

# Solutions for Ground Defense

From Power to High-Speed Communications . . .  
Rugged, Size and Weight-Saving Solutions  
that Withstand Harsh Environments  
for Reliable Mobility

# Connect with Mission-Critical Reliability

## Lightening the Load, Enabling Mission Readiness

Nothing is more important on or off the battlefield than reliable systems. As the electronic content of ground defense equipment expands dramatically, space remains at a premium and weight savings becomes an important goal. As systems grow more sophisticated in capabilities, trust TE Connectivity (TE) for advanced solutions to support the mission.

With decades of experience in supporting military readiness, we are today helping ground defense equipment achieve a decisive edge in capabilities, reliability, and mission readiness.

We're ready to work with you to solve the tough problems. Our research and development into advanced materials and processes yields next-generation solutions to keep pace with evolving needs.

From connectors and cable to sensors and power distribution products, we offer you products designed to perform in harsh

environments and withstand the hazards of ground deployment. Equally important, application expertise allows us to engineer integrated assemblies tailored to your needs. Such integration helps not only to save space and weight, it also helps increase reliability and simplify manufacturing and maintenance.

We can help you achieve:

### Size and Weight Reduction

- Lightweight materials, including composites
- Miniaturization
- Higher integration

### Complexity Reduction

- Integrated subassemblies

### Signal Integrity

- Increased bandwidth for high-speed networking
- EMI protection

### Reliability

- Clean, reliable power
- Mechanical and environmental robustness

## Weapons Systems

Target Acquisition,  
Tracking, and  
Targeting



### Sensors

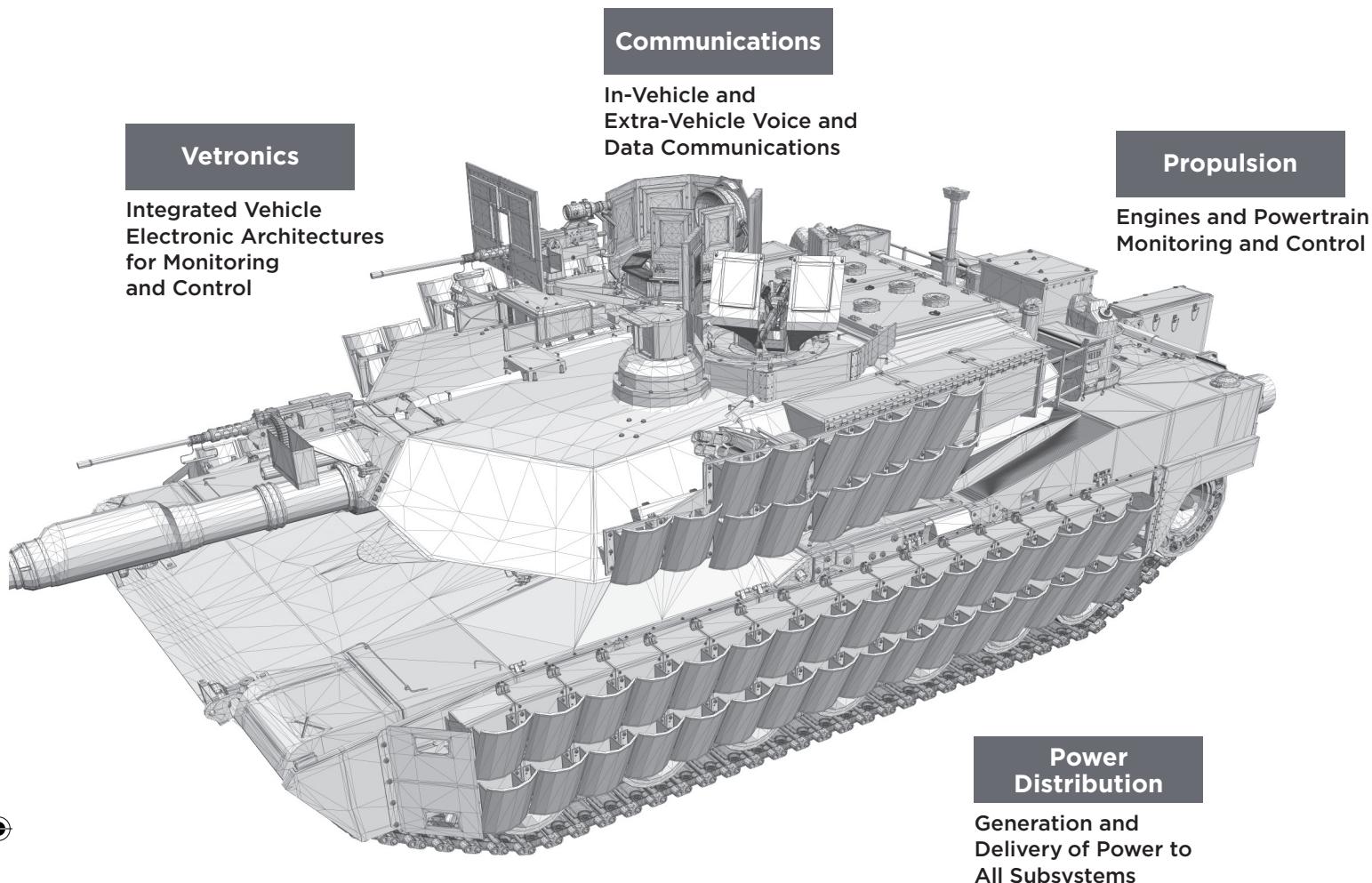
As a leader in sensor technologies for the automotive industry, we bring the same reliable, accurate sensing to military applications with ruggedized packaging to help ensure smarter monitoring and control of vehicle subsystems



