

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

- Torque motor 180 in-lb [20 Nm]
- Nominal voltage AC/DC 24 V
- Control On/Off, Floating point



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 21.6...28.8 V
	Power consumption in operation	2.5 W
	Power consumption in rest position	0.5 W
	Transformer sizing	5.5 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
Functional data	Torque motor	180 in-lb [20 Nm]
	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)	90 s / 90°
	Running time motor note	constant, independent of load
	Running time motor variable	90 or 150 s
	Noise level, motor	45 dB(A)
Safety data	Position indication	Mechanical, 30...65 mm stroke
	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
Weight	Weight	2.1 lb [0.93 kg]

Technical data

Materials	Housing material	UL94-5VA
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Footnotes	†Rated Impulse Voltage 800V, Type action 1.B, Control Pollution Degree 3.
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Product features

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.
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.

Accessories

Electrical accessories	Description	Type
	Auxiliary switch 2x SPDT add-on	S2A
	Terminal-strip cover for NEMA 2 rating (-T models).	ZS-T
Mechanical accessories	Description	Type
	Clamp NM/AM 1/2", 3/4", 1"	K-AM25
	Shaft clamp reversible, clamping range ø10...20 mm	K-SA
	Mounting bracket for AF..	ZG-100
	Mounting bracket for AF / NF	ZG-101
	Mounting bracket	ZG-103
	Mounting bracket	ZG-104
	Mounting kit for linkage operation for flat installation	ZG-NMA
	1" diameter jackshaft adaptor (11" L).	ZG-JSA-1
	1-5/16" diameter jackshaft adaptor (12" L).	ZG-JSA-2
	1.05" diameter jackshaft adaptor (12" L).	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

Description	Type
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
Terminal-strip cover for NEMA 2 rating (-T models).	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	

The diagram shows three vertical lines representing phases 1, 2, and 3. Phase 1 is labeled with a minus sign (-) at the top. Phase 2 is labeled with a plus sign (+) at the top. Phase 3 is labeled with a tilde symbol (~) at the top. A fault is indicated on phase 2 by a solid dot. A horizontal line connects this dot to a switch symbol (an open circle with a diagonal line) on phase 3. Below the phases, a horizontal bar represents the ground plane.

1	2	3		
			stop	stop

Technical drawing of the 1000 Series Motor Mounting Dimensions. The drawing shows two views of the motor: a side view (top) and a front view (bottom).

Side View Dimensions:

- Height: 2.2" [56]
- Width: 4.06" [103]
- Distance to center of mounting slot: 2.49" [63.4]

Front View Dimensions:

- Height: 3.46" [88]
- Width: 5.47" [139]
- Distance from left edge to center of mounting slot: 1.18" [30]
- Distance from center of mounting slot to right edge: 2" [50.8]
- Distance from left edge to center of mounting slot: 4.3" [109]

To center of mounting slot.