Installation and Operation Guide

Mounting

⚠ CAUTION

If mounting the actuator to a valve already in-line, close the shut-off valves in the piping (upstream first, then downstream) or switch off the pump to allow the differential pressure in the valve to drop.

⚠ CAUTION

To prevent condensation from dripping onto the actuator housing, mount the valve with the actuator in the upright position or, at most, at a 45° angle.

1a. On a new valve body, remove the protective cap covering the bonnet. (See Illustration 2.)

1b. To remove an existing (same model) actuator, disconnect the wiring, wait at least six minutes until the actuator has completely cooled, turn the actuator bayonet ring (coupling piece) counterclockwise until it is loose, and pull off the actuator. Also unscrew the old black bayonet nut if it stays on.

2a. If the new black bayonet nut is loose from the new actuator, screw it on top of the valve body and firmly hand-tighten (only). (See Illustration 3.) Then place the actuator over it and turn the actuator bayonet ring clockwise until it is hand-tight and locks into place.

2b. If the new black bayonet nut is firmly attached inside the actuator, screw the entire actuator on top of the valve body until it is hand-tight and locks into place.
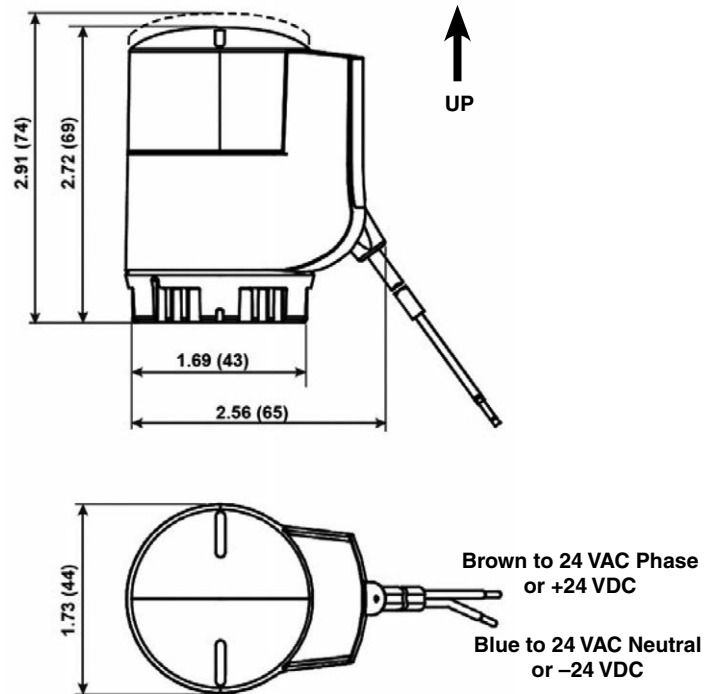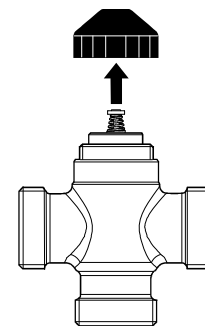
Wiring

Connect the brown wire to the phase side of 24 VAC (or +24 VDC) and the blue wire to neutral (or –24 VDC). (See Illustration 1.)

For **two-position control**, a simple switch or relay can be used. For **time-proportional (pulse-width modulation) control**, use a KMC REE-5017 or REE-4106/5106 relay module. (See the relevant relay module documentation for more information.)

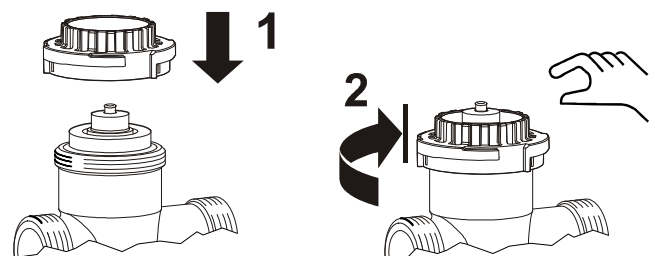NOTE: All wiring must conform to NEC and local codes and regulations.

Illustration 1—Dimensions and Wiring

Illustration 2—Removing a Protective Cap

Illustration 3—Installing the Black Bayonet Nut

Operation

After the mechanical and electrical installations have been completed, cycle the actuator to verify operation. (See Illustrations 4 and 5.)

