MISSION-CRITICAL
INTERCONNECT SOLUTIONS

Glenair®

Interconnects for Urban Air Mobility Applications

Technical Reference Guide TRG-UAM 6.21

JUNE 2021

Glenair
SIGNATURE SERIES

Urban Air Mobility (UAM) EWIS Technology

Signature Interconnect Solutions for EVTOL Aerial Taxis

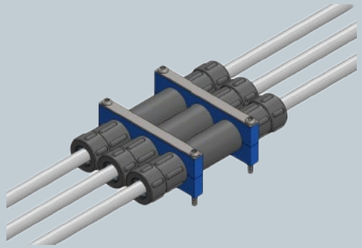
Glenair®
ISO 9001 Certified
AS9100 Certified
Worldwide Quality System

ELECTRICAL POWER PROPULSION SYSTEM CONNECTORS, CABLES, AND ACCESSORIES

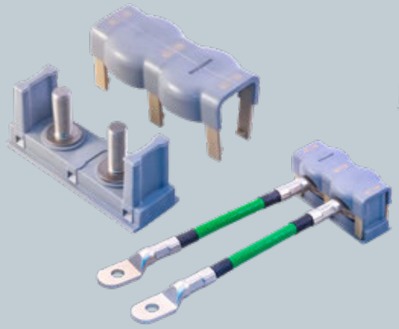
PowerLoad high-current, high-voltage power distribution connectors

PowerTrip high-density power distribution connectors

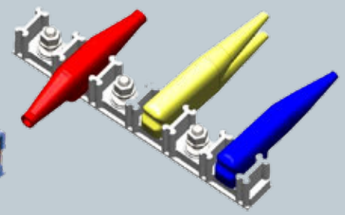
Super ITS and ITS Wing-Lock power connectors



PowerBlock HV High Current Power Feeder System

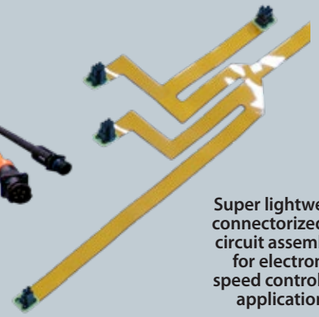


Duralectric Terminal Block for enhanced safety power line termination and equipment grounding



Duralectric Terminal Hoods with color coding for multi-phase power

TurboFlex ultra-flexible power cables



Super lightweight connectorized flex circuit assemblies for electronic speed control LRU applications

Autoshrink cold-action tubing and boots

Interconnects for Urban Air Mobility

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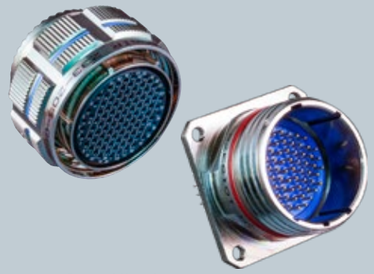
LIGHTWEIGHT AVIONICS, FLIGHT DECK, ACTUATOR, AND SENSOR CONNECTORS

Series 806 micro miniature avionic and sensor connector



SuperNine industry-standard avionic and flight deck connector

Series 791 and 792 Micro-Crimp lightweight, high-density, and high-speed datalink rectangular connectors

WIRE AND CABLE PROTECTION AND MANAGEMENT TECHNOLOGY

Bulkhead cable feed-thrus with wire management grommets

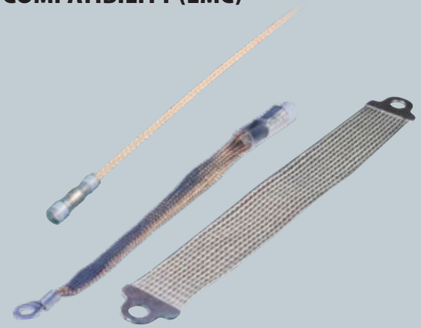
Lightweight composite cable and wire bundle strain reliefs

Solid and slit lightweight color-coded wire protection conduit and fittings

SHIELDING AND GROUNDING SOLUTIONS FOR ELECTROMAGNETIC COMPATIBILITY (EMC)

GroundControl Earth Bond system for composite fuselage equipment grounding

Tubular braiding and MasterWrap wraparound shielding for lightweight shielding applications



Lightweight, flexible ground straps and HSTs

Interconnects for Urban Air Mobility

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Electrical Vertical Take-Off and Landing aircraft (eVTOLs) and hybrids are being rolled out now for use in short-distance urban air transportation missions. Goals range from increased green energy utilization, improved travel time, and reduced traffic congestion. This whitepaper presents the principal electrical wire interconnect (EWIS) requirements and components for FAA qualification of such aircraft.

