

## Q769C 0-2 to 10 Vdc Adjustable Adapter for M7405 and M7415 Actuators and W7459 Economizer

### INSTALLATION INSTRUCTIONS

#### APPLICATION

The Q769C 0-2 to 10 Vdc Adjustable Adapter is used to provide a 0-2 to 10 Vdc modulating signal to the M7405 and M7415 Actuators when used with a 0 to 10 Vdc or 2 to 10 Vdc controller. The Q769C can also be used with a C7150B Temperature Sensor instead of a Q709A to control the minimum position of an M7405 or M7415 Actuator.

The Q769C maximum power consumption is 0.45 VA and the housing is Underwriters Laboratories Inc. (UL) flame rated for 94 V-O. Two female quick connect terminals on the adapter connect to terminals P and P1 of the actuator. Two male quick connect terminals are available for field wiring an additional actuator. The adapter is designed to operate in a -40°F to +125°F (-40°C to +52°C) temperature range and a 5 to 95 percent relative humidity (RH) range.

#### INSTALLATION

##### When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

#### CAUTION

Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.





All wiring must comply with applicable electrical codes, ordinances and regulations.

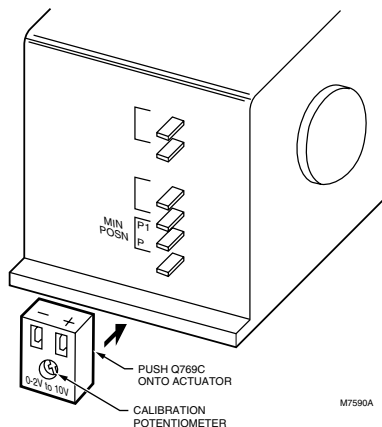
The Q769C is supplied with female quick connect terminals that fit over 1/4 in. (6 mm) actuator male quick connect terminals P and P1. Plug the Q769C into the actuator terminals as shown in Fig. 1. See Fig. 2 for wiring information.

#### Installer Adjustment

The Q769C calibration potentiometer can be installer-adjusted for 0 to 10 Vdc signal by using the following procedure:

**NOTE:** The Q769C Adapter is delivered factory-set for 2 to 10 Vdc signal operation.

1. Mount the Q769C Adapter on the M7405/M7415 Actuator; be sure + connects to P1 and - connects to P. Apply 24 Vac to actuator terminals TR and TR1.
2. Connect a jumper wire between the plus (+) and minus (-) terminals of the Q769C Adapter.
3. Turn the calibration potentiometer fully clockwise (cw) .
4. Turn the calibration potentiometer counterclockwise (ccw)  slowly until the actuator just begins to open.
5. Turn the potentiometer cw  slowly until the motor closes.
6. Remove the jumper wire from the plus (+) and minus (-) terminals of the Q769C Adapter.
7. Apply a position dc voltage source to the Q769C Adapter, then remove the source.
8. Check the actuator position. If the actuator is not closed, turn the Q769C calibration potentiometer cw  slowly until the actuator closes.



**Fig. 1. Mounting Q769C 0-2 to 10 Vdc Adapter on actuator.**



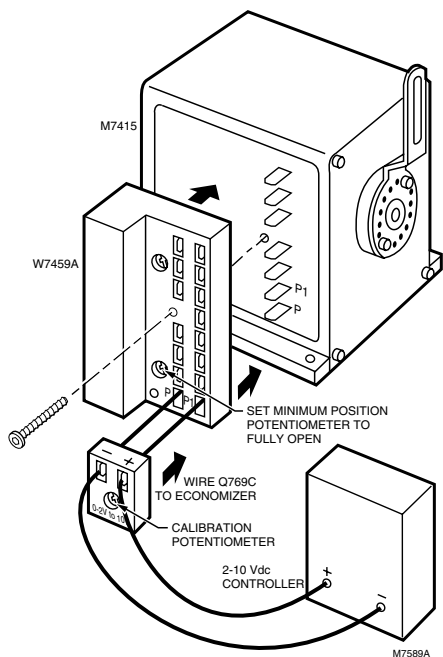


Fig. 2. Q769C Adapter connected to M7415 Actuator and W7459A Economizer for 0-2 to 10 Vdc control.

- 2 Connect the Q769C 0-2 to 10 Vdc Adapter to terminals P and P1.
- 3 Reconnect 24 Vac to terminals TR and TR1 and adjust the input signal (0 to 10 Vdc or 2 to 10 Vdc) for the desired minimum position.

The Q769C calibration potentiometer is factory adjusted so that the actuator begins to modulate open from the closed position at 2.4 Vdc for the 2 to 10 Vdc controller (0.4 Vdc for the 0 to 10 Vdc controller) with the calibration potentiometer set at the midrange position. As shipped from the factory, an M7405/M7415 Actuator begins to modulate closed from the fully open position at 9.8 Vdc. The exact voltage values depend primarily on the regulated dc voltage of the actuator. Calibration points are shown in Fig. 3.

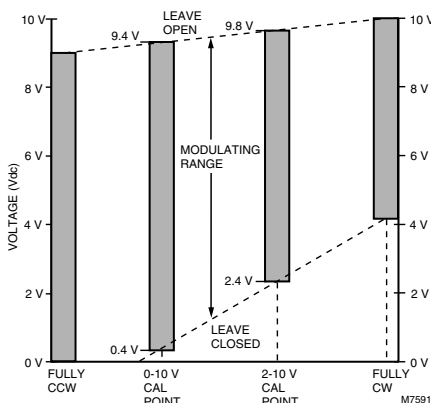


Fig. 3. Calibration chart.

## ADJUSTMENT

### Minimum Position Adjustment

**NOTE:** When using the Q769 with the M7415, separate transformer must be used to power the M7415 and the controller. TR1, P1 and (+) on the Q769 are all internally connected.

The Q769C Adapter sets the minimum position of an M7405 or M7415 Actuator, based on a 0 to 10 Vdc or 2 to 10 Vdc signal. In an economizer system, the actuator adjusts outdoor air for cooling. The Q769C is used to set the minimum position so that a specified amount of fresh air is admitted. To adjust the Q769C on an M7405 or M7415 Actuator, proceed as follows:

- 1 Run the actuator to the fully closed position and disconnect 24 Vac from terminals TR and TR1.

With the calibration potentiometer turned fully ccw or fully cw , the actuator leaves the closed or open positions at lower or higher voltages, respectively, than at the calibration points. With the calibration potentiometer in the fully counterclockwise position, the actuator leaves the closed position even without an input signal.

## CHECKOUT

Check out the Q769C 0 to 10 Vdc or 2 to 10 Vdc Adapter according to the actuator instructions. If the Q769C does not meet the checkout guidelines of the actuator instructions, replace the adapter.

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