Solutions for Military Aerospace

TE connectivity

Solving Tough Technical Issues

Success in today's rugged avionics environment is more than a thorough understanding of your own products. Success demands an equally sophisticated understanding of the application and how well your product interacts as part of an overall integrated system. At TE Connectivity, we understand complex system protocols, key electrical parameter requirements, and overall mechanical performance requirements of the military aerospace market.

As you look toward a holistic approach to system integration known as electrical wiring integrated systems (EWIS) and the significant role avionics plays in EWIS systems, count on TE for solutions that combine avionics, high performance, long-term reliability, and innovation to meet the next-generation of needs.

Typical Applications

- Radio communications
- Processors
- High-speed computers
- Navigation

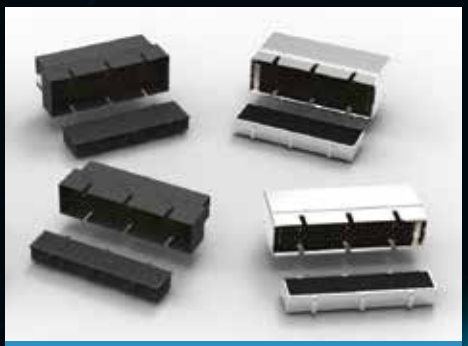
TE Components . . . TE Technology . . . TE Know-how . . .

Get your product to market faster with a smarter, better solution.

Go to: DesignSmarterFaster.com. Your best place to get started, today!

Here you can get connected to the inner circle of TE AD&M's best thinkers. Working together early in your design review process, we can help you reach a better connectivity solution.

SMARTER CONNECTIVITY FOR INTELLIGENT FLIGHT



FORTIS Zd CONNECTORS

EMI FILTER CONNECTORS

This modular high-density backplane connector system handles signal, power, and high-speed differential pairs up to 12+ Gb/s in a rugged high-shock and high-vibration environment.

By incorporating electronic components to provide EMI filtering or transient protection, superior performance can be obtained, with the additional benefits of helping to save space, weight, and system cost. Filter options range from a few kilohertz to several gigahertz.

Solutions for Avionics

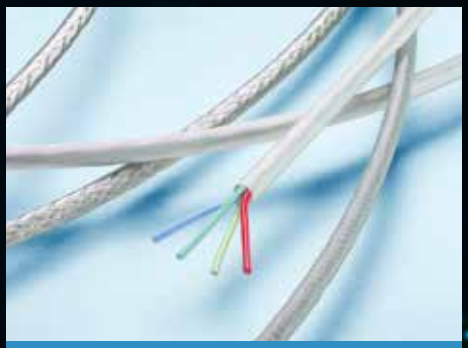
- High-Speed Board-Level Connectors
- VITA 66/67 Optical and RF Modules
- Mezalok Mezzanine Connectors
- Gigabit and 10G I/O Connectors
- High-Speed Cable and Cable Assemblies
- D-Subminiature Connectors
- Micro-D Connectors
- Nanominiature Connectors
- Switching Relays
- Solid-State Relays
- Board-Level Relays
- EMI Backshells
- EMI Filter Connectors

D-MAX CONNECTORS

Available in both 38999 and ARINC 809 styles, D-MAX connectors handle speeds of 10 Gb/s and more, making them an ideal choice for 10G Ethernet, IEEE 1394, USB 3.0 and other high-speed protocols. The termination and assembly is fast and straightforward, including the ability to field terminate and repair in as little as 5 minutes.

CEELOK FAS-T CONNECTORS

One of the smallest, field-repairable, 10G Ethernet connectors for aerospace applications. Compatible with a variety of high-speed cables and protocols, CeeLok FAS-T connectors are ruggedized for excellent shock, vibration, temperature, and sealing performance, and feature an integral backshell for low cost, low-weight strain relief and EMI protection.



IEEE 1394 FIREWIRE CABLE

A true Gigabit Ethernet family of quadraxial cables that are small in size, light weight, rugged, and capable of handling a wide temperature range from -55°C to +200°C.

Rugged Reliability for Higher Performance, End to End

At the backbone of every military aerospace platform, wiring harnessing interconnects every subtier system, including critical radar and avionics systems. Our robust and reliable harnessing components help you meet today's stringent 20-year mean time between failure (MTBF) life expectancy—and can help you reduce weight and size, operate at higher data rates, and perform over extended temperature ranges.

