MUELLER REFRIGERATION

## ACTUATORS- Modulating Control

| Specifications | | Series I Actuator | Series II Actuator | Series III Actuator |
|---|---|---|---|---|
| **Actuator part no.** | | P 37795 | P 37796 | P 36714, P 36889 |
| **Power Supply** | Operating Voltage | 24 Vac +20%, -15% | 24 Vac ±20% | |
| | Frequency | 50/60 Hz | | |
| | Power Consumption | 3.3 VA | 5 VA/ 4W (Running)<br>1 VA/ 1W (Holding) | 8 VA/ 8W (Running)<br>1.1W (Holding) |
| **Control Signal** | Input Signal | (Y-G0) | | |
| | Voltage-input | 0 to 10 Vdc | | |
| | Input resistance | > 100K ohms | | |
| **Feedback Signal** | Position output signal | (U-G0) | | |
| | Voltage-output | 0 to 10 Vdc | | |
| | Maximum output current | DC 1mA | | |
| **Equipment Rating** | Rating | Class 2 according to UL, CSA<br>Class III per EN60730 | | |
| **Function** | 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<br>125 sec. @ 50 Hz | 125 sec. @ 60 Hz<br>150 sec. @ 50 Hz | |
| | Nominal Angle of Rotation | 90° | 90° | |
| | Maximum Angular Rotation | 95° | 95° | |
| **Actuator Housing** | 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 | | |
| | Canadian Conformance | cUL certified to Canadian Standard C22.2 No. 24-93 | | |
| CE **Conformity** | **In Accordance With the Directive Set Forth by the European Union For** | | | |
| | Electromagnetic Compatibility (EMC) | 2004/108/EC | | |
| **Miscellaneous** | Pre-Cabled Connection | 18 AWG | 18 AWG | |
| | Cable Length | 3 feet (0.9 m) | 3 feet (0.9 m) | |
| | Life Cycle | Designed for over 50,000 full strokes at rated torque and temperature. | | |
| | Dimensions inches (mm) | 6.2 L × 2.8 W × 2.4 D<br>(157 L × 71 W × 61 D) | 8 3/8 H x 3 1/4 W x 2 2/3 D<br>(213 H x 83 W x 68 D) | 11 13/16 x 3 15/16 x 2 11/16<br>(300 x 100 x 68) |
| | Weight | 1.06 lb. (0.48 kg) | 2.2 lbs. (1 kg.) | 4.4 lbs. (2 kg.) |
| **Operation** | A continuous 0 to 10 Vdc signal from a controller to wire 8 (Y) operates the actuator. The angle of rotation is proportional to the control signal. A 0 to 10 Vdc position feedback output signal is available between wire 9 (U) and wire 2 (G0) to monitor the position of the damper motor. In the event of a power failure, the actuator holds its position. In the event that only the control signal is lost, the actuator returns to the "0" position. | | | |
| **Overload Protection** | In the event of a blockage in the damper, the actuator is overload protected over the full range to prevent damage to the actuator. | | | |
| **Life Expectancy** | An improperly tuned loop will cause excessive repositioning that will shorten the life of the actuator. | | | |

**Wiring**

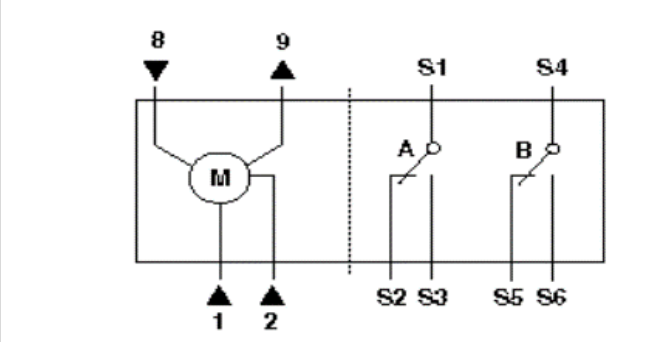
- All wiring must conform to NEC and local codes and regulations.
- Use earth ground isolating step-down Class 2 transformers. Do not use autotransformers.
- The sum of the VA ratings of all actuators and all other components powered by one transformer must not exceed the rating of the transformer.
- It is recommended that one transformer power no more than 10 actuators (or 80% of its VA).

**WARNINGS**

Installations requiring Conformance:

- All wiring for CE certified actuators must be SELV or PELV rated per HD384-4-41.
- Use safety-isolating transformers (Class III transformer) per EN61558. They must be rated for 100% duty cycle.
- Over current protection for supply lines is maximum 10A.

**Wiring Diagrams**




| Actuators | Symbol | Function | Terminal Designations | Color |
|---|---|---|---|---|
| 24 Vac Power Supply | 1 | Supply (SP) | G | Red |
| | 2 | Neutral (SN) | G0 | Black |
| | 6 | Control signal clockwise | Y1 | Violet |
| | 7 | Control signal counterclockwise | Y2 | Orange |
| | 8 | 0 to 10 Vdc input signal | Y | Gray |
| | 9 | Output for 0 to 10 Vdc position indication | U | Pink |

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| Modulating Actuator Wiring | | | | |
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| Dual Auxiliary Switch Wiring | | | | |
|---|---|---|---|---|
| | **Symbol** | **Function** | **Terminal Designation** | **Color** |
| Actuator P 36889 only | S1 | Switch A Common | Q11 | Gray/Red |
| | S2 | Switch A - N.C. | Q12 | Gray/Blue |
| | S3 | Switch A - N.O. | Q14 | Gray/Pink |
| | S4 | Switch B Common | Q21 | Black/Red |
| | S5 | Switch B - N.C. | Q22 | Black/Blue |
| | S6 | Switch B - N.O. | Q24 | Black/Pink |