



# CSI Controls™



## POWER ZONE™ Control Panel Simplex/Duplex 4-20mA Transmitter Models

### Installation Instructions and Operation Manual



#### Parts included



\*Quantity = 1



\*Quantity = 1 or 2

\*Control panel may be ordered with or without these items.



### WARNING!



**ELECTRICAL SHOCK HAZARD**  
Disconnect all power sources before servicing. Failure to do so could result in serious injury or death.

This control panel must be installed and serviced by a licensed electrician in accordance with the National Electric Code NFPA-70, state and local electrical codes. UL Type 4X enclosures are for indoor or outdoor use.

**Warranty void if panel is modified.**

CSI Controls® offers a three-year limited warranty.  
For complete terms and conditions, please visit [www.csicontrols.com](http://www.csicontrols.com).

Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment to ensure that employees will not be exposed to health hazards in handling said material. All applicable laws and regulations shall apply.

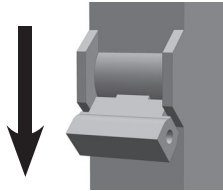
For technical support:  
email: [techsupport@sjeinc.com](mailto:techsupport@sjeinc.com)  
phone: 800-746-6287  
[www.csicontrols.com](http://www.csicontrols.com)

## Installing the Transmitter and Float Switches

The Power Zone™ Single Phase control panel operates with one 4-20mA submersible level transmitter and one or two backup float switches.

### 1 **⚠ WARNING!**

Ensure all power is turned OFF before installing floats in tank. Failure to do so could result in serious or fatal shock.



### 2 **⚠ CAUTION!**

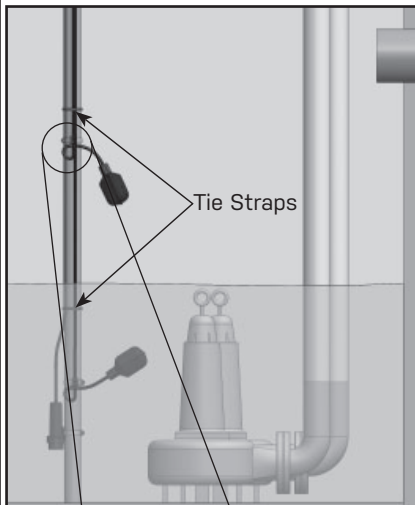
If the floats are not properly mounted and connected in the correct order, the pumps will not function properly.

Floats require free range of motion.

**⚠ WARNING:** To prevent erroneous measurements, do not allow the sensor diaphragm to come into contact with solid objects or sludge. Do not use level measurements less than 4" (10.2 cm) for control or alarm purposes (dead band).

**Caution:** Do not overtighten clamp or tie straps.

### 2-Float & Transmitter Installation



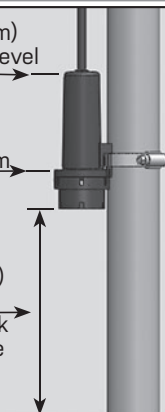
**⚠ WARNING:** DO NOT support transmitter by the cable.

**⚠ WARNING:** DO NOT kink or place cable under hose clamp. Doing so may cause failure.

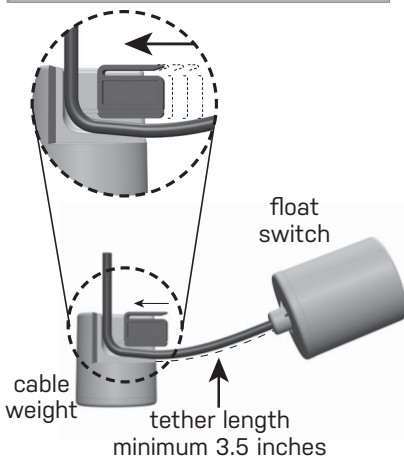
4 inch (10.2 cm) minimum set level

0 inch (0 cm) liquid level measured from approximately this point

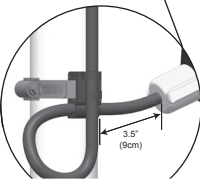
1 inch (2.5 cm) minimum from bottom of tank or from sludge



Replace product immediately if switch, cable weight or cable is damaged or cracked.



