



## MS4120F, MS4620F, MS8120F, S2024-F, S20230-F Fast-Acting, Two-Position Actuators FOR FIRE/SMOKE CONTROL APPLICATIONS

The MS4120F, MS4620F, MS8120F, S2024-F, and S20230-F Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) for on/off damper control. The actuator accepts an on/off signal from a single-pole, single-throw (spst) controller. Reversible mounting allows actuator to be used for either clockwise (cw) or counterclockwise (ccw) spring rotation.

The MS4120F, MS4620F, and MS8120F DCA are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350°F.

### SPECIFICATIONS

#### Models:

Model	Voltage in Vac	Internal Auxiliary Switches
MS4120F1006	120	None
MS4120F1204	120	2 SPST <sup>a</sup>
MS4620F1005	230	None
MS4620F1203	230	2 SPST <sup>a</sup>
MS8120F1002	24	None
MS8120F1200	24	2 SPST <sup>a</sup>
S2024-F	24	None
S20230-F	230	
S2024-F-SW2	24	2 SPDT
S20230-F-SW2	230	

<sup>a</sup> Internal SPST switches are designed to pass UL555S requirements (at 350°F).

#### Device Weight:

- 7 lb (3.2 kg).

#### Stroke:

- 95° ± 3°, mechanically limited.

#### Electrical Ratings:

- Power Input:
  - MS4120F: 120 Vac ±10%, 60 Hz.
  - MS4620F, S20230-F: 230 Vac ±10%, 50/60 Hz.
  - MS8120F, S2024-F: 24 Vac +20%, -10%, 50/60 Hz (Class 2).
- Power Consumption:
  - MS4120F: Driving: 0.35A, 35W. Holding: 0.15A, 10W.
  - MS4620F, S20230-F: Driving: 0.20A, 35W. Holding: 0.14A, 10W.
  - MS8120F, S2024-F: Driving: 45 VA. Holding: 10 VA.

#### Timing (At Rated Torque and Voltage):

- Drive Open: 15 seconds typical.
- Spring Close: 15 seconds typical.

### SPECIFICATION DATA

### FEATURES

- Reversible mounting facilitates use in either clockwise (cw) or counterclockwise (ccw) spring rotation.
- No special cycling required during long-term holding.
- Integral spring return ensures level of return torque.
- Stainless steel internal spring.
- Fifteen-second spring return timing.
- No audible noise during holding.
- Patent pending design eliminates need for limit switches to reduce power consumption.
- Models available for 24, 120, and 230 Vac.
- Ninety-five degree angle of rotation.
- Actuator holds rated torque at reduced power level.
- Die-cast aluminum housing.
- Housing design allows flush mounting to damper.
- High-temperature indicator included.
- Self-centering shaft adapter (SCSA), patent pending.

### MS4120F, MS4620F, MS8120F

- High temperature Teflon<sup>®</sup> lead wires.
- Models available with integral high temperature (350°F) SPST position-indicating switches (7°, 85°).
- Designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350°F.

### S2024-F, S20230-F

- Double-insulation rating.
- Halogen-free, silicone-free leadwires.
- Models available with integral SPDT position-indicating switches (7°, 85°).

#### Electrical Connections:

- Lead Wires:
  - MS4120, MS4620, MS8120: 1m Teflon wire.
  - S2024-F, S20230-F: 1m halogen-free wire.
- Two integral 3/8 in. flexible conduit connections.

#### Torque Rating (at rated voltage):

- Typical Holding (minimum at 350°F): 175 lb-in. (20 N•m).
- Spring Return (minimum at 350°F): 175 lb-in. (20 N•m).
- Stall Maximum (fully open at 75°F): 425 lb-in. (48.0 N•m).
- 350°F Minimum Driving: 175 lb-in. (20 N•m).

#### Design Life (at Rated Voltage):

- 30,000 full stroke cycles.

#### Minimum Damper Shaft Length:

- 1 in. (25 mm); 3-1/4 (83 mm) recommended.



**Mounting:**

- Self-centering shaft adapter.
- Round Damper Shafts: 0.5 to 1.06 in.
- Square Damper Shafts: 1/2 to 3/4 in.
- Actuator can be mounted with shaft in any position.

**IMPORTANT**

Honeywell does not recommend using linkages with these actuators because side-loading of the output hub reduces actuator life.

**Temperature Ratings:**

**IMPORTANT**

The MS4120F, MS4620F, MS8120F are designed to meet UL555S standards at 350°F (176°C). These actuators must be tested with the damper to achieve this rating.

- Ambient: -40°F to 130°F (-40°C to 55°C).
- Shipping and Storage: -40°F to 140°F (-40°C to 60°C).

**Humidity Ratings:**

- 5% to 95% RH noncondensing.

**Noise Rating (Maximum):**

- Driving or Spring Return: 70 dBA.
- Holding: 20 dBA (no audible noise).

**Environmental Protection Ratings:**

- NEMA2 and IP54 when mounted on a horizontal shaft.

**Accessories (not supplied with actuator):**

- 205649 Mounting Bracket (not supplied with actuator).

**Approvals:**

	MS4120F	MS4620F, MS8120F	S20230-F, S2024-F
UL/cUL	X	X	
UL873 Plenum Rating, File No. E4436; Guide No. XAPX. <sup>a</sup>	X	X	
CE		X	X
C-TICK		X	X

<sup>a</sup> Plenum applications require that conductors be enclosed in conduit (see Wiring section for conduit details).