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

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH  
SEACON Phoenix | LL Rowe | Phoenix Optix | AFP | SEACON

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



Engineered Integrated Solutions Save Size and Weight and Boost Reliability and Performance

#### Quick-Connect Power Connectors

Easy does it with SNAP-LUG connectors. The vibration-resistant connectors feature a locking connection that simply snaps on with tactile feedback and unmates with a press-to-release latching mechanism. With tool-less installation and no nuts to tighten, the connector save labor and space. Color coding and keying help ensure correct polarity, the connectors can handle up to 375 A



#### Composite Enclosures and Antennas

Our engineered polymers, microencapsulants, molded-in antennas, selective traces, EMI, and thermal management are crucial in enclosures. We have the capability to design rugged, lightweight enclosures with our expertise in materials, manufacturing, engineering, and modeling



# Force Readiness Begins with Dependability

## Simplifying Systems, Advancing Capabilities

Maximum mobility, enhanced situational awareness, and precise target acquisition and firing solutions all require new levels of sophisticated processing and control of systems ranging from laser range finders to turret positioning. They require efficient use of space without sacrificing reliability, adding unnecessary weight, or compromising mission effectiveness.

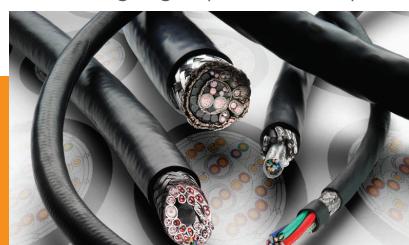
As the complexity of weapons systems increases, we help simplify interconnections, increase performance, and enhance reliability to achieve greater accuracy, faster response, and better communications.

## Typical Applications

- Remote weapons systems (RWS)
- Electro-optical systems
- Thermal imager sights
- IED defeat

### Multiconductor Cables

Our expertise in advanced materials yields wire and cable that are smaller, lighter, and tougher than traditional industry-standard counterparts, with wide temperature ranges, resistance to fuels and contaminants, and options for EMI/EMP shielding. They also offer the flexibility to route through tight spaces and sharp turns



### Hermetic Connectors

The variety of TE 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 vehicle



### High-Speed Cable Assemblies

TE offers tight impedance tolerances and a range of shielding options for cables that go the distance with exceptional EMI control, signal integrity, and robust environmental performance. Our compact, lightweight assemblies give you the performance to fully support such high-speed protocols as Gigabit Ethernet, Fibre Channel, USB, and DVI





## Solutions for Weapons Systems

### Connectors

- Mil-Spec Connectors and Backshells
- Filter and Hermetic Connectors
- Rugged Optics

### Wire and Cable

- High-Performance Wire and Cable
- Power Cables
- Harnessing Components

### Power Distribution

- Power Distribution Boxes
- High-Performance Relays and Contactors

### Maintenance

- Maintenance and Repair Kits
- Terminals and Splices

### Rugged Fiber Optics

- High Density Optics
- Active Optic/Passive Optic Solutions
- Physical Contact
- Expanded Beam
- AFP SuperChassis Platform
- AFP SuperBullet Media Converter
- AFP SuperDrum Integrated Reel
- AFP MCUBE Transceiver
- Optical Flex Circuits

### EMI Filter Connectors

The next evolution of the MIL-DTL-38999 Series III EMI filter connectors, EvoMax connectors combines what have been custom designs into a standardized design capable of accommodating popular options. With composite or metal shells, EvoMax connectors give the flexibility of custom with the lower costs and faster lead times of standard products. Our range of other EMI filter and transient protection solutions will help meet your most demanding requirements



