

Modulating, Non-Spring Return, 24 V, for DC 2...10 V or 4...20 mA

Proportional, Non-Spring Return, 24 V, for 2 to 10 VDC or 4 to 20 mA, Torque min. 360 in-lb for control damper surfaces up to 90 sq ft.



5-year warranty



Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	4.5 W
	Power consumption in rest position	2 W
	Transformer sizing	6.5 VA (class 2 power source)
	Electrical Connection	18 GA plenum cable with 1/2" conduit connector, degree of protection NEMA 2 / IP54, 3 ft [1 m] 10 ft [3 m] and 16ft [5 m]
	Overload Protection	electronic throughout 0...95° rotation
Functional data	Torque motor	360 in-lb [40 Nm]
	Operating range Y	2...10 V
	Operating range Y note	4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
	Input Impedance	100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Direction of motion motor	selectable with switch 0/1
	Manual override	external push button
	Angle of rotation	Max. 95°, adjustable with mechanical stop
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s, constant, independent of load
	Running time motor note	constant, independent of load
	Noise level, motor	45 dB(A)
	Shaft Diameter	1/2...1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert
	Position indication	Mechanically, 30...65 mm stroke
Safety data	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2 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; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC
	Quality Standard	ISO 9001
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	max. 95% r.H., non-condensing
	Servicing	maintenance-free
Weight	Weight	4.2 lb [1.9 kg]

Materials	Housing material	UL94-5VA
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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 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. The actuator operates in response to a 2...10V, or with the addition of a 500 Ω resistor, a 4...20 mA control input from an electronic controller or positioner. A 2...10V feedback signal is provided for position indication or master-slave applications. A common installation technique for control of multi-section dampers is to use the U5 position feedback of one actuator (Master) to control multiple actuators (Slaves). Belimo refers to this as Master-Slave control. With the requirement that ...-SR actuators are installed on MECHANICALLY SEPARATE damper shafts.
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 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. Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions. For low ambient temperatures, the optional supplemental (-H) Heater add-on is available.
Typical specification	Modulating 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 modulating 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. 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
	DC Voltage Input Rescaling Module	IRM-100
	Battery backup system, for non-spring return models	NSV24 US
	Feedback potentiometer 1 k Ω add-on, grey	P1000A GR
	Signal Simulator, Power supply AC 230 V	PS-100
	Convert Pulse Width Modulated Signal to a 2...10 V Signal for Belimo Proportional Actuators	PTA-250
	Auxiliary switch 1 x SPDT add-on	S1A
	Auxiliary switch 2 x SPDT add-on	S2A
	Positioner for wall mounting	SGA24
	Positioner for front-panel mounting	SGF24
	Resistor, 500 Ω , 1/4" wire resistor with 6" pigtail wires	ZG-R01
	Transformer, AC 120 V to AC 24 V, 40 VA	ZG-X40
Mechanical accessories	Description	Type
	Standard GK/GM clamp (1/2" to 1.05").	K-GM20
	Wrench 13 mm	TOOL-07
	Base plate extension for GM..A to GM..., pcs.	Z-GMA
	Dual actuator mounting bracket.	ZG-102
	Mounting kit for linkage operation for flat installation	ZG-GMA
	1" diameter jackshaft adaptor (11" L).	ZG-JSA-1
	Weather shield 13x8x6" [330x203x152 mm] (LxWxH)	ZS-100
	Weather shield 16x8-3/8x4" [406x213x102 mm] (LxWxH)	ZS-150

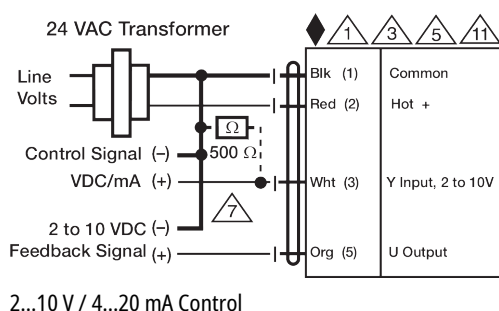
Explosion Proof Housing 16x10x6.435" [406x254x164 mm] (LxWxH), UL and CSA, ZS-260
Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified)

Locations

Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with ZS-300
mounting brackets

Electrical installation

- 1 Provide overload protection and disconnect as required.
- 3 Actuators may also be powered by 24 VDC.
- 5 Only connect common to negative (-) leg of control circuits.
- 7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- 11 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



Dimensions

Dimensional drawings

1/2" to 1.05" [12.7 to 26.67]

2/5" to 1.05" [10 to 26.67]

