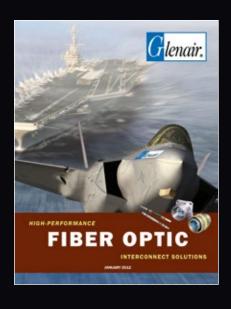


### TURNKEY OPTICAL AND ELECTRICAL

# INTERCONNECT **ASSEMBLIES AND** INTEGRATED SYSTEMS

customer bespoke harnesses, overmolded assemblies, conduit, and integrated systems



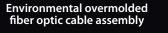




INTEGRATED

#### **TURNKEY FIBER OPTIC CABLE ASSEMBLIES**





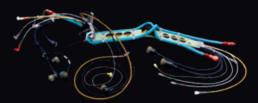


Multi-way inside-the-box D38999-to-ST assembly



GFOCA (IAW M83526) environmental cable assembly

#### **COMPLEX MULTIBRANCH AND OVERMOLDED CABLE ASSEMBLIES**



F/A-18 radar pantograph assembly



Overmolded cable assembly



"Golden Umbilical" life-support umbilical cable for first American spacewalk, 1965 Hybrid fabric braid and overmolded environmental cable assembly

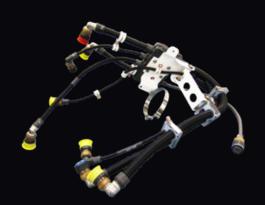


**AWACS** radar assembly



Soldier radio power and USB data overmolded cable assembly

#### **TURNKEY FACTORY-TERMINATED CONDUIT ASSEMBLIES**



Complex multibranch fighter jet electrical wire conduit assembly



Lightweight, halogen-free rail industry wire conduit assembly



Crush-resistant commercial aerospace metal-core conduit assembly

#### **INTEGRATED SYSTEMS**



TURNKEY · CONNECTORIZED

# INTEGRATED PCB/ FLEX ASSEMBLIES

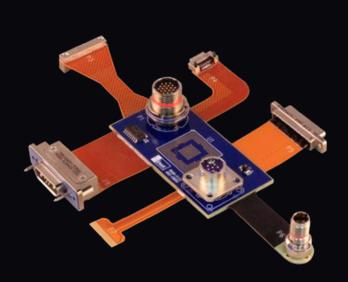


IPC-6012/6013 class I, II, III types 1-4









Multibranch demo flex assembly highlighting the broad range of catalog board connectors available from Glenair



Production flex and rigid flex assembly terminated, tested and ready for immediate use

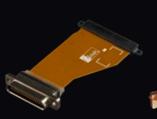
#### POINT-TO-POINT CONNECTORIZED FLEX AND RIGID FLEX JUMPERS







Harsh-environmental 804 Mighty Mouse Micro-D to AlphaLink to Samtec surface-mount 804 Mighty Mouse



Micro-D to Micro-D jumper



Series 23

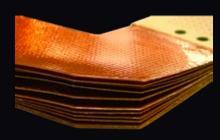
Low-profile SuperNine® to AlphaLink Micro-D jumper

#### **MULIBRANCH FLEX AND RIGID FLEX CONNECTORIZED ASSEMBLIES**



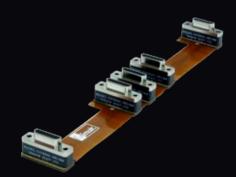
UK specialized in complex Micro and Nano flex assembly work.





26 layer EMI/RFI shielded rigid flex assembly

#### SPECIAL-PURPOSE FLEX AND RIGID-FLEX DESIGNS



Space-grade Micro-D flex assemby with NASA EEE-INST-002 screening



Space-grade Series 28 HiPer-D to Series 80 Mighty Mouse I/O jumper

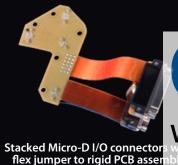


High-shock matched-impedance Mighty Mouse assembly with flex circuit

www.oceta.shop



Dual-gang series 20 Super-Twin™ I/O connector to AlphaLink SL PCB connector



**WE CONNECT YOUR SYSTEM** 

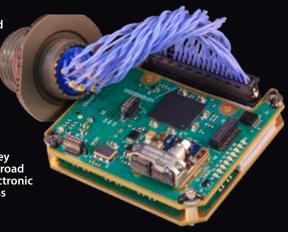
### PCBA DESIGNS FOR

# RUGGEDIZED EMBEDDED SYSTEMS

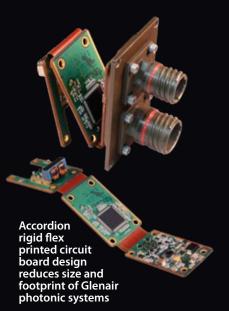
complete in-house optical and electrical PCBA design and development capability



The design and fabrication of printed circuit board assemblies is a critical inhouse capability of Glenair's Ruggedized Electronics and Photonics Group. These temperature, vibration, and shock tolerant PCBAs are key components in our broad range of turnkey electronic and photonic systems



#### ADVANCED ELECTRONIC PACKAGING DESIGN FOR SIZE AND THERMAL MANAGEMENT





Ruggedized power distribution PCBA for use in STAR-PAN™ soldier system





Soldier-worn data hub and power distribution board design with Series 80

#### **SMALL FORM-FACTOR BOARD DESIGNS USED IN PHOTONIC SYSTEMS**



Small form-factor PCB-mount transmitters and receivers (bi-directional unit shown on left)



2.5mm ELIO® Compatible D38999 Series III type photonic connector with integrated PCBA



PCBA design for radio frequencyover-fiber links for SATCOM and RF signal distribution

#### **ELECTRONIC AND OPTO-ELECTRONIC EVALUATION BOARDS**



MIL-DTL-38999 type 2.5mm ELIO® compatible transceiver evaluation board



PCB-mount transceiver



HiPer-D connector with size #8 optoelectronic contacts evaluation board

#### **VITA 57, FPGA MEZZANINE CARD BASED DEVELOPMENT BOARDS**







FPGA mezzanine card development board

#### EMBEDDED ELECTRONIC AND OPTO-ELECTRONIC PCBAs IN ACTION



Copper-to-fiber aggregation media converter (cutaway view)



Small form-factor opto-electronic converter with field fault monito



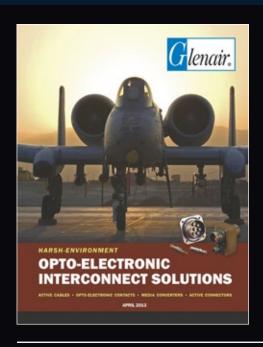
Small form-factor ruggedized opto-electronic media converter

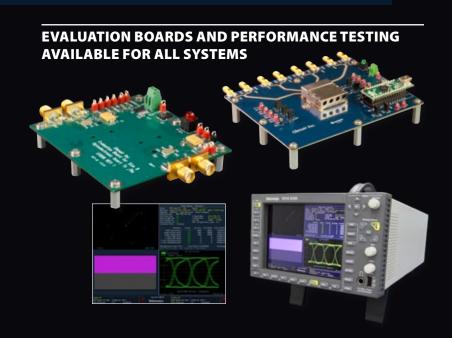
Aglenair.com • U.S. CAG OCCUPA MWWw.noceta.shop

### RUGGEDIZED

# **OPTO-ELECTRONIC** INTERCONNECT **SOLUTIONS**

contacts · transceivers · SMPTE video · media converters · ethernet switches





#### SMALL FORM-FACTOR 10 GBPS HARSH-ENVIRONMENT PHOTONIC CONTACTS AND CONNECTORS





...for use in ARINC 600



...and D38999 Series III Size #8 cavity adapter kit type receptacles for 1.25mm ARINC 801 termini



