Taking **Aircraft Electrification** to a Whole New Level

Custom Interconnect Solutions | **Engineering Expertise** | **Global Manufacturing Capabilities**

CARLISLE®
INTERCONNECT TECHNOLOGIES

Performance with **Purpose**

Elevating Aircraft Electrification

A truly electrifying development is on the horizon. While new aircraft is continuing to trend toward greater electrification, Advanced Air Mobility (AAM) is moving from the realm of the imagination to the production room floor. Everything from commercial drones to electric vertical takeoff and landing (eVTOL) aircraft will soon take flight, potentially reshaping not only transportation, but society as we know it.

AAM – autonomous or piloted – can transport people, cargo, or both, and have the potential to reduce greenhouse gas (GHG) emission, fuel consumption, noise pollution, and operating costs compared to other modes of air travel. While this industry is ever-changing, we remain committed to staying abreast of these changes, making your entrance into the AAM market achievable.

CARLISLE INTERCONNECT TECHNOLOGIES

Navigating the challenges.

Building an interconnected electrical system that can generate, maintain, distribute, and insulate the high voltages required for air travel is a serious undertaking and an essential design consideration. Components must be:

- Lightweight
- Compact
- Safe
- Reliable

Energizing interconnect systems.

For more than 80 years, we have provided leading-edge designs that stand up to the demanding conditions of commercial and military flight, avionics, and space travel. These critical components include:

- Wire & Cable
- Specialty and Filtered Connectors
- Contacts
- Cable Assemblies
- RF Cable Assemblies
- Complex Harnesses
- Racks & Trays
- Lightweight Shielding
- Installation Kits

In addition to having an in-house certification team that generates the appropriate reports and documentation required to ensure compliance with FAA and aerospace industry airworthiness standards, we also participate in global standard development as members of various SAE and ASD committees.

Collaborating on innovative solutions.

We also offers custom-design engineering and complete end-to-end solutions like:

- Design, engineering, and analysis
- FAA & EASA certification consulting
- Complete structural and electrical manufacturing, including build-to-print
- In-house overbraiding
- Wide range of MIL-SPEC and RTCA validation testing
- Installation & field service technicians

Our facilities are ITAR-compliant.

We can help you take aircraft electrification to a whole new level. Contact us at HighVoltage@CarlisleIT.com

High-Voltage Ecosystem

More Electric/All Electric Aircraft

Commercial Jets | Business Jets | Military Jets
Cargo Jets | Regional Flights

- Complex Harnesses
- Installer Kits
- Filtered Connectors
- RF Cable Assemblies
- Terminal Lugs & Terminal Blocks
- Structures, Trays, Racks, Enclosures
- High-Voltage Cables
- High-Voltage Connectors

- SWAMP Cables
- Filtered Connectors
- High-Voltage Cables
- High-Voltage Connectors

- Complex Harnesses
- RF Cable Assemblies
- Installation Kits
- Terminal Lugs & Terminal Blocks
- Airframe & General Purpose Cables
- High-Speed Digital Data Cables
- High-Speed Data Connectors
- Fiber Optic Cables & Assemblies

Advanced Air Mobility

VTOL | eVTOL | UAM | UAS | UAV

- Terminal Lugs
- Airframe & General Purpose Cables
- High-Speed Digital Data Cables
- High-Speed Data Connectors
- Filtered Connectors

- Terminal Lugs & Terminal Blocks
- Structures, Trays, Racks, Enclosures
- Airframe & General Purpose Cables
- High-Speed Digital Data Cables
- High-Speed Data Connectors
- Fiber Optic Cables & Assemblies
- RF Cable Assemblies
- Complex Harnesses
- Installer Kits
- Filtered Connectors
- High-Voltage Cables
- High-Voltage Connectors

Our Products

Our broad portfolio of products helps electric aircraft developers meet exacting size, weight, power, and efficiency requirements.

