

Fail-Safe actuator used in typical Fire and Smoke damper applications

- Torque motor 30 in-lb [3.5 Nm]
- Nominal voltage AC/DC 24 V
- Control On/Off
- @ 350°F [177°C] for 30 min
- 15 s, <15 s Motor/Fail-safe
- 2x SPST



5-year warranty



## Technical data

|                 |                                     |   |
|-----------------|-------------------------------------|---|
| Electrical data | Nominal voltage                     | AC/DC 24 V  |
|                 | Nominal voltage frequency           | 50/60 Hz  |
|                 | Power consumption in operation      | 15 VA   |
|                 | Power consumption in rest position  | 2.5 W, 3.5 VA, End stop 25 VA, 1 A slow blow fuse *   |
|                 | Transformer sizing                  | 24 VA   |
|                 | Inrush current                      | 8.2 A   |
|                 | Auxiliary switch                    | 2x SPST, 3 A resistive (0.5 A inductive) @ AC 250 V, 1x 10° / 1x 85°                            |
|                 | Switching capacity auxiliary switch | 3 A resistive (0.5 A inductive) @ AC 250 V  |
|                 | Connection auxiliary switch         | cable 32" [0.9 m], 4x 18 AWG appliance cable with 1/2" NPT conduit connector                    |
|                 | Electrical connection               | 2 Leads 32" [0.9 m], 18 AWG with 1/2" NPT conduit connector                                     |
|                 | Overload Protection                 | electronic throughout 0...95° rotation  |
|                 | Electrical Protection               | actuators are double insulated  |
| Functional data | Torque motor                        | 30 in-lb [3.5 Nm] @ 350°F [177°C] for 30 min  |
|                 | Direction of motion motor           | selectable by ccw/cw mounting   |
|                 | Direction of motion fail-safe       | reversible with cw/ccw mounting   |
|                 | Angle of rotation                   | 95°   |
|                 | Running Time (Motor)                | 15 s / 90°  |
|                 | Running time motor note             | at rated voltage and torque 32...122°F [0...50°C]   |
|                 | Running time fail-safe              | <15 s   |
|                 | Noise level, motor                  | 45 dB(A)  |
|                 | Noise level, fail-safe              | 62 dB(A)  |
|                 | Position indication                 | Mechanical  |
| Safety data     | Power source UL                     | Class 2 Supply  |
|                 | Degree of protection NEMA/UL        | NEMA 1  |
|                 | Housing                             | UL Enclosure Type 1   |
|                 | Agency Listing                      | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02<br>NYC Department of Buildings MEA 197-07-M |
|                 | 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                 | 32...122°F [0...50°C]   |
|                 | Storage temperature                 | -40...176°F [-40...80°C]  |
|                 |                                     |   |



## Technical data

|                    |                        |                  |
|--------------------|------------------------|------------------|
| <b>Safety data</b> | Servicing              | maintenance-free |
| <b>Weight</b>      | Weight                 | 3.4 lb [1.6 kg]  |
| <b>Materials</b>   | Housing material       | galvanized steel |
| <b>Footnotes</b>   | † UL File XAPX.E108966 |                  |

## Safety notes



- \* Neither UL nor Belimo require individual fusing of FSLF actuators.
- The FSLF draws higher peak current when driving against its end stop or any other 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 A slow blow should be used for AC 24 V. A 0.25 A slow blow should be used for AC 120 V. A 0.125 A slow blow should be used for 230 V.
- SAFETY NOTES
- Wiring and installation must comply with all local electrical and mechanical codes.
- The actuator contains no components which the user can replace or repair.
- Cables are not plenum rated and require flex conduit.
- 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 10 in-lb [1.2 Nm]. Jacket the actuator's input wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

## Product features

|                              |  |
|------------------------------|--|
| <b>Application</b>           | The FS series of spring-return actuators are designed for the operation of UL555 and UL555S listed fire/smoke dampers in ventilation and air-conditioning systems.   |
| <b>Operation</b>             | The actuator is mounted in its fail safe position with the damper blade(s) typically 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.  |
| <b>Typical specification</b> | All smoke and combination fire and smoke dampers shall be provided with Belimo FSTF, FSLF, FSNF, or FSAF series actuators. All substitutions must be approved before submission of bid. Damper and actuator shall have UL555S Listing for 250°F and/or 350°F. Actuator shall have been tested to UL2043 per requirements of IMC 602.2 and NEC 300.22 (c). Where position indication is required -S models with auxiliary switches shall be provided. |

