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

Installation Instructions and Operation Manual

Parts included

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

*Quantity = 1

*Quantity = 1 or 2

WARNING!

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

Warranty void if panel is modified.

CSI Controls® offers a three-year limited warranty.
For complete terms and conditions, please visit 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.
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.

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.

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### Simplex 4-20mA Model

<table>
<thead>
<tr>
<th>Display Main Menu</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth 0.00 inches</td>
<td>Press Menu/Enter to advance Menus in Display Main Menu:</td>
</tr>
<tr>
<td>P1 Elapsed Time 0000:00:00 (h:m:s)</td>
<td></td>
</tr>
<tr>
<td>P1 Cycle Count 0 to 9999</td>
<td></td>
</tr>
<tr>
<td>Field 1 Timer 00:00 (mm:ss or hh:mm)</td>
<td></td>
</tr>
<tr>
<td>High Level Count 0 to 9999</td>
<td></td>
</tr>
<tr>
<td>Input Current mA 00.00 mA</td>
<td></td>
</tr>
</tbody>
</table>

**Settings Menus**

- **Level Control Options Menu**
  - Default Setting in **Bold**
  - Lead Selection: **Alternate**, Pump #1 is Lead, Pump #2 is Lead
  - Low Level Alarm: **Off**, Alarm Light Only, Light & Audible
  - Measured Units: **Inches**, **Feet**
  - Decimal point: **Use D.P. (99.99)**, **No D.P. (9999)**
  - P1 E.T.M. Reset: **Set/Chg to Reset**, Reset P1 C.C.
  - Override Count Reset: **Set/Chg to Reset**, Reset Counter
  - P1 C.C. Reset: **Set/Chg to Reset**, Reset H.L. Count
  - H.L. Count Reset: **Set/Chg to Reset**, Reset P1 E.T.M.
  - Transmtr. Range: 99.99 inches
  - Transmtr. Offset: 00.00 inches

**Level Setpoints Menu**

- Low Level SP: 05.00 inches or feet
- Pump Off SP: 10.00 inches or feet
- Pump On SP: 30.00 inches or feet
- Override SP: 40.00 inches or feet
- High Level SP: 50.00 inches or feet

**Time Dose Options Menu**

- Default Setting in **Bold**
- Pump On Time: 05:00 (mm:ss)
- Pump Off Time: 00:00 (hh:mm) activates TD Control
- Override On Time: 05:00 (mm:ss)
- Ovrd. Off Time: 00:30 (hh:mm)
- Override Alarm: **Off**, Alarm Light Only, Light & Audible
- H.L. Time Delay: 00:02 (mm:ss)

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### Duplex 4-20mA Model

<table>
<thead>
<tr>
<th>Display Main Menu</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth 0.00 inches</td>
<td>Press Menu/Enter to advance Menus in Display Main Menu:</td>
</tr>
<tr>
<td>P1 Elapsed Time 0000:00:00 (hh:mm:ss)</td>
<td></td>
</tr>
<tr>
<td>P1 Cycle Count 0 to 9999</td>
<td></td>
</tr>
<tr>
<td>P2 Elapsed Time 0000:00:00 (hh:mm:ss)</td>
<td></td>
</tr>
<tr>
<td>Lag Pump Count 0 to 9999</td>
<td></td>
</tr>
<tr>
<td>High Level Count 0 to 9999</td>
<td></td>
</tr>
<tr>
<td>Input Current mA 00.00 mA</td>
<td></td>
</tr>
</tbody>
</table>

**Settings Menus**

- **Level Control Options Menu**
  - Default Setting in **Bold**
  - Lead Selection: **Alternate**, Pump #1 is Lead, Pump #2 is Lead
  - Low Level Alarm: **Off**, Alarm Light Only, Light & Audible
  - Measured Units: **Inches**, **Feet**
  - Decimal point: **Use D.P. (99.99)**, **No D.P. (9999)**
  - P1 E.T.M. Reset: **Set/Chg to Reset**, Reset P1 E.T.M.
  - P2 E.T.M. Reset: **Set/Chg to Reset**, Reset P2 E.T.M.
  - P1 C.C. Reset: **Set/Chg to Reset**, Reset P1 C.C.
  - P2 C.C. Reset: **Set/Chg to Reset**, Reset P2 C.C.
  - Lag Count Reset: **Set/Chg to Reset**, Lag Count
  - H.L. Count Reset: **Set/Chg to Reset**, Reset H.L. Count
  - Transmtr. Range: 99.99 inches or feet
  - Transmtr. Offset: 00.00 inches or feet

**Level Setpoints Menu**

- Low Level SP: 05.00 inches or feet
- Pumps Off SP: 10.00 inches or feet
- Lead Pump On SP: 30.00 inches or feet
- Lag Pump On SP: 40.00 inches or feet
- High Level SP: 50.00 inches or feet
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 |
| L1, L2, & N | 115/230 VAC Pump Power | 115 VAC Alarm Power | 115 VAC Control Power | Pump 1 Mtr. | N | For 115 Volt Pump Connection | Pump 2 Mtr | N | For 115 Volt Pump Connection | Redundant Off Float | Off Float | Lead On Float | Lag On Float | Alarm Float | Aux. Alarm Contact | Excitation Voltage for 4-20mA Level Transmitter | Signal Input for 4-20mA Level Transmitter | 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

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

SHIELD: Connect to signal ground (low impedance)
EXCITATION VOLTAGE: +8 to 32 VDC (BLACK)
SIGNAL: 4 - 20mA (WHITE)
VENT TUBE