
Glenair®
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Out of This World
INTERCONNECT
SOLUTIONS

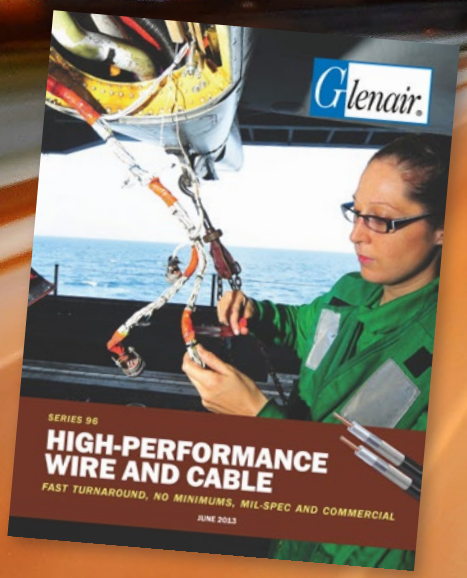
Out of This World

INTERCONNECT SOLUTIONS

Glenair®

QPL AND COMMERCIAL

High Performance Connector Contacts, Wire and Cable



Glenair brings a new perspective to the supply of high-performance Mil-Spec and commercial contacts, wire and cable: High Availability! Whether you need a standard duty socket contact for a MIL-DTL-28840 connector or an extended duty pin for MIL-DTL-38999 Series III, we have you covered with products that are always in stock—with no dollar or quantity minimums. In addition to the broadest selection and availability, Glenair also delivers outstanding interconnection compatibility. Glenair QPL SAE-AS39029 as well as our proprietary contact series are guaranteed to mate properly and perform at the upper limits of application requirements.

Crimp Contact Selection Guide

Military Part Number	Glenair Part Number	Contact Size	Wire Accommodation	Pin / Socket	BIN Color Striping		
M39029/56-348	850-001-22-348	22	22-28 AWG	Socket	Orange	Yellow	Grey
M39029/56-351	850-001-20-351	20	20-24 AWG	Socket	Orange	Green	Brown
M39029/56-352	850-001-16-352	16	16-20 AWG	Socket	Orange	Green	Red
M39029/56-353	850-001-12-353	12	12-14 AWG	Socket	Orange	Green	Orange
M39029/56-527	850-001-10-527	10	10 AWG	Socket	Green	Red	Violet
M39029/57-354	850-003-22-354	22	22-28 AWG	Socket	Orange	Green	Yellow
M39029/57-357	850-003-20-357	20	20-24 AWG	Socket	Orange	Green	Violet
M39029/57-358	850-003-16-358	16	16-20 AWG	Socket	Orange	Green	Grey
M39029/57-359	850-003-12-359	12	12-14 AWG	Socket	Orange	Green	White
M39029/58-360	850-002-22-360	22	22-28 AWG	Pin	Orange	Blue	Black
M39029/58-363	850-002-20-363	20	20-24 AWG	Pin	Orange	Blue	Orange
M39029/58-364	850-002-16-364	16	16-20 AWG	Pin	Orange	Blue	Yellow
M39029/58-365	850-002-12-365	12	12-14 AWG	Pin	Orange	Blue	Green
M39029/58-528	850-002-10-528	10	10 AWG	Pin	Green	Red	Grey
M39029/63-368	850-021-20-368	20	20-24 AWG	Socket	Orange	Blue	Grey
M39029/64-369	850-022-20-369	20	20-24 AWG	Pin	Orange	Blue	White

BIN Color Coding									
0 BLACK	1 BROWN	2 RED	3 ORANGE	4 YELLOW	5 GREEN	6 BLUE	7 VIOLET	8 GREY	9 WHITE

High-Performance Shielded Contacts

Selection guide

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Military Part Number	Glenair Part Number	Contact Size	Pin / Socket	Type	BIN Color Striping		
M39029/27-210	852-001-12-210	12	Socket	Coaxial	Red	Brown	Black
M39029/27-402	852-001-12-402	12	Socket	Coaxial	Yellow	Black	Red
M39029/27-403	852-001-12-403	12	Socket	Coaxial	Yellow	Black	Orange
M39029/27-404	852-001-12-404	12	Socket	Coaxial	Yellow	Black	Yellow
M39029/27-405	852-001-12-405	12	Socket	Coaxial	Yellow	Black	Green
M39029/27-406	852-001-12-406	12	Socket	Coaxial	Yellow	Black	Blue
M39029/27-407	852-001-12-407	12	Socket	Coaxial	Yellow	Black	Violet
M39029/27-408	852-001-12-408	12	Socket	Coaxial	Yellow	Black	Gray
M39029/28-211	852-002-12-211	12	Pin	Coaxial	Red	Brown	Brown
M39029/28-409	852-002-12-409	12	Pin	Coaxial	Yellow	Black	White
M39029/28-410	852-002-12-410	12	Pin	Coaxial	Yellow	Brown	Black
M39029/28-411	852-002-12-411	12	Pin	Coaxial	Yellow	Brown	Brown
M39029/28-412	852-002-12-412	12	Pin	Coaxial	Yellow	Brown	Red
M39029/28-413	852-002-12-413	12	Pin	Coaxial	Yellow	Brown	Orange
M39029/28-414	852-002-12-414	12	Pin	Coaxial	Yellow	Brown	Yellow
M39029/28-415	852-002-12-415	12	Pin	Coaxial	Yellow	Brown	Green
M39029/59-366	852-006-08-366	08	Socket	Coaxial	Orange	Blue	Blue
M39029/60-367	852-007-08-367	08	Pin	Coaxial	Orange	Blue	Violet
M39029/75-416	852-003-12-416	12	Socket	Coaxial	Yellow	Brown	Blue
M39029/75-417	852-003-12-417	12	Socket	Coaxial	Yellow	Brown	Violet
M39029/75-418	852-003-12-418	12	Socket	Coaxial	Yellow	Brown	Gray
M39029/75-419	852-003-12-419	12	Socket	Coaxial	Yellow	Brown	White
M39029/75-420	852-003-12-420	12	Socket	Coaxial	Yellow	Red	Black
M39029/75-421	852-003-12-421	12	Socket	Coaxial	Yellow	Red	Brown
M39029/75-422	852-003-12-422	12	Socket	Coaxial	Yellow	Red	Red
M39029/75-423	852-003-12-423	12	Socket	Coaxial	Yellow	Red	Orange
M39029/76-424	852-008-16-424	16	Pin	Coaxial	Yellow	Red	Yellow
M39029/76-425	852-008-16-425	16	Pin	Coaxial	Yellow	Red	Green

BIN Color Coding									
0 BLACK	1 BROWN	2 RED	3 ORANGE	4 YELLOW	5 GREEN	6 BLUE	7 VIOLET	8 GREY	9 WHITE

Special Purpose Contacts
Selected Examples

Size #12 Differential Twinax Contacts for Multi-Gigabit Data Rate Applications

Glenair Part No.	Cable	Impedence	Frequency Range	VSWR	Insertion Loss
Socket = 853-015-01 Pin = 853-016-01	859-041 963-001	100-Ohms Nominal	DC to 10 GHz	1.1 + (.03 * F GHz)	1.3 *F GHz

050-301 Size #8 Contact Cavity Optoelectronic Insert Transmitter and Receiver

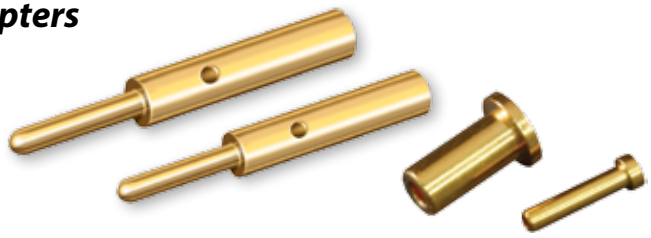
- ARINC 664, 801, 803, 804, and 818 standard compliant
- Data rates from 125Mbps to 3.8 Gbps for transmitter, 125Mbps to 4.25Gbps for receiver
- Supports fast and Gigabit Ethernet, AFDX, 1x/2x Fibre Channel, DVI, HDMI, SFPDP, Serial Rapid I/O (sRIO).
- ARINC 801 1.25mm/2.5mm ceramic fiber ferrule, or expanded beam

Thermocouple Contacts to Fit D38999 Series I, II, III and IV Connectors

Glenair Part No.	Military Part No.	AWG Wire Size
Pin = 850-023	Pin = AS39029/87	16–28
Series I, III, IV Socket = 850-024	Series I, III, IV Socket = AS39029/88	
Series II Socket = 850-025	Series II Socket = AS39029/89	
Custom PCB and crimp termination thermocouples available in type K, E, J, N and more.		

Wire-to-Contact Expansion and Reducer Adapters

Glenair Part No.	Finish	Wire Accommodation	Contact Wire Barrel Size
687-348	Z2 - Gold Plate Z3 - Silver Plate Z4 - Tin Plate	6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 0-4	4, 8, 12, 16, 20, 22
859-015		10, 12, 14, 16, 18, 20, 22, 24, 26, 28	10, 12, 16, 20, 22



PCB Contacts to Fit MIL-DTL-38999/20 and /24 Rear-Release Connectors

Mating End Size	Glenair Part Number
22	850-010-22
20	850-010-20
16	850-010-16
12	850-010-12

Mating End Size	Glenair Part Number
22	850-011-22
20	850-011-20
16	850-011-16
12	850-011-12

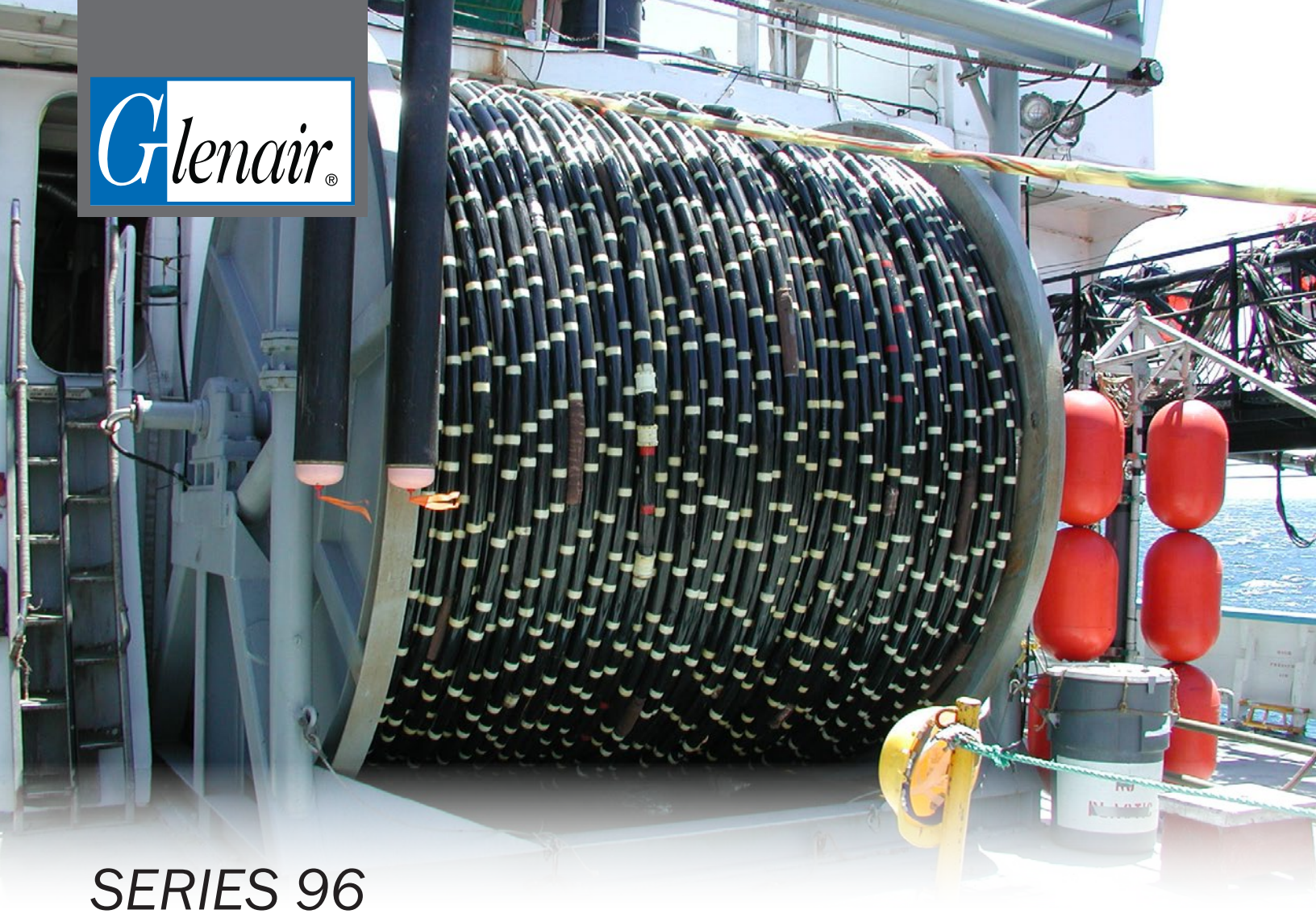
El Ochito™: The Ultimate Ethernet Contact

"The Little Eight": Eight miniaturized contacts in a standard size #8 shielded module—10G Ethernet ready, with dramatic size and weight reduction compared to all other available solutions

- **One full Ethernet channel per standard size #8 cavity**
- **Fast and easy crimp termination of wires to contacts—PC Tails available**
- **100% drop-in solution to installed connectors—no redesign or reinstallation of interfaces**
- **Supplied as crimp contacts, wire pigtails, or in PC tail configurations in the connector of your choice—up to 8 Ochito modules in a size 25 D38999**
- **Integral spline and short termination maximizes interconnect/cable performance and minimizes crosstalk**
- **El Ochito™ delivers the highest density contact system available—twice the density of Quadrax, split Quadrax, or other shielded contact solutions**
- **Tested, qualified, and in-stock for immediate shipment**

El Ochito™ exploded view: High mating durability, lightweight contact system with 100 Ohm shielded performance. Note wire twist maintained to contact pair to minimize characteristic impedance mismatch. Also, Conductive isolation shield dramatically reduces crosstalk

El Ochito™ is a drop-in solution for Series 80 Mighty Mouse, as well as D38999 Series III, EN4165, EN3645, and other ARINC standards and is ideally suited for Ethernet, high-definition video, high-speed data loading, and other 1Gb/sec and 10Gb/sec applications.



SERIES 96

High-Performance Bulk Cable for Interconnect Applications

Rugged high-performance environmental and EMC interconnect cable designs—from chemically-resistant jacketed solutions to high-flexibility power transmission cable

No Dollar or Quantity Minimum Orders NO MINS.

Glenair is pleased to offer our customers custom bulk cable for on-site termination. Glenair cables are designed and manufactured for optimal performance in mission-critical applications such as soldier systems, medical equipment, aerospace, geophysical and other military and commercial environments that rely on guaranteed signal integrity and cable durability. Cable jacketing, braiding and shielding technologies are specified according to application type, and the unique requirements of inner conductors including non-impedance-controlled signal wire, shielded multi-conductor cables, Coaxial, Quadrax, flexible power, fiber optic, and so on. Glenair cables are designed to optimize flexibililty, weight reduction, ruggedness, and insulator quality. Our protocol-specific cables are offered with guidance as to shielding properties, impedance performance, attenuation, temperature rating, bend radius, weight, and maximum practical distance.

