

TECHNOLOGY

**HOLYKELL®**

**HPT604**  
**LEVEL**  
• DATASHEET •

1. Pressure Measurement   **2. Level Measurement**   3. Temperature Measurement  
4. Flow Measurement   5. Display & Control Instruments  
6. Wireless Monitoring System   7. Velocity Measurement

# HPT604 (Type FW)

## Submersible Water Detector and Fuel Level & Temperature Transducer



### Features:

- Accuracy:  $\leq \pm 0.25\% \text{F.S.}$
- Wide working temperature scope
- Advanced digital temperature compensation
- Excellent resistance against impact, overload, shock and erosion.
- Water detection, fuel level & temperature optional
- Impact resistance and disturbance

### Applications:

- Fuel Tank Level Monitor Systems
- Water detection Under the diesel
- Water Under Oil and Fuel Level Monitor
- Oil and Water Separation Location Detection
- Position Detector Of Silt Layer
- Water Level Position Detector
- Fuel containers
- And so on

### Profiles

HPT604FW is full sealed submersible level transducer. Users can select different versions to detect water presence, fuel level and fuel temperature. It is made by high stable and reliable piezoresistive pressure sensor with water detection sensor and high accurate circuit board into the stainless steel housing. Integrated conductivity sensor and standard signal provide the user easy and convenient application in the local working place. The special cable connected with housing, can be immersed into the media for a long time.

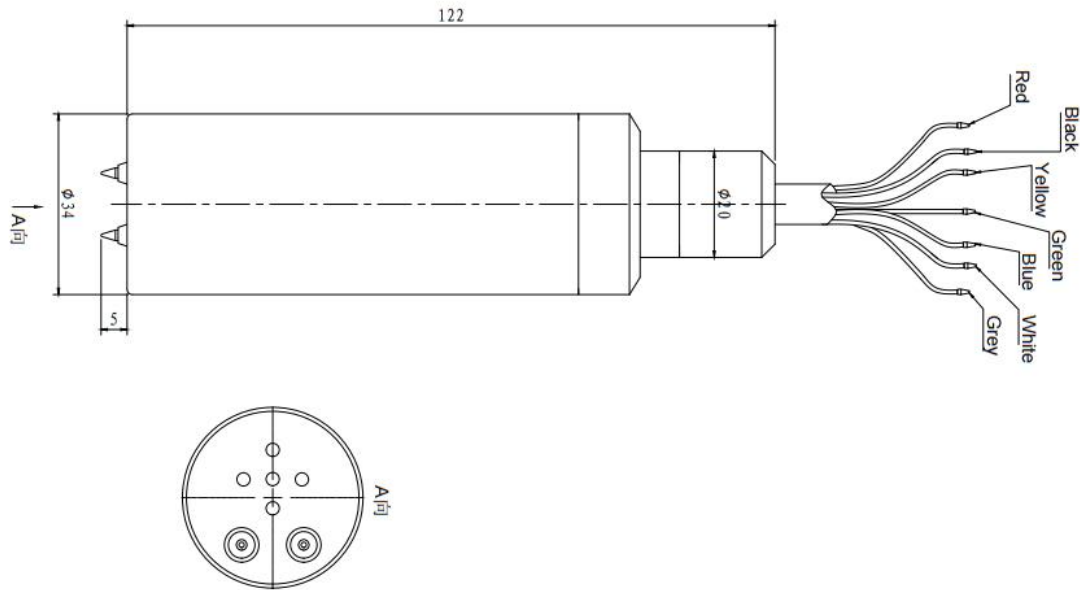
HPT604FW has compact size, light weight and good stability; it can be used for water alarm for the diesel tanks, water position and others hierarchy liquids level and position monitor.

