5

5-year warranty

Technical data

Functional data	Mounting Position	90° to 180°
Safety data	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
Materials	Housing material	galvanized steel
	Stem	steel
	Frame, plate, base	galanized steel
	Bearing	GF Delrin
Suitable actuators	Non-Spring	AMB(X)
		GMB(X)
		NMB(X)
	Electronic fail-safe	NKQB(X)

* ZG-121 adapter must be used with EF. ** GM/GK not for use with 1/2" shafts. *** K6-1 clamp must be used with LF. For close-off pressure reference Select Pro or Retrofit Technical Documentation.

For close-off pressure reference Select Pro or retrofit technical documentation.
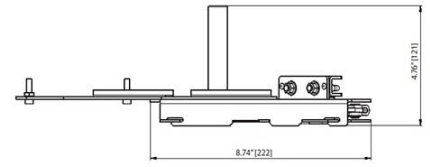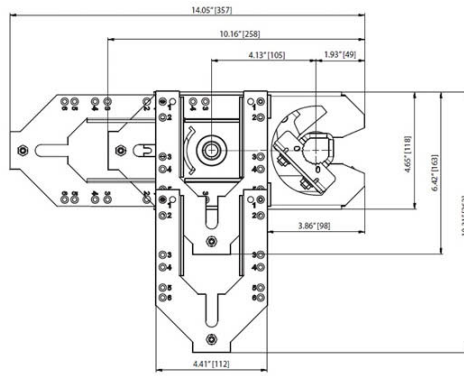
Product features

Default/Configuration
The ZG-JSL linkage can also be configured by moving the anti-rotation plate 90° for space-saving applications. See mounting configurations below. The ZG-JSLA will have a factory mounted actuator on the linkage in the vertical position only.

Application
The ZG-JSL jackshaft linkage is designed to easily attach to any part of a jackshaft and allow easy installation of select Belimo actuators. The unique open ended design and clamp insert allows the ZG-JSL to be used with any jackshaft from ½" to ¾" in diameter. Removal of the insert will allow the linkage to attach to a maximum shaft diameter of 1.05". Changing the antirotation plate will allow various actuators to be mounted.

Operation
The ¾" diameter built-in steel shaft allows direct coupling to the Belimo series actuators in the chart below. There is a torque reduction when using the ZG-JSL linkage. Verify application requirements before use.

Flow/Mounting details

Dimensions

Dimensional drawings

BELIMO®

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

Torque min. 90 in-lb for control of damper surfaces up to 22 sq ft.

5

5-year warranty

LISTED
94 D5
TEMP. IND. &
REG. EQUIP.

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	2.5 W
	Power consumption in rest position	0.4 W
	Transformer sizing	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	90 in-lb [10 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 (0.1 mA), 500 Ω
	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)	default 95 s, variable 45, 60, 150 s, constant, independent of load
	Running time motor note	constant, independent of load
	Running time motor variable	45, 60, 150 s
	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
	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	1.1 lb [0.51 kg]
Materials	Housing material	UL94-5VA

Product features

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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, 1/2" 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.
	The actuator operates 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. A 2 to 10 VDC feedback signal is provided for position indication or master-slave applications.
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 NMB(X) 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.
	The NMB(X)24-SR... 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.
	Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.
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 from 1/4" to 1/2" diameter. Actuators must provide proportional damper control response to a 2 to 10 VDC or, with the addition of a 500Ω 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 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 10 kΩ add-on, grey	P10000A GR
Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
Feedback potentiometer 140 Ω add-on, grey	P140A GR
Feedback potentiometer 2.8 kΩ add-on, grey	P2800A GR
Feedback potentiometer 5 kΩ add-on, grey	P5000A GR
Feedback potentiometer 500 Ω add-on, grey	P500A GR
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
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
Shaft extension 240 mm Ø20 mm for damper shaft Ø 8...22.7 mm	AV8-25
Shaft clamp reversible, clamping range Ø8...20 mm	K-NA
Wrench 8 mm and 10 mm	TOOL-06
17" Mounting Bracket for AF,NF,GM,AM,SM	ZG-100
Mounting Bracket: AF,NF,LF,GM,AM,NM,SM	ZG-101
Mounting Bracket: GM,AM,SM	ZG-103
Mounting Bracket: GM,AM,SM	ZG-104
Mounting kit for linkage operation for flat installation	ZG-NMA
Shaft extension for 1/2" diameter shafts (3.8" L).	ZG-NMSA-1
Weather shield 13x8x6" [330x203x152 mm] (LxWxH)	ZS-100
Weather shield 16x8-3/8x4" [406x213x102 mm] (LxWxH)	ZS-150
Terminal-strip cover for NEMA 2 rating (-T models).	ZS-T

Electrical installation

$\triangle 1$ Provide overload protection and disconnect as required.

$\triangle 3$ Actuators may also be powered by 24 VDC.

$\triangle 5$ Only connect common to negative (-) leg of control circuits.

$\triangle 7$ A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

$\triangle 11$ Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.
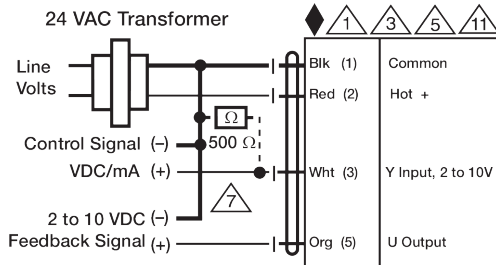
2...10 V / 4...20 mA Control

Dimensions

Dimensional drawings