The intent of this design application guide is to highlight electrical wire interconnect solutions for the emerging Advanced Air Mobility market, specifically targeting power distribution, avionic and sensor connections, as well as wire and cable management. The Urban Air Mobility (UAM) segment is focused on highly congested cities and population segments that require alternative solutions to endemic transportation difficulties. UAM solutions are focused on efficiently transporting small groups of people in a node-to-node model, typically from high-traffic destinations such as airports, to hubs in city centers. The activity of autonomously transporting people through a controlled airspace and overflying urban areas will require OEM manufacturers of UAM aircraft to comply with both existing and new Federal Aviation Regulations including Part 23, 25, and 29.

Glenair offers a broad range of interconnect technologies that have been successfully implemented in aircraft required to meet FAR 25.1701 Electrical Wiring Interconnect System. These EWIS-compliant technologies were developed—using innovative materials and design principles—to address the many technical problems of existing EWIS solutions. This UAM Technical Reference Guide provides a general overview of Glenair wire interconnect technologies that can be directly used in UAM applications including single- and muli-passenger air taxis in both piloted and autonomous air vehicle configurations.

Some industry analysts predict the emerging UAM market, over the next 10–15 years, will enjoy considerable latitude in performance and safety requirements, in line with the unique low-altitude / autonomous operation nature of the technology. Others argue that when the reality of transporting people over dense urban environments and the safety of both passengers and those living below the air space are fully considered, the safe and reliable operation of UAMs will require the use of electrical components that meet the stringent requirements associated with FAR 25.1701. The most likely UAM operations scenario will be to limit the vehicles to operation in the airspace below a maximum 5000 feet (and perhaps as low as 1500 feet), simplifying the insulation design requirements for distributing high-voltage power (PDIV). Low-altitude operation has the additional benefit of reducing atmospheric thermal extremes to a range of of -40° C to 60° C.

Some air taxi designs are already in production and rollout in countries that are decidedly *not* in compliance with RTCA DO-160, and other FAA environmental conditions and test procedures for airborne equipment. However the likelihood that these requirements will be instituted as the baseline foundation for defining ongoing and future UAM flight requirements in North America and Europe goes without question—including test methods to meet the unique environmental challenges associated with these high-cycle, dynamic air taxi missions.

In this regard, the UAM environment may ultimately (although again, this is not a given at this juncture), be considered as basically a modification to the DO-160 Category A4, which states:

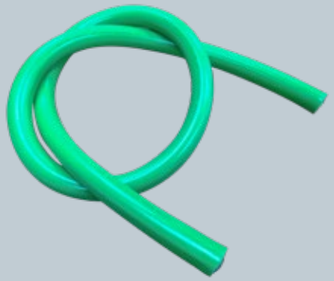
> Equipment intended for installation in a controlled temperature and pressurized location on an aircraft within which pressures are normally no lower than the altitude equivalent of 15,000 ft Mean Sea Level.
>
> The category may also be applicable to equipment installed in temperature controlled but unpressurized locations on an aircraft that operate at altitudes no higher than 15,000 ft MSL.

Environment Constraints:

- Operating Low Temperature: -15° C
- Operating High Temperature: +70°C
- Ground Survival Low Temperature: -55°C
- Ground Survival High Temperature: +85°C
- Altitude: 4572 m (15,000 ft)
- Absolute Pressure (at 15kft): 57.18kPa (751.8mbars, 16.89 inHg, 429 mmHg)

Electrical Power Distribution System

The core technology for the electrical power distribution system in autonomous air taxis is based on the lithium-ion battery series/parallel design used in electric automobiles which, depending on the vehicle performance factors, produces a voltage of between 375Vdc to 800Vdc. An important benchmark in evaluating power distribution interconnect requirements can also be drawn from past successful NASA-instituted programs in which nominal voltage of 461Vdc (416Vdc – 525Vdc) with a maximum operating altitude of 15,000 ft. was achieved. Both of these power distribution models rely on lithium battery technology and are useful as a basis for selection of EWIS interconnect components for the current generation of UAM lithium-ion HVDC power distribution systems considered in this technical reference guide.



