

Customizable Non Fail-Safe modulating actuator for controlling dampers in typical commercial HVAC applications.

- Torque motor 45 in-lb [5 Nm]
- Nominal voltage AC 100...240 V
- Control Modulating
- Position feedback 2...10 V



5-year warranty



## Technical data

|                 |                                    |                                                                                                             |
|-----------------|------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Electrical data | Nominal voltage                    | AC 100...240 V                                                                                              |
|                 | Nominal voltage frequency          | 50/60 Hz                                                                                                    |
|                 | Nominal voltage range              | AC 85...265 V                                                                                               |
|                 | Power consumption in operation     | 2.5 W                                                                                                       |
|                 | Power consumption in rest position | 1 W                                                                                                         |
|                 | Transformer sizing                 | 4.5 VA                                                                                                      |
|                 | Electrical Connection              | 18 GA appliance cable, 1 m, 3 m or 5 m, with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54 |
|                 | Overload Protection                | electronic throughout 0...95° rotation                                                                      |
| Functional data | Torque motor                       | 45 in-lb [5 Nm]                                                                                             |
|                 | Operating range Y                  | 2...10 V                                                                                                    |
|                 | Operating range Y note             | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)                                                                 |
|                 | Input impedance                    | 100 kΩ (0.1 mA), 500 Ω                                                                                      |
|                 | Position feedback U                | 2...10 V                                                                                                    |
|                 | Position feedback U note           | Max. 0.5 mA                                                                                                 |
|                 | Direction of motion motor          | selectable with switch 0/1                                                                                  |
|                 | Manual override                    | external push button                                                                                        |
|                 | Angle of rotation                  | Max. 95°                                                                                                    |
|                 | Angle of rotation note             | adjustable with mechanical stop                                                                             |
|                 | Running Time (Motor)               | 95 s / 90°                                                                                                  |
|                 | Running time motor note            | constant, independent of load                                                                               |
|                 | Running time motor variable        | 35, 45, 60, 150 s                                                                                           |
|                 | Noise level, motor                 | 35 dB(A)                                                                                                    |
| Safety data     | Position indication                | Mechanical, 30...65 mm stroke                                                                               |
|                 | Power source UL                    | Class 2 Supply                                                                                              |
|                 | Degree of protection IEC/EN        | IP54                                                                                                        |
|                 | Degree of protection NEMA/UL       | NEMA 2                                                                                                      |
|                 | Enclosure                          | UL Enclosure Type 2                                                                                         |
|                 | Agency Listing                     | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02<br>CE acc. to 2014/30/EU and 2014/35/EU                 |
|                 | Quality Standard                   | ISO 9001                                                                                                    |
|                 | UL 2043 Compliant                  | Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC                 |
|                 | Ambient humidity                   | Max. 95% RH, non-condensing                                                                                 |
|                 | Ambient temperature                | -22...122°F [-30...50°C]                                                                                    |
|                 | Storage temperature                | -40...176°F [-40...80°C]                                                                                    |
|                 | Servicing                          | maintenance-free                                                                                            |

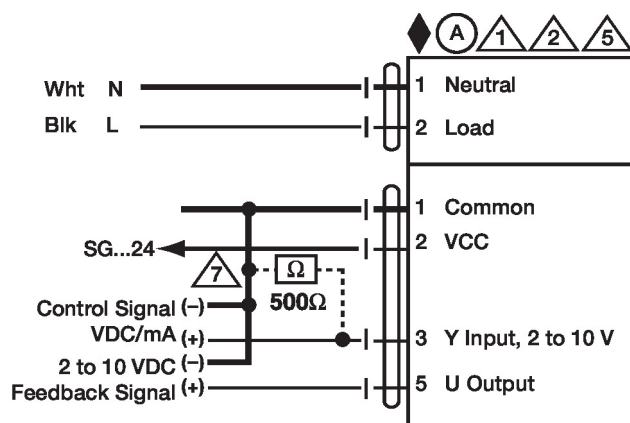
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|------------------|------------------|------------------|
| <b>Weight</b>    | Weight           | 1.2 lb [0.54 kg] |
| <b>Materials</b> | Housing material | UL94-5VA         |

## Product features

- 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 from 1/4" up to 5/8" in diameter by means of its universal clamp. Shafts up to 3/4" diameter can be accommodated by an accessory clamp. The actuator operates in response to a 2...10 V, or with the addition of a 500  $\Omega$  resistor, a 4...20 mA control input from an electronic controller or positioner. A 2...10 V feedback signal is provided for position indication or primary/secondary operation.
- 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 LMB 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 LMB24-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.
- Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.
- Typical specification** Proportional control damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage. Actuators must provide proportional damper control in response to a 2 to 10 VDC or, with the addition of a 500  $\Omega$  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 indication. 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.

## Electrical installation

- Ⓐ Actuators with appliance cables are numbered.
- ⚠️ Provide overload protection and disconnect as required.
- ⚠️ Only connect common to negative (-) leg of control circuits.
- ⚠️ A 500  $\Omega$  resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- ⚠️ Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



2...10 V / 4...20 mA Control AC 100...240 V

## Dimensions