Coiled cable configurations for radio and comms applications are a Glenair specialty

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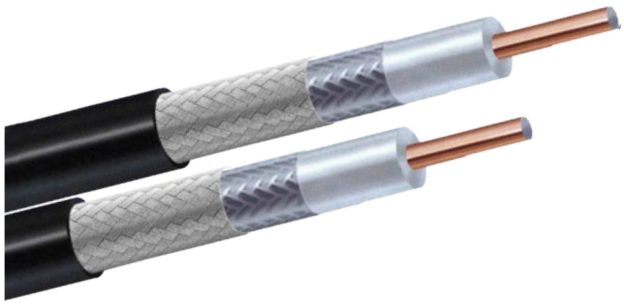


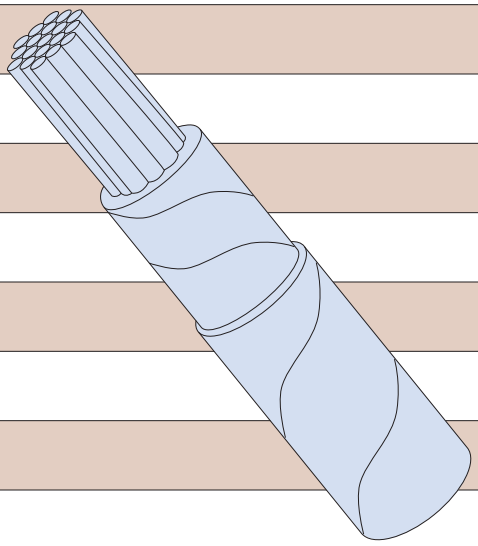
High-Speed Coaxial Cable

- **One-stop shopping for general-purpose, high-speed, and protocol-specific/ specialty wire and cable**
- **No minimum orders. Glenair wire and cable part numbers are in stock and ready for immediate, same-day shipment**
- **M22759 single-ended data transmission wire, high-speed Quadrax cable, 50 and 75 Ohm Coaxial cable, as well as unique protocol-specific wire solutions**
- **Custom marking available**

High availability, high-speed wire and cable for digital and RF applications—No minimum orders or minimum cable runs

Wire Type	Application	Commonly Used With
M22759 Single-Ended Data Transmission Wire	Non-impedance controlled signal applications	Non-shielded 39029 contacts
Quadrax Cable	10/100/1000BASE-T Ethernet applications	854-001/854-002 Quadrax contacts
Coaxial Cable	50 Ohm/75 Ohm RF transmission	Size #16, #12, #8 Coaxial pin and socket contacts
Protocol Specific Cables	Commercial digital data device connections including Ethernet, USB, SATA/eSATA, Spacewire, LVDS/CML	High Speed Mighty Mouse Mighty Mouse with Ultra-Twinax Differential Twinax contacts SuperSeal USB/RJ45

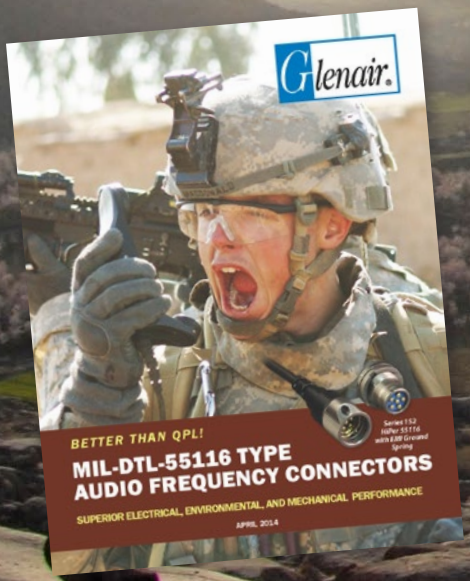
M22759 Hookup Wire
M22759/11 **Silver Coated Copper Wire with Extruded PTFE Insulation**
M22759/16 **Tin Coated Copper Wire with Extruded ETFE Insulation**
M22759/18 **Tin Coated Copper Wire with Thin-Wall Extruded ETFE Insulation**
M22759/32 **Tin Coated Copper Wire with Crosslinked, Modified ETFE Insulation**
M22759/33 **Silver Coated Copper Wire with Crosslinked, Modified ETFE Insulation**
M22759/34 **Tin Coated Copper Wire with Overall Braid and Extruded ETFE Insulation**
M22759/44 **Silver Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**
M22759/45 **Nickel Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**
M22759/46 **Nickel Coated High Strength Copper Wire with Crosslinked, Extruded ETFE Insulation**
M22759/90 **Nickel Coated High Strength Copper Wire with Double Layer Tape Wrap Insulation**

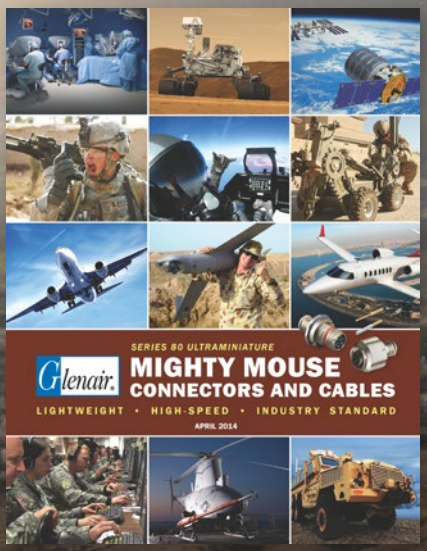


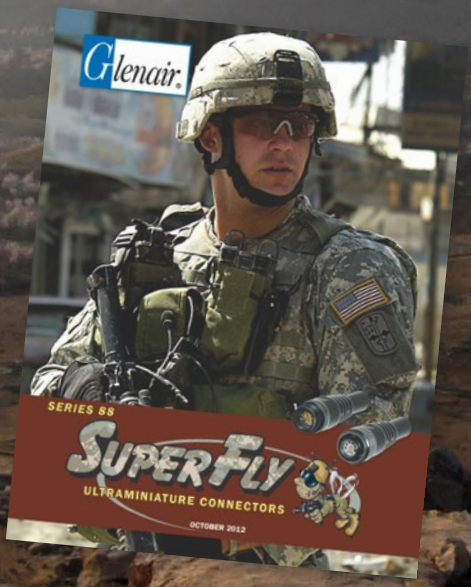
SERIES 80 MIGHTY MOUSE AND MORE

Ultraminiature Circular Connectors

save weight • save space • enhance performance







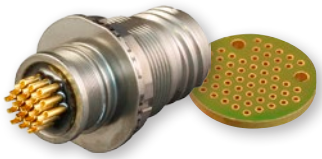
Glenair designs and manufactures the world's broadest and deepest selection of ultraminiature circular connectors for tactical field applications, reduced size and weight aerospace systems, mission-critical satellite payloads, robotic medical/surgical equipment and more. Our Series 80 Mighty Mouse has become a new industry standard—both in and outside the high-performance mil-aero marketplace—and is now used in numerous industrial applications as well. The Series 88 SuperFly™ is just our latest offering in our ultraminiature circular product family that continues to expand year-after-year to meet evolving requirements for small-form-factor I/O and board-level interconnects.

Mighty Mouse Connectors and Cables

- **67 contact arrangements ranging from 1 – 130 contacts**
- **MIL-DTL-38999 caliber environmental, mechanical, and electrical performance**
- **Ultraminiature #23 contacts set on .076" centers**
- **Size #20, #20HD, #16, #12, #8 signal, power, fiber optic and shielded contacts**
- **Discrete connectors and turnkey cable assemblies**

Series 80 Mighty Mouse: Half the size and weight of MIL-DTL-38999 with comparable ratings, features, and performance

The Series 80 Mighty Mouse Connector is designed for use in high-reliability, mission-critical applications—from commercial aerospace to soldier systems—that require robust environmental and EMC performance as well as reduced size and weight. The Series 80 Mighty Mouse connector offers comparable performance to MIL-DTL-38999 interconnects with up to 71% weight and 52% size savings for similar contact layouts. The industry-standard Mighty Mouse is a mature connector series with a proven range of catalog and custom configurations.



EMI/EMP filter-class connectors also available in every Mighty Mouse series

Series 80 Mighty Mouse *Environmental* Connectors

Series 800	Series 801	Series 802	Series 803	Series 804	Series 805
					
Light-Duty UNF Thread	Rugged Double-Start ACME Thread	3500 PSI AquaMouse	Fast-Mate Bayonet Coupling	Quick-Disconnect Push-Pull	Ratcheted Triple-Start

Series 80 Mighty Mouse *Hermetic* Receptacles

Series 800	Series 801	Series 802	Series 803	Series 804	Series 805
					
•Vitreous glass sealing •1X10^{-7} cc/sec maximum helium leak rate		•Solder-cup and PC tail terminations •304L stainless steel shells		•Alloy 52 iron alloy contacts •Solder-mount, square flange or jam nut	

SERIES 824

Mighty Mouse

LOCKING PUSH-PULL CONNECTORS

Introducing the new Mighty Mouse Series 824 Locking Push-Pull Connector: all the familiar size, weight and performance advantages of the industry-standard Mighty Mouse 804 push-pull connector with a revolutionary low-profile locking coupling mechanism. Glenair's primary design goal in the development of the locking 824 was to bring mil-spec caliber connector performance to locking push-pull applications. The Series 824 Locking Push-Pull provides superior sealing, excellent EMI protection, low-profile ergonomic mating and demating, and easy crimp contact termination. The locking push-pull mechanism delivers visual, tactile, and audible mating confirmation under even the most extreme field conditions. Built for long-term durability and reduced size and weight, the high-density Series 824 Locking Push-Pull connector far surpasses commercial caliber push-pull connectors.

- **Fast mating, quick-release coupling mechanism**
- **31 insert arrangements**
- **Integrated cable shield termination platform**

Specifications	
Current Rating	#23 5 AMPS, #16 13 A., #12 23 A.
Dielectric Withstanding Voltage	#23 500 VAC RMS, #12 and #16 1800 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C to +150° C
Shock / Vibration	100 g / 16 g
Shell-to-Shell Resistance, Nickel Plated	2 milliohms maximum
Durability	500 mating cycles
Breakaway Force	50 pounds minimum

Gold plated crimp contacts for #12 to #30 AWG wire

Glenair®

For more information contact Glenair at **818-247-6000** or visit our website at **www.glenair.com**

MIGHTY MOUSE

Cobra

The ultra-low profile EMI/RFI plug and backshell assembly

Innovative shielded low profile right angle connector plug and backshell assemblies reduce clearance requirements without compromising ruggedness or shielding performance. Available in Series 801 double-start, Series 804 QDC push-pull, and Series 805 triple-start, Cobra assemblies provide optimal low-profile cable routing and legendary Mighty Mouse connector performance in a single package. Each Cobra assembly is equipped with a removable rear cover and gasket for easy crimp or solder contact termination of the connector. Integrated low-profile backshell is equipped with an EMI/RFI shield termination platform and a shrink boot lip. The ultra-lightweight assembly may be clocked in eight different angle orientations for additional flexibility in cable routing. Connectors are equipped with polarization keying to prevent mis-mating. Glenair Mighty Mouse Cobra mates with available square flange and jam nut receptacles from each respective connector series. Fourteen contact arrangements are available, all with Size #23 contacts from shell size 5 to shell size 21 with 3-130 contacts respectively. Connector shells are aluminum alloy or stainless steel.

SPECIFICATIONS

- Current Rating: #23 5 Amps
- Test Voltage (DWV) #23: 500 VAC Sea Level
- Insulation Resistance: 5000 megohms minimum
- Contact Resistance: 73 millivolt drop at 5 Amp test current
- Mating Cycles Series 801 and 804: 2000; Series 805: 500
- Operating Temperature: -55° C to +150° C
- Shielding Effectiveness: 50 dB min from 100MHz to 1000MHz.
- Magnetic Permeability: 2.0µ
- Vibration: 37g / Shock: 300g
- Immersion, mated: 1meter water immersion for 1 hour

- **Space-saving design features one-piece machined and brazed connector shell and right angle backshell for minimum height and optimal EMI performance.**
- **Master key clocking enables easy cable entry/ exit routing in eight angles**
- **Removable rear cover and gasket provides easy access to end of connector for crimp or solder contact termination**

High-Speed Mighty Mouse Connectors and Cables

Fluropolymer PFA Insulators • Ultra-Twinax
Size #8 Quadrax/Twinax • Size #8 El Ochito®

Mighty Mouse High-Speed and Ultra-Twinax connectors: rugged environmental sealing and high-speed matched impedance electrical performance in an ultraminiature package

Combine Mighty Mouse with—or even eliminate—low-performance commercial high-speed connectors

Glenair Series 80 Mighty Mouse connectors are the new industry standard for high-performance ultraminiature connectors. Now Glenair expands the Mighty Mouse line to include connectors optimized for high-speed matched impedance performance. The Mighty Mouse High-Speed product line features Fluoropolymer insulators for superior electrical performance in protocol-specific applications such as eSATA and USB 2.0/3.0.

Mighty Mouse Ultra-Twinax connectors utilize size #12 Twinax contacts for ultra-high speed differential pair applications such as LVDS and CML.

MIGHTY MOUSE *HIGH-SPEED*

Series 80 Mighty Mouse *High Speed* Connectors with Fluoropolymer PFA Insulators

- **For high-speed protocols: eSATA, 10GBASE-T, USB 2.0 / 3.0**
- **Fluoropolymer PFA insulators for superior insertion loss and balanced impedance**
- **Series 801 double-start ACME thread and Series 804 push-pull quick disconnect connectors available**
- **Discrete components or overmolded cordsets**

MIGHTY MOUSE *ULTRA-TWINAX*

Series 80 Mighty Mouse *Ultra-Twinax* Connectors with Size #12 Twinax contacts

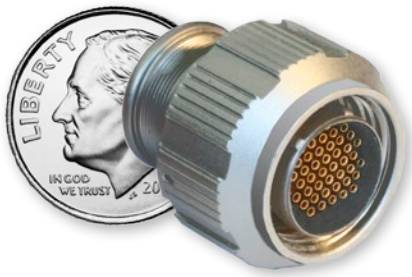
- **For ultra high-speed differential pair applications: LVDS, CML**
- **Size #12 Twinax and hybrid contact arrangements**
- **Series 801 double-start ACME thread connectors**
- **Discrete components or overmolded cordsets**
- **Frequency range from DC to 10GHz**

MIGHTY MOUSE WITH SIZE #8 QUADRAX, EL OCHITO® AND DIFFERENTIAL TWINAX CONTACTS

Series 805 Mighty Mouse plug with size 8 Quadrax contacts

- **Differential Twinax contacts for 100 Ohm serial data transmission**
- **Quadrax contacts for 100BASE-T Ethernet**
- **Arrangements for 1, 2, 3, 4 or 5 snap-in, rear-release contacts**
- **Lightweight, low profile**
- **Comprehensive range of assembly tooling**
- **Available for Series 801 (double-start) and 805 (triple-start) Mighty Mouse connectors**
- **El Ochito®: the ultimate ethernet contact**

Mighty Mouse High Density (HD) Connectors and Cables



811-001-06ME9-42SA
Series 811 Plug

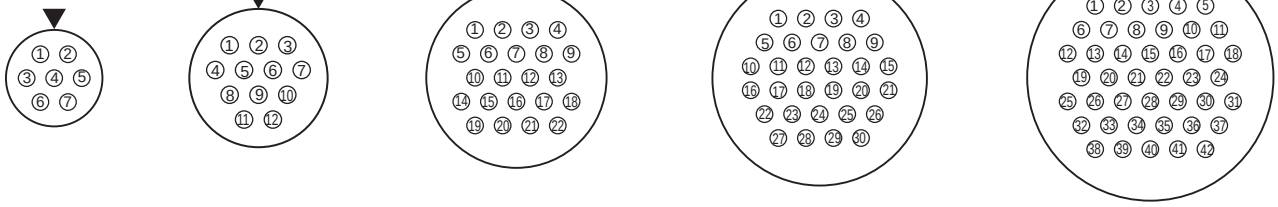
811-003-07ME9-42PA
Series 811 Receptacle

- **High Density Micro TwistPin Contacts set on .050" centers deliver over twice the density of standard Series 80 Mighty Mouse**
- **7 to 42 Contacts**
- **Water Resistant to 1 meter**
- **Double-start ACME threaded coupling**

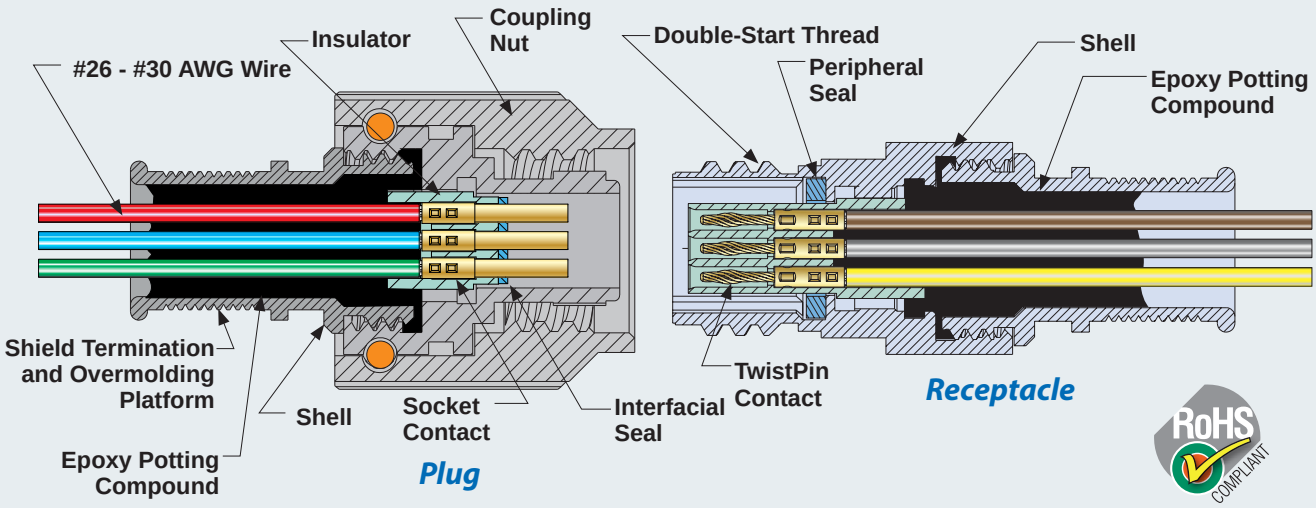
Mighty Mouse high density (HD) connector delivers twice the size and weight savings compared to standard Mighty Mouse

SERIES 811 MIGHTY MOUSE HD CONTACT ARRANGEMENTS

Pin insert shown, use reverse order for socket inserts.