Highly-flexible TurboFlex cable with Duralectric jacketing

Why is understanding the power system voltage so important? Higher voltages in aircraft operating environments (temperature, altitude, pressure) define wire insulation thickness and electrical connector geometry creepage and clearance dimensions.

> Per AS50881, paragraph 6.6, "For DC, electrical cables can be used without ionization to a maximum voltage of 340 volts independent of the usual practical range of wire covering thicknesses. Under certain conditions (notably at high ambient temperatures and/or high altitude) some wire types may not be free from corona at rated voltage."

In certain applications of this type, Power Feeders (as opposed to mateable interconnects) combined with highly engineered power cabling, offer a viable solution which mitigates several challenges associated with the use of conventional mil-spec insulated cables in high-power applications. TurboFlex® power distribution cables are constructed from highly-flexible conductors and high-performance insulation to produce cables ideally suited for applications where both high current-carrying performance and weight reduction are required. Amazingly durable and flexible—especially in cold weather—the 16 AWG to 450 MCM TurboFlex cable features high strand-count rope-lay inner conductors made with tin-, nickel- and silver-plated copper. TurboFlex is jacketed with Glenair's unique Duralectric™ compound that provides outstanding flexibility and resistance to environmental and chemical exposure. Duralectric is also low smoke, zero halogen. Long life and performance are critical in power distribution applications. TurboFlex, with its flexible conductors and durable jacket delivers both. Glenair Duralectric Power Feeders have been developed for UAM applications with variable dielectric wall thicknesses IAW insulated conductor size and material and addressing the overall voltage / weight / flexibility requirements of the emerging UAM market. Glenair has several methods of terminating our Turboflex / Duralectric cables. For applications that require the ability to mate and un-mate, the series 972 PowerLoad is an outstanding solution. The connector was purpose-designed for the rigorous commercial airplane environment and incorporates several features that enable connectorization of high voltage, high current, as well as high-frequency power distribution systems while absolutely meeting the demands associated with compliance to the EWIS FARs.

Series 972 PowerLoad plug and jam nut receptacle

PowerLoad™

PowerLoad™ is an innovative power distribution connector designed for high-voltage, high-current, and high-frequency applications. An innovative combination of low-resistance contacts and a one-piece composite thermoplastic insulator with aggressive contact-cavity isolation results in a reliable power distribution solution that optimizes wire-to-contact termination and weight reduction in power distribution cables. Ideally suited for use in lithium battery propulsion systems, PowerLoad is available in three- and six-contact layouts for both multiphase and high-frequency power applications. Removable wire-sealing grommet and wire separator allow for easy rear release of contacts and improved sealing of tape-wrapped wire.

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Advanced-performance 5015-type power connectors

The Series 970 PowerTrip™ is a higher-density 5015-type connector suited for air taxi electrical propulsion systems, particularly on inverter boxes used to convert main DC power to AC. PowerTrip offers higher density and lighter weight packaging, rapid mating and demating triple-start threaded coupling, and an extremely rugged splined and threaded backshell attachment interface. The **Super ITS - 921** connector series is high-performance, high-temperature rigid dielectric 5015-type connector series, again with higher density, but also with extremely rugged reverse-bayonet coupling. Glenair also offers the ITS, a reverse-bayonet coupling 5015-type power connector with available wing-locking mechanisms for reliable and secure high-power interconnections.

