

### Description and Application

These compact but powerful direct-coupled actuators provide tri-state or proportional control for small dampers or valves in HVAC systems. A minimum torque of 40 (MEP-40xx) or 80 (MEP-48xx) in-lbs. is available over the 95° angular rotation.

MEP-4002/4022/4802/4822 **proportional** models accept a 0–10 volts DC control signal input from a thermostat, controller, or building automation system. “**Anti-jitter**” circuitry significantly reduces hunting and needless wear on the actuator and valve packing or damper components (from unnecessary miniscule position changes caused by undamped analog input signals). A user-initiated, **auto-mapping feature** provides more precise equipment control by reassigning the 0–10 volts DC input signal range over a reduced rotation range (from 45° to 95°). These models also feature a switch-selectable, 0–5 or 0–10 volts DC **voltage feedback output** that is proportional to the actuator position.

MEP-4001/4003/4013/4021/4801/4813/4821 **tri-state** models are designed for use with **floating** thermostats, controllers, or building automation systems. The MEP-4013/4813 models feature a 10K ohm ( $\pm 10\%$ ), three-wire **potentiometer feedback output**. (Functionally like the MEP-4001, **the MEP-4003 does not have the larger green top enclosure.**)

MEP-4021/4022/4821/4822 models also have a fully adjustable, built-in SPDT **auxiliary switch**, for remote position indication or controller and equipment interface.

MEP-4002V/4003V actuators have brackets with a patent-pending, **quick-mounting** mechanism that mounts directly on VFB-43...BC and VFB-46...BC series valve bodies (or VFB-43...BX and VFB-46...BX series with HPO-5074 kit). (See the “V” Models Valve Cross-Reference section for more information.)

All other actuators mount directly to 1/4- to 5/8-inch (6 to 16 mm) round shafts or 1/4- to 7/16-inch (6 to 11 mm) square shafts, eliminating the need for expensive and complicated linkages. A non-rotation bracket, to prevent lateral movement, is included with each actuator. A gear disengagement button allows manual positioning of the actuator.



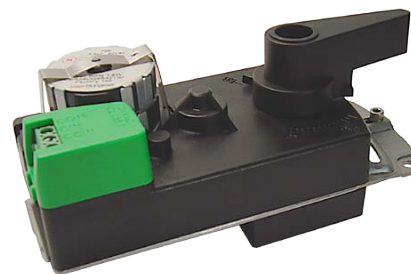
MEP-4002



Still... Made in the U.S.A.



MEP-4003 (Only)



MEP-4003V with Quick Mount



(Size Shown Relative to a Quarter)

### Features

- ◆ Proportional models include “anti-jitter” circuitry and optional auto-mapping of the full input signal range over a reduced actuator stroke
- ◆ Switch-selectable feedback on selected models
- ◆ Fully adjustable, built-in auxiliary switch on selected models
- ◆ Removable terminals and removable 1/2-inch NPS conduit fitting (except the MEP-4003)
- ◆ Direct mounting to standard shaft sizes
- ◆ Gear disengagement button and adjustable mechanical end stop
- ◆ Valve body quick-mount option on MEP-4002V/4003V

## Models

| Model Number | Torque                       |                            | Control                 |                             | Built-in Options                   |                              |  |
|--------------|------------------------------|----------------------------|-------------------------|-----------------------------|------------------------------------|------------------------------|--|
|              | 40 in-lbs. min.<br>(4.5 N•m) | 80 in-lbs. min.<br>(9 N•m) | Tri-state<br>(Floating) | 0 to 10 VDC<br>Proportional | Feedback: 10k ohm<br>Potentiometer | Feedback: 0–5 or<br>0–10 VDC | Auxiliary Switch<br>(Adjustable, SPDT) |
| 4001         | X                            |                            | X                       |                             |                                    |                              |  |
| 4002(V)*     | X                            |                            |                         | X                           |                                    | X                            |  |
| 4003(V)**    | X                            |                            | X                       |                             |                                    |                              |  |
| 4013         | X                            |                            | X                       |                             | X                                  |                              |  |
| 4021         | X                            |                            | X                       |                             |                                    |                              | X                                      |
| 4022         | X                            |                            |                         | X                           |                                    | X                            | X                                      |
| 4801         |                              | X                          | X                       |                             |                                    |                              |  |
| 4802         |                              | X                          |                         | X                           |                                    | X                            |  |
| 4813         |                              | X                          | X                       |                             | X                                  |                              |  |
| 4821         |                              | X                          | X                       |                             |                                    |                              | X                                      |
| 4822         |                              | X                          |                         | X                           |                                    | X                            | X                                      |

\*MEP-4002V and MEP-4003V have the quick-mount option.  
\*\*Functionally like the MEP-4001, the MEP-4003 and MEP-4003V do not have the larger green top enclosure.

