

MS4104, MS4109, MS4604, MS4609, MS8104, MS8109 Fast-Acting, Two-Position Actuators FOR FIRE/SMOKE CONTROL APPLICATIONS

SPECIFICATION DATA



FEATURES

- 30 lb-in. (3.4 N•m) or 80 lb-in. (9 N•m) minimum driving torque at 350 °F (176 °C).
- Reversible mounting facilitates use in either clockwise (cw) or counterclockwise (ccw) spring rotation.
- Integral spring return ensures level of return torque.
- Stainless steel internal spring.
- Fifteen-second spring return timing.
- No special cycling required during long-term holding.
- 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.
- Designed to operated reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S rating up to 350F.
- Models available with SPST position-indicating switches (7°, 85° stroke).

APPLICATION

The MS4104, MS4109, MS4604, MS4609, MS8104, MS8109 Fast-Acting, Two-Position Actuators are spring return direct coupled actuators (DCA) with an integral junction box 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 return and are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350 °F.



SPECIFICATIONS

Models:

| Model | Voltage (Vac) | Internal Auxiliary Switches | Torque in lb-in. (N•m) |
|-------------|---------------|-----------------------------|------------------------|
| MS4104F1010 | 120 | None | 30 (3.4) |
| MS4104F1210 | 120 | 2 SPST ^a | 30 (3.4) |
| MS4109F1010 | 120 | None | 80 (9) |
| MS4109F1210 | 120 | 2 SPST ^a | 80 (9) |
| MS4604F1010 | 230 | None | 30 (3.4) |
| MS4604F1210 | 230 | 2 SPST ^a | 30 (3.4) |
| MS4609F1010 | 230 | None | 80 (9) |
| MS4609F1210 | 230 | 2 SPST ^a | 80 (9) |
| MS8104F1010 | 24 | None | 30 (3.4) |
| MS8104F1210 | 24 | 2 SPST ^a | 30 (3.4) |
| MS8109F1010 | 24 | None | 80 (9) |
| MS8109F1210 | 24 | 2 SPST ^a | 80 (9) |

^a Internal switches are designed to pass UL555S requirements (at 350°F for 30 minutes) and are intended for use as position indication.

Electrical Ratings:

Power Input:

- MS4104F, MS4109F: 120 Vac ±10%, 60 Hz.
- MS4604F, MS4609F: 230 Vac ±10%, 50/60 Hz.
- MS8104F, MS8109F: 24 Vac +20%, -10%, 50/60 Hz.

Power Consumption:

- MS4104F: Running: 0.18A, 18W. Holding: 0.11A, 9W
- MS4109F: Running: 0.25A, 23W. Holding: 0.13A, 7W
- MS4604F: Running: 0.13A, 18W. Holding: 0.10A, 11W
- MS4609F: Running: 0.13A, 23W. Holding: 0.09A, 7W
- MS8104F: Running: 16VA. Holding: 8 VA
- MS8109F: Running: 23VA. Holding: 7 VA

Electrical Connections:

Power Lead Wires:

- MS410xF and MS460xF: 32 inches (0.8m), 18 AWG
- MS810xF: 39 inches (1m), 18 AWG

Switch Lead Wires: 18 inches, 18 AWG, 2 color coded leads.

Controller Type:

- MS4104, MS4109: Line voltage (120 Vac), two-position, spst (Series 40).
- MS4604, MS4609: Line voltage (230 Vac), two-position, spst (Series 40).
- MS8104, MS8109: Low voltage (24 Vac), two-position, spst (Series 80).

Device Weight:

5 lb (2.3 kg).

Noise Rating (Maximum):

Driving Open: 75 dBA at 1m.
Holding: 20 dBA at 1m (no audible noise).

Temperature Ratings:

Ambient: 0°F to 130°F (-18°C to 55°C).
Shipping and Storage: -40°F to 140°F (-40°C to 60°C).

IMPORTANT

The actuator is designed to meet UL555S standards at 350°F (176°C). The actuator must be tested with the damper to achieve this rating.

Humidity Ratings:

5% to 95% RH noncondensing.

Stroke:

95° ± 3°, mechanically limited.

Torque Rating (at rated voltage):

Spring Return:

- MS4104F, MS4604F, MS8104F: 30 lb-in. (3.4 N•m).
- MS4109F, MS4609F, MS8109: 80 lb-in. (9 N•m).

Stall Maximum:

- MS4104F, MS4604F, MS8104F: 150 lb-in. (17 N•m).
- MS4109F, MS4609F, MS8109: 240 lb-in. (27 N•m).

350°F Driving:

- MS4104F, MS4604F, MS8104F: 30 lb-in. (3.4 N•m).
- MS4109F, MS4609F, MS8109: 80 lb-in. (9 N•m).

Timing (At Rated Torque and Voltage):

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

Auxiliary Switches:

Ratings (maximum load):

- MS4104F, MS4604F, MS4109F, MS4609F:
25 Vac/24 Vdc, 3A resistive
- MS8104F, MS8109F:
24 Vac/24 Vdc, 3A resistive

Settings (fixed): 7° nominal stroke, 85° nominal stroke

Design Life (at Rated Voltage):

30,000 full stroke cycles.

