PWT Series Wet/Wet Differential Pressure Sensors

APPLICATION

The PWT Series wet/wet differential pressure sensors provide reliable, accurate measurement and control of proper applications, including the monitor and control of pump differential pressure, chiller/boiler differential pressure drop, and CW/HW system differential pressure. The PWT Series is ideal for measuring pressure across pumps, filters, heat exchangers, compressors and other non-corrosive wet media applications.

The PWT Series of pressure sensors feature four field selectable pressure ranges configurable to 4-20 mA, 0-5 Vdc, or 0-10 Vdc output.

INSTALLATION

1. Mount sensor on a duct or pipe, across the pump, filter, or other non-corrosive wet media pressure differential.
2. Wire as shown (see Fig. 2).
3. Configure the jumpers (see “Configuration” on page 2).
WIRING

**CAUTION**

This product uses a half-wave rectifier power supply. If the installer is using a transformer to power the device, do not use the same transformer to power other devices utilizing non-isolated full-wave power supplies.

**OPTIONAL:** Connect Zero terminals to digital output (contact closure) of control system.

**CAUTION**

Zero input is for dry-contact only. Do not apply voltage to the Zero terminals.

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**Fig. 2. PWT wiring.**

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**CONFIGURATION**

Select the proper output, mode, and pressure range using the switches and jumpers:

   - Current: mA (then skip to step 3), or Voltage: Volts.
2. Select 0-10 Vdc or 0-5 Vdc using jumper JP2.
3. Select slow or fast response time using jumper JP3.
5. Select normal or port swap using JP7.
7. Use the range switch to select appropriate full-scale pressure range. See Table 1 for the range selection guide.

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**Table 1. Range Selection Guide (PSI).**

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWT50</td>
<td>50</td>
<td>25</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>PWT100</td>
<td>100</td>
<td>50</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>PWT250</td>
<td>250</td>
<td>125</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

**IMPORTANT**

Select operational range according to maximum gauge pressure, **NOT** differential pressure.

Example: High gauge pressure = 90 psig, select 100 psig model.

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**Fig. 3. Wiring to the T775U—3-wire shielded cable, 0-10VDC PWT Sensor input to Sensor A on the T775U controller.**

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**Table 2. Jumper Configuration.**

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Options</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>JP1</td>
<td>Voltage (V) or Current (mA)</td>
<td></td>
</tr>
<tr>
<td>JP2</td>
<td>0-10V or 0-5V output span</td>
<td>Use only if JP1 is set to V mode.</td>
</tr>
<tr>
<td>JP3</td>
<td>Slow or Fast</td>
<td>Slow mode provides 5 second averaging for surge dampening.</td>
</tr>
<tr>
<td>JP6</td>
<td>Normal or Bidirectional</td>
<td>Normal: 0 to F.S. pressure. Bidirectional: -F.S. pressure to +F.S. pressure; output reads 1/2 when pressure is zero.</td>
</tr>
<tr>
<td>JP7</td>
<td>Normal or Port Swap</td>
<td>Swap reverses polarity of the pressure ports (i.e. makes the LO port operate as the HI port and vice versa); used when the sensor is incorrectly plumbed.</td>
</tr>
<tr>
<td>JP8</td>
<td>Normal or Analog Reverse</td>
<td>Normal: output increases as pressure increases; Reverse: output is maximum when pressure differential is zero and decreases as pressure increases.</td>
</tr>
</tbody>
</table>

**Table 3. Blink Codes.**

<table>
<thead>
<tr>
<th>LED Color</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Green</td>
<td>Normal operation.</td>
</tr>
<tr>
<td>Flashing Green</td>
<td>Low &gt; High; use port swap jumper or bidirectional mode.</td>
</tr>
<tr>
<td>Solid Red</td>
<td>Differential pressure is too high; select a higher pressure range.</td>
</tr>
<tr>
<td>Flashing Red</td>
<td>Gauge pressure over sensor range; reduce line pressure or replace with a higher range device.</td>
</tr>
</tbody>
</table>

**APPENDIX**

The PWT50-BP, PWT100-BP and PWT250-BP sensors were discontinued in January 2010. These sensors were shipped with a pre-assembled bypass valve. See Fig. 6.

**Commissioning the PWTXXX-BP (See Fig. 5)**

1. Make sure C and A are closed before beginning.
2. Open B (null).
3. Open D (bleed or purge).
4. Slowly open A to bleed air from line.
5. Close B, then fully open A.
6. Slowly open C to bleed air from line.
7. Close D, then fully open C.

**Table 4. Bidirectional Operation.**

<table>
<thead>
<tr>
<th>Input Conditions</th>
<th>Result</th>
<th>Outputs Read&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>HI PORT</td>
<td>LO PORT</td>
<td>DP</td>
</tr>
<tr>
<td>100 PSI</td>
<td>0 PSI</td>
<td>+100 PSI</td>
</tr>
<tr>
<td>100 PSI</td>
<td>50 PSI</td>
<td>+50 PSI</td>
</tr>
<tr>
<td>50 PSI</td>
<td>50 PSI</td>
<td>0 PSI</td>
</tr>
<tr>
<td>50 PSI</td>
<td>100 PSI</td>
<td>-50 PSI</td>
</tr>
<tr>
<td>0 PSI</td>
<td>100 PSI</td>
<td>-100 PSI</td>
</tr>
</tbody>
</table>

<sup>a</sup>Output can be mA or V.
**Maintenance**

Bleed or purge—see Commissioning  
Equalize pressure—open B  
Isolate sensors—close A and C

![Diagram](image)

**Fig. 5. Bypass valve assembly and bracket dimensions in in. (mm).**

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**Automation and Control Solutions**

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