

FSAF24(-S) US, FSAF120(-S) US

On/Off, Spring Return, Meets 250°F [121°C] for Half Hour, 75 Seconds



Technical Data		FSAF24(-S) US, FSAF120(-S) US
Power supply		
	FSAF24(-S) US	24 VAC ± 20%, 24 VDC -10% +20%
	FSAF120(-S) US	120 VAC ± 10%, 50/60 Hz
Power consumption		
	FSAF24(-S) US	running 7.5 W, 10 VA, .4 A holding 2 W, 4 VA, .15 A
	FSAF120(-S) US	running 50/60Hz: 9.5 W, 11 VA, .1 A holding 3.5 W, 6 VA, .05 A
Transformer sizing		10 VA (Class 2 power source 24V only)
Electrical connection		motor 3 ft, 18 ga, 2 color coded leads 1/2" conduit connectors
	-S models	3 ft, 18 ga, 4 leads appliance cable 1/2" conduit connectors
Overload protection		electronic throughout 0 to 95° rotation
Angle of rotation		mechanically limited to 95°
Torque		133 in-lb [15 Nm] constant
Direction of rotation		spring reversible with cw/ccw mounting
Position indication		visual indicator, 0° to 95° (0° is spring return position)
Manual override		3mm hex crank (shipped w/actuator)
Running time		<75 sec. constant, independent of load
	spring	<20 seconds nominal
Humidity		5 to 95% RH non-condensing
Ambient temperature		
	normal duty	-22°F to 122°F [-30°C to 50°C]
	safety duty	3 on/off cycles after 30 minutes at ambient temperature of 250°F [121°C]
Storage temperature		-40°F to 176°F [-40°C to 80°C]
Housing		NEMA type 1 / IP40
Housing material		zinc coated metal
Gears		permanently lubricated
Agency listings		cULus listed to UL873 and CAN/CSA C22.2 No.24
Noise level (max)		45 dB (A)
	spring return	62 dB
Servicing		Maintenance free
Quality standard		ISO 9001, 5 year Belimo warranty
Weight		(standard / -S model)
	FSAF24(-S) US	5.7 / 6.2 lbs (2.6 / 2.8 kg)
	FSAF120(-S) US	6.1 / 6.6 lbs (2.8 / 3 kg)

FSAF24-S US, FSAF120-S US	
Auxiliary Switch	2xSPST 7A resistive, 2.5A inductive at 120V or 250V, UL Approved, double-insulated, one switch at 10°, one adjustable from 30° to 90°

Torque min. 133 in-lb, for control of air dampers

Application

For two position control of UL555S rated dampers in HVAC. Actuator sizing should be done in accordance with the damper manufacturer's specifications.

The actuator is mounted directly to a damper shaft or jackshaft 3/8" to 1.05" in diameter by means of its universal clamp. A crank arm and mounting brackets are available if the actuator cannot be direct coupled to the jackshaft or damper shaft.

Square footage of damper operated will depend on make and model of damper. Typically 12 sq.ft. minimum up to 24 sq.ft maximum will be operated for UL555S applications.

Operation

The FSAF series actuators provide true spring return operation for reliable fail-safe application and positive close-off on UL555S dampers. The spring return system provides constant torque to the damper with, and without, power applied to the actuator.

The FSAF series provides 95° of rotation and is provided with a graduated position indicator showing 0 to 95°. The FSAF has a manual positioning mechanism which allows the setting of any damper position within its 95° of rotation.

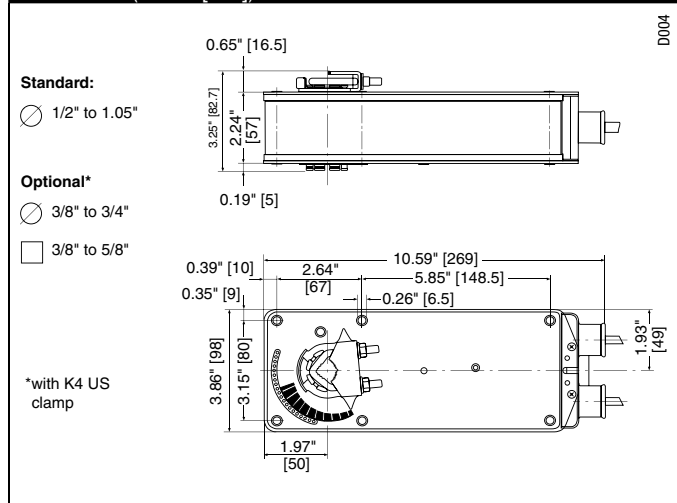
The actuator is shipped in the zero fail-safe position to provide automatic compression against damper gaskets for tight shut-off. When power is applied, the manual mechanism is released and the actuator drives toward the open position where it stops rotating.

The manual override can also be released physically by the use of a crank supplied with the actuator.

