

GMB24-SR-T N4

NEMA 4X, Modulating Control, Non-Spring Return, 24 V, for 2 to 10 VDC or 4 to 20 mA



Technical Data

Power Supply	24 VAC, $\pm 20\%$, 50/60 Hz, 24 VDC, $\pm 10\%$
Power consumption in operation	4.5 W
Power consumption in rest position	2 W
Transformer sizing	6.5 VA (class 2 power source)
Shaft Diameter	1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert
Electrical Connection	screw terminal (for 26 to 14 GA wire), 1/2" conduit connector
Overload Protection	electronic throughout 0° to 95° rotation
Operating Range	DC 2...10 V, 4 to 20 mA w/ ZG-R01 (500 Ω , 1/4 W resistor)
Input Impedance	100 k Ω for 2 to 10 VDC (0.1 mA), 500 Ω for 4 to 20 mA
Angle of rotation	Max. 95°, adjustable with mechanical stop
Torque motor	360 in-lbs [40 Nm]
direction of rotation motor	reversible with built-in switch
Position indication	dial
Manual override	external push button
Running time motor	150 sec, constant, independent of load
Ambient humidity	5 to 95% RH non-condensing
Ambient temperature	-22...122 °F [-30...50 °C]
Non-operating 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, CSA C22.2 No 24-93, CE acc. to 89/336/EC
Noise level, motor	<45 dB (A)
Maintenance	maintenance free
Quality Standard	ISO 9001
Weight	6.24 lb [2.83 kg]

†Rated Impulse Voltage 800V, Type 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 means of its 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. Not to be used for a master-slave application. Heater must remain powered at all times to ensure proper actuator operation at colder temperatures.

Operation

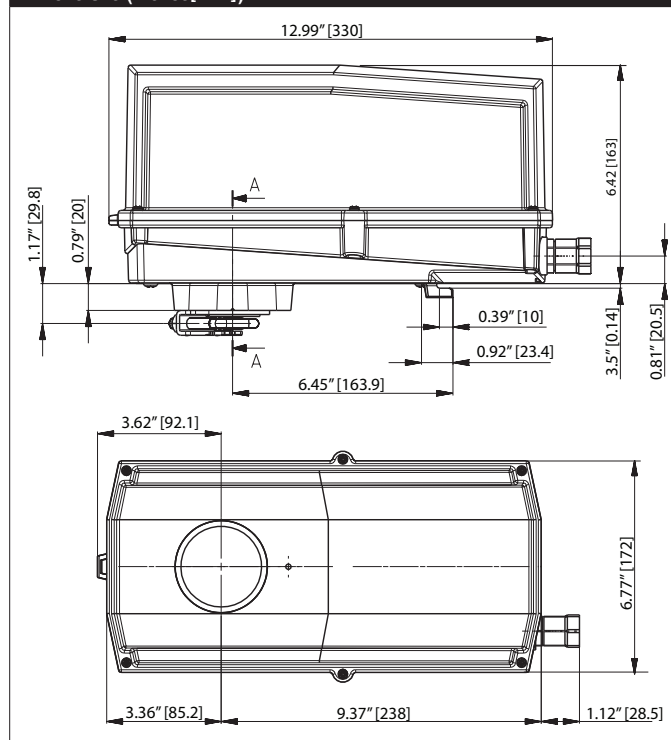
The actuator is not provided with and does not require any limit switches, but is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement.

The GMB24-SR-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 after the cover is removed.

The GMB24-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.

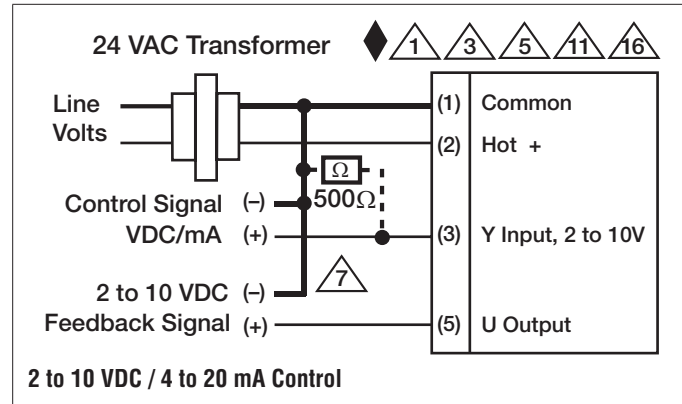
Dimensions (Inches[mm])