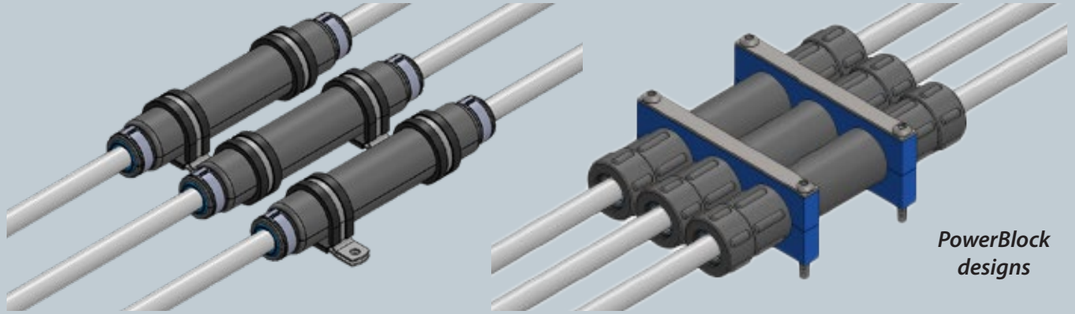
Series 970 PowerTrip

Super ITS - 921 reverse-bayonet

ITS with wing locks

PowerBlock HV

For motor applications that require discrete routing of 3-phase and DC power lines, Glenair has developed PowerBlock HV. PowerBlock HV (Glenair signature and patented technology) replaces traditional terminal strips and terminal lugs with a solution that fully resolves cable twist associated with routing large gauge cables. Routing power feeders through the 3-D spatial environment creates installation and terminal lug orientation issues. PowerBlock HV eliminates this technical problem. The PowerBlock uses a crimp contact system that can also accommodate tolerancing variations that occur with large cables.



PowerBlock designs

The PowerBlock HV design has several installation options that accommodate any number of unique cable and termination installation requirements.

For those customers that are familiar with terminating shields with bands, the split housing has an option of being mechanically retained with the same familiar bands. The flexibility of the design does accommodate a threaded end cap that when installed forms an environmentally sealed housing.

AutoShrink

Designed for rugged weathering, UV and ozone-resistant performance, Glenair Autoshrink is a one-piece cold-action shrink boot and tubing solution that allows installers to quickly attach shrink boots, splice insulation, or repair Glenair

AutoShrink cable repair tubing with integrated ground strap (top) and prior to shrinkint showing spiral hold-out

Duralectric formula jacketing. Straight, 45° and 90° lipped shrink boots lock into boot groove on adapters to keep out environmental debris. Universal-design Autoshrink tubing delivers reliable and durable sealing as well as mechanical protection for cable-end terminations in harsh military and industrial applications. Built from Glenair Duralectric formula material, Autoshrink is fully hydrophobic and resistant to caustic chemicals and solvents. Easy-action spiral hold-out and large cold-shrink ratio makes for fast installation and durable, split-resistant performance.

Tubular Braided Sleeving and MasterWrap Side-Entry Shielding

Tubular braided sleeving meets the broad range of EMC shielding and mechanical protection requirements of aircraft harness assemblies, including shielded cabling used in power distribution systems. Glenair specializes in lightweight EMC shielding including our metal-clad composite AmberStrand material, and our microfilament stainless steel metal-clad ArmorLite configurations. Both are ideally suited for use in air taxi applications where weight reduction is required, for example to facilitate vertical takeoff. But the need to apply shielding materials over already-installed aircraft wire and cable bundles requires new technology. Legacy self-wrapping cable braid has long been available for EMI/RFI applications and abrasion protection, albeit with poor performance due to its heavy weight, inflexibility, and "windowing," which results in poor shielding performance.

MasterWrap side-entry shielding

MasterWrap™, a lightweight, easy-to-install, side-entry, self-wrapping shielding solution—available in conductive ArmorLite™ and now in abrasion-resistant Nomex®—solves these problems and more. MasterWrap™ is ideally suited for both long-run wire harness protection as well as spot coverage and maintenance of EWIS cable applications—all with outstanding weight reduction and ease-of-assembly. MasterWrap™ ArmorLite™ and MasterWrap™ Nomex® are qualified for use at major aircraft manufacturers for long cable runs, spot coverage, and repairs.

Lightning Protection

Ultra-lightweight composite and stainless steel micrfilament braid

UAMs operating in the 5,000-foot envelope must incorporate design features that mitigate the potentially harmful effects of lightning strike. Being a smaller vehicle equates to significantly larger energy levels that will need to be managed to prevent electrical system issues. As the UAM market transitions from the developmental phase and becomes integrated into the daily routines of the commuter, safety and reliability must be addressed in the system design.

