BELIMO

Technical data sheet EFB24

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

- **Torque motor 270 in-lb [30 Nm]**
- **Nominal voltage AC/DC 24 V**
- **Control On/Off**

5-year warranty

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	9.5 W
	Power consumption in rest position	4.5 W
	Transformer sizing	16 VA
	Electrical Connection	18 GA appliance cable, 1 m, with 1/2" conduit connector
	Overload Protection	electronic throughout 0...95° rotation
	Electrical Protection	actuators are double insulated
Functional data	Torque motor	270 in-lb [30 Nm]
	Direction of motion motor	selectable by ccw/cw mounting
	Direction of motion fail-safe	reversible with cw/ccw mounting
	Manual override	5 mm hex crank (3/16" Allen), supplied
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical end stop, 35...95°
	Running Time (Motor)	75 s / 90°
	Running time fail-safe	<20 s @ -4...122°F [-20...50°C], <60 s @ -22°F [-30°C]
	Noise level, motor	56 dB(A)
	Noise level, fail-safe	71 dB(A)
	Position indication	Mechanical
Safety data	Power source UL	Class 2 Supply
	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
	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]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	12 lb [5.3 kg]
Materials	Housing material	Die cast aluminium and plastic casing

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

Product features

Application

For On/Off, fail-safe control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. Control is On/Off from an auxiliary contact or a manual switch. 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. Maximum of two EF's can be piggybacked for torque loads of up to 540 in-lbs. Minimum 3/4" diameter shaft and parallel wiring.

Operation

The EF..24 series actuators provide true spring return operation for reliable failsafe application and positive close off on air tight dampers. The spring return system provides constant torque to the damper with, and without, power applied to the actuator. The EF..24 series provides 95° of rotation and is provided with a graduated position indicator showing 0° to 95°. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. The EF..24 actuator is shipped at 5° (5° from full fail-safe) to provide automatic compression against damper gaskets for tight shut-off.

Installation Note: Use flexible metal conduit. Push the UL listed conduit fitting device over the actuator's cable to butt against the enclosure. Screw in conduit connector. Jacket the actuator's input wiring with UL listed flexible conduit. Properly terminate the conduit in a suitable junction box.

Typical specification

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 jackshaft up to a 1.05” diameter. The actuators must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, two SPDT auxiliary switch shall be provided having the capability of one being adjustable. Actuators with auxiliary switches must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus listed and 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
Cable conduit connector 1/2"	TF-CC US
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 ø8...22.7 mm	AV8-25
Anti-rotation bracket EFB(X)/GKB(X)/GMB(X).	EF-P
End stop indicator	IND-EFB
Shaft clamp reversible, clamping range ø12...26.7 mm	K9-2
Ball joint suitable for damper crank arm KH8 / KH10, Multipack 10 pcs.	KG10A
Damper crank arm Slot width 8.2 mm, clamping range ø14...25 mm	KH10
Actuator arm Slot width 8.2 mm	KH-EFB
Push rod for KG10A ball joint 36” L, 3/8” diameter	SH10
Wrench 0.512 in. [13 mm]	TOOL-07
Mounting bracket for AF..	ZG-100
Jackshaft mounting bracket.	ZG-120
ZG-JSL support plate for EFB(X)	ZG-121
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 and side installation	ZG-EFB
1.05" diameter jackshaft adaptor (12" L).	ZG-JSA-3

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.

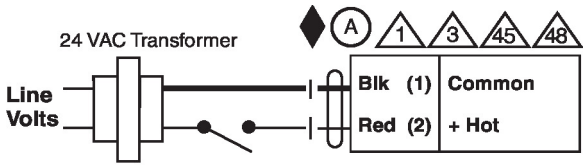
A Actuators with appliance cables are numbered.

1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by DC 24 V.

45 Actuators may be powered in parallel. Power consumption must be observed.

48 Parallel wiring required for piggy-back applications.



On/Off

Dimensions