ZG-110	Right angle bracket for ZS-260.
ZG-DC1	Damper clip for damper blade, 3.5" width.
BELIMO	Damper clip for damper blade, 6" width.
ZG-GMA	Mounting kit for linkage operation GM..A
Z-GMA	Base plate extension
ZK1-GEN	Connection cable 5 m
Accessories	
ZK3-GEN	Cable to ZIP-RS232 US to diagnostic/programming socket.
ZKS-MP	Cable for ZIP-RS232 US and ZIP-USB-MP US to Belimo gateways.
ZS-100	Weather shield - galvaneal (13" L x 8" W x 6" D).
ZS-101	Base plate for ZS-100.
ZS-150	Weather shield - PC w/ foam seal (16" L x 8-3/8" W x 4" D).
ZS-260	Explosion proof housing.
ZS-300	NEMA 4X, 304 stainless steel enclosure.
ZS-300-1	ZS-300 without brackets.
ZS-300-5	NEMA 4X, 316L stainless steel enclosure.
ZS-300-BK	ZS-300 Mounting Bracket Set
ZS-300-C1	1/2" shaft adaptor, standard with ZS-300(-5).
ZS-300-C2	3/4" shaft adaptor for ZS-300(-5).
ZS-300-C3	1" shaft adaptor for ZS-300(-5).
MFT-P	Belimo PC-Tool
ZTH-GEN US	Hand held programming tool with ZK1-GEN.
ZTH-GEN US PLUS	Hand held programming tool with ZK1-GEN, ZK2-GEN & ZK6-GEN.
ADS-100	Analog to digital switch for modulating actuators.
IRM-100	Input rescaling module for modulating actuators.
MFT-P US	Belimo MFT configuration software (hardware not included).
MFT-XFMR	24 V transformer (120V to 24V) for PS-100.
NSV24 US	Battery back-up module for non-spring return actuators.
NSV-BAT	12V 1.2AH battery (two required for NSV24 US).
P10000A GR	Feedback potentiometer for damper actuators and rotary actuators
P1000A GR	Feedback potentiometer for damper actuators and rotary actuators
P140A GR	Feedback potentiometer for damper actuators and rotary actuators
P2800A GR	Feedback potentiometer for damper actuators and rotary actuators
P370	Shaft mount auxiliary switch, 1/2" shaft.
P5000A GR	Feedback potentiometer for damper actuators and rotary actuators
P500A GR	Feedback potentiometer for damper actuators and rotary actuators
PS-100	Actuator power supply and control simulator.
PTA-250	Pulse width modulation interface for modulating actuators.
S1A	Auxiliary switch for damper actuators and rotary actuators
S2A	Auxiliary switch for damper actuators and rotary actuators
SGA24	Positioners suitable for use with the modulating damper actuators LM..A-SR, NM..A-SR, SM..A-SR and GM..A-SR
UK24LON	Gateway MP to LonWorks
ZAD24	Digital position indicator for modulating actuators.
ZG-R01	4 to 20 mA adaptor, 500Ω, 1/4 W resistor w 6" pigtail wires.
ZG-R02	50% voltage divider kit (resistors with wires).
ZG-R03	MFT95 resistor kit for 0 to 135Ω control applications.
ZG-R05	MFT95 resistor kit for 4 to 20 mA control applications.
ZG-R06	MFT95 resistor kit for Series 90 control applications.
ZG-SGF	Mounting plate for SGF.
ZG-X40	120 to 24 VAC, 40 VA transformer.
ZIP-RS232 US	PC Tool computer programming interface, serial port.
ZIP-USB-MP US	PC Tool computer programming interface, USB port.
NSV-BAT US	12VDC 1.2 AH battery (2 required).

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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 1.05" 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. If required, actuators will be provided with a screw terminal strip for electrical connections (NMX24-3-T). 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

-  Provide overload protection and disconnect as required.
-  Actuators may also be powered by 24 VDC.
-  Only connect common to negative (-) leg of control circuits.
-  A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.
-  Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.
-  Actuators are provided with a numbered screw terminal strip instead of a cable.