Pressure transmitter is the most commonly used sensor in industrial productions. It is widely used in various industrial control environments, involved in water conservancy and hydro power, railway transportation, intelligent buildings, production control, aerospace, military industry, petrochemical, oil, electric power, ships, machine tools, pipes and so on.

The following is a brief introduction of principles and applications of some common pressure transmitters. They are used to measure the level, density and pressure of liquid, gas or steam, and then convert the pressure signal into standard current output or voltage signal output.

Pressure transmitters mainly include: ceramic piezoresistive pressure transmitter, capacitive pressure transmitter, diffused silicone pressure transmitter, strain type pressure transmitter, sapphire pressure transmitter, sputtering film pressure transmitter etc.

According to the measuring range, pressure transmitter can be divided into three types: general pressure transmitter (0.001MPa~100MPa), differential pressure transmitter (0~1.5kPa), and negative pressure transmitter. It transmits pressure signal into electronic equipment and then the pressure is displayed by computer. Its working principle is to convert the mechanical signal like liquid pressure or gas pressure into electric signal like current or voltage. The pressure has a linear direct proportional relation with the voltage or current, therefore, the voltage or current will increase with the increase of the pressure, and then a relationship expression between the pressure and voltage or current can be obtained to achieve the aim of measuring the gas and liquid pressure.
### PI100 series product type

![Intelligent display type]

### PI100 series structure diagram (for reference)

Typical product examples (the exact dimensions shall be subject to the actual)

![Structure diagram]

### Main technical parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Positive pressure</th>
<th>Negative pressure</th>
<th>Absolute pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>Positive pressure</td>
<td>Negative pressure</td>
<td>Absolute pressure</td>
</tr>
<tr>
<td></td>
<td>Min range</td>
<td>Max range</td>
<td>Min range</td>
</tr>
<tr>
<td>500Pa</td>
<td>260MPa</td>
<td>-80kPa</td>
<td>-100kPa</td>
</tr>
<tr>
<td>Accuracy grade</td>
<td>0.2% F.S.</td>
<td>0.5% F.S.</td>
<td></td>
</tr>
<tr>
<td>Working voltage</td>
<td>12 ~ 30VDC, 24VDC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>4 ~ 20mA, 0 ~ 20mA, 1 ~ 5VDC, 0 ~ 10VDC, 0 ~ 5VDC, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Compensation temperature</td>
<td>Medium temperature</td>
<td>Working temperature</td>
</tr>
<tr>
<td></td>
<td>0 ~ 50°C, -10 ~ 80°C, customized</td>
<td>-25 ~ 85°C</td>
<td>-20 ~ 85°C</td>
</tr>
<tr>
<td>Temperature drift</td>
<td>0.02% F.S./°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical connection</td>
<td>DIN, aviation joint, terminals, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>IP65, IP67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thread connection</td>
<td>M20×1.5 external thread, G1/2&quot; external thread, G1/4&quot; external thread, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-vibration</td>
<td>20g, 20 ~ 5000Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-impact</td>
<td>100g, 11ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell material</td>
<td>SUS304 stainless steel, low copper aluminum alloy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service life</td>
<td>&gt; 1×10⁶ pressure cycling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PI100 Series Economical Pressure Transmitter Selection Table

**Smart Pressure Transmitter**

<table>
<thead>
<tr>
<th>Product Series</th>
<th>PI100</th>
</tr>
</thead>
</table>

- **G:** Gauge pressure; **N:** Composite gauge pressure (positive & negative pressure); **A:** Absolute pressure
- **F:** 4~20mA two-wire system; **H:** 4~20mA/Hart; **S:** RS485/Modbus RTU; **V:** 1~5VDC three-wire system; **Y1:** Customized;
- **4:** Stainless steel 304; **6:** Stainless steel 316; **Y2:** Customized;
- **M:** External thread M20x1.5(inner diametersΦ3); **G:** External thread G1/2″(inner diametersΦ3); **Y3:** Customized;
- **C:** Normal temperature type<80℃; **T:** High temperature type<200℃; **Y4:** Customized;
- **A:** Standard type; **B:** Flush type; **C:** Half-flush type;
- **H:** Hirschmann joint; **Y5:** Customized;
- **2:** ±0.2%; **5:** ±0.5%; **Y6:** Customized;
- **A:** Without on-site display; **C:** LCD digital range display; **Y7:** Customized;
PI200 series

PI200 series structure diagram (for reference)

Typical product examples (the exact dimensions shall be subject to the actual)
## Main technical parameters