The need for design for lightning and HIRF protection (Title 14 Code of Federal Regulations 25.1316 and Advisory Circular 20-136) will be a technical challenge because of the environment that the UAMs will operate in.

Summary of DOT/FAA/AR-04/13, General Aviation Lightning Strike Report and Protection Level Study

- Data in the database revealed that aircraft were most vulnerable to a lightning strike when flying in clouds and rain.

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- The study found that the amount of lightning and HIRF protection in an aircraft had a significant impact on reducing the extent of damage resulting from a lightning strike.
- Compared to lesser or unprotected aircraft, lightning and HIRF-protected aircraft had a significantly lower percentage of electrical failures or electrical interferences due to lightning strikes.
- The percentage of electrical failures due to lightning strikes on HIRF-protected systems (2%) was much less than unprotected systems (20%), thus indicating the effectiveness of HIRF protection.

A survey of U.S. commercial jets showed the majority of lightning strikes occur between altitudes of 5,000 feet (1,524 meters) and 15,000 feet (4,572 meters). With its lower proposed maximum operating altitude of 5,000 feet, UAM vehicles will nevertheless be required to design a robust shielding and grounding system to mitigate the damaging effects of lightning occurring even at this altitude.

Shield termination connector backshells with integrated EMI/RFI shielding

The Federal Aviation Regulations for lightning strike are documented in a few parts which are dependent on the vehicle classification.

	Aircraft – General Aviation	Aircraft - Transport	Rotorcraft - Transport
Airframe	23.867	25.581	29.610
Fuel Systems	23.954	25.954	29.954
Other Systems	23.1309	25.1309	27.1309H

FAR 25.581 defines the requirements associated with lightning protection as follows:

(a) The airplane must be protected against catastrophic effects from lightning.

(b) For metallic components, compliance with paragraph (a) of this section may be shown by:

(1) Bonding the components properly to the airframe; or

(2) Designing the components so that a strike will not endanger the airplane.

(c) For nonmetallic components, compliance with paragraph (a) of this section may be shown by:

Glenair lightning protection technologies include braided shielding, ground straps, shield termination backshells, and the Band-Master ATS system

(1) Designing the components to minimize the effect of a strike; or

(2) Incorporating acceptable means of diverting the resulting electrical current so as not to endanger the airplane.

Lightning strike requirements IAW commercial transport systems lightning protection on UAMs may include:

- Wire bundle shielding – Glenair has numerous options for shielding. From the traditional copper-plated strands to metallized polymer core options to hybrid solutions. The expertise to blend various technologies to address eVTOL electrical and environmental stress factors with lightweight designs and materials is a unique Glenair capability
- Ground straps and bonding jumpers are essential parts in establishing a common ground reference across multiple structural elements. Moveable surfaces, hinges, panels, and electronics typically require ground strap technology. A single lightning strike can hit an aircraft with as much as 1,000,000 volts. Static electricity can charge an aircraft, particularly in cold and wet air, with enough electrical potential to result in a discharge that can fry EWIS wiring and avionics gear. Power storage systems (lithium battery-based) can also produce transient electrical current that can potentially damage electronic systems. Damage from these events is minimized and managed in aircraft through the use of electrical bonding. Flexible bonding straps are attached between equipment and airframes as well as between structural elements and flight control surfaces to conduct destructive electrical surges to ground or to bus bar components capable of absorbing significant amounts of transient voltage.
- Glenair has designed and supplies a broad range of braided and solid material ground straps to both commercial and military aerospace customers. Our ground straps are exactingly designed with appropriate conductive and dissipative materials for each application.
- Shielded conduit and shielded cable assemblies can be used not only for physical protection but lightning protection as well. Sensor wiring that routes along retractable landing gear in certain air taxi designs will be exposed to excessive currents that travel through the vehicle structure and through the landing gear struts before leaving the vehicle. Values as high as 20,000 amps can be experienced with a 80,000-amp strike.
- Low-resistance cable shield termination is a critical element in the overall EMC / Lightning assurance plan. Glenair cable shield termination and strain relief backshells, as well as conductive feed-thru fittings and other EMC and wire management connector accessories will find considerable use in the UAM market space.