High-Voltage Wires & Connectors

Extruded, Tape-Wrapped, and Shielded Tape-Wrapped Cables

All of our high 1000 V cables are constructed with highly flexible nickel-plated copper strands in gauges from #8 to #0000 AWG for demanding flight profiles and temperatures up to 260 °C. Together, these cables solve the common problems EWIS engineers encounter in designing power distribution systems. Extruded cables offer exceptional stripability; composite cables are chafe-resistant, small diameter, and lightweight; and shielded cables offer exceptional EMI control and fault detection. All three product families are laser markable for easy identification.

Connectors for Shielded & Unshielded Cable Applications

Whether for an air taxi operating at 1,000 VAC and 1,500 VDC at 15,000 ft., or a military aircraft operating at 3,600 VAC and 5,100 VDC at 55,000 ft., we have the expertise to engineer and produce the right connector for your shielded and unshielded cable applications.

Lightweight Terminal Blocks, Lugs, and Splices

Sealed Terminal Lugs & Splices

Engineered not only to be reliable, but to also drive down costs by reducing weight and providing installation efficiency.

Terminal Blocks

Designed for critical power applications with high-vibration and temperature. Intended for use with copper or aluminum terminal lugs.

Airframe & General Purpose Cables

Flexible Power Feeders

Ultra flexible power feeders that resolve tighter installation constraints down to 6x diameter.

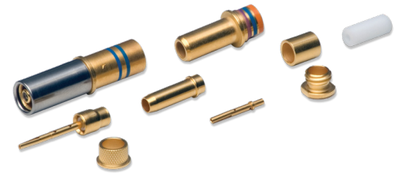
Tufflite® Aluminum - TLA

Extremely light and flexible power feeder options that feature aluminum conductors and cut weight by up to 60%.

Seamless-T™

Features a PTFE wrap technology that provides a smooth appearance with enhanced performance and installation characteristics. Flat braid cable versions also available to achieve 20% in weight savings.

Contacts



Coaxial Contacts

Available for MIL-C-38999, ARINC, and many other connector families.

Thermocouple Contacts

Designed and qualified to take the punishment of harsh environments of high-altitude aerospace engine applications.

Crimp Contacts

From standard crimp contacts to reduced crimp barrels, we are the leading crimp contacts manufacturer for the military and aerospace industries. We also offer custom-designs for unique wire applications, MIL-SPEC, EN3155, and custom crimp contacts.

ARACON®

ARACON Fiber

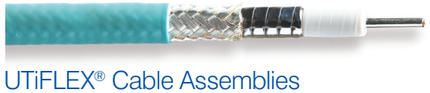
Combines the conductivity of an outer metal coating with the strength, light weight, and flexibility of aramid fibers.

ARACON Braided EMI Shields

Designed to perform in the harshest of applications while providing weight savings of up to 80% over conventional metal braiding.

ARACON Ribbon

Ideal for shielding problems that do not allow a tubular braided material to be applied.



UTiFLEX® Cable Assemblies

Feature an ARACON outer shield which provides the lightest weight, lowest insertion loss, and best radiation resistance in a flexible cable construction.

Filter Connectors

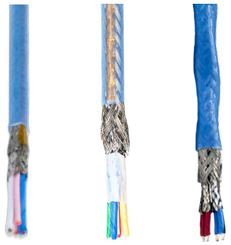
Filter bulkhead adapters with power contacts that offer the capacity for higher voltages and the reliability of EMI filtering -- all while meeting environmental thresholds of MIL-DTL-38999 for today's mobile and aerospace applications.

Our Products

High-Speed Digital Data Cables

NETflight® Series Ethernet Cables

These cables feature our advanced LDT extruded expanded PTFE dielectric for increased velocity of propagation.



100 Base-T
Single Twisted Pair, Shielded Quad, and Twisted Pair options

Lightweight 100 Base-T Quad
Features a round aluminum shield in place of the standard tin shield, resulting in 16% weight savings vs the standard construction without sacrificing temperature rating or electrical performance. Easy to terminate, this cable is designed for compatibility with existing connectors and can be used in high-temperature applications.

