



5-year warranty



## Technical data

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	11 W
	Power consumption in rest position	3 W
	Power consumption for wire sizing	21 VA
	Transformer sizing	21 VA (class 2 power source)
	Electrical Connection	18 GA plenum cable, 3 ft [1 m], with 1/2" conduit connector
	Overload Protection	electronic throughout 0...95° rotation
<b>Functional data</b>	Electrical Protection	actuators are double insulated
	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 (0.1 mA), 500 Ω
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Setting Fail-Safe Position	adjustable with dial 0...100% in 10% increments
	Bridging time (PF)	2 s
	Pre-charging time	5...20 s
	Direction of motion motor	selectable with switch 0/1
	Direction of motion fail-safe	reversible with switch
	Manual override	external push button
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s / 90°
	Running time motor note	constant, independent of load
	Running time fail-safe	<35 s
	Noise level, motor	52 dB(A)
	Noise level, fail-safe	61 dB(A)
	Shaft Diameter	1/2...1.05" round, centers on 3/4" with insert, 1.05" without insert
	Position indication	Mechanically, 30...65 mm stroke
<b>Safety data</b>	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU Listed to UL 2043 - suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC

<b>Safety data</b>	Quality Standard	ISO 9001
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	Max. 95% RH, non-condensing
	Servicing	maintenance-free
<b>Materials</b>	Housing material	UL94-5VA

**Footnotes** †Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

## Product features

- Application** For fail-safe, modulating 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. 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 DC 2...10 V<sub>or</sub>, with the addition of a 500Ω resistor, a 4...20 mA control input from an electronic controller or positioner. A DC 2...10 V feedback signal is provided for position indication.
- 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. The only requirement is that the actuators are installed on MECHANICALLY SEPARATE damper shafts.
- Operation** The GK..24-SR actuator provides 95° of rotation and a visual indicator shows the position of the actuator. When reaching the damper or actuator end position the actuator automatically stops. The gear can be manually disengaged by pressing the button located on the actuator cover. The GK..24-SR actuators use a brushless DC motor, which is controlled by an Application Specific Integrated Circuit (ASIC). The ASIC monitors and controls the actuators rotation and provides a digital rotation sensing (DRS) function to prevent damage to the actuator in a stall condition. Power consumption is reduced in a holding mode. The actuator is electronically protected against overload. The anti-rotation strap supplied with the actuator will prevent lateral movement. Add-on auxiliary switches or feedback potentiometers are easily fastened directly onto the actuator body for signaling and switching functions.
- Fail-Safe Indication
- Green LED status indicator light sequence:
- On: operation ok, no faults
- Blinking: fail-safe mechanism is active
- Off: fault is detected or not in operation / capacitors charging
- Typical specification** Modulating control, electrical fail-safe damper actuators shall be electronic direct-coupled type, which require no crank arm and linkage and be capable of direct mounting to shaft up to 1.05" diameter. Actuators must provide modulating damper control 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. A 2 to 10 VDC feedback signal shall be provided for position feedback. 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
	<p>DC Voltage Input Rescaling Module</p>	IRM-100
	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
	Auxiliary switch, mercury-free	P475
	Auxiliary switch, mercury-free	P475-1
	Feedback potentiometer 5 kΩ add-on, grey	P5000A GR
	Feedback potentiometer 500 Ω add-on, grey	P500A GR
	Signal simulator, Power supply AC 120 V	PS-100
	<p>Convert Pulse Width Modulated Signal to a 2...10 V Signal for Belimo Proportional Actuators</p>	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
	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
	Adapter for auxiliary switch and feedback potentiometer	Z-SPA
Mechanical accessories	Description	Type
	Actuator arm for standard shaft clamp	AH-GMA
	Shaft extension 240 mm Ø20 mm for damper shaft Ø 8...22.7 mm	AV8-25
	Ball joint suitable for damper crank arm KH8 / KH10, Multipack 10 pcs.	KG10A
	Standard GK/GM clamp (1/2" to 1.05").	K-GM20
	Damper crank arm Slot width 8.2 mm, clamping range Ø14...25 mm	KH10
	Push rod for KG10A ball joint 36" L, 3/8" diameter	SH10
	Wrench 0.512 in. [13 mm]	TOOL-07
	<p>17" Mounting Bracket for AF,NF,GM,AM,SM</p>	ZG-100
	<p>Mounting Bracket: AF,NF,LF,GM,AM,NM,SM</p>	ZG-101
	<p>Mounting Bracket: GM,AM,SM</p>	ZG-103
	<p>Mounting Bracket: GM,AM,SM</p>	ZG-104
	<p>Mounting Bracket: ZS-260 Right Angle</p>	ZG-109
	<p>Linkage kit</p>	ZG-110
	Damper clip for damper blade, 3.5" width.	ZG-DC1
	Damper clip for damper blade, 6" width.	ZG-DC2
	Mounting kit for linkage operation for flat installation	ZG-GMA
	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
	Base plate extension for GM..A to GM..	Z-GMA
	Weather shield 330x203x152 mm [13x8x6"] (LxBxH)	ZS-100
	Base plate, for ZS-100	ZS-101
	Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)	ZS-150
	Explosion proof housing 406x254x164 mm [16x10x6.435"] (LxBxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified) Locations	ZS-260
	Weather shield 438x222x140 mm [17-1/4x8-3/4x5-1/2"] (LxBxH), NEMA 4X, with mounting brackets	ZS-300
	Weather shield 438x222x140 mm [17-1/4x8-3/4x5-1/2"] (LxBxH), NEMA 4X, with mounting brackets	ZS-300-5
	Shaft extension 1/2"	ZS-300-C1
	Shaft extension 3/4"	ZS-300-C2
	Shaft extension 1"	ZS-300-C3
	Anti-rotation bracket EFB(X)/GKB(X)/GMB(X).	EF-P
	Jackshaft mounting bracket.	ZG-120

**Electrical installation**
**⚠ Warning! Live electrical components!**

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

◆ Meets cULus requirements without the need of an electrical ground connection.

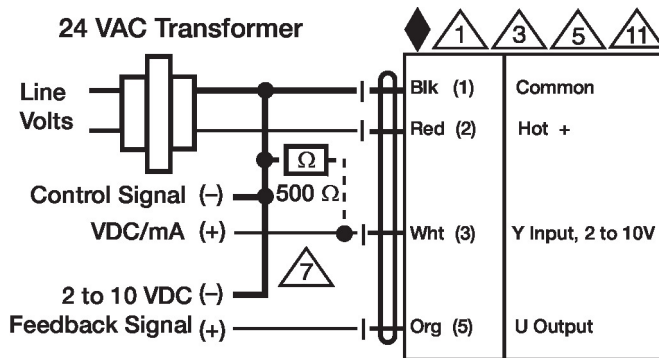
1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by DC 24 V.

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.



2...10 V / 4...20 mA Control

**Dimensions**
