



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 |
| | Spindle | steel |
| | Bearing | GF Delrin |
| | Frame, plate, base | galvanized steel |
| Suitable actuators | Non-Spring | AMB(X) GMB(X) NMB(X) |
| | Spring | AF EFB(X) LF NF |
| | Electrical fail-safe | NKQB(X) |
| | | |
| | | |
| | | |

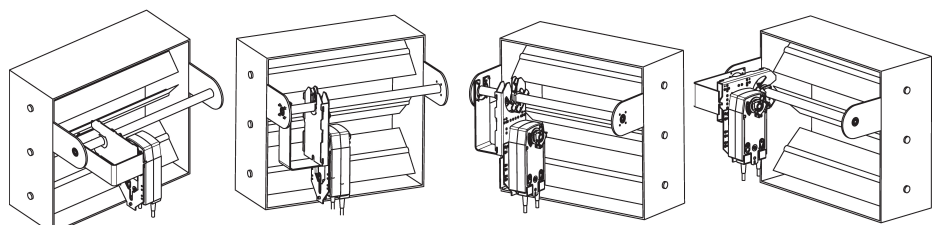
* ZG-121 adapter must be used with EF. ** GM/GK not for use with 1/2" shafts. *** K6-1 clamp must be used with LF. For close-off pressure reference Select Pro or Retrofit Technical Documentation.

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

Product features

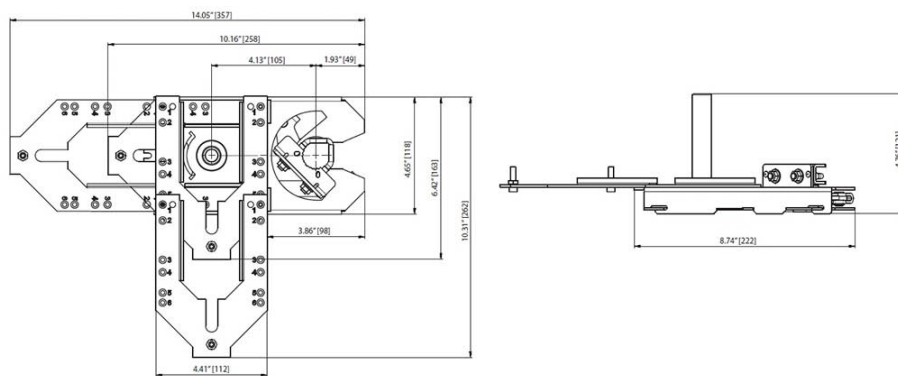
- Default/Configuration** The ZG-JSL linkage can also be configured by moving the anti-rotation plate 90° for space-saving applications. See mounting configurations below. The ZG-JSLA will have a factory mounted actuator on the linkage in the vertical position only.
- Application** The ZG-JSL jackshaft 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 1/2" to 3/4" 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 3/4" 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





5-year warranty



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 | 1 W |
| | Transformer sizing | 5 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 |
| | Electrical Protection | actuators are double insulated |
| Functional data | Torque motor | 35 in-lb [4 Nm] |
| | Direction of motion motor | selectable with switch 0/1 |
| | Direction of motion fail-safe | reversible with cw/ccw mounting |
| | Angle of rotation | Max. 95° |
| | Running Time (Motor) | 150 s / 90° |
| | Running time motor note | constant, independent of load |
| | Running time fail-safe | <25 s @ -4...122°F [-20...50°C], <60 s @ -22°F [-30°C] |
| | Noise level, motor | 30 dB(A) |
| | Noise level, fail-safe | 62 dB(A) |
| | Shaft Diameter | 3/8...1/2" round, centers on 1/2" |
| Safety data | Position indication | Mechanical |
| | Degree of protection IEC/EN | IP54 |
| | Degree of protection NEMA/UL | NEMA 2 |
| | Enclosure | UL Enclosure Type 2 |
| | Agency Listing | cULus acc. To UL 873 and CAN/CSA C22.2 No. 24-93; 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% RH, non-condensing |
| | Servicing | maintenance-free |
| Materials | Housing material | galvanized steel |

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

Product features

- Application** For modulation or On/Off, fail-safe 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 from 3/8" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. For shafts up to 3/4" use K6-1 accessory. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft. Control is floating point from a triac or relay, or On/Off from an auxiliary contact from a fan motor contactor, controller or manual switch.
- Operation** The LF series actuators provide true spring return operation for reliable fail-safe application and positive close-off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator. The LF series provides 95° of rotation and is provided with a graduated position indicator showing 0 to 95°. The LF uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a microprocessor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact fail-safe position. The ASIC monitors and controls the brushless DC motor's rotation and provides a digital rotation sensing function to prevent damage to the actuator in a stall condition. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. Power consumption is reduced in holding mode.
- Typical specification** Floating point, On/Off spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a shaft up to a 3/4" diameter and centers on a 1/2" shaft (default). The actuators must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall have an external direction of rotation switch to reverse control logic. Actuators shall use a brushless DC motor and be protected from overload at all angles of rotation. If required, one SPDT auxiliary switch shall be provided having the capability of being adjustable. Actuators with auxiliary switch must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. 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, mercury-free | P475 |
| | Auxiliary switch, mercury-free | P475-1 |
| | Signal simulator, Power supply AC 120 V | PS-100 |
| | Transformer, AC 120 V to AC 24 V, 40 VA | ZG-X40 |

