

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

- Torque motor 180 in-lb [20 Nm]
- Nominal voltage AC/DC 24 V
- Control MFT/programmable
- Position feedback 2...10 V



5-year warranty



Please note: Due to a supplier issue, certain NEMA 4 actuator covers will be supplied in gray instead of orange until further notice. This change ensures uninterrupted shipping and the same protective properties and product specifications.

**Technical data**

|                        |                                    |   |
|------------------------|------------------------------------|---|
| <b>Electrical data</b> | Nominal voltage                    | AC/DC 24 V  |
|                        | Nominal voltage frequency          | 50/60 Hz  |
|                        | Nominal voltage range              | AC 19.2...28.8 V / DC 21.6...28.8 V   |
|                        | Power consumption in operation     | 3.5 W   |
|                        | Power consumption in rest position | 1.3 W   |
|                        | Transformer sizing                 | 6 VA  |
|                        | Electrical Connection              | 18 AWG plenum cable, 1 m, with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54 |
|                        | Overload Protection                | electronic throughout 0...95° rotation  |
| <b>Functional data</b> | Torque motor                       | 180 in-lb [20 Nm]   |
|                        | Operating range Y                  | 0...135 Ω   |
|                        | Input impedance                    | 100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for PWM, On/Off and Floating point  |
|                        | Position feedback U                | 2...10 V  |
|                        | Position feedback U note           | Max. 0.5 mA   |
|                        | Position feedback U variable       | VDC variable  |
|                        | 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)               | 35 s / 90°  |
|                        | Running time motor note            | constant, independent of load   |
|                        | Running time motor variable        | 35...120 s  |
|                        | Sound power level, motor           | 45 dB(A)  |
| Position indication    | Mechanical, 30...65 mm stroke      |   |
| <b>Safety data</b>     | Degree of protection NEMA/UL       | NEMA 4  |
|                        | Housing                            | 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   |

**Technical data**

|                    |                     |                          |
|--------------------|---------------------|--------------------------|
| <b>Safety data</b> | Ambient temperature | -22...122°F [-30...50°C] |
|                    | Storage temperature | -40...176°F [-40...80°C] |
|                    | Servicing           | maintenance-free         |
| <b>Weight</b>      | Weight              | 2.2 lb [1 kg]            |
| <b>Materials</b>   | Housing material    | UL94-5VA                 |

**Product features**

|                              |   |
|------------------------------|---|
| <b>Application</b>           | <p>For proportional modulation of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications.</p> <p>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.</p> <p>The default parameters for 0 to 135Ω input applications of the ..MFT95 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.</p>   |
| <b>Operation</b>             | <p>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.</p> <p>The AMX 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.</p> <p>The AMCX24-MFT actuators use a 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.</p> <p>Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.</p> |
| <b>Typical specification</b> | <p>Proportional 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 must provide proportional damper control in response to 0 to 135 Ω 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.</p>   |

**Accessories**

| Electrical accessories | Description   | Type     |
|------------------------|---|----------|
|                        | Auxiliary switch 2x SPDT add-on   | S2A      |
|                        | Service tool, with ZIP-USB function, for configurable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US   |
| Mechanical accessories | Description   | Type     |
|                        | Shaft clamp reversible, clamping range ø10...20 mm  | K-AM25   |
|                        | Mounting bracket for AF..   | K-SA     |
|                        | Mounting bracket for AF / NF  | ZG-100   |
|                        | Mounting bracket  | ZG-101   |
|                        | Mounting bracket  | ZG-103   |
|                        | Mounting bracket  | ZG-104   |
|                        | Mounting kit for linkage operation for flat installation  | ZG-NMA   |
|                        |   | ZG-JSA-1 |

## Accessories

| Description   | Type     |
|---|----------|
|   | ZG-JSA-2 |
|   | ZG-JSA-3 |
| Baseplate extension for SM..A to SM../AM../SMD24R   | Z-SMA    |
| Weather shield 13x8x6" [330x203x152 mm] (LxWxH)   | ZS-100   |
| Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)   | ZS-150   |
| Explosion proof housing 16x10x6.435" [406x254x164 mm] (LxWxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified) Locations | ZS-260   |
| Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets  | ZS-300   |
| Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets  | ZS-300-5 |
|   | ZS-T     |
| Shaft extension 240 mm ø20 mm for damper shaft ø8...22.7 mm   | AV8-25   |
| Actuator arm for standard shaft clamp   | AH-GMA   |
| Wrench 0.32 in and 0.39 in [8 mm and 10 mm]   | TOOL-06  |
| Linkage kit   | ZG-JSL   |
| Jackshaft RetroFIT+ Linkage with Belimo Rotary Actuators  |          |

## Dimensions

PC

 $\varnothing$  1/2" to 1.05" [12.7 to 26.67]

□ 2/5" to 1.05" [10 to 26.67]

