## Valworx 5617 series On/Off Electric Actuators

*Valworx electric actuators are 100% tested to ensure trouble free installation and operation.*

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|---|---|---|
| Actuator will not open or close during initial startup | • Incorrect wiring | • Correct the wiring per actuator electrical diagram and instructions. |
| | • No suitable switching device | • Customer to supply a mechanical relay or a 3-way 2 or 3 position manual switch to open and close the actuator. |
| | • Incorrect voltage being supplied to actuator | • Confirm correct voltage is being applied to the actuator. Connecting incorrect voltage may damage the actuator beyond repair. Do not apply more than 25.2 volts to the DC24 volt actuators (24volts +/-5%). |
| | • Undersized power supply | • This is a motor circuit, therefore power supply should be sized at least 3 times full load current. |
| | • Actuator does not have an isolated circuit or is connected in parallel with other actuators or equipment | • Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel or with other equipment on the same circuit. |
| | • Controls or controller is not compatible with the actuator | • If possible, bench test the actuator without user controls or controller. This will help determine whether there is a problem with the actuator or the input control circuit. |
| Actuator (valve) will open, but will not close during initial startup | • Incorrect wiring | • Check the main power wiring, relay or 3-way switch |
| Actuator will not power up | • Excessive power surge and/or an over voltage condition. | • Power surges and/or over voltage conditions may damage the actuator beyond repair. Replace actuator. |
| | • Voltage is too high or to low, out of tolerance range. | • Confirm correct voltage is being applied. |
| Actuator stops mid-stroke | • Over-torque (possible valve jam). | • Remove over-torque condition and retry after overload protection cools down<br>• Separate actuator from valve if fault reoccurs. Test actuator and valve manually while de-energized to determine if either is locked up. |
| Cannot turn the manual override | • Valve jam caused by the fluid media, potential solids or contamination in the media | • Clear any valve jams or other issues and try again |
| | • Damaged gear drive and/or motor. | • Remove actuator from valve and try again, if no change, replace with new actuator |

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| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|---|---|---|
| Actuator fails to operate and condensation or water is found inside the actuator | • Excessive condensation, loose cover or housing screws, bad gasket seals | • If the actuator has failed due to excessive condensation or water inside the actuator, replace actuator. Actuators with a built in internal heater maybe required If excessive condensation cannot be prevented in your application. |
| No output signal from position confirmation limit switches | • Switches are wired incorrectly | • Correct the wiring problem, reference electrical diagram and instructions. If switches are wired correctly, check for continuity. You should have continuity on closed circuit when actuator is in closed position and continuity on open circuit when actuator is in open position. No continuity when actuator is in between closed and open positions. |
| | • Exceeding the current capacity has damaged the limit switches. Switch rating 3 amps @ 125/250VAC, 30VDC resistive load. | • If switches are damaged, they are not repairable, replace actuator. Test switches for continuity with a meter by first de-energizing the unit. Then removing the top cam cover, depressing each switch with a small screwdriver, and verifying if a dry contact signal is received. |
| | • Limit switch cams are out of adjustment. | • If wiring is correct and limit switches are working, cam positions may need adjustment. Contact customer service for Service Procedure. |

Yellow visual position indicator and cam cover

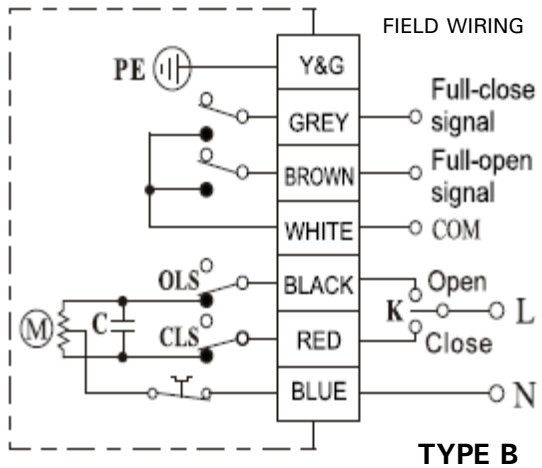
Prewired electrical cable with flying leads

