



# INSTALLATION & OPERATIONS MANUAL

CP SERIES VALVE  
CONTROL PANEL  
CP16SXXX1XX

## IMPORTANT:

Completely read and thoroughly understand these instructions before proceeding to install and wire the control panel.

For assistance contact your local distributor or Gems Sensors Inc. directly



or directly at

### **Gems Sensors Inc.**

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## **INSTALLATION INSTRUCTIONS**

**IMPORTANT:** Completely read and thoroughly understand these instructions before proceeding to install and wire the control. This manual is a generic guide and may not be specific to the panel provided. Refer to the part number for specific options chosen on drawing TD-198500 sheet 1.

Mount control box vertically on wall or other solid structure. The maximum distance between the control box and the location of the electrodes is determined by the sensitivity of the 16M control(s). This information is supplied on Form 167 (Bulletin P/N 100212-1).

## **WIRING INSTRUCTIONS**


**NOTE:** All wiring shall be in accordance with the National Electrical Code.

**The minimum allowable wire size is 14 AWG and of type THHN or MTW.**

The ground terminal provided inside the enclosure, on the back panel, must be connected to electrical ground.

**Caution:** Bonding between conduits must be made.

All conduit entrances and any external metal parts that may become energized must be grounded via the ground terminal provided on the back panel.

Circles with diagonals  on wiring diagram represent terminals provided for external connections. Connections to these terminals should be made using UL approved crimp type spade lugs. The maximum allowable connections per terminal are 2.

Connect terminal pair 1 – 2 to AC supply line of electrical characteristics indicated on data label and drawing. Fuse protection has not been provided. Do not exceed electrical characteristics indicated on data label and drawing. Maximum fuse rating is not to exceed 3 AMPS.

Terminal pairs 3 – 6 are isolated load contacts and must be wired in series with its load and that series branch circuit connected across a power source compatible with the load.

Connect terminals 15(16) and 2 to the normally open solenoid valve. The valve terminals are internally powered by the control circuitry and are rated not to exceed 3AMP @ 120VAC.

Connect terminals pair 3 – 4 into the circuit of the remote HIGH level alarm device. This circuit not to exceed 3AMP @ 120 VAC.

Connect terminals pair 5 – 6 into the circuit of the remote LOW level alarm device. This circuit not to exceed 3AMP @ 120 VAC.

### **Electrode Wiring**

Wiring must be provided to the electrodes as shown on the drawing provided. The electrode wiring should be thermoplastic insulated and be installed in a separate dry metallic conduit. Terminal 14 must be grounded to the vessel if metallic. If the electrode fitting used has a metallic body and is supported directly upon a metallic vessel, the ground connection is facilitated by securing that end of the ground conductor beneath the head of one of the screws which fasten the terminal housing to the body of the fitting. *When the vessel is non-metallic, terminal 14 must be connected to an additional electrode of length equal to or longer than, the longest electrode.*

### **Float Switch Wiring**

Wiring must be provided to the float switches as shown on the drawing provided. The float switches wiring should be thermoplastic insulated and be installed in a separate dry metallic conduit.

Connect terminals 7 and 8 to the normally open HIGH level float switch.

Connect terminals 9 – 12 to the normally open VALVE OPEN and CLOSED float switches based on the valve operation (i.e. valve fill).

Connect terminals 13 and 14 to the normally open LOW level float switch.

### **OPERATING INSTRUCTIONS**

A Hand-Off-Automatic selector switches is provided to allow the valve to be operated automatically or manually. To energize the valve, turn the selector switch to the "OPEN" position. To de-energize the valve, turn the respective switch to the "CLOSE" position. These switches will normally be in the "AUTO" position and operation will then be as follows.

#### **Valve Drain**

The valve will be energized when the tank level rises to the valve open electrode or float and will continue in operation until the level is reduced below valve closed electrode or float.

#### **Valve Fill**

The valve will be energized when the tank level recedes below the valve open electrode or float and will continue in operation until the level is rises to the valve closed electrode or float.

#### **High Alarm**

If the tank level rises to the HIGH LEVEL electrode or float, the high level alarm light will illuminate.

If the audible alarm option was chosen the following will also occur:

The audible alarm horn will sound and the contacts connected to terminal pair 3 – 4 will close. The contact will remain closed until the high level condition is corrected. The audible alarm can be silenced by momentarily depressing the SILENCE pushbutton, however, the light will remain on until the abnormal condition is corrected.

#### **Low Alarm**

If the tank level rises to the LOW LEVEL electrode or float, the low level alarm light will illuminate.

If the audible alarm option was chosen the following will also occur:

The audible alarm horn will sound and the contacts connected to terminal pair 5 – 6 will close. The contact will remain closed until the high level condition is corrected. The audible alarm can be silenced by momentarily depressing the SILENCE pushbutton, however, the light will remain on until the abnormal condition is corrected.