

LHX24-MFT(-100)(-200)(-300)

Proportional, Non-Spring Return, Linear Stroke, 24 V, Multi-Function Technology®



MFT



Technical Data	LHX24-MFT(-100)(-200)(-300)
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 20%
Power consumption	2.5 W (1.2 W)
Transformer sizing	5 VA (Class 2 power source)
Electrical connection	18 GA plenum rated cable 1/2" conduit connector protected NEMA 2 (IP54) 3 ft [1m] 10 ft [3m] 16 ft [5m]
Overload protection	electronic throughout full stroke
Control	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 (max 0.5 mA) VDC variable
Linear stroke	LHX24-MFT-100 4 in [100 mm] LHX24-MFT-200 8 in [200 mm] LHX24-MFT-300 12 in [300 mm]
Linear force	34 lbf [450 N]
Stroke direction	reversible with ↓/↑ switch
Manual override	external push button
Running time	150 seconds per 4" [100mm] variable (75 to 150 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
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 (max)	35dB(A)
Servicing	maintenance free
Quality standard	ISO 9001
Weight	LHX24-MFT-100 0.81 lbs [0.37 kg] LHX24-MFT-200 0.86 lbs [0.39 kg] LHX24-MFT-300 0.93 lbs [0.42 kg]

†Rated Impulse Voltage 800V, Type of action 1, Control Pollution Degree 3.

Linear Force min. 34 lbf for control of damper surfaces up to 11 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 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.

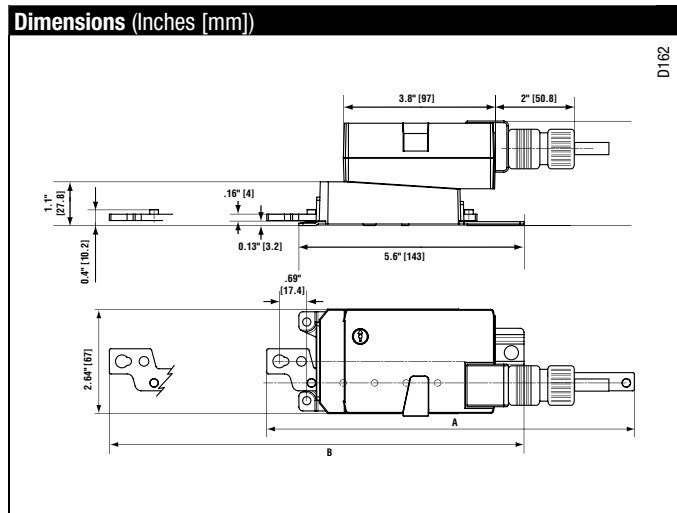
Operation

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

The LHX series provides 4, 8, or 12 in of linear force. The stroke of the gear rack can be adjusted on both sides in increments of 0.8 in [20 mm] by means of the mechanical end stops.

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 LHX24-MFT... 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.



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Accessories

Z-DS1	Rotary Support to Compensate Lateral Forces
Z-KSA	Linear Coupling
P370	Shaft Mount Auxiliary Switch
SGA24	Min Positioners in NEMA 4 Housing
SGF24	Min Positioners for Flush Panel Mounting
PTA-250	Pulse Width Modulation Interface
IRM-100	Input Rescaling Module
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 LHX24-MFT... actuators, only use accessories listed on this page.

Typical Specification

Proportional control damper actuators shall be electronic type, with integrated linear stroking arm. Actuators must provide control in response to a 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

INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
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. The actuator internal common reference is not compatible.
- 5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
- 8 Contact closures A & B also can be triacs.
- 9 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

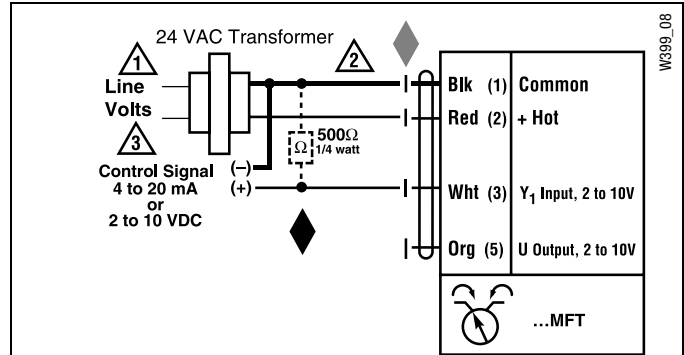
APPLICATION NOTES

◆ The ZG-R01 500 Ω resistor may be used.

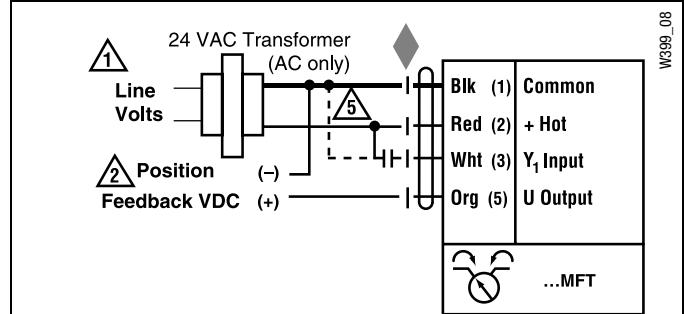
WARNING Live Electrical Components!

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.

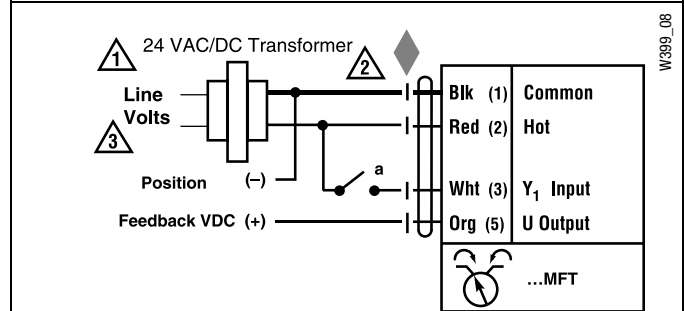
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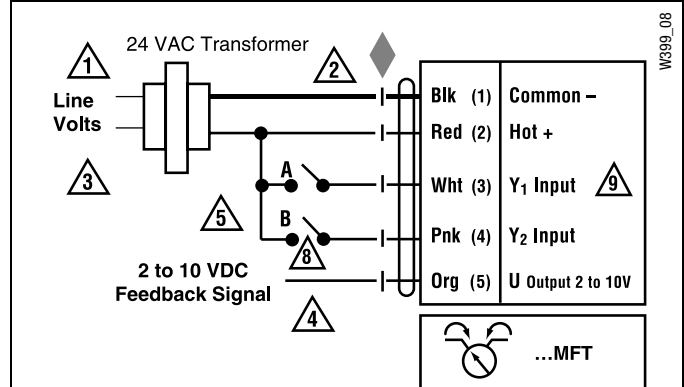
VDC/4-20 mA



PWM



On/Off control



Floating Point control