

# SMARTER SOLUTIONS START WITH TE CONNECTIVITY SENSORS



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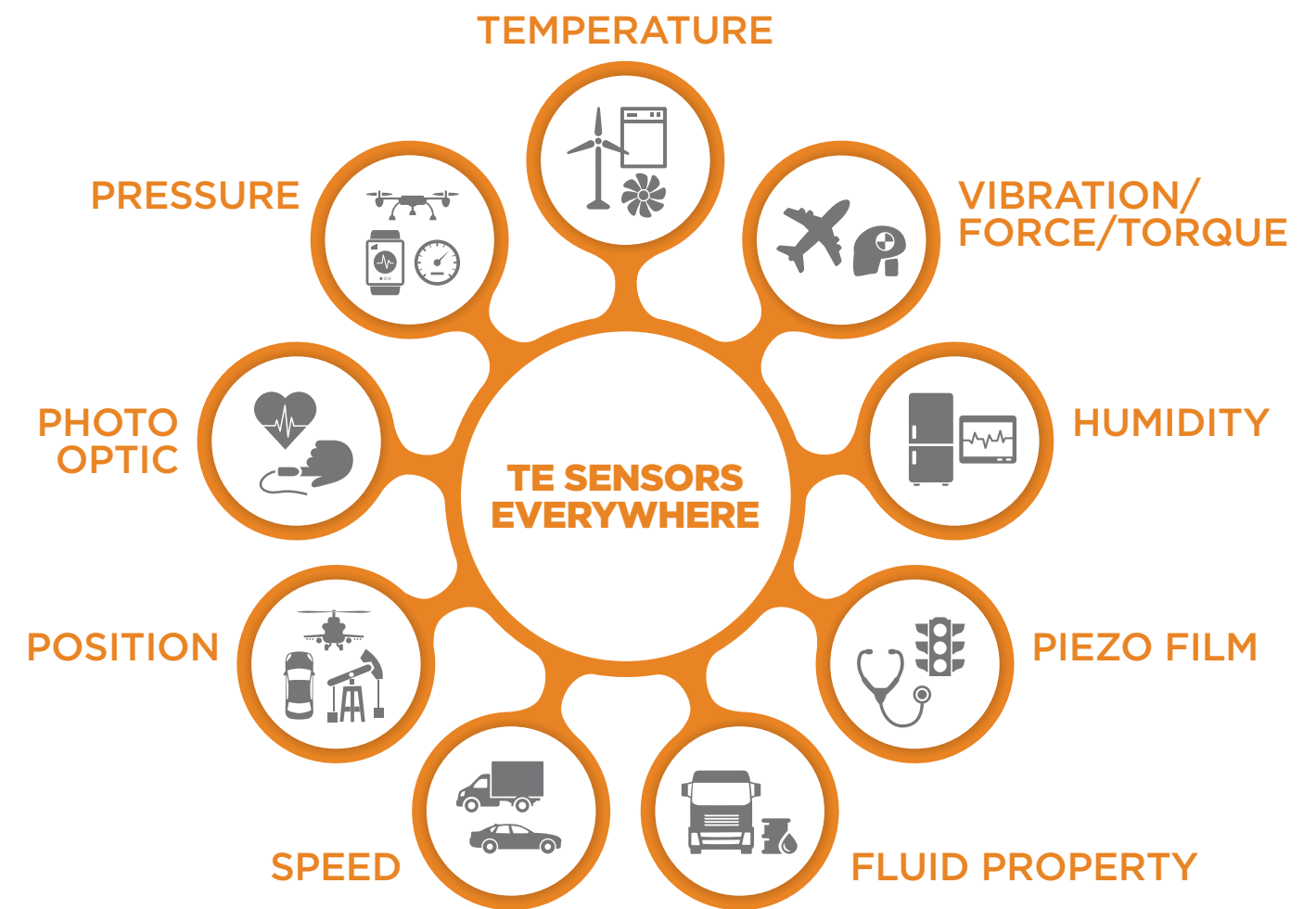
TE Connectivity (TE) is one of the largest connectivity and sensor companies in the world, with innovative sensor solutions that help customers transform concepts into smart, connected creations. Our sensors are vital to the next generation of data-driven technology. TE offers an unmatched portfolio of intelligent, efficient and high-performing sensor solutions to customers across a wide range of industries including automotive, medical, appliance, aerospace & defense, oil & gas, industrial and commercial transportation and consumer applications. Our sensor portfolio includes technologies capable of measuring most physical characteristics, including pressure, position, temperature, vibration, force/torque, humidity and fluid property, even in harsh conditions.

