



**The IP&E
Specialist**

Sensors Line Card

TTI, Inc., – A Berkshire Hathaway Company



The IP&E Specialist

The Specialist in Electronics Component Distribution

Founded in 1971, TTI has steadily grown to become a world leading specialist distributor of electronic components. The company was founded on the premise that passive component purchasing could be made more efficient by offering product specialization, customer-driven service and proprietary supply chain solutions.

Why TTI?

- **Technical Experts** TTI's European team of field-based Sales Engineers and local Product and Technical Specialists are here to support you; from understanding component trends, sustainable sourceability and new product roadmaps, to in depth technical support for your design from our technical engineering experts.

- **Value Added Services** Connector assembly is one of the most important value-added services at TTI, Inc. – Europe. We are specialized in distributing manufacturer controlled and certified connectors and interconnect solutions from globally leading suppliers. Thanks to a large inventory level of connector components, TTI, Inc. – Europe can serve any market requirements.

- **Global Distribution Centers** Our European headquarters is located just outside of Munich, Germany in Maisach-Gernlinden. In total, we have 45.000m² of dedicated warehouse space and local sales and technical support in over 40 locations across Europe. TTI has more than 195.000m² of automated warehousing in North America, Europe and Asia. All are linked into a global warehouse management system that provides superior customer service and overall business efficiencies. Wherever you are in the world, TTI can support you. Year after year, customers rate our inventory availability, on-time delivery and accuracy among the very best in the industry – contact us today to find out what a true specialist has to offer.

- **Quality and Reliability** TTI's global warehouses are all ISO-registered and have received certification to the ISO 9001 and ISO 14001 Standards. TTI Europe is also certified to EN9120/EN9100, IECQ-CECC and ISO/IEC 27001 Standards. Additionally, our European sales branches are ISO 9001 certified. TTI has one global documentation system that ensures that every TTI branch and warehouse in the world follows the same processes.





80+
Suppliers



45.000 m²
Warehousing Space



One of the largest Autostore systems in Europe



40
Sales Locations

24/7
Available to Order Online



www.ttieurope.com

Finding the Right Sensor for your Design

From pressure to position, temperature to humidity, air quality to gas sensing – if your application calls for a sensor, TTI is committed finding a solution for you. TTI’s engineers welcome the opportunity to help advise on the best sensor solution to meet your individual design needs.

To view TTI’s full line of sensor products, please go to www.ttieurope.com/sensors

Line Card

AlpsAlpine

Amphenol

All Sensors, Amphenol Advanced Sensors, i2s,
Piher Sensing Systems, SGX Sensortech
SSI Technologies

Bourns

Eaton

Honeywell

Sensing and Safety Technologies, City Technology

Kyocera AVX

Littelfuse

Western Automation

Molex

Contrinex

Murata

Omron

Panasonic

Panasonic Electric Works
Panasonic Industry

Sensata Technologies

Airpax, BEI Sensors, Crydom
Cynergy3, Klixon

Standex Meder

TDK

TE Connectivity

TE Sensors, American Sensor Technology (AST)
First Sensor, Jaquet, Measurement Specialties Inc (MEAS), SMI

TT Electronics

Vishay

Yageo

Nexensos



Panasonic



PIHER *sensing*
systems
an Amphenol® company



Sensata
Technologies



Hydrogen and Fuel Cells

In the foreseeable future, fuel cell electric vehicles are anticipated to play a crucial role in the mobility industry, necessitating sensor solutions to bolster safety, energy efficiency, and durability.

Hydrogen propulsion is the future of environmental sustainability. Hydrogen functions as an energy source for internal-combustion engines or fuel cells linked to electric drives. Typically stored under extreme pressure in tanks, precise control is imperative for the effective management of hydrogen storage.

This is where special hydrogen pressure sensors come into play. TTI provides a range of different robust sensors for tank and fuel-cell applications.

Hydrogen and battery leakage detection sensors that measure hydrogen concentration allow the vehicle management system or battery management system to monitor the safe operation of the hydrogen system and generate an early warning signal when a leakage occurs.



