Smaller, Lighter, High-Reliability Products Designed to Optimize Your TE Interconnect Solutions and Built to Withstand the Extreme Environments of Space
Innovative and reliable solutions from TE Connectivity (TE) meet the most demanding applications in the space industry with multiple products to address applications in satellites, spacecraft, launch vehicles, and ground support equipment.

TE’s products are engineered for high quality and high performance. Our agency and integrator-approved products are the cornerstone of our portfolio. We offer a wide variety of products designed to be space compatible. These products are ruggedized and manufactured with materials worthy of space flight and challenging terrestrial applications. Success is the only option in space applications.

TE’s space products have established themselves as dependable, durable, and reliable. Whether it is interconnects, wire, fiber optics, harnessing materials and devices, high performance relays, contactors and solenoids, switches or identification, we can assist with the enabling technology for your space applications. Our high-performance solutions give you the features you need in every space mission:

**Reliability**
- Very wide temperature ranges
- Low outgassing
- Radiation resistance

**Reduced SWaP**
- Smaller size
- Lighter weight

**TE space solutions have been approved by the major space agencies:**
- ESA (European Space Agency)
- ISRO (Indian Space Research Organization)
- JAXA (Japan Aerospace Exploration Agency)
- NASA (National Aeronautics and Space Administration)
Space Products

CONNECTIONS AND RF PRODUCTS

MULTIGIG RT 2-R Connectors
SpaceVPX

Ultra-Rugged
- Withstand high shock and vibration levels

Optimized Performance
- Supports data rates to 10 Gb/s
- Compliant to VITA 46 standards
- Modularity and flexibility with a pinless wafer design

Fiber-Optic Modules (VITA 66)

Full Range of Choices
- ARINC 801, expanded beam, or MT termini
- MT: extreme density with up to 48 fibers/module
- ARINC 801: excellent single-mode performance
- Expanded beam: noncontacting interface for frequent matings/unmatings

Fortis Zd Backplane Connectors
High Speed
- Allows 10+ Gb/s data rates

High Performance
- Extreme mechanical and electrical performance
- Modular design allows for user configurability
- Space-compatible materials

DEUTSCH DFE Series Bayonet Coupling Connectors
MIL-DTL-26482 Series 2

Rugged
- High reliability, with hermetic, pyrotechnic, and custom configurations
- 500-mating-cycle durability
- -65°C to +200°C

Adaptable
- Signal, power, and coaxial contacts
- Meets ESA SCC 3401, Ariane 5, and Vega requirements

Mezalok Mezzanine Connectors (VITA 61)

Compatible
- 114-position, compatible with XMC footprint
- 60 and 320-position versions also available

Reliable
- Mini-box contacts provide 4 points of contact
- LCP plastic housings for excellent thermal stability

DEUTSCH DSC Series Bayonet Coupling Connectors

SwAP Reduction
- Space and weight-saving micro screw coupling
- High performance
- Based on 38999 Series II connectors

Flexible
- Hermetic, EMI shielded, cryogenic, and custom configurations
- Meets Ariane 5 and Vega requirements

AMPLIMITE Military Subminiature-D Connectors

Weight-Saving Design
- Ultra-lite connector features up to 20% weight savings
- Designed for input/output and product break harnessing

Capable
- Improved EMI performance
- NASA qualified designs

DEUTSCH DBAS Series Connectors
MIL-C-26482, SAE AS81703

High Reliability
- Easy and secure locking with a circular push/pull coupling ring for 100% mating
- -55°C to +200°C

Versatile
- Hermetic, rackable, lanyard, dead-face, cryogenic, and custom configurations
- Meets ESA SCC 3401, Ariane 5, and Vega requirements
Space Products

CONNECTORS AND RF PRODUCTS

Micro-D Connectors

**Space and Weight Savings**
- High-density microminiature connector
- Aluminum shells plated in nickel or cadmium

**Flexible**
- Available prewired or with separate crimp contacts for customization

DEUTSCH D-PASO Series Rectangular Connectors

**Capable**
- Compact, ultra-flat designed for solar arrays
- Size 20 contacts: 7.5 A current rating

**Robust**
- High reliability, high density
- Extreme temperature range of -175°C to +130°C

Quadral Connectors, Contacts, and Cable

**High Density, High Speed**
- Up to 10 Gb/s (over Cat 6A cable)
- 2 differential pairs in a size 8 contact shell

**Compatible**
- Inserts for many popular aerospace connectors

PRO-BEAM Expanded-Beam Connectors

**Robust**
- Physically noncontacting mating of SMF and MMF

**Versatile**
- Three sizes: Senior, Junior, and Mini
- Size 16 termini also available

Nanominiature and Microminiature Connectors

**Rugged Reliability**
- High shock and vibration ratings
- Wide temperature range (-200°C to +200°C)
- Lightweight and space-proven
- Low outgassing

DEUTSCH MC Series Physical Contact Connectors

**Sustained High Performance**
- Withstands a wide range of environmental conditions
- Compact 1.25-mm precision zirconia ceramic ferrules
- Extensive range with dimple termination process and tooling

DEUTSCH In-Line Connectors

**Tough**
- Resistant to most fluids and solvents
- 1500-mating-cycle durability
- -65°C to +175°C temperature range

**Easy**
- Individual plug shells quickly mate or unmate from a stack

Raychem MIL-STD-1553B Data Bus Components

**SWaP Reduction**
- Conserve space, weight, and power consumption
- Tin/nickel-plated metallic parts
- Baked silicone rubber components

**Optimum Performance**
- Low outgassing tubing
- Cable with optimized single shield, double shield, or EMP hardened
- Low-fluoride-outgassing cable
- Enhanced temperature range and radiation resistance
MTC Connectors

