

# AMB24-3-S Technical Data Sheet

## On/Off, Floating Point, Non-Spring Return, 24 V



| Technical Data                     |                                                                                                   |
|------------------------------------|---------------------------------------------------------------------------------------------------|
| Power Supply                       | 24 VAC, $\pm 20\%$ , 50/60 Hz, 24 VDC, $\pm 10\%$                                                 |
| Power consumption in operation     | 2.5 W                                                                                             |
| Power consumption in rest position | 0.5 W                                                                                             |
| Transformer sizing                 | 5.5 VA (class 2 power source)                                                                     |
| Shaft Diameter                     | 1/2...1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert                     |
| Electrical Connection              | 18 GA appliance cable with 1/2" conduit connector, 3 ft [1 m], degree of protection NEMA 2 / IP54 |
| Overload Protection                | electronic throughout 0...95° rotation                                                            |
| Input Impedance                    | 600 $\Omega$                                                                                      |
| Angle of rotation                  | Max. 95°, adjustable with mechanical stop                                                         |
| Torque motor                       | 180 in-lb [20 Nm]                                                                                 |
| Direction of motion motor          | selectable with switch 0/1                                                                        |
| Position indication                | Mechanically, 30...65 mm stroke                                                                   |
| Manual override                    | external push button                                                                              |
| Running Time (Motor)               | 95 s, constant, independent of load                                                               |
| 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                 | 45 dB(A)                                                                                          |
| Servicing                          | maintenance-free                                                                                  |
| Quality Standard                   | ISO 9001                                                                                          |
| Weight                             | 1.2 lb [1.2 kg]                                                                                   |
| Auxiliary switch                   | 1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 0...100%                         |

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

**Torque min. 180 in-lb, for control of damper surfaces up to 45 sq. ft.**

### Application

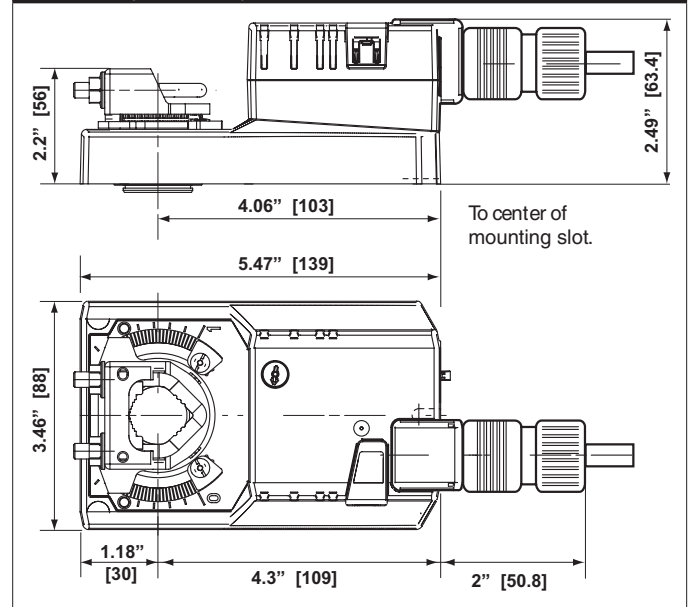
For on/off and floating point control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft up to 1.05" in diameter by means of its universal clamp, self-centered default. 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 actuator 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 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. The -S version is provided with 1 built-in auxiliary switch. This SPDT switch is provided for safety interfacing or signaling, for example, for fan start-up. The switching function is adjustable 0 to 95°. The auxiliary switch is double insulated so an electrical ground connection is not necessary. Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.

### Dimensions (Inches[mm])



## 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. If required, actuators shall be provided with one adjustable SPDT auxiliary switch. Actuators with auxiliary switches must be constructed to meet the requirements for double insulation so an electrical ground is not required to meet agency listings. If required, actuators will be provided with a screw terminal strip for electrical connections (AMX24-3-T). 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

 Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.

 Actuators with appliance cables are numbered.

 Provide overload protection and disconnect as required.

 Actuators may also be powered by 24 VDC.

 Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.

 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

 One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.