### AFP SuperChassis Platform

The modular AFP SuperChassis platform features redundant, hot-swappable power supplies, and a 2U chassis having 20 powered slots with 5 and 10-slot options available. Highly flexible, choose from 3G, HD-SDI, and HDMI video, Gigabit Ethernet, single mode-to-multimode wavelength conversion, and CWDM multiplexing modules



### Raychem Lightweight Harnessing Components

Put our expertise in driving out size and weight to work in your next design. We are making harnessing components smaller and lighter. For example, our INSTALITE heat-shrinkable molded boots are 20% to 30% lighter and of equivalent performance to our widely used -25 boots. Similarly, our INSTALITE braids are up to 50% lighter than our traditional braids



# Provide More Speed in Network-Centric Warfare

## Improving Battlefield Connectivity for a Tactical Edge

Integrated communications is central to modern military operations—networking all units to provide maximum situation awareness and effective deployment. Not only do communication systems require higher bandwidth, they must maintain signal integrity under demanding mechanical and environmental conditions within an often hostile EMI environment.

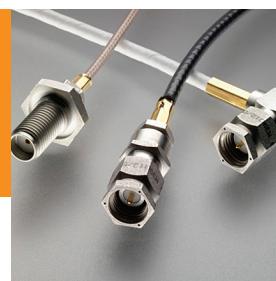
We give you more options in high-density packaging, high-frequency performance, and modularity to help achieve maximum performance in minimum space.

### Typical Applications

- Antenna tuners
- Tactical data communication systems
- Single-board computers

#### RF Cable and Connectors

As a leading manufacturer of RF connectors, cable, cable assemblies, and application tooling, we provide a wide range of coaxial connectors for the ground defense industry, including military-qualified SMA, BNC, and TNC connectors along with a portfolio of small form factor high-frequency connectors



#### DEUTSCH Circular Connectors

Our wide range of 38999 connectors help meet the needs of military ground vehicles that require harsh environment performance, corrosion resistance, and structural ruggedness. The lineup includes both composite and Class L connectors with nickel-plated stainless shells and a temperature range from -65°C to +200°C



#### High-Speed Connectors

Using a 38999-style shell, CeeLok FAS-X connectors handle speeds of 10 Gb/s and higher, making them an ideal choice for 10G Ethernet, IEEE 1394, USB 2.0 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





## Solutions for Communications

### High-Speed Connectors

- HI/O Connectors
- Backplane Connectors
- VITA 46/LRU Products

### I/O Connectors

- Circular and Rectangular Connectors
- Microminiature/Nanominiature Connectors

### Optical and RF

- Advanced Optical Modules and Connectors
- RF Connectors and Assemblies
- Controlled Electrical Cables
- Filterline Cable

### Relays and Contactors

- Signal Relays
- Solid-State Relays

### Rugged Fiber Optics

- AFP SuperChassis Platform
- AFP SuperBullet Media Converter
- AFP SuperDrum Integrated Reel
- AFP MCUBE Transceiver

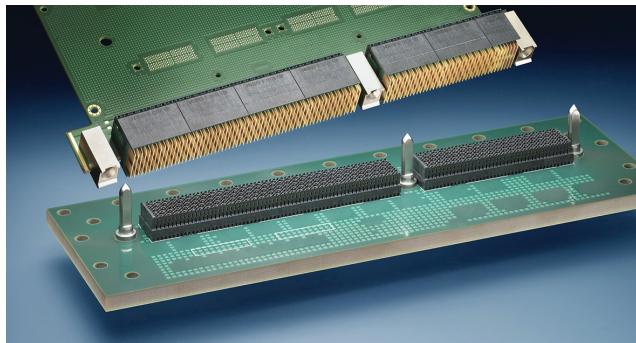
#### Rugged Optical Assemblies

Optical technology helps save weight and space and offers inherent EMI immunity. For high-density applications, our MTC high-performance modular rectangular connectors help save space compared to circular connectors and accept standard ARINC 801 optical termini in a compact, lightweight design. We also offer ruggedized assemblies and expanded-beam connectors that give excellent performance in harsh, dirty, and mechanically challenging environments



#### High-Speed Rugged Board-Level Interconnects

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



# Tap Powerful Solutions

## Providing Reliable, Responsive, Efficient Performance

TE is a driving force in ground vehicles, helping ensure power distribution is efficient and manageable. Our solutions help combat the stresses found in ground defense vehicles, by helping to withstand the heat of the engine compartment, resisting harsh oils, fuel, and other solvents, and maintaining efficient performance under tough conditions of vibration and shock.