5-7	6-12	7-22	8-30	9-42
7 Contacts	12 Contacts	22 Contacts	30 Contacts	42 Contacts



USB SuperSeal™ Small Form-Factor Connectors

RJ45/USB SUPER SEAL

Series 801 Mighty Mouse Plug and Receptacle with SuperSeal® Micro-B USB

Crimp contact micro-USB connectors with outstanding environmental performance and EMI/RFI grounding. Smallest form-factor high-performance solution for integration of the commercial USB interface

- **Significant size and weight reduction compared to MIL-DTL-38999 type USB/ RJ45 solutions**
- **Rear-release crimp contact termination as well as USB/RJ45 jumper accommodation**
- **Superior sealing, IP67, in unmated condition compared to other available environmental circulars**
- **Superior grounding for electrostatic discharge and EMC**
- **Superior cable shield termination with integrated banding platform**
- **Optional spring-loaded protective covers for environmental protection of junction boxes and switches**
- **Wide range of high speed Ethernet/ network protocols supported, including USB 2.0**

Test Description	Mighty Mouse USB Performance Requirements/Specifications	Procedure Per MIL-DTL-38999 or Other Standard
Dielectric withstanding voltage	Maximum leakage current = 2 milliamperes No evidence of electric breakdown or flashover	4.5.11.1 or 4.5.11.2 IAW EIA-364-20, Method A
Insulation resistance	At ambient temperature: >5000 megohms between any pair of contacts and between any contact and the shell. after altitude immersion = 1000 megohms min. after humidity = 100 megohms min. At elevated temperature: >1000 megohms	4.5.10.1 and 4.5.10.2 IAW EIA-364-21
Contact resistance	Terminal-to-terminal resistance of vd connector contacts shall not exceed 0.050 ohms.	4.5.14
Mating durability	500-1000 cycles depending on plating, with no mechanical damage. Dielectric, contact resistance and air pressure requirements as described above shall be met after 500-1000 mating cycles.	4.5.8
Contact retention	Individual contacts capable of withstanding at least 10 pounds axial load applied uniformly at one pound per second.	IAW EIA-364-29
Vibration and Shock	37 g's random vibration, 300 g's shock. No electrical discontinuity, no disengagement of mated connectors, backing off of the coupling mechanism, or evidence of cracking, breaking, or loosening.	4.5.23
Temperature cycling	-65°C to 175°C or 200°, depending on finish. No blistering, peeling or separation of plating or other damage detrimental to the operation of the connector.	4.5.4 EIA364-32, Test cond. A
Salt spray	5% solution, 34°–36°C. 48–1000 hours, depending on finish. Unmated connectors show no lifting of plated coating or exposure of basis material under 3X magnification which adversely affects performance.	4.5.13 EIA-364-26
Humidity	Cycle wired, mated connectors between 25 °C at 80 % and 65 °C at 50 %. Ramp time = 0.5 hour, dwell = 1.0 hour. 24 cycles.	4.5.26 EIA364-31, Method IV
Water immersion	1 Meter for 1 Hour, mated.	MIL-STD-810 Method 512
EMI Shielding	Series 801: Good • Series 804: Very Good • Series 805: Excellent	4.5.28 EIA-364-66

SERIES 88

SuperFly®: the ultimate nanominiature tactical connector

The ultimate high-performance connector series: ready for the toughest (and smallest!) applications you've got

Glenair Series 88 *SuperFly*® represents a perfect storm of high-performance contacts, shells, wires, termination and mating technologies. *SuperFly*® is the only connector series in existence that combines the weight-saving and performance advantages of nanominiature, microminiature and AS39029 type (size #23) contacts in a precision package made to order for battlefield and other high-performance applications. Available in factory-terminated cordsets, single-ended pigtails, and discrete PCB termination receptacles for complete flexibility in cable and box configurations. *SuperFly* cordsets ship with ultra-flexible, high-speed GhostWire™ cabling, your choice of threaded or quick disconnect coupling and a wide-range of contact arrangements from 3–44 contacts. PCB receptacles are available in straight and right-angle configurations.

Rear-panel mount push-pull and threaded PCB receptacles now available

SUPPORTED CONTACTS

#23 AS39029 Type 5 Amp Crimp Contact

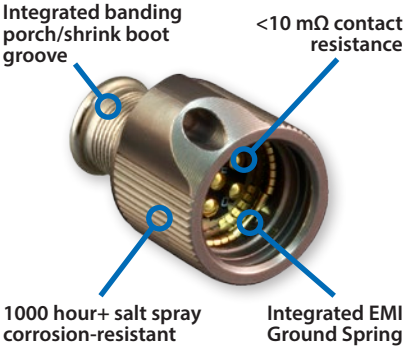
#24 Micro-D 3 Amp TwistPin Contact

#30 Nano-D 1 Amp TwistPin Contact

SERIES 152 • MIL-DTL-55116 TYPE

HiPer 55116 Audio Frequency Connectors

Series 152 HiPer 55116 connectors offer significant performance advantages for modern soldier communication systems



Fully intermateable and interoperable with MIL-DTL-55116 connectors

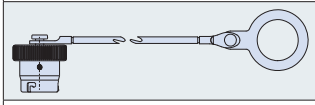
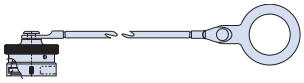
- **Intermateable and interoperable with standard MIL-DTL-55116 connectors**
- **Low contact resistance: less than 10 milliohms**
- **Integrated EMI ground spring provides improved 2.5 milliohm shell-to-shell conductivity performance**
- **IP68 rated sealing in mated and unmated condition, prevents water ingress into radio equipment**
- **1,000 hour+ salt spray corrosion resistance**
- **Integrated cable shield termination band porch**
- **Superior 100 pound cable pull test rating**

MIL-DTL-55116 Type Audio Frequency Connectors

High reliability performance for mission-critical communication systems

The MIL-DTL-55116 audio frequency connector has been used in tactical radio systems for generations. Now, this reliable, field-cleanable interconnect has been specified for use in the Joint Tactical Radio System—the next generation voice and data radio for U.S. military field operations, ensuring its continued use and service to soldiers, sailors and airmen. The Glenair MIL-DTL-55116 Type connector is manufactured in our Glendale, California factory with materials and processes guaranteed to result in the best performing and most reliable connector system available. Best of all, these products—from crimp and solder termination cable plugs, to ruggedized and sealed receptacles are in-stock and available for immediate, same-day shipment.

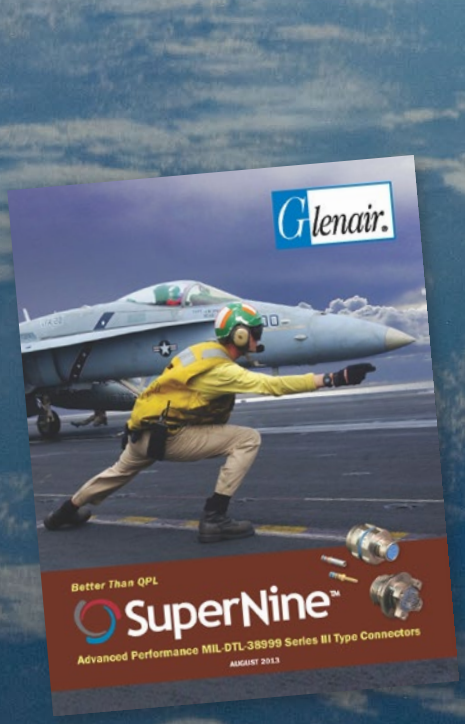
Series 151 standard version offers performance IAW MIL-DTL-55116			
Test Description	**Procedure Per MIL-DTL-55116**	**Test Description**	**Procedure Per MIL-DTL-55116 Or Other Standard**
Dielectric withstanding voltage	4.7.1	Pull test	4.8.7
Insulation resistance	4.7.2	Bounce	4.9.1
Contact resistance	4.7.3	Vibration	4.9.2 and MIL-STD-202G, method 201A
Contact depression	4.8.1	Drop	4.9.3
Air pressure	4.8.2	Temperature cycling	MIL-STD-202, method 107, test condition A
Mating durability	4.8.3	Salt spray	MIL-STD-202, method 101E, test condition B
Contact retention	4.8.4	Humidity	4.9.6 and EIA-364-31, method IV (step 7a not required)
Compression	4.8.6	Water immersion	4.9.7

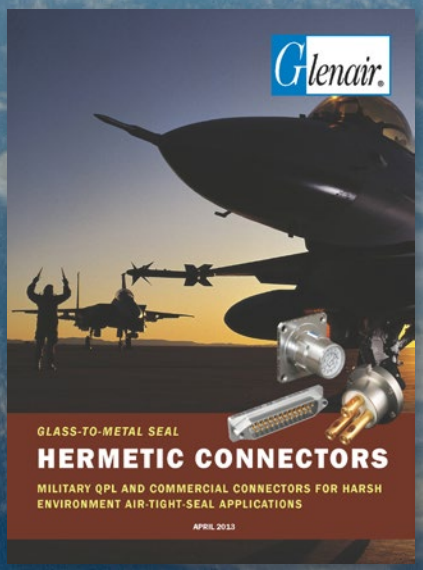
Series 151 Standard MIL-DTL-55116 Type Audio Connectors - Product Selection Guide	
	**151-001 Standard MIL-DTL-55116 type audio plug, field-servicable with wire strain relief and rigid contacts**
	**151-002 Standard MIL-DTL-55116 type audio plug with overmold adapter and rigid contacts**
	**151-003 Standard MIL-DTL-55116 type radio-mount Jam Nut receptacle with non-rigid spring contacts**
	**151-004 Standard MIL-DTL-55116 type in-line receptacle with wire strain relief and non-rigid spring contacts**
	**667-374 Protective Cover for 151 Series Plugs**
	**667-355 Protective Cover for 151 Series Receptacles**

QPL AND COMMERCIAL

Mil-Aero Circular Connectors

Environmental, hermetic, and filter class





From satellites to ruggedized shipboard and aerospace applications, Glenair supplies virtually every power, signal, or high-speed cylindrical connector configuration currently in active use. From our QPL'd MIL-DTL-38999 hermetic connectors to our revolutionary SuperNine® family of high-performance D38999 Series III type connectors, Glenair is at the forefront in the manufacture and supply of mission critical mil/aero circulars.

BETTER THAN QPL

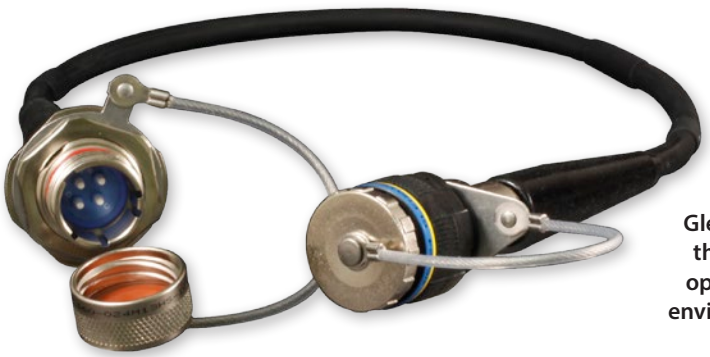
SuperNine®: Glenair advanced-performance MIL-DTL-38999 Series III type connectors

SuperNine® is the industry's most complete and advanced D38999 Series III type connector family. From standard environmental-class connectors with improved durability and ease-of-use, to EMI/EMP filter connectors with innovative flange and PC tail termination configurations, SuperNine® offers military, commercial aerospace and other customers that have standardized on Series III technology the opportunity to improve interconnect system performance and resolve a wide range of persistent electrical, environmental, and mechanical performance problems —all with catalog connector solutions backed by Glenair's high-availability business model.

SuperNine® offers improved durability, sealing, cost-of-ownership, ease of shield termination, a broader range of PC tail configurations, environmental and hermetic bulkhead feed-throughs, connector savers, off-the-shelf EMI/EMP filter connectors and more—all supported with Glenair's well-established reputation for service, support, and fast turnaround.

THE SUPERNINE® TECHNOLOGY PROMISE

- **Across-the-board improvements in mating-cycle and contact durability**
- **Advanced ease-of-use features such as integrated shield-termination band porches and threaded PC-Tail standoffs**
- **High-performance improvements in every connector class—from filters to fiber optics**



Glenair SuperNine® connectors in action: in this example, a pair of our advanced fiber optic interconnects cabled-up in a turnkey, environmentally sealed point-to-point jumper

MILITARY/AEROSPACE

Environmental Connector Specials

Problem-solving mil-aero cylindrical connectors from the most accommodating engineering and manufacturing team in the interconnect industry—we say yes to specials!

ENGINEERED SOLUTIONS AND EXOTIC DERIVATIVES

- **High-density, push-pull, lanyard release, high temperature, ground plane, compliant pin, zero extraction force, thru-bulkhead, space-grade, gender changers, modified flange, or any other modification needed to solve a complex interconnect challenge**
- **Liberal policies on NRE costs, minimum order quantities and delivery schedules**

Space-grade zero extraction force connector for satellite payload deployment

High-density contact arrangement with size #23 contacts

Unique coupling nut castellations and coverings

Special-purpose connector go-betweens and buffers

Glenair®

HIGH-RELIABILITY

Glass-sealed Hermetic Connectors

QPL qualified

RoHS COMPLIANT

Resolve gas, moisture and particle ingress problems with advanced-performance glass-sealed hermetic connectors

VITREOUS GLASS TECHNOLOGY ADVANTAGES

- **Superior pressure resistance to 32,000+ PSI**
- **Higher resistance to extreme operating temperatures to 260°+ C**
- **Superior mechanical strength**
- **No material breakdown or aging over time**
- **Helium leak rate <1X10^{-7} cc/sec to 1X10^{-10}**

CIRCULAR GLASS-SEALED HERMETIC CONNECTORS AVAILABLE WITH ACCELERATED LEAD TIMES

MIL-DTL-26482

MIL-DTL-83723

MIL-DTL-38999 (QPL)

MIL-DTL-5015

Series 80 Mighty Mouse

SERIES 240

EMI/EMP Filter Connectors

Glenair manufactures a full range of filter connectors for use in EMC/EMP management of electronic systems and interconnect cabling. All connectors are designed in accordance with applicable connector specifications, and are designed to mate with plugs with the same insert configuration and opposite contact gender. Planar filter arrays and TVS diodes may be integrated into both standard catalog as well as build-to-order configurations. Glenair's state-of-the-art diode burn-in process tests leaded and surface mount diodes with leakage current monitored throughout the entire test procedure ensuring field reliability.

- **Planar, multilayer ceramic capacitive filters, with and without transient voltage suppression diodes**
- **C and Pi electrical configurations**
- **PC tail, crimp or solder cup termination**
- **35 – 240,000 pF capacitance**
- **Fast and reliable diode burn-in and test services**
- **Turnkey in-house manufacturing of all filter connector elements and processes**

Table I: Capacitor Array Code / Capacitance Range

Class	Pi - Circuit (pF)	C - Circuit (pF)
X	160,000 - 240,000	80,000 - 120,000
Y	80,000 - 120,000	40,000 - 60,000
Z	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

ARINC 600 size 2 filter connector. Glenair also manufactures narrow-profile size 1 and double-wide size 3. All configurations are environmentally sealed for rugged airframe applications.

SUPERSEAL

Glenair®

Ruggedized RJ45 and USB Connectors for Aerospace, Defense and Other Applications

Triple-start mating MIL-DTL-38999 type connectors with IP68 sealing (mated condition), robust insert-to-shell grounding, and a complete range of wire, cable, and circuit board terminations

MIL-DTL-38999 Series III with sealed RJ45

MIL-DTL-38999 Series III with USB jack and jumper

High-capacity, high-speed USB data stick

- **Superior sealing—IP67 unmated—for complete system protection against water, sand and dust**
- **Highly durable RJ45 design, including enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance**
- **Shielded/grounded coupler designs in both receptacle and plug connectors**
- **Crimp, solder-cup, PC tail, and Quadrax contact/wire termination options**
- **RJ45 plug and/or jack interface options available in Cat 5e or Cat 6a**
- **Intermateable with other MIL-DTL-38999 type RJ45 field-duty connectors**

SERIES 234-105

MIL-DTL-38999 Series IV*

*Mil-Spec qualification pending

Time-tested, industry standard breech-lock connector

From vertical launch fire-control, tracking, and multi-target missile systems to rugged industrial applications such as mining/gas-pressure blasting, the Glenair MIL-DTL-38999 Series IV type connector is the ultimate solution for positive and reliable breech-locking connector performance. Built IAW MIL-DTL-38999 Series IV, Glenair series 234-105 plug and receptacle connectors are available in shell sizes 11–25, with all MIL-STD 1560 insert arrangements as well as high-density and hybrid shielded contact arrangements. The heart of the 234-105 connector is its revolutionary coupling nut/locking technology which provides familiar breech-lock mating augmented with both primary and secondary locking mechanisms. Environmentally sealed, EMI grounded, and outfitted with pin-to-pin mating protection to prevent circuit shorts and mechanical damage, the Glenair 234-105 delivers unsurpassed reliability and anti-demating performance.

