

## DATASHEET

## Pressure Level

## Submersible Level Transmitter For Flood & River Water Model PWP413

### Applications

- Flood level monitoring and alarm
- Muddy liquid level measurement
- Wastewater and sewage treatment
- Water channels, canals, dams monitor
- Reservoir level measurement
- Irrigation and agricultural systems
- Hydraulic monitoring

### Features

- Range 0~1m...200mH2O
- Accuracy  $\pm 0.25\%FS$ ,  $\pm 0.5\%FS$
- Sediment-proof
- Reverse polarity protection
- Robust and cost-effective
- IP68 water-proof
- OEM & ODM

**Submersible Level Sensor PWP413**

### Description

PWP413 is a submersible level transmitter with special structure. It's special sediment filter to prevent from the tiny impurities clogging issue. Have excellent performance in river and flood water. 316L stainless steel diaphragm and welded 316L body construction make it robust from shock and erosion.

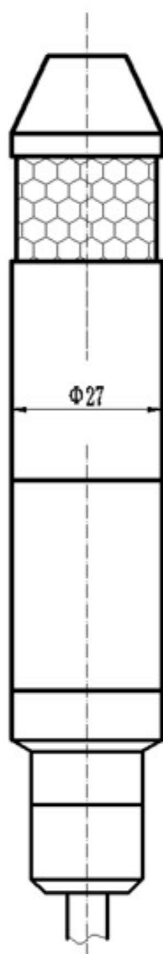
With high quality Germany imported piezoresistive sensor core it has high accuracy and stability. Widely used in sewage, river and lake treatment, as well as channels, large rivers, reservoirs and coastline monitoring.

A probe with cable makes it easy installation, commissioning and operation. A ventilation tube in the cable automatically compensates for changes in atmospheric pressure above the water, to assure the measurement accuracy. Model PWP413 integrates with surge protection and reverse connection protection, to prevent damage of sensors.

## Specifications

| Model                          | PWP413                                                                                                                                                                                                              |                      |               |                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------|---------------------|
| Pressure Type                  | Relative (gauge) /Absolute pressure                                                                                                                                                                                 |                      |               |                     |
| Pressure Range                 | 0m~0.5m...200m H2O/0-0.05 bar...20bar                                                                                                                                                                               |                      |               |                     |
| Safe Overload                  | ≤150%FS                                                                                                                                                                                                             |                      |               |                     |
| Burst Pressure                 | 500%FS                                                                                                                                                                                                              |                      |               |                     |
| Electrical Connection          | Directly outlet cable                                                                                                                                                                                               |                      |               |                     |
| IP Rating                      | IP68                                                                                                                                                                                                                |                      |               |                     |
| Accuracy                       | ±0.5%FS(Typical), ±0.25%FS, ±0.1%FS(optional) @25℃                                                                                                                                                                  |                      |               |                     |
| Signal Output & Power Supply   | 4-20mA(2 wires)                                                                                                                                                                                                     | 0.5-4.5V(3 wires)    | 0-5V(3 wires) | 0-10V(3 wires)      |
|                                | 12-30VDC                                                                                                                                                                                                            | 5VDC                 | 8-24VDC       | 12-30VDC            |
|                                | -----                                                                                                                                                                                                               |                      |               |                     |
|                                | I²C                                                                                                                                                                                                                 | RS485 Modbus         | HART          |                     |
|                                | 3.3 or 5VDC                                                                                                                                                                                                         | 5-30VDC              | 15-30VDC      |                     |
| Response Time                  | ≤3ms (10%~90%)                                                                                                                                                                                                      |                      |               |                     |
| Medium Compatible              | Liquid compatible with SS316L or ceramic material                                                                                                                                                                   |                      |               |                     |
| Load Resistance(2 wires)       | R≤(U-10)/0.02-RD (U: Power supply, RD: Internal resistance in the cable)                                                                                                                                            |                      |               |                     |
| Total current consumption      | Current signal(2wires): Max about 23mA<br>Voltage signal(3wires): <5mA<br>I²C(4wires): <1.3mA (Available to customize low consumption <5 μA)<br>RS485(4wires): <5mA (Available to customize low consumption <1.1mA) |                      |               |                     |
| Accuracy&Performance           | 0.1% Accuracy Class                                                                                                                                                                                                 | 0.25% Accuracy Class |               | 0.5% Accuracy Class |
| Non-linear ( %FS )             | ≤0.1                                                                                                                                                                                                                | ≤0.2                 |               | ≤0.4                |
| Hysteresis ( %FS )             | ≤0.05                                                                                                                                                                                                               | ≤0.05                |               | ≤0.1                |
| Repeatability (%FS)            | ≤0.05                                                                                                                                                                                                               | ≤0.05                |               | ≤0.1                |
| Long-term Stability (%FS/year) | ≤0.1                                                                                                                                                                                                                | ≤0.2                 |               | ≤0.5                |
| Zero Temp Drift ( %FS/℃ )      | ≤0.01                                                                                                                                                                                                               | ≤0.03                |               | ≤0.05               |
| Compensation Temp.             | 0℃~~+50℃(typical), -10℃~~+60℃(optional)                                                                                                                                                                             |                      |               |                     |
| Working Temp.                  | Media -30℃~~+65℃, environmental -40℃~~+70℃                                                                                                                                                                          |                      |               |                     |
| Storage Temp.                  | -40℃~~+70℃                                                                                                                                                                                                          |                      |               |                     |
| Vibration Environment          | 10g (@10Hz~2000Hz)                                                                                                                                                                                                  |                      |               |                     |
| Impact Resistance              | 100g/11ms                                                                                                                                                                                                           |                      |               |                     |
| Service Life                   | >10 million load cycles (within measurement range)                                                                                                                                                                  |                      |               |                     |
| Explosion Proof                | Exia II CT6(Optional)                                                                                                                                                                                               |                      |               |                     |
| EMC Standard                   | EN IEC 61326-1:2021; EN IEC 61326-2:2021                                                                                                                                                                            |                      |               |                     |
| Cable material                 | 3 choices according to applications: PE cable, PU cable or FEP cable                                                                                                                                                |                      |               |                     |

