

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR CONNECTING POWER TO THE ACTUATOR. THE ACTUATOR MUST BE INSTALLED, COMMISSIONED, OPERATED AND REPAIRED BY QUALIFIED PERSONNEL. COMPLY WITH ALL APPLICABLE CODES, STANDARDS AND SAFETY REGULATIONS.

STORAGE

Actuators should be stored in a clean, dry environment at all times. Do not install the actuator outdoors or in humid environments without immediately supplying power to activate the internal heater. The thermostatically controlled heater will help prevent possible damage caused by condensation build up inside the actuator.

INTRODUCTION

This document provides installation, operation and maintenance instructions for Valworx 5900 series electric actuators with EPS positioner. These actuators are typically used to operate quarter-turn valves. Every actuator has been fully tested prior to shipment to ensure trouble free operation.

MOUNTING

The actuator can be mounted in any orientation. Allow enough room around actuator for manual operation as well as any maintenance. Valves can be direct mounted to the actuator using standard ISO5211 international mounting pad.



TEMPERATURE RATING

Operating temperature range of the actuator is -13°F to 149°F (-25°C to 65°C). Heat from the working medium (fluid) should not allow actuator to exceed these temperature limits. Optional high temperature valve mounting kits are available to increase the allowable media (fluid) working temperature.

ENCLOSURE RATING

The rugged aluminum housing is rated Type 4X and IP67 weatherproof. These actuators should not be used in explosion proof or hazardous applications.

VISUAL POSITION INDICATOR

Three programmable relays provide output feedback for 17 different parameters. Default programming is OPEN/CLOSE/FAULT per the wiring diagram. Refer to Programmable Relay table for a list of available parameters. Contact Valworx technical support for assistance in changing parameters.

Flashing GREEN– Opening

Solid GREEN– Full Open

Flashing RED– Closing

Solid RED– Full Closed

Flashing YELLOW– Fault

Solid BLUE– Mid-position (~ 20°-80°)

Flashing WHITE– Intermediate position (< 20° or > 80°)



*Indicator example



Conforms to
UL Std 429

Certified to
CSA Std C22.2
No. 139

EN 60204-1:2006



ANTI-CONDENSATION HEATER

The actuator has a standard integral thermostatically controlled anti-condensation heater. Power should be maintained either in the open or closed position to activate internal heater. This heater will help prevent condensation build-up inside the actuator.

DUTY CYCLE AND MOTOR PROTECTION

The rugged 5900 series actuators are rated 100% duty cycle. Actuators are equipped with thermal overload protection with automatic reset to guard against over torque situations.

POSITION CONFIRMATION SWITCHES AND MECHANICAL STOPS

Three programmable relays provide output feedback for 17 different parameters. Default programming is OPEN/CLOSE/FAULT per the wiring diagram. Refer to Programmable Relay table for a list of available parameters. Contact Valworx technical support for assistance in changing parameters.

MAINTENANCE

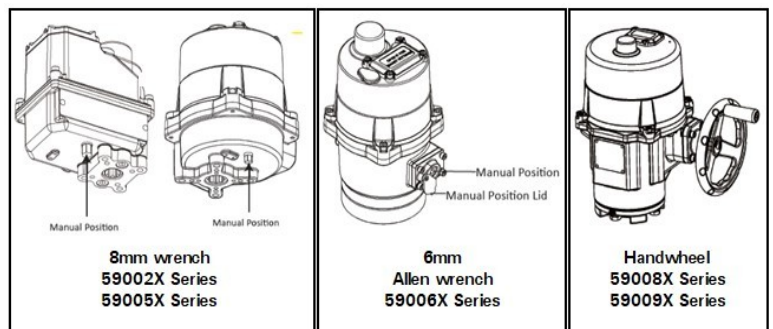
There are no internal parts that require regular maintenance. The gear drive is pre-lubricated for life. The housing may be cleaned with warm soapy water (no solvents). The actuator should be cycled at least once per month. DO NOT PRESSURE WASH.

