DuraDrive™ Spring Return Electric Actuators

DuraDrive Direct Coupled Actuators are designed to be used in both damper and valve control applications.

Application

The MA4X-7XXX and MA4X-7XXX-50X series spring return actuators are used for the on-off fail-safe control of dampers and valves in HVAC systems.

Features

- **MA40-704X** 35 in-lb (4 N-m), **MA4X-707X** 60 in-lb (7 N-m), **MA4X-715X** 133 in-lb (15 N-m) torque models
- 24 Vac, 22-30 Vdc, 120 Vac, and 230 Vac models
- Rugged die cast housings rated for NEMA 2/IP54
- Electronic overload protection throughout rotation
- Optional built-in auxiliary switch to provide for interfacing or signaling
- Provides 95° of rotation
- Visual position indicator provided
- Provides true mechanical clockwise or counterclockwise spring return operation for reliable fail-safe application and positive close-off in air tight damper applications.
- Direct mount to round or square damper shafts
- Rotation limiting available
- Five year warranty
- MA4X-715X Series can be double mounted (gang mounting) for high torque applications
- MA41-707X, 715X equipped with manual override

Specifications

**Actuator Inputs**

**Control Signal:** On-off spring return, SPST control contacts or Triacs (500 mA rated).

**Power Inputs:** 24 Vac ±20%, 22-30 Vdc, 120 Vac ±10%, 230 Vac ±10%, 50/60 Hz. All 24 Vac circuits are Class 2. All circuits 30 Vac and above are Class 1.

**Connections:** 3 ft. (91 cm) appliance cables, 1/2 in. conduit connector. For M20 Metric conduit, use AM-756 adaptor.
### Table-1 Power Consumption.

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Actuator Power Input</th>
<th>50 Hz</th>
<th>60 Hz</th>
<th>DC Amps</th>
<th>Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>VA</td>
<td>W</td>
<td>VA</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50 Hz</td>
<td>60 Hz</td>
<td></td>
<td>50 Hz</td>
</tr>
<tr>
<td>MA40-7043</td>
<td>24 Vac ± 20% 22-30 Vdc</td>
<td>4.4</td>
<td>2.9</td>
<td>4.4</td>
<td>2.9</td>
<td>0.11</td>
</tr>
<tr>
<td>MA40-7040</td>
<td>120 Vac ± 10%</td>
<td>6.4</td>
<td>3.8</td>
<td>4.3</td>
<td>3.4</td>
<td>—</td>
</tr>
<tr>
<td>MA40-7041</td>
<td>230 Vac ± 10%</td>
<td>5.8</td>
<td>4.1</td>
<td>4.6</td>
<td>3.9</td>
<td>1.5</td>
</tr>
<tr>
<td>MA4X-7073</td>
<td>24 Vac ± 20% 22-30 Vdc</td>
<td>4.8</td>
<td>3.2</td>
<td>4.8</td>
<td>3.2</td>
<td>0.13</td>
</tr>
<tr>
<td>MA4X-7070</td>
<td>120 Vac ± 10%</td>
<td>10.7</td>
<td>4.2</td>
<td>5.6</td>
<td>3.6</td>
<td>—</td>
</tr>
<tr>
<td>MA4X-7071</td>
<td>230 Vac ± 10%</td>
<td>17.0</td>
<td>5.1</td>
<td>8.0</td>
<td>4.0</td>
<td>2.7</td>
</tr>
<tr>
<td>MA4X-7153</td>
<td>24 Vac ± 20% 22-30 Vdc</td>
<td>9.8</td>
<td>7.5</td>
<td>9.7</td>
<td>7.5</td>
<td>0.29</td>
</tr>
<tr>
<td>MA4X-7150</td>
<td>120 Vac ± 10%</td>
<td>11.7</td>
<td>8.8</td>
<td>10.0</td>
<td>8.4</td>
<td>—</td>
</tr>
<tr>
<td>MA4X-7151</td>
<td>230 Vac ± 10%</td>
<td>15.5</td>
<td>9.5</td>
<td>10.6</td>
<td>8.5</td>
<td>—</td>
</tr>
</tbody>
</table>

### Actuator Outputs

#### Electrical:

### Table-2 Auxiliary Switches.

<table>
<thead>
<tr>
<th>Model</th>
<th>Quantity</th>
<th>Type</th>
<th>Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA40-7043-501</td>
<td>1</td>
<td>SPDT 6A (1.5A) @ 24 Vac, UL Listed</td>
<td>0 to 95° (0 to 1 scale)</td>
</tr>
<tr>
<td>MA40-7040-501</td>
<td>1</td>
<td>SPDT 6A (1.5A) @ 24 Vac, UL Listed</td>
<td>0 to 95° (0 to 1 scale)</td>
</tr>
<tr>
<td>MA40-7041-501</td>
<td>1</td>
<td>SPDT 6A (1.5A) @ 24 Vac, UL Listed</td>
<td>0 to 95° (0 to 1 scale)</td>
</tr>
</tbody>
</table>
| MA4X-7073-502 | 2        | SPDT 7A (2.5 A) @ 250 Vac, UL Listed | One fixed at 5°  
One adjustable 25 to 85° |
| MA4X-7070-502 | 2        | SPDT 7A (2.5 A) @ 250 Vac, UL Listed | One fixed at 5°  
One adjustable 25 to 85° |
| MA4X-7153-502 | 2        | SPDT 7A (2.5 A) @ 250 Vac, UL Listed | One fixed at 5°  
One adjustable 25 to 85° |
Mechanical:

Motor Type,
- Brush—MA40-704X-XXX, MA4X-707X-XXX.
- Brushless—MA4X-715X-XXX.