Current Return Network

The trend in both general aviation and commercial aviation is to transition heavy metallic airframe structures as well as system and subsystem components to composite thermoplastic. While there are significant advantages to using composite materials, there is an impact on the current return network electrical wiring interconnect system that must be addressed. Replacing conductive metal

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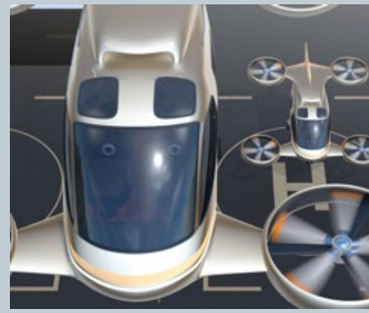


airframe structures with composites subjects the electrical interconnect system to higher levels of indirect effects from lightning strikes. A conventional wire harness in a metal airframe environment enjoys the benefit of countless available ground points. With the loss of some of the benefits of a metal airplane structure, EWIS wiring must incorporate design features to prevent increased voltage levels from damaging the electrical and electronic systems. With the replacement of the traditional metal structure the current return path for the electronics becomes a critical design deliverable. The solution is the incorporation of a current return network within the composite structure, and the utilization of appropriate shielding and grounding components in the EWIS system.

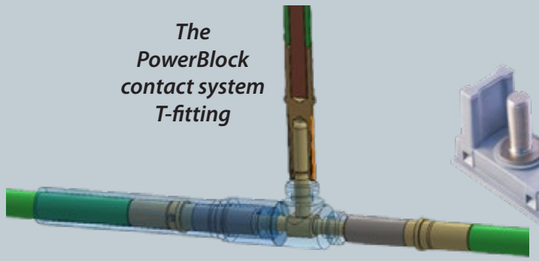
Glenair has numerous parts that can satisfy such EWIS requirements defined in FAR 25.1715, Electrical bonding and protection against static electricity as well as FAR 25.581 Lightning Protection, including a broad range of ground straps, heat-shrink termination devices, as well as aluminum extrusions that incorporate provisional attachment points for terminal grounds. FAR regulations state:

(a) EWIS components used for electrical bonding and protection against static electricity must meet the requirements of FAR 25.899.

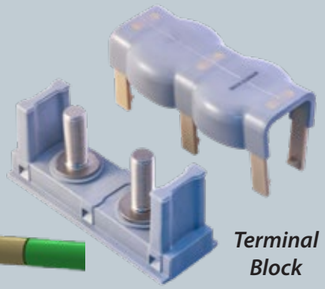
(b) On airplanes having grounded electrical systems, electrical bonding provided by EWIS components must provide an electrical return path capable of carrying both normal and fault currents without creating a shock hazard or damage to the EWIS components, other airplane system components, or airplane structure.

PowerBlock HV contacts (introduced earlier) may also be employed in a modular Current Return Network, as a "plug-and-play" pin and socket system, for example threaded to insert into vehicle structures or Current Return Network brackets. This design mitigates the routing challenges and alignment of traditional terminal lugs. The flexible current return cable is mated to the installed contact by simply pushing the socket contact onto the pin. The pin / socket design incorporates a low mate / de-mate force, and can—if a more secure interface is required—utilize a Glenair Band-Master ATS band to secure the connection.

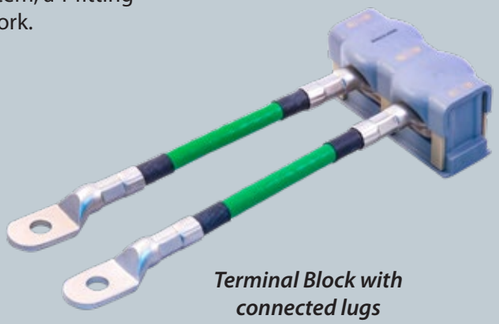
To facilitate the ease of installing a current return network in a tightly constrained composite airframe, Glenair is evaluating each of the electrical junctions to reduce the assembly time and incorporate all electro-mechanical requirements into a simplified installation. Building upon the PowerBlock HV contact system, a T fitting has been engineered to facilitate branching out from the main network.



The PowerBlock contact system T-fitting



Terminal Block



Terminal Block with connected lugs

Series 806 Mil-Aero

A hybrid High-Voltage Lug—with an integral PowerBlock Pin contact interface—enables a quick electro-mechanical connection to devices that use terminal lug attachments such as batteries, bus bars, and current return networks.