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Positive pressure</th>
<th>Negative pressure</th>
<th>Absolute pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min range</td>
<td>Max range</td>
<td>Min range</td>
<td>Max range</td>
</tr>
<tr>
<td>5KPa</td>
<td>70MPa</td>
<td>-5KPa</td>
<td>-100KPa</td>
</tr>
<tr>
<td>Pressure type</td>
<td>Accuracy class</td>
<td>Working voltage</td>
<td>Output signal</td>
</tr>
<tr>
<td></td>
<td>0.2%F.S., 0.5%F.S.</td>
<td>12 ~ 30VDC, 24VDC</td>
<td>4 ~ 20mA, 0 ~ 20mA, 1 ~ 5VDC, 0 ~ 10VDC, 0 ~ 5VDC, customized</td>
</tr>
<tr>
<td>Pressure type</td>
<td>Working voltage</td>
<td>Temperature range</td>
<td>Temperature range</td>
</tr>
<tr>
<td></td>
<td>Compensation</td>
<td>Medium temperature</td>
<td>Working temperature</td>
</tr>
<tr>
<td></td>
<td>temperature</td>
<td>-10 ~ 80℃, customized</td>
<td>-25 ~ 85℃</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02%F.S./℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical connection</td>
<td>Terminals, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>IP67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thread connection</td>
<td>M20x1.5 external thread, G1/2&quot; external thread, G1/4&quot; external thread, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-impact</td>
<td>20g, 20 ~ 5000Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell material</td>
<td>low copper aluminum alloy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service life</td>
<td>&gt; 1x10⁶ pressure cycling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PI200 series standard pressure transmitter selection table

**Standard pressure transmitter**

- **G**: Gauge pressure; **N**: Composite gauge pressure (positive & negative pressure); **N**: Absolute pressure
- **Digit & unit, e.g.**:(0~2.0MPa)
- **F**: 4~20mA two-wire system; **H**: 4~20mA/Hart; **S**: RS485/Modbus RTU; **V**: 1~5VDC three-wire system; **Y1**: Customized;

```
4: Stainless steel 304; 6: Stainless steel 316; Y2:Customized;
M: External thread M20x1.5(inner diametersΦ3); G: External thread G1/2"(inner diametersΦ3); Y3: Customized;
C: Normal temperature type80℃; T: High temperature type200℃; Y4: Customized;
A: Standard type; B: Flush type; C: Half-flush type;
2: ±0.2%; 5: ±0.5%; Y5: Customized;
```

- **A**: Without on-site display; **C**: LCD digital range display; **Y6**: Customized;

- **S**: Standard type (non-explosion-proof)
- **I**: Intrinsic safety type Exia II CT6;
- **D**: Flame-proof type Exd II CT6;
- **Y7**: Customized;

Note: The default electrical connection is M20x1.5. Please advise if want customized.
PI300 series

Standard differential pressure type
Single-flange differential pressure type
Double-flange differential pressure type
Stainless steel double-chuck
Sanitary differential pressure

PI300 series structure diagram (for reference)

Typical product example (the exact dimensions shall be subject to the actual)
### PI300 Series standard type Main technical parameters

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Positive pressure</th>
<th>Negative pressure</th>
<th>Absolute pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min range</td>
<td>Max range</td>
<td>Min range</td>
</tr>
<tr>
<td>Min range</td>
<td>200Pa</td>
<td>10MPa</td>
<td>-200Pa</td>
</tr>
<tr>
<td>Accuracy grade</td>
<td></td>
<td></td>
<td>0.075%F.S., 0.2%F.S., 0.5%F.S.</td>
</tr>
<tr>
<td>Working voltage</td>
<td></td>
<td></td>
<td>13 ~ 45VDC, 24VDC</td>
</tr>
<tr>
<td>Output signal</td>
<td>4 ~ 20mA, 4 ~ 20mA/HART, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Compensation temperature</td>
<td>Medium temperature</td>
<td>Working temperature</td>
</tr>
<tr>
<td></td>
<td>0 ~ 50°C, -10 ~ 80°C, customized</td>
<td>-25 ~ 85°C</td>
<td>-20 ~ 85°C</td>
</tr>
<tr>
<td>Temperature drift</td>
<td></td>
<td></td>
<td>0.02%F.S./C</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>Terminals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>IP67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thread connection</td>
<td>M20×1.5 external thread, G1/2&quot;NPT internal thread, 1/4” internal thread, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-vibration</td>
<td>20g, 20 ~ 5000Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-impact</td>
<td>100g, 11ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell material</td>
<td>Low copper aluminum alloy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service life</td>
<td>&gt; 1×10⁸ pressure cycling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### PI300 series economical type Main technical parameters