- **IAW MIL-DTL-38999 Series IV**
- **Optimized for SWAMP area applications**
- **Quick-disconnect 90° breech coupling mechanism**
- **Visual, audible and tactile full-mate indicators**
- **Integrated EMI grounding fingers**
- **-65°C to 200°C operating temperature range**

Series IV solutions are available in environmental, filter, and hermetic class configurations in shell sizes from 11–25 supporting the full range of MIL-STD-1560 insert arrangements

Glenair's complete Series IV solution includes protective covers and dummy stowage receptacles—available in all sizes, materials, and plating configurations.

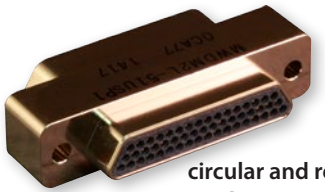
SAV-CON®

Connector Savers and Bulkhead Feed-Thrus

The smart solution for preventing contact damage and extending the service life of cable assemblies and box and panel-mount receptacles

- **Sav-Con®s for every Military Standard connector**
- **Bulkhead feed-thrus for environmental, filter and hermetic applications**
- **Pin/pin, pin/socket, and socket/socket versions**
- **Traditional plug-receptacle savers, as well as in-line versions and gender changers**
- **Available EMI/EMP filter savers and adapters**
- **Optional locking mechanism**

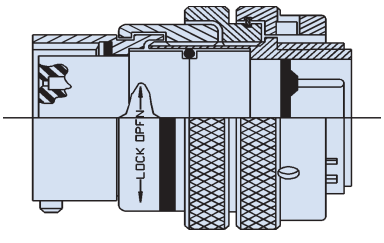
Series changers and gender changers available in both Sav-Con® and bulkhead feed-thru configurations



circular and rectangular configurations available

Sav-Con® Lock Ring prevents accidental disengagement of bayonet coupled connectors

Locking a Sav-Con® Connector Saver to a receptacle can prevent accidental or unauthorized unmating. This can ensure that the equipment receptacle remains in its unused condition prior to delivery.



QUALIFIED

MIL-DTL-28840
Connectors and Accessories

MIL-DTL-28840 qualified connectors in-stock and ready for immediate, same-day shipment

- **High density, scoop proof contact arrangements**
- **Flange mount, box mount, jam-nut and in-line receptacles**
- **Straight, 45° and 90° strain reliefs and backshell assemblies**
- **Sav-Con® connector savers**
- **MIL-DTL-28840 qualified**
- **Additional glenair commercial part numbers with features not available in the mil-spec**

C

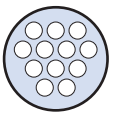
Qualified military standard electrical connectors and accessories for shipboard—and all rugged environmental applications

Performance Specifications	
Current Rating (Maximum)	Size #20 Contact with 20AWG wire=7.5Amps, with 22AWG wire=5.0Amps
Test Voltage (DWV)	1000 VAC RMS at sea level. Test per EIA-364-20
Insulation Resistance	5000 megohms minimum (at ambient temperature) per EIA-364-21
Contact Resistance	Per SAE-AS39029
Operating Temperature	-55° C to +200° C
Immersion	per test method EIA-364-09
Shock	in accordance with MIL-S-901 grade A
Vibration	per EIA-364-28 test procedure
Magnetic Permeability	2.0 µ (Aluminum), 5.0 µ (Stainless Steel) maximum; ASTM-A342/A342M

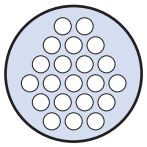
Splined MIL-DTL-28840 connector-to-backshell interface is ideally suited for heavy backshells and cables

AVAILABLE CONTACT ARRANGEMENTS

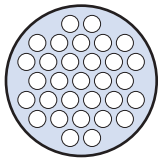
Shell Size 11
7 Contacts



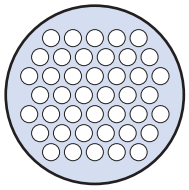
Shell Size 13
12 Contacts



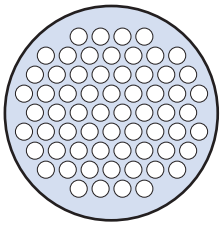
Shell Size 15
21 Contacts



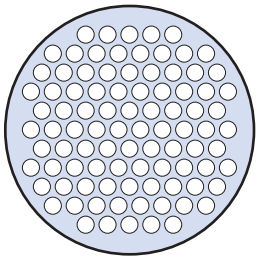
Shell Size 17
31 Contacts



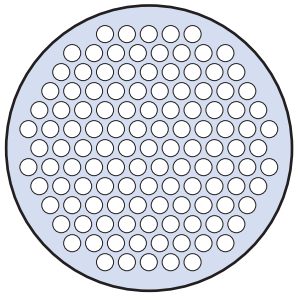
Shell Size 19
42 Contacts



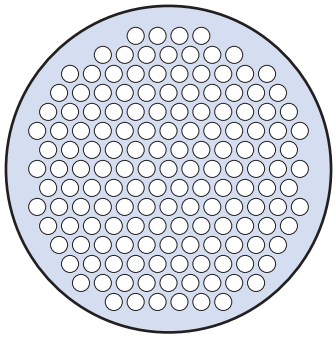
Shell Size 23
64 Contacts



Shell Size 25
92 Contacts



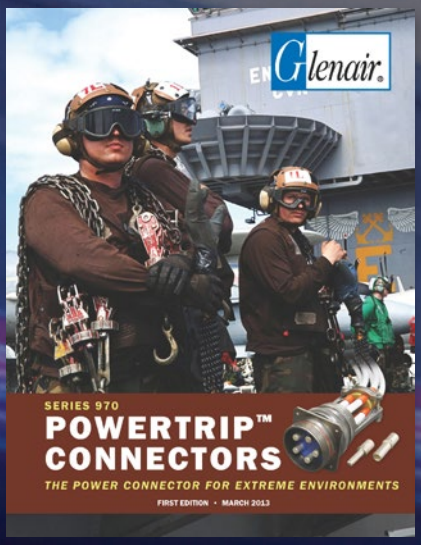
Shell Size 29
121 Contacts

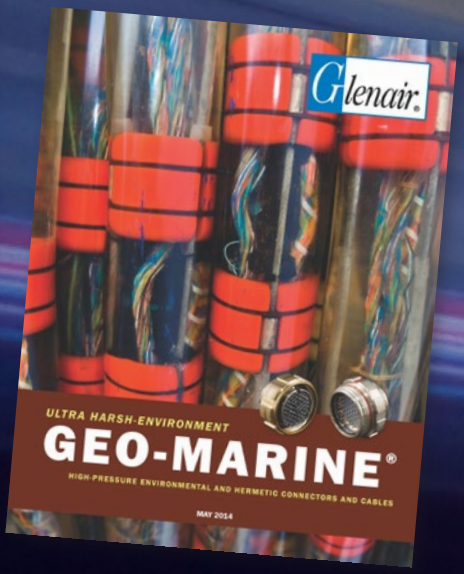


Shell Size 33
155 Contacts

VG QUALIFIED AND COMMERCIAL

Industrial-Strength Power and Signal Connectors





Glenair offers a "no gap" family of ruggedized power and signal interconnect solutions for industrial, rail, geophysical and power industry applications. No other interconnect manufacturer in the world supplies such a broad range of connectors, backshells, wire protection conduit, shrink boots, tools and more to meet harsh-environment industrial requirements. All our solutions are backed with our high availability customer service model, which includes in-stock inventory for thousands of critical part numbers, no dollar or quantity minimum orders, free samples upon request, free engineering and application development and more. Contact the factory or our industrial/rail product team for application engineering assistance.

SERIES ITS & DERIVATIVES

Circular industrial power and signal connectors for rugged applications—from mining equipment to military vehicles

- **Dozens of proven connector technologies for harsh application environments**
- **Hundreds of power and signal contact arrangements (crimp and solder)**
- **Threaded, reverse bayonet, and innovative latch-and-lock coupling technologies**
- **Flame-resistant, caustic substance-free material choices for RoHS and other compliance standards**

Circular Reverse-Bayonet and Threaded Coupling Connectors

Series ITS - *Reverse-Bayonet Power and Signal*
Series ITS-RG - *RadGrip™ Rubber Coupling Nut Circular*
Series FRITS - *Flame-Resistant Insert for Rail Applications*
Series IT - *Threaded Coupling Power and Signal*
Series ITH - *Rigid Insert / Mechanical Contact Retention*
Series ITK - *High-Temperature Ceramic*
Series ITZ - *Triple-Start Thread Power and Signal*
Series IFO - *Reverse-Bayonet Fiber Optic*
Series IGE - *High Currrent, Low Voltage Single Pole*
Series 901- *High Current Medium Voltage Circular*
Series 500 - *Reverse-Bayonet Single-Pole High Voltage*
Series IPT - *Standard Bayonet Power and Signal*
Series IPT-SE - *Standard Bayonet Crimp Contact*

Series IT, ITS and derivative connector families are available with three plug coupling nut designs: Standard, Arctic, and rubber-covered RadGrip™

SERIES IRT • ITS 500 • ITS 901 • UJ

Rugged high current/high voltage power connectors for rail and industrial applications

Connection of power cables in rolling stock is a critical application. Beyond specific parameters like voltage, current, or watertight sealing, other application requirements must be considered: environment and operating conditions, robustness, handling, and other specifications.

The IRT connector series is one of the most popular connection systems used around the world, and is able to satisfy all of the common parameters from different railway authorities. Glenair is able to develop customized connectors for specific applications, certifying the products according to unique customer requirements.

Innovative tool-free locking and latching mechanisms

SERIES IRT RECTANGULAR MULTIPOLE HIGH VOLTAGE TRACTION MOTOR CONNECTORS

Plug Connector

Receptacle Connector

The Glenair IRT series is a rectangular power connector for harsh environmental conditions. Available with three, four and six contacts, typical for traction motor applications. Suitable for single cables AWG 4 – 373MCM (35 to 185 mmq). Working voltage up to 3000 Vcc.

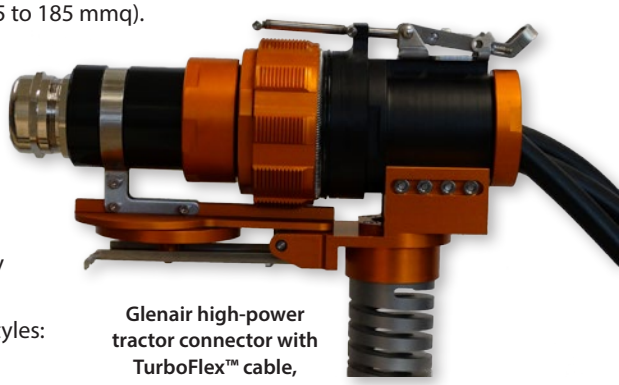
Two mating systems offered:

- Screws, for light weight and reduced dimensions
- Lever system with secondary lock, easy to use in difficult positions.

The IRT Series is suitable for separated power cables, with or without shielding, ground body available with a copper plait.

Available with three different cable backend styles:

- Metallic gland
- Clamp with strain relief
- EMC shield and gland



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

SERIES 970

PowerTrip™

Reduced size and weight power connectors

Lightweight plug with ratcheting coupling nut and LouverBand contacts

Keyed receptacle with superior sealing and EMI shielding

- **Fast, easy mating with triple-start ACME thread: 360° turn for full mating**
- **Reduced size and weight compared to 5015/VG95234 solutions**
- **LouverBand sockets for improved current ratings and longer life, up to 2000 mating cycles**
- **Splined backshell interface for improved backshell attachment and EMI shielding**
- **Ratcheting coupling nut for secure mating**
- **Operating temperature -65° C to +200° C**
- **Hermetic and filter options available**

The Series 970 PowerTrip™ offers improved performance compared to standard 5015 type power connectors: higher density and lighter weight packaging, rapid mating and demating triple-start threaded coupling, and extremely rugged splined and threaded backshell attachment interface

RJ45/USB SUPERSEAL™

Ruggedized bayonet and reverse-bayonet RJ45 and USB connectors for industrial/rail applications

Glenair offers the world's most comprehensive line of ruggedized RJ45 Ethernet and USB connectors in 5015 and 26482 type connector packaging. The Series ITS reverse-bayonet and IPT bayonet RJ45/USB SuperSeal™ lines offer fast mating and demating, resistance to vibration and shock, as well as superior sealing for complete protection against water, sand and dust in harsh environment applications. High-performance RJ45 and USB inserts feature integrated shielding and grounding in both plug and receptacle connectors plus crimp, solder-cup, PC tail and Quadrax contact/wire termination options.

- **Proven reverse-bayonet mating for vibration and shock resistance**
- **Superior sealing—IP67 in unmated condition—compared to other available environmental circulars**
- **Rear-release crimp contact termination and USB/RJ45 jumper accommodation**
- **Superior grounding for electrostatic discharge and EMC**
- **Superior cable shield termination with integrated banding platform**
- **Optional spring-loaded protective covers for environmental protection of junction boxes and switches**
- **Wide range of high speed Ethernet/ network protocols supported, including USB 2.0 and RJ45**

In addition to ITS series (5015 type) reverse-bayonet solutions, low-profile series IPT bayonet RJ45 SuperSeal™ connectors and integrated box assemblies are also available

Octobyte™

The faster 4/8 pole interconnect system for industrial Ethernet data applications

Glenair series ITH connector with Octobyte™ contacts is available with fully dedicated Ethernet protocol or in a combo version where a mix of signal-power and Ethernet is required. RoHS compliant, IP67 (IP68 on request) exceeds performance expectations typical in harsh environmental applications found throughout rail and industrial markets.

OCTOBYTE™ contacts are vibration resistant and designed to work with Ethernet cables from CAT 5 to CAT 7A, MVB-WTB, RG58 Coax.

ITH connectors with Octobyte™ contacts are easy and fast to assemble, making them the best solution for harsh-environment applications where signal reliability is a must.

Tested for compliance according to EN50173-1 standards set for CAT5E and CAT7. Testing was conducted using 12 jumpers, each 7.5 meters in length for a total of 90 meters.

- **Commuter rail**
- **Passenger information systems (audio/video/ digital displays)**
- **Monitoring and control (braking/doors/lighting/ data)**
- **Heavy industry**
- **Data control**
- **Safety systems**
- **Tested in accordance with:**
  ISO F0 STP: CAT 7A
  EN50173-1 F600-STP: CAT 7
  EN50173-1 D STP: CAT 5E

Glenair®

SERIES 22
Geo-Marine®

High-pressure harsh-environment connectors and overmolded cables for towed array and other high-pressure/submersible applications

Designed for use in oceanographic, geophysical and other severe industrial environments, Glenair Series 22 Geo-Marine® Connectors and Cables are the ultimate harsh-environment power and signal connector solution. Built to withstand hydrostatic pressures up to 5,000 PSI and exposure to extreme temperatures and corrosives, the Series 22 Geo-Marine® is ideally suited for applications such as US Navy towed array sonar systems, military land vehicles, submersibles and ROV's, offshore-oil drilling equipment, seabed exploration, pipeline inspection systems, well monitoring equipment, and digital seismic streamers.