## Accessories

### Miscellaneous

|          |                    |
|----------|--------------------|
| HLO-4001 | Crank arm kit      |
| HCO-1151 | Weather shield kit |

### Non-rotation Brackets

|          |   |
|----------|---|
| HMO-4001 | Non-rotation “T” bracket                                  |
| HMO-4002 | Replacement non-rotation bracket (included with actuator) |

### VEB-4x Series Valves Mounting/Repair Kits\*

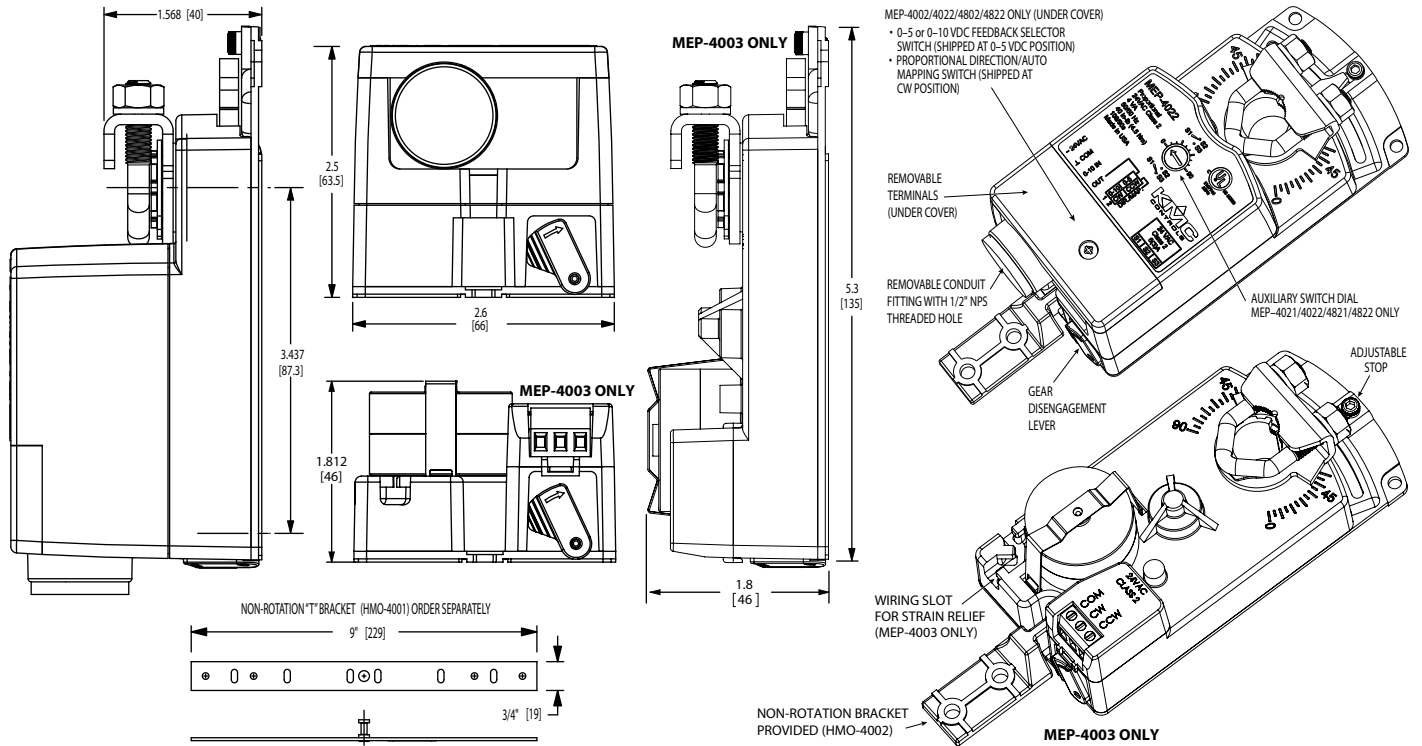
|          |  |
|----------|--|
| HPO-5074 | Ball valve to actuator quick mount kit for MEP-400xV actuators (only)    |
| HPO-5072 | Ball valve to actuator repair kit for standard MEP-4000 series actuators |

\*NOTE: See the “V” Models Valve Cross-Reference section for more information.