Size #8 cavity adapter kit for ELIO® 2.5mm termini



2.5mm **ELIO®** Compatible D38999 Series III type

#### RUGGEDIZED 10 GBPS PCB-MOUNT PHOTONIC TRANSCEIVERS, TRANSMITTTERS AND RECEIVERS



**Shielded PCB-mount** transceivers (radiation-tolerant versions available)



PCB-mount dual transceivers, guad transmitters and guad receivers

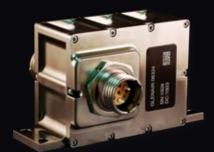


RF-over-fiber for SATCOM, IFE and other RF distribution systems



Parallel optical transceiver (40 Gbps available now; 120 Gbps version in development)

#### COPPER-TO-FIBER MEDIA CONVERTERS FOR ETHERNET AND VIDEO



Lightning-strike protected ARINC 801 F/O to D38999-type media converter



**GFOCA** fiber optic **Ethernet media converter** 



**DVI** media converter

#### COPPER-TO-FIBER MEDIA CONVERTERS FOR SIGNAL AGGREGATION



**Small form-factor** low-speed signal aggregator



High-speed signal aggregator (cutaway view)



High-speed signal aggregator

#### SMALL FORM-FACTOR ETHERNET SWITCHES AND BREAKOUT CABLES



7-port Ethernet switch (shown with breakout test cable)



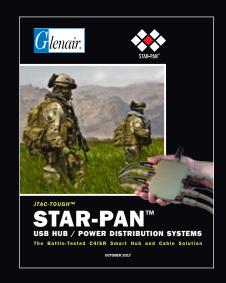
**WE CONNECT YOUR SYSTEM** 7-port Ethernet heat-dissipation

www.oceta.shop

JTAC-TOUGH<sup>™</sup>

# STAR-PAN™ SOLDIER **USB HUB / POWER DISTRIBUTION SYSTEM**

battle-tested C4ISR / DACAS







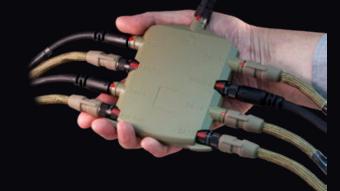
**GLENAIR** 

#### STAR-PAN™ MULTIPORT USB / POWER DISTRIBUTION HUBS FOR TACTICAL SOLDIER SYSTEMS



808-057 STAR-PAN II hub with dedicated host and radio cables

- Battery power/+5VBus power for 3 USB devices
- 2 power inputs for extended mission life
- SMBus, USB2.0 (full and high-speed), USB1.1 compatible interface



808-037 STAR-PAN VI hub with six PAN ports, two battery/auxiliary battery ports, and one universal host/EUD port

- Battery power/+5VBus power for 4 USB devices, 2 dedicated radio ports
- Integrated power monitoring and management
- Proven performance in JTAC/DACAS applications

#### GENERAL-PURPOSE STAR-PAN™ SYSTEM CABLES







**NETT Warrior (C1) Extension Cable** 

Host USB-A Cable

C4 Micro USB EUD Host Cable

#### STAR-PAN™ PERIPHERAL DEVICE CABLES



TacROVER-e Cable







**Radio Adapter Cable** 



TacROVER-p ISR Receiver Cable



**USB 2.0 Adapter Cable** 



PLRF-15C/25C Laser Range Finder Cable

#### STAR-PAN™ RADIO DATA / POWER CABLES AND ADAPTERS







PRC-117G Radio



**Harris Radio** Adapter Cable



PRC-148 Radio



PRC-152A Radio



PRC-154 Rifleman

#### **EXAMPLES OF STAR-PAN™ SUPPORTED PERIPHERALS / EUDs**







### PROVEN FLIGHT HERITAGE

### **SPACE-GRADE SOLUTIONS**

NASA · ESA · JAXA · Commercial



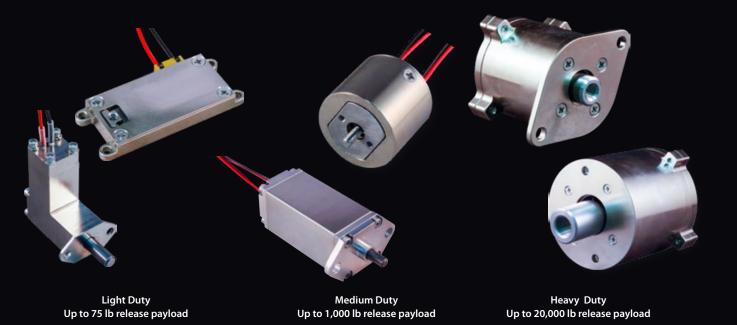
Complex space-grade cable assemblies (shown: Glenairmade "Golden Umbilical")







#### **HOLD-DOWN RELEASE MECHANISMS, PIN PULLERS AND PIN PUSHERS**

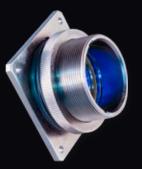


#### ASSISTED-RELEASE QUICK-DISCONNECT BLIND-MATE CONNECTORS







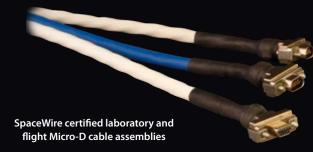


Glenair Series 253 connectors are designed to meet applicable environmental, electrical and mechanical performance characteristics of D38999 Series III. The technology is well suited for use in commercial blind-mate instrumentation panels, satellite deployment, scientific research and development payloads, as well as interstage, UAV, and munitions release applications.

#### SPACE-GRADE M24308 HIPER-D, MICRO-D, AND NANOMINIATURE CONNECTORS AND CABLES



ESA and NASA screened connectors and backshells available as discrete components or wired pigtail assemblies





Latching MicroStrips™: cable-to-cable and cable-to-board reduced size- and weight Micro-D TwistPin connectors



Qualified MIL-DTL-24308 Class K Space-Grade Hermetic, plus HiPer-D high-performance space-grade and high-speed environmentals

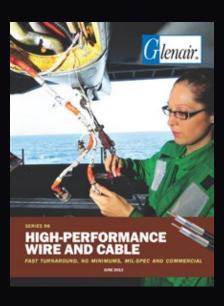
#### TURNKEY, SPACE-GRADE EMI/RFI SHIELDED WIRE HARNESS AND CABLE ASSEMBLIES



### HIGH-PERFORMANCE

### WIRE AND CABLE

M22759 · Ethernet · USB · coax · harsh-environment power and signal







#### **HIGH-PERFORMANCE WIRE AND CABLE**



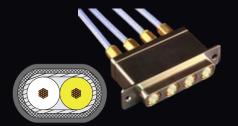
M22759 single-ended hookup wire



Coaxial cable for RF applications



Single and multimode graded-index fiber optic cable



Matched-impedance twisted pair cable for Glenair Ultra-Twinax contacts



Aerospace-grade quad cable for Glenair Quadrax contacts



Aerospace-grade 10G Ethernet cable



- Service temperature: -65°C to 225°C
- Duralectric K (Kelvin): -110° to 225°C
- Mil-aero and industrial fluid-resistant
- 53 year equivalent exposure
- Ozone resistant IAW ASTM D1149
- Moldable and extrudable

#### **DURALECTRIC® HIGH-TEMPERATURE, HALOGEN-FREE, CHEMICALLY RESISTANT JACKETING**



**Bulk jacketed Duralectric® cable for** harsh-environment power applications



Duralectric® Autoshrink™ employed in environmental boots and sleeves



Duralectric jacketing employed as conduit covering in topside naval applications



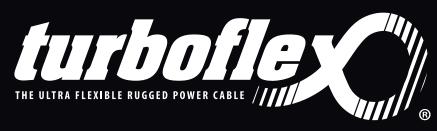
Aerospace overmolded cable assembly with rugged Duralectric® jacketing



Shipboard application with Duralectric® jacketing and overmolding



Duralectric® jacketing employed in environmental commercial application



- Ultra-flexible rope lay power cable
- Available in a broad range of gages, from 16 AWG to 450 MCM
- Rugged Duralectric® jacketing

