

POWERTRAIN AND eMOTOR SENSOR PORTFOLIO

TAILORED SOLUTIONS TO DRIVE THE FUTURE OF VEHICLE PERFORMANCE AND RELIABILITY.

At TE Connectivity (TE), our Powertrain and eMotor sensor portfolio reflects over a decade of precise engineering, built to address the real-world demands of modern powertrains. Our sensors offer dependable, high-performance solutions backed by our industry-leading expertise and dedicated global support network. We go beyond providing components, forming trusted partnerships that anticipate and resolve the unique challenges of powertrain development—empowering our customers to accelerate innovation with confidence.



Optimized System Performance

Utilizing industry-leading sensing technology, TE provides sensor development platforms with advanced failure detection and sensor redundancy features tailored to meet customer specifications and enable unrestricted system interaction.



Harsh Environment and Electromagnetic Noise

Adapting to the automotive industry's shift towards electrification and its electromagnetic challenges, TE is committed to engineering resilient design solutions. Our sensors, with a legacy of reliability in harsh automotive settings, utilize various technologies to manage EMI, providing consistent and dependable functionality.



Production and Quality

TE champions quality through its automated assembly processes in clean environments and a continuous improvement program that extends throughout the product lifecycle, aiming to achieve a ZERO PPM experience for customers and enhance overall product quality.



Worldwide Excellence in Service and Design

With a strong global footprint, TE harnesses core competencies from around the world to deliver industry leading technical skills and localized expert support.



Safety Through Rigorous Standards

TE's robust redundancy solutions, conforming to Functional Safety per ISO26262 up to ASIL D functional safety requirements, integrate exhaustive Failure Mode and Effects Analysis (FMEA) alongside total test-to-failure strategies, providing superior design integrity and reliability to meet critical safety targets.

FEATURED POWERTRAIN AND eMOTOR SENSORS

Explore TE's list of featured sensors designed to meet the specific challenges of powertrain and eMotor applications. These sensors are engineered for efficiency and reliability, leveraging high-performance materials and innovative designs to help enhance the performance and sustainability of modern vehicle systems.

Sensor	Application	Key Product Features	Benefits
Resolver Single Coil Resolver with Integrated Temperature Sensor (Optional) 	<ul style="list-style-type: none"> eMotors 	<ul style="list-style-type: none"> Accuracy: $\pm 1^\circ$ electrical Highly tailored with wide variety of platform and full-custom options ASIL D on system level Customized cable assembly and connector interface High accuracy performance with eccentricity (static / dynamic) Robustness against external fields Innovative patented winding schemes 	<ul style="list-style-type: none"> Fault tolerant Against eccentricity and external fields through patented windings schemes TE streamlines compatibility through access to comprehensive vertical integration (connectors, cable assemblies and additional sensors) Optional NTC Temperature Sensor
Resolver Eddy Current Sensor 	<ul style="list-style-type: none"> eMotors 	<ul style="list-style-type: none"> Accuracy: $\pm 1^\circ$ electrical ASIL D (D) on Sensor Level to support ASIL D on System Compact, lightweight design Analog (0-5V) and digital output Operates in oil and water (up to 165 °C) IP6K9K sealed 	<ul style="list-style-type: none"> Accurate position feedback even in harsh environments, including oil-filled and water-prone areas Compact design supports tighter packaging and weight-sensitive applications Flexible integration with multiple mechanical configurations (hollow shaft, end-of-shaft) Simplified signal interface with both analog and digital options for system design flexibility
Position Through-Hole Position Sensor 	<ul style="list-style-type: none"> Parklock Transmission Linear / Angular Movement Disconnect Unit 	<ul style="list-style-type: none"> PCBless Design Contactless Position Sensor Through-Hole Design Robust in Harsh Environments Oil tight and IP6K9 rated ASIL C High quality sealing, material choice and strict process control on overmolding of the IC Wire harness connection simplified through external electrical connections 	<ul style="list-style-type: none"> Specifically designed for external mounting on transmission casings A compact, cost-effective and resilient solution suited for demanding transmission and harsh environment applications Tight tolerances and high reliability helps enable adherence to stringent safety regulations

Sensor	Application	Key Product Features	Benefits
Position Rotation Position Sensor 	<ul style="list-style-type: none"> • Shift Drum • Gear Shift • Transmission Angular Movement 	<ul style="list-style-type: none"> • PCBless Design • Contactless Position Sensor • Seemled Magnet Carrier • Robust in Harsh environments • ASIL C 	<ul style="list-style-type: none"> • Specifically designed for external mounting on transmission casings • A compact, cost-effective and resilient solution suited for demanding transmission and harsh environment applications • Tight tolerances and high reliability helps enable adherence to stringent safety regulations
Speed Transmission Speed Sensor 	<ul style="list-style-type: none"> • Measurement of the input or output speed of a transmission gear wheel 	<ul style="list-style-type: none"> • Designed for harsh environments • Hall and GMR technology • Different shapes available • Diagnostics ability due to two-wire interface • ASIL B • Current interface with direction detection • IP6K9K sealed connector interface 	<ul style="list-style-type: none"> • Designed to withstand extreme vibration, shock and tough operating environments for long-term reliability • Available in different shapes to accommodate diverse design requirements across transmission platforms • High protection against contamination from dust and water provides consistent performance
Temperature NTC Temperature Sensor 	<ul style="list-style-type: none"> • eMotors 	<ul style="list-style-type: none"> • PTFE/PFA Dual-Wall Encapsulation • AEC-Q200 Rev E Qualified • Fast Response Time (~4 to 6 sec) • Temperature Range -40°C to 200°C • Miniaturized Design • Flexible Configurations (wire length, shape, terminals, connectors) 	<ul style="list-style-type: none"> • Compact design facilitates ease of integration without compromising performance • PTFE/PFA dual-wall encapsulation provides robust insulation and chemical resistance, ideal for oil-exposed zones inside eMotors • Quick reaction time (4-6 seconds) enables faster thermal feedback loops, improving motor protection and efficiency • Available in multiple wire lengths, shapes, and terminal configurations for seamless integration across different motor platforms

HAVE A UNIQUE CHALLENGE? WE'VE GOT YOU COVERED.

At TE, we understand the critical role of precise, high-quality sensors in automotive engineering. Our solutions, developed through advanced engineering capabilities and industry application knowledge, are tailored to meet the most demanding technical requirements. Around the world, we provide responsive service and seamless integration into your new and existing systems. If you're looking for sensors that deliver both performance and reliability, let's connect. Our team is ready to discuss how we can contribute to the success of your next project with our customized sensor solutions.

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