

LF24-SR (-S) US



Proportional damper actuator, spring return failsafe, 24 V for 2 to 10 VDC, or 4 to 20 mA control signal.
Output signal of 2 to 10 VDC for position indication.



Torque min. 35 in-lb, for control of air dampers

Application

For proportional modulation 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 from 3/8" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. For shafts up to 3/4" use K6-1 accessory. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft.

The actuator operates in response to a 2 to 10 VDC, or with the addition of a 500Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication or master-slave applications.

Operation

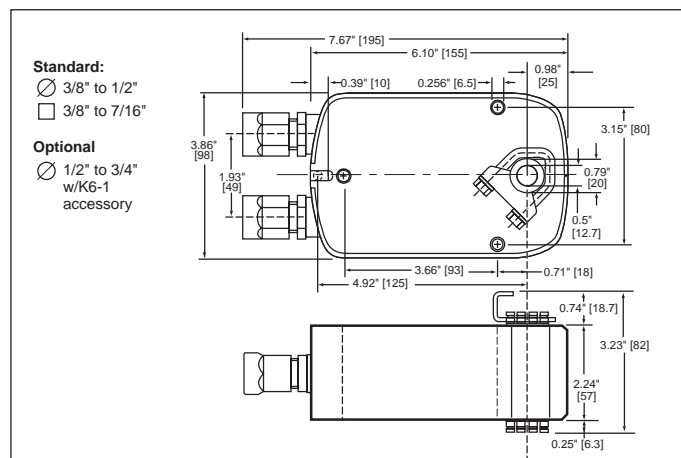
The LF series actuators provide true spring return operation for reliable fail-safe application and positive close-off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator. The LF series provides 95° of rotation and is provided with a graduated position indicator showing 0 to 95°.

The LF24-SR (-S) US uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a microprocessor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact fail-safe position. The ASIC monitors and controls the brushless DC motor's rotation and provides a digital rotation sensing function to prevent damage to the actuator in a stall condition. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. Power consumption is reduced in holding mode.

The LF24-SR-S US version is provided with 1 built-in auxiliary switch. This SPDT switch is provided for safety interfacing or signaling, for example, for fan start-up. The switching function is adjustable between 0° and 95°. The auxiliary switch in the LF24-SR-S US is double insulated so an electrical ground is not necessary.

| Technical Data | LF24-SR (-S) US |
|---------------------------------|--|
| Power supply | 24 VAC ± 20% 50/60 Hz 24 VDC ± 10% |
| Power consumption | running: 2.5 W; holding: 1 W |
| Transformer sizing | 5 VA (class 2 power source) |
| Electrical connection | LF24-SR US 3 ft, plenum rated cable LF24-SR-SUS 3 ft, 18 GA appliance cables (2) 1/2" conduit connector |
| Overload protection | electronic throughout 0 to 95° rotation |
| Operating range Y | 2 to 10 VDC, 4 to 20mA |
| Input impedance | 100 kΩ (0.1 mA), 500Ω |
| Feedback output U | 2 to 10 VDC (max. 0.7 mA) for 95° |
| Angle of rotation | max. 95°, adjust. with mechanical stop |
| Torque | 35 in-lb [4 Nm] |
| Direction of rotation | spring: reversible with cw/ccw mounting motor: reversible with built-in switch |
| Position indication | visual indicator, 0° to 95° (0° is spring return position) |
| Auxiliary switch (LF24-SR-S US) | 1 x SPDT 6A (1.5A) @ 250 VAC, UL listed adjustable 0° to 95° (double insulated) |
| Running time (nominal) | motor: 150 sec constant, independent of load spring: < 25 sec @ -4°F to +122°F [-20°C to +50°C] < 60 sec @ -22°F [-30°C] |
| Humidity | 5 to 95% RH non-condensing |
| Ambient temperature | -22°F to +122°F [-30°C to +50°C] |
| Storage temperature | -40°F to +176°F [-40°C to +80°C] |
| Housing | NEMA type 2 / IP54 |
| Housing material | zinc coated metal |
| Agency listings | UL 873 listed; CSA C22.2 No. 24 certified, CE |
| Noise level | max: running < 30 db (A) spring return 62 db (A) |
| Servicing | maintenance free |
| Quality standard | ISO 9001 |
| Weight | LF24-SR 3.1 lbs (1.40 kg.) LF24-SR-S 3.2 lbs (1.45 kg.) |

Dimensions [All numbers in brackets are in millimeters.]



