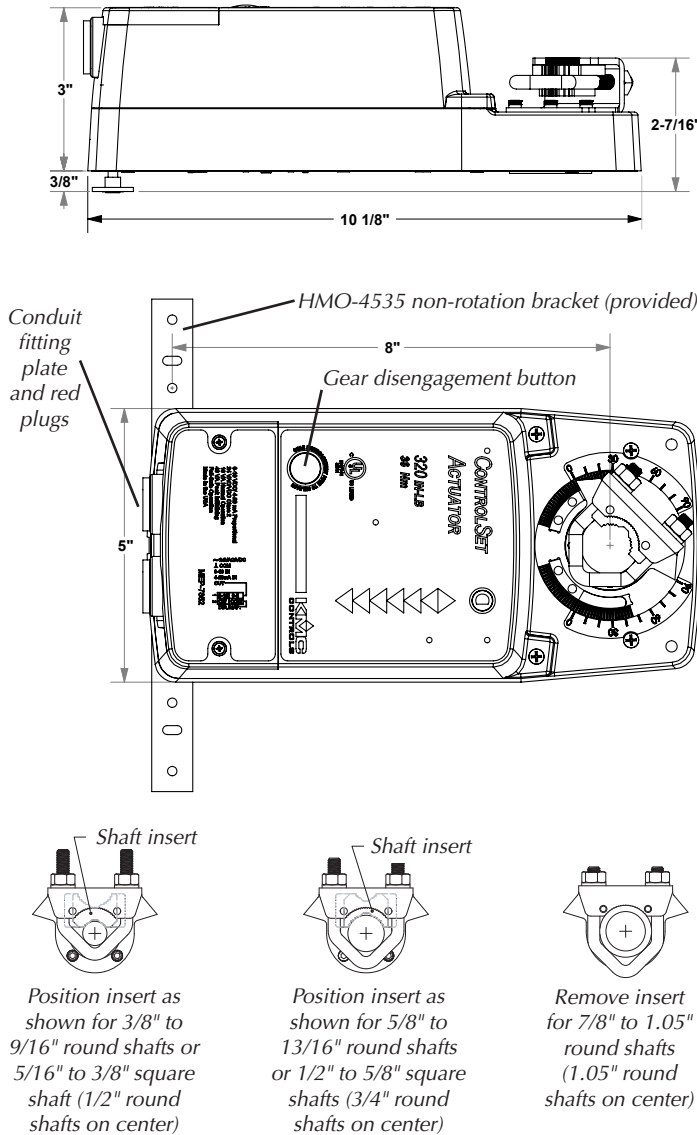


## Installation Guide

### Mounting



1. Ensure that the damper can move freely through its entire range of motion, and fix any binding before installing the actuator. Turn the damper blade to its fully closed position.
2. Press and hold the gear disengagement button (see Illustration 1), rotate the actuator to the fully closed position, and release the button.

**NOTE:** Depending on the damper-seal design, backing the actuator off its stop approximately 5° may provide tight damper shut-off.

3. Depending on the size of the shaft, use the optional shaft insert as is, reverse it, or remove it. Slide the actuator onto the shaft.
4. Leaving a gap between the actuator and mounting surface to prevent any binding, finger-tighten the nuts on the V-bolt.
5. Insert the non-rotation bracket (HMO-4535 supplied) into the slot at the base of the actuator.
6. Secure the non-rotation bracket with two (2) #8 self-tapping screws.

**NOTE:** The two holes at the top of the actuator are **not** for use in direct-coupled applications. They are for remote mounting, such as with the optional HLO-1020 Crank Arm Kit (see Illustration 15 in the Accessories section).

7. Evenly tighten the V-bolt nuts to 110 to 120 in-lbs. while keeping the shaft insert centered and square.
8. Verify the operation of the actuator through its full rotational cycle.

Illustration 1—Overview (Direct-Coupled Mounting)

# Wiring (General)

1. Loosen the screws on the tethered access cover and remove the cover.
2. Slide the conduit fitting plate out.
3. Using a utility knife or drill, cut the red plug to accept wiring or replace the plug with an application-specific fitting.