MANUAL OVERRIDE

Valworx 5900 series electric actuators have a manual override for use during setup or loss of electrical power. To operate the manual override, first "REMOVE ALL ELECTRICAL POWER TO THE ACTUATOR". The manual override is located on underside of the actuator (59002X/59005X Series) or side of actuator (59006X/59008X/59009X). Insert a wrench (not provided) or handwheel (provided) and rotate to open (counter-clockwise) or close as required.



WARNING: Disconnect electrical power prior to operating manual override, removing covers or service.



ELECTRICAL WIRING

Valworx 5900 series actuators are supplied with two color-coded multi-conductor cables- one for power/control and one for feedback. The enclosure does not need to be opened to wire the unit. The unit is actuated by an analog input signal. Three feedback relays can be programmed to output any one of 17 parameters. Default is OPEN/CLOSE/FAULT. Refer to the Output Relay table for more information.

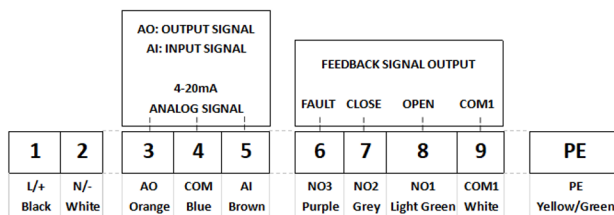
Power should be maintained to activate the internal heater. The internal heater will help prevent condensation build-up inside the actuator.

The feedback cable may be replaced with a plug (P/N 591890) if it is not used.

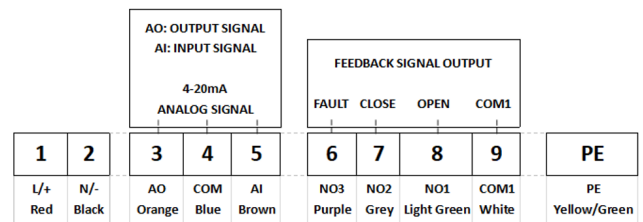


PRIOR TO WIRING, CONFIRM THE ACTUATOR VOLTAGE IS CORRECT. APPLYING THE WRONG VOLTAGE WILL DAMAGE THE ACTUATOR AND VOID THE WARRANTY