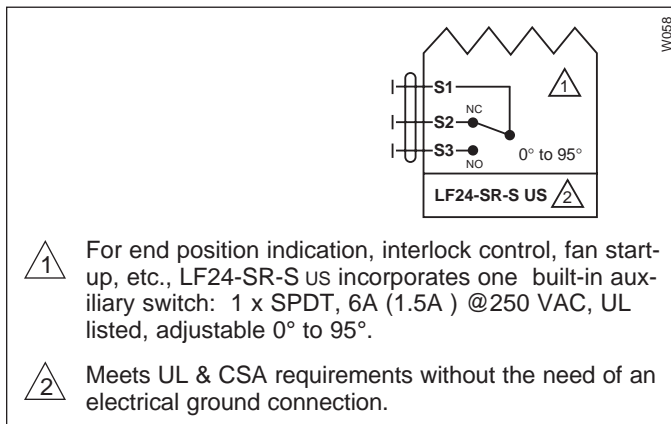
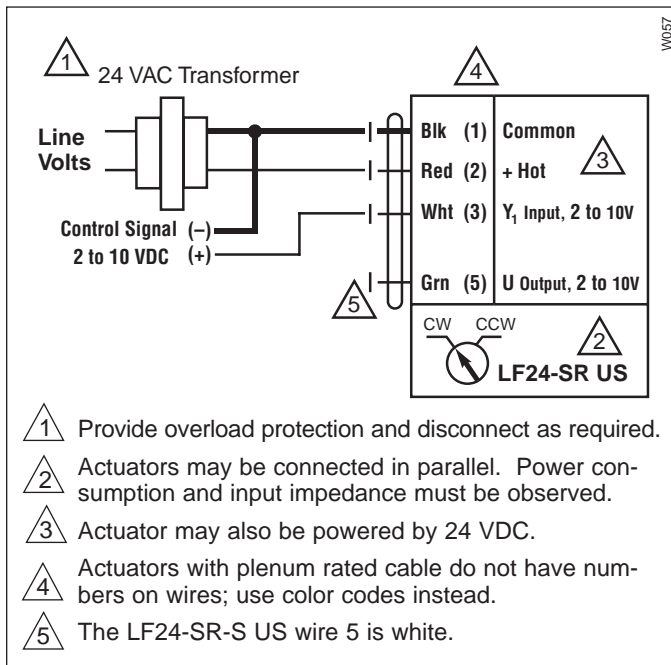
Proportional damper actuator, spring return failsafe, 24 V for 2 to 10 VDC, or 4 to 20 mA control signal.
Output signal of 2 to 10 VDC for position indication.

Accessories

| | |
|----------|--|
| AV 10-18 | Shaft extension (K6-1 is required) |
| IND-LF | Damper position indicator |
| K6-1 | Universal clamp for up to 3/4" diameter shafts |
| KH-LF | Crankarm for up to 1/2" round shaft |
| SGA24 | Min. and/or man. positioner in NEMA 4 housing |
| SGF24 | Min. and/or man. positioner for flush panel mounting |
| Tool-06 | 8mm and 10 mm wrench |
| ZG-LF2 | Crankarm adaptor kit for LF |
| ZG-112 | Mounting bracket for Honeywell Mod IV, M6415 type actuators, and new installations |
| ZG-LF112 | Crankarm adaptor kit for Honeywell Mod IV, M6415 type actuators, and new installations |
| ZG-R01 | 500Ω resistor for 4 to 20 mA control signal |
| ZS-100 | Weather shield (metal) |
| ZS-150 | Weather shield (polycarbonate) |
| ZS-260 | Explosion-proof housing |

Note: When using LF24-SR (-S) US actuators, only use accessories listed on this page.

Wiring diagrams



LF24-SR (-S) US Typical Specification

Spring return control damper actuators shall be direct coupled type which require no crankarm and linkage and be capable of direct mounting to a shaft up to a 3/4" diameter and center a 1/2" shaft. The actuator must provide proportional damper control in response to a 2 to 10 VDC or, with the addition of a 500Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. The actuators must be designed so that they may be used for either clockwise or counterclockwise fail-safe operation. Actuators shall use a brushless DC motor controlled by a microprocessor and be protected from overload at all angles of rotation. Run time shall be constant, and independent of torque. A 2 to 10 VDC feedback signal shall be provided for position feedback or master-slave applications. If required, 1 SPDT auxiliary switch shall be provided having the capability of being adjustable. Actuators with auxiliary switch must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be UL listed and CSA certified, have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