## Accessories

| Electrical accessories | Description   | Type      |
|------------------------|---|-----------|
|                        | Thermoelectric tripping device, Duct inside temperature 165°F | BAE165 US |
|                        | Auxiliary switch 2x SPDT                                      | S2A-F US  |
| Mechanical accessories | Description   | Type      |
|                        | Weather shield 13x8x6" [330x203x152 mm] (LxWxH)               | ZS-100    |
|                        | Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)           | ZS-150    |

## Electrical installation





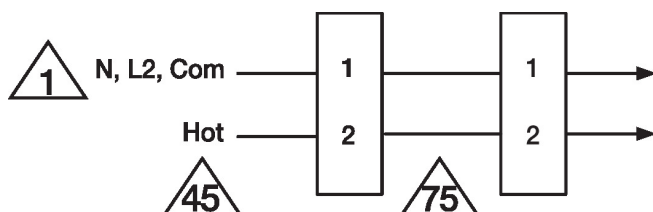
### APPLICATION NOTES

- 1 Provide overload protection and disconnect as required.
- 45 Actuators may be powered in parallel. Power consumption must be observed.
- 72 S4 makes to S6 when actuator is powered open.
- 73 Auxiliary switches are for end position indication or interlock control.



### Electrical installation

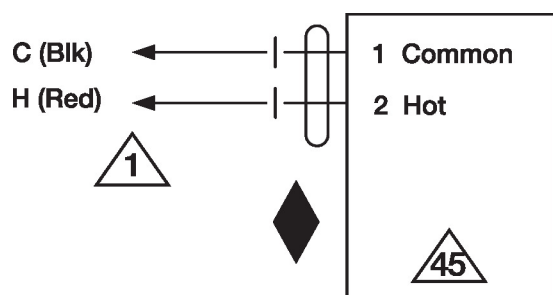
-  Double insulated.
-  Ground present on some models.



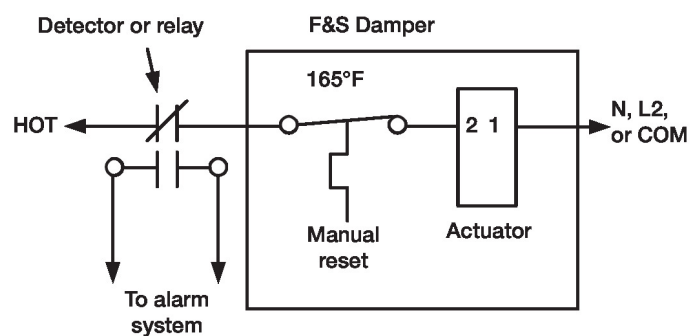
Parallel Actuator Wiring

### Wiring diagrams

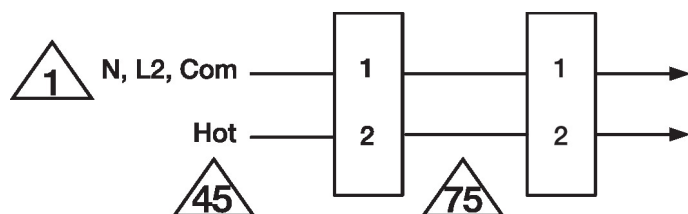
AC 24 V



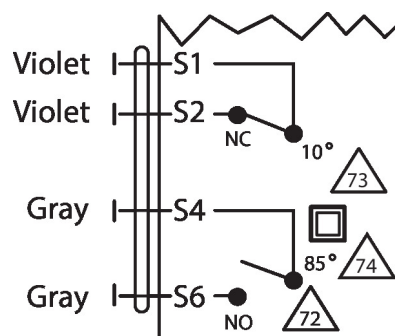
### Typical containment damper control wiring



### Parallel Actuator Wiring



### Auxiliary Switch Wiring





## Dimensions

