

# ACTUATORS & DAMPERS

## DIRECT COUPLED ACTUATORS SPRING RETURN

MA, MF, MS SERIES



### DESCRIPTION

The Schneider Electric DuraDrive™ Series direct coupled, spring return actuators accept two-position, tri-state, or proportional control signals from a DDC control system or a thermostat and are designed to provide years of trouble-free control for HVAC dampers.

### FEATURES

- Direct mount to round or square shaft
- NEMA 4 models available
- Overload protection on all models



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### COMMON SPECIFICATIONS

|                           |   |                              |  |
|---------------------------|---|------------------------------|--|
| <b>Input Impedance</b>    | 80 kΩ @ 0/2-10 VDC; 500Ω @ 4-20 mA (proportional models)                                | <b>Noise</b>                 | <60 db @ 3' (1m)   |
| <b>Motor</b>              | DC with brushes (MA40-70xx, MA41-70xx, MF40-70xx, MF41-70xx); Brushless DC (all others) | <b>Resolution</b>            | 100 steps  |
| <b>Wiring</b>             | 3-foot cable, 18 AWG  | <b>Life Expectancy</b>       | 60,000 cycles  |
| <b>Conduit Connection</b> | 1/2" FNPT   | <b>Operating Temperature</b> | -22° to 140°F (-30° to 60°C)   |
| <b>Action</b>             | Mounting orientation direct/reverse acting  | <b>Operating Humidity</b>    | 15 to 95% RH   |
| <b>Rotation</b>           | 95° ±5°   | <b>Enclosure Rating</b>      | NEMA 2 (IP54) (35, 60, 133 in-lb models), NEMA 4 (IP56) (150 in-lb models) |
| <b>Manual Override</b>    | Crank (MA41, MF41, MS41 models)   | <b>Approvals</b>             | CE, UL File # E9429  |
|                           |   | <b>Warranty</b>              | 5 years  |

### INDIVIDUAL SPECIFICATIONS

| Model     | Torque            | Supply Voltage                | Supply VA | Control Signal          | Feedback | Drive Time  | Spring Return Time |
|-----------|-------------------|-------------------------------|-----------|-------------------------|----------|-------------|--------------------|
| MA40-7043 | 35 in-lb (4 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 4.4 VA    | Two-position            | None     | 50 seconds  | 26 seconds         |
| MA40-7040 | 35 in-lb (4 Nm)   | 120 VAC 50/60 Hz              | 4.3 VA    | Two-position            | None     | 50 seconds  | 26 seconds         |
| MF40-7043 | 35 in-lb (4 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 5.9 VA    | Floating                | None     | 130 seconds | 25 seconds         |
| MS40-7043 | 35 in-lb (4 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 5.9 VA    | Prop. 2-10 VDC, 4-20 mA | 2-10 VDC | 130 seconds | 25 seconds         |
| MA41-7073 | 60 in-lb (7 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 4.8 VA    | Two-position            | None     | 80 seconds  | 40 seconds         |
| MA41-7070 | 60 in-lb (7 Nm)   | 120 VAC 50/60 Hz              | 5.6 VA    | Two-position            | None     | 80 seconds  | 40 seconds         |
| MF41-7073 | 60 in-lb (7 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 6.2 VA    | Floating                | None     | 195 seconds | 30 seconds         |
| MS41-7073 | 60 in-lb (7 Nm)   | 20-28 VAC 50/60 Hz, 22-30 VDC | 5.8 VA    | Prop. 2-10 VDC, 4-20 mA | 2-10 VDC | 195 seconds | 30 seconds         |
| MA41-7153 | 133 in-lb (15 Nm) | 24 VAC ±20%, 22 to 30 VDC     | 9.7 VA    | Two-position            | None     | 190 seconds | 30 seconds         |
| MA41-7150 | 133 in-lb (15 Nm) | 120 VAC 50/60 Hz              | 10.0 VA   | Two-position            | None     | 190 seconds | 30 seconds         |
| MF41-7153 | 133 in-lb (15 Nm) | 24 VAC ±20%, 22 to 30 VDC     | 9.7 VA    | Floating                | None     | 190 seconds | 30 seconds         |
| MS41-7153 | 133 in-lb (15 Nm) | 24 VAC ±20%, 22 to 30 VDC     | 9.7 VA    | Prop. 2-10 VDC, 4-20 mA | 2-10 VDC | 190 seconds | 30 seconds         |
| MA40-7173 | 150 in-lb (17 Nm) | 20-28 VAC 50/60 Hz, 22-30 VDC | 9.6 VA    | Two-position            | None     | 145 seconds | 75 seconds         |
| MA40-7170 | 150 in-lb (17 Nm) | 120 VAC 50/60 Hz              | 11.4 VA   | Two-position            | None     | 145 seconds | 75 seconds         |
| MF40-7173 | 150 in-lb (17 Nm) | 20-28 VAC 50/60 Hz, 22-30 VDC | 10.0 VA   | Floating                | None     | 145 seconds | 75 seconds         |
| MS40-7173 | 150 in-lb (17 Nm) | 20-28 VAC 50/60 Hz, 22-30 VDC | 9.4 VA    | Prop. 2-10 VDC, 4-20 mA | None     | 145 seconds | 75 seconds         |
| MS40-7170 | 150 in-lb (17 Nm) | 120 VAC 50/60 Hz              | 11.1 VA   | Prop. 2-10 VDC, 4-20 mA | None     | 145 seconds | 75 seconds         |