| Mechanical accessories | Description | Type |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| | Shaft extension 170 mm Ø10 mm for damper shaft Ø 6...16 mm | AV6-20 |
| | End stop indicator | IND-LF |
| | Shaft clamp | K6 US |
| | for LF.. | |
| | Shaft clamp reversible, clamping range Ø16...20 mm | K6-1 |
| | Ball joint suitable for damper crank arm KH8 / KH10, Multipack 10 pcs. | KG10A |
| | Ball joint suitable for damper crank arm KH8, Multipack 10 pcs. | KG6 |
| | Ball joint suitable for damper crank arm KH8, Multipack 10 pcs. | KG8 |
| | Damper crank arm Slot width 8.2 mm, for Ø1.05" | KH12 |
| | Damper crank arm Slot width 6.2 mm, clamping range Ø10...18 mm | KH6 |
| | Damper crank arm Slot width 8.2 mm, clamping range Ø10...18 mm | KH8 |
| | Actuator arm, clamping range Ø8...16 mm, Slot width 8.2 mm | KH-LF |
| | V-bolt Kit for KH-LF. | KH-LFV |
| | Anti-rotation bracket LF. | LF-P |
| | Push rod for KG10A ball joint 36" L, 3/8" diameter | SH10 |
| | Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter). | SH8 |
| | Wrench 0.32 in and 0.39 in [8 mm and 10 mm] | TOOL-06 |
| | Angle of rotation limiter, with end stop | ZDB-LF |
| | Form fit adapter 8x8 mm | ZF8-LF |
| | <p>Mounting Bracket: ZS-260 Right Angle</p> | ZG-109 |
| | <p>Linkage kit</p> | ZG-110 |
| | Mounting bracket | ZG-112 |
| | for LF.. | |
| | Damper clip for damper blade, 3.5" width. | ZG-DC1 |
| | Damper clip for damper blade, 6" width. | ZG-DC2 |
| | LF crankarm adaptor kit (includes ZG-112). | ZG-LF112 |
| | LF crankarm adaptor kit (T bracket included). | ZG-LF2 |
| | Shaft extension for 3/8" diameter shafts (4" L). | ZG-LMSA-1 |
| | Shaft extension for 1/2" diameter shafts (5" L). | ZG-LMSA-1/2-5 |
| | 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 |

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.



Actuators with appliance cables are numbered.



Provide overload protection and disconnect as required.



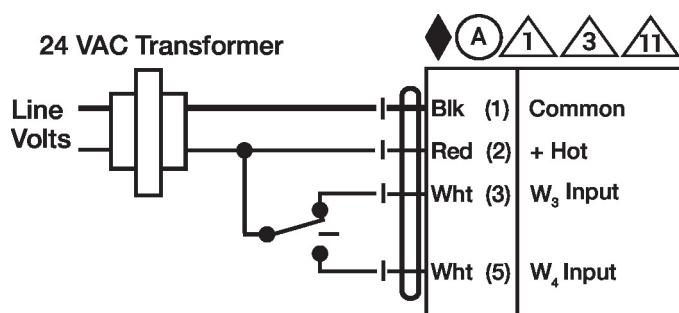
Actuators may also be powered by DC 24 V.



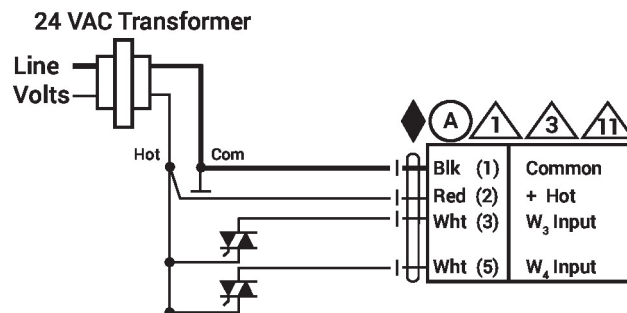
Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.



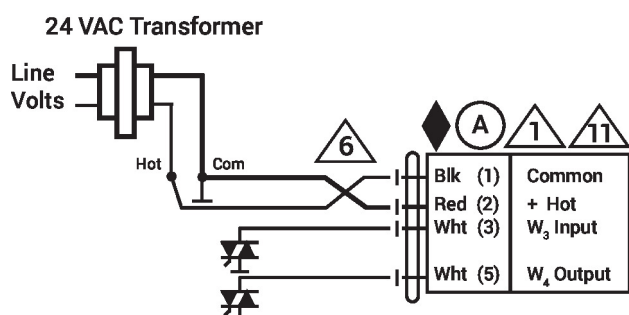
Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



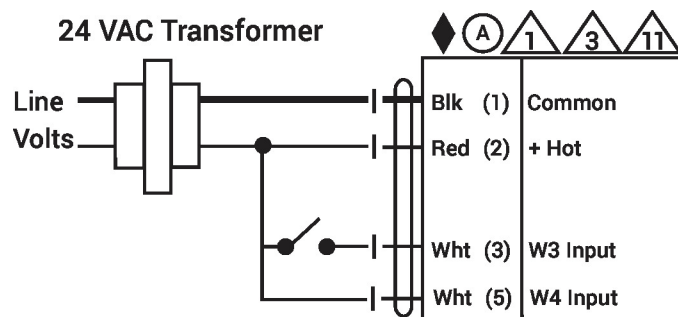
Floating Point



Floating Point - Triac Source



Floating Point - Triac Sink



On/Off

Dimensions