SAFETY NOTE

Screw a conduit fitting into the actuator's bushing. Jacket the actuator's input and output wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

Dimensions (Inches [mm])



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Accessories (AF series accessories may be employed)

IND-AF2	Damper position indicator
K4 US	Universal clamp for 3/8" to 3/4" shafts
K4-1 US	Universal clamp for up to 1.05" dia. jackshafts
K4-H	Universal clamp for hexshafts 3/8" to 5/8"
KH-AF	Crank arm for up to 3/4" round shaft (Series 2)
KH-AF-1	Crank arm for up to 1.05" jackshaft (Series 2)
KH-AFV	V-bolt kit for KH-AF and KH-AF-1
Tool-01	10 mm wrench
ZDB-AF2 US	Angle of rotation limiter
ZG-100	Universal mounting bracket
ZG-101	Universal mounting bracket
ZG-102	Multiple actuator mounting bracket
ZG-103	Universal mounting bracket
ZG-104	Universal mounting bracket
ZG-106	Mounting bracket for Honeywell® Mod IV replacement or new crank arm type installations
ZG-107	Mounting bracket for Honeywell® Mod III or Johnson® Series 100 replacement or new crank arm type installations
ZG-108	Mounting bracket for Barber Colman® MA 3./4., Honeywell® Mod III or IV or Johnson® Series 100 replacement or new crank arm type installations
ZG-AF	Crank arm adaptor kit for AF/NF
ZG-AF108	Crank arm adaptor kit for AF/NF
ZS-100	Weather shield (metal)
ZS-150	Weather shield (polycarbonate)
ZS-300	NEMA 4X housing
22965-00001	12mm form fit square shaft adaptor

For an overview of how to apply the accessories, see Belimo Mechanical Accessories and refer to the Belimo Mounting Methods Guide.

NOTE: When using FSAFxx (-S) US actuators, only use accessories listed on this page.

Typical Specification

Large combination fire and smoke dampers are to be operated by Belimo FSAF series actuators. Manufacturer shall provide 5 year warranty.

Actuators shall draw no more than 11VA at 120V or 24V.

Where auxiliary switches are required for signaling, starting fans, or position indication, -S model actuators, damper blade, or proximity switches shall be provided.

Smaller dampers shall employ Belimo FSLF or FSNF actuators per damper manufacturer recommendations.

Wiring Diagrams

INSTALLATION NOTES

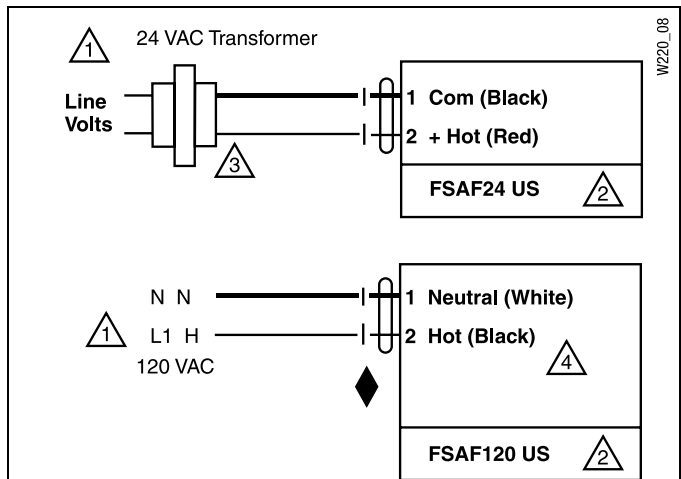
- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- 3 Actuator may also be powered by 24 VDC.
- 4 No ground connection required. Double insulated.
- 5 For end position indication, interlock control, fan startup, etc., the FSAF24-S US and FSAF120-S US incorporates two built-in auxiliary switches: 2 x SPST, 7A resistive, 2.5 inductive @120/250 VAC, UL Approved, one switch is fixed at 10, one is adjustable from 30 to 90.

APPLICATION NOTES

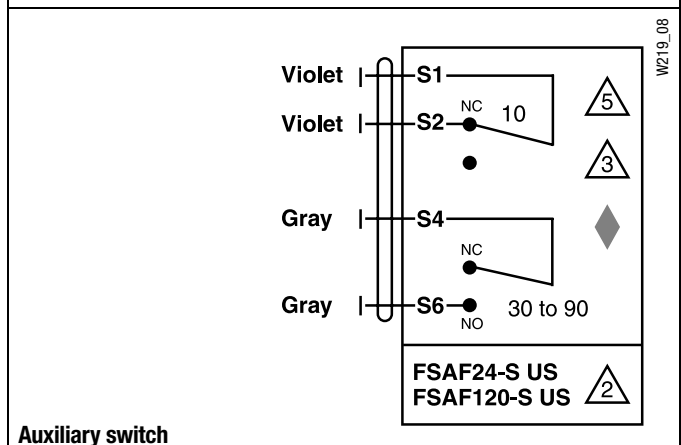
- ◆ Meets UL requirements without the need of an electrical ground connection.
- ◆ Meets cULus or UL and CSA Standard requirements without the need of an electrical ground connection.

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.



FSAF24 US and FSAF120 US



Auxiliary switch