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Positive pressure</th>
<th>Negative pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min range</td>
<td>Max range</td>
</tr>
<tr>
<td>Min range</td>
<td>500Pa</td>
<td>350KPa</td>
</tr>
<tr>
<td>Accuracy grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>4 ~ 20mA, 0 ~ 20mA, 1 ~ 5VDC, 0 ~ 10VDC, 0 ~ 5VDC, customized</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Compensation temperature</td>
<td>Medium temperature</td>
</tr>
<tr>
<td></td>
<td>0 ~ 50°C, -10 ~ 80°C, customized</td>
<td>-25 ~ 85°C</td>
</tr>
<tr>
<td>Temperature drift</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical connection</td>
<td>DIN, Terminals, customized</td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>IP65, IP67</td>
<td></td>
</tr>
<tr>
<td>Thread connection</td>
<td>M20×1.5 external thread, G1/2&quot; external thread, G1/4&quot; internal thread, customized</td>
<td></td>
</tr>
<tr>
<td>Anti-vibration</td>
<td>20g, 20 ~ 5000Hz</td>
<td></td>
</tr>
<tr>
<td>Anti-impact</td>
<td>100g, 11ms</td>
<td></td>
</tr>
<tr>
<td>Shell material</td>
<td>SUS304 stainless steel, low copper aluminum alloy</td>
<td></td>
</tr>
<tr>
<td>Service life</td>
<td>&gt; 1×10⁸ pressure cycling</td>
<td></td>
</tr>
</tbody>
</table>
### PI300 series  Standard differential pressure transmitter selection table

<table>
<thead>
<tr>
<th>Digit &amp; unit, e.g.(-0.1~0.1KPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F: 4<del>20mA two-wire system; H: 4</del>20mA/Hart; S: RS485/Modbus RTU; V: 1~5VDC three-wire system; Y1: Customized;</td>
</tr>
<tr>
<td><strong>D0:</strong> Drain valve is at the rear end of the flange; <strong>D1:</strong> Drain valve is on the upper part of the side of the flange; <strong>D2:</strong> Drain valve is on the lower part of the side of the flange; <strong>D3:</strong> No relief valve;</td>
</tr>
<tr>
<td><strong>S0:</strong> Without diaphragm seals; <strong>S1:</strong> Single-end connection seals; <strong>S2:</strong> Double-end connection seals;</td>
</tr>
<tr>
<td>P: Internal thread(1/4-18NPT body); F: Flange(); Y2: Customized; e.g.: P(1/4NPT), F(DN25 PN0.6MPa HG20592-97)</td>
</tr>
<tr>
<td><strong>S:</strong> 316L stainless steel; <strong>T:</strong> Tantalum; <strong>M:</strong> Monel; <strong>H:</strong> Hastelloy C; <strong>P:</strong> 316L+PTFE spraying</td>
</tr>
<tr>
<td><strong>4:</strong> Stainless steel 304; <strong>6:</strong> Stainless steel 316; <strong>Y3:</strong> Customized;</td>
</tr>
<tr>
<td><strong>C:</strong> Normal temperature type 80°C; <strong>T:</strong> High temperature type 200°C; <strong>Y4:</strong> Customized;</td>
</tr>
<tr>
<td><strong>2:</strong> ±0.2%; <strong>5:</strong> ±0.5%; <strong>7:</strong> ±0.075%;</td>
</tr>
<tr>
<td><strong>A:</strong> Without display; <strong>C:</strong> LCD display;</td>
</tr>
<tr>
<td><strong>S:</strong> Standard type (non-ex-proof); <strong>I:</strong> Intrinsic safety type  Exib II CT6 or Exia II CT6; <strong>D:</strong> Flame-proof type Exd II BT6 or Exd II CT6; <strong>Y5:</strong> Customized;</td>
</tr>
</tbody>
</table>

Note: The default electrical connection is M20×1.5. Please advise if want customized. Below is the diaphragm information:
**Flange diaphragm seals (optional accessories for PI300 series standard differential pressure transmitters)**

**PRODUCT DESCRIPTION**
- Connected with pressure and differential pressure transmitter, made up of diaphragm measurement systems.
- Excellent over-voltage protection structure, superior temperature stability, fully welded solid and reliable seal design.
- Various materials and specifications of diaphragms can be selected, suitable for different ranges of corrosive medium.
- Suitable for high temperature or low temperature mediums, or highly viscous mediums with impurity.
- Used for pressure, differential pressure, level, flow, interface and density measurement.

