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MOUNTING

Remove Conduit Fitting to Access Switches

- 0/1-5 or 0/2-10VDC Feedback Selector Switch. Shipped at 0/1-5VDC Position.
- Direction/Auto-mapping Switch. Shipped at CW Position.
- 0-10 or 2-10VDC Input Voltage Range Selector Switch. Shipped at 2-10VDC Position.

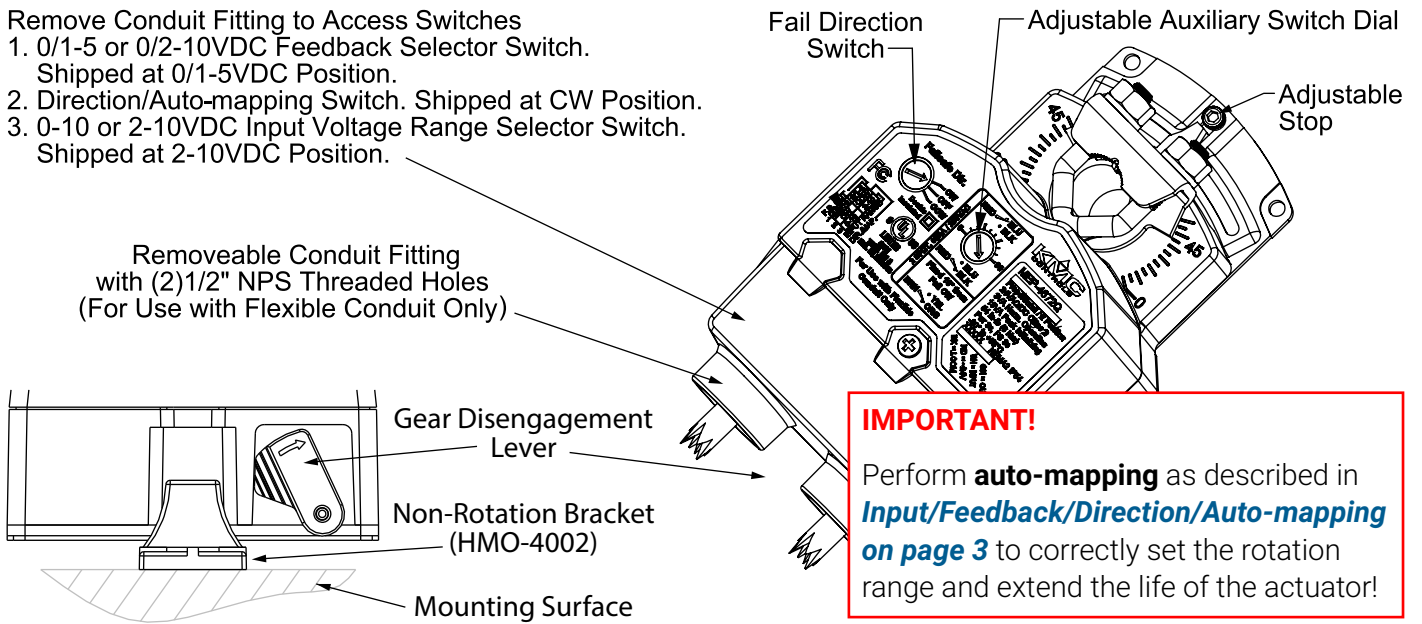


Illustration 1—Overview (Direct-Coupled Mounting)

IMPORTANT!
 Perform **auto-mapping** as described in **Input/Feedback/Direction/Auto-mapping on page 3** to correctly set the rotation range and extend the life of the actuator!

NOTE: Ensure the damper can move freely through its entire range of motion, and fix any binding before installing the actuator.

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

- Turn the damper blade to its fully closed position.
- Press (to the right) and hold the gear disengagement lever (see Illustration 1), rotate the actuator to the fully closed position, and release the lever.
- Align the actuator and slide it onto the shaft.
- Leaving a gap between the actuator and mounting surface to prevent any binding, finger-tighten the nuts on the V-bolt.

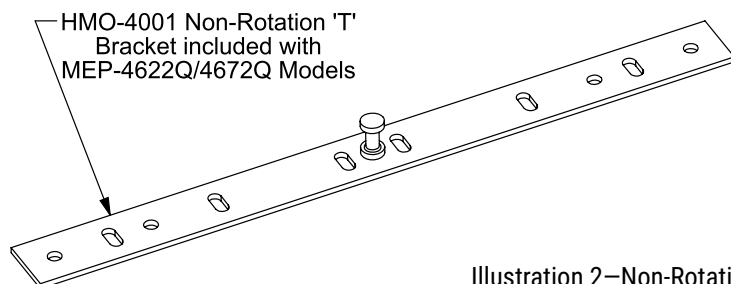


Illustration 2—Non-Rotation Brackets

5. Insert the provided (HMO-4001/4002, dependent on model) non-rotation bracket (see Illustrations 1 and 2) into the slot at the base of the actuator and secure the non-rotation bracket with two #8 or #10 self-tapping screws.