Electrification of transportation

Sensors are multiplying in the world of transportation, from automated agricultural equipment to construction vehicles to e-buses, e-motorcycles, and automated guided vehicles; electrification is the buzz word.

Temperature sensors measure battery temperature to detect thermal runaway conditions, surface temperature and the state of charge of the battery cells. Combined pressure & temperature sensors measure the pressure in the cooling system and, at the same time, the coolant temperature. Gas detection sensors detect the out-gassing of carbon dioxide to indicate pre-combustion conditions. Level sensors for early detection of coolant leakage. Inductive motor position sensors in EV powertrain development. Current sensors provide high-accuracy readings to the battery management system for electrical management protection and state of charge monitoring.



HVACR

Sensors are an integral part of most heating, ventilation, air-conditioning, and refrigeration systems, helping to not only maintain a comfortable indoor climate but also enable the system to perform properly.

HVAC design uses three primary types of temperature sensors for the climate control systems: thermocouples, resistance temperature detectors (RTDs) and thermistors. Pressure sensors find application in air ducts, refrigerant circuits and filters. Humidity sensors measure the moisture content in the air, keep indoor humidity levels at an acceptable range and also help to prevent mold growth and condensation.



Medical and Healthcare

Temperature sensing in healthcare is critical. Not only are many medical procedures temperature-sensitive, many diagnostic and lab instruments also require accurate reference temperature measurement to ensure accuracy.

Position sensors in convertible medical and nursing beds. Board mount pressure sensors are used in a wide variety of medical equipment. Airflow sensors for chromatography equipment, spirometers, anesthesia delivery systems, ventilators. Force sensors in surgical instruments, dialysis machines and oxygen concentrators. Flow sensors in life-support systems in intensive care and emergency medicine.



Factory Automation

Sensors will play a critical role in the Industrial Internet of Things (IIoT) with machine condition monitoring and predictive maintenance data wirelessly communicated within the SMART factory.

TTI provides a wide range of rugged and reliable sensors for industrial applications including position, speed, force, temperature, pressure, vision, and vibration sensors which are all playing vital roles in the robot's physical operation, providing the precision, endurance, speed and repeatability required.



Defence, Aerospace and Space

In recent decades, space missions have consistently pushed boundaries to fulfil scientific objectives, fostering the development of emerging technologies. Attaining these objectives signifies the establishment of novel strategies for executing challenging space measurements, all within the constraints posed by spacecraft-borne sensors, including considerations such as mass, power, and the impact of the harsh space environment.

The frontier of low-earth-orbit (LEO) satellite networks is in rapid expansion, forever changing the future of voice and data communications worldwide.

A burgeoning trend for soldiers is the adoption of wearables, with wrist devices playing a pivotal role. These wearables log essential metrics like heart rate, body temperature, respiratory patterns, and sleep cycles, contributing significantly to soldier health and stress monitoring.

These are just some examples of space, aerospace and military applications for which TTI is able to offer a large range of solutions. Pressure sensors for use in hydraulic systems, auxiliary power units and for aerospace test and measurement applications. Harsh environment force sensors measure force and torque in flight controls, actuation systems and braking systems. Other sensors used in these applications include NTC thermistors, RTDs, thermocouples and thermopiles, position sensors, accelerometers and advanced vibration sensing for harsh application environments.