When power is applied to the actuator, the temperature of the heating element rises, causing the solid expansion medium to expand and stroke the attached valve body. The valve starts to open after preheating for approximately 1 minute if the heating element is switched on in a cold (room temperature) state, and achieves the maximum stroke after (approximately) another 3-1/2 minutes. At power-off, the expansion element cools down, and the spring closes the valve.
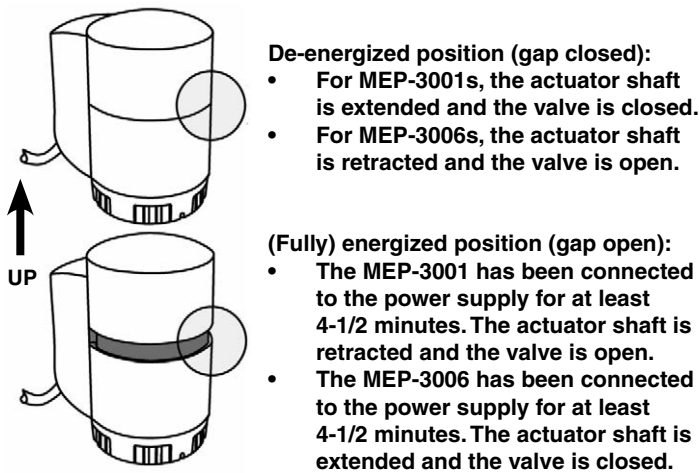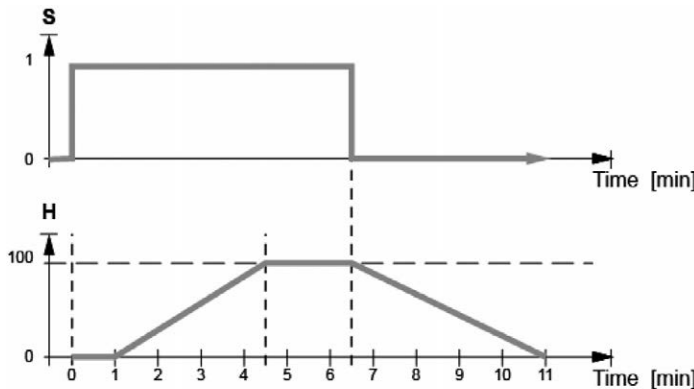

De-energized position (gap closed):
- **For MEP-3001s, the actuator shaft is extended and the valve is closed.**
- **For MEP-3006s, the actuator shaft is retracted and the valve is open.**

(Fully) energized position (gap open):
- **The MEP-3001 has been connected to the power supply for at least 4-1/2 minutes. The actuator shaft is retracted and the valve is open.**
- **The MEP-3006 has been connected to the power supply for at least 4-1/2 minutes. The actuator shaft is extended and the valve is closed.**

Illustration 4—Position Indication

S = Control Signal
H = Stroke in Percent
Values at 68° F (20° C) Ambient Temperature
Positioning time depends on voltage and ambient temperature

Illustration 5—Opening and Closing Times

Maintenance

These actuators are noise-free and maintenance-free. Careful installation will help ensure long-term reliability and performance.

Select Specifications

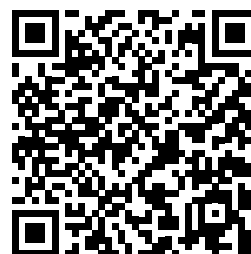|	
Power	24 VDC (±20%) or 24 VAC (±20%, 50/60 Hz), Class 2 only, 6 VA max.
Control	Two-position or time-proportional
Primary Fuse	Must supply externally
Nominal Force	22.5 in-lb. (100 N•m)
Stroke Maximum	0.18 inches (4.5 mm)
Positioning Time	270 sec. @ 68° F (20° C)
Weight	0.4 lb. (0.18 kg)
Mounting Location	NEMA 3 (IP54), interior only
Approvals	Conforms to CE requirements
De-energized Position	
MEP-3001 (NC)	Actuator shaft extended, valve closed (for VEP-12/22/34 series)
MEP-3006 (NO)	Actuator shaft retracted, valve open (for VEP-11/21/37 series)
Temperature Limits	
Medium	34 to 230° F (1 to 110° C)
Ambient	41 to 122° F (5 to 50° C) @ 0 to 85% RH (non-condensing)
Shipping	–4 to 140° F (–20 to 60° C) @ 0 to 95% RH (non-condensing)

More Information

For more information on applications, see the REE-5017 on the KMC web site.

See also, the REE-5106.