Basic Fail-Safe actuator for controlling dampers in typical commercial HVAC applications.

- **Torque motor 360 in-lb [40 Nm]**
- **Nominal voltage AC 24 V**
- **Control On/Off, Floating point**



Picture may differ from product

5-year warranty

Technical data

Electrical data	Nominal voltage	AC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	11 W
	Power consumption in rest position	3 W
	Transformer sizing	21 VA
	Electrical Connection	18 AWG plenum cable, 1 m, with 1/2" NPT conduit connector
	Overload Protection	electronic throughout 0...95° rotation
	Electrical Protection	actuators are double insulated
Functional data	Torque motor	360 in-lb [40 Nm]
	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
	Sound power level, motor	52 dB(A)
	Sound power level, fail-safe	61 dB(A)
	Position indication	Mechanical, 30...65 mm stroke
Safety data	Power source UL	Class 2 Supply
	Degree of protection NEMA/UL	NEMA 2
	Housing	UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU
	Quality Standard	ISO 9001
	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-22...122°F [-30...50°C]

Technical data

Safety data	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	92 lb [42 kg]
Materials	Housing material	UL94-5VA

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

Product features

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

Typical specification

Floating point, On/Off electrical 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.

Accessories

Electrical accessories

Description	Type
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
Auxiliary switch 1x SPDT add-on	S1A
Auxiliary switch 2x SPDT add-on	S2A
Cable conduit connector 1/2"	TF-CC US

Accessories

	Description	Type
	Transformer, AC 120 V to AC 24 V, 40 VA	ZG-X40
	Adapter for auxiliary switch and feedback potentiometer, Multipack 20 pcs.	Z-SPA

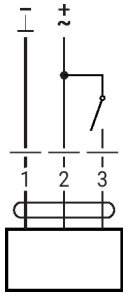
Mechanical accessories	Description	Type
	Actuator arm for standard shaft clamp	AH-GMA
	Shaft extension 240 mm ø20 mm for damper shaft ø8...22.7 mm	AV8-25
	Ball joint suitable for damper crank arm KH8 / KH10	KG10A
		K-GM20
	Damper crank arm Slot width 8.2 mm, clamping range ø1/2...1" [14...25 mm]	KH10
	Push rod for KG10A ball joint L 36", 3/8" diameter	SH10
	Wrench 0.512 in. [13 mm]	TOOL-07
	Mounting bracket for AF..	ZG-100
	Mounting bracket for AF / NF	ZG-101
	Mounting bracket	ZG-103
	Mounting bracket	ZG-104
	Mounting bracket	ZG-109
	Linkage kit	ZG-110
		ZG-DC1
		ZG-DC2
	Mounting kit for linkage operation for flat installation	ZG-GMA
		ZG-JSA-1
		ZG-JSA-2
		ZG-JSA-3
	Baseplate extension for GM..A to GM..	Z-GMA
	Weather shield 13x8x6" [330x203x152 mm] (LxWxH)	ZS-100
	Baseplate, for ZS-100	ZS-101
	Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)	ZS-150
	Explosion proof housing 16x10x6.435" [406x254x164 mm] (LxWxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified) Locations	ZS-260
	Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets	ZS-300
	Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), 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
		EF-P
		ZG-120

Electrical installation

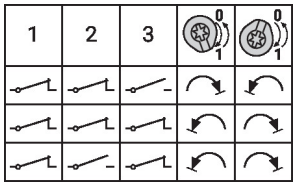
Wire colors:
1 = black
2 = red
3 = white

Electrical installation

AC/DC 24 V, on/off



Auxiliary switch



Dimensions

PC