Lightweight avionic, flight deck, actuator, and sensor connectors

Series 806 Mil-Aero

The Series 806 Mil-Aero is a micro miniature circular connector that offers significant size and weight savings while meeting key performance benchmarks for aircraft applications. Designed for general use in vibration, shock, and environmental settings, the high-density Series 806 Mil-Aero features numerous design innovations including durable mechanical insert retention and improved environmental sealing. Its reduced thread pitch and an anti-decoupling ratchet prevent demating problems, particularly in small shell sizes, such as may be used in UAM avionic, flight deck, actuator, and sensor interconnections. Many special versions available with support for Quadrax, El Ochito, VersaLink, and other high-speed datalink contacts.

Special versions with high-speed Quadrax and VersaLink contacts

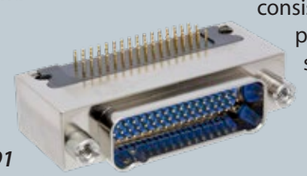
SuperNine

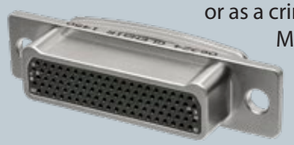
SuperNine® is the aerospace industry's most mature and complete power, signal, high speed, and high-frequency RF interconnect. Ideally suited for a broad range of eVTOL applications, from an I/O interface role on electronic controllers, processors, and actuators, to targeted use on sensors and avionics gear, the SuperNine provides a level of reliability and safety not found on industrial-grade connectors. SuperNine® offers outstanding durability, sealing, ease of shield termination, a broad range of PC tail configurations, environmental and hermetic bulkhead feed-throughs, high-speed solutions and more—all supported with Glenair's well-established reputation for service, support, and fast turnaround.

SuperNine

Series 791 and 792 Micro-Crimp

High contact density rectangular connectors may see considerable use in lightweight vertical-takeoff air taxis as they facilitate the overall miniaturization of electronic equipment, including avionics gear and flight deck displays. Given the need for shielded / grounded interconnects that can meet EMC and lightning strike requirements, UAM manufacturers may in fact need to consider higher price-point solutions such as The Series 79 Micro-Crimp. This family of rectangular connectors consists of three different connector configurations. The original: low-profile Series 79 was developed as a crimp-contact rectangular solution, again as a high-performance replacement for M24308 or as a crimp contact alternative to the M83513 micro. Series 79 features robust EMI performance and environmental sealing.





Series 791 Next-generation micro miniature rectangular

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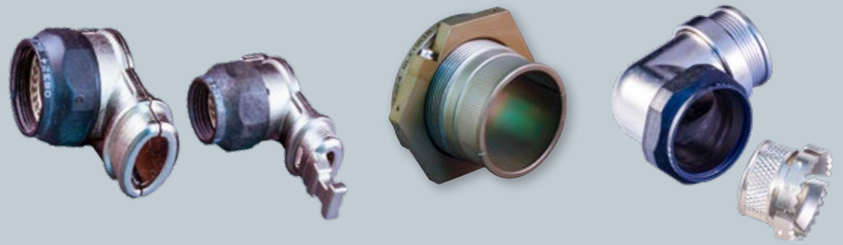
Next-generation Series 791 adds dual-lobe polarization, scoop-proof shells, integrated EMI grounding fingers, and is qualified for manned space flight applications.

Series 792 is purpose-designed for 10G Ethernet, USB 3.0, HDMI, SATA, and DisplayPort high-speed applications, and accommodates Glenair Signature El Ochito® octaxial contacts as well as industry-standard quadrax.

Series 792 High-speed data link rectangular

Cable routing and wire management technology

Innovative solutions to EWIS environmental sealing, wire management, strain relief, and EMC shield termination will be one of Glenair's strongest contributions to UAM EWIS systems. Glenair is the go-to design partner for innovative solutions to electrical wire interconnect system problems in airframe applications. Our backshell and connector accessory design engineers are responsible for more problem-solving innovation in our industry than every other connector accessory supplier combined. Our offerings include various lightweight and split-shell bulkhead feed-thru devices for wire and cable management and protection, lightweight Qwik-Ty and composite strain relief devices, shield termination backshells, and more.