Geo-Marine®

- **Marine Grade 316 stainless steel machined shells and Naval Bronze coupling rings**
- **High-pressure environmental and hermetically sealed receptacles for field applications**
- **Power and signal contact arrangements from 2 to 128 contacts**
- **Anti-vibration ratcheted coupling nuts with castellated knurling**
- **Available Viton® overmolded cable assemblies**

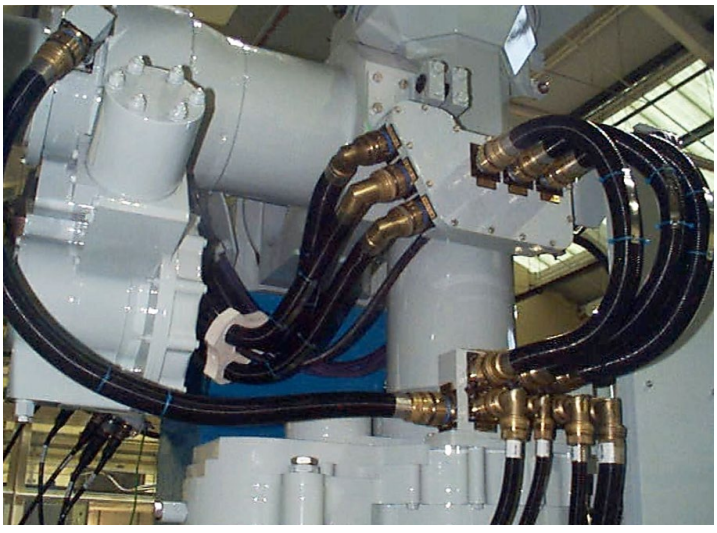
Geo-Marine® plugs are equipped with arctic coupling nuts—made from marine-grade naval bronze—with easy-to-grip castellated knurling and a powerful ratcheted anti-decoupling mechanism which guarantees reliable mating and demating performance in even the harshest environments. Supplied as discrete connectors—or more typically in build-to-print overmolded cable assemblies.

MARINE BRONZE

Seacrow Connectors

For geophysical/offshore and other harsh-environment applications

Glenair manufactures connectors qualified to VG96929, VG95234 and VG95328 standards. These connectors are mostly used in harsh-environment military applications for ground vehicles and ground systems. Our new Marine Bronze version increases the level of robustness of these connectors to be succesfully used in all severe environment navy installations, as well as off-shore platforms, sea ports, geological and oceanographic applications.



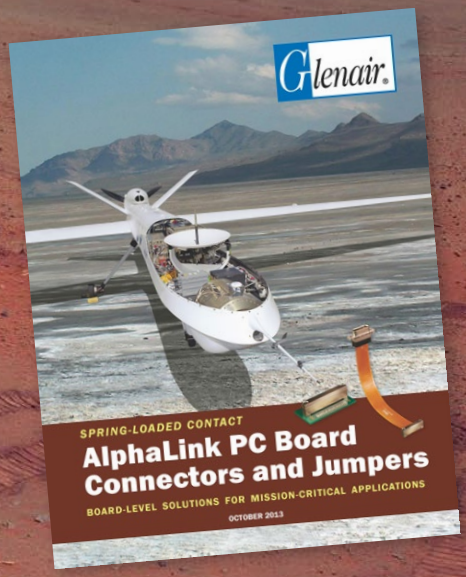
- **Marine bronze alloy for superior corrosion resistance in seawater and other harsh environments**
- **Ideal for shipboard and offshore drilling applications**
- **Available in Series ITS (5015 reverse-bayonet), Series IPT (26482), Series IGE (Single-pole high-power VG95234) and Series IT (5015 threaded)**
- **IP67 environmental sealing in mated condition; IP68 available**
- **Hundreds of available contact arrangements for both power and signal as well as hybrid applications**

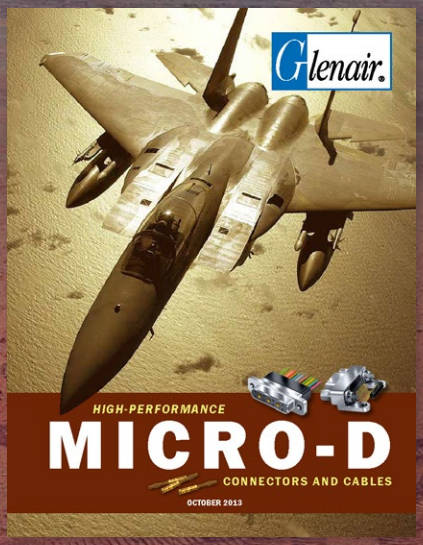
  • 1211 Air Way, Glendale, CA 91201 • 818-247-6000 • www.glenair.com • U.S. CAGE code 06324

QPL AND COMMERCIAL

Rectangular Connectors

From nano and micro to D-subminiature—the industry's best performance and availability





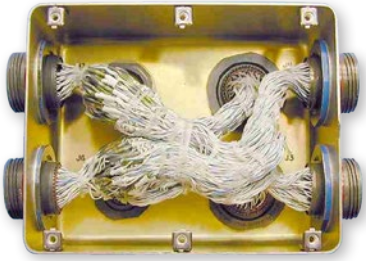
Glenair manufactures all of the popular industry-standard rectangular connectors used in military and aerospace applications, including special high-performance versions of the M24308 D-Sub and our revolutionary Series 79 Micro-Crimp connector. We offer a small form factor rectangular connector for virtually every I/O and wire-to-board requirement including MIL-DTL-83513 Micro-D subminiatures and MIL-DTL-32139 Nanominiature. All of our rectangular connector products are available in filter and hermetic versions, as well as with flex circuit terminations. Point-to-point cordsets, pigtails, and build-to-print harnesses are Glenair specialties.

SERIES 171

AlphaLink®

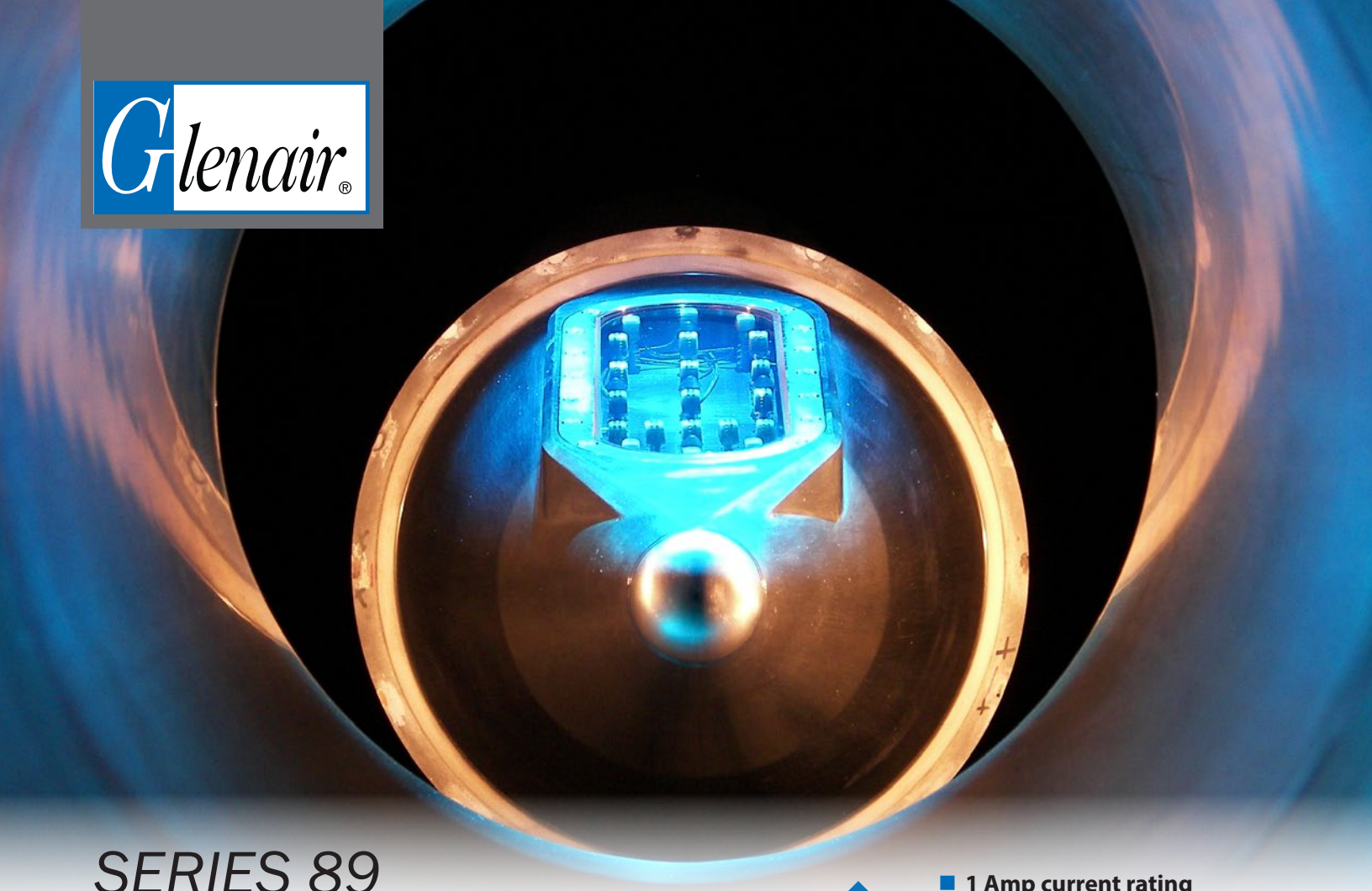
Board-level spring-loaded-contact connectors and turnkey flex jumpers

AlphaLink SL is a high-performance, solderless board-level connector technology developed by Glenair that significantly expands board-level interconnection options for users of mil-spec caliber connectors. Precision-machined and EMI shielded, these ultra lightweight PC tail, solder cup, and/or pigtail equipped connectors are designed for high-reliability applications that require avionic system levels of vibration and shock tolerance. Ultra low-profile and high-density, AlphaLink SL connectors are equipped with 2–3 Amp spring-loaded contacts and may be ordered either as discrete connectors or in turnkey flex jumpers with Glenair high-reliability I/O connectors. Glenair is perfectly positioned to provide the entire solution with in-house manufacturing for every component part—from contacts and connectors to rugged polyimide-based flex. AlphaLink SL flex jumpers are available with Series 80 Mighty Mouse and Series 88 SuperFly ultraminiature and nanominiature circular connectors, as well as Micro-D subminiature, Series 79 Micro-Crimp, and nanominiature rectangular connectors. A wide range of insert arrangements, from 4–40 contacts is available.



Flex offers many advantages over conventional wire, including reduced size, weight, and complexity.

- **Spring-loaded, solderless board-level connector**
- **PC tail and solder cup versions offer easy termination to flex or wire**
- **Turnkey I/O-to-board flex and pigtail wire jumpers**
- **Lightweight and low-profile—up to 40% space savings compared to 2mm pitch solutions**
- **High-density .050" center-to-center contact footprint**
- **Fast PC board integration with reduced board preparation and masking**
- **Withstands temperature, vibration and shock extremes**



Glenair®

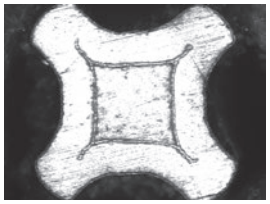
SERIES 89

Nanominiature Connectors

MIL-DTL-32139 qualified connectors for mission-critical board-to-wire applications—simply the smallest and lightest mil-spec connector in the business

- 1 Amp current rating
- .025 Inch (0.635 mm) contact spacing
- #30 And #32 gage wire accommodation
- Single and double row
- Metal shell, aluminum, titanium or stainless steel
- TwistPin contact system
- Gold alloy contact, unplated
- Thru-hole and surface-mount PCB versions

THE NANO TWISTPIN ADVANTAGE



Transverse cross-section of a TwistPin contact crimped to solid wire

- Gas-Tight Crimp Joint
- Better Shock and Vibration Performance
- Corrosion Proof Contact Alloy

Nanominiature sized circular connectors in threaded and push-pull styles are also now available from Glenair

High-performance
Micro TwistPin contacts

SERIES MWDM

Micro-D Connectors

- High density Micro TwistPin contacts set on .050 centers
- 9 to 130 contact arrangements
- Pigtail, PCB, solder cup, and flex terminations
- Single row, multi-row, low profile and high density insert arrangements
- QPL and commercial versions
- Same-day availability on all part numbers

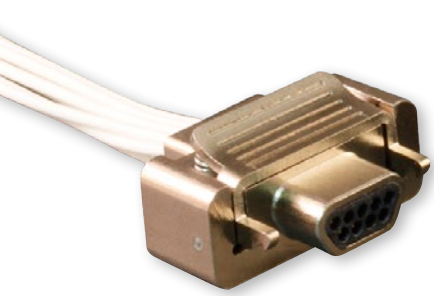
Standard

Hermetic

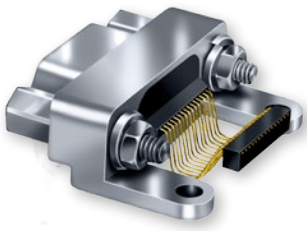
EMI Filter

TwistPin equipped MIL-DTL-83513 Micro-D connectors offer outstanding mating performance, durability and minimal contact resistance

QPL qualified



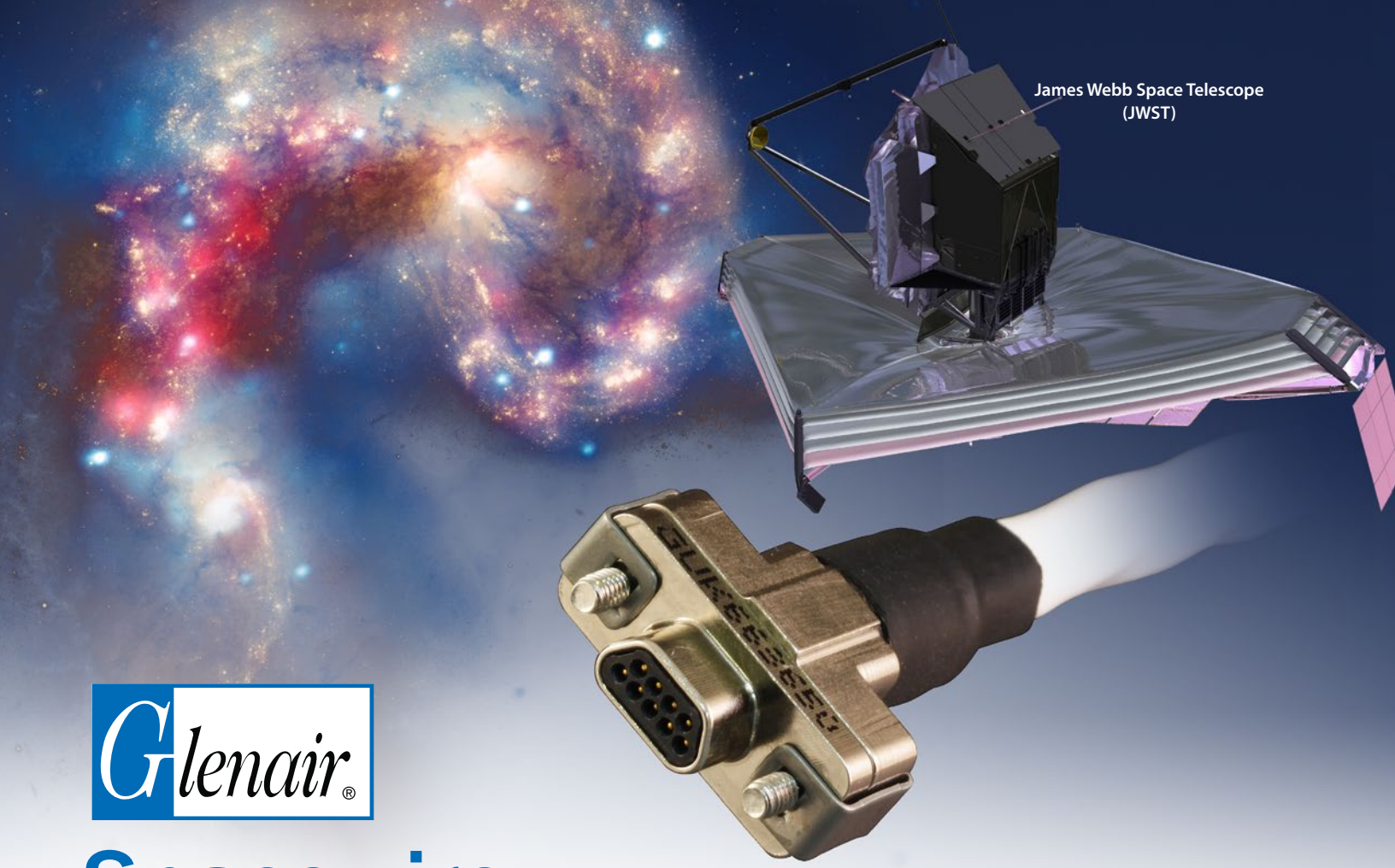
MasterLatch™



Surface Mount

Rear Panel Mount

Flex Circuit



Spacewire

Reduced Cost of Ownership, Easy Integration, and High-Performance for Flight and Lab Grade Cable Assemblies.

The success of any space mission begins with reliable data transmission and Glenair Spacewire cables, built to meet the strict standards set forth by ECSS-E-ST-50-12C, make this a reality. Our Spacewire cables offer bidirectional, high speed data transmission rates up to 400 Mbits/s while significantly reducing cross talk, skew, and signal attenuation. By incorporating a serial, point-to-point cable, with low voltage differential signaling (LVDS) reduced costs are realized through an easily integrated data transmission cable. These features allow Spacewire cables to be incorporated across various satellite programs without the expense of costly design customization.