#### TURBOFLEX™ ULTRA-FLEXIBLE / RUGGED POWER CABLE WITH DURALECTRIC® JACKETING



Ultra flexible rope-lay construction TurboFlex® power cable



TurboFlex® with Duralectric® ja ideally suited for equipment gro



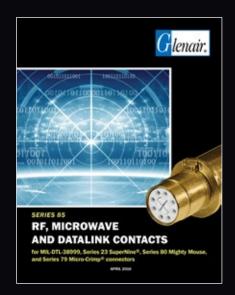
www.oceta.shop

### QPL AND COMMERCIAL

### **CONTACT TECHNOLOGY**

 $signal \cdot RF \cdot high-speed datalink \cdot$ microwave · power · fiber optic · high voltage









#### LOW-LOSS, MATCHED-IMPEDANCE RF AND MICROWAVE CONTACTS



Size #12



Size #12 75 Ohm contacts



Size #12 spring-loaded SMPM microwave contacts



Size #8 spring-loaded BMB microwave contacts

#### HIGH-SPEED DATALINK CONTACTS FOR ARINC, 38999, AND OTHER CONNECTORS



Size #8 differential twinax contacts



Size #8 quadrax contacts



Octobyte™ Ethernet Cat7A contacts

#### **AS39029 SIGNAL CONTACTS**









Standard density

High-density signal (up to 1500 cycles)

**Extended-duty** 

Printed circuit board

Thermocouple

#### **AS39029 RF CONTACTS**



Size #16 coaxial contacts



Size #12 coaxial contacts



Size #8 coaxial contacts



Size #8 concentric twinax contacts

#### **POWER CONTACTS**



Size #8 power



LouverBand<sup>™</sup> power



High-voltage



Size #8 - 4/0 power

#### **FIBER OPTIC TERMINI**



MIL-DTL-29504 **OPL** termini



Glenair High-Density (GHD) and Front-Release (GFR) termini



GFOCA genderless termini



Eye-Beam® GLT grin lens termini

#### SPECIAL PURPOSE CONTACTS AND PURE GAS TUBE CONTACTS/ASSEMBLIES



Pneumatic contacts for Pitot applications



Lightweight sealing plugs and dummy sealing contacts

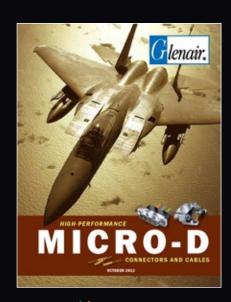


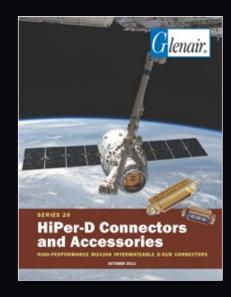
### QPL AND COMMERCIAL

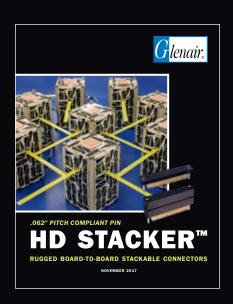
## RECTANGULAR CONNECTORS



AlphaLink<sup>™</sup> · HD Stacker<sup>™</sup> · Nano (32139) Micro-D (83513) · D-subminiature (24308) · Series 79/791 · Super-Twin™

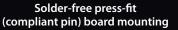






### HIGH-DENSITY MISSION-CRITICAL BOARD-TO-BOARD STACKING CONNECTOR SERIES









.0625" pitch contact spacing: Polarized shells and keyed guide highest available density pin hardware prevent mis-mating



Controlled signal integrity for differential applications (test reports available)

- High-density .0625" pitch "Chevron" layouts
- PCle 3.0 capable
- Performance up to 10.5 Gbps
- Polarized insulator and hardware options
- Solder free "eye of the needle" compliant tail
- High-temp PPS insulator meets NASA outgassing requirements
- Available wired / flex jumpers
- Available between-board spacers up to 1 inch
- 3 Amp current rating

#### SERIES 28 HIPER-D HIGH-PERFORMANCE MIL-DTL-24308 INTERMATEABLE



sealing and mounting

Enhanced panel mount Combo power and signal

contact arrangements





**Ground spring for** improved EMC

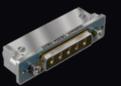
Precision-machined shells and EMC cowlings

environmental and split-shell EMI backshells

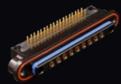
#### SERIES 79 MICRO-CRIMP HIGH-DENSITY CRIMP CONTACT MICRO RECTANGULAR



Crimp-terminated cable connectors



**Crimp-terminated** panel-mount



Panel-mount connector with auxiliary sealing



Right angle PCB panel-mount connectors



**EMI** adapters and protective covers

#### MIL-DTL-83513 MICRO-D QPL AND GLENAIR COMMERCIAL EQUIVALENTS



Micro-D for harness applications



Micro-D for PCB applications (parylene compatible)



Master-Latch™ locking Micro-D



Well-Master™ 260° high-temperature downhole



Micro EdgeBoard connectors and locking Micro-Strips

#### **MIL-DTL-32139 NANOMINIATURE**



**Dual-row nano** with flying leads



Right-angle and straight-mount PCB connectors



Nanominiature dual-row back-to-back jumpers



Series 89 Nanominiature Sav-Con® connector saver

#### SERIES 20 SUPER-TWIN™



Super-Twin<sup>™</sup> lightweight composite modular connectors



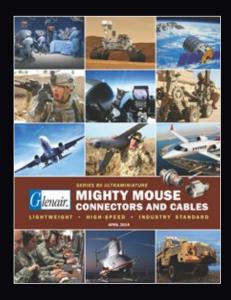
**AlphaLinl** 

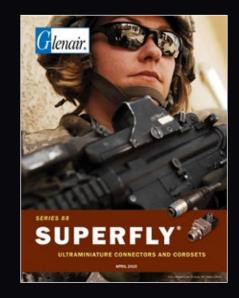


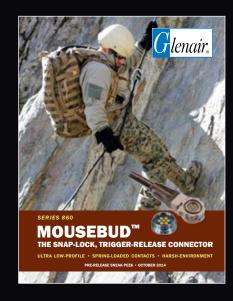
### LIGHTWEIGHT

# ULTRAMINIATURE MOUSE **CIRCULAR CONNECTORS**

save weight · save space · optimize power · enhance performance











### **MIL-AERO NANOMINIATURE**



.025" contact spacing Nanominiature

#### **SERIES 80 MIGHTY MOUSE**



Series 806 Mil-Aero: high-density, high-altitude, high-vibration and shock connectors



locking push-pull

Mighty Mouse SuperSeal®

Micro-USB

#### **SERIES 88 SUPERFLY™**





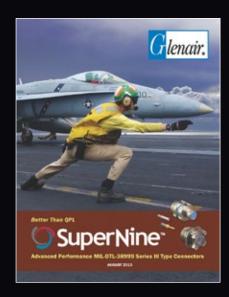
#### TURNKEY HARSH-ENVIRONMENT POINT-TO-POINT AND MULTIBRANCH CABLE ASSEMBLIES

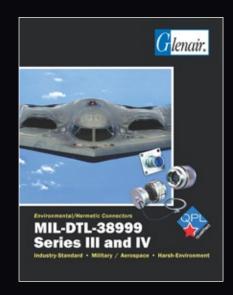


QPL AND COMMERCIAL

### **SuperNine® MIL-AERO CIRCULAR CONNECTORS**

environmental · hermetic · filter · fiber  $\cdot$  high-speed datalink  $\cdot$  bulkhead feed-thrus · Sav-Con®s · lanyard-release







#### **DLA QPL MIL-DTL-38999 SERIES III AND IV**



100% made-in-America: No foreign-sourced materials, component parts, or assembly labor employed



DLA Qualified Series III environmental plug, jam nut, and square flange receptacles, class W, F, T, and G. Qualified Series IV breech-lock connectors in classes F and W. All 1560 crimp-contact insert arrangements fully supported.

