The Model 22X Electronic Position Control Valve provides user percent of open control with extreme stability over a full range of flow. Combining the advantages of simplicity and line pressure operation with the features of electronic control, the valve is able to interface with SCADA systems to provide remote control and programmable variable logic. The electronic feature allows for a wider range of operation, simplifying valve sizing.

Typical examples include:
- Water transmission lines
- Water treatment plants
- Pump back pressure control

*NOTE: for clarification of Electronic terminology, refer to the OCV Electronic Glossary

**THEORY OF OPERATION**
Model 22X Controller with a Model 115-3 Digital Control Valve & Model 190 Position Transducer

The Model 115-3 control valve is positioned based on the discrete electrical signals applied to the solenoid pilots (2 and 3) from the Model 22X Electronic Controller. With a position transducer located on top of the valve, the controller will monitor this transducer output to control the valve position. If the set point is moved to less than the actual valve position, the controller will close the valve by opening solenoid 2, allowing inlet pressure to the valve diaphragm chamber. Simultaneously, the controller closes solenoid 3, blocking pressure on the diaphragm from venting downstream. The valve closes further.

If the set point is moved above the actual valve position, the controller will open the valve by closing solenoid 2, blocking inlet pressure from the diaphragm chamber. At the same time, solenoid 3 is opened, allowing discharge from the diaphragm chamber. The valve opens further.

Finally, when valve position is at the set point, the controller closes both solenoids, thus no flow is allowed either on or off the diaphragm chamber. The valve is "hydraulically locked" in position.

The solenoids can be supplied to give one of the following "default" modes on absence or loss of electrical power:
- Default to closed
- Default to hold
- Default to open

**MODEL FEATURES**
- Allows for frequent set point change
- Wider range of flow than standard hydraulic control systems
- Analog Output (4-20mA)
- Valve scheduling for control parameter modification (Time, Day of Week, Process variables)
- Remote set point by digital or analog SCADA access
- 100-260Vac 50-60Hz with 24/12 VDC, or solar Powered units available
- Full function PID controller
- Simplifies valve sizing
- LCD display
- Superior throttling characteristics compared to quarter turn valves
- Screen readout displayed in percentage of valve open
- Cavitation protection available when required
- Valve Position Transmitter
- Optional
- Intranet monitoring control and e-mailing (Ultra Controller Series only)
- Hydraulic backup
- Touch panel color graphic LCD (Ultra Controller Series only)
- Consult factory for others

**SIZING**
Consult the factory or refer to the ValveMaster Premier on the OCV website: controlvalves.com

**MAX. PRESSURE**
The pressures listed here are maximum pressures at 100°F. Also, working pressures of solenoids vary greatly, consult factory on application of OCV Model 115-3 valves when pressures exceed those stated in chart.

<table>
<thead>
<tr>
<th>END CONNECTIONS</th>
<th>DUCTILE IRON</th>
<th>STEEL/STN STL</th>
<th>LOW-LEAD BRONZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threaded</td>
<td>300 psi</td>
<td>300 psi</td>
<td>300 psi</td>
</tr>
<tr>
<td>Grooved</td>
<td>300 psi</td>
<td>300 psi</td>
<td>300 psi</td>
</tr>
<tr>
<td>150# Flanged</td>
<td>250 psi</td>
<td>285 psi</td>
<td>225 psi</td>
</tr>
<tr>
<td>300# Flanged</td>
<td>300 psi</td>
<td>300 psi</td>
<td>300 psi</td>
</tr>
</tbody>
</table>

TOLL FREE 1.888.628.8258  •  phone: (918)627.1942  •  fax: (918)622.8916  •  7400 East 42nd Place, Tulsa, Ok 74145
email: sales@controlvalves.com  •  website: www.controlvalves.com
## Model 22X

### SPECIFICATIONS (Typical Water Application)

The electronic position control valve shall operate to control valve percentage of opening via discrete electrical signals from the controller.