Spacewire: The Space Industry Data Transmission Standard

Glenair Spacewire assemblies begin with a high performance cable built with expanded polytetraflouroethylene (ePTFE) insulation. This material allows for low-loss transmission of LVDS signals maximizing data-rates while allowing for the implementation of standard hardware protocols, thus eliminating the need for design customization and long lead time cable projects.

TYPICAL USES INCLUDE

- EGSE applications
- Radar sensor systems
- Hi-resolution camera equipment
- Sensor, mass-memory unit, and telemetry subsystem interconnections

APPROVED FOR USE BY:

- ESA
- NASA
- JAXA
- RKA

CONNECTOR/CABLE

- Laboratory and Space Grade Versions Available
- Qualified MIL-DTL-83513 Micro-D Connector
- Gold Plated Copper Alloy TwistPin Contacts
- Basic Cable, 4 Twisted Pair Cables and a Ground
- Epoxy Resin Potting
- EMI Banding Backshell

PERFORMANCE

- 3 Amps
- Temperature Tolerance -200°C to +180°C
- 100 Ω Impedance Shielded Signal Pair
- Very Low Skew, Signal Attenuation and Cross Talk
- 65dB Minimum Attenuation Shielding Effectiveness
- Low Magnetic Permeability IAW EIA-364-54

SERIES GMLM

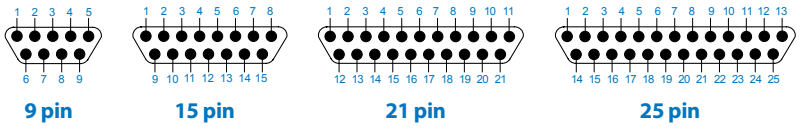
MasterLatch®

Quick-disconnect Micro-D

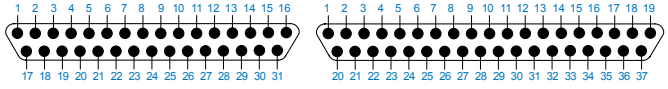
MasterLatch (GMLM) Quick-release locking Micro-D connector pairs are equipped with a precision latching and locking mechanism. The single thumb latch on the plug side actuates a pair of locking latches that mate quickly and reliably to GMLM receptacles. These TwistPin equipped, low-insertion-force connectors meet all the standard performance requirements of MIL-DTL-83513 including vibration, shock, and mating durability. Choose from 6 different insert arrangements, with 9 to 37 contacts. The unique ergonomic latching mechanism can be easily activated with a thumb and forefinger grip even when wearing gloves, or when difficult access to connector pairs makes the use of jacking hardware and tools impossible.

- **Precision latch meets MIL-DTL-83513 vibration and shock**
- **Low insertion force TwistPin contacts**
- **Easy-to-activate latching mechanism**

Face view pin connector - Micro-D contact arrangements



9 pin **15 pin** **21 pin** **25 pin**



31 pin **37 pin**

HIGH-TEMPERATURE

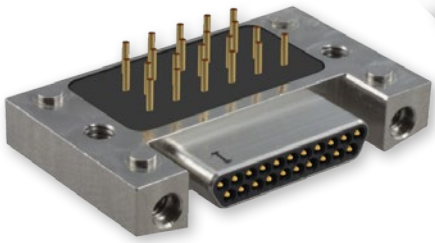
Well-Master™ 260°

The Micro-D connector for serious, high-temperature applications

Standard Micro-D connectors are rated for +125°C. Glenair's MWDM Micro-D can withstand +150°C continuous operating temperature and can be upgraded to +200°C if assembled with special high temperature epoxies. But oil, gas and geothermal wells can subject electronic instruments to temperatures as high as +260°C. The GHTM Series Micro-D meets the need for a high density, high performance connector capable of handling this temperature. The GHTM features contacts made from a special alloy that resists softening when exposed to temperatures up to +260°C (500° F). Rugged passivated stainless steel shells and hardware, high temperature liquid crystal polymer (LCP) insulators allow these connectors to survive the most demanding environments. Unique angled mounting ears allow the Well-Master™ 260° to fit in confined spaces.

- **+260°C Operating Temperature**
- **Angled Mounting Ears to Fit in Small Diameter Instruments**
- **High Reliability TwistPin Contact System with Special High Temperature Alloy**
- **.050" Pitch Contact Spacing for Reduced Size**
- **Solder Cup, Pre-Wired or PCB**

Well-Master™ 260°



+260°C PCB Header

+260°C Cable Connector

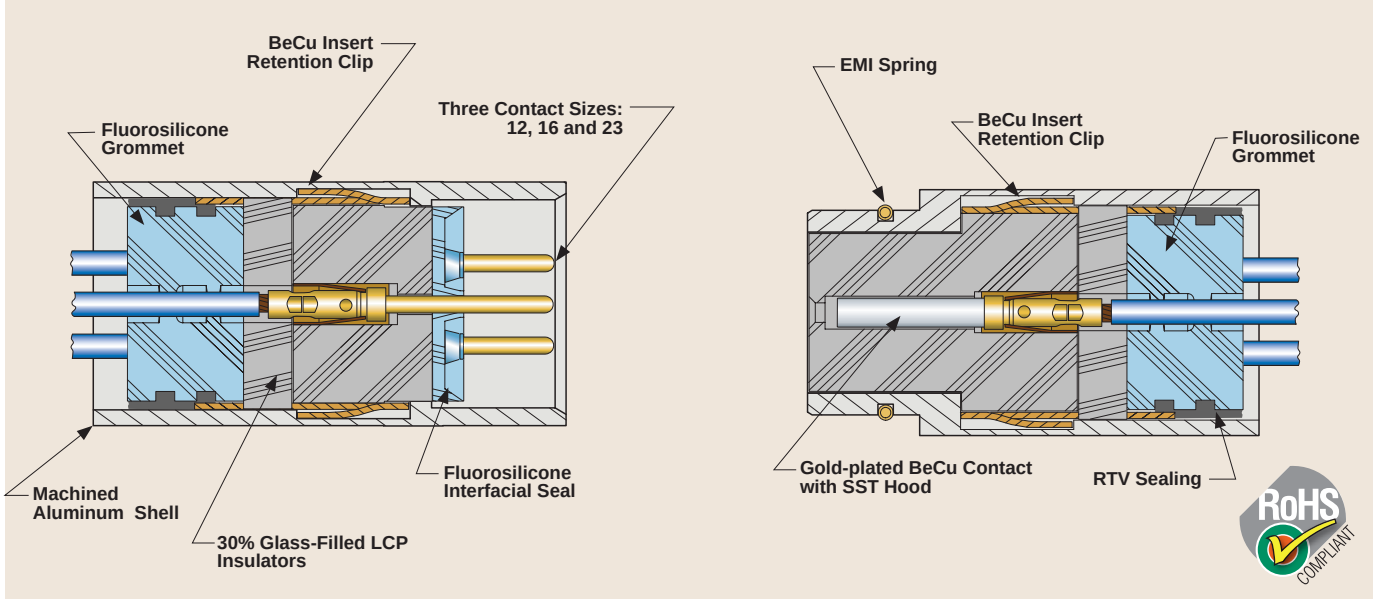
SERIES 79

MICROCRIMP®

Micro-Crimp

The ultraminiature crimp contact rectangular with advanced environmental and EMC performance

- Crimp, PCB, fiber optic, coax, power and pitot
- Precision machined aluminum shells sealed to IP67
- High-density #23 contact arrangements set on .076 centers
- Blind mating for rack and panel applications
- Environmental, hermetic and filter versions
- Integrated ground spring for improved EMI shielding



SERIES 20

Super Twin™

Lightweight Composite Modular Connectors

Drop-in replacements for legacy modular rectangular connectors save weight, space, and assembly time

Today's high-performance commercial aircraft are looking for revolutionary materials and product designs that can reduce weight and improve reliability and performance. The Glenair Series 20 Super-Twin™ lightweight modular connector is a drop-in replacement for legacy cable and panel connectors that no longer meet these performance specifications—especially for ease of assembly, electromagnetic compatibility and size, weight and power optimization.

The Glenair Series 20 Super-Twin™ can accommodate a broad range of contact sizes and types from #23 to #8 signal, Quadrax, El Ochito®, power, and fiber. Modular inserts offer fast and flexible assembly and repair. Peripheral and grommet seals provide outstanding environmental protection. Keyed inserts and shells provide versatile polarization and protection against mis-mating. The innovative clamshell and banding porch design brings modern, state-of-the-art connector capabilities to modular cable and panel applications.

- **For reduced size and weight cable and panel applications**
- **Lightweight composite shell with integral strain relief/banding porch**
- **Modular inserts support a wide range of contact sizes and types up to #8**
- **Polarization – both shell and inserts**
- **Center jackscrew with self-locking hardware**

Glenair®

For more information contact Glenair at **818-247-6000** or visit our website at **www.glenair.com**
U.S. CAGE code 06324

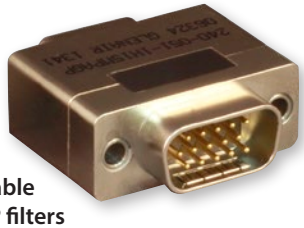
- **Advanced temperature, vibration and EMC/ electrical performance**
- **11 standard and 20 combo insert arrangements**
- **High temperature epoxy insulators**
- **Watertight sealing**
- **Rugged machined one-piece shell**

SERIES 28

HiPer-D Connectors

High-performance M24308 intermateable

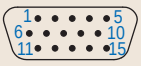
The HiPer-D connector is a M24308-type D-Subminiature connector with superior design features. Unlike standard M24308 connectors with stamped steel shells, the HiPer-D connector features a one-piece machined shell, and is rated for 200°C continuous operating temperature. Aerospace grade fluorosilicone grommets and face seals provide environmental protection. The HiPer-D is intermateable, intermountable and interchangeable with standard M24308 D-Sub connectors. A ground spring offers enhanced EMI/RFI protection. New Combo-D insert arrangements for Coax, Quadrax, fiber and El Ochito® contacts now available.



Available EMI/EMP filters

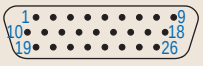
STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*

1S9
9 #20 Contacts



1H15
15 #22 Contacts

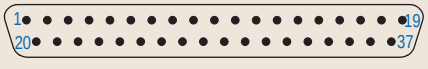
2S15
15 #20 Contacts



2H26
26 #22 Contacts

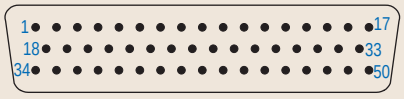
3S25
25 #20 Contacts

3H44
44 #22 Contacts

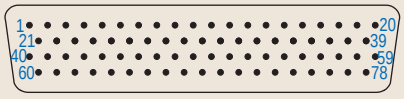


4S37
37 #20 Contacts

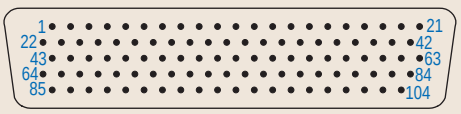
4H62
62 #22 Contacts



5S50
50 #20 Contacts



5H78
78 #22 Contacts



6H104
104 #22 Contacts

SERIES 240

ARINC 600 Filter Connectors

Glenair manufactures a full range of ARINC 600 filter connectors for use in EMC/EMP management of electronic systems and interconnect cabling. All connectors are designed in accordance with the ARINC 600 specification, and are designed to mate with ARINC 600 plugs with the same insert configuration and opposite contact gender. Planar filter arrays and TVS diodes may be integrated into both standard catalog as well as build-to-order configurations. Glenair's state-of-the-art diode burn-in process tests leaded and surface mount diodes with leakage current monitored throughout the entire test procedure ensuring field reliability.

- **Planar, multilayer ceramic capacitive filters, with and without transient voltage suppression diodes**
- **C and Pi electrical configurations**
- **PC tail or solder cup wire termination**
- **36 – 240,000 pF capacitance**
- **Insert arrangements IAW ARINC 600**
- **Fast and reliable diode burn-in and test services**
- **Turnkey in-house manufacturing of all filter connector elements and processes**

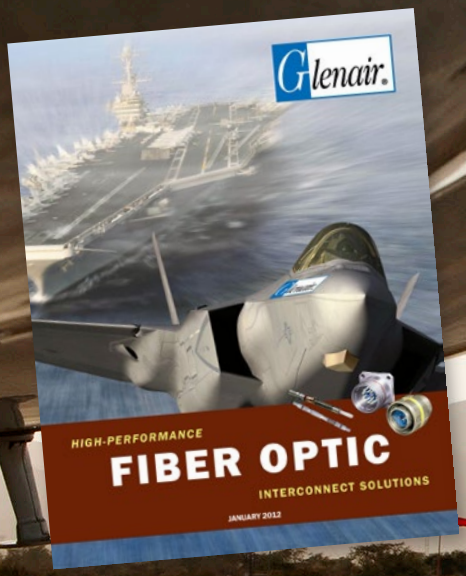
Capacitor Array Code / Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X	160,000 - 240,000	80,000 - 120,000
Y	80,000 - 120,000	40,000 - 60,000
Z	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

ARINC 600 size 2 filter connector. Glenair also manufactures narrow-profile size 1 and double-wide size 3. All configurations are environmentally sealed for rugged airframe applications.

QPL AND COMMERCIAL

Fiber Optic and Opto-Electronic Interconnect Solutions

For land, sea, air, space, and C4ISR applications



Glenair Fiber Optic and Opto-Electronic interconnect technologies deliver high data rate and bandwidth, reduced size and weight, EMI immunity, enhanced security, and spark/arc immunity. Our broad offering of fiber optic systems includes qualified MIL-PRF-28876 connectors and termini for shipboard applications, MIL-DTL-38999 Series III type fiber optic connectors and termini for aerospace applications, as well as our revolutionary Eye-Beam™ Expanded Beam termini. Small form-factor Opto-Electronic solutions are offered for harsh-environment Ethernet, video, high-speed data, and signal aggregation.

TIGHT-TOLERANCE

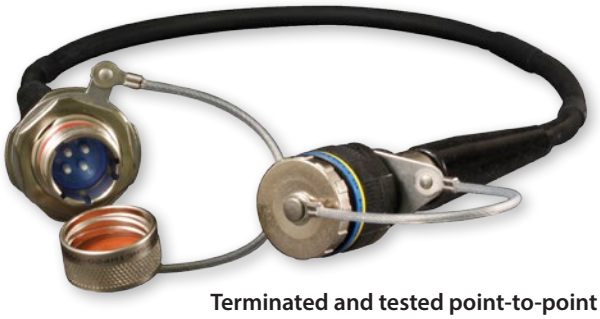
MIL-DTL-38999 Series III Type

Fiber optic connection system

MIL-DTL-38999 Series III type plug and square flange wall-mount receptacle

RoHS COMPLIANT

The high perfomance fiber optic interconnect system successfully deployed in hundreds of commercial and military aerospace and other applications—from F-16 upgrade systems to the revolutionary F-35 Joint Strike Fighter



Terminated and tested point-to-point and multibranch D38999 type fiber optic cable assemblies

- **MIL-DTL-38999 type tight tolerance fiber optic connectors**
- **Composite, aluminum and stainless steel shells available**
- **Qualified size #16 MIL-PRF-29504 precision ceramic termini**
- **Singlemode and multimode fiber, from 9/125 to 1000 microns**
- **Ultra-low insertion loss values, <.50dB typical**
- **From 2 to 37 Termini**
- **Plug and In-Line, Jam Nut and Square Flange Receptacles**
- **Patented MIL-DTL-38999 fiber optic test probes and adapters**

SIZE AND WEIGHT-SAVING

Glenair High-Density (GHD)

Fiber optic connection system

The system of choice for military and commercial air, space and other applications: Outstanding optical and environmental performance with nearly double the density of standard mil-spec designs

- **Innovative #18 (1.25mm ferrule) front-release genderless termini accommodate 900µ to 2.0mm jacketed fiber**
- **M85045/16 cable accommodation**
- **Composite, aluminum and stainless steel shells available**
- **Single keying for APC polish available**
- **Better optical performance than D38999 with nearly double the density**
- **Precision alignment sleeve retainer with integrated guide pins**
- **Piston o-ring sealing—submersible design**

GHD plug connector with alignment sleeve retainer, and square flange receptacle. Termini available in keyed and non-keyed styles

ULTRAMINIATURE

Series 80 Mighty Mouse

Fiber optic connection system

Series 801 Plug
with 181-057 pin termini

Series 801 receptacle
with 181-075 socket termini

- **Three snap-in, rear release fiber optic termini sizes: #23, #20HD, and #16 for use in any Series 80 Mighty Mouse connector**
- **The smallest mil-aero caliber fiber optic connection system available**
- **Singlemode and multimode**
- **Precision ceramic ferrules**
- **<0.5 dB typical attenuation**
- **1 to 130 channels**