#### **SUPERNINE® MIL-DTL-38999 TYPE CRIMP CONTACT TERMINATION**



**Extended-durability** plug with band porch and 1500 mating cycle contacts



**Extended-durability** plug with accessory threads



High-density plugs and receptacles in all mounting styles (up to 1500 cycles)



submersible series

#### SUPERNINE® MIL-DTL-38999 TYPE POTTED/SEALED PC TAIL RECEPTACLES (PARYLENE-COMPATIBLE)



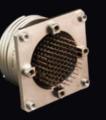
Flush-flange



Stepped contact



**Short standoff** 



Threaded standoff



**Dual flange** 

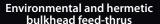
#### SUPERNINE® MIL-DTL-38999 SERIES III TYPE HIGH SPEED, HERMETIC, FIBER, AND FILTER



#### SAV-CON® CONNECTOR SAVERS AND OTHER HIGH-PERFORMANCE SERIES



Sav-Con® connector savers for every MS circular series



Space-gra assisted-se

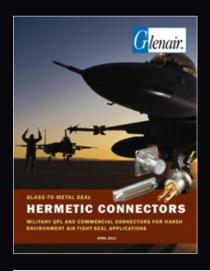
CETA **WE CONNECT YOUR SYSTEM** 

www.oceta.shop

### QPL AND COMMERCIAL

### GLASS- AND ADHESIVE-**SEAL HERMETIC** Hermetic CONNECTORS

heavy-duty and lightweight solutions



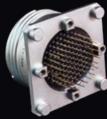




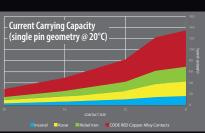
#### **CODE RED™ LIGHTWEIGHT HERMETIC SEALING**



Lightweight hermetic encapsulant sealing solution with better than 1X10<sup>-7</sup> leak rate performance. Available now for D38999 and Series 806 Mighty Mouse.



Aluminum shell CODE RED hermetic connectors and copper contacts reduce weight and improve electrical performance compared to heavier-duty glass-to-metal seal hermetic solutions



Current carrying capacity of CODE RED copper alloy contacts compared to Inconel, Kovar, and nickel iron contacts.

#### MIL-DTL-38999 QPL AND COMMERCIAL PIN AND SOCKET HERMETICS



Series I scoop-proof bayonet coupling



Series II low-profile bayonet coupling



Series III scoop-proof triple-start coupling



Series IV breech lock

#### HARSH-ENVIRONMENT / MODIFIED PACKAGE HERMETICS



Geo-Marine® double-start hermetic connector



Hermetic power connector



Single-way tool joint HTHP hermetic connector



Hermetic probe connector with modified flange



Long-length hermetic bulkhead penetrator with optional crimp piggy-back termination

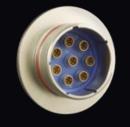
#### **HIGH-SPEED DATALINK HERMETICS**



Triax hermetic



Hybrid coax/signal hermetic

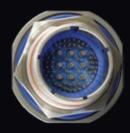


**Quadrax hermetic with** 



**FIBER OPTIC HERMETICS** 

MT ribbon fiber optic hermetic



Hybrid coax/signal

#### **RECTANGULAR PACKAGE HERMETICS**



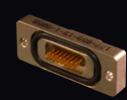
MIL-DTL-24308



Series 79 Micro-Crimp hermetic



MIL-DTL-83513 type



Sealed panel-mount

#### **OTHER CIRCULAR GLASS-SEALED HERMETIC SERIES**



MIL-DTL-26482



MIL-DTL-83723



MIL-DTL-38999 (OPL)



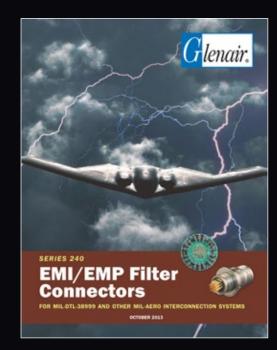
www.oceta.shop

SERIES 240

# EMI/EMP FILTER EMI/EMP CONNECTORS



EMI ceramic planar array filter connectors · EMP TVS diode solutions



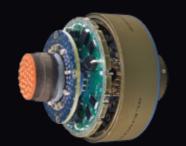
Glenair is the only mil-aero-grade filter connector supplier that offers same-day delivery of off-the-shelf, catalog filter connectors, for every MIL-DTL-38999 series

#### MINIATURIZED EMI/RFI FILTER PRESSURE TRANSDUCERS



Small form-factor pressure sensors for commercial and military aerospace applications with integrated ceramic planar array EMI/RFI filter technology (miniaturized MIL-DTL-38999 version shown on left, ultraminiature Mighty Mouse 804 on right)

#### **EMP TRANSIENT VOLTAGE SUPPRESSION DIODE-EQUIPPED CONNECTORS**



EMP diode-equipped connector MIL-DTL-38999 Series III type with oversized shell





Reduced-package-size EMI/EMP cylindrical



MIL-DTL-38999 Series III type EMP with rectangular housing

#### CATALOG EMI FILTER CONNECTORS WITH MIL-STANDARD CIRCULAR PACKAGING



triple-start



MIL-DTL-38999 Series III MIL-DTL-38999 Series IV breech-lock



MIL-DTL- 26482 Series I and II bayonet



MIL-DTL-83723 Type T



MIL-DTL-5015 threaded

#### **UNIQUE AND SPECIAL-PURPOSE EMI FILTER CONNECTORS**



Extended-shell PC-tail cylindrical with threaded standoff



Special-purpose filter connector cable



Series 80 Mighty Mouse PC-tail filter receptacle



MIL-STD-1760 filtered umbilical connector



Filter plug with crimp contacts



MIL-DTL-38999 type filter connector with sidecar ceramic array packaging



MIL-DTL-38999 type filter connector with hybrid analog signal and RF contacts



Series 970 PowerTrip™ high-density EMI filtered



Series 804 EMI filtered Mighty Mouse push-pull with custom



SuperSeal™ RJ45 **Ethernet connector** with EMI filtering

#### EMI FILTER CONNECTORS WITH MIL-STANDARD / GLENAIR RECTANGULAR PACKAGING



MIL-DTL-83513 type Micro-D filter connector



MIL-DTL-24308 type D-sub filter connector

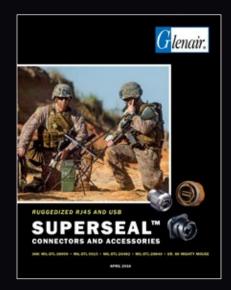


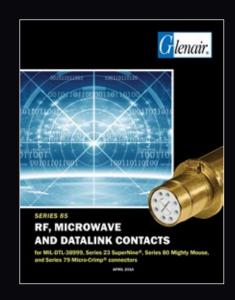
www.oceta.shop

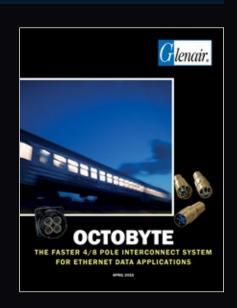
RUGGEDIZED

# HIGH-SPEED DATALINK INTERCONNECTS datalink group

contacts · connectors · jumpers







#### **SUPERSEAL™ IP67 OPEN-FACE RUGGEDIZED FIELD RJ45 SOLUTIONS**





MIL-DTL-38999 Sr. III type Series 80 Mighty Mouse SuperSeal™ RJ45 SuperSeal™ RJ45