NOTE: The red plugs (or similar fittings) protect the internal components from debris, helping to ensure long actuator life.

4. Thread wires through the plugged opening and connect to the terminal block according to the appropriate model and options desired. (See Illustrations 2 through 5 and the Models chart.)

NOTE: For your convenience, the wiring terminal block is removable.

NOTE: For **two-position wiring on a fail-safe tri-state actuator** (see Illustration 5), choose one of these (jumpered) rotation options:

1. For **clockwise rotation** when the 24 volt circuit switch/contact is **closed**, jumper the 24 VAC terminal to the CW terminal and select CCW on the Fail switch. When the circuit opens, the actuator rotates fully counterclockwise.
2. For **counterclockwise rotation** when the 24 volt circuit switch/contact is **closed**, jumper the 24 VAC terminal to the CCW terminal and select CW on the Fail switch. When the switch opens, the actuator rotates fully clockwise.



5. Reinstall the terminal block on the pins (if removed) and the conduit fitting plate.
6. Adjust the feedback selector if required (MEP-7xx2 only). See the Feedback Selector section.
7. Complete the auto-mapping range reset if required (MEP-7xx2 only). See the Actuator/Signal Range Reset (Auto-Mapping) section.
8. Adjust the fail-safe (clockwise, counter-clockwise, or off) selector switch, beside the terminal block, as needed (MEP-7x5x only).

NOTE: After initial connection or reconnection to power (until the capacitors are fully charged), fail-safe operation might be delayed up to 20 seconds for the MEP-725x/755x or up to 40 seconds for the MEP-785x.

9. Reinstall the tethered cover and tighten the screws.

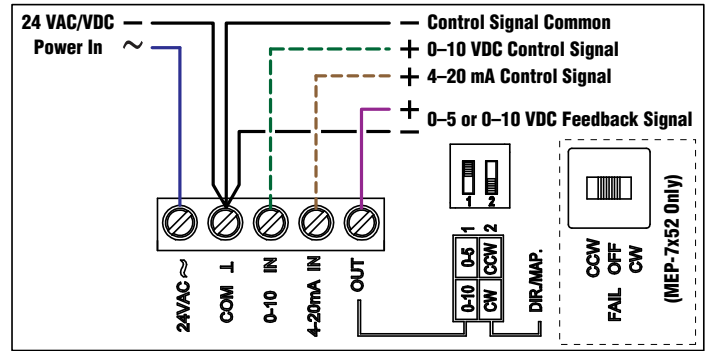


Illustration 2—MEP-7xx2 Wiring (Proportional)

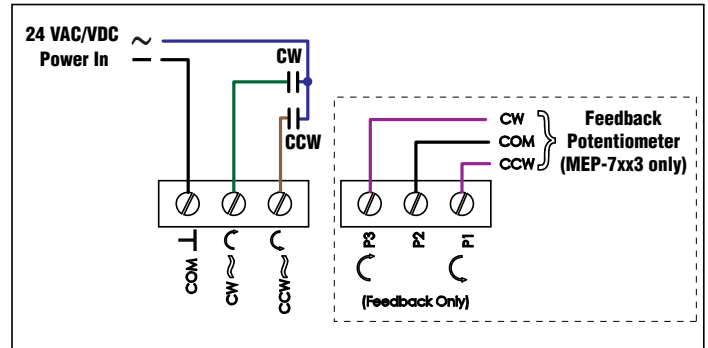


Illustration 3—MEP-7x01/7x03 Wiring (Tri-State, Non-Fail-Safe)

