

TE Connectivity SENSOR SOLUTIONS



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AGENDA

Introduction

Sensor Markets and Applications

Focus Product Families

About Heilind Electronics



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Introduction



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What is a sensor?



Stimulus

Example: Air Pressure

Sensor

Pressure Sensor

Electrical Output

PSI Value

Different Forms of Electrical Output Signals

- Voltage
- Current
- Resistance
- Capacitance
- Frequency
- Digital data



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Sensor Types

Pressure

Temperature

Humidity

Force

Position

Tilt

Vibration

Photo Optic

Fluid Properties

Flow



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Uses for Sensors



Monitoring



Feedback and Control



Adding Intelligence to Products



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Sensor Markets and Applications



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Sensor & Markets



	Aerospace & Defense	Appliances	Automation & Control	Automotive	Data & Devices	Industrial	Industrial & Commercial Transportation	Intelligent Buildings	Medical	Oil & Gas	Test & Measurement
Automotive				●			●				
Digital Component		●	●	●	●	●	●	●	●		
Flow		●		●		●	●	●	●		
Fluid Property	●			●		●	●				
Force	●	●	●		●	●	●		●		●
Humidity	●	●	●	●	●	●	●	●	●		●
Liquid Level	●	●	●			●	●	●	●		
Photo Optic									●		
Piezo Film	●	●			●	●		●	●		
Position	●	●	●	●	●	●	●	●	●	●	●
Pressure	●	●	●	●	●	●	●	●	●	●	●
Rate and Inertial	●					●					●
Scanners and Systems											●
Temperature	●	●	●	●	●	●	●	●	●	●	●
Torque			●			●					●
Ultrasonic						●			●		●
Vibration	●	●	●			●					●
Water Level			●			●					●



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Sensor Design Considerations



Physical



Electrical



Operational



Environmental



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Multi-Function Sensors

Space is restricted

System power is limited

Cost is a concern

Improved accuracy is desired

Additional data can be derived



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Focus Product Families



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PRESSURE SENSORS OVERVIEW



PRESSURE

TE leads the industry with a wide array of standard and custom pressure products. These range from board level components to fully amplified and packaged transducers. Using MEMS and silicon strain gauge technologies, our products measure pressure, ranging from inches of water to 100K psi.

