# Technical data sheet AHX24-SR-200

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

- **Actuating force motor 450 N [100 lbf]**
- **Nominal voltage AC/DC 24 V**
- **Control Modulating**
- **Position feedback 2...10 V**



Picture may differ from product

5-year warranty

## Technical data

| | | |
|---|---|---|
| **Electrical data** | Nominal voltage | AC/DC 24 V |
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...28.8 V / DC 19.2...28.8 V |
| | Power consumption in operation | 2.5 W |
| | Power consumption in rest position | 0.5 W |
| | Transformer sizing | 4.5 VA |
| | Electrical Connection | 18 AWG plenum cable with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54, 1 m, 3 m, and 5 m |
| | Overload Protection | electronic throughout full stroke |
| **Functional data** | Actuating force motor | 450 N [100 lbf] |
| | Operating range Y | 2...10 V |
| | Operating range Y note | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| | Input impedance | 500 Ω for 4...20 mA |
| | Position feedback U | 2...10 V |
| | Position feedback U note | Max. 0.5 mA |
| | Direction of motion motor | reversible with switch |
| | Manual override | external push button |
| | Stroke | 8" [200 mm] |
| | Running Time (Motor) | 150 s / 100 mm |
| | Sound power level, motor | 35 dB(A) |
| | Position indication | Mechanical |
| **Safety data** | Power source UL | Class 2 Supply |
| | Degree of protection NEMA/UL | NEMA 2 |
| | 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 |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Storage temperature | -40...176°F [-40...80°C] |
| | Servicing | maintenance-free |

## Technical data

| | | |
|---|---|---|
| **Weight** | Weight | 2.5 lb [1.1 kg] |
| **Materials** | Housing material | UL94-5VA |

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

## 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 operates in response to a 2...10 V, or with the addition of a 500 Ω 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 actuator provides 8" [200 mm] 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 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.

**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.

## Accessories

**Electrical accessories**

| Description | Type |
|---|---|
| | IRM-100 |
| Signal simulator, Power supply AC 120 V | PS-100 |
| Convert Pulse Width Modulated Signal to a 2...10 V Signal for Belimo Proportional Actuators | PTA-250 |
| Positioner for wall mounting | SGA24 |
| Positioner for front-panel mounting | SGF24 |
| Cable conduit connector 1/2" | TF-CC US |
| Resistor, 500 Ω, 1/4" wire resistor with 6" pigtail wires | ZG-R01 |
| Resistor kit, 50% voltage divider | ZG-R02 |
| Transformer, AC 120 V to AC 24 V, 40 VA | ZG-X40 |
| | ZS-T |

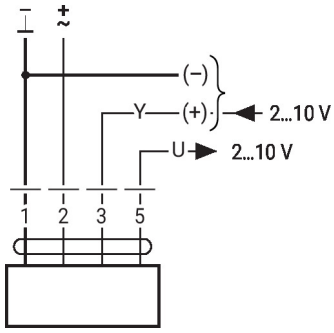
**Mechanical accessories**

| Description | Type |
|---|---|
| Ball joint suitable for damper crank arm KH8 / KH10 | KG10A |
| Ball joint suitable for damper crank arm KH8 | KG6 |
| Ball joint suitable for damper crank arm KH8 | KG8 |
| | SH8 |
| Rotary support, for linear actuator, for compensation of transverse forces | Z-DS1 |
| | Z-KSC |
| | ZG-119 |

## Electrical installation

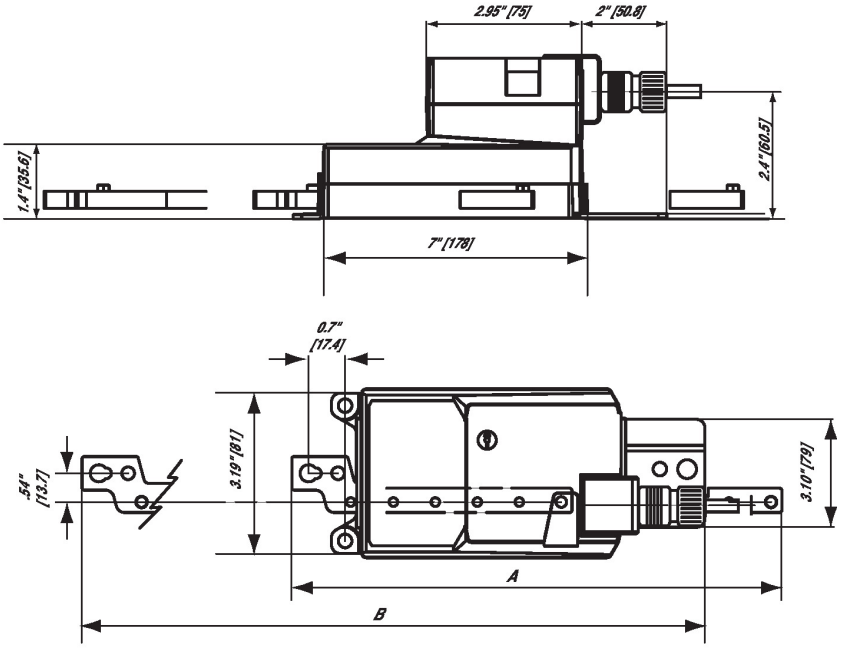
**Wire colors:**
1 = black
2 = red
3 = white
5 = orange

AC/DC 24 V, modulating




| 1 | 2 | 3 | 1 0 | 1 0 |
|---|---|---|---|---|
| | | 2 V | ↓ | ↑ |
| | | 10 V | ↑ | ↓ |

## Dimensions




| Stroke | A | B |
|---|---|---|
| 4" [100] | 9.2" [233.5] | 8" [294.7] |
| 8" [200] | 13.1" [333.5] | 12" [394.7] |
| 12" [300] | 17.1" [433.5] | 16" [494.7] |