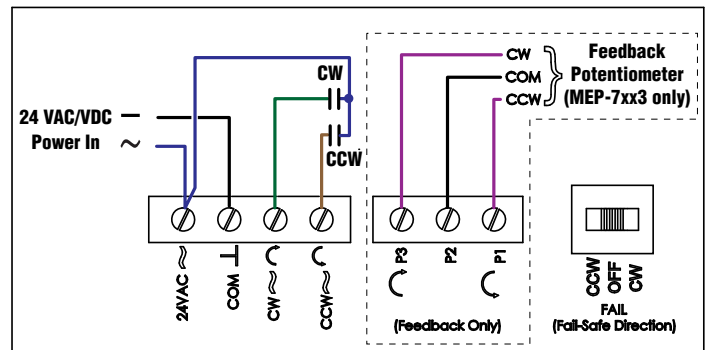


Illustration 4—MEP-7x51/7x53 (Normal) Wiring (Tri-State, Fail-Safe)

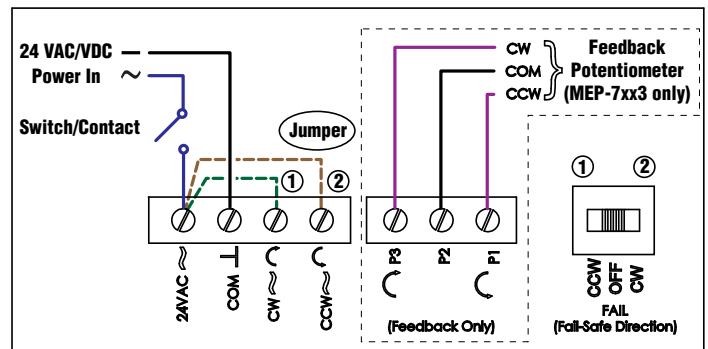


Illustration 5—MEP-7x51/7x53 Two-Position Wiring (Tri-State, Fail-Safe)

# Wiring (Master/Slave)

## All MEP-78xx Master/Slave Combinations

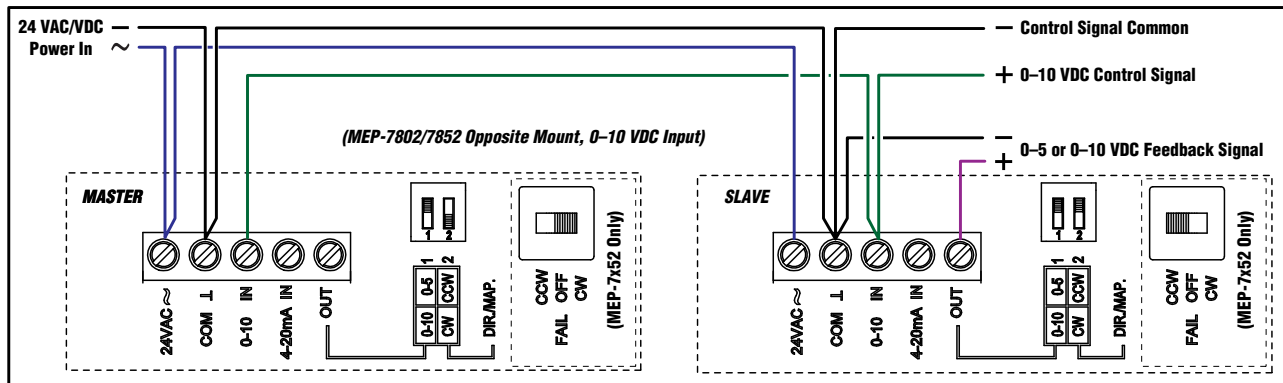
1. Follow the instructions in the Wiring (General) section and also include the following steps.
2. Connect the actuators according to the relevant illustration below.
3. On applicable models, set the Master and the Slave's FAIL switches according to the relevant illustration and chart.
4. Check that the wiring is properly phased ("~" to "~" and "1" to "1"). In tri-state actuators, CW and CWW are connected to like terminals for "stacked-mounted" applications and opposite terminals for "opposite-mounted" applications.
5. On applicable models, set the Master and the Slave's CW/CCW switches according to the relevant illustration and chart.