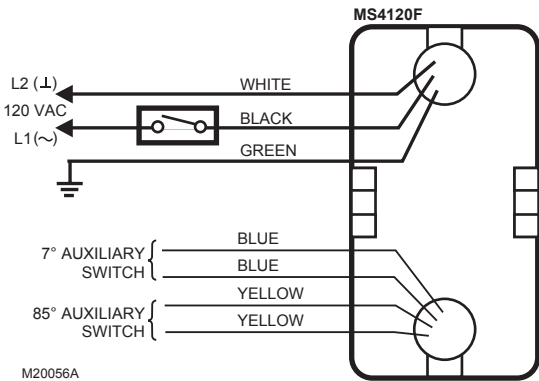


Fig. 2. Typical 120 Vac wiring.

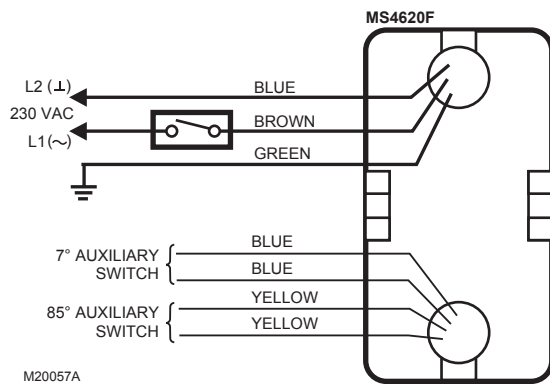


Fig. 3. Typical 230 Vac wiring (MS Series).

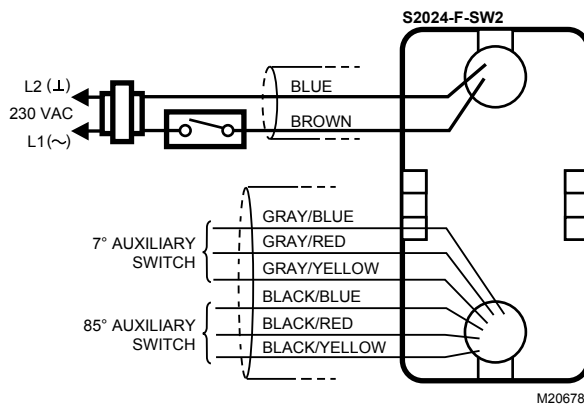


Fig. 4. Typical 24 Vac wiring (S20 Series).

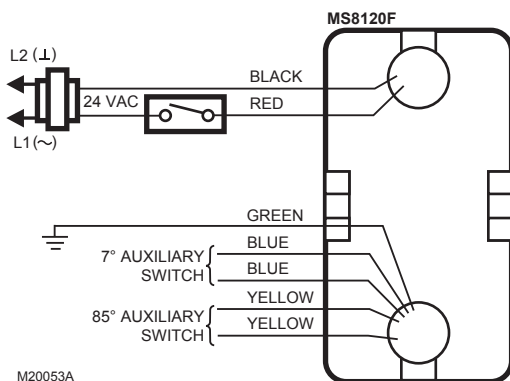
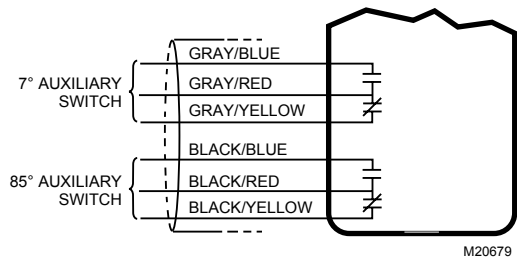
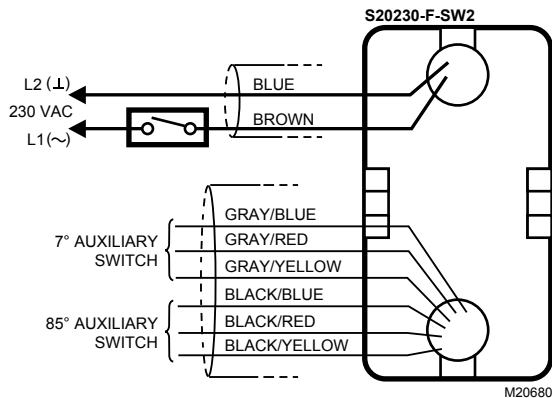


Fig. 1. Typical 24 Vac wiring (MS Series).



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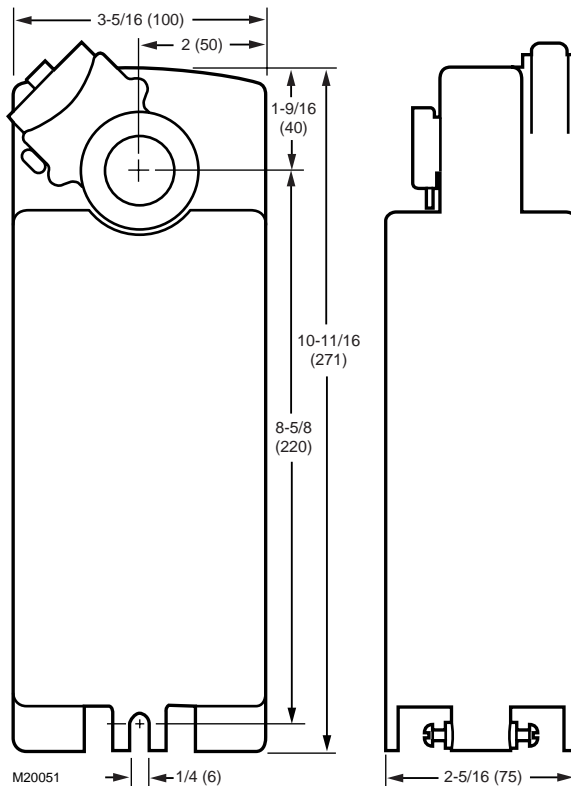
Fig. 5. Auxiliary switch wiring (S20 Series).



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Fig. 6. Typical 230 Vac wiring (S20 Series).

Dimensions:



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