#### DESIGN

The electronic position control valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat diaphragm. These, and other parts, shall be replaceable without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall the pistons be used as an operating means. The pilot system shall be furnished complete and installed on the main valve. It shall include two needle valves, a Y-strainer, two solenoid valves and isolation ball valves. The electronic position control valve shall be operationally and hydraulically tested prior to shipment.

#### MATERIALS OF CONSTRUCTION

The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be low-lead Bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be EPDM. The needle valve and isolation ball valves shall be brass, and control line tubing shall be copper. The solenoid valves shall have brass bodies, weatherproof enclosures and be suitable for operation on 24-Volt. The electronic position control valve shall be a <size> Model 22X <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

### U.S. DIMENSIONS - INCHES

| DIM | END CONN. | 1 1/4-1 1/2 | 2 | 2 1/2 | 3 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 24 |
|-----|-----------|-----------|---|-------|---|---|---|---|----|----|----|----|----|----|
| A   | SCREWED   | 8 3/4     | 9 7/8 | 10 1/2 | 13 | -- | -- | -- | -- | -- | -- | -- | -- |
|     | GROOVED   | 8 3/4     | 9 7/8 | 10 1/2 | 13 | 15 1/4 | 20 | -- | -- | -- | -- | -- | -- |
| C   | SCREWED   | 4 3/8     | 4 3/4 | 6     | 6 1/2 | -- | -- | -- | -- | -- | -- | -- | -- |
|     | GROOVED   | 4 3/8     | 4 3/4 | 6     | 6 1/2 | 7 5/8 | -- | -- | -- | -- | -- | -- | -- |
|     | 150# FLGD | 4 1/4     | 4 3/4 | 6     | 7 1/2 | 10 | 12 11/16 | 14 7/8 | 17 | -- | 20 13/16 | -- | -- |
|     | 300# FLGD | 4 3/8     | 5     | 6 3/8 | 6 3/8 | 7 13/16 | 10 1/2 | 13 3/16 | 15 9/16 | 17 3/4 | -- | 21 5/8 | -- |
| D   | SCREWED   | 3 1/8     | 3 7/8 | 4     | 4 1/2 | -- | -- | -- | -- | -- | -- | -- | -- |
|     | GROOVED   | 3 1/8     | 3 7/8 | 4     | 4 1/2 | 5 5/8 | -- | -- | -- | -- | -- | -- | -- |
|     | 150# FLGD | 3     | 3 7/8 | 4     | 4     | 5 1/2 | 6     | 8     | 11 3/8 | 11 | -- | 15 11/16 | -- |
|     | 300# FLGD | 3 1/8     | 4 1/8 | 4 3/8 | 4 3/8 | 5 13/16 | 6 1/2 | 8 1/2 | 12 1/16 | 11 3/4 | -- | 16 1/2 | -- |
| E   | ALL       | 6 6 7     | 6 1/2 | 8     | 10 11 7/8 | 15 3/8 | 17 | 18 | 19 | 27 | -- | -- | -- |
| H   | ALL       | 10 11     | 11     | 12 12 13 | 14 | 17 | 18 20 | 20 | 28 1/2 | -- | -- | -- | -- |

*GROOVED END NOT AVAILABLE IN 1 1/4"*

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" and larger valves, or any valves with a limit switch, in positions other than described. Space should be taken into consideration when mounting valves and their pilot systems.

A routine inspection & maintenance program should be established and conducted yearly by a qualified technician. Consult our factory @ 1-888-628-8258 for parts and service.

### How to order your 22X valve

When ordering please provide:

- Fluid to be controlled - Model Number - Size - Globe or Angle - End Connection - Body Material - Trim Material - Solenoid & Controller Voltages - Power failure mode: Open / Close / Hold last position - Solenoid enclosure
- Weatherproof or Explosion Proof - Solenoid exhaust to downstream or atmosphere - Controller Options
- Special Requirements / Installation Requirements

### TOLL FREE 1.888.628.8258

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**REVISED 05/03/17**

**Represented by:**

**OCV Control Valves**