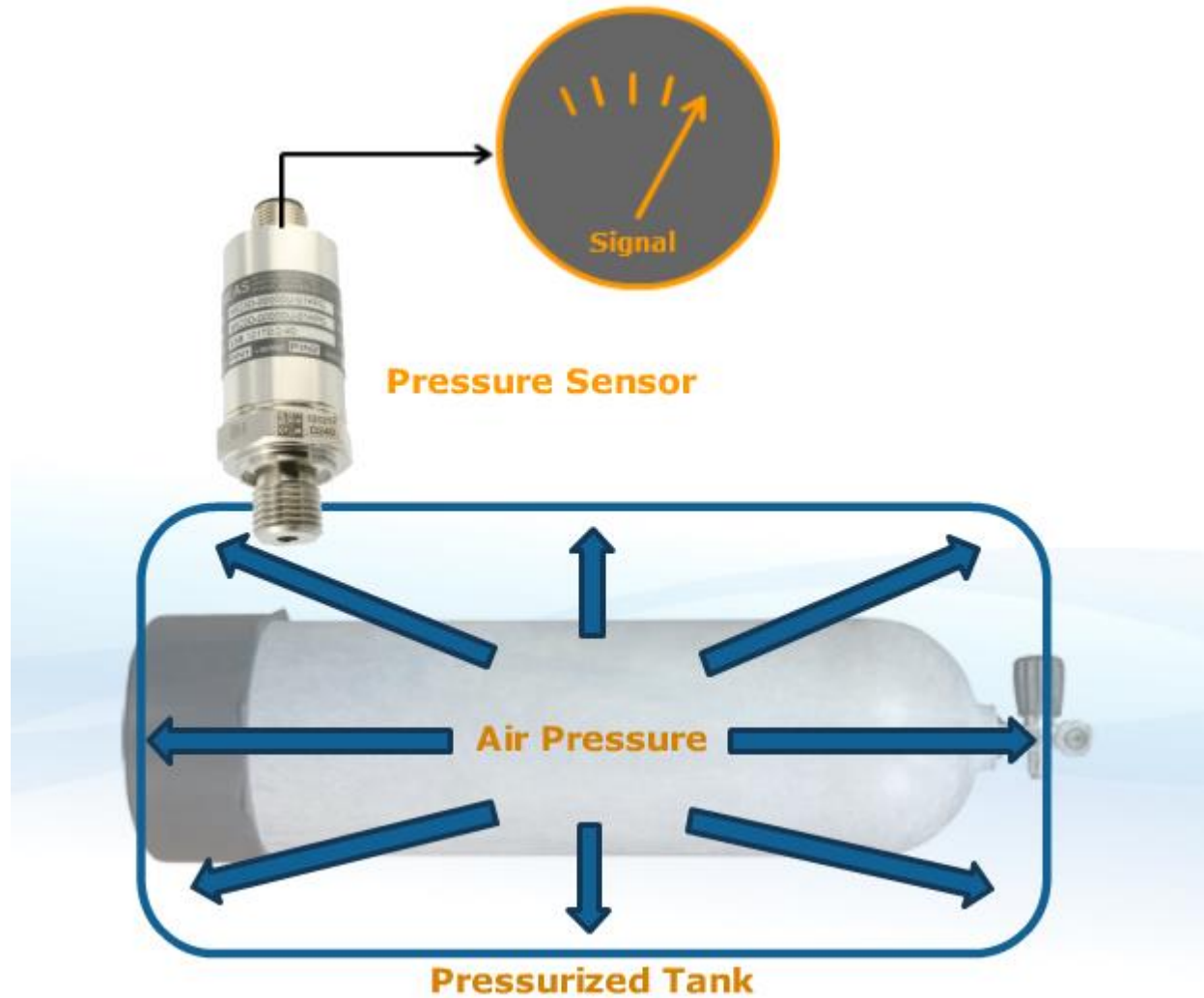
- Piezoresistive silicon MEMS pressure die, sensors and transducers
- Microfused silicon bonded strain gage pressure transducers
- Bonded foil strain gages
- Calibrated digital output modules



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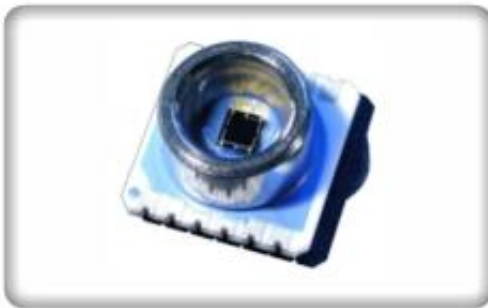
What is a Pressure Sensor?



Pressure Sensor Product Portfolio



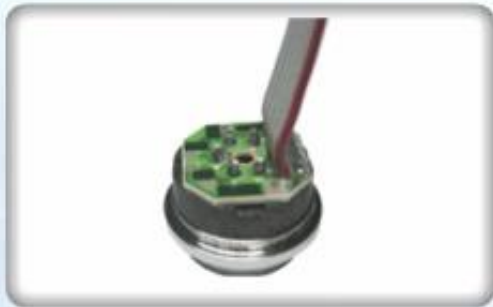
Board-Mount



**Altimeter/
Barometer**



Microfused™



**Ultra-Stable™
Pressure Capsules**



Miniature



**Submersible/Liquid
Level Transducers**



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TEMPERATURES SENSORS OVERVIEW



TEMPERATURE

TE manufactures NTC thermistors, RTDs, thermocouples, thermopiles, digital output, and customized sensor assemblies. Building on more than 100 years of experience, our know-how allows us to cover one of the largest ranges of temperature measurement, control, and compensation applications in the industry.