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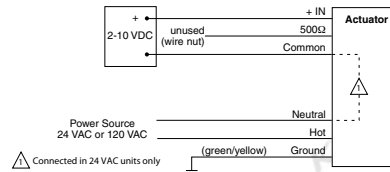
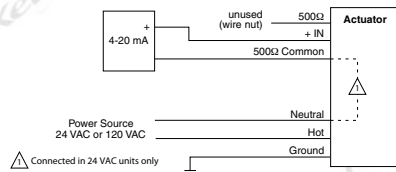
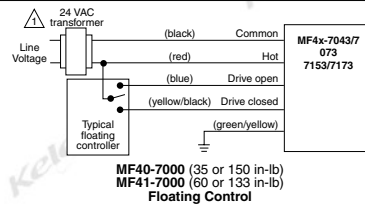
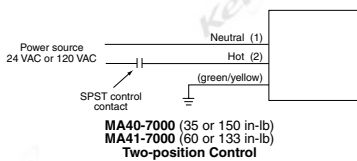
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### DIMENSIONS

| Model            | Torque            | Dimensions                                     | Maximum Shaft Diameter | Minimum Shaft Length | Weight           |
|------------------|-------------------|--|------------------------|----------------------|------------------|
| <b>MA40-7043</b> | 35 in-lb (4 Nm)   | 3.5"H x 4.0"W x 6.8"L (8.8 x 10.1 x 17.2 cm)   | 0.63" (1.6 cm)         | 3.75" (9.5 cm)       | 4.5 lb (2.0 kg)  |
| <b>MA40-7040</b> | 35 in-lb (4 Nm)   | 3.5"H x 4.0"W x 6.8"L (8.8 x 10.1 x 17.2 cm)   | 0.63" (1.6 cm)         | 3.75" (9.5 cm)       | 4.5 lb (2.0 kg)  |
| <b>MF40-7043</b> | 35 in-lb (4 Nm)   | 3.5"H x 4.0"W x 6.8"L (8.8 x 10.1 x 17.2 cm)   | 0.63" (1.6 cm)         | 3.75" (9.5 cm)       | 4.5 lb (2.0 kg)  |
| <b>MS40-7043</b> | 35 in-lb (4 Nm)   | 3.5"H x 4.0"W x 6.8"L (8.8 x 10.1 x 17.2 cm)   | 0.63" (1.6 cm)         | 3.75" (9.5 cm)       | 4.5 lb (2.0 kg)  |
| <b>MA41-7073</b> | 60 in-lb (7 Nm)   | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MA41-7070</b> | 60 in-lb (7 Nm)   | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MF41-7073</b> | 60 in-lb (7 Nm)   | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MS41-7073</b> | 60 in-lb (7 Nm)   | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MA41-7153</b> | 133 in-lb (15 Nm) | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MA41-7150</b> | 133 in-lb (15 Nm) | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MF41-7153</b> | 133 in-lb (15 Nm) | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MS41-7153</b> | 133 in-lb (15 Nm) | 3.5"H x 4.0"W x 10.5"L (8.8 x 10.1 x 26.7 cm)  | 0.75" (1.9 cm)         | 3.75" (9.5 cm)       | 7.5 lb (3.4 kg)  |
| <b>MA40-7173</b> | 150 in-lb (17 Nm) | 4.0"H x 4.0"W x 10.8"L (10.2 x 10.2 x 27.5 cm) | 1.05" (1.7 cm)         | 3.5" (8.9 cm)        | 10.5 lb (4.8 kg) |
| <b>MA40-7170</b> | 150 in-lb (17 Nm) | 4.0"H x 4.0"W x 10.8"L (10.2 x 10.2 x 27.5 cm) | 1.05" (1.7 cm)         | 3.5" (8.9 cm)        | 10.5 lb (4.8 kg) |
