

# PHOENIX SENSORS



*Sensing the World Around You!™*



PHOENIX SENSORS is a US based privately held company who designs, manufactures, and distributes OEM pressure sensors, temperature sensors, position sensors, humidity sensors, custom cable assemblies, and custom PCBs (Printed Circuit Boards). We customize sensor, cable, and PCB solutions for a variety of markets. Our OEM customers work together with our engineering teams to optimize solutions for the industrial, commercial, Oil & Gas, and consumer markets. Phoenix Sensors mobile OEM wireless sensor solutions helps solve many of our customers most complicated applications. The specialized back-end software solutions are seamless to the end-customers who receive alarm notifications via bluetooth (or Wifi) based on customer selected parameters.

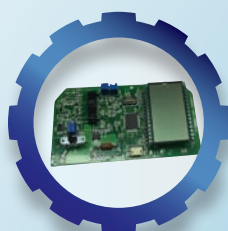
The Phoenix Sensors management and engineering teams have been in the wireless, custom cable assembly, PCB, and sensor business for more than 40 years. We understand how to bring value to the OEM customer base. Providing quality product in a timely manner is top of the priority list at Phoenix Sensors. Our high-tech SMT manufacturing uses automation to optimize our costs and reduce the overall cost to our customers. Our vertical integration of engineering, manufacturing, and sales channels enables Phoenix Sensors to provide custom prototype wireless pressure sensors, humidity, or temperature sensors in a timely manner while holding the highest quality standards.

## PRODUCTS AND SERVICES

Sensors



Printed Circuit Boards



Custom Cable Assemblies



## MARKETS SERVED

Commercial



Industrial



Oil & Gas

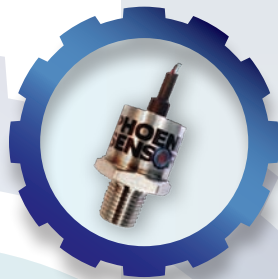


Automotive



Life Sciences





Pressure  
Pg. 8



Temperature  
Pg. 9



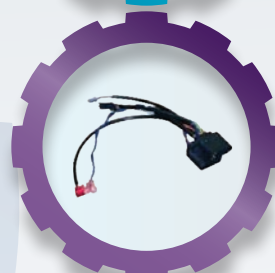
Position  
Pg. 10



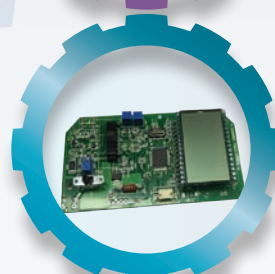
Liquid Level  
Pg. 10



Wireless Sensors  
Pg. 11



Custom Cables  
Pg. 12



Custom PCBs  
Pg. 12

# GENERAL OEM MARKET

Phoenix Sensors Applications Include:



Pool Equipment



Irrigation Pressure and Temperature Measurement



Water Pressure for Residential and Commercial Buildings

**VALVE POSITIONERS** use pressure and position sensor feedback to provide optimal valve performance. The PPT76 small pressure transducer size with a quick disconnect connector provides a simple solution for a variety of general industrial applications. Spas and residential pools use Temperature and Pressure sensors to provide feedback to end user.



HVAC System Pressure for Superheat Measurement



Valve Pressure Feedback for Flow Measurement

# OIL AND GAS MARKET

Phoenix Sensors Applications Include:



Downhole Pressure Measurement

**THE OIL AND GAS** industry uses High Temperature Pressure sensors for drilling and down-hole applications. Measuring flow with our differential PPT80 High Temperature Pressure sensor allows for precise flow measurement of gas and oil processes. The PPT86 small high pressure (7500 PSI) and high temperature (200C) transducer design measures oil-based muds for drilling processes in the oil and gas industry. Hydraulic Fracturing utilizes high temperature (175 C) pressure sensors for the pumping process, where reliability and accuracy are critical to the mission. Phoenix Sensor's unique temperature compensation technology allows a competitive edge for oil and gas OEM customers.



Automated Gas Valves



Oil Pressure Monitoring Equipment



Remote Wireless Monitoring of Oil Well Heads



# AUTOMOTIVE

Phoenix Sensors Applications Include:



Hydraulic Pressure Sensor



Engine Coolant Temperature Sensors



Oil Pressure

**THE AUTOMOTIVE INDUSTRY** uses pressure sensors for filter monitoring on Compressed Natural Gas (CNG) catalytic converters, engine oil pressure, back pressure in the exhaust systems, Manifold Absolute Pressure (MAP), tire pressure monitoring (TPM), electronic braking system, and many other applications. The PPT71 miniature pressure transducer, high pressure (7500 PSI), and high temperature (150C) design measures a variety of difficult automotive applications in both racing and standard car/truck applications.