### Specifications

Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS                                     |  |               |                         |                  |
|--|--|---------------|-------------------------|------------------|
| Level range                                    | 0m-0.5m...20m optional   |               |                         |                  |
| Pressure Type                                  | Gauge pressure; Sealed gauge and absolute optional   |               |                         |                  |
| Overload                                       | 150%F.S  |               |                         |                  |
| Burst pressure                                 | 500%F.S  |               |                         |                  |
| Water Existence alarm Output                   | ohm, or PNP switch, or NPN switch signal output optional.<br>Water detection signal: ohm signal (When $\geq 100 \Omega$ , it means that water has been detected, and 0 ohm means no water exists). |               |                         |                  |
| Electrical Wires                               | 3 wires  | 3 wires       | 3 wires                 | 4 wires          |
| Signal Output                                  | 4-20mA   | 0-5V          | 0-10V                   | RS485 Modbus RTU |
| Power Supply                                   | 7-30 V D   | 8-30 V DC     | 13-30 V DC              | 7-30 V DC        |
| Polarity Protection                            | The power lines feature reverse polarity protection; however, the signal lines do not have reverse polarity protection against the positive power supply and must not be cross-connected.          |               |                         |                  |
| Accuracy(Linearity, Hysteresis, Repeatability) | $\leq \pm 0.5\%F.S$ (Typical); $\leq \pm 0.25\%F.S$ (optional); $0.1\%F.S$ (by customized)<br>@25°C including non-lin., rep. and hys. optional   |               |                         |                  |
| Long-term Stability                            | $\leq \pm 0.2\%F.S/$ year  |               |                         |                  |
| Zero-point Temp. Drift                         | 0.01%FS/°C   |               |                         |                  |
| Full scale Temp. Drift                         | 0.005%FS/°C  |               |                         |                  |
| Power Consumption                              | 24V: 2.8mA; 12V: 5.1mA; 5V: 10.1mA   |               |                         |                  |
| Compatible Medium                              | Compatible with SUS304   |               |                         |                  |
| Working Temp.                                  | -40 °C to +85°C  |               |                         |                  |
| Medium Temp.                                   | -20°C to +85°C   |               |                         |                  |
| Storage Temp.                                  | -40°C to +85°C   |               |                         |                  |
| Temp.Compensation                              | 0°C to 50°C; -10°C to 70°C (Range > 200 kPa / 20 mH <sub>2</sub> O)  |               |                         |                  |
| Load Resistance                                | Current: $(U-12)/0.02(\Omega)$   |               |                         |                  |
| Max work current                               | (4-20mA) 1.8mA   | (0-5/10V) 5mA | (RS485 MODBUS RTU) 10mA |                  |
| Max signal transfer distance                   | 1000m  | 200m          | 1000m                   |                  |
| Surge & Lightning Protection                   | Surge $\pm 2000V$ (digital); Air discharge $\pm 8000V$ ; contact discharge $\pm 6000V$   |               |                         |                  |
| EMC Standard                                   | EN61326-1:2013;EN61326-2-3:2013<br>EN61000-6-2:2005;EN61000-6-4:2007+A1  |               |                         |                  |
| Certificate                                    | RoHS and CE  |               |                         |                  |
| Water Proof Grade                              | IP68   |               |                         |                  |

### Dimensions and Drawing



### Electrical Connections

| Ohm signal | Signal output | 4-20mA+100Ω               | RS485+100Ω                | 0-5V/0-10V+100Ω           |
|------------|---------------|---------------------------|---------------------------|---------------------------|
|            | Wire color    |                           |                           |                           |
|            | Red           | U+                        | U+                        | U+                        |
|            | Black         | U-                        | U-                        | U-                        |
|            | Green         | Iout(U-)                  | RS485A                    | Vout                      |
|            | Blue          | R                         | RS485B                    | R                         |
|            | Yellow        | R                         | R                         | R                         |
|            | Grey          | ⊥ Connect to earth ground | ⊥ Connect to earth ground | ⊥ Connect to earth ground |
| White      |               | R                         |                           |                           |

| PNP signal | Signal output | 4-20mA+PNP                | RS485+PNP                 | 0-5V/0-10V+PNP            |
|------------|---------------|---------------------------|---------------------------|---------------------------|
|            | Wire color    |                           |                           |                           |
|            | Red           | U+                        | U+                        | U+                        |
|            | Black         | U-                        | U-                        | U-                        |
|            | Green         | Iout(U-)                  | RS485A                    | Vout                      |
|            | Blue          | PNP+                      | RS485B                    | PNP+                      |
|            | Yellow        | ⊥ Connect to earth ground | ⊥ Connect to earth ground | ⊥ Connect to earth ground |
| White      |               | PNP+                      |                           |                           |

