

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 5618 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.



Standard ISO5211  
valve mounting  
interface

#### TEMPERATURE RATING

Operating temperature range of the actuator is -13 to +131°F (-25 to +55°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

Actuators are supplied with a local visual valve position indicator. This indicator is yellow and located on top of the actuator. Indicator will show the open and closed (on-off) position of the quarter-turn actuator (valve).

Visual position  
indicator

Standard anti-  
condensation  
heater under this  
cover



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 4 watt anti-condensation heater. Power should be maintained to activate internal heater. This heater will help prevent condensation build-up inside the actuator.

#### DUTY CYCLE AND MOTOR PROTECTION

The rugged 5618 series actuators are rated 70% duty cycle. Actuators are equipped with thermal overload protection with automatic reset to guard against over torque situations.

#### MECHANICAL TRAVEL STOPS

Rotation of the output drive is limited by adjustable mechanical stops. These stops are preset at the factory, no adjustment required.

#### MANUAL OVERRIDE

Valworx 5618 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" then open the manual override protective cover located on the side of the actuator. Insert a hex wrench (provided) and rotate to open (counter-clockwise) or close as required.



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

#### 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.

## ELECTRICAL WIRING

Confirm the actuator **VOLTAGE** is correct, then remove the terminal box cover and connect wiring to terminal strip according to appropriate wiring diagram.

Wiring diagrams for each actuator are attached to the inside of the terminal box cover.

Input control signal type is 4-20mA. Actuator should have its own fused and isolated circuit. Do not connect actuators in parallel. Power to actuator should be maintained to activate the internal heater. This heater will help prevent condensation build-up inside the actuator.

## CABLE OR CONDUIT INSTALLATION

**Cable Connection:** When using the supplied cable connectors for wiring to the actuator, outside diameter of the cable should be 9 to 11mm. Cable smaller than this may allow water to enter the actuator, causing damage.

**Conduit Connection:** Optional 1/2" NPT Conduit fittings are available. Threads should be sealed water tight. Conduit should be installed with a drop loop, if necessary, to make sure condensation within the conduit does not get inside the actuator and cause damage.



Before connecting power, confirm correct **VOLTAGE** is being applied. Incorrect voltage may damage actuator and void the warranty.

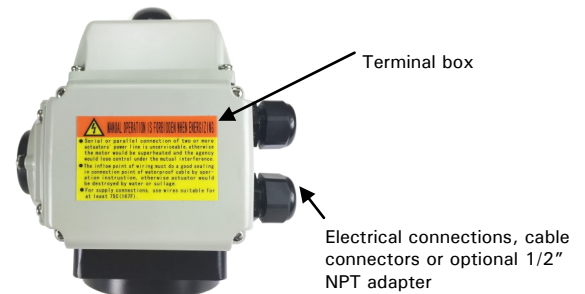
## OPERATION

Valworx 5618 series electric actuators with EPS- Electronic Positioning System provide an accurate valve positioning function whereby the movement of the actuator is controlled by a 4-20mA input control signal. Any change in the control input signal results in a corresponding and proportional change in the position of the actuator drive output.

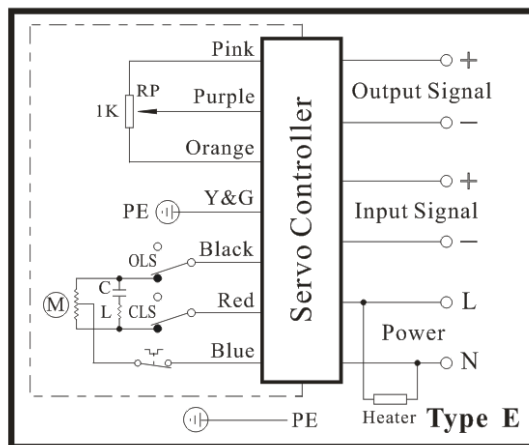
This is achieved with a unique built in electronic positioning module. The module is fully potted to help protect the electronics from vibration and moisture.

An internal microprocessor on the EPS circuit board continuously monitors the analog input and output signals and compares them to the physical position via a precision potentiometer feedback system, moving the drive output as required to balance the signals.

Actuator stays in last position upon loss of power.



