


TE Connectivity's (TE) market-defining technologies and engineering expertise are setting the pace for the future of connectivity. This guide provides a quick view of how TE's newest products provide solutions across a range of market-leading applications.

# NEW PRODUCT

## Application Guide

April 2020

The background of the lower half of the page is an abstract, glowing image of a circuit board. The lines of the board are illuminated in shades of orange and yellow, creating a sense of depth and complexity. The background is dark, making the glowing lines stand out.

HANDHELD & PORTABLE DEVICES .....
CONNECTED HOME .....
SOLID STATE LIGHTING .....
INTELLIGENT BUILDINGS .....
VALUE ADD ASSEMBLIES .....
FACTORY AUTOMATION .....
DATA COMMUNICATION ARCHITECTURE .....
HARSH ENVIRONMENTS .....
DELIVERING THE POWER FOR ALWAYS-ON CONNECTIVITY .....

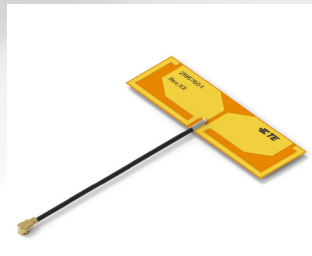


# HANDHELD & PORTABLE DEVICES

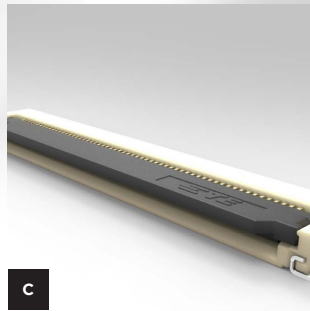
The rapidly growing needs of the electronics industry are trending toward smaller, lighter and thinner devices with improved portability. TE is at the forefront of this trend with the latest technology advancements and a broad portfolio of new compact interconnects that keep engineers in all markets ahead of changing industry needs.



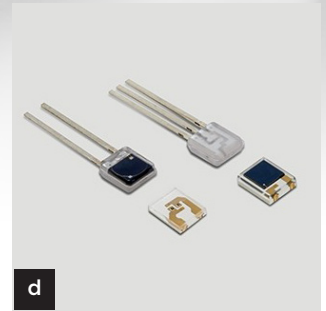
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**a. [MS5839 Chlorine Resistant Digital Pressure and Temperature Sensor](#)**

An ultra-compact digital altimeter that is optimized for applications where chlorine and saline are present. The robust, gel-filled design of the MS5839 enables operation in harsh media environments while providing accurate and reliable digital measurements.

**b. [Standard Portfolio of GNSS Antennas](#)**

Make positioning wireless connections more reliable by using a range of multi-band antennas for individual device configuration.

**c. [Locking Flexible Printed Circuit \(FPC\) Connectors](#)**

Secure the FPC cable into the connector, preventing accidental de-mating in rugged environments. A ZIF (Zero Insertion Force) design results in less wear on the FPC contacts and increases mating cycle count.

**d. [SpO2 Surface Mount Optical Components](#)**

Enable precision and improve accuracy with tighter red LED

wavelength tolerance up to  $660\text{ nm} \pm 3\text{ nm}$ . Reduce overall cost and increase quality with reflow solderable design.

**e. [MS5840-02BA Pressure Sensor](#)**

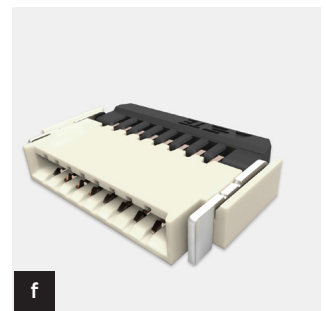
Save space with one of the lowest profile micro altimeters in the market -  $3.3 \times 3.3 \times 1.7\text{ mm}$ . Provide precise digital 24-bit pressure and temperature measurements with ultra-low power requirements.

**f. [Low Profile Flexible Printed Circuit \(FPC\) Connectors](#)**

Robust actuator design can help breakage during assembly. 0.5mm back flip version has a dual contact design allowing the connector to mate with the cable in two orientations.