Typical Applications

- Avionics bays
- Engine bays
- Flight controls
- Environmental systems
- Power switching
- Landing gear

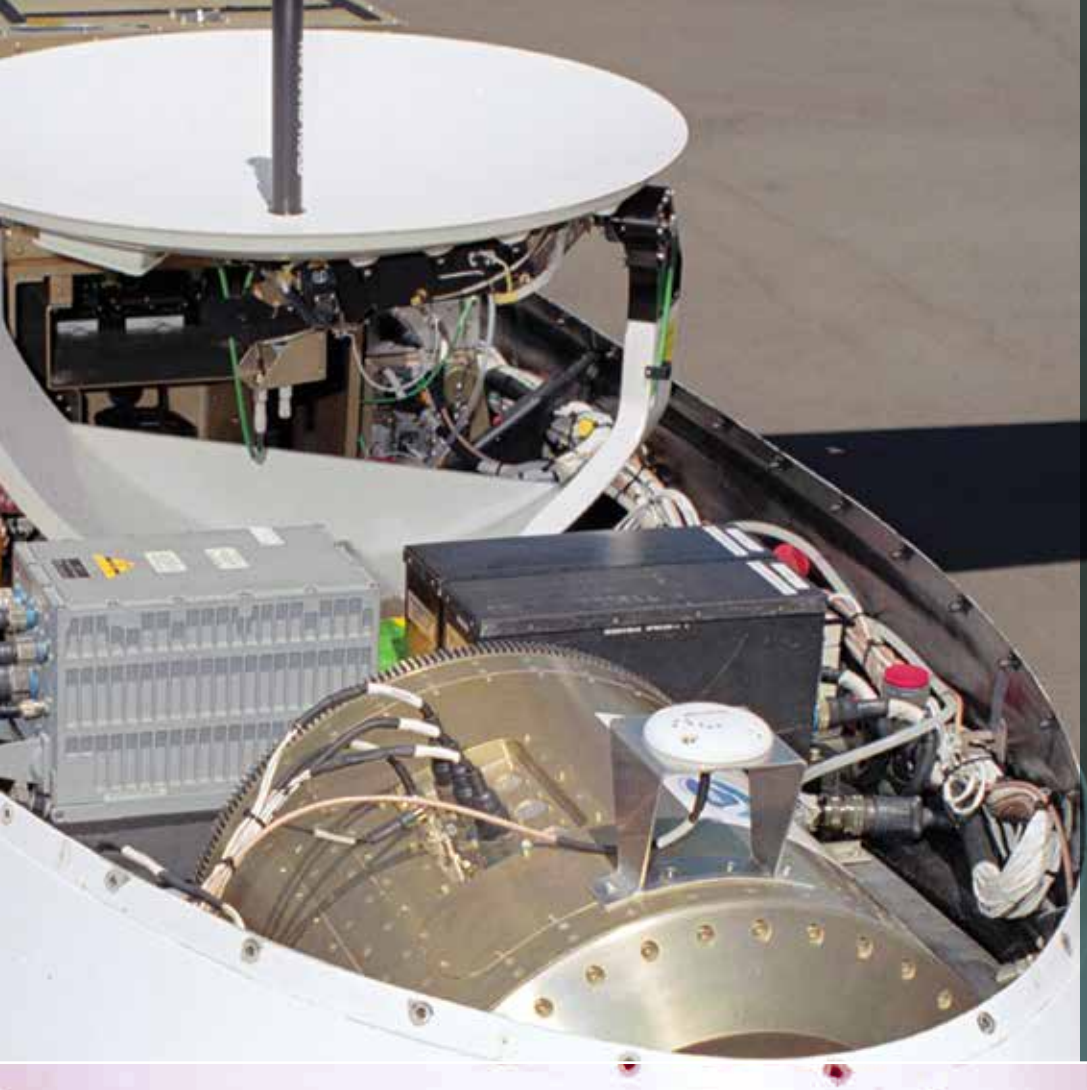
HARNESS RELIABILITY FROM TIP TO TAIL

DTS 38999 CONNECTORS

MIL-STD-1553B DATA BUS

Our range of MIL-DTL-38999 and 38999-style connectors gives you more choice in shell sizes and materials, inserts for power, signal, and optical needs, filtering and EMI protection, hermetics and other special environmental sealing—if you need 38999, talk to TE.

TE offers a complete line of couplers, connectors, terminators, and cables to help meet the most stringent airframe requirements. We also provide fully tested assemblies with temperature ranges from -55°C to +150°C.