**NOTE: The 4–20 mA input and auto-mapping options are not available with Master/Slave actuators.**

### ⚠ CAUTION

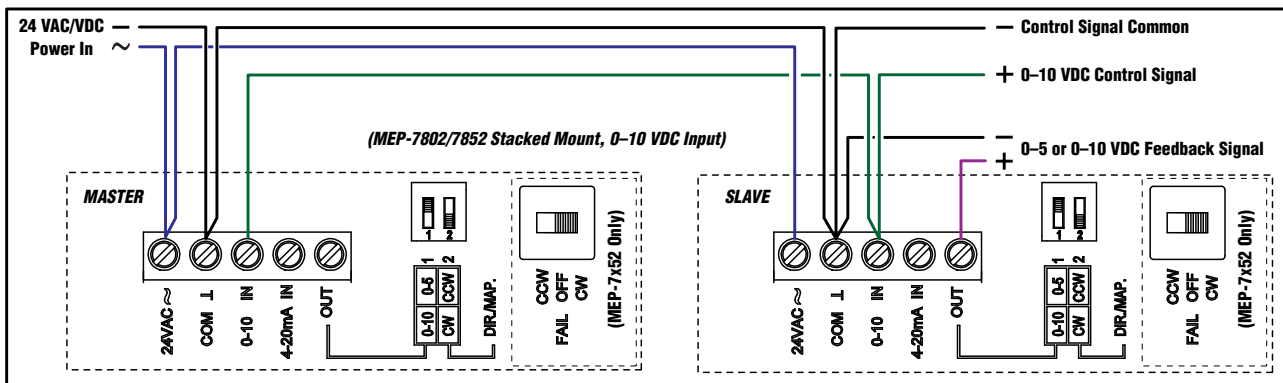
Miswiring or wrong switch positions could result in damage to one or more actuators. Carefully check wiring and switch positions.

## MEP-7802/7852 Proportional Actuators (0–10 VDC Input Only)



CW/CCW Switches	Fail Switches (MEP-7852 only)	Unavailable Options
Opposite Positions	Opposite Positions	4–20 mA input and Auto-Mapping

Illustration 6—MEP-7802/7852 Dual Actuators, 0–10 VDC, **Opposite** Mount (e.g., on KMC's flanged globe valves)



CW/CCW Switches	Fail Switches (MEP-7852 only)	Unavailable Options
Same Positions	Same Positions	4–20 mA input and Auto-Mapping

Illustration 7—MEP-7802/7852 Dual, Triple, or Quad Actuators, 0–10 VDC, **Stacked** Mount (e.g., on KMC's butterfly valves)

## MEP-7801/7803 Tri-State Actuators

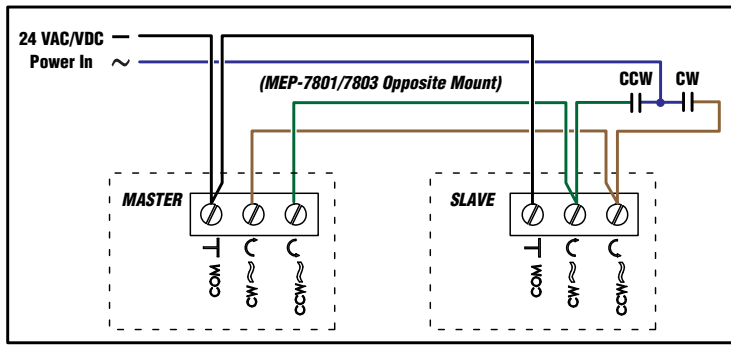


Illustration 10—MEP-7801/7803 Dual Actuators, **Opposite** Mount (e.g., on KMC’s flanged globe valves)

