Technical Data GMB(X)24-MFT

**Power supply**
- 24 VAC ± 20% 50/60 Hz
- 24 VDC ± 10%

**Power consumption**
- 4.5 W (1.5 W)

**Transformer sizing**
- 7 VA (Class 2 power source)

**Electrical connection**
- 18 GA stranded cable rated 1/2" conduit connector
- protected NEMA 2 (IP54)
- 3 ft [1m] 10 ft [3m] 16 ft [5m]

**Overload protection**
- electronic throughout 0 to 95° rotation

**Operating range Y**
- 2 to 10 VDC; 4 to 20 mA (default)
- variable (VDC, PWM, floating point, on/off)

**Input impedance**
- 100 kΩ (0.1 mA), 500 Ω
- 1500 Ω (PWM, floating point, on/off)

**Feedback output U**
- 2 to 10 VDC, 0.5 mA max
- VDC variable

**Angle of rotation**
- max. 95°, adjustable with mechanical stop
- electronically variable

**Torque**
- 360 in-lb [40 Nm]

**Direction of rotation**
- reversible with switch

**Position indication**
- reflective visual indicator (snap-on)

**Manual override**
- external push button

**Running time**
- 150 seconds (default)
- variable (75 to 300 seconds)

**Humidity**
- 5 to 95% RH non condensing (EN 60730-1)

**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**
- NEMA 2, IP54, UL enclosure type 2

**Material**
- UL94-V5A

**Agency listings†**
- cULus acc. to UL 60730-1A/2-14,
- CAN/CSA 60730-1.02,
- CE acc. to 2004/108/EEC and 2006/95/EC

**Noise level**
- <45dB(A)

**Servicing**
- maintenance free

**Quality standard**
- ISO 9001

**Weight**
- 3.4 lbs [1.55 kg]

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**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. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

The default parameters for 2 to 10 VDC applications of the MFT actuator are assigned during manufacturing. If necessary, custom versions of the actuators can be ordered. The parameters can be changed by two means: pre-set and custom configurations from Belimo or on-site configurations using the Belimo PC-Tool software.

**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 GMB(X) series 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 GMB(X)24-MFT actuators use a 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.

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**Dimensions (inches [mm])**

- 1/2” to 1.05” [12.7 to 26.67]
- 2/5” to 1.05” [10 to 26.67]
Accessories
K-GM20 3/4” [20 mm] Shaft Clamp
ZG-102 Multiple Actuator Mounting Bracket
ZG-GMA Crank arm Adaptor Kit
ZG-JSA (-1, 2, 3) Jackshaft Adaptors for Hollow Jackshafts
ZS-100 Weather Shield - Steel
ZS-150 Weather Shield - Polycarbonate
ZS-260 Explosion Proof Housing
ZS-300 (-1) (-5) NEMA 4X Housing
Tool-07 13 mm Wrench
PS-100 Actuator Power Supply Simulator
SIA, S2A Auxiliary Switch (es)
P370 Shaft Mount Auxiliary Switch
P...A Feedback Potentiometers
SIA24 Min positions in NEMA 4 housing
SGF24 Min positions for flush panel mounting
ADS-100 Analog to Digital Switch
ZG-R01 Resistor for 4 to 20 mA Conversion
NSV24 US Battery Back-Up Module
ZG-X40 Transformer

NOTE: When using GMB(X)24-MFT 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 1.05” 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. 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

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.

INSTALLATION NOTES

1. Provide overload protection and disconnect as required.
2. Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
3. Actuators may also be powered by 24 VDC.
4. Position feedback cannot be used with Triac sink controller.
5. The actuator internal common reference is not compatible.
6. Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
7. Contact closures A & B also can be triacs.
8. A & B should both be closed for triac source and open for triac sink.
9. For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

APPLICATION NOTES

1. Meets UL requirements without the need of an electrical ground connection.
2. The ZG-R01 500 Ω resistor may be used.