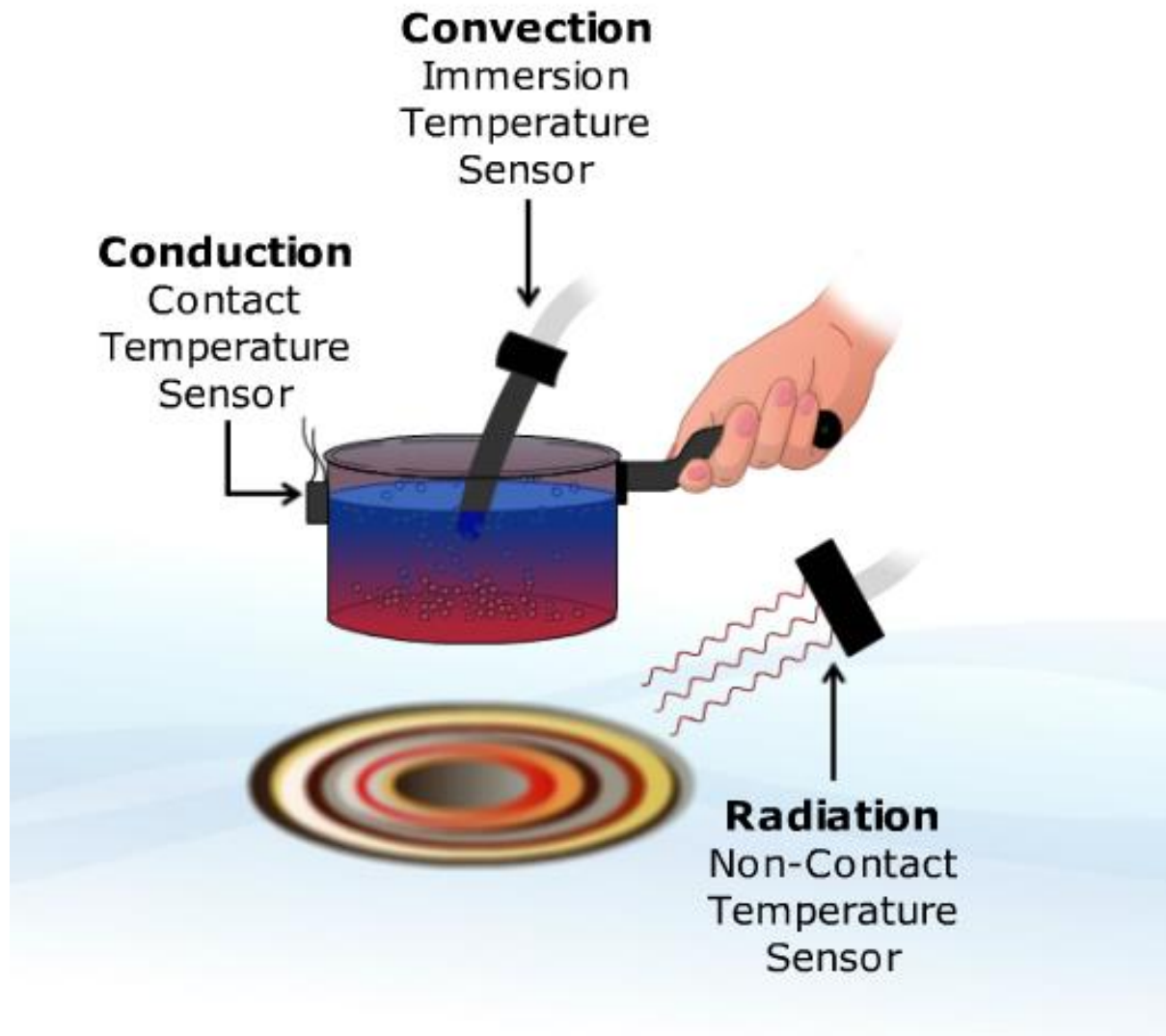
- NTC thermistors for high accuracy
- RTD sensors for long term stability
- Thermocouples for high temperature
- IR thermopile sensors for non-contact
- Digital surface mount sensors



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What is a Temperature Sensor?