Conduit / Molded Cable Assemblies / Protective Sleeving

UAMs may be required to use conduit to provide the mechanical protection of redundant systems where there is limited spatial separation options based on the physical limitations of the vehicle. The Glenair Guardian conduit system is one of our most economical and appropriate choices for applications of this type, and utilizes our Series 72 annular convoluted tubing and lightweight composite couplers and connector adapters.

The economical, lightweight, easy-to-assemble Guardian annular conduit system

Molded cable assemblies also provide protection to the environmental elements as well as providing a solution that requires flexibility for applications where flexible crush-proof conduit is not required.

Flexible and environmentally protected overmolded cable assembly with specialized overmolded electrical connectors

Glenair has extensive experience with the materials and the design of both conduit and molded cable assemblies that have been used meeting the FAR 25.1707 requirements. FAR 25.1707 System separation states:

(a) Each EWIS must be designed and installed with adequate physical separation from other EWIS and airplane systems so that an EWIS component failure will not create a hazardous condition. Unless otherwise stated, for the purposes of this section, adequate physical separation must be achieved by separation distance or by a barrier that provides protection equivalent to that separation distance.

(i) EWIS must be designed and installed with adequate physical separation between the EWIS and flight or other mechanical control systems cables and associated system components.

(j) EWIS must be designed and installed with adequate physical separation between the EWIS components and heated equipment, hot air ducts, and lines.

(k) For systems for which redundancy is required, by certification rules, by operating rules, or as a result of the assessment required by §25.1709, EWIS components associated with those systems must be designed and installed with adequate physical separation.

(l) Each EWIS must be designed and installed so there is adequate physical separation between it and other aircraft components and aircraft structure, and so that the EWIS is protected from sharp edges and corners, to minimize potential for abrasion/chafing, vibration damage, and other types of mechanical damage.

TECHNICAL REFERENCE GUIDE TRG-UAM 5.21
Interconnects for Urban Air Mobility

Integrated Flex Circuit Assemblies

Glenair can design and manufacturer rigid flex and connectorized flex circuit assemblies which are optimal in providing the interconnect solution for electronic motor control applications. For the UAM where weight and volume constraints can make the difference in the integration of cabin lighting, optimization of displays (touch screens), and being the interconnection of choice for non-critical/ non-essential wiring within the cabin enclosure. Opportunities to incorporate connectorized flex circuitry in electronic speed controls and other motor electronics is also viable.

GateLink Pro

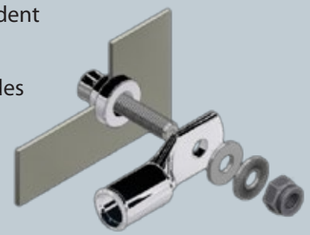
GateLink connectors are exactingly designed to meet the needs of commercial airport terminal-to-aircraft data uplinks. The IP68 sealed receptacle connector on the aircraft is designed for low profile environmental performance (available ProSeal™ protective cover adds additional environmental protection). Plug connectors are ruggedized for rough handling with pogo pin contacts and retention springs recessed deep into the plug to prevent damage. Designed for fast and reliable high-speed Ethernet data transfer up to 1Gb / second. Turnkey overmolded cable assemblies as well as discrete connectors and environmental shrink boots are available. This product is the ideal for the fleet aviation technician to interface with the UAM vehicle extracting electrical system health assessment to determine readiness and identifying pre-emptive maintenance.

GateLink Pro

Innovative approaches to grounding in composite airframes

Glenair can provide aluminum extrusions that incorporate the provisional attachment points for ground straps, threaded sockets that enable "plug-and-play" grounding cable attachments and Glenair's GroundControl Earth Bond system which provides a threaded stud for a more traditional interface requiring the use of terminal lugs. The below illustration shows a simplistic current return network/ ground system that connects the various independent elements associated with an electrical system.

Glenair's GroundControl Earth Bond System provides a simple repetitive installation of threaded stud providing provisional attachments for electronics, ground straps, and cable shields that are required to have a low resistance stable connection.



GroundControl Earth Bond

MISSION-CRITICAL

INTERCONNECT SOLUTIONS

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