Honeywell

# Motor Switch Terminal (MSTN)

TROL-A-TEMP®

**INSTALLATION INSTRUCTIONS**

## APPLICATION

The MSTN is a 24 Vac, 6 VA, 50-60-cycle, two-position motor actuator used with all AOBD, AOBD-BM, and IOBD automatic opposed blade dampers.

The MSTN is a uni-directional motor that requires single-pole, double-throw switching to drive the damper open and closed. It uses a wafer switch to power the synchronous motor for only 30 seconds while the motor is moving between open and closed or vice-versa. When the motor reaches the open or closed position, the internal switches cut off the power to the motor.

The MSTN has three auxiliary end switches, rated at 1A at 24 Vac, that can be used to control auxiliary equipment and one additional damper, when necessary.

The MSTN can be operated by any Trol-A-Temp or Honeywell zoning panel. It also can be operated by any spdt switch or relay contact. It can be controlled with five or three wires, depending on the application.

## INSTALLATION

### When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

### Planning the Installation

Before installing the motor:

- Check the position of the MSTN.
- Use an ohmmeter and check for continuity between terminals 2 and 4, and 2 and 6, with no power to the motor.

| Continuity Between Terminals 2 and 4 | Continuity Between Terminals 2 and 6 | Motor Position |
|---|---|---|
| Yes | No | Closed |
| No | Yes | Open |
| Yes | Yes | Between positions[a] |

[a]When the motor is between the open and closed position, place 24 Vac across terminals 1 and 4. Jumper terminals 2 and 5; the motor rotates to the open position and stops. Install the motor on the damper and set the damper linkage to open. The crank arm points in toward the damper when open.

### Installing the MSTN

To install the MSTN into the plastic motor box attached to the motor:

NOTE: When used as replacement motor, remember that the MSTN is shipped in the open position. To confirm this for continuity across terminals 2 and 4, there should be none. See Fig.1

1. Insert the motor shaft into the motor box and through the hole in the box.
2. Insert two small screws through the motor box to hold the motor in place.
3. Place the motor crank arm on the motor shaft and tighten the set screws.

## WIRING

See Fig. 2-5 for wiring diagrams.

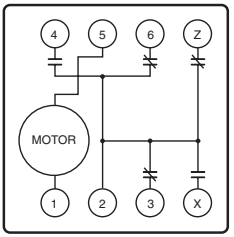


**Fig. 1. Motor internal wiring diagram with damper in the open position.**

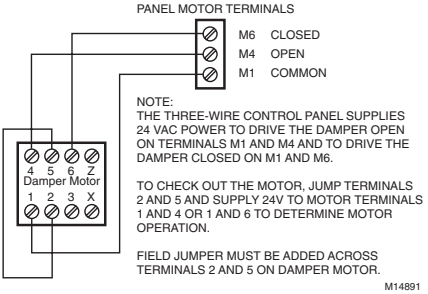


**Fig. 2. Wiring a single damper from a three-wire control panel.**

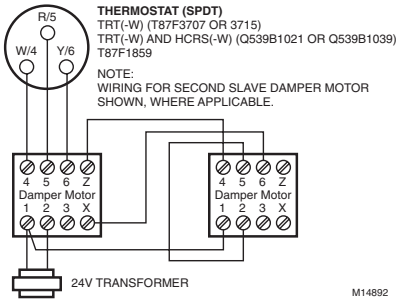


**Fig. 3. Wiring two dampers in tandem from a three-wire control panel.**

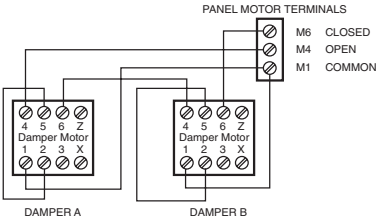


**Fig. 4. Wiring damper motor controlled by three-wire thermostat with an additional slave damper.**

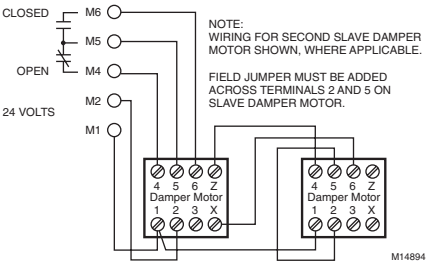


**Fig. 5. Wiring five-wire control panel with additional slave damper.**

## CHECKOUT

Before leaving the installation, be sure the motor powers the damper open and closed correctly.

## TROUBLESHOOTING

1. Remove all wires from the motor.
2. Place 24 Vac on terminals 1 and 2; jump terminals 4 and 5 and observe motor moving to open.
3. Check terminals 2 to 3 and 2 to Z for continuity.
4. Jump terminals 5 and 6 and observe motor moving to close.
5. Check continuity across terminals 2 and X.

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