 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 3/4" in diameter by means of its universal clamp.
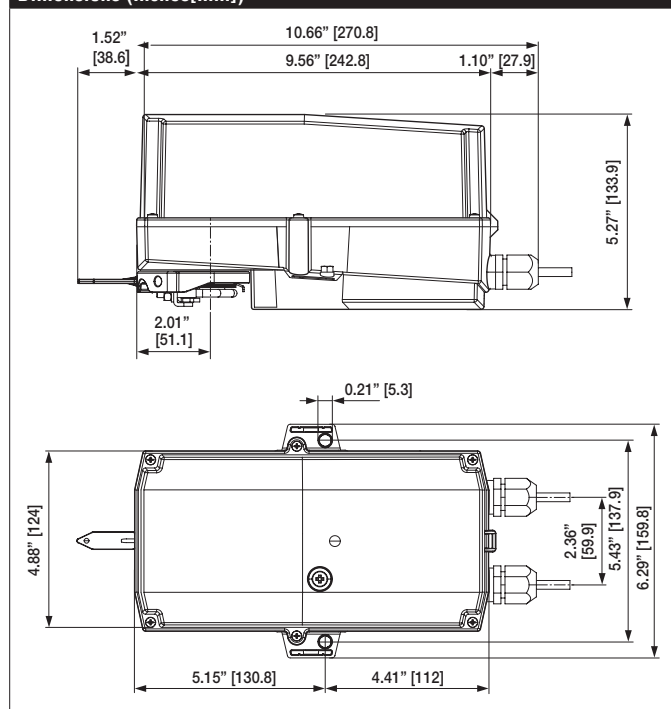
Operation
The actuator is not provided with and does not require any limit switches, but is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.

The NMB24-3-T N4 provides 95° of rotation and a visual indicator indicates position of the actuator. When reaching the damper or actuator end position, the actuator automatically stops. The gears can be manually disengaged with a button on the actuator cover.

The NMB24-3-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.

Technical Data

Power Supply	24 VAC ± 20%, 50/60 Hz, 24 VDC ± 10%
Power Consumption Running	2
Power Consumption Holding	0.2 W
Transformer Sizing	4 VA (class 2 power source)
Shaft Diameter	9/16" to 3/4" round
Electrical Connection	Screw terminal (for 26 to 14 GA wire [heater 15 GA wire]), 1/2" conduit connector
Overload Protection	electronic throughout 0° to 95° rotation
Input Impedance	600 Ω
Angle of Rotation	Max. 95°, adjustable with mechanical stop
Torque	90 in-lbs [10 Nm] minimum
Direction of Rotation (Motor)	reversible with switch
Position Indication	pointer
Manual Override	external push button
Running Time (Motor)	95 sec constant, independent of load
Ambient Humidity	5 to 95% RH non condensing (EN 60730-1)
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Storage Temperature Range	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 4X, IP66/67, UL enclosure type 4
Housing Material	UL94-5VA
Agency Listings†	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC
Noise Level (Motor)	<45 dB (A)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	2.9 lb [1.3 kg]

†Rated Impulse Voltage 4kV, Type of action 1, Control Pollution Degree 3.

Dimensions (Inches[mm])

1.52" [38.6]
10.66" [270.8]
9.56" [242.8]
1.10" [27.9]
5.27" [133.9]
2.01" [51.1]

0.21" [5.3]
4.88" [124]
2.36" [59.9]
5.43" [137.9]
6.29" [159.8]
5.15" [130.8]
4.41" [112]

Accessories

S1A	Auxiliary switch, 1x SPDT, 3A (0.5A inductive) @250 VAC max.
S2A	Auxiliary switch, 2x SPDT, 3A (0.5A inductive) @250 VAC max.
P140A GR	Feedback potentiometer 140Ω.
P500A GR	Feedback potentiometer 500Ω.
P1000A GR	Feedback potentiometer 1000Ω.
P2800A GR	Feedback potentiometer 2800Ω.
P5000A GR	Feedback potentiometer 5000Ω.
P10000A GR	Feedback potentiometer 10000Ω.

Typical Specification

Floating point, on/off 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 ¾" diameter. 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. 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.

Wiring Diagrams

(A) Actuators with appliance cables are numbered.

⚠1 Provide overload protection and disconnect as required.

⚠3 Actuators may also be powered by 24 VDC.

⚠6 Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.

⚠11 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

⚠16 Actuators are provided with a numbered screw terminal strip instead of a cable.

On/Off

Floating Point

Floating Point - Triac Source

Floating Point - Triac Sink