

LHX120-SR-200 Technical Data Sheet

Modulating, Non-Spring Return, Linear, 120 V, for DC 2...10 V or 4...20 mA



Technical Data

| | |
|------------------------------------|--|
| Power Supply | 100...240 VAC, -15% / +10%, 50/60 Hz |
| Power consumption in operation | 3 W |
| Power consumption in rest position | 1 W |
| Transformer sizing | 4 VA (class 2 power source) |
| Electrical Connection | 18 GA appliance cable, 3ft [1m] 10ft [3m] and 16ft [5m], with 1/2" conduit connector, degree of protection NEMA 2 / IP54 |
| Overload Protection | electronic throughout full stroke |
| Operating Range | 2...10 V, 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| Input Impedance | 100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA |
| Stroke | 8" [200 mm] |
| Actuating force motor | 35 lbf [150 N] |
| Direction of motion motor | reversible with switch |
| Manual override | external push button |
| Running Time (Motor) | 150 s 100 mm |
| Ambient humidity | max. 95% r.H., non-condensing |
| Ambient temperature | -22...122°F [-30...50°C] |
| Storage temperature | -40...176°F [-40...80°C] |
| Degree of Protection | IP54, NEMA 2, UL Enclosure Type 2 |
| Housing material | UL94-5VA |
| Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU |
| Noise level, motor | 35 dB(A) |
| Servicing | maintenance-free |
| Quality Standard | ISO 9001 |
| Weight | 1.0 lb [0.47 kg] |

†Rated Impulse Voltage 800V, Type of Action 1, Control Pollution Degree 2.

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

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.

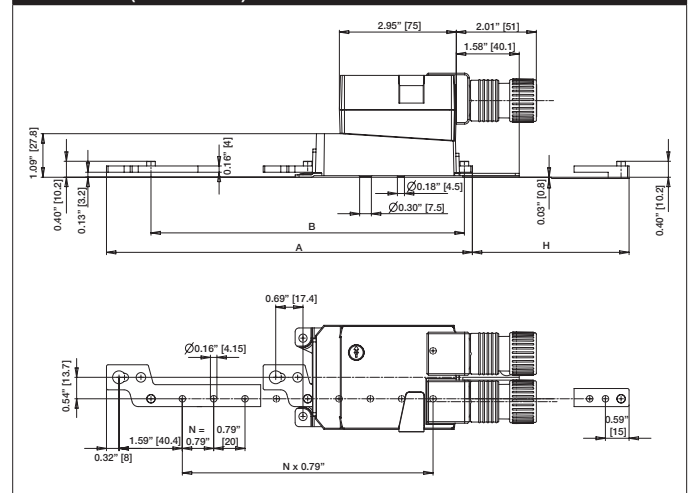
The LHX120-SR... series provides 4 or 8 in of linear stroke. The stroke of the gear rack can be adjusted on both sides in increments of 0.8 in [20 mm] by means of the mechanical end stops.

When reaching the damper or actuator end position, the actuator automatically stops.

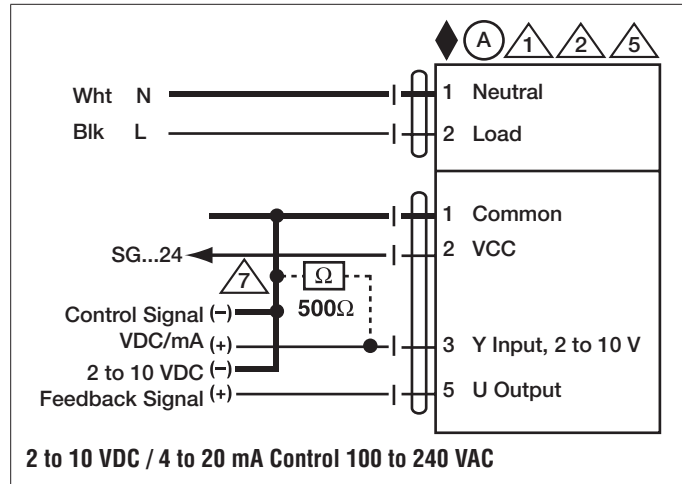
The gears can be manually disengaged with a button on the actuator cover.

The LHX120-SR... 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.

Dimensions (Inches[mm])



| Accessories | |
|-------------|---|
| KG10A | Ball joint |
| KG8 | Ball joint |
| SH8 | Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter). |
| Z-DS1 | Rotary support |
| Z-KSC | 3/8"-16 shaft clevis for AHK/AH. |
| ZG-119 | Bracket for AHK/AH/LH linear actuators. |
| IRM-100 | Input rescaling module for modulating actuators. |
| NSV24 US | Battery back-up module for non-spring return actuators. |
| NSV-BAT | 12V 1.2AH battery (two required for NSV24 US). |
| PTA-250 | Pulse width modulation interface for modulating actuators. |
| SGA24 | Positioners suitable for use with the modulating damper actuators LM..A-SR, NM..A-SR, SM..A-SR and GM..A-SR |
| 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-SGF | Mounting plate for SGF. |
| ZG-X40 | 120 to 24 VAC, 40 VA transformer. |
| TF-CC US | Cable conduit connector, 1/2". |



Typical Specification

Modulating control, electronic fail-safe damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to shaft up to 1.05" diameter. Actuators must provide modulating damper control 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. A 2 to 10 VDC feedback signal shall be provided for position feedback. 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.
- 5 Only connect common to negative (-) leg of control circuits.
- 7 A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.
- 11 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.