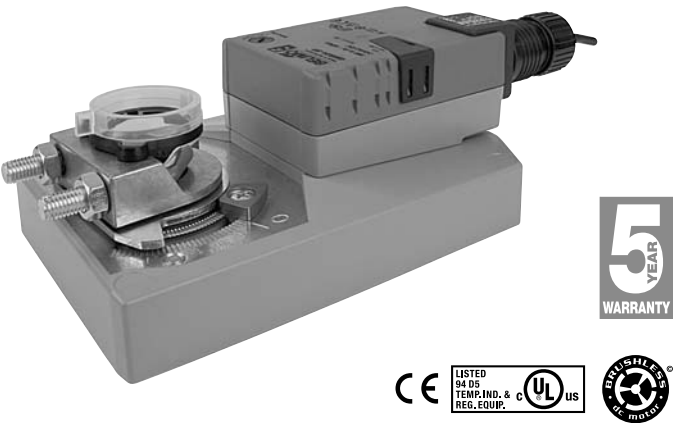


GMX120-3

On/Off, Floating Point, Non-Spring Return, 100 to 240 VAC



Technical Data	GMX120-3
Power supply	100 to 240 VAC, 50/60 Hz (nominal) 85 to 265 VAC, 50/60 Hz (tolerance)
Power consumption	4 W (2 W)
Transformer sizing	7 VA (Class 2 power source)
Electrical connection	18 GA appliance rated cable 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
Control	on/off, floating point
Input impedance	600 Ω
Angle of rotation	max. 95°, adjustable with mechanical stop
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, constant independent of load
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
Housing material	UL94-5VA
Agency listings†	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, 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]

†Rated Impulse Voltage 2.5kV, Type of action 1, Control Pollution Degree 3.

Torque min. 360 in-lb for control of damper surfaces up to 90 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 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.

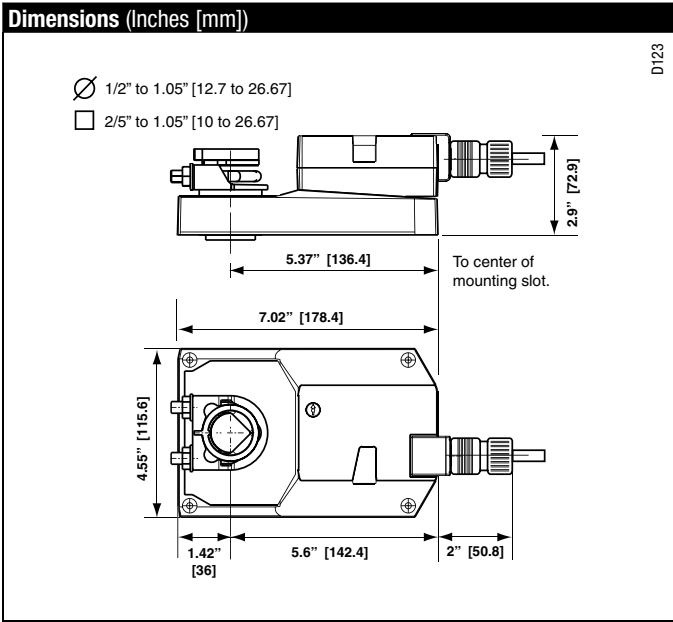
Operation

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 GMX 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 GMX120-3 actuators use 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.



M40024 - 05/10 - Subject to change. © Belimo Aircontrols (USA), Inc.

Accessories

K-GM20	1/2"-1.05 [12.7 to 26.67 mm] Shaft Clamp
ZG-102	Multiple Actuator Mounting Bracket
Z-GMA	GM to GM Retrofit 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
S1A, S2A	Auxiliary Switch (es)
P370	Shaft Mount Auxiliary Switch
P...A	Feedback Potentiometers

NOTE: When using GMX120-3 actuators, only use accessories listed on this page.

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. 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

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

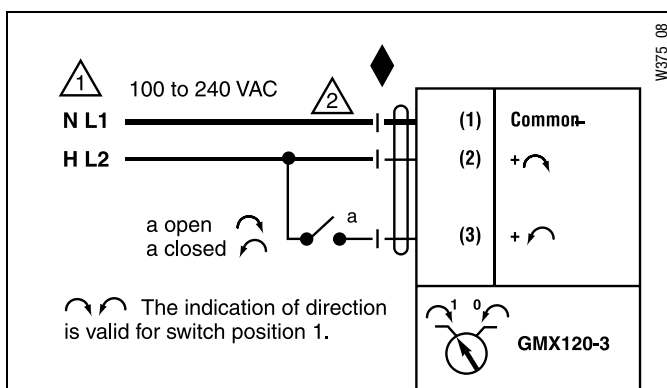
2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

APPLICATION NOTES

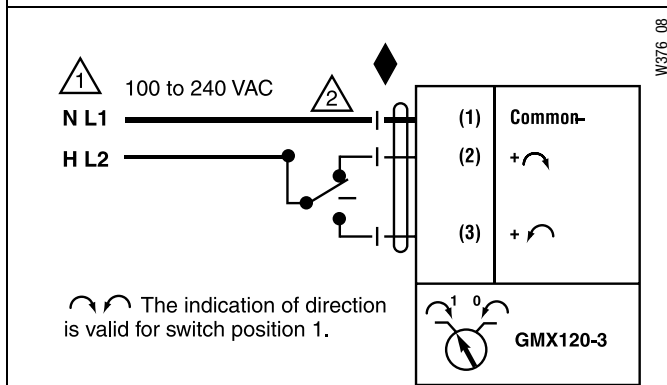
Meets cULus requirements without the need of an electrical ground connection.