RoHS COMPLIANT

The perfect marriage of high bandwidth fiber optics with ultra-miniature packaging—half the size of D38999

SIZE #16 FIBER OPTIC TERMINI

181-057 Pin Terminus

181-075 Socket Terminus

Termini Type	Optical Fiber Type	Part Number	A Ferrule I.D.	Fiber Size Core/Cladding
Pin	Multi Mode	181-057-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-057-125	125.5 microns	9/125
Socket	Multi Mode	181-075-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-075-125	125.5 microns	9/125

*Consult factory for additional sizes

Series 801 9-4 with size #16 fiber optic termini vs. equivalent functionality D38999

Series 801
Shell size 9, 4 channel
6 Grams (less termini)

D38999 Series III
Shell size13, 4 channel
27 Grams (less termini)

SIZE #20HD FIBER OPTIC TERMINI

181-084 Pin Terminus

181-085 Socket Terminus

Termini Type	Optical Fiber Type	Part Number	A Ferrule I.D.*	Fiber Size Core/Cladding
Pin	Multi Mode	181-084-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-084-1255	125.5 microns	9/125
Socket	Multi Mode	181-085-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-085-1255	125.5 microns	9/125

*Consult factory for additional sizes

Series 801 8-8 with size #20 HD fiber optic termini vs. equivalent functionality D38999

Series 801
Shell size 8, 8 channel
8 Grams (less termini)

D38999 Series III
Shell size 17, 8 channel
40 Grams (less termini)

SIZE #23 FIBER OPTIC TERMINI

181-063 Pin Terminus

181-064 Socket Terminus

Termini Type	Optical Fiber Type	Part Number	A Ferrule I.D.	Fiber Size Core/Cladding*
Pin	Multi Mode	181-063-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-063-1255	125.5 microns	9/125
Socket	Multi Mode	181-064-126	126.0 microns	50/125, 62.5/125
	Single Mode	181-064-1255	125.5 microns	9/125

*Consult factory for additional sizes

Series 801 6-4 with size #23 fiber optic termini vs. equivalent functionality D38999

Series 801
Shell size 6, 4 channel
5 Grams (less termini)

D38999 Series III
Shell size 13, 4 channel
21 Grams (less termini)

F

QPL AND COMMERCIAL

MIL-PRF-28876

Fiber optic connection system

Qualified MIL-PRF-28876 fiber optic connectors and MIL-PRF-29504 termini—Navy approved, in stock, and ready for immediate shipment

M28876/11 jam nut receptacle

M28876/7 plug with backshell

M28876/2 receptacle with backshell

- **Connectors qualified to the complete requirements of MIL-PRF-28876 including plugs, wall-mount receptacles, jam-nut mount receptacles and in-line receptacles**
- **Multiple shell sizes and insert arrangements, including 2, 4, 6, 8, 18 and 31 channel layouts**
- **Backshells in straight, 45° and 90° configurations**
- **Corrosion-resistant and environmentally sealed**
- **Qualified MIL-PRF-29504/14 and /15 pin and socket termini and /3 dummy terminus**
- **Connectors, backshells and protective covers available for immediate, same-day shipment**

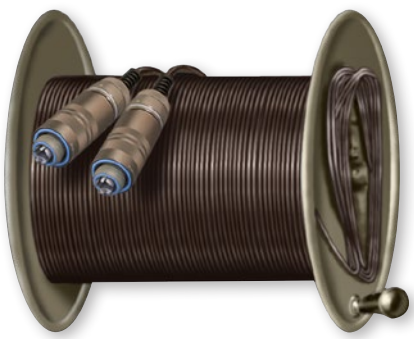
M83526 COMPLIANT

GFOCA

Fiber optic connection system

GFOCA: the genderless, ruggedized, environmentally-sealed solution ideal for fiber optic battlefield communications—TFOCA-II® intermateable!

Turnkey point-to-point and pigtail GFOCA cable assembly



Factory Terminated Fiber Optic Cable Spool

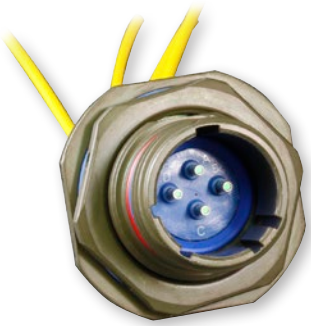
- **4 channel singlemode and multimode configurations**
- **Designed IAW MIL-PRF-29504/16 and MIL-DTL-83526/16 and /17 drafts**
- **Discrete components or complete cable-on-reel solutions available**
- **Rugged field deployable system**
- **Corrosion resistant and environmentally sealed**
- **Low insertion loss 2.5mm diameter genderless butt joint termini**
- **Designed for both low speed analog and high-speed digital data**

EXPANDED-BEAM

Eye-Beam™

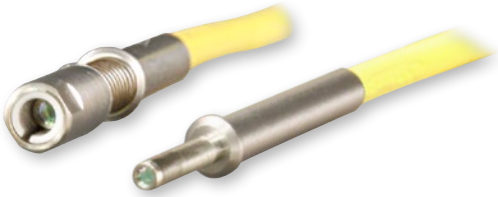
Fiber optic connection system

Innovative expanded beam termini and factory-terminated jumpers deliver optimal performance in harsh environments



Eye-Beam™ Expanded Beam fiber optic termini integrated into a tight-tolerance D38999 Series III type jam-nut receptacle connector

Factory terminated GRIN lens pin termini and GRIN lens socket termini on pigtail fibers allow for easy fusion splicing in the field.



- All the benefits of an expanded beam connection system built into a discrete, removable F/O terminus
- Factory-terminated F/O Eye-Beam™ termini easily integrated into any connector package
- Innovative expanded beam GRIN lens terminus expands signal 27X from a standard 9.3 micron fiber core
- Revolutionary design delivers low dB loss (1.5 dB multimode, 2.0 dB singlemode) performance while reducing maintenance, inspection and test costs
- Ultra-high precision ceramic sleeves and custom designed terminus bodies ensure perfect axial alignment

SERIES 185-002 HI-BEAM™

Industry standard ball lens expanded beam solution

In accordance with MIL-DTL-83526 /20 and /21 hermaphroditic

Commercial and military customers, such as those engaged in geo-physical exploration, mass-transit and tactical warfare now depend on optical interconnect technology due to its many advantages over electrical transmission systems. Sealed expanded beam interconnect technology prevents water, mud, dust, oil and other chemicals from contaminating the optical path and deteriorating system performance. Connector housings are available in a variety of material and finish choices, including cadmium-free and RoHS-compliant options. Boots, grips, and seals are available in a range of materials as well.

- **Ball lens expanded beam IAW MIL-DTL-83526 /20 and /21**
- **Beam expansion dramatically reduces loss due to contamination**
- **Large ball lens facilitates easy cleaning**
- **Fully intermateable with all MIL-DTL-83526 /20 and /21 compliant connectors**
- **2 and 4-channel insert arrangements**
- **Expanded beam lens insert also available in D38999 type packaging**

HARSH-ENVIRONMENT

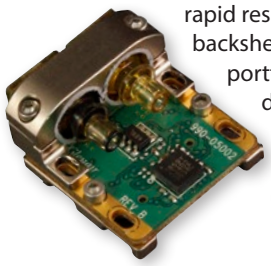
Opto-Electronic Interconnect Solutions

Technology can be integrated into mil-standard connectors or ruggedized packaging to suit any application

Unlock the huge bandwidth of optical fiber and dramatically reduce the size and weight of interconnect systems

Glenair leverages its extensive portfolio of military and aerospace interconnect products to bring you ruggedized opto-electronic solutions, converting signals between the electrical domain and the fiber domain. These opto-electronic products are designed for harsh military/aerospace system and subsystem environments and will operate reliably over very wide temperature ranges and high shock and vibration conditions; they have been optimized to minimize size, weight and power and offer electrical-to-fiber conversion for Ethernet, video, signal aggregation and high-speed digital signals.

Glenair also offers integration of electronics or opto-electronics into rugged connector packages and cable assemblies per specific customer requirements. We offer rapid response in-house electrical/PCB design, and mechanical connector/backshell engineering from our vertically intergrated factory. Our product portfolio is constantly evolving. Please contact Glenair for the latest developments, or custom solutions.



ADVANTAGES OF GLENAIR OPTO-ELECTRONICS

- **Reduced size, weight, and power consumption**
- **Leverages the virtues of fiber optics: EMI immunity, network security, increased transmission distance and high bandwidth**
- **High shock and vibration to support mil/aero applications**
- **Wide operating temperature range: -40°C to +85°C and beyond**
- **Designed IAW military and aviation requirements: MIL-STD-883, MIL-STD-461, DO-160 and others**

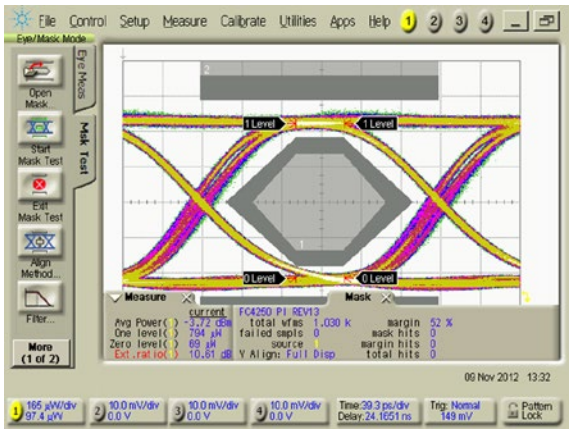
SIZE 8

Opto-Electronic Contacts

Size 8 Opto-electronic contacts transmit and receive differential CML or LVPECL electrical signals over Multimode fiber optic cable. Transmitters consist of a laser driver or LED driver with a temperature compensation circuit to maintain optical power over the entire operating temperature range, and a 850nm VCSEL laser or a 1300nm LED. Receivers consist of a PIN Photo Detector, a Transimpedance Amplifier with automatic gain control circuit, and a Limiting Amplifier. Differential output data signals are LVPECL or CML compatible. The transmitter has a Tx Disable pin to turn off transmitter output.

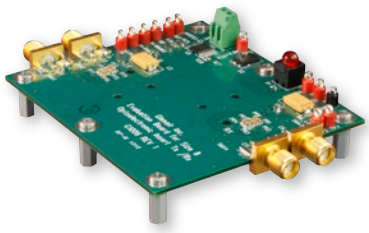
(patent pending)

- **Transmit (Tx) and Receive (Rx) Opto-Electronic contacts for use in ARINC 600 and other size #8 cavity equipped connectors**
- **Current offerings include 1.25mm ARINC 801 and 2.5mm ELIO® solutions**



4.25 Gbps / +25°C

- **Fast and Gigabit Ethernet, DVI, HDMI video capable transmitter and receiver-equipped contacts**
- **ARINC 664, 801, 803, 804 and 818 standard compliant**
- **Link distances up to 500 meters, multimode**
- **Single, 3.3 V power supply**
- **Wave-solderable termination with RoHS-compliant solders**



Evaluation Test Boards Available

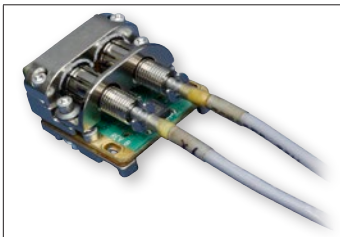
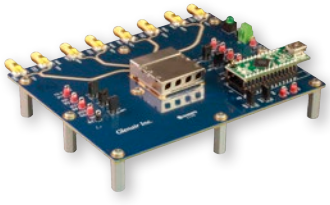
HIGH-SHOCK, HIGH-VIBRATION

PCB-Mount Opto-Electronics

Connectorized, high-density, board-mount transceivers built for rugged vibration and shock applications up to 10Gbps

Glenair PCB mount transceivers are ruggedized harsh-environment equivalents to SFP transceivers but with mechanical design suited to the harsh temperature and vibration environments found in Military, Aerospace and Other applications. PCB mount optical transceivers support optional Digital Monitoring Interface (DMI) features in accordance with SFF 8472. The Transceiver is comprised of a transmitter section and a receiver section that reside on a common package and interface with a host board through a high-speed electrical connector.

- **Smallest footprint available**
- **Passed jet fighter and space launch shock and vibration testing**
- **No soldering required**
- **CML 100 Ohm differential input and output**
- **-40°C to +85°C operating temperature range—extended temperature ranges available**

			
GC fiber optic connector retained with mounting screws to withstand high vibration and shock	**PCB-mount opto-electronics feature Samtec high-speed surface-mount connectors**	**Dual-transceiver, Quad-Transmitter and Quad-Receiver form factor with ARINC 801 contacts**	**Evaluation boards for all PCB mount transceiver configurations are available**

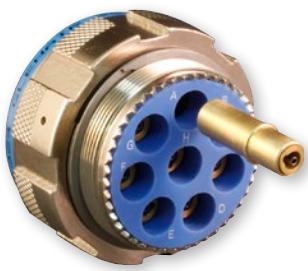
SMALL FORM-FACTOR • HARSH-ENVIRONMENT

Opto-Electronic Connectors

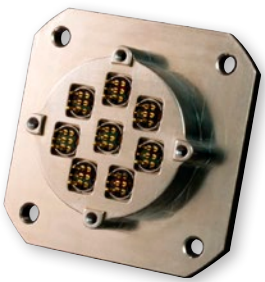
Environmentally sealed, D38999 type triple-start connectors housing turnkey copper-to-fiber transceiver technology

Glenair is able to offer our Opto-Electronic solutions customers turnkey multichannel receptacle connectors housing integrated transceiver technology for fast/gigabit Ethernet, DVI and HDMI video, as well as various high-speed data transfer protocols. The two available connector designs incorporate Glenair small form-factor ARINC 801 type opto-electronic contacts (050-301) or an ELIO® equipped configuration that intermates with the standard ELIO®2.5mm fiber optic terminus (050-307). Receptacles are populated with factory-tested size #8 contacts, and are ready for immediate use as fiber-optic-to-electrical circuit board I/O connectors. Special size #8 cavity adapters are also available to enable construction of compatible plug connectors on the cable side.

- **Catalog solutions include:**
  - **2.5mm ELIO® solution for multimode Ethernet, video, and high-speed data applications**
  - **1.25mm ARINC 801 multimode fiber optic termini solution for Ethernet, video, and high-speed data**
- **Made-to-order configurations with a wide range of connector packages including Glenair Series 80 Mighty Mouse**

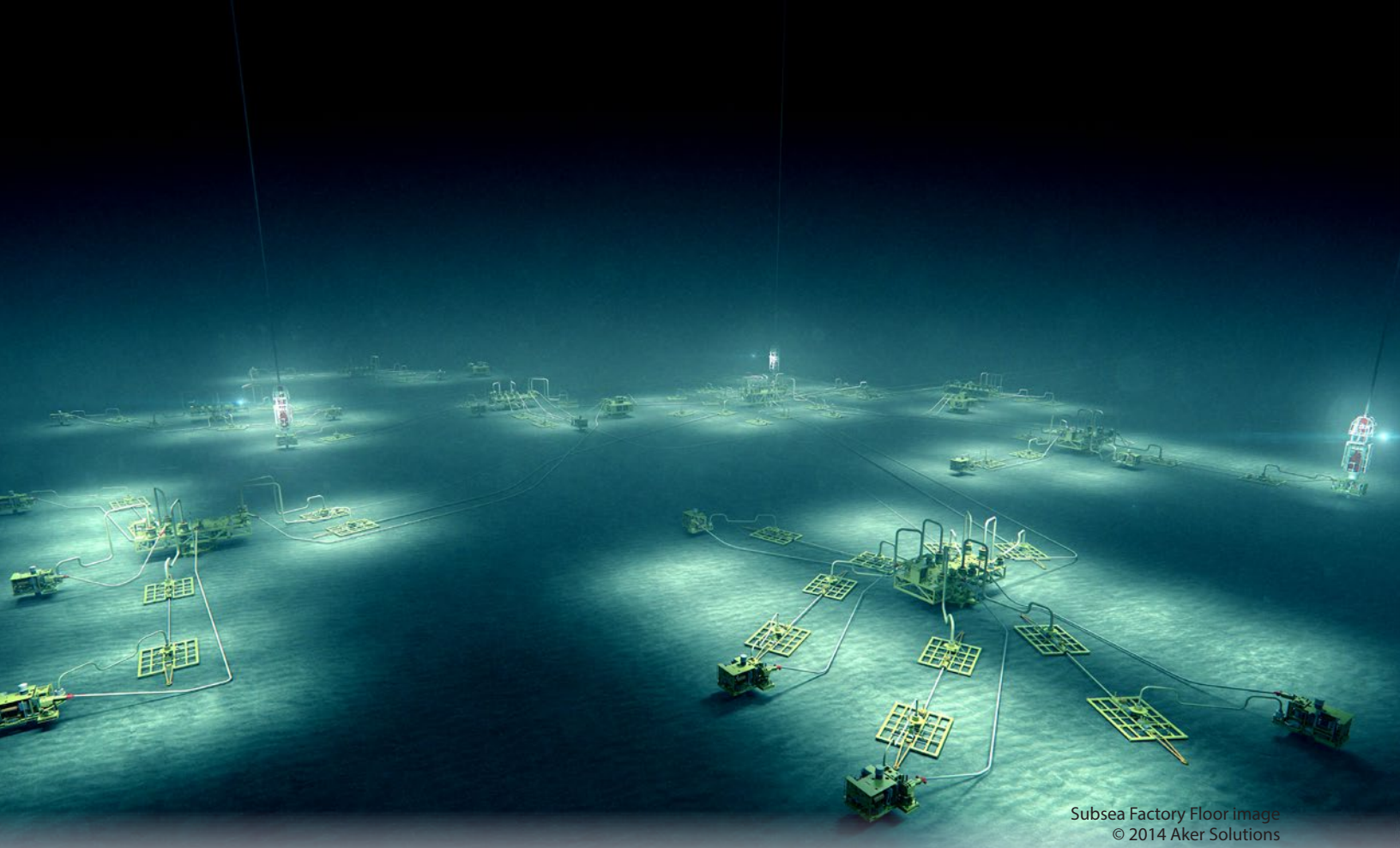


Special size #8 cavity adapters facilitate construction of standard fiber optic plug connectors that intermate with the size #8 opto-electronic transceiver contacts



