

GKB24-3 Technical Data Sheet

On/Off, Floating Point, Electronic Fail-Safe, 24 V



Technical Data	
Power Supply	24 VAC, ±20%, 50/60 Hz
Power consumption in operation	11 W
Power consumption in rest position	3 W
Transformer sizing	21 VA (class 2 power source)
Shaft Diameter	1/2...1.05" round, centers on 3/4" with insert, 1.05" without insert
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
Input Impedance	100 kΩ
Angle of rotation	Max. 95°, adjustable with mechanical stop
Torque motor	360 in-lb [40 Nm]
Direction of motion motor	selectable with switch 0/1
Direction of motion fail-safe	reversible with switch
Setting fail-safe position	adjustable with dial 0...100% in 10% increments
Position indication	Mechanically, 30...65 mm stroke
Manual override	external push button
Running Time (Motor)	150 s constant, independent of load
Running time fail-safe	<35 s
Bridging time	2 s delay before fail-safe activates
Pre-charging time	5...20 s
Ambient humidity	max. 95% r.H., non-condensing
Ambient temperature	-22...122°F [-30...50°C]
Storage temperature	-40...176°F [-40...80°C]
Degree of Protection	IP54, NEMA 2, UL Enclosure Type 2
Housing material	UL94-5VA
Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU
Noise level, motor	52 dB(A)
Noise level, fail-safe	61 dB(A)
Servicing	maintenance-free
Quality Standard	ISO 9001
Weight	4.6 lb [2.1 kg]

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

Torque min. 360 in-lb, for control of damper surfaces up to 90 sq. ft.

Application

For On/Off and floating point, 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 up to 1.05" in diameter by means of its universal clamp. The actuator is mounted directly to a damper shaft up to 1.05" in diameter by a universal clamp. A crank arm and several mounting brackets are available for applications where 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 GK..24-3 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..24-3 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.

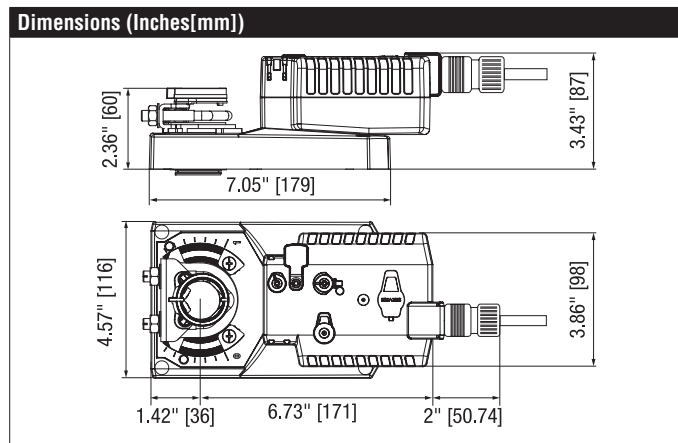
Fail-Safe Indication

Green LED status indicator light sequence:

On: operation ok, no faults

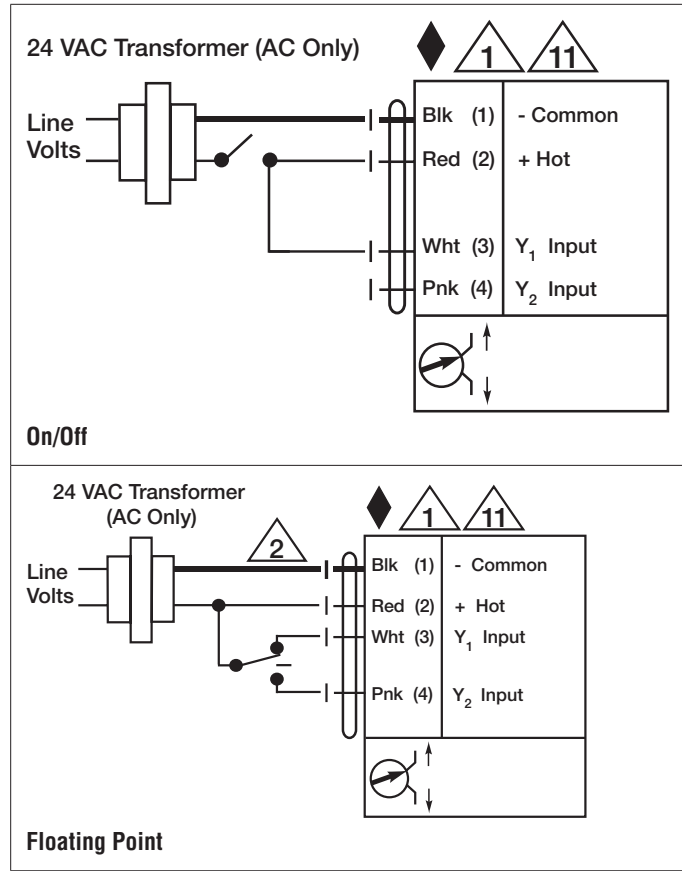
Blinking: fail-safe mechanism is active

Off: fault is detected or not in operation / capacitors charging



Accessories

AH-GMA	Actuator arm
AV8-25	Shaft extension
KG10A	Ball joint
K-GM20	Standard GK/GM clamp (1/2" to 1.05").
KH10	Damper crank arm
SH10	Push rod for KG10A ball joint (36" L, 3/8" diameter).
TOOL-07	13 mm wrench.
ZG-100	Univ. right angle bracket 17"x11-1/8"x6" (HxWxbase).
ZG-101	Univ. right angle bracket 13x11x7-7/16" (HxWxbase).
ZG-103	Univ. right angle bracket 7-1/2x11x2-3/4" (HxWxbase).
ZG-104	Univ. right angle bracket 13-5/8x7-1/2x4" (HxWxbase).
ZG-109	Right angle bracket for ZS-260.
ZG-110	Stand-off bracket for ZS-260.
ZG-DC1	Damper clip for damper blade, 3.5" width.
ZG-DC2	Damper clip for damper blade, 6" width.
ZG-GMA	Mounting kit for linkage operation
ZG-JSA-1	1" diameter jackshaft adaptor (11" L).
ZG-JSA-2	1-5/16" diameter jackshaft adaptor (12" L).
ZG-JSA-3	1.05" diameter jackshaft adaptor (12" L).
Z-GMA	Base plate extension
ZS-100	Weather shield - galvaneal 13x8x6" (LxWxD).
ZS-101	Base plate for ZS-100.
ZS-150	Weather shield - PC w/ foam seal 16x8-3/8x4" (LxWxD).
ZS-260	Explosion proof housing.
ZS-300	NEMA 4X, 304 stainless steel enclosure.
ZS-300-5	NEMA 4X, 316L stainless steel enclosure.
ZS-300-C1	1/2" shaft adaptor, standard with ZS-300(-5).
ZS-300-C2	3/4" shaft adaptor for ZS-300(-5).
ZS-300-C3	1" shaft adaptor for ZS-300(-5).
EF-P	Anti-rotation bracket EFB(X)/GKB(X)/GMB(X).
ZG-120	Jackshaft mounting bracket.
P10000A GR	Feedback potentiometer for damper actuators and rotary actuators
P1000A GR	Feedback potentiometer for damper actuators and rotary actuators
P140A GR	Feedback potentiometer for damper actuators and rotary actuators
P2800A GR	Feedback potentiometer for damper actuators and rotary actuators
P475	Shaft mount, non-Mercury aux. switch for 1/2" dia. shafts.
P475-1	Shaft mount, non-Mercury aux. switch for 1" dia. shafts.
P5000A GR	Feedback potentiometer for damper actuators and rotary actuators
P500A GR	Feedback potentiometer for damper actuators and rotary actuators
PS-100	Low voltage and control signal simulator.
S1A	Auxiliary switch for damper actuators and rotary actuators
S2A	Auxiliary switch for damper actuators and rotary actuators
TF-CC US	Cable conduit connector, 1/2".
ZG-X40	120 to 24 VAC, 40 VA transformer.
Z-SPA	Adapter



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Typical Specification

Floating point, On/Off electronic fail-safe 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 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 of the actuator. If required, actuators needing auxiliary switches, can be provided as an add-on accessory. 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.

Wiring Diagrams



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.



Provide overload protection and disconnect as required.



Actuators may be connected in parallel. Power consumption and input impedance must be observed.



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