







Technical Data	FCL F0.4 / C) / F0) HC FCL F1.00 / C) / F0) HC
Technical Data	FSLF24(-S)(-FC) US, FSLF120(-S)(-FC) US
Power supply	04.1/40 000/ 50/00 H-
FSLF24(-S)(-FC) US	24 VAC ± 20%, 50/60 Hz
FSLF120(-S)(-FC) US	120 VAC ± 10%, 50/60 Hz
	50/60 Hz, 15 VA
	50/60 Hz, 3.5 VA
	50/60 Hz 25 VA
	50/60 Hz 18 VA
•	50/60 Hz 6.5 VA
	50/60 Hz 27 VA
Fusing*	
FSLF24	1 amp slow blow
FSLF120	0.25 amp slow blow
Transformer sizing	25 VA per 24 VAC actuator
Electrical connection	
FSLF24 US	3 ft, 18 ga, 2 color coded leads
FSLF120 US	3 ft, 18 ga, 3 color coded leads
FSLFS US	3 ft, 18 ga, appliance cable
Overload protection	electronic throughout 0 to 95° rotation
	auto-restart after temporary overload (FSLF120
	US grounded enclosure)
Control	microprocessor
Angle of rotation	95°
Torque	30 in-lb [3.5 Nm] minimum
	from 32°F to 350°F [0°C to 177°C]
Direction of rotation spring	can be selected by CCW/CW mounting
Position indication	visual indicator, 0° to 95°
Running time motor	< 15 sec at rated voltage and torque
	32°F to +122°F [0°C to +50°C]
spring	
Humidity	5 to 95% RH non-condensing
Ambient temperature	32°F to 122°F [0°C to 50°C]
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA type 1
Housing material	zinc coated steel
Gears	permanently lubricated
Agency listings	cULus acc. to UL60730-1A/-2-14, CAN/CSA
	E60730-1, CSA C22.2 No.24-93
Servicing	maintenance free
Quality standard	ISO 9001
Weight	
FSLF24(-S) US	3.4 lbs [1.7 kg], (+ 0.3 lbs [+0.14 kg])
FSLF120(-S) US	4.0 lbs [1.8 kg], (+ 0.3 lbs [+0.14 kg])

FSLF24(-S)(-FC) US, FSLF120(-S)(-FC) US

Auxiliary switch 2 x SPST 0.5 A inductive, 3A resistive @ 120/250VAC, minimum 1 mA @ 5 VDC, .3 A ind, .5A res @ 24VDC, UL listed, 10° and 85°.

Double insulated \Box

FSLF24(-S)(-FC) US, FSLF120(-S)(-FC) US

On/Off, Spring Return, 350°F for Half Hour, 15 Seconds Cycle Time

Application

The type FSLF spring-return actuator is intended for the operation of smoke and combination fire and smoke dampers in ventilation and air-conditioning systems. The actuator will meet requirements of UL555 and UL555S when tested as an assembly with the damper and will meet requirements of UBC for 15 second opening and closing. Square footage of damper operated will depend on make and model and the temperature required.

Operation

Mounting of the actuator to the damper axle shaft or jackshaft is via a cold-weld clamp. Teeth in the clamp and V-bolt dig into the metal of both solid and hollow shafts maintaining a perfect connection. The specially designed clamp will not crush hollow shafts. The bottom end of the actuator is held by an anti-rotation strap or by a stud provided by the damper manufacturer.

The actuator is mounted in its fail safe position with the damper blade(s) closed. Upon applying power, the actuator drives the damper to the open position. The internal spring is tensioned at the same time. If the power supply is interrupted, the spring moves the damper back to its fail-safe position.

SAFETY NOTES

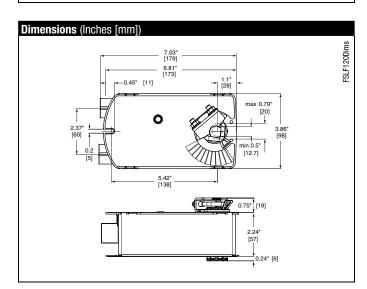
The actuator contains no components which the user can replace or repair. 24 VAC Connect via safety isolating transformer, Class 2 supply.

1/2" Threaded Connector

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

3/8" Flex Connector (-FC models)

Mount the flexible conduit into the actuator's metal bushing by means of the provided screw with a torque of 1.2 Nm. Jacket the actuator's input wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.



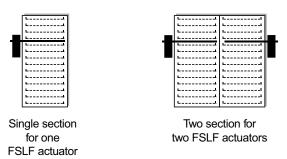
*Individual Fusing or Breakers are not required by Belimo.

The FSLF24 draws higher peak current when driving against any type of stop. Given the technology of fuses & breakers, this requires the value of fuse or breaker to be increased to avoid nuisance opening or tripping. A 1 amp slow blow should be used for 24VAC. A 0.25 amp slow blow should be used for 120VAC.



Typical Applications

The typical fire and smoke damper requires from 5-15 in-lb of torque per square foot at 250°F - 350°F under dynamic load (2000 fpm velocity). The FSLF is a single section damper actuator. For the multi section dampers, use the FSNF series. This is a direct coupled actuator. If linkages are needed use the FSNF series.



Typical Specification

Smoke Control and Combination Fire and Smoke Control Damper Actuators

All smoke and combination fire and smoke dampers shall be provided with Belimo FSLF, FSNF, or FSAF actuators. No substitutions allowed. Damper and actuator shall have UL555S Listing for 250°F (350°F) and shall comply with UBC if required by local codes. Where proof of closure switches are required, blade switches, actuator auxiliary switches, or proximity switches are allowed.

Replacement Applications

The number one "equal or better" requirement for use as a replacement for obsolete defective motors is the UL555S listing of the Belimo actuator with the damper for the application. The local authority having jurisdiction sets the requirements. In some cases a permit and inspection may be required.

Go to www.belimo.us/firesmoke for a Cross Reference from old damper actuators to Belimo. Extensive retrofit installation instructions are available, along with technical training information.

CAUTION

Caution must be used when replacing failed motors with new Belimo actuators. Many old motors did not have internal springs and depended on external springs on the side of the damper or wrapped around the damper shaft to close the damper. Old motor springs must be removed or disabled. Do not remove fusible link springs if they had only fire and no smoke functions

In some cases, a BAE 165 or equal thermal sensor must be installed.

Wiring Diagrams

💢 INSTALLATION NOTES



Provide overload protection and disconnect as required.



CAUTION Equipment Damage!

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



No ground on 24 V models



S4 makes to S6 when the actuator is powered open.



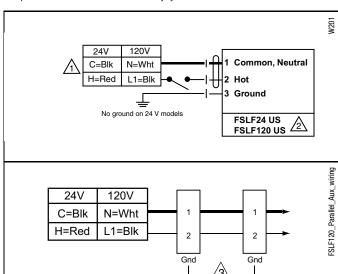
For end position indication, interlock control, fan startup, etc., FSLF24-S US and FSLF120-S US incorporate two built-in auxiliary switches.



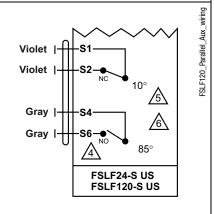
Double insulated \square

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.



Parallel Actuator Wiring



Auxiliary switch wiring for FSLF24-S US, FSLF120-S US