High Vibration Applications



Fuel Filter Differential Pressure Applications (Filters)

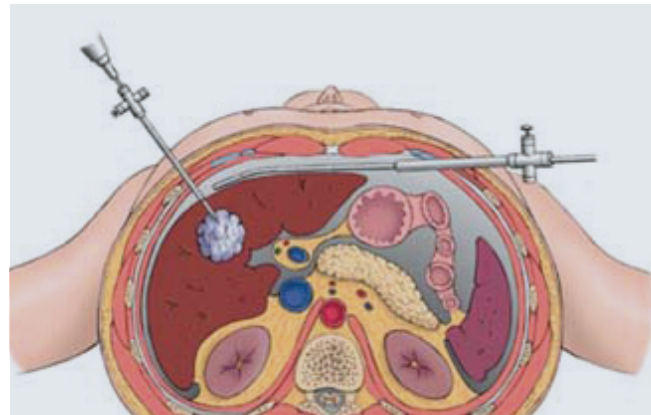


# LIFE SCIENCES

Phoenix Sensors Applications Include:



Fuel Cell Applications



RF Ablation Temperature Monitoring



Downhole Oil Applications

**PRECISION TEMPERATURE** and pressure sensors are used on Gas Chromatography (GC) and Liquid Chromatography (LC) equipment to provide the most accurate results for the end customer. Phoenix Sensor's wet-wet PPS60 board level pressure sensor solution has enabled GC and LC manufacturers a smaller less expensive solution for a critical application in the industry.

Accurate Temperature sensors provide feedback on laboratory thermal cycling equipment. Our miniature waterproof temperature (NTC & Thermocouple) sensors are used for preclinical and clinical equipment. The small diameter (.025") temperature sensors reach the most difficult locations on equipment.



Water Pressure for Residential and Commercial Buildings



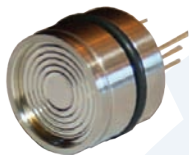
Differential Air Pressure Across Catalytic Converters



## PRESSURE

### Pressure Sensors

PPS01



- 3-5000 PSI
- Accuracy:  $\pm .25\%$
- $-40^{\circ}\text{C} - 135^{\circ}\text{C}$

PPS02



- 30-10,000 PSI
- $\pm .15\%$  Linearity FS
- $-40^{\circ}\text{C} - 135^{\circ}\text{C}$

PPS03



- 500-10,000 PSI
- $\pm .25\%$  Linearity FS
- $-40^{\circ}\text{C} - 125^{\circ}\text{C}$

PPT71



- 50-200 PSI
- $\pm .5\%$  Linearity FS
- $-5^{\circ}\text{C} - 105^{\circ}\text{C}$

PPT7X



- 50-200 PSI
- $\pm .5\%$  Linearity FS
- $-5^{\circ}\text{C} - 105^{\circ}\text{C}$

### Pressure Transducers

PPT86



- 150-15k PSI
- $\pm .2\%$  Linearity FS
- $-40^{\circ}\text{C} - 200^{\circ}\text{C}$

PPT90



- Differential Pressure — .05 PSI Resolution
- $\pm .15\%$  Linearity FS
- $-10^{\circ}\text{C} - 80^{\circ}\text{C}$

PPT81



- 5-5000 PSI
- $\pm .15\%$  Linearity FS
- $-20^{\circ}\text{C} - 125^{\circ}\text{C}$

PPT70



- 10-300 PSI
- $\pm .15\%$  Linearity FS
- $-40^{\circ}\text{C} - 150^{\circ}\text{C}$

PPT55



- 50-5000 PSI
- $\pm .15\%$  Linearity FS
- $-40^{\circ}\text{C} - 150^{\circ}\text{C}$

WEPS01



- 1-5000 PSI
- $-20-85^{\circ}\text{C}$
- Total Error Band 1%

WEPS02



- 1-5000 PSI
- $-20-85^{\circ}\text{C}$
- Total Error Band 1%

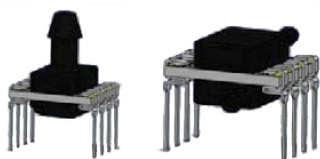
PLT10



- 5-200 PSI
- $\pm .5\%$  Linearity FS
- $-10^{\circ}\text{C} - 80^{\circ}\text{C}$