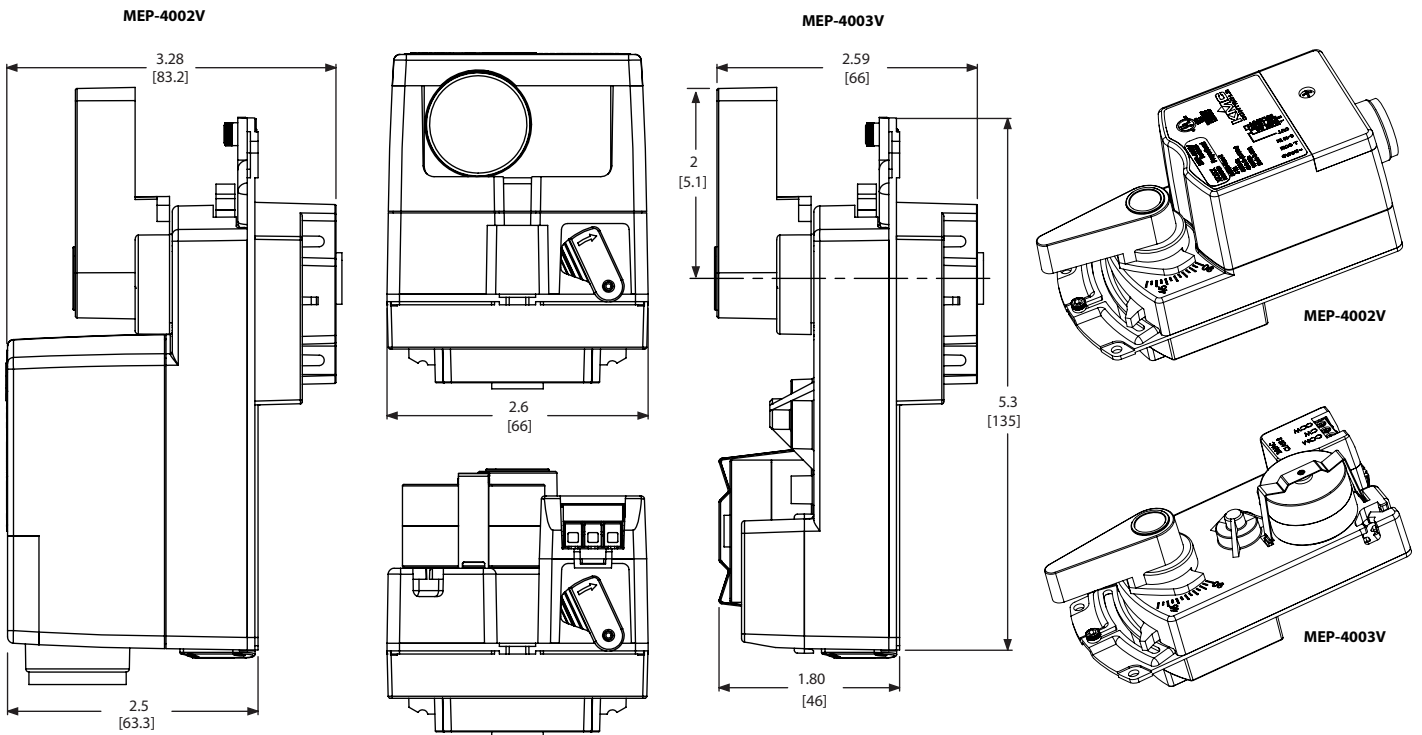
## Specifications

|                             |  |
|-----------------------------|--|
| <b>Supply Voltage</b>       | 24 VAC, +20%/–15%, Class 2   |
| <b>Supply Power</b>         | Tri-state, 2 VA;<br>Proportional, 4 VA   |
| <b>Control Signal</b>       | Tri-state, 24 VAC;<br>Proportional, 0 to 10 VDC  |
| <b>Frequency</b>            | 50/60 Hz   |
| <b>Feedback Output</b>      | Tri-state 10K ohm ±10% (on select models)<br>Proportional 0 to 5 VDC or 0 to 10 VDC (switch selectable)  |
| <b>Auxiliary Switch</b>     | Adjustable 0 to 95°, SPDT 6 A resistive load (3 A motor load) @ 24 VAC (on select models)  |
| <b>Angular Rotation</b>     | 0 to 95°, fully adjustable with mechanical stop  |
| <b>Motor Timing</b>         | 90 seconds for 90° @ 60 Hz;<br>108 seconds for 90° @ 50 Hz   |
| <b>Torque</b>               | (MEP-40xx) 40 in-lbs. (4.5 N•m);<br>(MEP-48xx) 80 in-lbs. (9 N•m)  |
| <b>Mounting</b>             | Direct to 1/4 to 5/8 inches (6–16 mm) round or 1/4 to 7/16 inches (6–11 mm) square shaft by adjustable “V” bolt and non-rotational bracket HMO-4002 (supplied); minimum recommended damper shaft length is 1-5/8 inches; for mounting to valves, see the Accessories section |
| <b>Connections</b>          | Wire clamp type; 14 to 22 AWG, copper  |
| <b>Dimensions</b>           | MEP-4003 5.3 x 2.6 x 1.8 inches (135 x 66 x 46 mm)<br>MEP-4003V 5.3 (w/o handle extended) x 2.6 x 2.59 inches (135 x 66 x 66 mm)<br>MEP-4002V 5.3 (w/o handle extended) x 2.6 x 3.28 inches (135 x 66 x 83.2 mm)<br>All others 5.3 x 2.6 x 2.5 inches (135 x 66 x 63.5 mm)   |
| <b>Weight</b>               | 1.1 lb. (0.50 kg)  |
| <b>Enclosure</b>            | Flame-retardant plastic  |
| <b>Noise Level</b>          | < 35 dBA max. at 1 meter   |
| <b>Approvals</b>            | UL 873 Temperature Indicating and Regulating Equipment;<br>FCC Class B, Part 15, Subpart B;<br>Complies with Canadian ICES-003   |
| <b>Environmental Limits</b> | Operating –22 to 131° F (–30 to 55° C)<br>Shipping –40 to 176° F (–40 to 80° C)<br>Humidity 5 to 95% RH (non-condensing)   |

All dimensions are in inches (mm)



(Standard) MEP-4xxx and MEP-4003



MEP-4002V and MEP-4003V with Quick Mount