Sensors Line Card



Sensors	All Sensors / Amphenol	AlpsAlpine	Amphenol Advanced Sensors	Bourns	Eaton	Honeywell (Sensing and Safety Technologies, City Technology)	Isis / Amphenol	Kyocera AVX	Littelfuse (Western Automation)	Molex / Contrinex	Murata	Omron	Panasonic Electric Works	Panasonic Industry	Phifer Sensing Systems / Amphenol	Sensata Technologies (Crydom, Cynergy3, Airpax, BEI Sensors, Klixon)	SGX Sensortech / Amphenol	SSI Technologies / Amphenol	Standex-Meder	TDK	TE Sensors (MEAS, First Sensor, SMI, Jaquet, AST)	TT Electronics	Vishey	Yageo Nexensos
Pressure																								
Board Mount Pressure	■	■	■	■		■						■		■		■				■				
Disposable Medical Pressure Sensors		■	■																					
Dies			■								■									■				
Altitude/Barometric		■									■													
Combination MEMS			■					■																
Packaged Pressure	■	■				■	■	■											■		■			
Pressure Switches						■																		
Force																								
Force		■				■																		
Load Cell/Load Pin						■																		
Torque						■																		
Flow																								
Air Flow						■	■					■												
Liquid Flow		■																						
Flow Switch																								
Fluid Property Sensors									■															
Turbidity																								
Motion, Speed & Position																								
Accelerometer		■										■		■										
Gyroscope												■		■										
Inclinometer/Tilt												■	■			■								
Shock/Vibration		■				■																		
Inertial Measurement Unit						■							■							■				
Encoder/Rotary – Board Mount		■		■		■		■	■		■		■		■	■						■	■	■
Encoder/Rotary – Industrial/Transportation		■				■		■							■									■
Face Recognition Sensors (HVC – Human Vision Component)													■											
Proximity – Inductive																								
Proximity – MagnetoResistive/Hall Effect						■		■			■		■											
Proximity – Reed Switches		■				■		■	■		■				■	■								■
Proximity – Optical									■										■					■
Speed Sensor												■	■	■										■
GeoMagnetic Sensors						■		■							■	■								■
Resolver		■																						
Ultrasonic						■										■								■
Air Quality & Gas Sensing																								
CO2		■	■			■														■				
VOC (COV)			■																	■				
Industrial Gas – Pellistor, InfraRed, Electro-Chemical, MEMS						■														■				■
Dust/Particle						■									■									
Ionizer												■												
Medical Gas Sensors (O2)						■														■				
Pulse Oximetry SpO2						■																		
Temperature & Humidity																								
Combination MEMS, Digital Temperature Sensors		■	■			■																		
Humidity		■	■	■		■																		
NTC Thermistor – Leaded			■		■	■		■	■		■		■											■
NTC Thermistor – SMT			■		■	■		■	■		■		■											■
Probes & Assemblies			■		■	■		■	■		■		■											■
PTC Thermistors			■		■	■		■	■		■		■											■
RTD/PTC Thermistors – Customised – Platinum			■		■	■		■	■		■		■											■
PTC Thermistors – Customised – Ceramic Heating			■		■	■		■	■		■		■											■
Heaters – Copper Customised			■		■	■		■	■		■		■											■
Thermocouples																								■
Thermopiles/Human Presence Detection – Solutions			■										■	■										■
Thermopiles/Human Presence Detection – Component			■																					■
Thermostats						■																		■

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Optical																								
Ambient Light																								
Fibre Optic																								
PIR /Infrared			■						■		■		■				■					■		
Matrix Sensors																								
Laser																								
Proximity – Optical																								
Solar			■						■															
Time Of Flight (TOF)																								
Ultra Violet																								
Colour Sensors																								
Level Sensors																								
Liquid Level						■			■												■		■	
Urea, Water (WIF/ WIF+WDS/WS), Diesel								■	■															
Powder Level Sensors																								
Hydra-static Pressure Cells																								
Other																								
Sensor Modules		■																						
Current Sensors		■				■			■						■							■		■
Capacitive Touch		■																						
Inductive Sensors – Factory Automation/Transportation										■		■	■		■									
Light Curtain Safety – Factory Automation																								
Magnets						■			■															
Medical Sensor Cable Assemblies/Pulse Oximetry						■																■		
Sensor Development Boards		■	■			■						■	■	■								■		■

Embark on a Journey through TTI's Literature



Explore our selection of Line Cards, Application and Product Guides in Transportation, Industrial, and Defense-Aerospace-Space.

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Discover the forefront of electronic components, cutting-edge technologies, and revolutionary applications across industries such as transportation, industrial, defense and aerospace, and beyond.



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Contact TTI today to see
what a true specialist can offer.

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