

# ENCHLOR

## SERIES 1100 Auto-Valve

- Auto-Proportioning Gas Feed
- Flow/Residual/Compound Loop
- Compatible with all systems
- Capacities from 10-2000ppd Cl2

The Enchlor Series 1100 Automatic Valve utilizes all digital electronics to provide high quality, low cost control for your process with a simple, user-friendly, menu driven, four pushbutton operator interface. The valve assembly is a direct drive digital stepper motor. The drive is directly coupled to a gas rotometer and valve. This provides the operator with a direct gas flow rate reading at the valve in addition to the digital display.

The controller accepts one or two 4-20 mAdc inputs and produces a single isolated, controlled 4-20 mAdc output to the valve. The operator display is an easy to read 2 line by 16 character backlit LCD. The control unit has three programmable alarm contacts.

At last a high quality but economical chlorinator. Proof that quality and 'made in America' production does not need to be expensive.

**Power Requirements:** Field selectable 115/230 VAC  $\pm 15\%$ , single phase. Operating frequency is 50 or 60 Hertz.  
**Fusing:** 1/4A @ 230V, 1/2A @ 115V (Time Delay, 250V).  
**Power Consumption:** 45 Watts.  
**Input Signal:** 0-10 Volts, d.c., 4-20 mA, d.c.  
**Input Impedance:** 60.4 Ohms for current inputs. 100K Ohms for voltage inputs.  
**Output Signals:** Switch Contacts rated at 3 amps @ 240 VAC or 28 VDC, resistive load.  
**Environmental Limits:** 32 to 120° F (0-50°C). **Calibration Accuracy:**  $\pm 1/4\%$  from zero.  
**Speed of Response:** Variable and field selectable.  
**Operating Range:** 10:1.  
**Operator Interface:** Four (4) button keypad.

**FTC Standards:**  
**Percentage of U.S. Content:**  
**Made in USA:**

**Domestic Origin:**  
**Manufactured in USA:**

**ALL Enchlor products comply with the FTC Act, 15 U.S.C § 45**  
**all components shall be of 100% U.S. content**  
**all equipment, parts and accessories shall be 100% made in the USA no foreign content or assembly shall be acceptable**  
**all equipment, parts, raw material and labor shall be of U.S. origin**  
**all equipment shall be manufactured AND assembled in the U.S.**



**Display:** 2-line x 16 character, backlit LCD  
**Control Mode:** Automatic - Manual.  
**Dosage Ratio:** 4:1, via keypad.  
**Serial Communications:** Bi dir. 20 mA Current Loop. RX is opto-coupled.  
**Analog to Digital Converter:** 12 bit, Unipolar, Successive Approximation.  
**Reliability & Protection:** Watchdog for microprocessor, MOV & fuse for power supply. Transorb for digital power supply and analog input.  
**EEPROM:** 128 Byte of EEPROM. Stores configuration and engineering parameters. **Memory:** 8K RAM. 32KROM.

# **Engineering Specifications for the Enchlor Model SERIES 1100 Auto-Valve**

## **1.01 GENERAL**

### **1.01.1 Completeness**

The system shall be complete with all components and appurtenances.

### **1.01.2 Quality Assurance**

All materials and components shall be new and unused of first quality by well-known manufacturers. Inferior materials or components shall not be allowed.

## **1.02 MANUFACTURER**

The manufacturer shall be Enchlor Inc., Silverdale, PA, USA or approved equal.

The automatic control valve shall be Enchlor Inc Series 1100 Auto-Valve.

## **1.03 AUTOMATIC CONTROL VALVE**

### **1.03.1 General**

1. The automatic control valve shall be provided to control \_\_\_ PPD of \_\_\_ gas.
2. The automatic control valve shall be comprised of a PID controller specifically programmed for water and wastewater treatment control and a variable area orifice rate valve complete with glass rotometer. These devices shall be incorporated onto one wall mounted panel or capable of being remote mounted.
3. The microprocessor based automatic control valve shall adjust the gas feed rate based on one or two electronic input signals or by means of any or all of four input relays.
4. The automatic control valve shall allow for the following standard, field selectable control modes: manual, (flow) proportional control, (residual/ORP) set-point control, (PID) Compound Loop control and Step-Feed Control.
5. Motion of the valve shall be achieved by means of a linear stepper motor.
6. Motion control shall be achieved without the use of a feedback potentiometer.
7. To ensure accurate feed rates throughout the range of operation, the software shall incorporate a 10-point valve linearization calibration.

### **1.03.2 Construction**

1. The automatic valve shall be housed in a NEMA4X rated enclosure.
2. Materials of construction shall be of the finest available for the appropriate chemical.

### **1.03.3 User Interface**

1. The automatic control valve shall include a 2-line, 16-character, alphanumeric, backlit LCD display.
2. User controls shall be through a front panel 4-button keypad.
3. Menus and variables shall be displayed in plain English words using easy to read, alphanumeric characters for clear understanding.
4. Control mode and all control parameters shall be password protected and adjustable through the keypad while displayed on the screen.

### **1.03.4 Inputs and Outputs**

1. The automatic control valve shall include three analog input channels.
2. Each analog input signal shall be independently user selectable as either 4-20mA or 1-5V.
3. The first input channel shall be used only for proportional (flow) input signals. The second input channel shall be used only for set point (residual or ORP) input signals.
4. A common relay output shall be provided for remote indication of alarm conditions.
5. Two 4-20mA output signals, proportional to the chemical feed rate, shall be provided.

