Technical data sheet AHX24-SR-100

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	4" [100 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 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	2.3 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 4" [100 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 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 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. If required, actuator will be provided with screw terminal strip for electrical connections (NMX24-SR-T). 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.

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

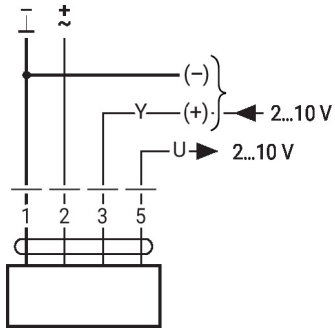
Accessories

Description	Type
	ZG-119

Electrical installation

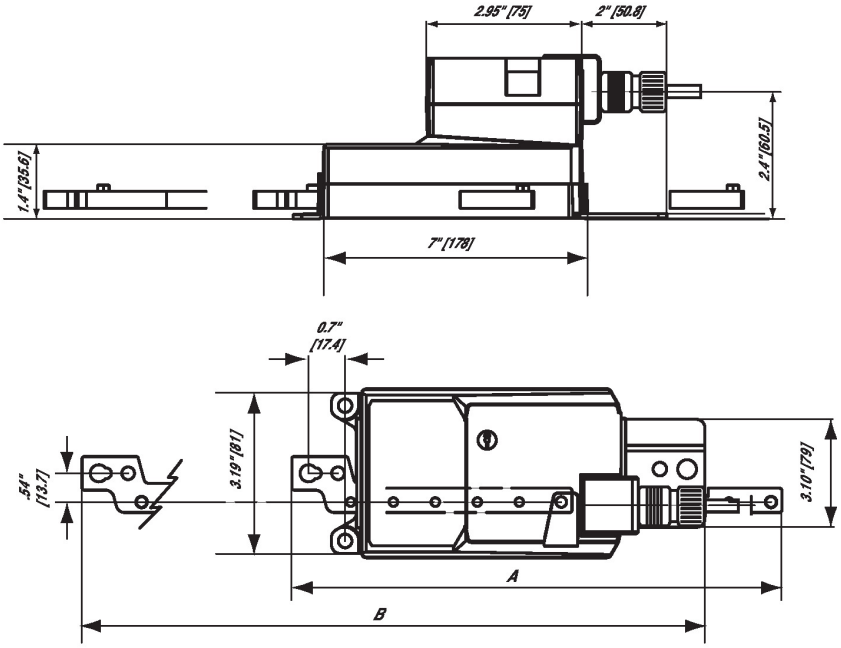
Wire colors:
1 = black
2 = red
3 = white
5 = orange

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]