**Structure**

<table>
<thead>
<tr>
<th>Nominal diameter (DN)</th>
<th>Nominal pressure (MPa)</th>
<th>Raised face diameter C</th>
<th>Outer diameter A</th>
<th>Thickness D</th>
<th>Center distance of the screw holes b</th>
<th>Number of screw holes n</th>
<th>Drill holes diameter d</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN40</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DN50</td>
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<td></td>
</tr>
<tr>
<td>DN80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If installing the movable flange, then flange thickness should be D+8.
**PI600 series Submersible pressure level transmitter**

PI633

**Main technical parameters**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Positive pressure</th>
<th>Negative pressure</th>
<th>Absolute pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min range</td>
<td>Max range</td>
<td>Min range</td>
</tr>
<tr>
<td>Positive pressure</td>
<td>2KPa</td>
<td>2MPa</td>
<td>-2KPa</td>
</tr>
<tr>
<td>Negative pressure</td>
<td>0.2%F.S. , 0.5%F.S.</td>
<td>endent</td>
<td>24VDC</td>
</tr>
<tr>
<td>Output signal</td>
<td>4<del>20mA, 0</del>20mA, 1<del>5VDC, 0</del>10VDC, 0~5VDC, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>Compensation temperature</td>
<td>Medium temperature</td>
<td>Working temperature</td>
</tr>
<tr>
<td>0<del>50℃, -10</del>80℃</td>
<td>-10~70℃</td>
<td>-10~70℃</td>
<td>-20~70℃</td>
</tr>
<tr>
<td>Temperature drift</td>
<td>0.02%F.S./℃</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical connection</td>
<td>Directly lead, terminals, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection grade</td>
<td>Submersible probe: IP68; Junction box: IP67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thread connection</td>
<td>M20×1.5 external thread, flange DN50 PN1.0MPa, customized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-vibration</td>
<td>20g, 20~5000Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-impact</td>
<td>100g, 11ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing material</td>
<td>SUS304 stainless steel, SUS316 stainless steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service life</td>
<td>&gt; 1×10⁶ pressure cycling</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# PI600 series Submersible pressure level transmitter

## Submersible pressure transmitter

<table>
<thead>
<tr>
<th>G</th>
<th>N</th>
<th>A</th>
<th>C</th>
<th>P</th>
<th>Y1</th>
<th>Y2</th>
<th>Y3</th>
<th>Y4</th>
<th>Y5</th>
<th>Y6</th>
<th>Y7</th>
<th>Y8</th>
<th>Y9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gauge pressure</td>
<td>Composite gauge pressure (positive &amp; negative pressure)</td>
<td>Absolute pressure</td>
<td>Cable type</td>
<td>Rod type (length&lt;3m)</td>
<td>Customized</td>
<td>Customized</td>
<td>PVC</td>
<td>Customized</td>
<td>Stainless steel 304</td>
<td>Stainless steel 316</td>
<td>PTEE coated stainless steel</td>
<td>PVC</td>
<td>Customized</td>
</tr>
</tbody>
</table>

- **F**: 4~20mA two-wire system
- **H**: 4~20mA/Hart
- **S**: RS485/Modbus RTU
- **V**: 1~5VDC three-wire system

<table>
<thead>
<tr>
<th>M</th>
<th>T</th>
<th>Y3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>External thread M42x1.5</td>
<td>Customized</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>4</th>
<th>6</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC (price is same within 5m)</td>
<td>Stainless steel 304</td>
<td>Stainless steel 316</td>
<td>PTEE coated stainless steel</td>
</tr>
</tbody>
</table>

- **C**: Normal temperature type within 80°C
- **T**: High temperature type within 200°C
- **Y6**: Customized

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>Y6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard type</td>
<td>Flush type</td>
<td>Half-flush type</td>
</tr>
</tbody>
</table>

- **A**: Without on-site display
- **C**: LCD digital range display
- **Y8**: Customized

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard type (non-explosion-proof)</td>
<td>No</td>
<td>GBDN50 PN1.0MPa flange (GB/T9119-2000)</td>
</tr>
</tbody>
</table>

- **I**: Intrinsic safety type Exia II CT6
- **D**: Explosion proof type Exd II CT6

**Note:** The default electrical connection is M20×1.5. Please advise if want customized.