Series IPT 26482 type SuperSeal™ RJ45



Series ITS 5015 type SuperSeal™ RJ45



MIL-DTL-28840 type SuperSeal™ RJ45

#### SUPERSEAL™ IP67 OPEN-FACE RUGGEDIZED FIELD USB 2.0 AND 3.0 SOLUTIONS



MIL-DTL-38999 Sr. III type Series 80 Mighty Mouse SuperSeal™ USB SuperSeal™ USB



Series IPT 26482 type





MIL-DTL-28840 type

#### **HIGH-SPEED / RF DATALINK CONTACTS**



contacts

Size #8 differential twinax contacts

USB, SATA, and more



Size #12 ultra-twinax Size #8 differential twinax quadrax contacts



Size #8 spring-loaded BMB microwave contacts



Size #12 SMPM type spring-loaded coaxial

### THE OCTAXIAL SIZE #8 CONTACT FOR GbE/10GbE ETHERNET, USB 3.0, HDMI, AND MORE



#24 or #26 gage



#### GLENAIR CONNECTOR SERIES FOR EL OCHITO® AND OTHER HIGH-SPEED DATALINK CONTACTS

both #24 and #26 gage cable





Series 28 HiPer-D® with Series 23 SuperNine® with Series 79 Micro-Crimp® Quadrax contacts El Ochito PC tail contacts with coax contacts



Series 80 Mighty Mouse with differential twinax



MWDM Micro-D with coax contacts

#### OCTOBYTE™ SERIES RUGGEDIZED ETHERNET CONNECTOR

#### SPEED-MASTER™ 10G+ ETHERNET

OCETA

www.ooeta.shop





**Ethernet Cat5** contacts



Coax contacts



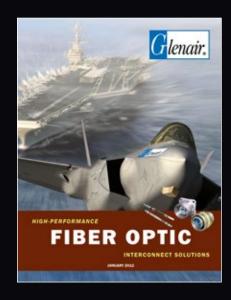
Ethernet M **WBT** conta



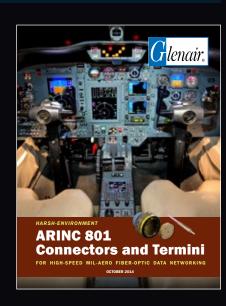
### HIGH-PERFORMANCE

### Fiber Optic CONNECTORS FIBER OPTIC **INTERCONNECT SYSTEMS**

connectors  $\cdot$  termini  $\cdot$  cables  $\cdot$  tools







#### EYE-BEAM® GMA AND EYE-BEAM® GLT EXPANDED-BEAM CONNECTION SYSTEMS



Innovative Eye-Beam® GLT grin-lens expanded-beam termini can be integrated into virtually any circular or rectangular connector package. Factory terminated lens pin termini and lens socket termini on cable jumpers allow for easy fusion splicing in the field.

#### **GLENAIR BUTT-JOINT FIBER OPTIC CONNECTION SYSTEMS**









MIL-DTL-38999 type fiber optic

Glenair High Density (GHD) fiber optic

**Mighty Mouse fiber optic** 









ARINC 801 type fiber optic

MT Ferrule 38999 type fiber optic

NGCON MIL-PRF-64266 fiber optics

Fiber optic Sav-Con® connector savers











Glenair Front Release (GFR) fiber optic

#### **TOOL KITS AND TRAINING**





Fiber optic test probes



Dry-wipe fiber optic cleaning tools



On-site fiber optic technician

#### FIBER OPTIC CONNECTOR BACKSHELLS TURNKEY FIBER OPTIC CABLE AND CONDUIT ASSEMBLIES









**WE CONNECT YOUR SYSTEM** 

VG QUALIFIED AND COMMERCIAL

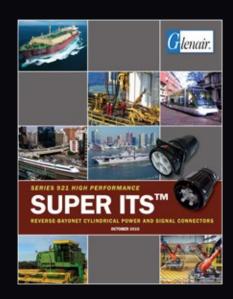
# INDUSTRIAL-STRENGTH CONNECTORS ES

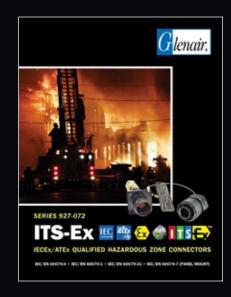






power · signal · hazardous zone · military







#### HIGH-VOLTAGE SINGLE AND MULTIPOLE POWER CONNECTORS



Glenair high-power tractor connector with TurboFlex™ cable, locking/lever coupling, and flexible standoff



Series IRT rectangular multipole high voltage traction motor connectors



power joint connector system



Innovative tool-free locking and latching

#### **SUPER ITS™ HIGH-PERFORMANCE REVERSE BAYONET**



Higher temperature and ampacity rating with rigid insert and mechanical contact retention

#### **ITS-Ex HAZARDOUS ZONE CONNECTORS**



IECEx / ATEx qualified explosive zone 5015 type reverse-bayonet connectors for Group IIC, Temperature Classes T6 and T5, Zones 1 and 2

#### POWERTRIP™ EXTREME ENVIRONMENT POWER CONNECTOR



The high-density, advanced performance PowerTrip™ is a reduced size and weight solution for demanding interconnect applications. High ampacity, anti-decoupling, and robust backshell accommodation standard.

#### **SERIES 928 HMI LIGHTING**



Rugged bayonet-lock plugs and receptacles for ballast and head connections

#### **5015 TYPE CIRCULAR HEAVY-DUTY POWER AND SIGNAL CONNECTORS**



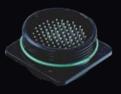
Series ITS reverse-bayonet



Series ITH rigid insert



Series IT threaded coupling



Series ITZ triple-start coupling



high-temperature

www.oceta.shop



ITS-RG RadGrip



Series 901 multi-pin high voltage



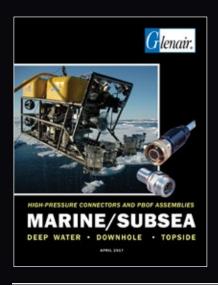
Series 500 single-pole high voltage

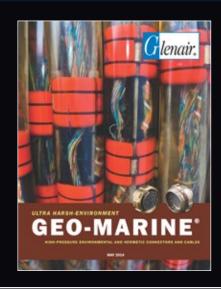


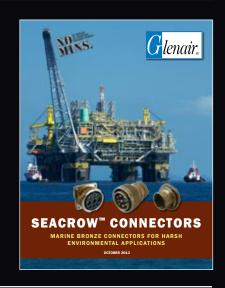
10K PSI OPEN-FACE

# UNDERWATER / SUBSEA CONNECTORS

deep water · downhole/HTHP · topside · shallow water · high-speed copper/fiber







#### SEAKING™: FLAGSHIP SERIES MECHANICAL AND ENVIRONMENTAL FEATURES













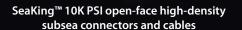




Well-Master 26







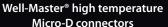


SuperG55<sup>™</sup> dry-mate 10K PSI subsea electrical connectors



**Economical Marine Molded** cable-to-cable and cable-to-panel interconnects





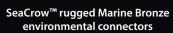


Single- and multi-pin High Temperature/High Pressure (HTHP) Glass sealed penetrators and feedthroughs

# TOPSIDE OR SHIPBOARD CONNECTORS









Corrosion-resistant composite junction boxes, cable bays, and wire protection conduit

#### **SHALLOW WATER SUBSEA CONNECTORS**

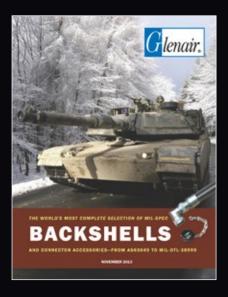


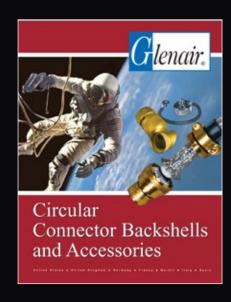


QPL AND COMMERCIAL

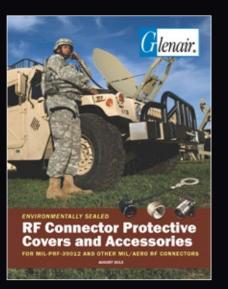
## **CONNECTOR BACKSHELLS AND ACCESSORIES**

environmental sealing  $\cdot$  wire management  $\cdot$ strain relief · EMC shield termination