#### Measurement Specialties (MEAS) Quality Certifications:

- AS/EN 9100
- ATEX
- ATEX 949EC
- CE-MDD
- CMDR-Health Canada
- EN 13980
- ESA 266
- ESCC266E
- ESCC 400C
- FDA
- ISO 13485
- ISO 14001
- ISO 9001
- Measuring Instruments Directive 2004/22/EC annex D
- NASA Qualified
- NSF-61 Water Quality
- PART21G
- TS 16949

#### American Sensor Technologies (AST) & Macro Sensors (MACRO) Approvals/Certifications:

- ABS
- ATEX
- CCOE
- CNEX
- CRN B31.3
- CSA
- CE
- EC 79
- IEC 61508
- IECEX
- ISO 9001
- KGS (Korean Gas Safety)
- UL



INNOVATIVE SENSOR SOLUTIONS THAT  
HELP CUSTOMERS TRANSFORM CONCEPTS  
INTO SMART, CONNECTED CREATIONS.



# INDUSTRIES & SOLUTIONS



## AEROSPACE & DEFENSE

When quality and reliability are paramount, aerospace & defense companies rely on TE Connectivity's (TE) technology to help solve mission critical challenges. Our core competencies in high reliability sensors for harsh environments such as temperature extremes, RFI, EMI, vibration, and lightning strikes make us a leading choice in sensor technology. Our design engineering capabilities, as well as AS9100 certified sensor manufacturing facilities in North America, Europe and Asia Pacific, support Tier 1, 2 and 3 providers. We work closely with the customer to provide stable, reliable and cost effective solutions that meet the extensive development cycles and qualifications critical to aerospace & defense.



## APPLIANCES

Today's smart and green appliances are built using more efficient designs, meeting the latest regulations while saving energy, water and time. Customers rely on TE sensor technologies to enable appliances to respond to human touch, sense vibration, adjust to loads, and operate more efficiently. We work to develop custom solutions that can monitor humidity, water levels, and temperature. TE sensors contribute to new levels of convenience and productivity in a wide range of household appliances.



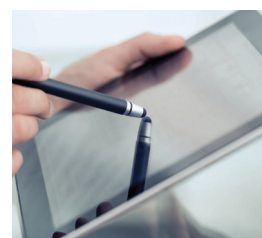
## AUTOMATION & CONTROL

Automation & control includes a wide range of industrial applications that span all markets, and at all levels, from the factory floor and process end users, to integrators and large scale OEM production. Industrial production is increasingly driven by greater automation, safety and energy efficiency. TE's broad portfolio of sensor products offer many options to meet custom performance, application and regulation/certification requirements.



## AUTOMOTIVE

Data is critical for making vehicles safer, more connected and greener. Customers rely on TE sensor technologies to provide data for control, adaptation and response of vehicle functions and features that increase safety, comfort, efficiency, and more. We work closely with customers to provide solutions for demanding and harsh applications such as automated transmissions, engines, clutch, brakes and exhaust. Our products are found in vehicles traveling the world's roads and highways.



## DATA & DEVICES

Whether it's an altimeter built into a wearable band to measure how many steps we climb each day, or a sports watch charting the ascent up one of the world's highest mountain peaks, TE's miniature sensors are used to convey critical information for the dashboard of our daily lives. Our dive computer sensors help provide safety in leisure activities, while our piezo film enables your bed to monitor your heart rate, breathing and even how well you sleep. We've been making sensors for wearables before there were wearables. We're recognized for our technical skill in miniaturization, low power consumption, and high-performance. That's why TE sensors are in harsh environments, from the world's highest parachute jump to the deepest dive.



## INDUSTRIAL

While the future of the Industrial Internet of Things (IIoT) is not yet certain, one thing is: sensors will play a critical role. Industrial applications span a wide range of applications, from banknote handling to printers and ovens. TE Connectivity's broad portfolio of products offers customers many options to meet specific performance, application and certification requirements. We work closely to help identify the best solution to meet the needs of the customer.



## INDUSTRIAL & COMMERCIAL TRANSPORTATION

When performance and reliability count, engineers rely on us to help solve tough industry challenges such as emissions reduction, power train improvement and added comfort. TE Connectivity is a leader in providing sensor technologies and associated software/diagnostic capabilities built on market experience and technical expertise. We work closely with customers to design and provide solutions critical for a wide range of harsh and demanding applications, including exhaust, engines, transmissions, braking, suspension and cabins.



## INTELLIGENT BUILDINGS

Buildings today require reliable solutions to confirm they are operating safely and efficiently. As a global designer and manufacturer of sensors and sensor-based systems, TE works closely with building engineers in both the development and instrumentation of automated systems. Our sensors are designed and manufactured to exacting specifications, often on a custom basis. Together with our customers, we are working to solve today's toughest challenges. Our portfolio can address the breadth and depth of applications needed for today's intelligent buildings.



## MEDICAL

Because accurate monitoring, diagnosis and treatment counts, today's medical devices rely on our high-performance sensor technologies to meet exacting specifications, including ISO 13485 certification and FDA registration. TE is a leading provider of sensor solutions to the medical device market. Our engineers work with device manufacturers to provide application-specific, standard and custom requirements, from product concept through manufacturing. TE sensors meet the rigorous demands of a wide range of medical and healthcare applications.



## OIL & GAS

The energy market continues to face new challenges with deeper drilling, higher temperatures and higher pressures. TE's latest sensor technologies with new electronics, materials, and design packages provide safe, reliable, and accurate data measurements—all while enduring some of the harshest application environments on earth. By combining application expertise and global hazardous location certifications, our broad portfolio of standard designs and custom packages are helping to improve performance and reliability for the oil and gas industry.