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.



On/Off control



Floating Point or On/Off control



GM B...

B = Basic stocked product

- Standard 150 second run time.
- Standard 3/4" to 1.05" clamp.
- Standard 3' plenum cable with conduit connector.

Typical Lead Time: 1 day

GM X...

X = Customizable product

- Choice of 10' or 16' cable with conduit connector.
- Option of 3' right angle cables for tight spaces (-3 version only).
- Factory programming for run time, control signal and feedback.

Typical Lead Time: 3 days or less

Reorder number consists of options which differ from standard product. This number is printed on the actuator for easy reordering.

For example:

Reorder # for a GMX24-MFT

is: **GM1101C3A01**

4 No Charge

3 \$28

2 No Charge

1 \$709

\$737 Final Price

1 ACTUATOR TYPE

2 CLAMP

TYPE	Size	Actuator Series	List Price
Standard Universal Clamp	5/8"	LMX	No Charge
	3/8"	LMX	No Charge
	1/2"	LMX	No Charge
	3/4"	LMX	No Charge
	1/2" to 1.05"	GMX, AMX, NMX	No Charge
	1/2" to 3/4" Reversible	AMX, NMX	\$16
	8 mm to 12 mm	LUX	No Charge
	8 mm to 12 mm with end stop	LUX	No Charge
	Formfit 8 mm X 8 mm	LUX	No Charge
	Formfit 10 mm X 10 mm	LUX	No Charge
	Formfit 12 mm X 12 mm	LUX	No Charge

3 CABLES

CABLE (with conduit fitting)	Size	Actuator Series	Cable Code	List Price
24V Plenum Rated	3 ft.	All Non-Spring Return	C1	No Charge
	10 ft.	All Non-Spring Return	C3	\$28
	16 ft.	All Non-Spring Return	C5	\$48
120V Appliance Rated	3 ft.	All Non-Spring Return	A1	No Charge
	10 ft.	All Non-Spring Return	A3	\$28
	16 ft.	All Non-Spring Return	A5	\$48

4 PROGRAM

	Running Time	Control Input	Feedback	Actuator Series	Program Code	List Price
-3	150 seconds	On/Off, Floating Point	-	GMX, AMX, NMX, LMX, AHX, LHX, LUX	000	No Charge
	95 seconds	On/Off, Floating Point	-	AMX, NMX, LMX, LHX	002	No Charge
	45 seconds	On/Off, Floating Point	-	LMX	004	No Charge
	35 seconds	On/Off, Floating Point	-	LMX	005	No Charge
-SR	150 seconds	2-10 VDC	2-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX, LUX	000	No Charge
	95 seconds	2-10 VDC	2-10 VDC	AMX, NMX, LMX, LHX, LUX	002	No Charge
-MFT	150 seconds	2-10 VDC	2-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX, LUX	A01	No Charge
	150 seconds	0.5-10 VDC	0.5-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX	A02	No Charge
	150 seconds	0.5-10 VDC	2-10 VDC	LUX	A45	No Charge
	150 seconds	8-20 VDC	2-10 VDC	AHX, LHX	AAL	No Charge
	100 seconds	0.5-10 VDC	0.5-10 VDC	AMX, NMX, LMX	A28	No Charge
	95 seconds	0.5-10 VDC	0.5-10 VDC	NMX	ACA	No Charge
	150 seconds	6-9 VDC	2-10 VDC	LUX	A56	No Charge
	95 seconds	2-10 VDC	2-10 VDC	GMX	A91	No Charge
	150 seconds	Floating Point	2-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX, LUX	F01	No Charge
	150 seconds	On/Off	2-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX, LUX	J02	No Charge
	150 seconds	PWM (0.02-5 sec)	2-10 VDC	GMX, AMX, NMX, LMX, AHX, LHX	W02	No Charge
	150 seconds	PWM (0.1-25.5 sec)	2-10 VDC	AMX	W03	\$34

Multi-Function Technology offers a wide variety of programmable control inputs and feedback signals. Parameters can be set for voltage control (VDC), time proportional control (PWM), floating point, on/off and feedback signal. Parameters can be changed on-site to optimize/enable application. You can also set, modify or read position, running time, mechanical working range, address, status, and diagnostics.

For additional MFT programming codes, refer to MFT technical documentation or visit www.belimo.us.