Stroke,
- MA40-704X Angle of rotation 95° ± 5° maximum. Adjustable 30° to 95° (standard rotation limiter).
- MA4X-707X and MA4X-715X Angle of rotation 95° ± 5° maximum. Adjustable 30° to 95° with AM-689 installed.

Damper Shaft Clamp,
- MA40-704X The factory installed universal v-clamp is used for shafts up to 5/8" (15 mm) diameter or up to 1/2" (13 mm) square. AM-710 accessory clamp is required when mounting actuators to shafts up to 3/4" (19 mm) in diameter or up to 1/2" (13 mm) square.
- MA4X-707X and MA4X-715X The factory installed universal v-clamp is used for shafts up to 3/4" (19 mm) diameter or up to 1/2" (13 mm) square. AM-687 accessory clamp is required when mounting actuators to shafts up to 1.05" (27 mm) in diameter or up to 5/8" (15 mm) square.

Position Indicator, Visual indicator.
- MA40-704X 0 to 1 (0 is spring return position).
- MA4X-707X and MA4X-715X -5 to 90° (-5° is spring return position).

Nominal Damper Area, Actuator sizing should be done in accordance with damper manufacturer's specification.

Direction of Rotation, Clockwise or counterclockwise rotation determined by actuator mounting.

Manual Override
- MA40-704X, MA40-707X and MA40-715X Not available.
- MA41-707X and MA41-715X Position is manually adjusted from -5° to 85° by using override crank provided.

Environment

Ambient Temperature Limits:
- Shipping & Storage, -40 to 160° F (-40 to 71° C).
- Operating, -22 to 140° F (-30 to 60° C).

Humidity: 15 to 95% RH, non-condensing.

Location:
- MA40-704X NEMA 2 (IEC IP54) no restrictions.

Agency Listings
UL: UL 873 Underwriters Laboratories (File #E9429 Category Temperature-Indicating and Regulating Equipment).


Australia: This product meets requirements to bear the C-Tick Mark according to the terms specified by the Communications Authority under the Radiocommunications Act 1992.

Accessories

For use with MA4X-7XXX:
- AM-671: Universal Mounting Bracket, AM-693 is required
- AM-672: Universal Mounting Bracket, AM-693 is required
- AM-673: Mounting Bracket
- AM-674: Weather Shield
- AM-675: Base Mounting Plate for AM-674
- AM-676: Universal Shaft Extension
- AM-714: Weather Shield (polycarbonate)
- AM-756: Metric Conduit Adapter M20 x 1.5 to 1/2" NPT
- AM-761: 7-inch Anti-rotation Bracket
- AM-762: 9-inch Anti-rotation Bracket

For use with MA40-7043:
- AM-709: Position Indicator and Stroke Limiter
- AM-710: Universal V-clamp for up to 3/4" diameter shafts
- AM-711: Crankarm for up to 1/2" round shaft
- AM-712: Crankarm Adaptor Kit
- AM-713: Mounting Bracket for Honeywell Mod IV, M6415 type actuators and new installations
- AM-715: Crankarm Adaptor Kit for Honeywell Mod IV, M6415 type actuators and new installations

For use with MA4X-7073, MA4X-7153:
- AM-686: Damper Position Indicator
- AM-687: Universal V-clamp for up to 1.05" (27 mm) diameter shafts.
- AM-688: Replacement Universal Clamp
- AM-689: Rotation Limiter
- AM-690: Crankarm for round shafts up to 3/4" (19 mm)
- AM-691: Crankarm for jackshafts up to 1.05" (27 mm)
- AM-692: V-bolt Kit for AM-690 and AM-691 Crankarm
- AM-693: Damper Linkage Kit
- AM-758: Short "U" Mounting Bracket
- AM-760: Slotted "L" Mounting Bracket
- AM-759: Tall "U" Mounting Bracket
- AM-761: 7-inch Anti-rotation Bracket
- AM-762: 9-inch Anti-rotation Bracket
- AM-763: 1/8" Hex Crank for Manual Override
All specifications are nominal and may change as design improvements are introduced. Controlli shall not be liable for damages resulting from misapplication or misuse of its products.

Figure-1 MA40-704X Series Mounting Dimensions.

Figure-2 MA4X-7XXX Series Mounting Dimensions.

Note: These are not through holes. Use hardware supplied in AM kits.