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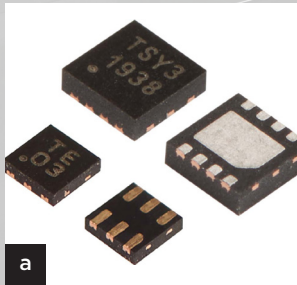


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# CONNECTED HOME

With our global network of engineers, TE can help turn your vision for connected home applications into a reality. With a broad range of connectivity and sensor solutions for home appliances and devices, lighting, HVAC, security, and more, TE is the ideal partner to help you bring your products to market fast.



**a. TSYS03 Miniature Digital Temperature Sensor**

With its industry leading ultra-compact size of 1.5 x 1.5 mm, the TSYS03 enables lower thermal response time, offering an ideal solution for precise temperature sensing in applications with space constraints.

**b. 2.5mm Sealed Signal Double Lock Connectors**

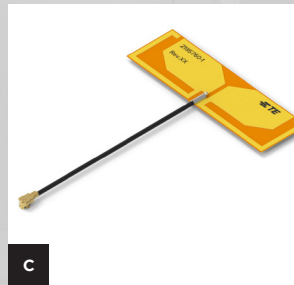
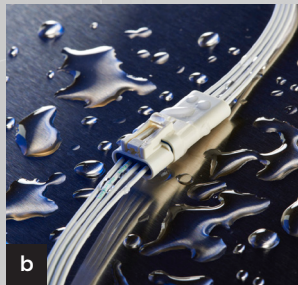
Provide IP67 rated water and dust protection and offer features designed to make assembly easier for operators – including a snag-proof latch, polarized terminals, and optional TPAs.

**c. Standard Portfolio of GNSS Antennas**

Make positioning wireless connections more reliable by using a range of multi-band antennas for individual device configuration.

**d. Locking Flexible Printed Circuit (FPC) Connectors**

Secure the FPC cable into the connector, preventing accidental de-mating in rugged environments. A ZIF (Zero Insertion Force) design



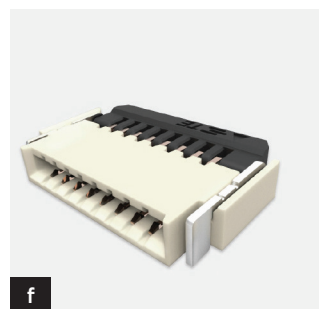
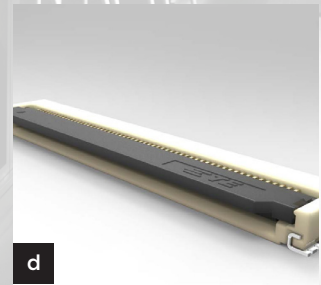
results in less wear on the FPC contacts and increases mating cycle count.

**e. ELCON Micro Wire-to-Board Power Solutions**

Provide a high current up to 12.5A per pin in the standard industry footprint of 3.0mm with virtually foolproof mating.

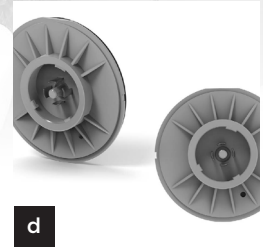
**f. Low Profile Flexible Printed Circuit (FPC) Connectors**

Save space with one of the lowest profiles in the market. Robust actuator design can help prevent it from breaking during assembly. 0.5mm back flip version has a dual contact design allowing the connector to mate with the cable in two orientations.



# SOLID STATE LIGHTING

TE is a leader in the development of next generation Solid State Lighting (SSL) solutions. From outdoor luminaires to commercial refrigeration, new technologies drive lighting innovation. Whether you are creating a new system or enhancing an existing design, TE provides a wide range of new energy-saving solutions.



**a. [LUMAWISE Endurance S Keyed Connectors](#)**

Feature expanded electrical ratings plus alternate key combinations for protected mating. The compact design is UV resistant, appealing to the eye and can be mounted facing upward, downwards or sideways.

**b. [LUMAWISE Type Z LED Holders](#)**

Provide a quick and easy solderless connection to Chip-on-Board (CoB) LED arrays and are designed to enable customers to develop Zhaga compliant modules. Standard and low-profile Type Z50 LED holders feature snap-in LED retention that secures the LED in the holder during assembly and establishes proper positioning in the fixture.

