



- -40 – 150°C Operating Temperature
- Compact Size- .354 Hex (9 MM)
- +/- .15% Linearity FS
- Analog (.5-4.5V) or Digital (I2C)
- 10 - 300 psi pressure ranges
- Absolute or Gage
- Media – Liquid, Air, & Gas

### DESCRIPTION

The PPT71 is the smallest transducer in the market with a high temperature range for the most challenging of applications. Phoenix Sensors's unique patented temperature compensation enables superior performance at wide operating temperatures. This silicon pressure transducer was designed for demanding industrial and commercial applications. The stainless steel port design allows for pressure measurement of liquid or gas media.

The PPT71 series utilizes piezo-resistive pressure sensor pressurized packaged in a stainless steel housing which has superior long term stability and accuracy (.15% Linearity).

The two piece design is simple and proves valuable for OEM customers. Please contact us for Custom design availability.

### APPLICATIONS

- Mil/Aero
- Industrial Automation
- Automotive Engine
- Compressor
- Pneumatic

## Maximum Environmental Ratings

Operating Temperature ..... -40°C to 150°C  
Storage Temperature Range ..... -55°C to 150°C

Proof pressure ..... 3x full scale pressure  
Burst pressure ..... 5x full scale pressure

## PPT71 Operational Characteristics

| V <sub>+</sub> = 5V, V <sub>-</sub> = 0V, Temperature = 25°C  |                             |      |      |      |             |
|---|-----------------------------|------|------|------|-------------|
| PARAMETER   | SYMBOL                      | Min  | Typ  | Max  | UNITS       |
| Supply Voltage  | V <sub>DD</sub>             | 4.75 | 5    | 5.25 | V           |
| Operating Temperature   | T <sub>s</sub>              | -40  |      | 125  | C           |
| Supply Current  | I <sub>DD</sub>             |      | <3   |      | mA          |
| Output Voltage <small>(Note 1)</small>                        | V                           | .5   |      | 4.5  | V           |
| Sleep Mode Supply Current                                     | I <sub>stby</sub>           |      | .5   | 40   | μA          |
| <b>Accuracy</b>   |                             |      |      |      |             |
| Total Error Band <small>(Note 4)</small>                      |                             | -1.5 | .75  | 1.5  | %Full Scan  |
| Non-Linearity <small>(Note 2)</small>                         |                             | -1.5 |      | .15  | %Full Scan  |
| Temperature Error <small>(Null and Span)<br/>(Note 3)</small> |                             | -2   | 1    | 2    | C           |
| Response Time   | t <sub>R</sub>              | 5    | 25   | 200  | ms          |
| <b>Analog-to-Digital</b>                                      |                             |      |      |      |             |
| Resolution  | ADC                         |      | .004 |      | %Full Scale |
| Temperature Resolution  |                             |      | .05  |      | %Full Scale |
| <b>I2C &amp; SPI Interface</b>                                |                             |      |      |      |             |
| Input Low Level   | V <sub>in_low</sub>         | 0    |      | .2   | Vdd%        |
| Input High Level  | V <sub>in_high</sub>        | .8   |      | 1    | Vdd%        |
| Output Low Level  | V <sub>o_low</sub>          |      |      | .1   | Vdd%        |
| Load Capacitance @SDA   | C <sub>sda</sub><br>@400khz |      |      | 200  | pF          |
| Pull-Up Resistor  | R <sub>I2C_FU</sub>         | 500  |      |      | Ω           |
| Input Capacitance <small>(each pin)</small>                   | C <sub>I2C_in</sub>         |      |      | 10   | pF          |

Notes:

1) Analog Output option is ratiometric to the supply voltage 2) Measured at zero pressure. 3) Defined as best straight line 4) Measured from -20°C to 85°C

## Application Information

### Package

The one piece body design is made of stainless steel (SS316L), which allows for easy manufacturability and long term stability. The SS is highly impervious to corrosion and rust.

### Stability

The silicon MEMS pressure sensor has a Pyrex base and is mounted to a ceramic substrate and sealed into the SS housing. Flexible die attach materials help reduce the mechanical stress which results in greater stability over time and temperature.

Additional stability is gained from factory stabilization of all sensors.