AC Voltage Wiring Diagram

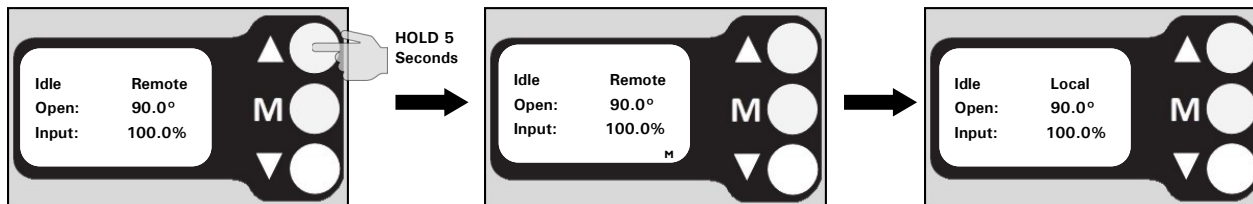


DC Voltage Wiring Diagram



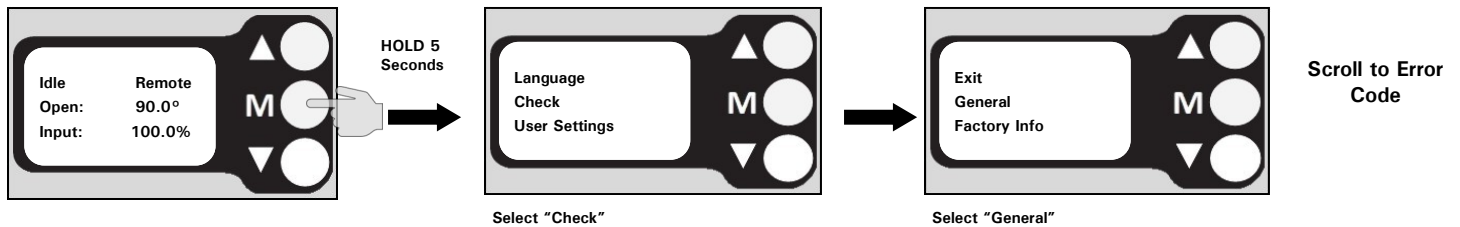
OPERATION

1) Switch from remote control to local

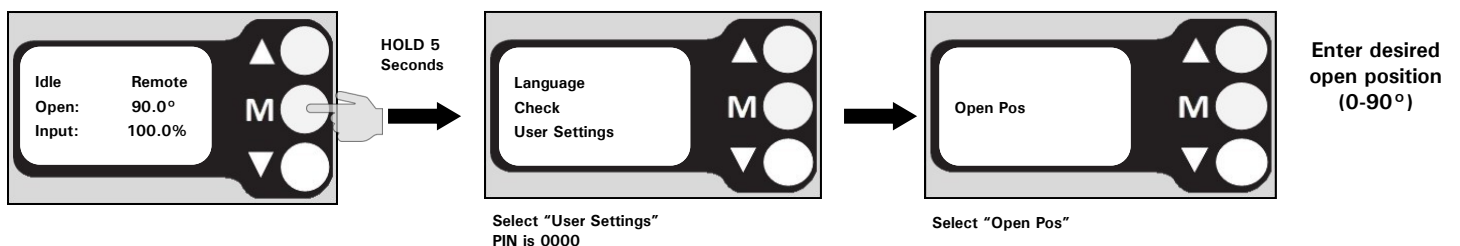


Press and hold ▲ key for about 5 seconds, an "M" will flash on the bottom right until "Local" appears on the top right, which indicates the actuator enters local control mode.

2) Error Checking



3) Set Position



OPERATION

Electric actuator with EPS- Electronic Positioning System uses an analog input signal to control the drive to the input position. Changing the input control signal results in a corresponding and proportional change in the position of the actuator output drive. Position feedback is via a corresponding output signal. Upon loss of power the actuator stays in last position. Upon restoration of power, the actuator will cycle to the commanded position. Normal operation is via remote signal, but the actuator can also be operated locally using the push button controls on the digital display.

Default input signal is 4-20mA. Actuator can be programmed to accept 1-5v or 2-10v. Contact Valworx technical support for more details.

End-of-stroke speed can be slowed to reduce water hammer. Contact Valworx technical support for more details.

PROGRAMMABLE RELAYS

The three feedback relays can be programmed to output 17 different parameters (one per relay). Default is OPEN/CLOSE/FAULT. See table for a listing of all parameters. Contact Valworx technical support to change the default settings.

Rated relay output is 0.8A/110 VAC, 0.5A/250 VAC, 1.0A/ 30 VDC

	Relay	Output Signal	Information
1	Invalid	No output signal	
2	Full Open	Valve is fully open	
3	Full Close	Valve is fully closed	
4	Middle Position	Actuator in middle position	User defined
5	In Service	Actuator is in operation	
6	Error	An error occurs	Set when any error code trips
7	Motor Stalling	Actuator motor stall fault occurs	
8	ESD	N/A	Reserved for units with BUS card control
9	Overheat	Temperature exceeds set protection	
10	Signal Lost	N/A	Reserved for modulating units
11	Over Torque	Torque has exceeded the rated torque	
12	Open or Close	Valve is fully open or fully closed	
13	Full Open Delay	Delayed after the valve is fully open	Adjustable delay time: 0-1200 seconds
14	Full Close Delay	Delayed after the valve is fully closed	Adjustable delay time: 0-1200 seconds
15	Mid-Position Delay	Delayed when in middle position	Adjustable delay time: 0-1200 seconds
16	Full Battery	Battery is fully charged	
17	Local	Actuator is in local control mode	