**c. [LUMAWISE Endurance S Domes](#)**

Follows industry standard Zhaga Book 18 and extends product life in harsh environments. IP65 and IP66 rated and available in 40mm and 80mm diameter.

**d. [LUMAWISE Endurance S Base with Vent](#)**

Follows industry standard Zhaga Book 18 and minimizes condensation with vent feature. Available in 80mm diameter and maintains a sealed

enclosure while providing pressure equalization inside the sealed base assembly.

**e. [LUMAWISE drive LED holder type Z50 DALI-2](#)**

Achieve an elegant luminaire design through a 'Driver on Board' solution. Designed to meet the requirements of Zhaga book 12 and allows luminaire designers to remove driver boxes from spot and track lighting, creating a more aesthetically pleasing lighting solution.

**f. [LUMAWISE Endurance N Shorting Caps](#)**

Provides IP66 water ingress protection reducing outdoor light fixture maintenance and extending operating life. Protects the luminaire from transient line voltages.

**g. [Universal MATE-N-LOK Wire Seals](#)**

Provides ingress protection from water when installed into the connector housing. Accommodates a wire range from 18-10AWG. Upgrades the Universal MATE-N-LOK connectors to a waterproof system.

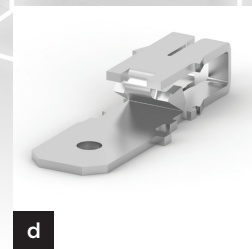
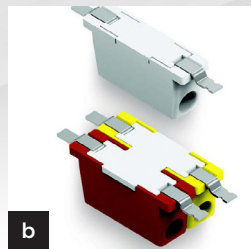
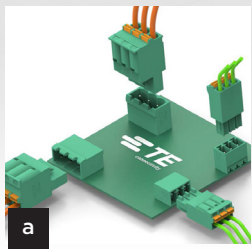




# INTELLIGENT

# BUILDINGS

As today's buildings become increasingly efficient and connected, TE offers many solutions to solve complex connectivity challenges. Our new products seamlessly integrate controls and transmit power and data across multiple building systems, from environmental and illumination controls to people flow, convenience and service equipment, delivering safer and more secure living and working spaces.



**a. [BUCHANAN Push-In Clamp PCB Connectors](#)**

Enable tool-less wire insertion of ferruled and unferruled wires. This saves up to 80% installation labor time vs. traditional screw-clamp termination, leading to important cost savings.

**b. [BUCHANAN WireMate ITB Modular Poke-in](#)**

Easy-to-use poke-in and wire release features help shorten installation time and provide extra flexibility for reuse and wire replacement. The reduced profile of the connector takes only 2mm in height above the PCB top surface while horizontal wire insertion minimizes space usage beneath the PCB.

**c. [SOLARLOK 2.0 Connector](#)**

A tool-less field installable product using Insulation Displacement Contact (IDC) technology. Offering the installer an easy, quick and reliable connection from the PV Cable to the PV Panel.

**d. [MAG-MATE Terminals for Fine Aluminum and Copper Magnet Wire](#)**

Offers solutions for fine wire sizes not previously accommodated by MAG-MATE terminals, accepting 33-27 AWG [0.18-0.36 mm] Al and 34-28 AWG [0.16-0.32 mm] Cu magnet wire.

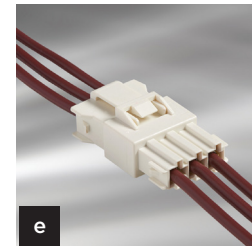
aluminum and 27-24 AWG (0.38-0.50 mm) copper magnet wire. Eliminates the need to pre-strip film-insulated magnet wire by using insulation displacement connection technology.

**e. [Multi-Position Mounted FASTIN-FASTON Housings](#)**

The three position housings can speed the assembly process, permitting three simultaneous power connections, rather than three individual connections. The housings have large pressing surfaces, rounded edges and snag-free features designed to improve ergonomics for workers.

**f. [Slot ID 9 MAG-MATE Terminals](#)**

Offers solutions for wire sizes that were not previously accommodated by MAG-MATE terminals, accepting 25-24 AWG (0.45-0.50 mm)



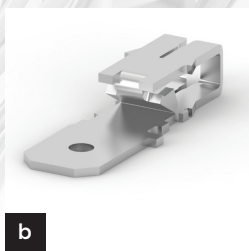
## VALUE ADD

# ASSEMBLIES

Critical to the performance of system to system connection, TE's design experience supports complete performance, efficiency and applied cost savings. For essentially any subsystem including control boards, power systems, cable assemblies, controllers, timers or sensors, TE products enable a broad range of solutions.