## TEST & MEASUREMENT

TE Connectivity sensors for test & measurement applications support customers across all of our market verticals. Our sensor technologies and engineering capabilities are used for product research, development, testing and evaluation (RDT&E). Each of these critical areas has unique technology and performance requirements. We work closely with RDT&E engineers to determine the right solution, as our broad portfolio can address the breadth and depth of applications across a number of markets.

# SENSOR TECHNOLOGIES



## AUTOMOTIVE SENSORS

TE Connectivity (TE) sensors have become an integral part of many modern vehicle architectures, or nervous systems. Our sensor technologies for passenger cars provide data for control, adaptation, and response of vehicle functions and features that make vehicles safer, greener and more connected.



## DIGITAL COMPONENT SENSORS

Many TE digital sensor products are available in low power and small form factors. They are suited for wearable and miniature devices that are used to collect and share critical data for health monitoring, fitness, air quality, aerospace, battery powered, and related applications. To increase knowledge sharing and reduce time to market, we have teamed with semiconductor manufacturers to design and provide plug and play tools for a variety of development platforms. In addition, we offer several wireless demo/development tools to help engineers quickly achieve their design objectives with wireless applications.



## FLOW SENSORS

TE mass air flow (MAF) sensors are designed for a variety of automotive, medical and industrial gas applications while our flow switches are used for such applications as water control, power showers and circulation pump protection.



## FLUID PROPERTY SENSORS

TE's fluid property sensors are based on tuning fork technology. It is specifically designed to provide fluid quality and condition monitoring capability to a wide range of dedicated applications including oils (engine, hydraulic, transmission), fuels and DEF (i.e., urea) monitoring.



## FORCE SENSORS

TE is a pioneer in the design and manufacture of precision sensors for electro-mechanical flight control applications, test and measurement applications and ultra-low cost OEM load cells for high volume applications. We are experts in developing sensors that require high performance or unique packaging.



## HUMIDITY SENSORS

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



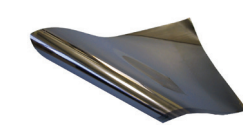
## LIQUID LEVEL SENSORS

TE liquid level products address the sensing requirements of the construction, off-road and automotive industries. Our solutions include level sensors for power steering, coolant, windshield wash, fuel and oil.



## PHOTO OPTIC SENSORS

TE optic-based sensors include both photo optic components and complete sensor solutions. Our component series features dual LED, bi-wavelength emitters and spectrally paired photo detectors.



## PIEZO FILM SENSORS

Piezoelectric fluoropolymer film produces voltage or charge proportional to strain. A highly versatile, enabling sensor technology, Piezo Film has thin cross-section, is flexible, very robust, chemically inert and can withstand temperatures up to 85°C.



## POSITION SENSORS

TE is one of the world's largest manufacturers of industrial and automotive sensors for linear displacement, rotary position and speed sensing. 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. On the strength of our customized design and packaging, based on TE application know-how, we can provide an essential value for our customers.



## PRESSURE SENSORS

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 (Microfused) technologies, our products measure pressure, ranging from inches of water (<5 mbar) to 100K psi (7K bar).



## RATE & INERTIAL SENSORS

TE Connectivity is a proven leader in providing electronic test and measurement solutions and inertial sensors for demanding industrial, military, aerospace, and research applications. Our accurate, rugged, and easy-to-use line of MEMS accelerometers, rate gyros, and inertial measurement systems meet the complex measurement needs of OEMs as well as test and measurement labs worldwide.



## SCANNERS & SYSTEMS SENSORS

Primarily used for wind tunnel, flight test and turbomachinery testing, TE scanning systems provide high accuracy measurement solutions due to multi-channel test installations. Wind tunnel and flight testing use ESP pressure scanners for their compact size and high accuracy.



## TEMPERATURE SENSORS

TE manufacture's 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.



## TORQUE SENSORS

TE is a pioneer in the design and manufacture of precision sensors for electro-mechanical flight control applications, test and measurement applications and ultra-low cost OEM load cells for high volume applications. We are experts in developing sensors that require high performance or unique packaging.



## ULTRASONIC SENSORS

Ultrasonic sensors provide accurate air bubble detection, contact and non-contact container fill, pump protection and pipeline fluid/type detection. Standard products are offered for level applications that require no moving parts, no adjustments and no maintenance.



## VIBRATION SENSORS

TE microelectromechanical systems (MEMS), bonded gage and piezoelectric ceramic/film technologies provide OEM and test & measurement customers with the broadest range of sensor solutions in the industry. All products are EAR99, RoHS compliant and meet CE standards.



## WATER LEVEL SENSORS

TE Connectivity is a leader in the water resources monitoring market with long standing experience in the design and manufacture of water level and water quality sensors. We also provide water quality instrumentation for analyzing lakes, rivers, estuaries, and aquifers worldwide.

## **TE.com/sensorsolutions**

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