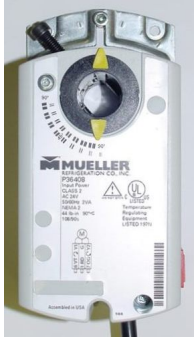


Mueller Electric Actuator

Series I



Series II



Series III



Features

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • Compact, lightweight design • Manual override • cUL and UL listed, CE certified • Independently adjustable dual auxiliary switches available | <ul style="list-style-type: none"> • Synchronous motor technology with stall protection • Unique self-centering shaft coupling • Manual override • cUL and UL listed, CE certified • Independently adjustable dual auxiliary switches available | <ul style="list-style-type: none"> • Synchronous motor technology with stall protection • Unique self-centering shaft coupling • Manual override • cUL and UL listed, CE certified • Independently adjustable dual auxiliary switches available |
|---|--|--|

Service Warnings/Cautions



DO NOT OPEN THE ACTUATOR.
IF THE ACTUATOR IS INOPERATIVE, REPLACE THE UNIT.



Do not wire different types of actuators in parallel with these models.



All six outputs of the dual auxiliary switch (A and B) must only be connected to:
Class 2 voltage (UL/CSA),
Separated Extra-Low Voltage (SELV) or Protective Extra Low Voltage (PELV) (according to HD384-4-41) for installations requiring CE conformance. You must use a CE certified plenum actuator.



Installations requiring CE Conformance:
All wiring for CE certified actuators must only be separated extra low voltage (SELV) or protective extra low voltage (PELV) per HD384-4-41.
Use safety isolating transformers (Class III transformer) per EN61558. They must be rated for 100% duty cycle.
Overcurrent protection for supply lines is maximum 10A.



Personal injury/loss of life may occur if a procedure is not performed as specified.



Not for use in condensing or wet applications.



Equipment damage or loss of data may occur if the user does not follow a procedure as specified.



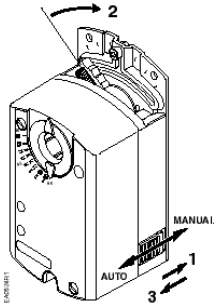
To avoid injury or loss of life, pay attention to any hazardous voltage when performing checks.

Manual Override

To move the valve and lock the position with no power present:

1. Slide the red manual override knob toward the back of the actuator.
2. Make adjustments to the valve position.
3. Slide the red manual override knob toward the front of the actuator.

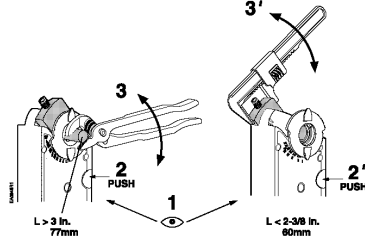
Once power is restored, the actuator returns to automatic control.



To move the valve and lock the position with no power present:

1. Hold down the PUSH button.
2. Make adjustments to the valve position.
3. Release the PUSH button.

Once power is restored, the actuator returns to the automatic control.

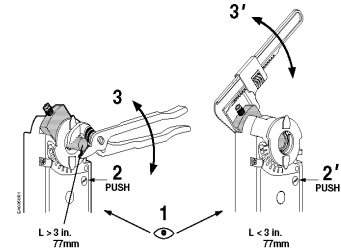


To move the valve and lock the position with no power present:

1. Hold down the PUSH button.
2. Make adjustments to the valve position.
3. Release the PUSH button.

NOTE: If there is no load, the actuator will hold the new position. If load conditions exist, the actuator might not be able to hold.

Once power is restored, the actuator returns to the automatic control.



Wiring

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

Use earth ground isolating step-down Class 2 transformers. Do not use auto transformers.

The sum of the VA ratings of all actuators and all other components powered by one transformer must not exceed the rating of the transformer. It is recommended that one transformer power no more than 10 actuators.

Wiring Designations

Figure 1. Standard Models

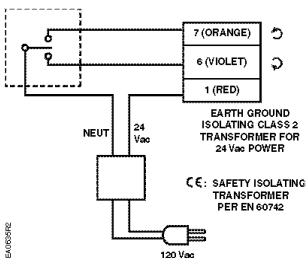
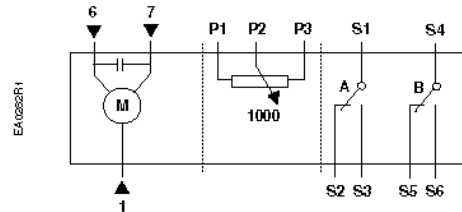


Figure 2. Auxiliary Switch Models



Standard Symbol	Function	Terminal Designation	Series I Color	Series II & III Color
1	Supply (SP)	G	Red	Red
6	Control signal clockwise	Y1	Violet	Violet
7	Control signal counterclockwise	Y2	Orange	Orange
Factory Installed Options				
S1	Switch A Common	Q11	Black	Gray/Red
S2	Switch A N.C.	Q12	Black	Gray/Blue
S3	Switch A N.O.	Q14	Black	Gray/Pink
S4	Switch B Common	Q21	Black	Black/Red
S5	Switch B N.C.	Q22	Black	Black/Blue
S6	Switch B N.O.	Q24	Black	Black/Pink