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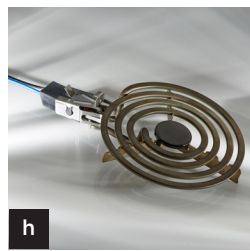
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**a. BATTU Dual Wall Heat Shrink Tubing**

Flame-retardant, adhesive-lined tubing product specifically designed for power cable to terminal applications in harsh environments. Made from a polyolefin jacket with a thermoplastic adhesive inner wall and provides excellent electrical isolation, mechanical protection and moisture-resistance.

**b. MAG-MATE Terminals for Fine Aluminum and Copper Magnet Wire**

Offers solutions for fine wire sizes not previously accommodated by MAG-MATE terminals, accepting 33-27 AWG [0.18-0.36 mm] Al and 34-28 AWG [0.16-0.32 mm] Cu magnet wire.

**c. 4.8mm Series FASTON Receptacles**

Mates with 0.5 or 0.8mm thick tabs, they simplify design in, procurement and

assembly. Compact size of only 15 mm (0.59 in) long.

**d. AMPLIVAR Splice for Fine Aluminum Magnet Wire**

Provide efficient connectivity with the ability to accommodate up to three fine Al magnet wires plus a copper stranded lead wire (400 to 1500 CMA total) in a single splice.

**e. Economy Power 2.5 Connectors**

Compact 2.5 mm (0.098") centerline spacing. Rated up to 4.2A max. (single row) with optional TPA retainers. Positive audible latch designed for easier mating and unmating.

**f. GRACE INERTIA 2.5mm Connectors**

Designed to help reduce human error during assembly. The inertia locking mechanism prevents defective products caused by half-

mating. Tap in ammo box packaging is available for high volume manufacturers.

**g. Standard Power Timer Housings with TPA**

Supports primary power delivery to the PC board in a variety of applications. Speeds assembly when compared to making individual connections for each line and are a more ergonomic solution.

**h. Surface Burner Connector System**

Satisfy multiple design requirements with side retention ears on the housing that allow it to easily be snapped into clips of various configurations.

**i. 250 Series Miniature FASTON Receptacle**

Fit in confined spaces with miniature size in a straight configuration. Mate with standard .250 x .032 inch tabs.

**j. RZF Power Relays**

Low-profile design with a mounted height of only 1.09 in (27.6mm) above the board, with terminals, and 0.705 in (17.9mm), without terminals.

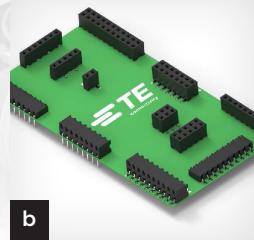
## FACTORY

# AUTOMATION

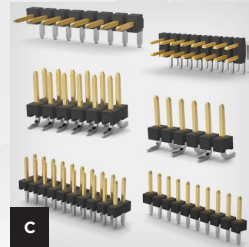
As production environments become increasingly automated and decentralized, even the smallest connections are mission critical. TE delivers new innovative solutions to connect, power and control every aspect of production—from machinery to process optimization on the circuit board to the most unforgiving factory floor.



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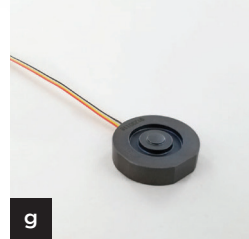
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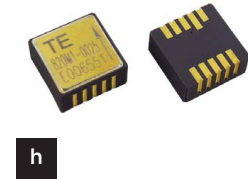
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### **a. [WinTotal v7](#)**

The latest version of TE Identification software, designed for simple and easy use when printing on TE heat-shrink sleeves, cable markers, and labels. This software series supports high quality wire and harness identification and label printing applications.

### **b. [AMPMODU 2mm Board-to-Board Receptacles](#)**

Housed in a high-temperature-resistant liquid crystal polymer (LCP) and utilize phosphor bronze contacts with dual cantilever beams that are available in three gold plating thicknesses.

