



Series 22S Controller ▲
w/Model 115-3

The Model 22S Electronic Pressure Sustaining/Back Pressure Valve provides user pressure control with extreme stability over a wide 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 22S Controller with a Model 115-3 Digital Control Valve

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 22S Electronic Controller. With a pressure transducer located upstream of the valve, the controller will monitor this transducer output to control the upstream pressure. If the pressure drops below the set point, 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 and the upstream pressure increases.**

If the pressure rises above the set point, 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 and upstream pressure decreases.**

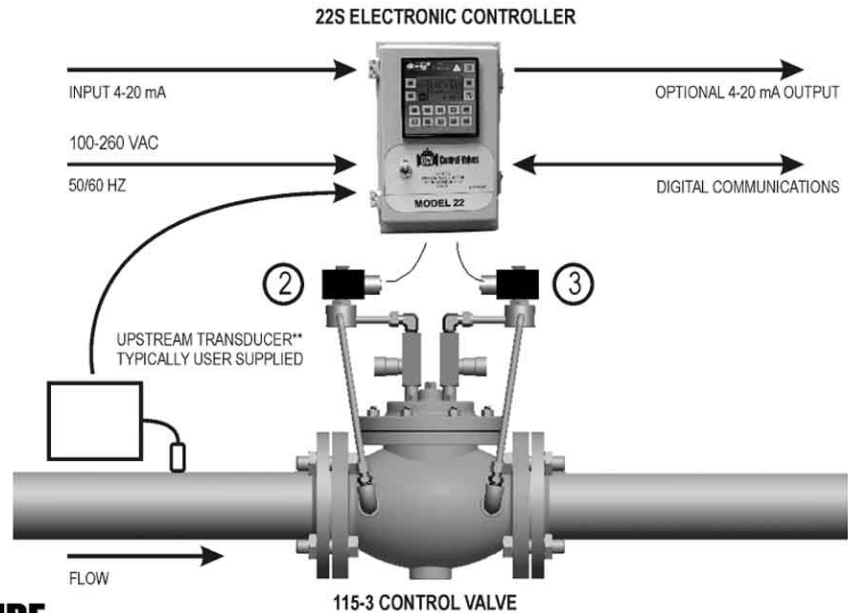
Finally, when pressure is at the set point, the controller closes both solenoids, thus no flow is allowed either on or off the diaphragm chamber. **The valve is "hydraulically locked" in position and upstream pressure is stable.**

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 open
- Default in last position

MODEL FEATURES

- ▶ Allows for frequent set point change
- ▶ Wider range of flow than standard hydraulic control systems
- ▶ 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
- ▶ Cavitation protection available when required
- ▶ Optional
 - ▶ Analog Output (4-20mA)
 - ▶ Intranet monitoring control and e-mailing (Ultra Controller Series only)
 - ▶ Hydraulic backup
 - ▶ Touch panel color graphic LCD (Ultra Controller Series only)
 - ▶ Valve Position Transmitter
 - ▶ Consult factory for others



SIZING

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

MAX. PRESSURE

Working pressures of solenoids vary greatly, consult factory on application of OCV Model 115-3 valves when pressures exceed those stated in chart.

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	BRONZE
Threaded	300 psi	300 psi	300 psi
Grooved	300 psi	300 psi	300 psi
150# Flanged	250 psi	285 psi	225 psi
300# Flanged	300 psi	300 psi	300 psi

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email: sales@controlvalves.com ● website: www.controlvalves.com

SIZES GLOBE/ANGLE

Screwed Ends: 1 1/4" - 3"; Grooved Ends: 1 1/2" - 6"

Flanged Ends: 1 1/4" - 24" (globe); 1 1/4" - 16" (angle)

TEMPERATURE RANGE (Valve Elastomers)

Buna-N -40°F - 180°F, Viton 0°F - 400°F, EPDM 0°F - 300°F

MATERIALS - Consult factory for others.

Body/Bonnet: Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, Bronze, Others available (consult factory)

Seat Ring: Bronze, Stainless Steel

Stem: Stainless Steel, Monel

Spring: Stainless Steel

Diaphragm: Nylon Reinforced, Buna-N, Viton, EPDM

Seat Disc: Buna-N, Viton, EPDM

Pilot: Bronze, Stainless Steel; *Other pilot system components:* Bronze/Brass, All Stainless Steel

Tubing & Fittings: Copper/Brass, Stainless Steel

Solenoid: *Enclosure:* Weatherproof NEMA 4X / Explosion Proof NEMA 4X, 6P, 7, 9

Body: Brass, Stainless Steel

Voltages: 24, 120, 240, 480 VAC / 12, 24 VDC

Note: Working pressures of solenoids vary greatly, consult factory on application of OCV Model 115-3 valves.

CONTROLLER SPECIFICATIONS

Power Requirements: 100-260 VAC 50-60Hz standard, Optional 24VDC or 12VDC

Inputs From Transducer: 4-20mA standard
Optional 0-10VDC

Outputs To Solenoids: 110-120VAC standard, Optional 220-240VAC, 12VDC, 24VDC

Model 22S Panel Dimensions: 9.50" (241mm) High x 6.00" (152mm) Wide x 5.78" (147mm) Deep

Enclosure: Nema 4X (weather tight, Corrosion resistant)

APPLICATION ENGINEERING ASSISTANCE

Consult Factory

SPECIFICATIONS (Typical Water Application)

The electronic pressure sustaining valve shall operate to control upstream pressure via discrete electrical signals from the controller.

DESIGN

The electronic pressure sustaining valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled <globe, angle> valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. 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 pressure sustaining valve shall be operationally and hydrostatically 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 bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. 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 <voltage>.

OPERATING CONDITIONS

The electronic pressure sustaining valve shall be suitable for sustaining pressures of <X to X> psi at flow rates up to <X> gpm.

ACCEPTABLE PRODUCTS

The electronic pressure sustaining valve shall be a <size> Model 22S <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	--	--	--	--	--	--
	150# FLGD	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	39	40 3/8	62
	300# FLGD	8 3/4	9 7/8	11 1/8	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8	35 1/2	40 1/2	42	63 3/4
C ANGLE	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	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 ANGLE	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	11	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 22S valve

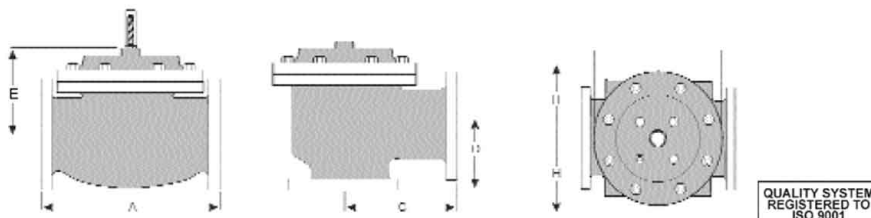
When Ordering please provide:

Fluid to be controlled -Model Number -Size -Globe or Angle -End Connection -Body Material -Trim Material -Solenoid & Controller Voltages - Pressure

Transducer Output/Flow Range -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



Represented by:

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