**Save Space and Weight**
- Lightweight materials for weight savings
- Reliable, low profile, and stackable

**Rugged Reliability**
- Environmentally sealed
- EMI accessories available

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Terminal and Splices

**Comprehensive Selection**
- High temperature
- Radiation resistant
- Gold, silver, nickel and tin platings available

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**CONNECTORS AND RF PRODUCTS**

**WIRE, CABLE AND DEVICES**

Raychem SPEC 55 Space Wire

**Save Space and Weight**
- Smallest and lightest performance wire

**Capable**
- -85°C to +200°C
- Low temperature flexibility
- Mechanically tough, low outgassing
- Excellent resistance to chemicals
- Minimizes effects of high-frequency EMI

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Raychem Cheminax Controlled Electrical Cable

**High Performance**
- Low capacitance and attenuation
- High velocity of propagation
- Rated -65°C to +200°C

**Adaptable**
- Lightweight, small size
- Suitable for demanding video and RF applications
- Highly flexible

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Raychem Space Wire and Cable

**High Performance**
- 125°C, 150°C, or 200°C temperature ratings
- Cross-linked “non-melting” insulation system
- Low fluorine insulation system and low outgassing

**Qualified**
- NASA and ESA-qualified designs

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Raychem High-Speed Copper Cable

**Rugged Choices**
- Material choices to match application requirements
- Shielded and unshielded
- Low-smoke, zero-halogen versions for increased safety

**High-Speed Protocols**
- Configurations to support various Ethernet, Quadra, IEEE 1394, USB, Fibre Channel, etc.

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Carbon Nanotube Cables

**Extremely Light Weight**
- CNT shields and conductors
- Weight savings >50% compared with copper
- Optimized for crimp and solder termination
- Hybrid copper/CNT versions

**Continually Improving**
- Dedicated CNT wire and cable pilot plant
- MIL-STD-1553B cables for 2015 and higher data rates to follow

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RF Connectors, Cable, and Cable Assemblies

**More Choice, More Performance**
- Standard, subminiature, and microminiature interfaces and frequencies
- Flexible and semi-rigid cable
- Qualified to MIL-PRF-39012, MIL-DTL-83517, MIL-PRF-85339
Space Products

**HARNESSING**

**Polamco Backshells**

**Full Range**
- Unshielded, shielded, and rugged conduit systems
- Rectangular and circular configurations
- Straight, 45, or 90-degree options

**Rugged**
- Versions to match any harsh environment

**Raychem HexaShield Backshells**

**High Performance**
- 360° shield termination system for shielded wires and cables
- Excellent mechanical and environmental resistance
- Efficient strain relief

**Versatile and Flexible**
- Aluminum, stainless steel, and composite versions available
- Simple installation and easy re-entry

**Raychem Adhesives and Sealants**

**Versatile**
- Matched to application requirements
- Matched to Raychem molded parts and tubing

**Raychem Heat Shrinkable Tubing**

**Excellent Performance**
- Space-grade versions for low outgassing
- With or without adhesive lining
- Wide range of sizes, shrink ratios, and environmental resistance

**HarnWare Harness Design Software**

**Powerful**
- Speeds and simplifies harness design

**Comprehensive**
- Component selection
- Layout
- Assembly drawings
- Bills of material

**Raychem Molded Parts**

**More Choice**
- Space-grade versions for low outgassing
- Available to fit TE backshell adapters

**Protects**
- Provides excellent strain relief at connector cable terminations

**Raychem Sealed Harnesses**

**Lightweight and Tough**
- Small, lightweight, rugged, and environmentally sealed

**Customized**
- Designs are customer specific, tailored to help meet your strictest requirements

**Complete**
- Harnesses include TE cables, connectors, backshells, tubing, molded parts, and adhesives
Space Products

HIGH-PERFORMANCE RELAYS AND SOLENOIDS

Kilovac High Voltage Relays

Space and Weight Savings
• Small size and weight for given power rating

Robust and Versatile
• High resistance to shock, vibration, and temperature extremes
• Low, stable contact resistance over relay life
• Usable in RF devices

HARTMAN N-Series Relays

High Reliability
• Magnetic latch or side stable
• Stainless steel-welded construction
• Hermetically sealed

Flexible Performance
• -55°C to +125°C
• Multiple mounting and auxiliary contact configurations
• Main contact current ratings 30 to 125 A

CII Mid-Range Relays

Comprehensive Selection
• Qualified to a variety of Mil Specs
• Designed to perform in a wide range of extreme environments

Flight Ready
• Hermetically sealed
• High shock and vibration ratings

Custom Tubular Solenoids

Versatile
• Tailored to specific applications
• Push, pull or combination linear motion
• 100,000 cycles

Reliable
• -65°C to +125°C
• High altitude, shock, acceleration and vibration resistance

CII DC Solid State Relays

Rugged Reliability
• Optically coupled input/output
• Hermetically sealed
• High shock and vibration resistance

Versatile
• Some relays incorporate short circuit protection and status
• Compatible with a wide range of extreme environments

Power Distribution Units

Smaller, Lighter
• Optimize floor space weight savings over discrete installations

Customized
• Accommodate whatever bill of material and point-to-point layout the application requires
• Decades of experience designing custom panel assemblies

Composite Enclosures

Weight-Saving Rugged Performance
• Light weight — up to 50% lighter than aluminum
• Extremely rugged and corrosion resistant

Customizable
• Conductive composites and plating options for grounding/EMI shielding
• Highly customizable with integrated wire traces, antennas, and connectors

Antennas

Convenient
• Low-profile conformal designs
• Support for wide variety of protocols

Cost Effective
• Can be embedded in composite enclosures

INTEGRATED SOLUTIONS