Engine-monitoring sensors give vital information on temperatures, vibration, fluid levels, and other vital parameters.

We offer relays and contacts with make/break current ratings up to 2000 A, current ratings up to 1000 A at 28 VDC and 500 A at 900 VDC, and hermetic sealing for reliability. Our relays offer an industry-leading combination of high current switching in compact, lightweight packages.

## Typical Applications

- Engine control
- Engine sensing and monitoring
- Turret power drives
- Main power management systems
- Powered doors
- Powered entry ramps

### Power Contactors and Relays

Our lightweight contactors and relays handle high-power DC and AC needs. They are available hermetically or environmentally sealed, with a variety of electrical configurations, power ratings, voltage ratings, and mounting styles to make your electrical system more reliable and capable



### Power Distribution and Battery Boxes

Light weight, environmentally sealed composite housings for NATO standard 6T batteries. The modular design accommodates several batteries in any orientation. The composite enclosure can incorporate such additional features as a bus bar, fuses, sensors and switches. The housing can also be easily customized for other battery types



### POLAMCO Power Connectors

Easily and reliably carry 400 to 1000 amps in 38999-style connectors designed for high-vibration environments. They are offered with crimp termination for wires from 50 mm<sup>2</sup> to 240 mm<sup>2</sup> or threaded versions for direct connection to bus bars or cable lugs. Options include extended shell lengths for easy penetration of vehicle bulkheads and straight and 90° outlet options





## Solutions for Propulsion and Power

### Connectors

- MIL-DTL-38999 Connectors
- High-Temperature Connectors
- Vibration and Fuel-Resistant Connectors
- Power Connectors
- Terminals and Splices

### Interconnections

- Power Cables
- Power Connectors
- Power Distribution Units
- Fuel and Abrasion-Resistant Cable

### Relays and Contactors

- Lightweight AC/DC Relays and Contactors
- Mid-Range Relays

### Sensors

- Temperature
- Vibration
- Fluid Properties

### Raychem Power Cables

Originally designed for battle tanks in compartments exposed to hot diesel fuels and vibration, FDR25 jacket material allows wires and cables that resist a wide range of aggressive fluids and offer excellent low-temperature flexibility down to -40°C

**Hybrid Electric Connectors**  
Designed for hybrid and electric vehicles, HVP 800 connectors safely transport up to 250 A from a battery to the inverter and e-motor. The sealed, touch-proof 2 or 3-position connectors feature integrated internal high-voltage interlock loop function and EMI shielding



# Smarter Connectivity for Enhanced Capabilities

## Integrating Vehicle Electronics with Advanced Intelligence

Future combat systems rely on vetronics to create a single web connecting both the vehicle's subsystems and the overall command and control structure—linking all units down to the individual soldier. As subsystems become networked, with sensors providing information on everything from fuel consumption and power management to external threats, the data processing requirements go far beyond the capabilities of traditional interconnection systems.

### Typical Applications

- Command and control bus
- CANbus systems
- MIL-STD-1553 systems
- Signal processing systems
- Data control and distribution
- Computer resources
- Crew control and displays
- Power generation and management