Cycling Requirements:

The actuator and the internal spring are designed to require no special cycling during long-term holding. Honeywell recommends following all local, state and national codes for periodic testing of the entire smoke control system. Refer to National Fire Protection Association (NFPA) National Fire Codes®: NFPA90A, NFPA92A and NFPA92B for your application.

NFPA recommends periodic examination of each fire/smoke damper (semi-annually or annually) to ensure proper performance.

Minimum Damper Shaft Length:

2 in. (51 mm).

Mounting:

Round 1/2 inch shaft adapter with 1/4 inch set screws.

- Threads: ¼-20 UNC-2A
- Material: Alloy Steel hardened to HRC 45-53
- Thread Lock: Nylon Patch

IMPORTANT

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

Environmental Protection Ratings:

NEMA, IP40.

Accessories:

205649 Mounting Bracket (not supplied with actuator).

Approvals:

| | MS4104F, MS4109F | MS4604F, MS4609F | MS8104F, MS8109F |
|---------|---------------------|---------------------|---------------------|
| UL/cUL | X | X | X |
| UL60730 | X | X | X |
| CE | X | X | X |
| C-Tick | X | X | X |

Wiring:

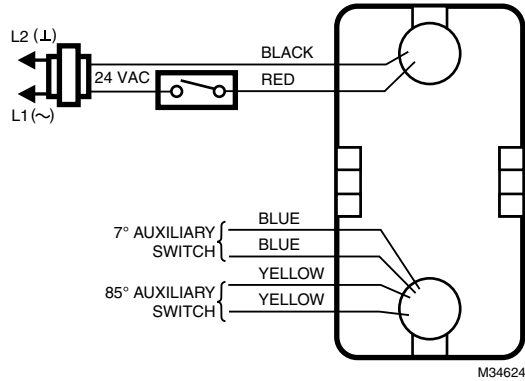


Fig. 1. Typical 24 Vac wiring.

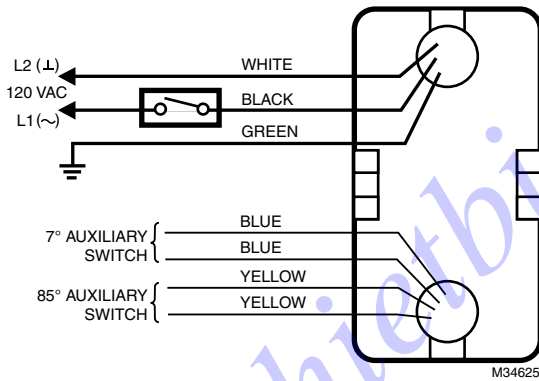


Fig. 2. Typical 120 Vac wiring.

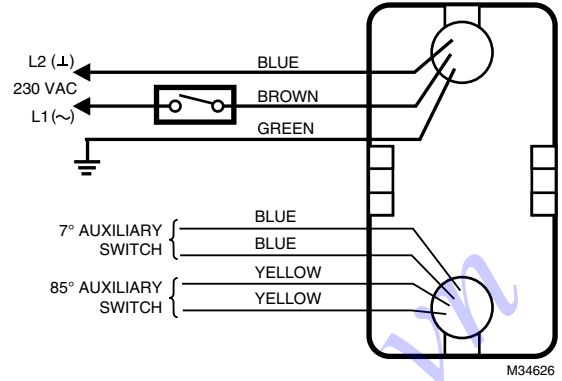
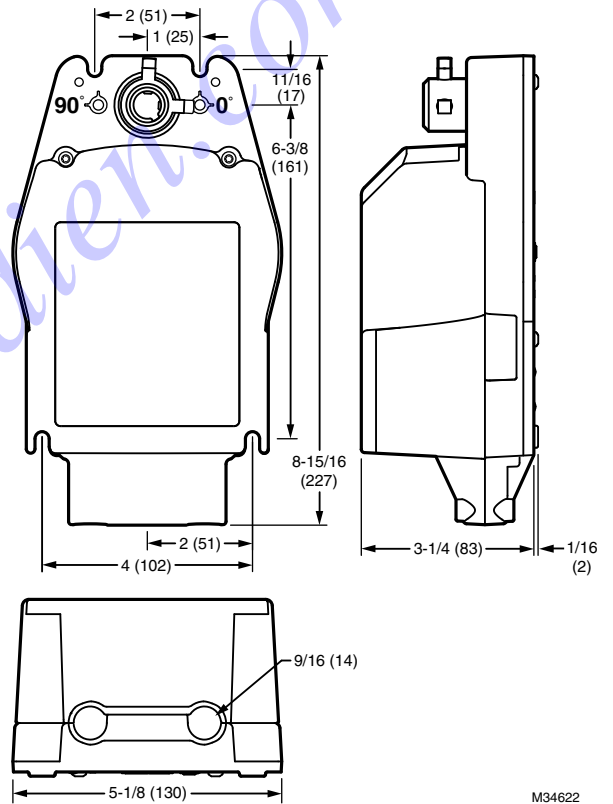


Fig. 3. Typical 230 Vac wiring.

Dimensions:



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