NOTE: Remove the conduit fitting if necessary.

6. Evenly tighten the V-bolt nuts to 60–70 in-lb.
7. If desired, loosen and position the end-stop screw using a 7/64-inch hex key wrench.

NOTE: The two holes at the top corners of the actuator are **NOT** for use in direct-coupled applications. (They are for **remote** mounting, such as with the optional HLO-4001 Crank Arm Kit.)

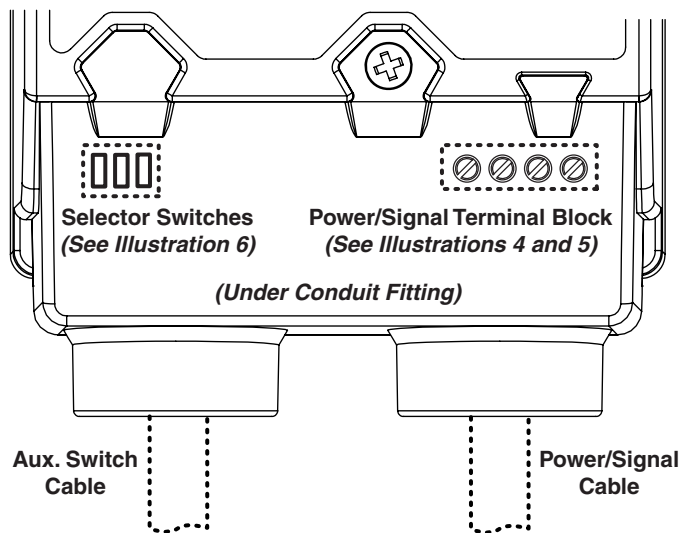


Illustration 3—Cables and Terminal Block Options

WIRING

⚠ CAUTION	⚠ ATTENTION
<p>Risk of electrical shock. Disconnect ALL power before servicing. More than one disconnect provided on models with auxiliary switches. Failure to follow electrical safety precautions with live electrical components could result in injury or death.</p> <p>If both conduit connections are used, they MUST be externally connected during installation. The nonmetallic enclosure does not provide grounding connection between the two conduit connections.</p>	<p>Risque de choc électrique. Débranchez l'alimentation avant l'entretien. Plus d'un sectionneur fourni sur les modèles avec contacts auxiliaires. L'observation des consignes de sécurité électrique avec des composants électriques sous tension peut entraîner des blessures ou la mort.</p> <p>Si les deux entrées de câble sont utilisés, ils doivent être connectés en externe lors de l'installation. Le boîtier non-métallique n'assure pas la connexion à la terre entre les deux connexions.</p>

Depending on the model, signal/power wiring might be to terminals under the conduit fitting **or** to color-coded wires in the attached cable. See Illustration 3. Consult the model label and the appropriate wiring shown in Illustrations 4 through 5.

For auxiliary switch wiring and setting, see [Auxiliary Switches on page 4](#).

For models **without** the attached signal/power cable:

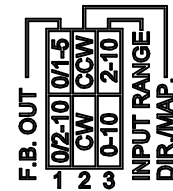
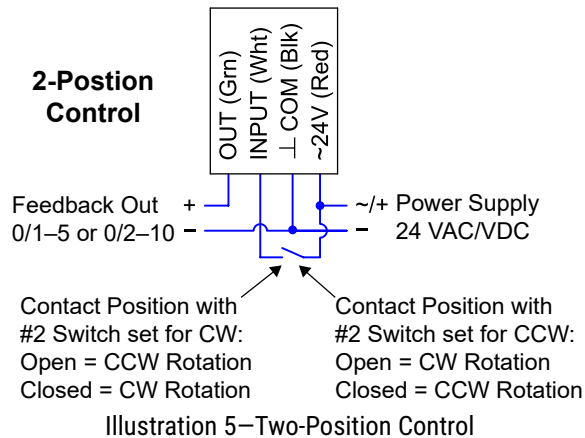
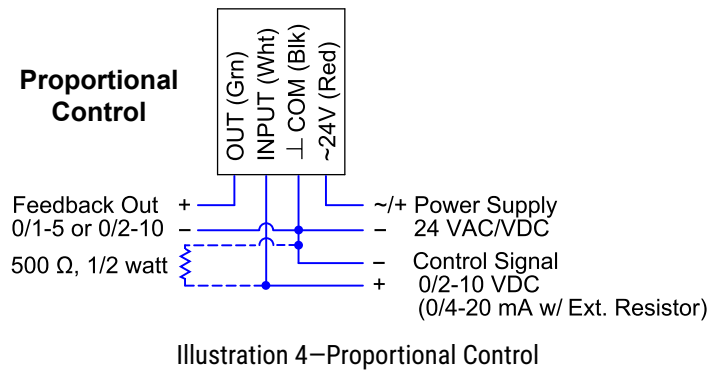
1. Loosen the screw on the conduit fitting and lift up to remove the fitting.
2. Using a utility knife or drill, cut the hole plug to accept wiring or replace the plug with an application-specific fitting.