Solutions for Aircraft Wiring

- MIL-STD-1553 Data Bus
- Fiber Optic Connectors
- 38999 Connectors

- Primary Wire and Cables
- High-Speed Cables
- Sealed Harnesses

- Feedthroughs
- High-Performance Backshells
- Protection Products

- Repair Products
- Termination Devices
- Terminals and Splices

SPEC 55 WIRE AND CABLE

TE's military-qualified, high-performance primary wire and cable, offered in both single- and dual-wall construction, provides small size, light weight, and outstanding chemical resistance. This wire provides excellent abrasion and cut-through resistance and flexibility, with an extended temperature range from -65°C to +200°C.

CTJ SERIES TERMINAL JUNCTION MODULES

Compact, environmentally sealed, CTJ Series modules accommodate common bussing of 6 to 20 contacts in a small area. Internal busbars are configured to allow connections of various combinations of wires from 22 through 12 AWG, while providing fluid resistance, vibration dampening, and a temperature range of -65°C to +200°C.

200°C SOLDERSLEEVE DEVICES

SolderSleeve terminations are one-step heat-shrinkable wire and cable interconnection devices that insulate, strain relieve, and protect terminations from environmental damage.

Reduce SWaP, Increase High-Frequency Capability

The changing RF world is now demanding higher bandwidths and faster speeds to meet the increasingly sophisticated needs of radar and communications. The drive toward smaller packages, higher electronic densities, and ease of use requires innovative next-generation "families of products." TE understands these needs, and will work with you from early design involvement to a final product solution.

Typical Applications

- Radio communications
- Radar control
- EO/IR
- C4ISR
- Seeker and guidance
- AESA radar

MEET YOUR VISION WITH TE INNOVATION

SMP/SMPM RF CONNECTORS

MULTIGIG RT 2-R CONNECTORS

Supporting applications up to 40 GHz, TE's military-qualified SMP/SMPM connectors are available in board- and cable-mount versions, including VITA 67.

The standard connector for VITA 46 applications, the MULTIGIG RT 2 connector has been redesigned to be even more rugged. Passing the extreme testing requirements of VITA 72, the new MULTIGIG RT 2-R connectors offer quad redundant contacts for reliable connections and is drop-in backwards compatible with the original design.

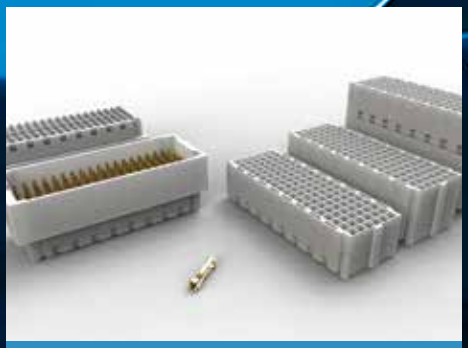
Solutions for Radar

- OSP, OSSP RF Connectors
- SMA, BNC, TNC RF Connectors
- SMP/SMPM RF Connectors

- Cheminax Coaxial Cables
- RF Cable Assemblies
- Fiber Optic Connectors

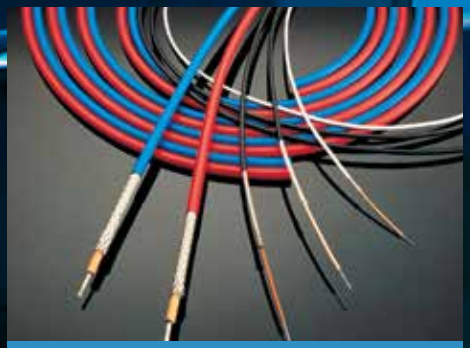
- High-Speed Backplane Connectors
- Mezalok Mezzanine Connectors
- Board-Level Relays

- Nanominiature Connectors
- Microminiature Connectors
- D-Subminiature Connectors



MEZALOK CONNECTORS

Using well-established Mini-Box contact and BGA technologies, Mezalok connectors for VITA 61 are the high-reliability choice for XMC serial switched fabric applications, supporting data rates of 5 Gb/s and providing exceptional thermal stability and resistance to shock and vibration. The connectors are available in stacking heights of 10, 12, and 18 mm and sizes of 114 and 60 positions.



CHEMINAX COAXIAL CABLE

Cheminax cables bring tightly controlled electrical characteristics to miniature coaxial cable—offering electrical performance exceeding standard RG cables in a smaller, lighter design while providing lower attenuation and capacitance.

HIGH-FREQUENCY MICROWAVE HARNESSES

Custom-designed and application-specific, with flexible and semirigid cables capable of handling up to 60 GHz. We offer complete design, testing, and certification of our cable assemblies.

Powerful Solutions for Extreme Conditions

The complexity and advanced capabilities of today's smart munitions require a high level of interconnection. Multifunctional levels of capability drive the need for more complex processing in a smaller, lighter weapons package. Rapid-fire weapon systems demand solutions to withstand the high shock and vibration they exhibit.