## Dimensions and Drawings



\*Unit is mm. Above is typical structures. Other structures and dimensions can be customized.

## Electrical Connection

| Directly outlet cable                                                               |            |                  |                  |              |                |
|-------------------------------------------------------------------------------------|------------|------------------|------------------|--------------|----------------|
|  | Wire Color | Current (2wires) | Voltage (3wires) | IIC (4wires) | RS485 (4wires) |
|                                                                                     | Red        | Vcc              | Vcc              | Vcc          | Vcc            |
|                                                                                     | Green      | Iout             | GND              | GND          | GND            |
|                                                                                     | Yellow     | /                | Vout             | SCL          | RS485A         |
|                                                                                     | Blue       | /                | /                | SDA          | RS485B         |
|                                                                                     | Black      | PE               | PE               | PE           | PE             |

## How to Order

**Example Part Number: 413[5]HGT1S2A1M1N005**

|                         |                                                                                                                                                                                                                                                 |      |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Model No.               | PWP413                                                                                                                                                                                                                                          | 413  |
| Measuring Range & Units | H=mH <sub>2</sub> O (0m~1m ... 200m)<br>B=bar (0~0.1bar ...Max 20bar)<br>P=Psi (0~1.45psi...Max 290psi)<br>I=inWC (0~40inWC...Max 7800inWC)<br>Directly write range in [] and mention the code, for example: [5]H=5m H <sub>2</sub> O           | [5]H |
| Pressure Type           | G= Gauge/Relative<br>A=Absolute                                                                                                                                                                                                                 | G    |
| Signal Output           | T1=4-20mA(2wires)      T2=0-5V(3wires)      T3=1-5V(3wires)<br>T4=0-10V(3wires)      T5=0.5-4.5V(3wires)      T6=I <sup>2</sup> C(4wires)<br>T7=RS485(4 wires)      T8=4-20mA+HART<br>T9=Dual 4-20mA(Pressure/Level + Temp.)      T0=Customized | T1   |
| Power Supply            | S1=8-24VDC      S2=12-30VDC      S3=5VDC<br>S4=3.3VDC      S5=5-30VDC      S0=Customized                                                                                                                                                        | S2   |
| Accuracy                | A1=0.5%F.S.<br>A2=0.25%F.S.<br>A3=0.1%F.S.                                                                                                                                                                                                      | A1   |
| Housing Material        | M1=316L(Typical)<br>M0=Customized                                                                                                                                                                                                               | M1   |
| Others                  | N=Standard type<br>TI=Titanium alloy wetted part<br>AD=Additional weight                                                                                                                                                                        | N    |
| Cable Length            | 001= 1m cable    002= 2m cable    003= 3m cable    ...                                                                                                                                                                                          | 005  |

\*Means to order: Level transmitter PWP413, range 0~5 meters water Gauge, 4-20mA, 12-30VDC, 0.5%FS accuracy, 316L housing material, standard type, cable length is 5 meters.

## You may also Need

| Reference Picture                                                                  | Description                                                                                                                                                                                                                                                                                                                                 | Model and Product                          |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
|   | To connect with pressure transmitter and to have a site indicator of the measured value, have high&low value alarms, record and control.                                                                                                                                                                                                    | PWD Series<br>Display/indicator/controller |
|   | Cast aluminum material with IP67 protection level for submersible pressure transmitter. Moisture-proof sealing design, insulation protection against electric shock. To be placed in dry environment or in a cabinet.                                                                                                                       | 0010<br>Terminal box                       |
|   | To lock transmitter's cable on the top of tank, stainless steel material.                                                                                                                                                                                                                                                                   | 0001<br>Cable Locking Part                 |
|  | The additional weight increases the dead weight of the submersible level transmitter. It helps operation of lower down the sensor into narrow spaces like deep wells, tubes, boreholes. To reduce negative environmental influences on the measuring result. Material stainless steel 316L, dimension differs according to measuring range. | 0002<br>Additional Weight                  |

*\*\*Tell us medium / which application / measuring range / working temperature / signal output / what you wanna to realize, our sales engineer will recommend suitable model for you.*