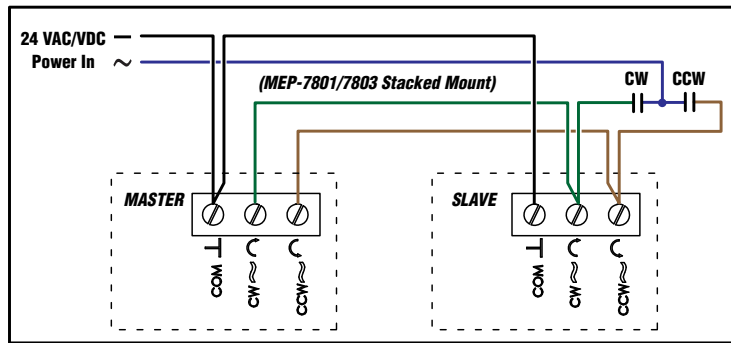
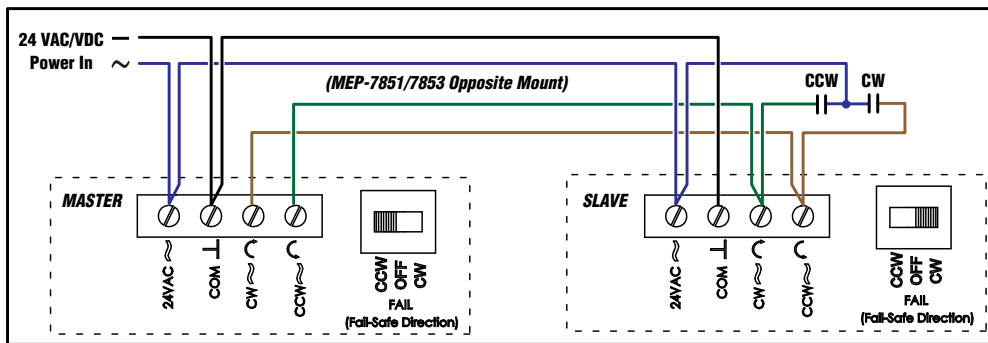


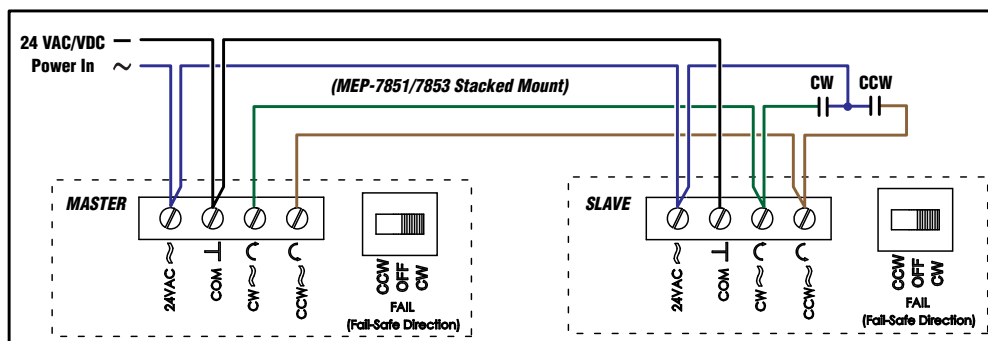
Illustration 11—MEP-7801/7803 Dual or Quad Actuators, **Stacked** Mount (e.g., on KMC’s butterfly valves)

## MEP-7851/7853 Tri-State with Fail-Safe Actuators



Rotation Terminals	Fail Switches
CW to CCW and CCW to CW	Opposite Positions

Illustration 12—7851/7853 Dual Actuators, **Opposite** Mount (e.g., on KMC’s flanged globe valves)



Rotation Terminals	Fail Switches
CW to CW and CCW to CCW	Same Positions

Illustration 13—7851/7853 Dual or Quad Actuators, **Stacked** Mount (e.g., on KMC’s butterfly valves)

## Actuator/Signal Range Reset (Auto-Mapping)

The MEP-7xx2 proportional models also feature a user-initiated reset program (auto-mapping) feature that reassigns the full 0–10 VDC or 4–20 mA input signal scale over a reduced stroke range. (See Illustrations 2 and 6 through 9.)

**NOTE:** Use this feature for ranges less than 95° but more than 45°.

1. If desired, use the HMO-4536 adjustable end stop kit to limit the stroke of the actuator.
2. With power applied to the actuator, flip dip switch #2 (from its required CW or CCW increasing voltage direction) to start the reset mode. (See Illustration 14.) The actuator will first move to the CCW limit. The complete reset process will take approximately four minutes.