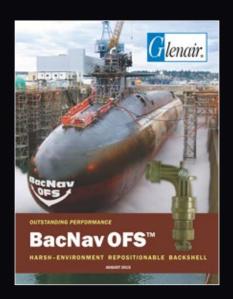












#### LIGHTWEIGHT COMPOSITE THERMOPLASTIC BACKSHELLS AND ACCESSORIES



Band-in-a-Can EMI/RFI composite



Composite EMI/RFI backshell with attached lightweight braid



Swing-Arm<sup>™</sup> Flex with drop-in wire shield



Split-shell low profile composite banding



feed-thru with hybrid wire sealing grommet

#### LIGHTWEIGHT COMPOSITE EMI/RFI ENVIRONMENTAL JUNCTION BOXES



Modular junction box with feed-thru fittings and caps



**Custom connectorized** low-profile composite data hub



Heavy-duty composite cable/equipment bay



Ultra small form-factor miniature enclosure

#### **M24308 D-SUB SOLUTIONS: HIGH PERFORMANCE, RUGGEDIZED D-SUBMINIATURE PRODUCTS**



Split-shell D-subminiature Split-shell M24308 Composite D-subminiature composite backshell composite backshell







Flex-D composite



M24308 EMI/RFI backshell

#### **BACKSHELL AND CONNECTOR ACCESSORY INNOVATION SHOWCASE**



StarShield™ zero-length shield termination



Spring-loaded "flop-lid"



Space-grade Qwik Clamp backshell



Ultra low-profile



BacNav OFS™ repositionable EMI/EMP



Backshell



Self-locking, anti-decoupling





Meta-Loc™ series quick-lock, quick-release backshells







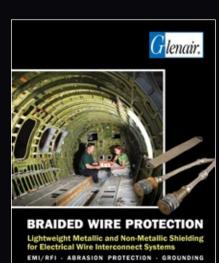


### METALLIC AND NON-METALLIC

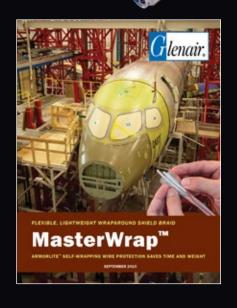
### **BRAIDED SHIELDING**

EMI screening  $\cdot$  weight reduction  $\cdot$  abrasion protection  $\cdot$  spot repair



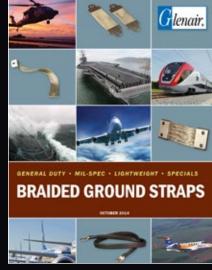






ARMORLITE™ MESH TAPE







For spot EMI/RFI shielding coverage and reinforcement of cable interstices



The most innovative line of metallic, monofilament non-metallic, and microfilament composite and stainless steel braiding solutions for environmental, mechanical, and EMC shielding in the world. From high-temperature fiberglass tubular shielding for engine applications to ultra-lightweight EMI/RFI braided shielding for electrical wire interconnect grounding applications, Glenair offers the industry's most versatile range

### ARMORI ITE Amberstrand

#### LIGHTWEIGHT ARMORLITE™ (STAINLESS STEEL) AND AMBERSTRAND® (COMPOSITE) SHIELDING







Shield sock backshells with lightweight ArmorLite<sup>™</sup> or AmberStrand<sup>®</sup> microfilament EMI/RFI braid



MasterWrap™ flexible, field-installable/ repairable side-entry EMI/RFI shielding with ArmorLite™ technology

#### **TURNKEY FACTORY OVERBRAIDING WITH LIGHTWEIGHT AND QQ-B-575B/A-A-59569 BRAID**



Turnkey factory-overbraided multibranch cable assembly



Overbraided conduit assembly, ready for customer termination



Factory-overbraided pigtail assembly

#### ARMORLITE™ AND METALLIC BRAID GROUND STRAPS



Lightweight ArmorLite™ microfilament ground straps



Heavy-duty metallic braid ground straps



MIL-DTL-24749 Type IV Qualified navy ground straps



Round braid profile ground straps

#### **INDUSTRY-STANDARD TUBULAR FABRIC AND METAL BRAID**



Tubular fabric braid for mechanical and abrasion protection of electrical wire interconnect systems



Wide range of colored Nomex for abrasion protection and wire identification



www.oceta.shop

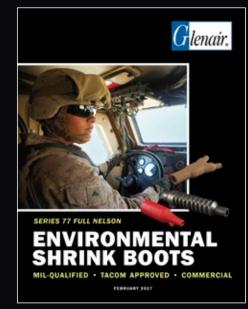
### **ENVIRONMENTAL**

# **SHRINK BOOTS** AND HEAT-SHRINK **TERMINATIONS**



abrasion protection · environmental sealing splicing · space-grade wire protection







#### **HEAT SHRINK TERMINATION SLEEVES / SPLICES**



Three sizes of available

inline splices

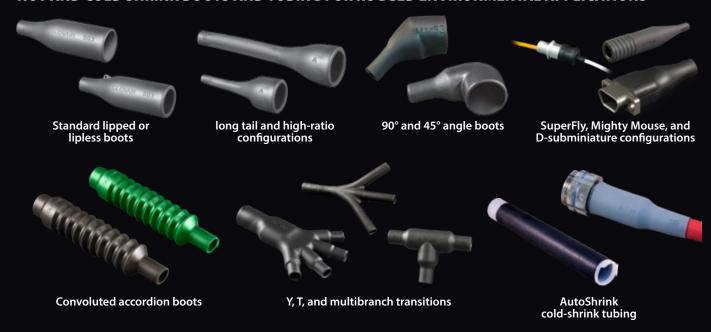


Wired and unwired AS83519/1 and /2 Type heat shrink terminations for EMI shield-to-ground termination applications (note braided versions qualified for lightning strike)



Example rectangular interconnect assembly outfitted with heat shrink termination grounds

#### HOT AND COLD SHRINK BOOTS AND TUBING FOR RUGGED ENVIRONMENTAL APPLICATIONS



#### **SELECTED ENVIRONMENTAL SHRINK BOOT COLOR OPTIONS**



#### SHRINK BOOT ADAPTERS SELECTION GUIDE





Series 311 EMI/RFI Lamp-Base Thread/Boot Adapters



Series 319 Shield Sock/Boot



Series 440 Band/Boot



**Shrink Boot** 



Thermoplastic Band/Boot Adapters

#### **PIGGYBACK SHRINK BOOT ADAPTERS**



Environmental piggyback adapter with pre-installed boot, ready for heat shrink

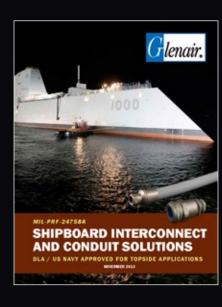
completed with significant time saved



### HARSH-ENVIRONMENT

# METAL AND POLYMER CORE CONDUIT SYSTEMS

high-temperature · crush-resistant · EMI/RFI shielded · land, sea, and air







#### **TURNKEY FACTORY-TERMINATED CONDUIT ASSEMBLIES**



Complex multibranch fighter jet electrical wire conduit assembly



Lightweight, halogen-free rail industry wire conduit assembly



Crush-resistant commercial aerospace metal-core conduit assembly

#### LIGHTWEIGHT, SEALED/FLEXIBLE POLYMER-CORE ANNULAR CONDUIT WIRE PROTECTION SYSTEMS



Kynar, PVDF, and G-Flex Siltem materials



jacketing options



wire protection system



Non-wired factory-terminated assemblies wire protection system



#### HIGH-TEMPERATURE, HIGH-STRENGTH HELICAL POLYMER-CORE WIRE PROTECTION SYSTEMS



High-temperature, high-strength helical conduit Easy-to-install Hat-Trick wire protection system



wire protection system





Non-wired factory-terminated assemblies

#### **HEAVY-DUTY METAL-CORE CONDUIT WIRE PROTECTION SYSTEMS**



Flexible, crush-proof EMI/ Low-profile RP Plus



RFI metal-core conduit wire protection system weight-saving composite wire protection system