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Temperature Sensor Product Portfolio

Types of Temperature Sensors:



**Negative
Temperature
Coefficient (NTC)
Thermistors**



**Resistance
Temperature
Detectors (RTD)**

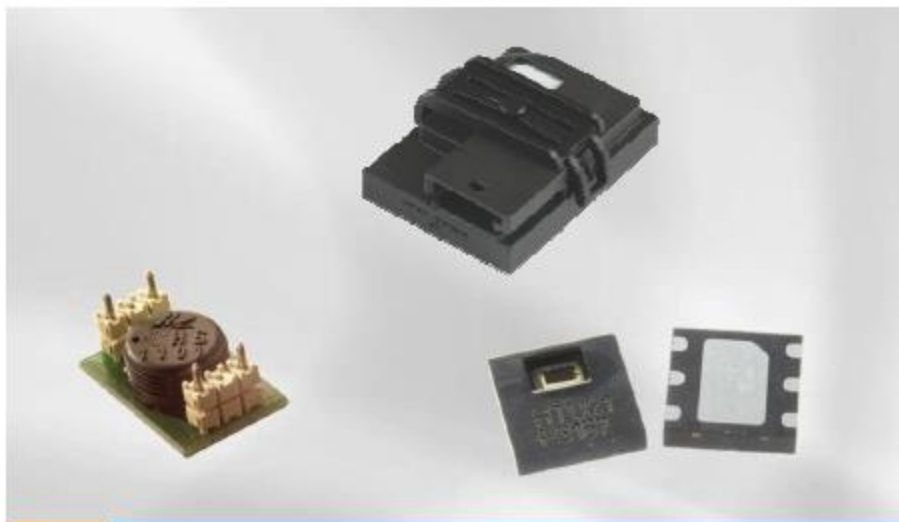


Thermocouples



Thermopiles

HUMIDITY SENSORS OVERVIEW



HUMIDITY

Accurate dew point and absolute humidity measurements are made possible through the combination of relative humidity and temperature measurements. Our products are qualified for the most demanding applications including automotive, heavy truck, aerospace and home appliance.

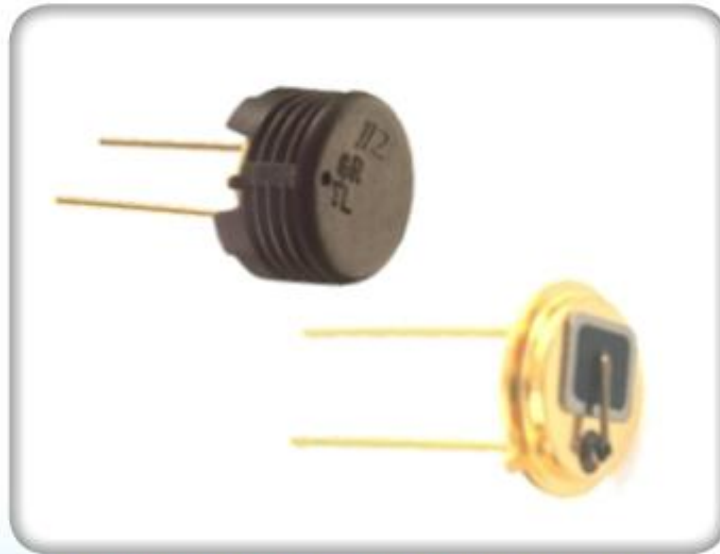
- Captive thin film for humidity
- Thermistor for temperature
- Analog and digital outputs



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What is a Humidity Sensor?



Humidity Sensor Component



Humidity Modules



Humidity Sensitive Capacitor



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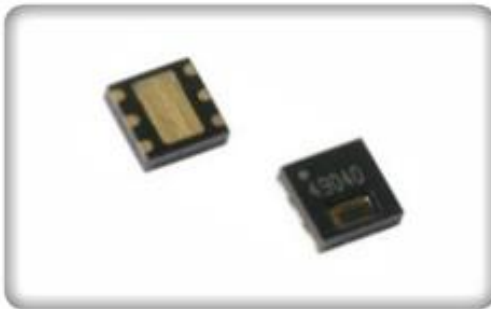
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Humidity Sensor Product Portfolio



Humidity Components



Humidity and Temperature Surface Mount Devices



Humidity and Temperature (NTC) PC Assemblies



Humidity and Temperature (NTC) Probes



E&V Humidity and Temperature Modules



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POSITION SENSORS OVERVIEW



POSITION/DISPLACEMENT

TE is one of the world's largest manufacturers of industrial and automotive sensors for linear displacement, rotary position and speed sensing. Therefore, TE owns a wide range of sensing technologies like MR, PLCD, LVDT and Resolver, and offers the complete spectrum from sensing element up to system packaging for harsh environments.

