35 and 70 lb-in. Non-Spring Return Direct Coupled Actuators
ML6161, ML7161 ML6174, ML7174

FEATURES
- 45°, 60°, and 90° selectable stroke in either clockwise (cw) or counterclockwise (ccw) directions.
- Magnetic coupling eliminates the need for mechanical stops.
- Two field-addable auxiliary switches.
- Auxiliary feedback potentiometer field-addable on select models.
- 0° to 30° minimum position adjustment (cw or ccw direction) on all models.
- Manual declutch on select models.
- W7620 Terminal Unit Controller compatibility.
- Commercial Zone Damper in W7600 Commercial Zone System compatibility.

SPECIFICATIONS

Electrical Ratings:
Power Input: 24 Vac ±20%, 50/60 Hz.

<table>
<thead>
<tr>
<th>Model</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML6161A,B,C,D</td>
<td>1.8 VA</td>
</tr>
<tr>
<td>ML7161A</td>
<td>4.8 VA</td>
</tr>
<tr>
<td>ML6174A,B</td>
<td>2.4 VA</td>
</tr>
<tr>
<td>ML7174A</td>
<td>5.4 VA</td>
</tr>
</tbody>
</table>

Auxiliary Switch Ratings:
- Electrical selective NO or NC, not simultaneous.
- Pilot Duty: 50 VA, 24 Vac.
- Switch Differential: Three angular degree maximum.

Torque Ratings (at Rated Voltages):

<table>
<thead>
<tr>
<th></th>
<th>35 lb-in. DCA</th>
<th>70 lb-in. DCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running</td>
<td>35 (4)</td>
<td>70 (8)</td>
</tr>
<tr>
<td>Breakaway</td>
<td>35 (4)</td>
<td>70 (8)</td>
</tr>
<tr>
<td>Stall Minimum</td>
<td>45 (5)</td>
<td>70 (8)</td>
</tr>
<tr>
<td>Stall Maximum</td>
<td>70 (8)</td>
<td>130 (14)</td>
</tr>
</tbody>
</table>

Actuator Stroke:
-Selectable: 45°, 60°, and 90°.
- Rotation: Clockwise (CW) and counter clockwise (CCW).

Device Weight:
-1.3 lb (0.58 kg).

Environmental Protection Ratings:
-NEMA1.
-IP54 (ML6161E, ML7161E, ML6174E, ML7174E only).

Actuator Timing for 90° Stroke:

<table>
<thead>
<tr>
<th></th>
<th>At 50 Hz</th>
<th>At 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 Second Models</td>
<td>108 sec</td>
<td>90 sec</td>
</tr>
<tr>
<td>Three-Minute Models</td>
<td>216 sec</td>
<td>180 sec</td>
</tr>
<tr>
<td>Seven-Minute Models</td>
<td>504 sec</td>
<td>420 sec</td>
</tr>
</tbody>
</table>

Mounting:
- Mounts directly on 3/8 in. to 1/2 in. (10 to 13 mm) round or square shaft.
- Minimum Shaft Length Required: 1-3/4 in. (45 mm).
- Actuator can be mounted with shaft in any position.
- Secured Using: Two 1/4 in. (6 mm) 28 NF Allen screws.

Actuator Minimum Design Life:

<table>
<thead>
<tr>
<th></th>
<th>35 lb-in. DCA</th>
<th>70 lb-in. DCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycles</td>
<td>50,000</td>
<td>40,000</td>
</tr>
<tr>
<td>Repositions</td>
<td>1,500,000</td>
<td>1,500,000</td>
</tr>
</tbody>
</table>

Temperature Ratings:
- Ambient: 20°F to 125°F (-18°F to 50°C).
- Derated Timing to: -20°F (-29°C).
- Shipping and Storage: -20° to 130°F (-29° to 54°C).

Humidity Ratings:
- 5% to 95% RH noncondensing.

Noise Output:
- 45 dBA at 1 meter maximum.
35 AND 70 LB-IN NON-SPRING RETURN DIRECT COUPLED ACTUATORS

Models:

<table>
<thead>
<tr>
<th>Ml</th>
<th>Motor Linkage</th>
<th>35 lb-in. (4 Nm), Non-Spring Return</th>
<th>70 lb-in. (8 Nm), Non-Spring Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>Floating Control</td>
<td>4-20 mA/2-10 Vdc Control</td>
<td>Q A Includes output for feedback potentiometer.</td>
</tr>
<tr>
<td>71</td>
<td>20 mA/2-10 Vdc Control</td>
<td>20 mA/2-10 Vdc Control</td>
<td>Q B Standard (includes minimum position set screws)</td>
</tr>
<tr>
<td>61</td>
<td></td>
<td>20 mA/2-10 Vdc Control</td>
<td>Q C Includes output for feedback potentiometer and cover w/ conduit connections.</td>
</tr>
<tr>
<td>74</td>
<td></td>
<td>20 mA/2-10 Vdc Control</td>
<td>Q D Includes cover w/ conduit connections.</td>
</tr>
<tr>
<td>1</td>
<td>Standard</td>
<td>2 Includes declutch function</td>
<td>Q E Standard with European ratings.</td>
</tr>
</tbody>
</table>

Feedback Potentiometer Ratings:
- Electrical Rating (200976A, C Potentiometer): 24 Vac, 50/60 Hz, 2.25W.
- Resistance Output (Resistance Linear as Measured Between Terminals R-B):
  - 0 ohms (at 0°, cw stroke).
  - 250 ohms (at 45°, cw stroke).
  - 333 ohms (at 60°, cw stroke).
  - 500 ohms (at 90°, cw stroke).

Approvals:
- Meets UL94-5V plenum requirements.
- Canadian Standards Association Certified (includes auxiliary switch).

Accessories:
- 200976A Auxiliary Potentiometer (0 to 500 ohm).
- 200976C Auxiliary Potentiometer (0 to 2000 ohm).
- 201052A Auxiliary Switch (one).
- 201052B Auxiliary Switch (two).
- 4074ENJ Bag Assembly—includes stop pin, shaft adapter, and two minimum position screws.
- 4074ENY Bag Assembly—includes stop pin and shaft adapter.
- 4074EVK Short Shaft Extender.
- 7640QW Metal Enclosure—for attaching conduit to actuator.
- T641 Floating Thermostat—for use with seven-minute models.
- T6984 Floating Thermostat—for use with 90-second and seven-minute models.
- T7984 Modulating Thermostat—for use with ML7174.

Dimensions:

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