Tighten the clamp.



Hose clamp is 18-8 stainless steel. Contact your CSI Controls supplier for replacements.

Make sure hose clamp band does not interfere with float operation.

Do not install cord under hose clamp.

## Mounting the Control Panel

Mount control panel with supplied mounting feet.

### **NOTE**

If the distance to the control panel exceeds the length of the float switch cords or the pump power cord, splicing in a liquid-tight junction box will be required. For outdoor or wet installation, we recommend a CSI Controls, UL Type 4X junction box.

## Wiring the control panel

1 Determine conduit entrance locations on control panel as shown. Check local codes and schematic on the inside cover of the panel for the number of power circuits required.

### **⚠ CAUTION!**

Be sure the pump power voltage and phase are the same as the pump motor being installed.

Use of separate pump and control/alarm power sources is recommended.

2 Connect the following wires to the proper terminal positions:

- incoming power for each pump circuit
- incoming power for control/alarm circuit
- pump 1
- pump 2 (Duplex)
- float switches
- 4-20mA transmitter

### **⚠ CAUTION!**

You must use conduit sealant to prevent moisture or gases from entering the panel.

Type 4X conduit must be used to maintain a Type 4X rating of the control panel.

3 Verify correct operation of control panel after installation is complete.

## Operations

The Power Zone™ control panel uses float switches to continuously monitor and control the liquid level in the tank.

**Hand Operation** - Press and hold the "Push to Run" switch if stop float is OPEN. If stop float is CLOSED, press "Push to Run" switch and the pump will run until stop float opens or until "Push to Run" switch is pressed again.

**Off Operation** - Turn control/alarm breaker off to be in Off operation.

**Auto Operation** - In timed dose mode the timer controls pump ON and OFF time as long as the timer enable float is raised. In demand mode, the stop and start floats control the pump.

**Green Control and Alarm Power Indicators** - Illuminate when control power and alarm power is present. Alarm light will flash if alarm power is lost.

# Controller Navigation and Setup

## Viewing or Changing Parameters:

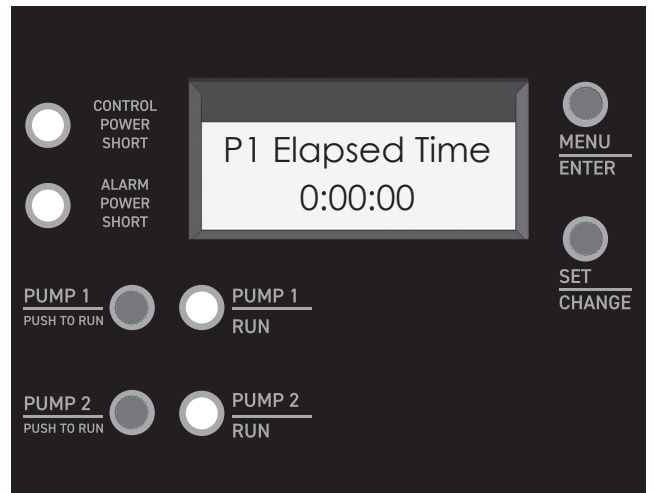
Press the Menu/Enter button to advance to the next menu.

Press and hold the Menu/Enter button for 3 seconds to access setting Menus.

Press Set/Change button to access Setting Menus and to edit/view parameters/function.

After 60 seconds of no activity in the Settings Menu the controller will go back to Main Display Menus.

Simplex Models: The panel operation is factory set to Demand Dose control. To activate Time Dose control, the Pump Off Time needs to be set.