We are creating the next generation of interconnect products help to meet the most stringent electrical and physical demands.

Typical Applications

- Missile launchers
- Bomb racks
- Gun mounts
- Pods

TARGET RUGGED RELIABILITY

STORES INTERFACE CONNECTOR

EXPANDED BEAM OPTICS

TE's MIL-STD-1760 connector systems enable a high-reliability interface with mission stores equipment. The drop launch 1760 Type 1 is available in both aluminium and composite versions. The 1760 Type 2 is for rail launch applications and incorporates a replaceable buffer system for protection from missile efflux. The 1760 interface is also available in standard MIL-DTL-38999 Series III shells.

Our unique optics design incorporates a ball lens into a ruggedized connector with outstanding reliability and ease of maintainability. Add in an armored cable for the perfect optical assembly package.

Solutions for Weapon Systems

- MIL-STD-1760 Connectors
- MIL-STD-1553 Data Bus
- Lanyard Connectors
- Hermetic Connectors
- Ruggedized Circular Connectors
- High-Temperature Connectors
- High-Speed Cables and Assemblies
- Sealed Harnesses
- Specialty Wiring

DMC-M EN4165 CONNECTORS

With aluminum alloy or composite shells, DMC-M connectors are lightweight multimodule connectors that give you modularity to deploy signal, power, optical, and high-speed connectivity. Designed to EN4165 requirements, the series' range of inserts, options, and accessories provides maximum flexibility in configuration.

MICRO D CONNECTORS

TE's Micro D connectors are qualified to M83513. These high-density, low-profile connectors are available in circular and rectangular formats. Our new offerings include high-speed signal and power, and can be put into a single housing to help support maximum space and weight savings.

SEALED HARNESSES

Design engineered from the beginning, our harnesses are small, lightweight, rugged, and environmentally sealed. Each design is customer specific and tailored to help meet your strictest requirements. Our comprehensive solutions include TE cables, connectors, backshells, tubing, molded parts, and adhesives.

Performance and Reliability Take Flight

Today's modern aircraft, with their advanced avionics, AESA radar, and complex control systems, demand generators to produce electrical power at record levels. This drives requirements for increased isolation and switching performance, better sensing capability, and improved thermal management. With all the capabilities we build into our products, you can still rely on us for compact, lightweight components. Plus we can integrate electronics and custom tailor efficient power distribution panels.

Typical Applications

- Main bus isolators
- Radar/jammer
- Hydraulic pumps
- Directed energy
- Weapons fire and control
- Fly by wire
- Battery Isolators
- APU start

TAP OUR POWERFUL SOLUTIONS

AC AND DC RELAYS AND CONTACTORS 983 SERIES

983 SERIES FIREWALL CONNECTORS

With one of the largest QPL offerings in the industry, we offer a broad range of relays and contactors, switching power from signal level to hundreds of kilowatts. Our components maintain superior reliability in some of the smallest, lightest weight packages in the industry.

High-temperature 983 Series firewall connectors are designed to take the heat—up to 200°C. The finely threaded connectors feature self-locking plugs, shell-to-shell metal bottoming, and special insert materials to make them well suited to firewall feedthrough applications.

Solutions for Power Systems

- Primary Power Distribution
- Secondary Power Distribution
- Custom Power Panels

- Circular Power Connectors
- Flexible Power Wire and Cable
- Overcurrent Protection

- 270 VDC Contactors
- Ground Fault Interrupters
- Solid-State Relays

- Board-Level Switching
- Timers and Sensors
- Solenoids

POWER DISTRIBUTION UNITS

We have decades of experience designing custom panel assemblies that accommodate whatever bill of material and point-to-point layout the application requires, optimizing floor space and providing weight savings over discrete installations.

DTS-HC SERIES POWER CONNECTORS

Ideally suited for high-power interconnections in harsh environments, the connector's power contacts are rated to 300 A and are suitable for terminating conductors up to 70 mm². Based on proven military-standard 38999 housings, the connectors help provide the reliability and performance required for the most demanding aerospace applications.

SMART CONNECTIVITY

We are bringing advanced intelligence to contactors, with current and voltage sensing using current transformers or Hall-effect switches, protection from differential currents, overcurrent tripping, and hard faults, and remote reset capabilities. The result is better power management, lower power consumption, and smaller, more capable packages.

Fly with a Higher Level of Confidence

Modern flight controls combine mechanical, hydraulic, and, increasingly, fly-by-wire systems to manage flight control surfaces, landing gear, and other mechanisms.