### **c. [AMPMODU 2mm Breakaway Holder](#)**

Intermateable solution with major brand receptacles. Enables space saving of 38% on the PCB board compared to 2.54 mm, allowing for extended functionality.

### **d. [8911 Wireless Accelerometer for Condition Monitoring](#)**

A compact, LoRaWAN™, wireless accelerometer with edge computing. This network standard enables long-range, reliable communication in industrial applications and enables customers to work with managed network providers or work on their own private network.

### **e. [T2212 Thermal Transfer Printer](#)**

Specially designed to print on a wide range of TE labels, cable markers, and identification marker sleeves. Features new full-color touch screen interface, with intuitive icon-based setting adjustments.

### **f. [Discrete Magnetics for Ethernet](#)**

Enable extra design flexibility in designing Ethernet Interfaces, with optimizations for improved transmission characteristics and over-voltage requirements. Meet reflow soldering profiles with temperatures of 260°C.

### **g. [FX29 Force Compression Load Cell](#)**

Enables design flexibility and simplicity with mV, amplified and digital output options and utilizes high reliability Microfused technology, offering ranges from 10 – 100lbf (50-500N) in a miniature size.

### **h. [820M1 Piezoelectric Circuit Board Mountable Accelerometer](#)**

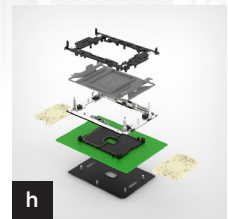
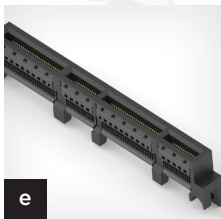
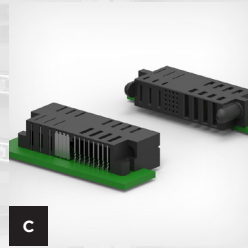
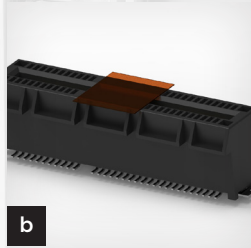
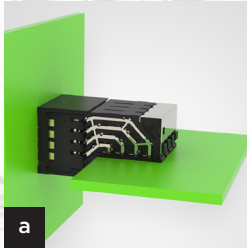
Provide a wide bandwidth with a frequency response up to >10kHz and enable long-term stability and no output drifts even at -40° to +125°C operating range.



## DATA COMMUNICATION

# ARCHITECTURE

The dramatic increase of information flow around the globe has driven the need for communication equipment and architectures that support higher density and faster speeds. As a leader in the industry, TE supports these trends with connectors and cables capable of 10- to 25- Gbps and beyond. TE drives standards and protocols, expertise in signal integrity, and has a broad portfolio of connectivity solutions for every level of data communication.



### **a. [STRADA Whisper R Backplane Connectors](#)**

A critical upgrade path from 56G PAM-4 to 112G PAM-4, making future data center system upgrades easier. A newly-optimized footprint helps ensure low cross talk noise and enables the migration path to 112G.

### **b. [PCIe Gen 4 Card Edge Connectors](#)**

The new standard form factor supporting high speed and density for next generation silicon and faceplate pluggable OCP NIC 3.0 applications.

### **c. [MULTI-BEAM Plus Power Connectors](#)**

Address the market need for higher power and higher performance with the highest current per power contact up to 140A/contact and 100A/contact with four adjacent power contacts.

### **d. [High Frequency RF Connectors and Testing Cable Assemblies](#)**

Support up to 67 GHz and can provide the reliable, high

performance required by test & measurement and other demanding applications. This new RF product line is one of the highest performing in the industry, with extremely low insertion loss and VSWR.

### **e. [Sliver Straddle-Mount Connectors for SFF-TA-1002](#)**

The new standard form factor supporting high speed and density for next generation silicon and faceplate pluggable OCP NIC 3.0 applications.

### **f. [ELCON Micro Wire-to-Board Power Solutions](#)**

Provide a high current up to 12.5A per pin in the standard industry footprint of 3.0mm with virtually foolproof mating.

### **g. [QSFP-DD Cages, Connectors & Cable Assemblies](#)**

Address next-generation data center needs by increasing density in an existing QSFP form factor to reach speeds up to 400 Gbps.