**NOTE:** On **fail-safe** models, wait for at least one minute after power has been applied to the actuator (allowing the capacitors to fully charge) before initiating the automap feature.

3. Return dip switch #2 to the required increasing voltage direction before the reset finishes. The reset process is complete after the actuator has moved to the CW limit and has begun to position normally.

## Feedback and Direction Selector

The MEP-7xx2 models offer selectable actuator direction and selectable proportional feedback of 0–5 VDC or 0–10 VDC (in either direction). The selector switches are shipped from the factory in the 0–5 VDC (#1) feedback and CW movement with increasing voltage (#2) positions (see Illustration 14).

**NOTE:** If **CCW with increasing voltage is required, remove power prior to adjusting switch #2!** Removing power prevents the initiation of the auto-mapping feature. See the Actuator/Signal Range Reset (Auto-Mapping) section.

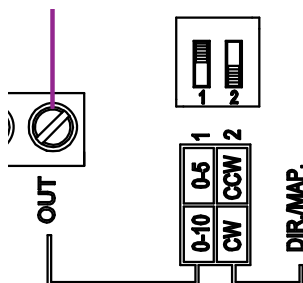


Illustration 14—Feedback Selector Detail MEP-7xx2

4. Verify that the actuator travels completely across the new range.

**NOTE:** Dip Switch #2 has two functions:

1. While the actuator is **unpowered**, the switch **determines the direction to rotate** (CW or CCW) with increasing voltage. The switch is factory set in the CW position. To adjust, remove power prior to changing the switch to the CCW position. Removing power prevents initiation of the auto-mapping feature.
2. While the actuator is powered, the switch **initiates the auto-mapping feature**. This feature is initiated only by cycling the switch with power applied to the unit. The auto-mapping feature will **NOT** begin if the switch position is changed with power removed or in the event of a power failure.

**Example:** The actuator stroke is 80°, and the unit has completed the auto-mapping program. A 5 VDC input signal will now drive the actuator to the 40° position (50% of its adjusted range) and the feedback voltage will be 2.5 VDC if switch #1 is set at the 0–5 VDC position or 5 VDC if switch #1 is set at 0–10 VDC.

**NOTE:** The auto-mapping option is not available with Master/Slave actuators.

## Maintenance

No routine maintenance is required. The motors are permanently lubricated. Careful installation will also ensure long term reliability and performance.

## Models

Model #	Torque			Control		Built-in Options		
	120 in-lbs. min. (13.5 N•m)	180 in-lbs. min. (20 N•m)	320 in-lbs. min. (36 N•m)	Tri-state (Floating)	0–10 VDC or 4–20 mA Proportional	Feedback: 10k ohm Potentiometer	Feedback: 0–5 or 0–10 VDC	Fail Safe (Switch Selectable Direction)
MEP-7x01				•				
7x02					•		•	
7x03	7200 series (x=2)	7500 series (x=5)	7800 series (x=8)	•		•		
7x51				•				•
7x52					•		•	•
7x53				•		•		•

MEP-7200 series (120 in-lbs.) replaces MEP-1200 series (100 in-lbs.)  
 MEP-7500 series (180 in-lbs.) replaces MEP-7000 series (150 in-lbs.)  
 MEP-7800 series (320 in-lbs.) replaces MEP-7700 series (300 in-lbs.)