### Rectangular Connectors

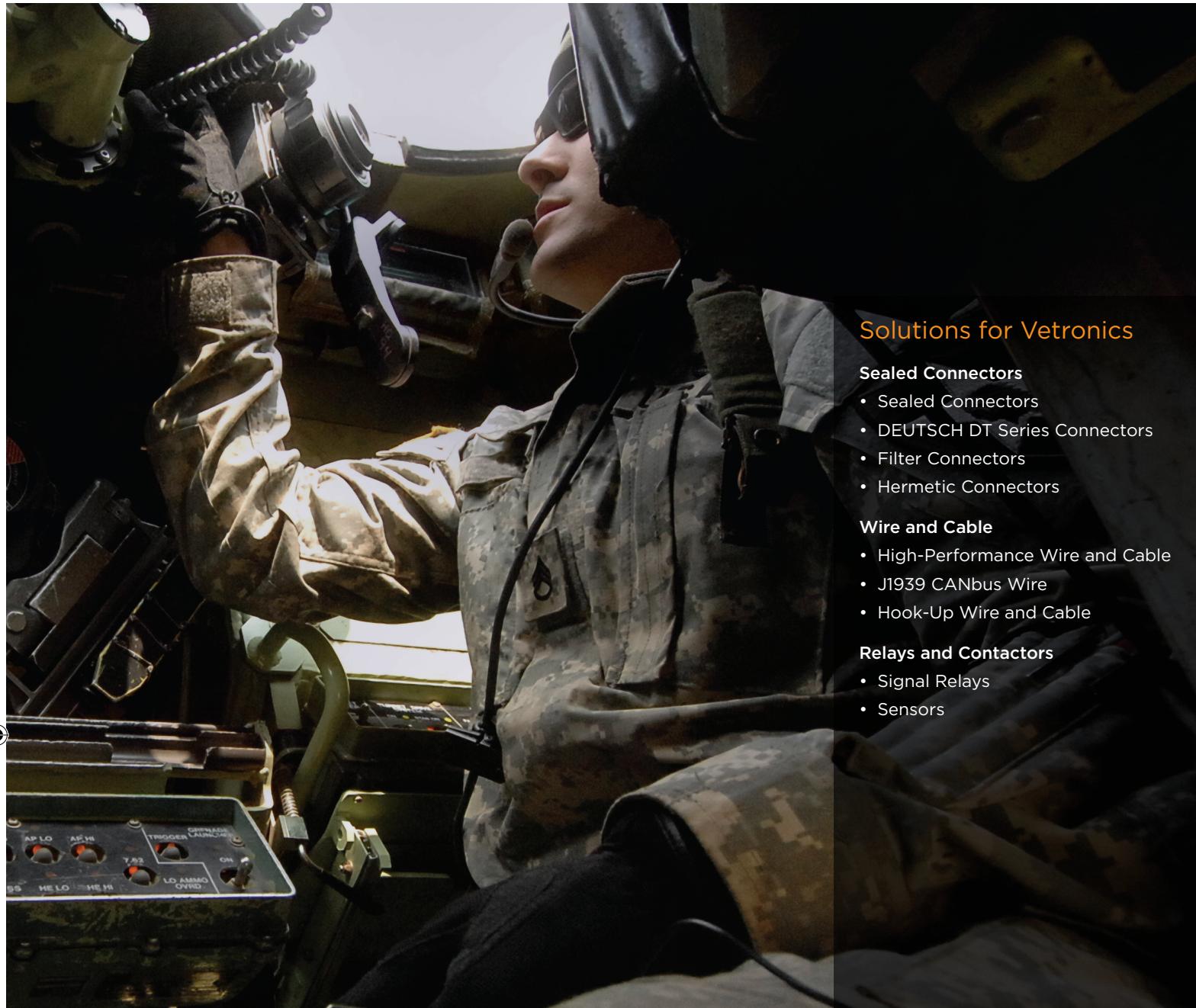
A full line of rack-and-panel connectors support power, signals, RF, and optics in modular high-density rectangular connectors for easier “black-box” installation and removal of LRUs and similar equipment



### DEUTSCH Wildcat 38999 and Wildcat Micro Connectors

Wildcat connectors provide the highest contact density in 38999 style connectors. The range is also complemented with a series of micro connectors for use where space is at a premium





## Solutions for Vetronics

### Sealed Connectors

- Sealed Connectors
- DEUTSCH DT Series Connectors
- Filter Connectors
- Hermetic Connectors

### Wire and Cable

- High-Performance Wire and Cable
- J1939 CANbus Wire
- Hook-Up Wire and Cable

### Relays and Contactors

- Signal Relays
- Sensors

### Networking Solutions

We support major vetronics network protocols with connectors, cable, and assemblies. By partnering with us, we help you not only to meet the needs for high-performance networking of sophisticated subsystems, but also help you to satisfy the critical demands to conserve space, weight, and power consumption



### Vibration Sensors

We offer compact, space-saving sensors with robust construction and the ability to withstand high levels of shock. Our Model 53 triaxial accelerometers, for example, mount under vehicles to record blast strength



### POLAMCO Connectors and Backshells

Our newest line offers a complete range of high-performance backshells for unshielded, shielded, and rugged conduit systems. Supporting one of the widest variety of Mil-Spec and COTS connectors, we have a solution for virtually every rugged, lightweight, and specialized need





## LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit [www.te.com/industrial](http://www.te.com/industrial) to chat with a Product Information Specialist.

### Technical Support

[te.com/support-center](http://te.com/support-center)

North America	+1 800 522 6752	Asia Pacific	+86 400 820 6015
North America (Toll)	+1 717 986 7777	Japan	+81 044 844 8180
EMEA/South Africa	+800 0440 5100	Australia	+61 2 9554 2695
EMEA (Toll)	+31 73 624 6999	New Zealand	+64 (0) 9 634 4580
India (Toll-Free)	+800 440 5100		

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Consult TE for the latest dimensions and design specifications.

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