### **h. [LGA 4189 Socket & Hardware](#)**

Enable next-generation CPUs for higher performance, better system scaling and support of PCIe Gen 4 and four or eight multi-processor system architectures.

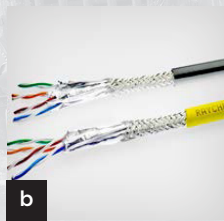
# HARSH

# ENVIRONMENTS

Electronic components are expected to work in more extreme conditions than ever before. Withstand these rugged environments with TE's new products that provide protection against the most challenging situations your application may experience including vibration, moisture, debris and sunlight.



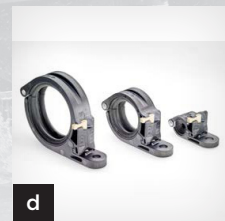
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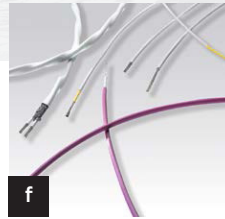
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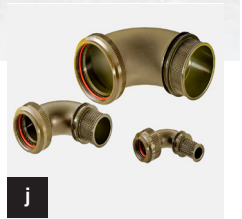
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## a. [Managed Ethernet Switches](#)

Enable secure and reliable gigabit speed networks in harsh environments. Even in extremely high vibration environments these rugged products enable a secure ethernet network.

## b. [Raychem Cat 7 Ethernet Cable](#)

Achieve 10 Gb/s speeds while helping to meet the demands of harsh military and marine environments. Raychem Cat 7 cables are individually shielded, 4 pair cables meeting the electrical requirements of IEC 61156-6 for Category 7 cable.

## c. [369 Series Shielded Rectangular Connector](#)

Provides shielding for grounding and EMI protection in an easy to install design with no fasteners. Features positive blind-mate with audible latching click and compact size enables space saving.

## d. [P-Clamp](#)

Provides a light, fast, and efficient solution to mounting cable harnesses with faster install times and lighter weight. A total of 10 sizes cover the

full cable diameter range of (21) AS21919 P-Clamp sizes.

## e. [M8/M12 Cable Assembly Solutions](#)

Feature 360-degree shielding against EMI for complete protection for signal and data transmission, and are rated IP67 for resistance to dust and water. Overmolded in either PVC or halogen-free polyurethane (PUR) cables, suitable for drag chain applications or torsional stress.

## f. [SPEC 55 Low Fluoride Wire and Cable](#)

Offers a wire insulation system that mitigates the concern for corrosion of components due to outgassing, in confined areas. TE's fluoride off-gassing values typically run in the single digits, which is important to Space, Launch and Missile Platform customers.

## g. [M12 Industrial Ethernet Cable Assembly Connectivity](#)

Features 360-degree shielding against EMI for complete protection for data transmission, and are rated IP67 for resistance to dust and water. The assemblies are overmolded in either PVC or halogen-free polyurethane (PUR) cables,

## h. [M12 X-code Field Installable Cable Plug](#)

Easy to install in the field without the chance of dropping parts into places where they can not be recovered from. The cable leads can be stripped at arbitrary length (no measuring upfront required).

## i. [Industrial Resolvers For More Reliability And High Precision](#)

Provide a complete range of general market solutions, which can be applied in a variety of applications. Due to its design, the hollow shaft resolver boasts of a service life above average. Reliability as well as high precision and low space requirements supplement its favorable characteristics.

## j. [Swept Elbow Backshells](#)

Designed with a smooth internal bore and a continuous bend radius. Available in the band termination (BT) style, these backshells offer up to a 20% weight savings over traditional backshells.

# ENTER THE 5G ERA WITH RELIABLE RF SOLUTIONS

With the upcoming rollout of 5G and exponential increase of wireless traffic, quality of service and spectral efficiency are becoming more and more critical for a non-interrupted wireless experience. TE Connectivity's portfolio of RF solutions meet these performance goals and include standard and custom designs for RF coax connectors and cable assemblies, antennas and board level shielding (BLS).