## Accessories

CME-7001	Rotary auxiliary cam switch, single
CME-7002	Rotary auxiliary cam switch, double
HCO-1152	Weather shield kit
HLO-1020	Crank arm kit (see Illustration 135)
HMO-4535	Replacement non-rotation bracket
HMO-4536	Adjustable end stop kit

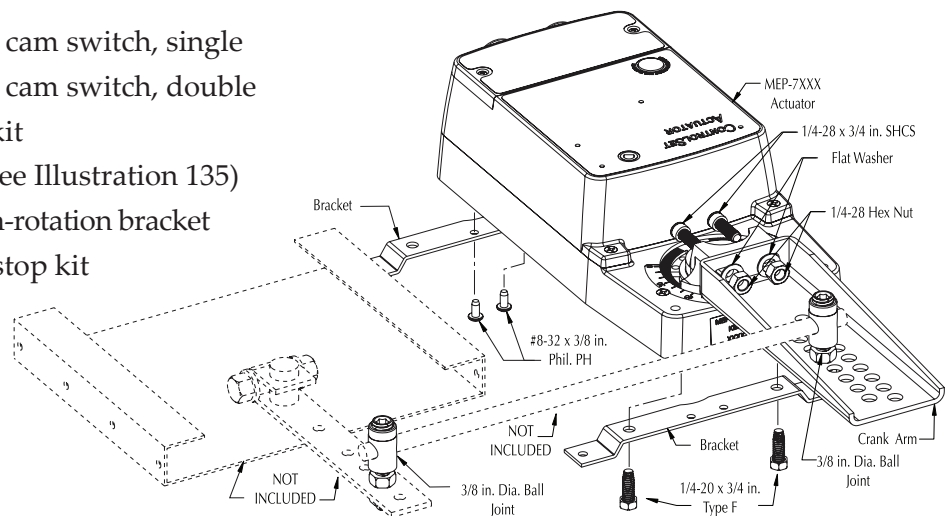


Illustration 15—Optional HLO-1020 Kit (Remote Mounting)

## Specifications

<b>Supply Voltage</b>	24 VAC (+20%/–15%) Class 2, or 22–35 VDC	<b>Torque</b>	MEP-72xx 120 in.-lbs. (13.5 N•m)
<b>Supply Power</b>			MEP-75xx 180 in.-lbs. (20 N•m)
MEP-720x/750x	6 VA		MEP-78xx 320 in.-lbs. (36 N•m)
MEP-725x/755x	8 VA normal (25 VA peak while initializing)	<b>Mounting</b>	Direct mounting on 3/8" to 1.05" round or 5/16" to 5/8" square shaft by adjustable "V" bolt and non-rotational bracket HMO-4535 (supplied); minimum recommended damper shaft length is 2.5"
MEP-780x	8 VA	<b>Dimensions</b>	10-1/8 x 5 x 3 inches (257 x 127 x 76 mm)
MEP-785x	10 VA normal (40 VA peak while initializing)	<b>Weight</b>	MEP-7x0x: 5 lb. (2.3 kg); MEP-7x5x: 5.4 lb. (2.5 kg)
<b>Control Input</b>		<b>Enclosure</b>	Flame retardant plastic
Tri-state	(See Supply Voltage)	<b>Noise Level</b>	< 45 dbA max. at 1 meter
Proportional	0–10 VDC or 4–20 mA	<b>Approvals</b>	UL 873 Temperature Indicating and Regulating Equipment FCC Class B, Part 15, Subpart B
<b>Feedback</b>		<b>Environmental Limits</b>	
Tri-state	10K ohm (+/– 10%) pot. (on MEP-7xx3 models)	Operating	–22 to 131° F (–30 to 55° C)
Proportional	0–5 VDC or 0–10 VDC (switch selectable)	Shipping	–40 to 176°F (–40 to 80° C)
<b>Angular Rotation</b>	94°; fully adjustable with HMO-4536 stop kit	Humidity	5 to 95% RH (non-condensing)
<b>Motor Timing</b>	(Powered)		
MEP-72xx	75–90 seconds, load dependent		
MEP-75xx/78xx	90–115 sec., load dependent		
<b>Fail-Safe Timing</b>	(Switch-selectable clockwise, counter-clockwise, or off; up to 40 second delay while charging capacitor after initial connection to power)		
MEP-725x	65–100 sec., load dependent		
MEP-755x/785x	80–115 sec., load dependent		
<b>Connections</b>	Wire clamp type; 14–22 AWG, copper		

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