High-Performance 24 AWG Quad
Designed to provide reliable performance at extreme data rates in a 100 Ω quad construction. Lightweight, compact, RoHS compliant, and tested to 1 GHz up to 100 ft, this cable provides all of the performance and benefits of previous Ethernet quad constructions, but with a higher temperature rating and faster data rates up to 1 GHz.

Gigabit Series Ethernet Cables

This series combines industry-leading, high-speed performance with significant size and weight advantages over comparable cables.

Gigabit-Flexx™
Combine exceptional 1000 Base-T performance with a bend radius of 0.75 in. (19.0 mm) which makes them extremely flexible and easy to route in tight spaces.

Gigabit-Plus™

- **Standard:** Provides exceptional 1000 Base-T performance up to 250 MHz at distances of up to 100 m
- **Lightweight:** Same size, temperature rating, and 1000 Base-T performance as the Standard Gigabit Plus, but 15% lighter by utilizing an aluminum outer braid

Gigabit-10HP™
Bonded-Pairs and X-Web ensure reliable 10 Gigabit performance up to 500 MHz at distances of up to 90 m in the most extreme routing, applications, and environments.

MX1G-26 (SPE) Cable

This single pair Ethernet cable is designed to meet the requirement of IEEE 802.3bw up to 15 m.

MX1G-26 (SPE)
Transmission rates ranging from 100 Mb/s to 1 Gb/s, up to a frequency of 600 MHz

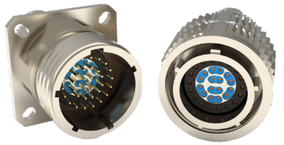
High-Speed Data Connectors

Octax®

High-speed family of Ethernet interconnect solutions delivering data transfer speeds of 10 Gbps and higher. Optimized for use with our Gigabit series cable and utilize MIL-DTL-38999 series III size 9 to 25 shells and standard AS39029 22D crimp contacts.

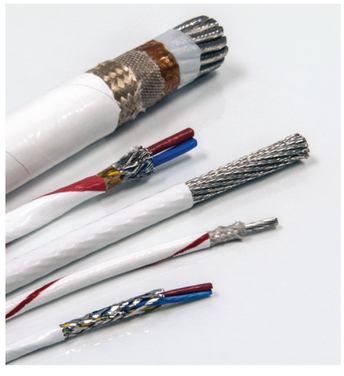
Octax-Solo

Octax-38999 Circular Solution



Octax-Hybrid

Octax-LT



Harsh Environment & Engine Cables

MIL-W-25038 Wires

Fire-resistant and designed for critical circuit applications, these wires will operate in extremely harsh environments that include vibration direct flame exposure.

SWAMP Wire

Severe Weather and Moisture Prone composite insulations provide extreme strength, abrasion, and temperature resistance for demanding applications in wheel housings, wings, or any exposed area.

We offer solutions for air and ground systems, test and measurement solutions, data and power ecosystems, and more. Our 18 manufacturing facilities around the world have the ability to ramp up production quickly to meet the needs of our clients. In addition, our in-house engineering team will collaborate with you to develop customized solutions based on your unique high-voltage design requirements.

For additional products and certification information, contact us at **HighVoltage@CarlisleIT.com**

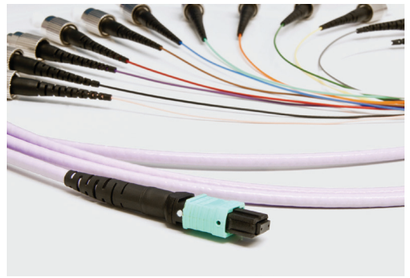
Our Products

Cable Assemblies & Harnesses

Avionics RF Cable Assemblies
We offer a wide range of solutions designed to optimize system integrity at a minimal cost of ownership.

Power Feeder Assemblies
Available in lightweight aluminum or high-temperature copper, as well as in a wide range of tongue configurations that can be clocked to within +/- 15 degrees of any rotational angle.