Manual override with hex wrench shown

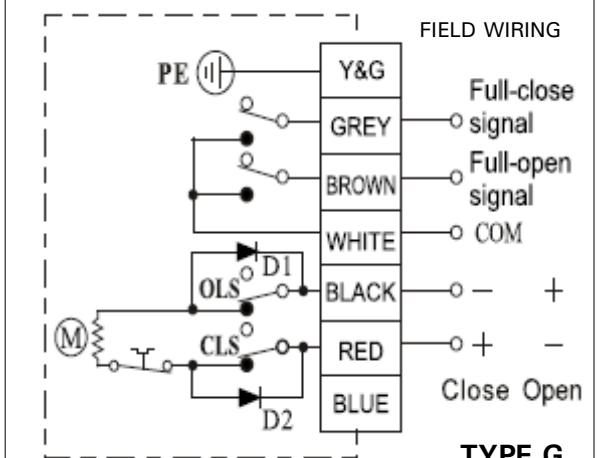
# Electrical Wiring Diagram for 5617 series On-Off Actuators

*Before connecting power, confirm correct voltage is being applied*

**AC Voltage Wiring Diagram**




**DC Voltage Wiring Diagram**




**AC Voltage Wiring:**

BLUE: Power Neutral (N)

User/Installer to Supply Relay or 3-way Switch (K):

RED: Power (L) to Red - Actuator OFF or CLOSED

BLACK: Power (L) to Black - Actuator ON or OPEN

Auxiliary Position Confirmation Limit Switches

WHITE: Common

BROWN: Open status confirmation signal

GREY: Closed status confirmation signal

Ground

YELLOW/GREEN: Earth ground (PE)

**DC Voltage Wiring:**

User/Installer to Supply Reversing Relay or Switch

DC Power to RED (+) and BLACK (-) - Actuator OFF or CLOSED

DC Power to BLACK (+) and RED (-) - Actuator ON or OPEN

Auxiliary Position Confirmation Limit Switches

WHITE: Common

BROWN: Open status confirmation signal

GREY: Closed status confirmation signal

Ground

YELLOW/GREEN: Earth ground (PE)

*NOTES:*

1. *Auxiliary limit switches are rated 3A@125/250VAC, 30VDC resistive load.*
2. *Actuator should have its own fused and isolated circuit. Do not wire actuators in parallel or in a circuit with other equipment.*
3. *Voltage tolerance: 110VAC +/-10%, 24VDC +/-5%*

## Valve Misapplication

Sometimes electric actuated valves may fail due to misapplication or using the valve in the wrong application. Reviewing and complying with the product specifications will ensure long-term trouble free operation. Specifications can be found online or in the product data sheet. Customers that continue to have problems with an actuator will usually indicate one of two things. Either the actuated valve is unsuitable for the application or it's not in compliance with one or more of the following issues:

**Voltage:** The voltage must be within the operating range of the actuator. Over voltage or under voltage may cause premature failure.

**Temperature:** Operating outside the temperature rating will shorten the life and ultimately cause the actuator to fail. Valworx 5617 series actuators must operate within the range of –13 to +131°F (-25 to +55°C).

**Environment:** The 5617 series actuators have a Type 4X and IP67 weatherproof rating. Generally suitable for indoor or outdoor applications. Provides a degree of protection against rain, splashing water and hose directed water (Do not pressure wash). Protecting the actuator against rain, snow, ice and UV (sunlight) will typically extend the life of the product. Highly corrosive environments may cause premature failure of electronic components. Do not use these actuators where explosion proof equipment is required.

**Duty Cycle:** Exceeding the 60% duty cycle rating of the 5617 series actuators will cause premature failure of the motor, gear drive and/or electronics . The motor can run 60% of the time (or typically run for 36 seconds of each minute, must be off for 24 seconds).

**Fluid Media:** The valve materials of construction should be compatible with the media (fluid) flowing through the valve. This would include all wetted parts or parts in contact with the media. Contacting the manufacturer of the fluid or consulting a media compatibility guide may be helpful. Ball valves and butterfly valves generally require good clean flowing media.

**Pressure:** Valves must operate within the pressure rating as listed in the specifications. The pressure rating is typically the highest non-shock working pressure allowed within certain temperature limits. Reference the P/T chart (pressure/temperature chart) to confirm the valve will operate within the required pressure and temperature limits.

**Fluid Velocity:** The fluid velocity should not exceed certain limits to help avoid excessive noise, shock and damage to the piping system, seals and valves. Typically, the maximum velocity of the fluid flowing through Valworx metal valves should be less than 10 feet/second (3 m/s). The maximum velocity for plastic valves should be less than 5 feet/second (1.5 m/s).