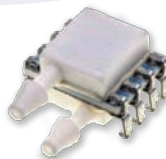
### Board Mount Pressure Sensors

PPS40



- 3-300 PSI
- Accuracy:  $\pm .5\%$
- $-20^{\circ}\text{C} - 85^{\circ}\text{C}$

PPS41



- Pressure Range 2-30" H2O
- Accuracy:  $\pm .1\%$
- $-10^{\circ}\text{C} - 85^{\circ}\text{C}$

Custom Board Level Pressure



## TEMPERATURE SENSORS

### NTC Temperature Probes

#### Overmold Probes

PTS10



- -30-100°C
- .1C Resolution

PTS26



- -20-105°C
- +- 3% @ 25C

#### Metal Tube Housing

PTSH1-0



- -40-105°C
- +- .2C from 0-70C

PTS32



- -50-150°C
- .1C Resolution

#### Custom NTC Temperature Probes

PTS21



- -0-85°C
- .1C Resolution

### RTD Temperature Probes

#### Cylindrical Tube

PTS25



- -40-105°C
- +- .2C from 0-70C

#### High Temperature Probes

PTS22



- -40-260°C
- .1C Resolution

PTS60



- -50-750°F
- .2C Resolution

#### Custom RTD Temperature Probes

PTS23



- -10-125°C
- .05C Resolution

PTS24



- -40-125°C
- +- 3% @ 25C

### Thermocouple Temperature Probes

#### Miniature Temperature Probes

PTS30



- -40-200°C

#### High Temperature Low Cost T/C Probes

## POSITION SENSORS

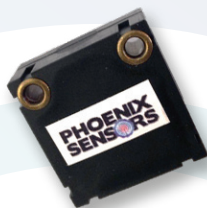
### Linear Sensors

PSIL15



- 0-4" Travel
- $\pm 2\%$  accuracy
- $-20-85^{\circ}\text{C}$

PSIL20



- 0-2" Travel
- $\pm 3\%$  accuracy
- $-20-80^{\circ}\text{C}$

PSIL30



- 0-6" Travel
- $\pm 2\%$  accuracy
- $-20-80^{\circ}\text{C}$

## LIQUID LEVEL SENSORS

### Liquid Level Sensors

PLT10



- 5-200 PSI
- $\pm .5\%$  Linearity FS
- $-10^{\circ}\text{C} - 80^{\circ}\text{C}$



### Wireless Pressure Transducers

WPT202



- 0-75 PSI Range
- -20-60°C Operating Temperature
- $\pm 1$  PSI Accuracy

WEPS01



- Wide Pressure Range (1-5000 PSI)
- -20-85°C Operating Temperature
- Total Error Band 1%

WEPS02



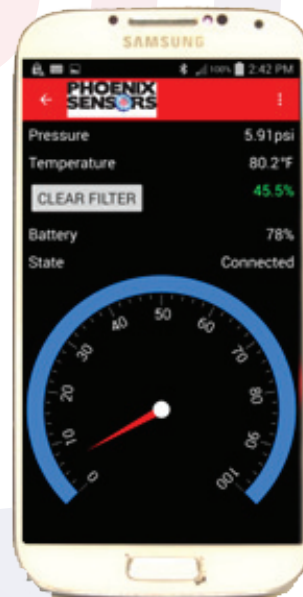
- Wide Pressure Range (1-5000 PSI)
- -20-85°C Operating Temperature
- Total Error Band 1%

### Wireless Temperature Probes

WETS01



- Media Temperature Range -40-150C (-40-302F)
- Temperature Error  $\pm .25$

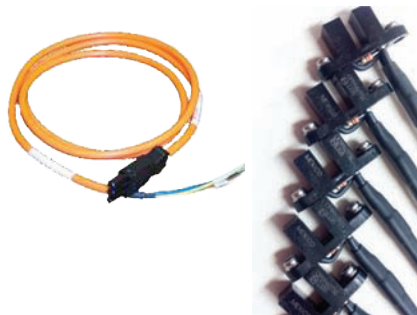


## CUSTOM CABLES

ITAR Qualified



Simple Low-Cost Solutions

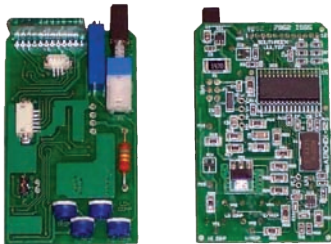


Complex Cable Assemblies



## CUSTOM PRINTED CIRCUIT BOARDS (PCBs)

High Speed SMT Equipment



Through-Hole Capabilities



ITAR Qualified