As the sophistication of these controls increases, so do the requirements for faster processing speeds and smaller, lighter, and more reliable solenoids, sensors, and actuators.

Typical Applications

- Altitude control
- Angle of attack
- Yaw, roll, and pitch

- Throttle controls
- Control yoke
- Elevator trim

- Wing flaps
- Landing gear

SETTING NEW DIRECTIONS IN FLIGHT CONTROL

SENSORS

CUSTOM SOLENOIDS

Our sensors help give you high accuracy and high reliability sensing combined with low weight, compact size, and low power requirements. Packaged to withstand harsh environments, our sensors can include wired or wireless high-speed telemetry and integration into value-added assemblies.

We custom design linear-motion solenoids to perform in extreme temperatures, high altitudes, and demanding shock, acceleration, and vibration environments. Available with push, pull, or combination actuation, our solenoids service a variety of applications such as fuel tanks, bomb racks, and hydraulic systems.

Solutions for Flight Controls and Landing Gear

- High-Temperature, Vibration-Resistant Connectors
- High-Temperature Wire and Cable
- Hermetic Connectors
- Rugged Conduit Harnesses
- High-Performance Backshells
- Tubing and Molded Parts
- Custom Tubular Solenoids
- Sensors

COMPOSITE CONNECTORS

Achieve significant weight savings with help from our composite-shell connectors, which combine weight savings with corrosion resistance, temperature ranges as wide as -65°C to +200°C, and compatibility with standard inserts for signal, power and optical connectivity. Many of our connector families are available with composite options.

HERMETIC CONNECTORS

The variety of connector families available in hermetic versions means you do not have to compromise in your choice of connectivity. Get hermetic sealing for increased environmental performance that helps to meet the harsh demands throughout the aircraft.

RUGGED CONDUIT HARNESSES

Our rugged conduit harnesses provide reliable connectivity in severe environments with high-temperature insulation and jackets, lightweight shielding, flexibility, and repairable components to meet EWIS requirements.

Fly Higher, Fly Longer

Unmanned aerial systems, ranging from 60-foot wing spans on high altitude platforms to the size of a small hummingbird, require innovative solutions to meet the mission requirements of long flight times, advanced intelligence-gathering capabilities, and weapons delivery. The UAV market demands small, lightweight, low-cost solutions in an ever-evolving market that must adapt quickly to changes and threats in a global environment.

Typical Applications

- Electro-optical
- Infrared
- Radar
- Communications
- Weapons systems
- Flight controls

See Our Full Product Lineup

For additional products for the Military Aerospace Market, visit our internet site at: **www.te.com/ADM**

KEEP UAVS ON ACTIVE DUTY

369 SERIES CONNECTORS

RAYCHEM SPIN LOCK ADAPTERS

For applications requiring fewer contacts per connector, the new 369 Series connectors feature aerospace-grade materials to meet stringent smoke, toxicity, flammability, and sealing requirements.

TE's Raychem spin lock variable-angle backshells allow a single part to accommodate a wide range of needs. Providing straight, 45°, and 90° cable terminations, the backshell's swivel body rotates around the axis of the cable bundle, thereby helping to minimize stress on the wire bundle and provide better strain relief.

Solutions for Unmanned Systems

- Active Optical Assemblies
- Composite Enclosures
- Composite Connectors

- Gigabit and 10G I/O Connectors
- High-Speed Cable
- RF Connectors and Cable Assemblies

- Fiber Optic Connectors
- Expanded Beam and Ceramic Ferrule Optical Termini
- VITA 66/67 Optical and RF Modules

- High-Speed Backplane Connectors
- Mezalok Mezzanine Connectors
- Wildcat Micro Connectors

- Relays
- Contactors
- Termination Devices

K SERIES RELAYS

Our K Series contactors are among the smallest, lightest available, helping you to meet critical SWaP requirements while providing switching capabilities of up to 1000 A at 28 VDC.

WILDCAT CONNECTORS

Wildcat connectors provide higher densities in familiar circular formats. Wildcat 38999 connectors offer nearly twice the contact density than comparable 38999 Series III connectors. For size- and weight-critical applications, Wildcat Micro connectors offer between 3 and 9-contact layouts. Both types help you withstand extreme temperatures and resist vibration and corrosion.

COMPOSITE ENCLOSURES

Engineered polymers, micro-encapsulants, molded-in antennas, selective traces, EMI, and thermal management are crucial in any enclosure. We have the capability to design rugged, lightweight enclosures with our expertise in materials, manufacturing, engineering, and modeling.

FOR MORE INFORMATION

Technical Support

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EVERY CONNECTION COUNTS