Start-Up/Commissioning

1. Check that the wires are connected correctly.
2. Connect wires 1 (red) and 6 (violet) to a Digital Multimeter (DMM) with the dial set at Vac. Apply a control signal (24 Vac) to wires 1 and 6 to verify that the operating voltage is within range.
3. Check that the direction of the rotation switch matches the rotation of the valve ball.
4. Check the operation.
 - a. Connect wire 1 (red) to the actuator.
 - b. Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet).
 - c. Allow the actuator shaft coupling to rotate from 0 to 90°.
 - d. Stop applying a control signal to wires 1 (red) and 6 (violet).
5. Check the Auxiliary Switch A.
 - a. Set the DMM dial to Ohms (resistance) or continuity check.
 - b. Connect wires S1 and S3 to the DMM. The DMM should indicate an open circuit or no resistance.
 - c. Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch A.
6. Check the Auxiliary Switch B.
 - a. Set the DMM dial to Ohms (resistance) or continuity check.
 - b. Connect wires S4 and S6 to the DMM. The DMM should indicate an open circuit or no resistance.
 - c. Apply a control signal (24 Vac) to wires 1 (red) and 6 (violet). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch B.
 - d. Stop applying a control signal to wires 1 (red) and 6 (violet).
 - e. Connect wires S4 and S5 to the DMM. The DMM should indicate an open circuit or no resistance.
 - f. Apply a control signal (24 Vac) to wires 1 (red) and 7 (orange). The DMM should indicate contact closure as the actuator shaft coupling reaches the
7. Stop applying a control signal to wires 1 (red) and 6 (violet).
8. Connect wires S1 and S2 to the DMM. The DMM should indicate an open circuit or no resistance.
9. Apply a control signal (24 Vac) to wires 1 (red) and 7 (orange). The DMM should indicate contact closure as the actuator shaft coupling reaches the setting of switch A.

Specifications		Series I Actuator	Series II Actuator	Series III Actuator
Sizes		1/2 - 7/8	1 1/8 - 1 5/8	2 1/8 - 3 1/8
Power Supply	Operating Voltage	24 Vac +20%, -15%		
	Frequency	50/60 Hz		
	Power Consumption	2.3 VA	3 VA	6 VA
Equipment Rating	Rating	Class 2 according to UL, CSA		
		Class III per EN60730		
Auxiliary Features	Dual Auxiliary Switch Contact Rating	4A resistive, 2A inductive	6A resistive, 2A general purpose	4A resistive, 2A general purpose
	Dual Auxiliary Switch Voltage Rating	24 Vac/12 to 30 Vdc	24 to 250 Vac/ 12 to 30 Vdc	24 Vac/ 12 to 30 Vdc
	Switch Range			
	Switch A	0 to 90° with 5° intervals		
	Recommended Range Usage	0 to 45 °		
	Factory Setting	5°		
	Switch B	0 to 90° with 5° intervals		
	Recommended Range Usage	45 to 90°		
	Factory Setting	85°		
Function	Switching Hysteresis	2°		
	Torque	44 lb-in (5 Nm)	132 lb-in (15 Nm)	310 lb-in (35 Nm)
	Runtime for 90° Opening or Closing	90 sec. @ 60 Hz 125 sec. @ 50 Hz	125 sec. @ 60 Hz 150 sec. @ 50 Hz	
	Nominal Angle of Rotation	90°		
Housing	Maximum Angular Rotation	95°		
	Enclosure	NEMA Type 2	NEMA Type 1	NEMA 2 in vertical position to 90° to the left and right of vertical
		IP54 according to EN60529		
	Material	Durable plastic	Die Cast Aluminum Alloy	
Gear Lubrication	Silicone free			
Ambient Conditions	Ambient Temperature			
	Operation	-25°F to 130°F (-32°C to 55°C)		
	Storage and Transport	-40°F to 158°F (-40°C to 70°C)		
	Ambient Humidity (non-condensing)	95% rh		
Agency Certification	UL Listing	UL listed to UL873	UL60730 (to replace UL873)	UL listed to UL873
	Canadian Conformance	C-UL certified to Canadian Standard C22.2 No. 24-93		
Conformity	In Accordance With the Directive Set Forth by the European Union For			
	Electromagnetic Compatibility (EMC)	89/336/EEC		
	Emissions Standards	EN 50 081-1		
	Low Voltage Directive	73/23/EEC		
Miscellaneous	Pre-Cabled Connection	18 AWG		
	Cable Length	3 feet (0.9 m)		
	Life Cycle	60,000 Full Strokes	50,000 Full Strokes	
	Dimensions	5 7/16 x 2 3/4 x 2 3/8 (138 x 70 x 60)	8 3/8 H X 3 1/4 W X 2 2/3 D (213 H X 83 W X 68 D)	11 13/16 x 3 15/16 x 2 11/16 (300 x 100 x 68)
	Weight	1.06 lb. (0.48 kg)	2.2 lbs. (1 Kg)	4.4 lbs. (2 kg)
Operation	A floating control signal controls the actuator. The actuator's angle of rotation is proportional to the length of time the signal is applied. A 24 Vac control signal to wires 1 and 6 (G-Y1) causes the actuator coupling to rotate clockwise. A 24 Vac control signal to wires 1 and 7 (G-Y2) causes the actuator coupling to rotate counterclockwise. To reverse the direction of rotation, the wires 6 and 7 (Y1 and Y2) can be interchanged.			
Overload Protection	In the event of a power failure or with no control voltage, the actuator holds its position.			
Life Expectancy	An improperly tuned loop will cause excessive repositioning that will shorten the life of the actuator.			