### Pressure port

10-32 UNF-2A is the standard port located at the base of the sensor. Other port fittings are available for OEM customers.

### Media

The pressure port is tolerant to most media including but not limited to oil, air, gas, some corrosive media, and salt water.

### Wetted parts

The wetted surfaces are composed of stainless steel, Viton, and silicon.

### Pressure ranges

Standard pressure ranges are 15, 30, 50, 100, 150 psig. Custom pressure ranges are available for OEM customers.

### Wiring

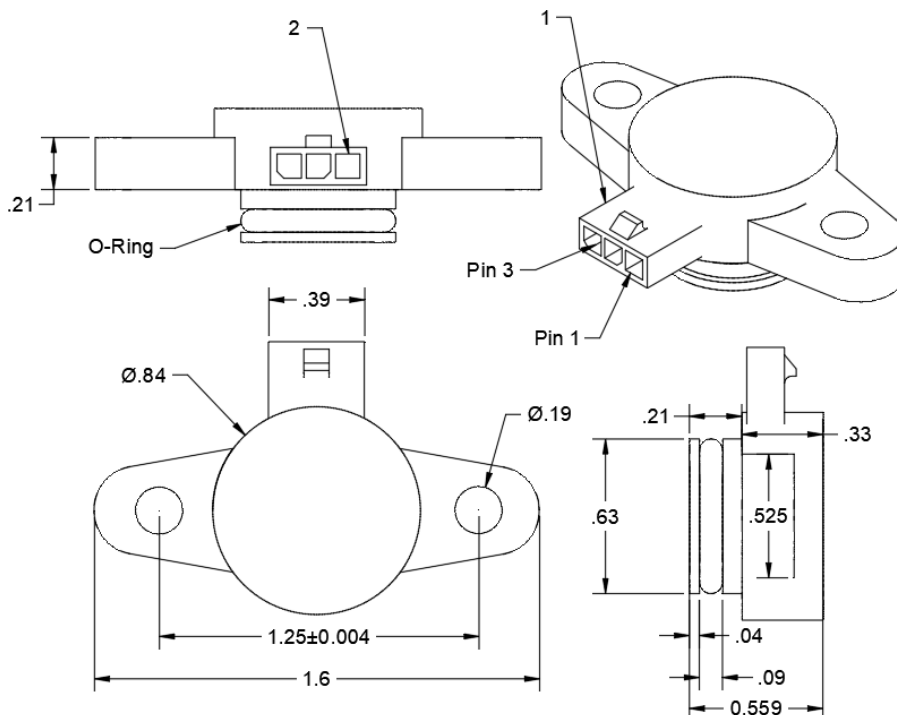
Analog Output - Red: +V, Black: Gnd, White: Output

Digital Output - Red: +V, Black: Gnd, White: SCL/SCLK

Green: SDA/MISO, Yellow: SS/INT

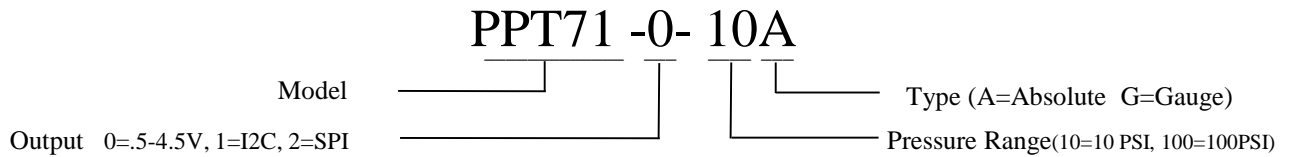
26 gauge wire

## Mechanical Dimensions (inches)



**Pinout:**  
Pin 1: Red (Supply+)  
Pin 2: Black (Supply-)  
Pin 3: Blue (Output)

## Part Number Configuration



## Standard Part Numbers

| Model        | Pressure Range<br>PSI | Type     | Max Over Pressure |
|--------------|-----------------------|----------|-------------------|
| PPT71-0-10A  | 10                    | Abs/Gage | 30                |
| PPT71-0-30A  | 30                    | Abs/Gage | 90                |
| PPT71-0-50A  | 50                    | Abs/Gage | 150               |
| PPT71-0-100A | 100                   | Abs/Gage | 250               |

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