Heavy-duty metal and



Legacy Mil-C-24758



Non-wired factory-terminated assemblies

#### MIL-PRF-24758 SHIPBOARD CONDUIT WIRE PROTECTION SYSTEMS



Stainless steel and brass metal-core conduit with UV-resistant BlueJacket



Complete range of qualified MIL-PRF-24758 fittings



Master Seal self-vulcanizing BlueJacket (Duralectric) repair tape



Non-wired factory-terminated

#### SPECIAL-PURPOSE CONDUIT MATERIALS AND CONFIGURATIONS



Spring-reinforced polymer-core assemblies Halogen-free PEEK tubing

Special composite fiber optic backshells



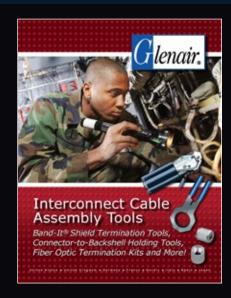
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### INTERCONNECT

# **ASSEMBLY TOOLS**

banding · grounding · crimping · mounting · termination · testing







#### **GROUNDCONTROL EARTH BOND**



Hydraulic Earth Bond setting tools for aluminum and stainless steel plate



Bi-laminar (copper core) earth bonds



**Available** dynamometer



Used for ground strap bonding and equipment rack installation

#### FIBER OPTIC TERMINATION AND TEST TOOLKITS



Turnkey fiber optic termination Inspection and test probes Dry-wipe fiber optic and maintenance kits







Video scope inspection kits

#### **CRIMP TOOLS**





Locators and

accessories

Crimp contact insertion and removal tools

#### **BACKSHELL-TO-CONNECTOR MOUNTING TOOLS**



**TG70 Universal** Circular backshell assembly wrenches



**Connector holding tool** 



Soft jaw pliers

Bench-mount tools for volume production

### Band-Master ATS® EMI/RFI CABLE SHIELD TERMINATION SYSTEM



Nano banding tool for use with ultraminiature connectors and banding backshells

Each tool accommodates a specific width of band (nano, micro, or standard)



Micro banding tool for use with most subminiature connectors and banding backshells



**Standard and Slim Standard banding tools** for use with large form-factor connectors and banding backshells



Bands are available precoiled for high-volume assembly operations



Special high-volume pneumatic tool for bench use, available for all sizes



The only banding tool with a built-in



Bands and tools optimized for size



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# **Glenair Track Record** of Interconnect Innovation





1956: Glenair founded to produce a universal Mil-Spec connector cable clamp, the G1

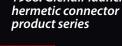


1965: Glenair's first connector product: the Sav-Con® **Connector Saver** 



1973: Glenair qualifies to MIL-C-85049 spec governing electrical connector accessories







Hermetic < 1988: Glenair launches





1994: Glenair launches high-Fiber Optic performance fiber optic product line



introduces the ultra-miniature Mighty Mouse



1999: Glenair adds final 85049 slash sheet to QPL



4/8 pole Ethernet solution for rail and mass transit



2012: Super ITS high-performance reverse-bayonet 5015 connectors



2014: El Ochito, the ultimate chito Ethernet contact









2016: SeaKing and SuperG55 subsea







2016: STAR-PAN USB hub / STAR-PAN" VI power distribution system



1950

1960

1970

1980

1990

2000

2010

2012: Zero length shield termination

backshells for <

rugged EMI/RFI application

2010: Glenair invents

high-performance Series 970 PowerTrip





Air Way, Glendale California, circa 1950

1965: Glenair manufactures the "Golden Umbilical" spacewalk cable

1972: Glenair launches Mansfield, UK factory specializing in complex cable assemblies and Micro-D flex circuitry







1989: Glenair retools entire metal connector accessory product family with composite thermoplastic alternatives





Glenair expands Micro-D and Nanominiature connector lines with acquisition of Microway Systems



### amberstrand" Armori ite

2003: Glenair revolutionizes EMI/ RFI cable shielding with microfilament technology



2011: Series 28 HiPer-D highperformance . M24308 intermateable

2005: Glenair acquires Italian industrial/rail connector manufacturer, Commital



3-in-1 Swing-Arm strain-relief



2012: Glenair nanominiature Series 88 SuperFly





MasterWrap lightweight side-entry EMI shielding



2013: SuperSeal™ RJ45 and USB ruggedized field connector series



2014: MouseBud the snap-lock, trigger release soldier connector

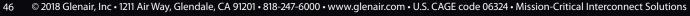


board-to-board stackable connectors



WE CONNECT YOUR SYSTEM





# Glenair Mil-Spec Interconnect Technologies



Qualified Products: Glenair is a Mil-Aero connector supplier. Our product quality begins in engineering (the largest team in the high-performance interconnect business) and is realized in our "made in the USA" vertically-integrated manufacturing cells. One of the key ways we ensure both areas are functioning smoothly is to submit designs and manufactured specimens into the military QPL process administered by the Defense Logistic Agency of the US government. These certification exercises are multi-year activities that test every aspect of a connector's performance.



MIL-DTL-38999 Series III environmental connectors



MIL-DTL-38999 Series IV environmental connectors



MIL-DTL-28840 shipboard connectors and accessories



MIL-DTL-38999 Series I, II, III, and IV hermetic connectors



MIL-DTL-24308 hermetic connectors



MIL-DTL-28876 shipboard fiber optic



MIL-DTL-83513 Micro-D connectors and accessories



MIL-DTL-32139 Nanominiature connectors and accessories



MIL-DTL-29504 (fiber optic) and AS39029 (electrical) contacts



M85049 (AS85049) backshells and connector accessories



MIL-DTL-83723 backshells and connector accessories



M81511 (AS81511) protective covers and connector accessories



M85049/140 series qualified / TACOMapproved environmental shrink boots



MIL-PRF-24758 Navsea-qualified conduit and fittings



M85049 composite backshells and covers for MIL-DTL-38999

# COMMITMENT TO QUALITY

lenair is proud of the quality and reliability we build into our extensive range of interconnect solutions—from discrete connectors to complex integrated systems. Glenair is the biggest "made in the USA" interconnect supplier in the high-reliability industry. Glenair is ISO 9001:2008 and AS9100:2009 certified and registered in the United States. Our PCB and solder termination operations are also Nadcap certified. Internationally, Glenair's industrial operation in Bologna, Italy is IRIS, AS9100 SAE Aerospace and ISO 9001 certified. Our Mansfield, UK Micro and Nano connector and cable operation is likewise AS9100 certified and registered. We are laser-focused on customer service and committed to being the easiest manufacturer in our market to do business with. Here are just some of our key customer service principles:

- Lightning-fast turnarounds on quotes and special orders
- Worldwide sales and technical support in every major market
- Full-spectrum, "no gap" product lines
- No dollar or quantity minimums

- ISO 9001: 2008 and A S9100: 200<mark>9 qual</mark>ity
- Huge same-day shipment inventory
- Generous NRE, RMA, and sample request policies
- Abundan WE CONNECT YOUR SYSTEM
   No attitudinal constraints when it comes to customer convenience and service



GLENDALE, CALIFORNIA
Complete vertical integration of
manufacturing resources—at home
in Southern California since 1956