NOTE: The hole plugs (or similar fittings) protect internal components from debris. To guarantee IP54 rating, install an **HMO-4521** cord grip (all models) or an **HPO-4051** cable kit (MEP-4602Q/4652Q models).

3. Thread wires through the plugged opening and connect to the terminal block according to the relevant model and application.
- NOTE:** Properly terminate any unused wires.
4. Adjust the input voltage range, feedback voltage, and direction if needed. See [Input/Feedback/Direction/Auto-mapping on page 3](#).
5. **Perform the auto-mapping routine!** See [Direction and Auto-mapping on page 3](#).

NOTE: Performing auto-mapping provides the correct rotation range and substantially extends the life of your actuator!

6. Reinstall the conduit fitting and tighten the screw.



Switch	Feedback	Direction	Input
Up	0/1-5 VDC	CCW	2-10 VDC
Down	0/2-10 VDC	CW	0-10 VDC

Illustration 6—Feedback/Direction/Input/Auto-mapping Selectors

Direction and Auto-mapping

The **Direction switch** has two functions:

- ◆ It determines the **direction to rotate** (CW or CCW) with increasing voltage (for proportional mode) or with contact closed (for two-position mode). It is factory-set in the **CW** position (down). **To change direction, remove power** to the actuator **before** flipping the switch. Removing power prevents initiation of the auto-mapping feature.
- ◆ It initiates the **auto-mapping** feature. (See description below.) 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.

NOTE: The **actuator/signal range reset program (auto-mapping)** reassigns the full 0/2-10 VDC input signal scale over a reduced stroke range for “soft stall” **protection from hard stalling** against a mechanical stop (substantially extending the life of the actuator) and for **more precise control** over the stroke range.

NOTE: The auto-mapping feature works best for ranges that are more than about 45°.

To set the auto-mapping:

1. With a 7/64-inch hex key wrench, loosen, reposition, and tighten the end-stop screw if necessary.
2. Apply power (but no signal) to the actuator.
3. After the actuator has reached its home position (fully CCW for CW rotation or fully CW for CCW

INPUT/FEEDBACK/DIRECTION/AUTO-MAPPING

Actuators are shipped with factory settings of **2-10 VDC input, 1-5 VDC feedback** voltage, **CW** movement with **increasing voltage** for proportional mode, **CW** movement with **contact closed** for two-position mode, and a **60° rotation range** (15° from each side).

To change any settings, access the selector switches (see Illustrations 1, 3, and 6) by loosening the screw on the conduit fitting and lifting up to remove the fitting.

Input and Feedback Range

1. Select either 0-10 or 2-10 for the VDC input range with the **Control Signal Input Range** switch.

NOTE: This also sets the starting point for the feedback voltage range (e.g., **2-10 VDC** input provides a corresponding feedback voltage of either **2-10** or **1-5 VDC**).

2. Select the desired feedback range with the **Feedback Output Range** switch.

rotation), momentarily flip the **Direction** switch (from its required CW or CCW position) to start the auto-mapping reset mode.

NOTE: The actuator will move from its zero-signal limit to its maximum-signal rotation limit and back again. For example, with the default CW rotation setting, it will move fully CW and then fully CCW according to its mechanical limits.

NOTE: The complete reset process will take approximately 15 seconds. The **Direction** switch must be returned to the required rotation position **BEFORE the (15-second) reset finishes.**

NOTE: The reset process is complete after the actuator has moved back to its zero-signal limit.

4. Verify that the actuator changes position normally with a signal and travels completely across the new range.

For example, after completing the auto-mapping program, the **new actuator stroke is 0–80°**:

- ◆ **With a 0–10 VDC** input, a **5 VDC** input signal (halfway between **0–10 VDC**) will drive the actuator to the 40° position (50% of its adjusted range) and the feedback voltage will be **2.5 VDC** if the Feedback switch is set at the **0–5 VDC** position or **5 VDC** if the Feedback switch is set at **0–10 VDC**.
- ◆ **With a 2–10 VDC** input, a **6 VDC** input signal (halfway between **2–10 VDC**) will drive the actuator to the 40° position (50% of its adjusted range) and the feedback voltage will be **3 VDC** if the Feedback switch is set at the **1–5 VDC** position or **6 VDC** if the Feedback switch is set at **2–10 VDC**.