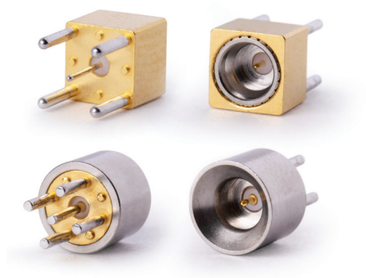
Fiber Optic Cables



LITEflight® Fiber Optic Cable
Specifically designed to provide maximum performance and durability in the demanding conditions found in aerospace, military, industrial, and other harsh environments.

Fiber Optic Cable Assemblies
A full range of fiber optic cable assemblies is available.

RF/Microwave Connectors



PCB Mounted “Boss” Push-On SMP/SMPM Connectors
Subminiature, lightweight, blind-mateable interconnects are ideal for complex high-performance microwave modules and systems where size and weight are primary considerations.

SMP-L Secure-Lok™ Connectors
By adding our patented locking mechanism, Secure-Lok™, these connectors can handle the vibration and environmental factors that other traditional push-on connectors can’t.

Structures & Trays

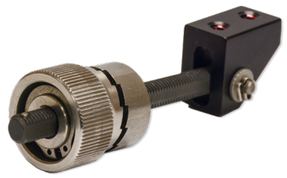
Lightweight Tray Family
20% lighter than standard trays while still meeting the rigorous performance criteria of FAR Part 25, ARINC 404A and 600, and RTCA/DO-160.

Racks & Shelves
Fabricated from an optimized combination of aluminum alloys and engineered composites to provide high strength, low weight, efficient structures that will last as long as the aircraft, and perform as well or better than original manufacturer equipment.

Hold-Downs

Advanced Thumbscrew Hold-Downs
This lightweight, high-performance option was developed to meet the extreme performance standards of the ASNA2168 and ABS1699 standard, as well as RTCA/DO-160, and ARINC 404, 600, and 628.

Insertion-Extraction Hold-Downs
Select from several types of installation force-limiting hold-downs. These are designed with extraction features that protect the blind-mate connectors interfacing your equipment and ease in removal and replacement during maintenance.



Military-Style Hold-Downs
These hold-downs have a secure ratchet-locking mechanism that meets the performance standards of MS14108 and MIL-F-85371. They are RoHS compliant, and are the industry standard for a thumbscrew hold-down restraint of avionics equipment.

Complete FAA & EASA Certification Services

Whether you are developing a small drone or hybrid-electric air taxi, identifying and understanding the regulatory requirements early in the development process will save you time and money when certifying your creation.

We are here to help you.
With over 25 years of both FAA and EASA certification experience, our US and European-based offices have certification specialists ready to assist your concept-to-delivery needs.

Let us guide you through the certification hurdles.
Given our time-honored relationship with the FAA and EASA, we are well-positioned to simplify the complexities of emerging regulatory guidance and can ensure that your new and novel project demonstrates compliance.

For additional products and certification information, contact us at **HighVoltage@CarlisleIT.com**

Global Manufacturing. **Local Support.**

Wherever you are, so are we. With manufacturing centers around the globe, our highly qualified team of engineers is up to any challenge. Our extensive worldwide manufacturing capabilities, coupled with end-to-end local project management and engineering support, allow us to design, build, test, and certify your product in-house, saving you the time and hassle of managing multiple vendors.

AS 9100 CERTIFIED · ISO 9001 CERTIFIED · ISO 13485 CERTIFIED · ISO 14001 CERTIFIED

ITAR FREE

FACILITIES CERTIFICATIONS

- AS 9100
- ISO 9001
- ISO 13485
- ISO 14001
- ITAR registration
- MIL-SPEC / SAE
- RoHS compliance

CARLISLE INTERCONNECT TECHNOLOGIES

We can help elevate your AAM and eVTOL interconnect systems. Contact us at **HighVoltage@CarlisleIT.com** or visit our website at **CarlisleIT.com/HighVoltage/** for more information.

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