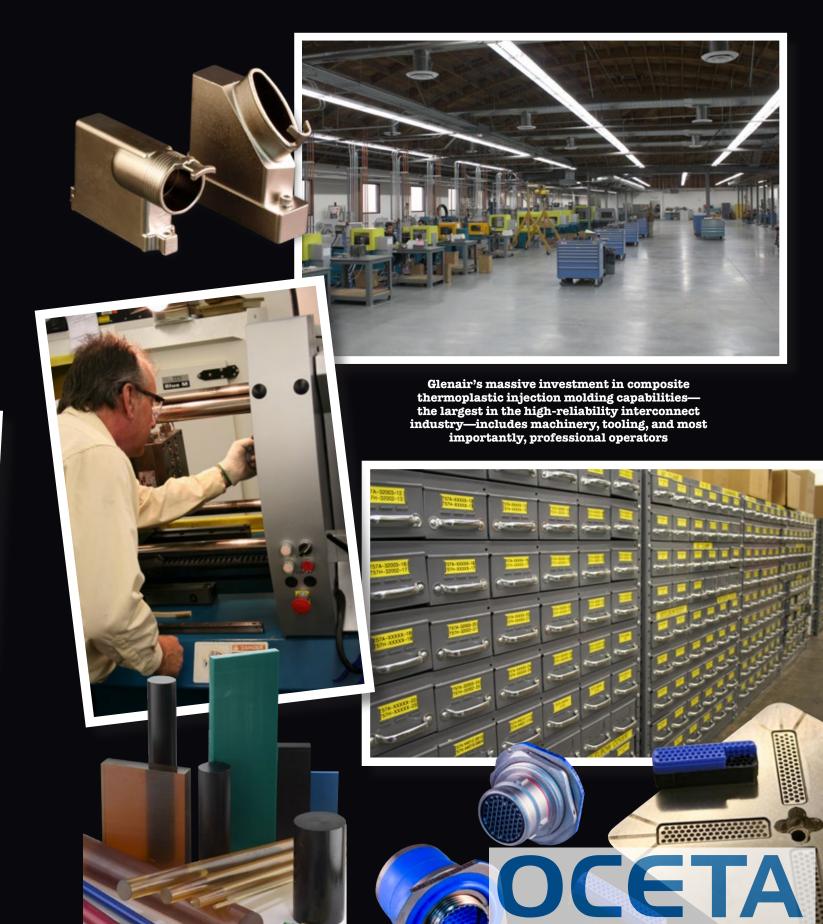


Glenair operates the largest precision machining facility in the high-performance interconnect industry, allowing us to support both small and large-volume interconnect requirements—from one piece to 100,000









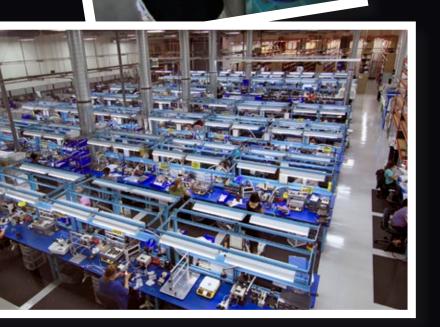
**WE CONNECT YOUR SYSTEM** 

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GLENDALE, CALIFORNIA Complete vertical integration of manufacturing resources—at home in Southern California since 1956



Glenair design, engineering, and fabrication capabilities extend to both electrical as well as optical connectors, cables, and complex integrated assemblies—all under one roof and one worldwide quality system







GLENDALE, CALIFORNIA

Special behind-the-scenes tour of Glenair's hydrostatic test lab for high-pressure subsea GLENDALE electrical and fiber optic interconnects

CONNECTOR TESTING: All Glenair subsea inspection and test

CONTROL ROOM: The modular consoles in the control room provide for up to 8 pressure circuits, operating in Manual mode or Automated. Each circuit is capable of a maximum of 16.5K psi. Monitors display: Automated Test Profiles, Data Acquisition, remote viewing of Test rooms and more. System is network connected for access to Profiles and distribution of test reports.



nterconnects are subjected to 100%

3. Hydrostatic test lab control room

4. Production staging

5. Small connector pressure test bunker

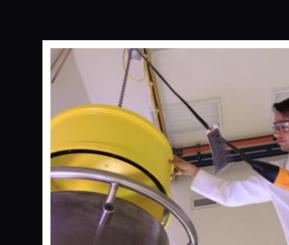


SeaKing<sup>™</sup> and SuperG55<sup>™</sup> QUALIFICATION TESTING: Both Glenair Series 70 SeaKing and SuperG55 rugged dry-mate subsea connectors have been tested and qualified to their 10K psi pressure rating—open-face and mated—in Glenair's state-of-the-art hydrostatic test lab. Additional testing included mating cycles, salt spray, and electrical continuity.





TECHNICAL STAFF: Knowledgable and trained subsea specialists perform both in-house product qualification testing, as well as customer subassemblies



**Glenair Hydrostatic Test Lab Technical Specifications and Pressure Test Standards** Pressure test profiles Automated or manual 16.5K psi Maximum test pressure toring under

I/R, continuity, insertion loss, and backreflection (optical)

All major oil & gas standards oressure ndustry prof WE CONNECT YOUR SYSTEM

LARGE PRESSURE **VESSELS:** Built to accommodate complete cable assemblies, mated connectors, and customersupplied subassemblies

MANSFIELD, ENGLAND

Mission-critical interconnect technologies for the UK and European markets with a special focus on micro and nanominiature flex assemblies



#### MICRO AND NANOMINIATURE HARNESS AND FLEX ASSEMBLIES



Terminated and tested flexi and rigid flexi point-to-point assemblies with Glenair Micro and Nano interconnects



Complex multibranch flexi and rigid flexi assembly with Glenair Micro and



Micro and Nano wired harnesses and pigtails

#### MOULDED ENVIRONMENTAL INTERCONNECT COMPONENTS AND COMPLEX ASSEMBLIES



In-house moulded shrink boots and multibranch cable transitions



Color-coded overmoulded power and signal cable assemblies



Complex integrated Micro assemblies with machined chassis

#### **MWDM MICRO CONNECTORS**



**ESCC** series Micro connectors for ESA space and other UK and EU markets

#### **TOOLING**



Complete range of interconnect tooling including GroundControl Earth Bond system

#### **SUPERG55 SUBSEA**



Oil & Gas industry subsea connector series



Micro-D and Nanominiature harnessing is completed in our ISO 9001:2008 and BS EN 9100:2003, BS EN 9120:2005 certified facility



The Glenair Mansfield clear room assembly area is used for fabrication of laser, space, and satellite assemblies **IAW ISO Class 8** -100,000 PPM



Glenair UK operates an independently accredited BS9000:CECC:IECQ test

well as third-party product
development / design
verification and connector
qualification

**WE CONNECT YOUR SYSTEM** 



BOLOGNA, ITALY Glenair Italia serves harshenvironment military, transportation, rail, and industrial markets with power, high-speed Ethernet, hazardous-zone connectors and more.



#### SUPER ITS™ HIGH-PERFORMANCE **REVERSE BAYONET**



Higher temperature and ampacity rating with rigid insert and mechanical contact retention

#### **ITS-Ex HAZARDOUS ZONE CONNECTORS**



IECEx / ATEx qualified explosive zone 5015 type reverse-bayonet connectors for Group IIC, Temperature Classes T6 and T5, Zones 1 and 2

#### **CIRCULAR HEAVY-DUTY POWER AND SIGNAL CONNECTORS: 5015 TYPE DERIVATIVES**



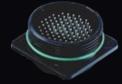
Series ITS reverse-bayonet



Series ITH rigid insert



**Series IT** threaded coupling



Series ITZ triple-start coupling

**HIGH-VOLTAGE POWER** 



ceramic insert

#### **OCTOBYTE SERIES RUGGEDIZED ETHERNET CONNECTOR**



Tested for compliance according to EN50173-1 standards for CAT5E and CAT7



Ethernet Cat7A



**Ethernet Cat5** 



contacts

Ethernet MVB -



Series IRT rectangular multipole high voltage traction motor

Total vertical integration includes in-house contact fabrication



In-house injection molding (far left) and resilient insert processing (left) provides Glenair Italia with all the resources required to fabricate interconnect technologies from scratch without dependence on outside suppliers



Glenair Italia hosts the most modern and comprehensive interconnect plating facility in Europe









# INTERCONNECT SOLUTIONS

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