| <b>MF40-7173</b> | 150 in-lb (17 Nm) | 4.0"H x 4.0"W x 10.8"L (10.2 x 10.2 x 27.5 cm) | 1.05" (1.7 cm)         | 3.5" (8.9 cm)        | 10.5 lb (4.8 kg) |
| <b>MS40-7173</b> | 150 in-lb (17 Nm) | 4.0"H x 4.0"W x 10.8"L (10.2 x 10.2 x 27.5 cm) | 1.05" (1.7 cm)         | 3.5" (8.9 cm)        | 10.5 lb (4.8 kg) |
| <b>MS40-7170</b> | 150 in-lb (17 Nm) | 4.0"H x 4.0"W x 10.8"L (10.2 x 10.2 x 27.5 cm) | 1.05" (1.7 cm)         | 3.5" (8.9 cm)        | 10.5 lb (4.8 kg) |

### WIRING



### ORDERING INFORMATION

| MODEL            | DESCRIPTION  |
|------------------|--|
| <b>MA40-7043</b> | Spring return 35 in-lb (4 Nm), two-position, 24 VAC, two-wire control    |
| <b>MA40-7040</b> | Spring return 35 in-lb (4 Nm), two-position, 120 VAC, two-wire control   |
| <b>MF40-7043</b> | Spring return 35 in-lb (4 Nm), floating, 24 VAC                          |
| <b>MS40-7043</b> | Spring return 35 in-lb (4 Nm), proportional control, 24 VAC              |
| <b>MA41-7073</b> | Spring return 60 in-lb (7 Nm), two-position, 24 VAC, two-wire control    |
| <b>MA41-7070</b> | Spring return 60 in-lb (7 Nm), two-position, 120 VAC, two-wire control   |
| <b>MF41-7073</b> | Spring return 60 in-lb (7 Nm), tri-state control, 24 VAC                 |
| <b>MS41-7073</b> | Spring return 60 in-lb (7 Nm), proportional control, 24 VAC              |
| <b>MA41-7153</b> | Spring return 133 in-lb (15 Nm), two-position, 24 VAC, two-wire control  |
| <b>MA41-7150</b> | Spring return 133 in-lb (15 Nm), two-position, 120 VAC, two-wire control |
| <b>MF41-7153</b> | Spring return 133 in-lb (15 Nm), tri-state control, 24 VAC               |
| <b>MS41-7153</b> | Spring return 133 in-lb (15 Nm), proportional control, 24 VAC            |
| <b>MA40-7173</b> | Spring return 150 in-lb (17 Nm), two-position, 24 VAC, two-wire control  |
| <b>MA40-7170</b> | Spring return 150 in-lb (17 Nm), two-position, 120 VAC, two-wire control |
| <b>MF40-7173</b> | Spring return 150 in-lb (17 Nm), floating, 24 VAC                        |
| <b>MS40-7173</b> | Spring return 150 in-lb (17 Nm), proportional control, 24 VAC            |
| <b>MS40-7170</b> | Spring return 150 in-lb (17 Nm), proportional control, 120 VAC           |