Simplex 4-20mA Model		Duplex 4-20mA Model	
Display Main Menu	Navigation	Display Main Menu	Navigation
Depth 0.00 inches	Press Menu/Enter to advance Menus in Display Main Menu: To access Settings Menu press and hold Menu/Enter for 3 seconds	Depth 0.00 inches	Press Menu/Enter to advance Menus in Display Main Menu: To access Settings Menu press and hold Menu/Enter for 3 seconds
P1 Elapsed Time 0000:00:00 (h:m:s)		P1 Elapsed Time 0000:00 (hh:mm:ss)	
P1 Cycle Count 0 to 9999		P1 Cycle Count 0 to 9999	
Field 1 Timer 00:00 (mm:ss or hh:mm)		P2 Elapsed Time 0000:00 (hh:mm:ss)	
High Level Count 0 to 9999		P2 Cycle Count 0 to 9999	
Input Current mA 00.00 mA		Lag Pump Count 0 to 9999	
<b>Settings Menus</b>		<b>Settings Menus</b>	
Level Control Options Menu	Press Menu/Enter to advance Setting Menus: Press Set/Change to access Sub Menus & edit	Level Control Options Menu	Press Menu/Enter to advance Setting Menus: Press Set/Change to access Sub Menus & edit
Level Setpoints Menu		Level Setpoints Menu	
Time Dose Options Menu		Input Current mA 00.00 mA	
<b>Level Control Options Menu</b>		<b>Level Control Options Menu</b>	
Low Level Alarm	Default Setting <b>6in Bold</b> <b>Off</b> , Alarm Light Only, Light & Audible <b>Inches, Feet</b> <b>Use D.P. (99.99)</b> , No D.P. (9999) <b>Set/Chg to Reset</b> , Reset P1 C.C. <b>Set/Chg to Reset</b> , Reset Counter <b>Set/Chg to Reset</b> , Reset H.L. Count <b>Set/Chg to Reset</b> , Reset P1 E.T.M. <b>99.99</b> inches <b>00.00</b> inches	Level Control Options Menu	Default Setting in <b>Bold</b> <b>Alternate</b> , Pump #1 is Lead, Pump #2 is Lead <b>Off</b> , Alarm Light Only, Light & Audible <b>Inches, Feet</b> <b>Use D.P. (99.99)</b> , No D.P. (9999) <b>Set/Chg to Reset</b> , Reset P1 E.T.M. <b>Set/Chg to Reset</b> , Reset P1 C.C. <b>Set/Chg to Reset</b> , Reset P2 E.T.M.. <b>Set/Chg to Reset</b> , Reset P2 C.C. <b>Set/Chg to Reset</b> , Reset Lag Count <b>Set/Chg to Reset</b> , Reset H.L. Count <b>99.99</b> inches or feet <b>00.00</b> inches or feet
Measured Units		Level Setpoints Menu	
Decimal point		Lead Selection	
P1 E.T.M. Reset		Low Level Alarm	
Override Count Reset		Measured Units	
P1 C.C. Reset		Decimal Point	
H.L. Count Reset		P1 E.T.M. Reset	
Transmitr. Range		P1 C.C. Reset	
Transmitr. Offset	P2 E.T.M. Reset		
<b>Level Setpoints Menu</b>		<b>Level Setpoints Menu</b>	
Condition	Condition <b>05.00 inches</b> or feet <b>10.00 inches</b> or feet <b>30.00 inches</b> or feet <b>40.00 inches</b> or feet <b>50.00 inches</b> or feet	Condition	Condition <b>05.00 inches</b> or feet <b>10.00 inches</b> or feet <b>30.00 inches</b> or feet <b>40.00 inches</b> or feet <b>50.00 inches</b> or feet
Low Level SP		Low Level SP	
Pump Off SP		Pumps Off SP	
Pump On SP		Lead Pump On SP	
Override SP		Lag Pump On SP	
High Level SP		High Level SP	
<b>Time Dose Options Menu</b>		<b>Time Dose Options Menu</b>	
Default Setting in <b>Bold</b>	Default Setting in <b>Bold</b> <b>05:00</b> (mm:ss) <b>00:00</b> (hh:mm) activates TD Control <b>05:00</b> (mm:ss) <b>00:30</b> (hh:mm) <b>Off</b> , Alarm Light Only, Light & Audible <b>00:02</b> (mm:ss)	Default Setting in <b>Bold</b>	Default Setting in <b>Bold</b> <b>05:00</b> (mm:ss) <b>00:00</b> (hh:mm) activates TD Control <b>05:00</b> (mm:ss) <b>00:30</b> (hh:mm) <b>Off</b> , Alarm Light Only, Light & Audible <b>00:02</b> (mm:ss)
Pump On Time		Pump On Time	
Pump Off Time		Pump Off Time	
Override On Time		Override On Time	
Ovrd. Off Time		Ovrd. Off Time	
Override Alarm		Override Alarm	
H.L. Time Delay		H.L. Time Delay	