- Linear position – LVDT
- Liquid level
- Speed and RPM
- Tilt and angle



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What is a Position Sensor?



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Position Sensor Product Portfolio

-  **Linear Inductive Position Transducers**
-  **Inductive Position Gauge Head & Probes**
-  **Rotary Inductive Position Sensors**
-  **Inductive Position Instrumentation**
-  **Continuous Liquid Level Hall Effect Sensors**
-  **Continuous Fluid Level Reed Switch**
-  **Continuous Liquid Level Ultrasonic Sensors**



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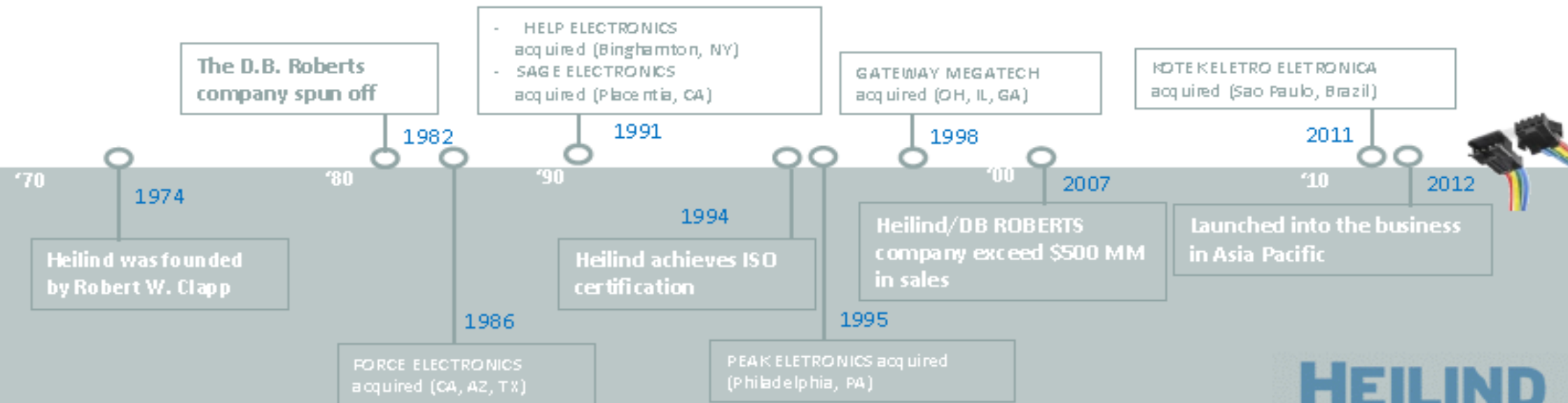
About Heilind Electronics

Founded in 1974, Heilind Electronics, Inc. (<http://www.heilind.com>) is one of the world's leading distributors of connectors, relays, switches, thermal management & circuit protection products, terminal blocks, wire & cable, wiring accessories and insulation & identification products. Heilind has over 40 facilities in the United States, Canada, Mexico, Brazil, Germany, Hong Kong, Singapore and China.

Heilind Asia Pacific (<http://www.heilindasia.com>) commenced operations in Dec 2012, and now has 19 locations throughout Asia. Its industry leading service offering to customers in Asia Pacific is the result of a commitment to the belief of "Distribution As It Should Be".



HEILIND HISTORY



Heilind Asia Supply Chain

Heilind Asia supports both original equipment and contract manufacturers in all market segments of the electronics industry, stocking products from the industry's leading manufacturers in 25 component categories, with a particular focus on interconnect and electromechanical products.



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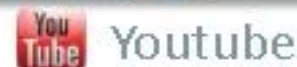
Heilind's eStore



Official Chinese Website



Social Media



Thank You

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