## "V" Models Valve Cross-Reference

MEP-4002V/4003V actuators have brackets with a patent-pending, **quick-mounting** mechanism that mounts directly on VFB-43...BC and VFB-46...BC series valve bodies (or VFB-43...BX and VFB-46...BX series with the HPO-5074 kit).

NOTE: These "V" actuators were installed in VEB-43...CF, VEB-43...CK, VEB-46...CF, and VEB-46...CK valves starting in mid-June 2011 (date codes 11166 and later). Replacement actuators for valves before this date code would be MEP-4002/4003.

See the HPO-5074 installation guide and the VEB-43 and VEB-46 series data sheets for additional information.

With the HPO-5074 kit, MEP-4002V/4003V actuators can be mounted on the following KMC and other valve bodies:

MEP-4002V Actuator Installed on VEB-43 Series Valve Body with HPO-5074 Quick-Mount Adapter Kit



Valve Model and Date Code Label (below actuator on models without "V" actuators or on the side of the valve on models with "V" Actuators)

| Typical Application   | 3-Way H/C Water            | 2-Way H/C Water            | 2-Way PIC-V H/C Water | 2-Way Steam (to 30 psi) |
|---|----------------------------|----------------------------|-----------------------|-------------------------|
| KMC Valve Body  | VFB-46__BX,<br>VFB-46__BC* | VFB-43__BX,<br>VFB-43__BC* | N/A                   | VFB-4303_SX             |
| KMC Valve   | VEB-46__B__                | VEB-43__B__                |                       | VEB-4303_SDL            |
| Valve Solutions (VSI)   | UR3 Series                 | UR2 Series                 | SPV Series            | 75 Series               |
| Griswold  | UR3 Series                 | UR2 Series                 | SPV Series            | N/A                     |
| Delta Control Products  | ST Series                  | ST Series                  | ATI Series            |                         |
| Honeywell   | VBN3 Series                | VBN2 Series                | N/A                   |                         |
| Siemens   | 599 Series                 | 599 Series                 |                       |                         |
| *VFB-4__BC valve bodies come with the HPO-5074 already installed. |                            |                            |                       |                         |

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