### AC Voltage Wiring Diagram

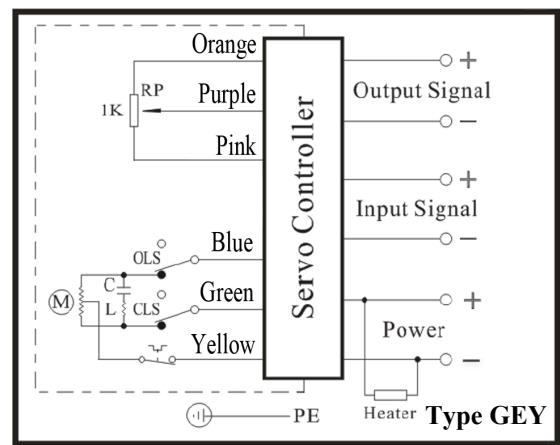


FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Convienent Pour Au Moins 90°C

### AC Voltage Wiring:

1. AC power - Neutral
2. AC power - Line/Hot
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

### DC Voltage Wiring Diagram



FOR SUPPLY CONNECTIONS, USE WIRES SUITABLE FOR AT LEAST 90°C (194°F) Employer Des Fils D'alimentation Qui Convienent Pour Au Moins 90°C

### DC Voltage Wiring:

1. DC power - Negative (-)
2. DC power - Positive (+)
3. Input control signal - Negative (-)
4. Input control signal - Positive (+)
5. Output monitoring signal - Negative (-)
6. Output monitoring signal - Positive (+)

## EPS POSITIONER TECHNICAL DATA

Input Signal: 4-20mA

Output Signal: 4-20mA

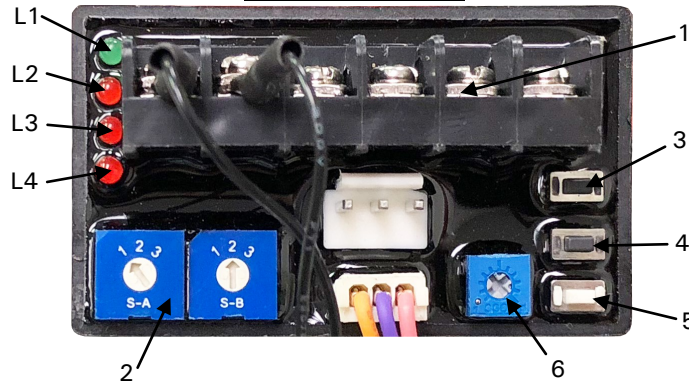
Deadband: 0.5% to 5.0%

**NOTES:** 1. Actuator should have its own fused and isolated circuit. 2. Do not wire actuators in parallel. 3. Output signal is 4-20mA. Use of the output is optional.

## Internal Diagram

1. Terminal strip
2. Selection switches (S-A, S-B)
- L1. Power light (power on - green)
- L2. Control Signal status light (red)
- L3. Potentiometer status light (red)
- L4. Over torque status light (red)
3. Manual Open control button
4. Manual Close control button
5. Set button (white)
6. Deadband Adjustment (factory preset) - set actuator to manual mode before altering - see chart below.

## Positioner Module



EPS Control module

*\*Note: If any Red LEDs are 'on', there is a malfunction.*

24 VDC MODELS	110 VAC MODELS
Control Module	Control Module

## OPEN/SHUT POSITION CALIBRATION

**ALL ACTUATORS ARE CALIBRATED AND TESTED AT THE FACTORY. NO ADJUSTMENTS REQUIRED FOR MOST APPLICATIONS** If recalibration is required, follow these steps: Supply correct power to the actuator. Set switches to manual mode as shown below. Manually operate actuator using chart below. Once new desired "Open" or "Closed" position is reached, hold down both the matching manual control button for the position you wish to set **AND** the White "SET" button simultaneously until the L2 red light comes on - then release both buttons. The position will now be set when you switch S-A back to original position.

Control Mode Selection Switch Setup			S-A	S-B
<b>4-20mA Input (default setting)*</b>  <b>*To change setup from default setting, power must first be applied to actuator, control signal OFF</b>	<b>Standard Auto Mode A (default setting)</b>	Actuator closed with 4mA signal, open with 20mA signal. Stops with loss of control signal	1	2
	<b>Standard Auto Mode B</b>	Actuator closed with 4mA signal, open with 20mA signal. Moves to closed position with loss of control signal	1	3
	<b>Standard Auto Mode C</b>	Actuator closed with 4mA signal, open with 20mA signal. Moves to open position with loss of control signal	1	1
	<b>Reverse Acting Mode A</b>	Actuator open with 4mA signal, closed with 20mA signal. Stops with loss of control signal	3	2
	<b>Reverse Acting Mode B</b>	Actuator open with 4mA signal, closed with 20mA signal. Moves to closed position with loss of control signal	3	3
	<b>Reverse Acting Mode C</b>	Actuator open with 4mA signal, closed with 20mA signal. Moves to open position with loss of control signal	3	1
<b>Manual operation of actuator using control button operation</b>	<b>Manual Mode - Open or Closed</b>	Manually move the actuator to open position using OPEN control button. Manually move the actuator to closed position using CLOSED control button. Do not hold OPEN & CLOSED down simultaneously.	2	2