### How to Order

Use the **bold** characters from the chart below to create a product number

**604FW F G 11 S11 E5E50 D1 N 1 003**

Model: 604FW

Pressure & Level Units: F

Pressure type: G

Pressure Range: 11

Power supply: S11

Cable Length: 003

Accuracy: 1

Other Function (Optional): N

Measuring Medium: D1

Signal Output: E5

**Fuel/oil level signal**

**Water detection signal**

|          |                             |
|----------|-----------------------------|
| <b>B</b> | bar(Min: 0.05bar Max: 2bar) |
| <b>P</b> | Psi(Min:0.73Psi; Max:29Psi) |
| <b>F</b> | m Fuel(Min:0.5m; Max:20m)   |

|          |   |
|----------|---|
| <b>G</b> | Gage/Relative pressure type (universal) |
| <b>A</b> | Absolute pressure (customized)          |

|           |         |           |               |
|-----------|---------|-----------|---------------|
| <b>00</b> | 0...0.5 | <b>18</b> | 0...4.0       |
| <b>01</b> | 0...1.0 | <b>19</b> | 0...5.0       |
| <b>03</b> | 0...1.2 | <b>21</b> | 0...7.0       |
| <b>06</b> | 0...1.5 | <b>24</b> | 0...10        |
| <b>09</b> | 0...1.8 | <b>25</b> | 0...12        |
| <b>11</b> | 0...2.0 | <b>26</b> | 0...15        |
| <b>13</b> | 0...2.2 | <b>27</b> | 0...16        |
| <b>16</b> | 0...2.5 | <b>28</b> | 0...20        |
| <b>17</b> | 0...3.0 | <b>X</b>  | By Customized |

|            |               |
|------------|---------------|
| <b>003</b> | 3 meters      |
| <b>X</b>   | By Customized |

|          |                          |
|----------|--------------------------|
| <b>1</b> | ≤±0.5%F.S (Typical)      |
| <b>2</b> | ≤±0.25%F.S               |
| <b>3</b> | ≤±0.1%F.S(by customized) |

|          |  |
|----------|--|
| <b>N</b> | Standard with water detection & fuel level |
| <b>A</b> | Water detection, fuel level & fuel temp.   |

|           |                          |
|-----------|--------------------------|
| <b>D1</b> | 0.84g/cm3 density diesel |
| <b>D2</b> | 0.83g/cm3 density diesel |
| <b>D3</b> | 0.85g/cm3 density diesel |
| <b>D4</b> | 0.86g/cm3 density diesel |
| <b>X</b>  | By Customized            |

|            |                            |
|------------|----------------------------|
| <b>E5</b>  | 4-20 mA (3 wires)          |
| <b>E6</b>  | 0-5 V (3 wires)            |
| <b>E7</b>  | 0-10 V (3 wires)           |
| <b>E11</b> | RS485 MODBUS RTU (4 wires) |
| <b>X0</b>  | By Customized              |

|            |               |
|------------|---------------|
| <b>E50</b> | Ohm           |
| <b>E51</b> | PNP           |
| <b>E52</b> | NPN           |
| <b>X1</b>  | By Customized |

|            |               |
|------------|---------------|
| <b>S11</b> | 7-30 V DC     |
| <b>S12</b> | 8-30 V DC     |
| <b>S43</b> | 13-30 V DC    |
| <b>X</b>   | By Customized |

Example of a complete PN: 604FWFG11S11E5E50D1N1003

(Model: HPT604-FW, fuel level range 0-2m, gauge type, 7-30 V DC,4-20mA+Ohm signal, 0.84g/cm3 density diesel, standard type, 0.5%F.S accuracy with 3 meters cable)