NOTE: After auto-mapping, the feedback range will be equally affected.

NOTE: Performing auto-mapping provides the correct rotation range and substantially extends the life of your actuator!

FAIL-SAFE DIRECTION

Fail-safe models offer selectable fail-safe direction and the option to turn the fail-safe off (see Illustration 7). Using a small, flat-bade screwdriver, adjust the switch dial to the desired clockwise or counterclockwise direction.

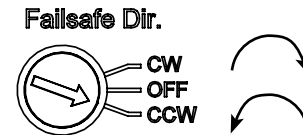


Illustration 7—Fail-Safe Direction Switch Dial

NOTE: After initial connection or reconnection to power, proper fail-safe operation might be delayed up to 30 seconds.

AUXILIARY SWITCHES

In MEP-4622Q/MEP-4672Q models, the adjustable auxiliary SPDT switch can be set to trip anywhere between 0° (full CW rotation position) and 90° (full CCW). To **adjust the auxiliary switch position**:

1. While pressing the **gear disengagement lever** (see Illustration 1), rotate the **actuator** to the **point where the auxiliary switch should trip**.
2. Using a small, flat-bade screwdriver, adjust the **rotary dial to “0”** (see Illustration 8).

NOTE: As the actuator rotates, the switch dial arrow will point to the current switch position (Red connected to Blue vs. Red connected to Black). For example, if the switch is set to trip (dial at “0”) when the actuator rotation position is at 45°, then Red is connected to Black from 0° to 45°, and Red is connected to Blue from 45° to 90°.

NOTE: A second switch is fixed at 10° from full CW direction (Brown is connected to Orange in the 0–10° range, and Brown is connected to Yellow 11–90°).

3. Wire the desired auxiliary device(s) to the cable according to the color-coded chart.

NOTE: The SPDT switch is rated for 6 A with resistive load or 3 A with motor load @ 250 VAC.

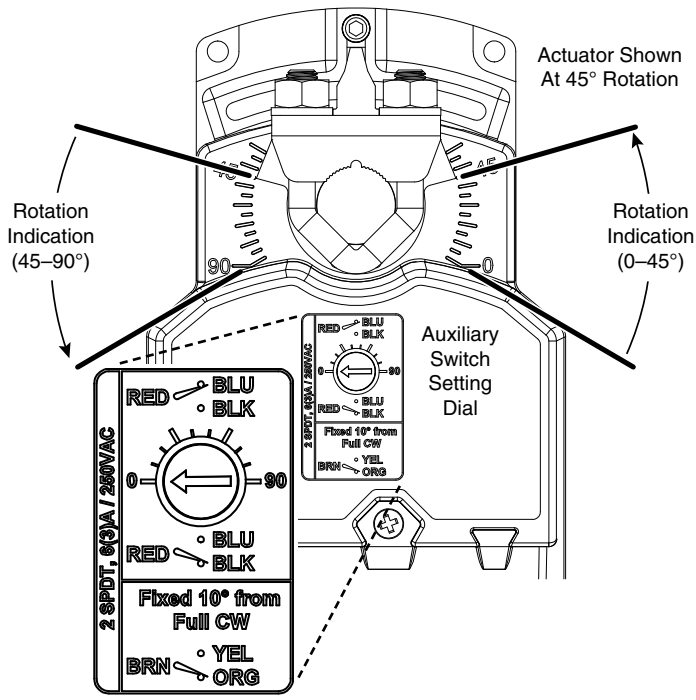


Illustration 8—Actuator Rotation and Auxiliary Switches

AUXILIARY SWITCH CABLE (MEP-4622Q/4672Q)*	
Wire Color	Function
Red	Adjustable Auxiliary Switch, Common
Black	Adjustable Auxiliary Switch Closed Below Trip Position
Blue	Adjustable Auxiliary Switch Closed Above Trip Position
Brown	Fixed Auxiliary Switch, Common
Orange	Fixed Auxiliary Switch, Closed 0–10°
Yellow	Fixed Auxiliary Switch, Closed 11–90°

*Left-hand cable, looking from the top (see Illustration 3).

NOTE: For more information, see the [MEP-4xxx Applications Guide](#) on the KMC web site.

MAINTENANCE

No routine maintenance is required. Careful installation enhances long term reliability and performance.

MORE INFORMATION

For **models, dimensions, specifications,** and additional information, see the [MEP-46xxQ Series Data Sheet](#) on the KMC web site.

For **accessories, troubleshooting, torque selection, links to sample applications,** and other information, see the [MEP-4xxx Applications Guide](#) on the KMC web site.

IMPORTANT NOTICES

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