## DISCOVER WHAT'S NEW:

DESCRIPTION	PART #
MetaSpan Antenna - LTE, PCB, Tab Mount	<a href="#">2118615-1</a>
GNSS Antenna - GPS/Glonass, PCB, Surface Mount	<a href="#">2118900-1</a>
GNSS Antenna - GPS, Adhesive, Surface Mount	<a href="#">2195763-1</a>
RF Coax N Plug to SMA Jack, Between Series Adapters	<a href="#">1057377-1</a>
RF Coax SMA Jack, PCB, Edge Mount	<a href="#">2081005-1</a>
BLS, Standard One Piece, Aluminum (16.50x16.50x3.60mm)	<a href="#">2118707-4</a>

## LEARN MORE:



[RF Coax, N Plug to SMA Jack, Between Series Adapters - 1057377-1](#)



[RF Coax, SMA Jack, PCB, Edge Mount - 2081005-1](#)



[MetaSpan Antenna - LTE, PCB, Tab Mount - 2118615-1](#)



[BLS, Standard One Piece, Aluminum \(16.50 x 16.50 x 3.60mm\) - 2118707-4](#)



[GNSS Antenna - GPS/Glonass, PCB, Surface Mount - 2118900-1](#)



[GNSS Antenna - GPS, Adhesive, Surface Mount - 2195763-1](#)

## BRING YOUR 5G PROJECT TO LIFE:

- **MetaSpan and GNSS antennas** address key antenna performance goals - efficiency and bandwidth - and cover many global protocols. These antennas are developed by TE's team of expert design engineers to offer optimal space savings, cost savings and performance.
- **RF coax connectors and cable assemblies** feature impedance-matched designs and microminiature interfaces, with the ruggedness to help withstand use in harsh environments. Support your 5G antenna, base station or other wireless application with these coax products that maintain low insertion loss, excellent VSWR, and offer other high performing electrical and mechanical performance characteristics..
- **Board level shields (BLS)** are available in a standard portfolio that is tooled and in stock at our distributor partners so you can quickly get the parts you need to minimize crosstalk and reduce EMI susceptibility in your application. Our standard BLS products are available in traditional cold rolled steel (CRS) as well as aluminum which are 1/3 the weight while still offering great EMI suppression.



# INNOVATIVE SOLUTIONS

Whether you are designing a new system or enhancing an existing design, TE is your solution provider for electromechanical and electronic components.



## Terminals and Splices

Discover terminals and splices that help reduce cost and enhance productivity



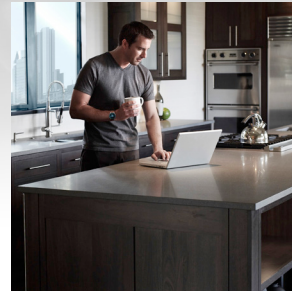
## Drones

Develop cutting-edge drone technology



## Relays

Help increase reliability and enhance productivity in your applications



## Connected Home

Turn your vision for connected home applications into a reality



## Power

Drive design solutions with TE's array of power products



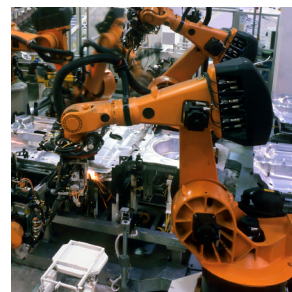
## Wearable Devices

End-to-end connectivity for your wearable devices



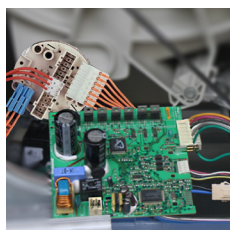
## I/O Communications

Satisfy needs of diverse markets and solve size and data rate challenges



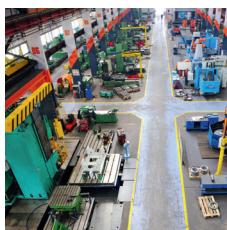
## Motion & Drives

Save power and reduce applied cost while increasing system reliability



## Subsystem Design

Support end products across many industries



## Industrial Control

Reliable, quick to install and industry-proven components



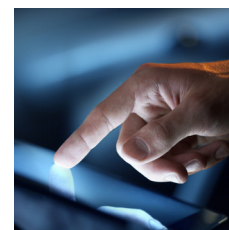
## Building Safety and Security

Stay ahead of the trend for increased building intelligence



## Material Handling

Save on system maintenance costs and down time



## Portable & Handheld Devices

Ease the transition to higher data rates, increased protection and smaller packaging



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