# Field Wiring Connections

## Terminal Strip with All Available Options

**Note:** This is only a sample, please follow the specific connection instructions located inside your panel.

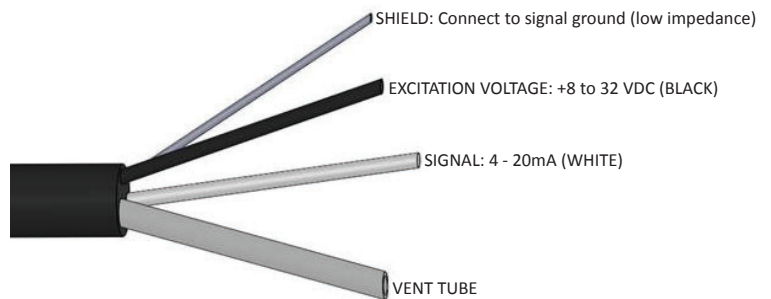
L1	L2	N	G	1	2	3	4	N	G	5	6	N	G	7	8	9	10	11	12	13	14	15	16	17	18	+	-	S
----	----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	---	---	---

<b>L1, L2, &amp; N</b>	115/230 VAC Pump Power
<b>1</b>	115 VAC Alarm Power
<b>2</b>	115 VAC Control Power
<b>3 &amp; 4</b>	Pump 1 Mtr.
<b>N</b>	For 115 Volt Pump Connection
<b>5 &amp; 6</b>	Pump 2 Mtr
<b>N</b>	For 115 Volt Pump Connection
<b>7 &amp; 8</b>	Redundant Off Float
<b>9 &amp; 10</b>	Off Float
<b>11 &amp; 12</b>	Lead On Float
<b>13 &amp; 14</b>	Lag On Float
<b>15 &amp; 16</b>	Alarm Float
<b>17 &amp; 18</b>	Aux. Alarm Contact
<b>+</b>	Excitation Voltage for 4-20mA Level Transmitter
<b>-</b>	Signal Input for 4-20mA Level Transmitter
<b>S</b>	Shield for 4-20mA Level Transmitter Cable

**Note:** Terminal strips will differ between Power Zone™ models and options. Your panel may be missing some of these terminal strip numbers. However, this example shows all possible field wiring connections.

Terminate transmitter cable in the control panel, connect wires to proper terminals as shown on the control panel schematic.

**Caution:** If the level transmitter wires are not connected properly, the 4-20mA signal output will not be correct. Level transmitter and float cables need to run in separate conduit from pump and power cables.



## Troubleshooting

Alarm Light Flash Pattern	Audible Alarm Pattern	Alarm Description	Other Indications
2 per second		High Level	Aux. Contact Closed
1 every 4 sec.	1 every 4 sec.	Control Power Short	Control Power Light Off Control Power Short Light On
1 every 4 sec.	None	Alarm Power Short	Alarm Power Light Off Alarm Power Short Light On
1 every 4 sec.	None	Alarm Power Fail	Alarm Power Light Off Alarm Power Short Light Off
2 every 4 sec.	2 every 4 sec. (if enabled)	Timer Override Warning	
3 every 4 sec.	3 every 4 sec. (if enabled)	Float Failure	"Failed" in Float Status Menu
5 every 4 sec.	2 every 4 sec. (if enabled)	Low Level	