Opto-electronic receptacle connectors are populated with size #8 contacts, and ready for immediate assembly in I/O to circuit board applications

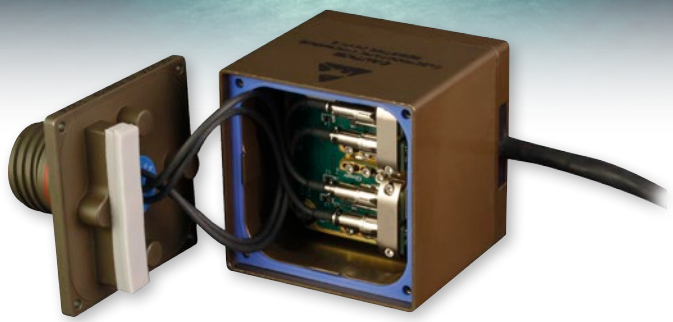
ELIO® is a registered trademark of SOURIAU



Subsea Factory Floor image
© 2014 Aker Solutions

ETHERNET

Copper-to-Fiber Media Converters



Reduced form-factors for harsh-environment applications

Glenair offers turnkey harsh-environment media converters for in-line and select panel mount applications. The devices facilitate conversion of 10/100/1000BASE-SX/LX fiber optic gigabit Ethernet data streams to electrical signals servicing switches, routers, and other peripherals.

Designed for use in ruggedized applications such as geophysical, naval, commercial and military aerospace, these reduced form-factor electrical-to-optical transceivers deliver proven performance with significant size and weight savings compared to conventional form-factor technologies. Available for a wide range of fiber optic formats, including 1.25mm, 1.6mm, 2.0mm, and 2.5mm ferrules, in both singlemode and multimode, Glenair's complete range of media converters meets virtually every fiber-optic-to-copper application requirement.

- **Reduced form-factor devices for in-line conversion of electrical and optical signals**
- **Active cable versions that reduce the risk of damage to fiber optic interfaces**
- **Weight-saving technology that incorporates power and signal conversion functions**
- **Auto-negotiation 10/100/1000BASE-T to 100BASE-FX, 1000BASE-SX and 1000BASE-LX**
- **Advanced monitor & control functions via serial interface to facilitate network management and BIT**

VIDEO

Copper-to-Fiber Media Converters

Reduced form factor media converters for harsh-environment video applications

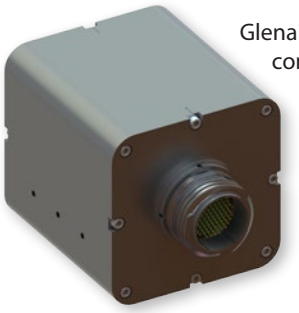
Glenair Copper-to-Fiber-Optic Video Media Converters enable extended link distances, improved EMI and security in harsh environments and provide solutions for both MMF and SMF applications. These media converters support ruggedized military systems applications and are tailored to support a variety of Video protocols including DVI, HDMI, SMPTE (SDI, HD-SDI and 3G-SDI), ARINC 818 and more. Many options for mil-spec and military-grade electrical and fiber optic connectors are available. Contact Glenair for custom configurations, application-specific designs and engineering services.

- **Fiber Link 500m with MMF**
- **Fiber Link 10km with SMF**
- **38999 with MIL-STD-1560 and custom contact arrangements—including quadrax and coaxial contact options**
- **Mighty Mouse electrical and fiber optic connectors**
- **Fiber Optic connectors including D38999, M28876, GHD, NGCON (M64266), HMA (M83526), and GFOCA**
- **Power supply functions with wide input-voltage ranges**
- **DVI, HDMI, SMPTE, ARINC 818**
- **Advanced monitor & control functions via serial interface to facilitate network management and BIT**

SIGNAL AGGREGATION

Copper-to-Fiber Media Converters

Combine multiple electrical signals into a high-speed fiber data stream



Glenair signal aggregation media converters integrate a set of compact opto-electronic modules to digitize and/or aggregate multiple common signal types, and combine them onto high-data-rate serial optical fiber channels. Silicon field-programmable gate array (FPGA) technology provides a flexible way to accommodate many signal I/O types.

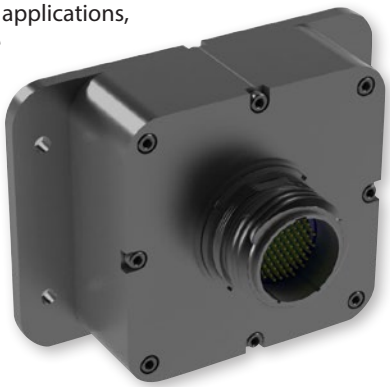
Signal Aggregation Media Converter Selection Guide	
050-501	12-Channel RS422 Copper-to-Fiber Media Converter
050-502	6x RS-422 and 6x ARINC 429 Copper-to-Fiber Media Converter
050-503	DVI/HDMI (Dual fiber) + USB(HID) interface (KVM) Copper-to-Fiber Media Converter
050-504	CAN Bus "bridge"(ARINC 825), ARINC 429, ARINC 664 (AFDX ethernet) DO-160 compliant Copper-to-Fiber Media Covnerter
050-505	2x Ethernet, 2xRS-422 or 2xRS-232 (422 & 232 not simultaneously) Copper-to-Fiber Media Converter

- **Dramatically reduce size, weight, wire count, and shielding of copper cables**
- **Leverage the high bandwidth of optical fiber by multiplexing many lower-data-rate signals onto a few fibers**
- **One high-speed opto-electronic interface can serve practically all signal types**
- **Ideal solution to enable optical rotary joints**
- **-40°C to +85°C operating temperature range**
- **Meets MIL-STD-810 Mechanical Shock and Vibration**
- **Meets MIL-STD-1344 immersion resistance**
- **Advanced monitor & control functions via serial interface to facilitate network management and BIT**

SMALL FORM-FACTOR

Ethernet Switches and Breakout Cables

Glenair unmanaged Ethernet switches are layer 2 switches with Auto negotiation and Auto MDI / MDIX circuitry that enables port expansion with IEEE-802.3U 10/100/1000Base-T Ethernet ports. Developed for use in harsh environment applications, the electronics are incorporated into a panel-mountable housing that is sealed against liquid and solid contaminants and designed for shock and vibration resistance. Standard connector interfaces include high-performance size- and weight-saving Glenair Series 805 Mighty Mouse jam nut receptacles and M28876 type fiber-optic connectors.

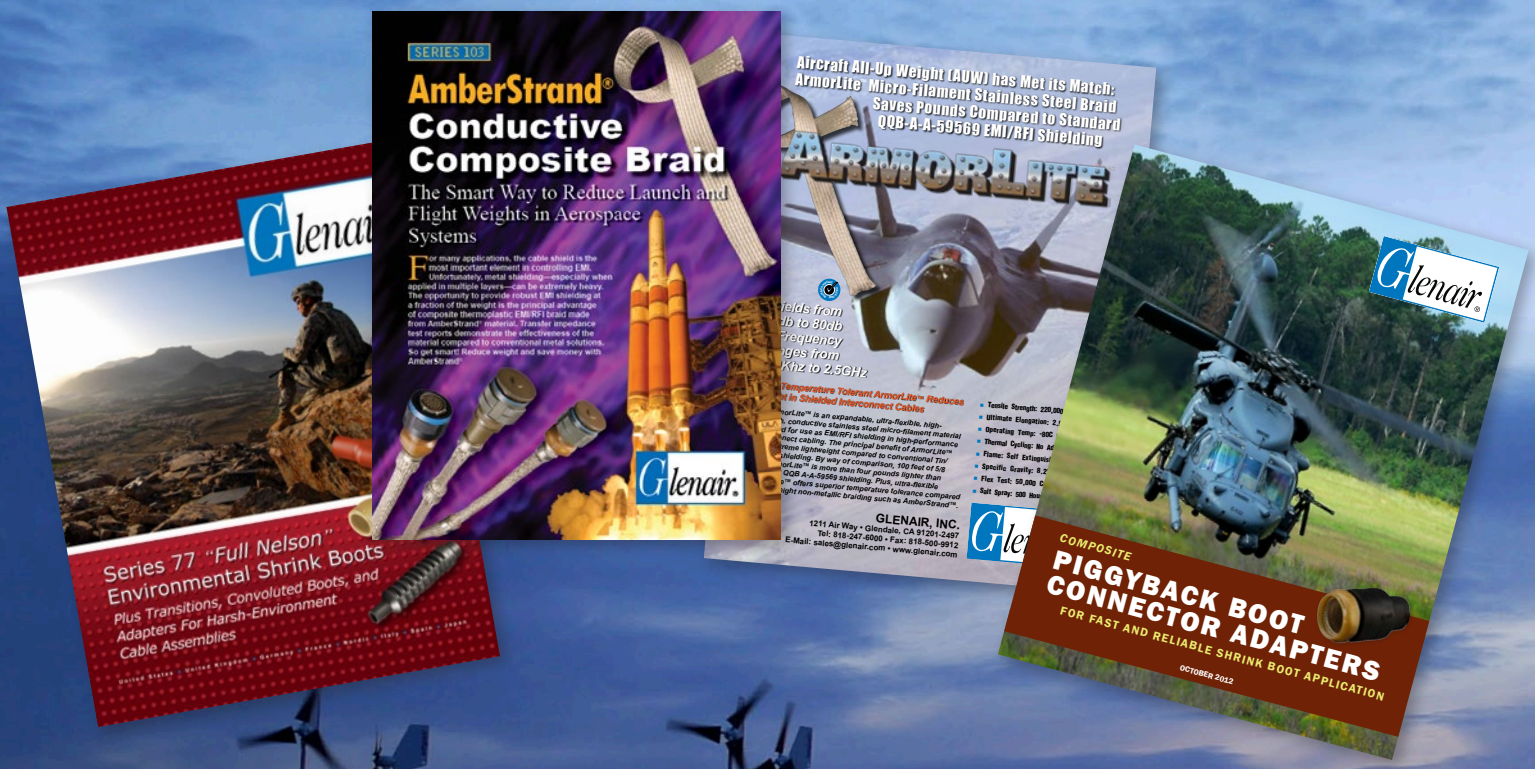


- **Unmanaged—plug and play operation—no configuration required**
- **Jumbo frame support in all speeds (10/100/1000 Mbps)**
- **Operating temperature range: -40°C to +85°C**
- **Standard ultraminiature Mighty Mouse electrical and M28876 type fiber optic connector interfaces**
- **Experienced opto-electronic engineering services available for special connector and form-factor configurations**
- **Breakout cables with industry-standard connector interfaces available**

HIGH-PERFORMANCE

Shrink Boots, Jackets, and Braided Shielding

for extreme environmental and EMI/RFI protection



Cable assemblies, exposed to harsh environmental, mechanical and electromagnetic stress are routinely equipped with boots, shields, and jackets designed to protect critical circuits from damage. Glenair offers a complete, turnkey solution to cable and conduit protection that includes innovative lightweight braided EMI/RFI shielding, revolutionary Duralectric™ jacketing, and our full spectrum Series 77 *Full Nelson* environmental heat shrink boot product family.

Standard Lipped or Lipless Boots

Transitions

Convoluted Boots

Mechanical and environmental protection/ strain relief for connector-to-cable transitions

- **Standard, short, long and 90° lipped and lipless boots**
- **Choice of six boot materials and a complete range of high-performance adhesive types**
- **A wide range of colors including desert tan**
- **The industry's largest selection of metal and composite shrink boot adapters**
- **All popular part numbers in stock and ready for same-day shipment**

The industry's broadest selection of heat shrink products

Red straight boot with eyelet

Desert Tan widebody Y transition

Right-angle adapter, purple

4–1 widebody transition, yellow

Green long-tail boot

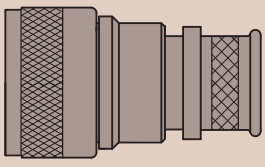
High-ratio right-angle adapter, grey

Low-profile 3–1 adapter, white

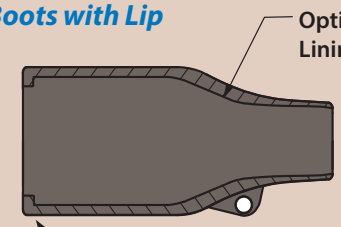
Material Color Options for Type 1 High Performance Elastomer Boots and Transitions

Mod Code	Color	Similar to (Reference)	Mod Code	Color	Similar to (Reference)
632 B	Blue	PANTONE 3005U	632 R	Red	PANTONE 1797U
632 E	Grey	FED-STD-595; #36270	632 T	Tan	FED-STD-595; #33446
632 G	Green	PANTONE 355U	632 W	White	FED-STD-595; #37875
632 P	Purple	FED-STD-595; #37100	632 Y	Yellow	PANTONE YELLOW U
632 O	Orange	FED-STD-595; #32300	Standard	Black	FED-STD-595; #37038

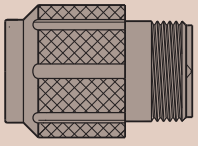
Adapter Boots with Lip



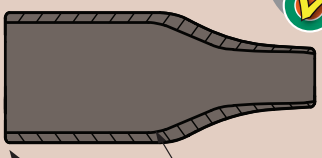
Adapter with Boot Groove for MIL-Spec Circular Connector



Lipless Boots



Direct Attachment to Connector Threads



RoHS COMPLIANT

G

Glenair Environmental Shrink Boots Now TACOM Approved, In-Stock and Ready for Immediate Shipment

High-performance Series 77 "Full Nelson" environmental shrink boots manufactured by Glenair in Glendale, California are now approved by the US Army Tank-Automotive Command (TACOM). Manufactured from high-temperature crosslinked elastomeric polymer material and/or caustic chemical-resistant Viton polymer, Glenair straight and right angle long-tail shrink boots, Y and T transitions, convoluted strain-relief boots and heat-shrinkable adapter shims have been added to the following source control documentation:

Glenair Series 77 "Full Nelson" TACOM APPROVED Shrink Boots

Description	Military Part Number	Glenair Part Number	Raychem Part Number	Hellermann Part Number
Heat Shrinkable Low Profile 3-Entry "Y" Transition	12273148-1**	770-009Y*05	381A301-**	492H412-*
	12273148-2**	770-009Y*06	381A302-**	492H413-*
	12273148-3**	770-009Y*07-01	381A303-*01	492H414-*01
	12273148-4**	770-009Y*08-01	381A304-*01	492H415-*01
	12273148-5**	770-009Y*07	381A303-**	—
Heat Shrinkable Low Profile 3-Entry "T" Transition	12273162-1**	770-012T*01	301A511-**	412H622-*
	12273162-2**	770-012T*02	301A512-**	412H623-*
	12273162-3**	770-012T*03	301A513-**	412H624-*
	12273162-4**	770-012T*04	301A514-**	412H625-*
Heat Shrinkable Low Profile 4-Entry 3:1 Transition	12273163-1**	770-014*09	462A421-**	573H532-*
	12273163-2**	770-014*10	462A422-**	573H533-*
	12273163-3**	770-014*11	462A423-**	573H534-*
	12273163-4**	770-014*12	462A424-**	573H535-*
Heat Shrinkable Adapter Shim Boot	12273164-1**	770-019SB*01	202E334-**	313E445-*
	12273164-2**	770-019SB*02	202E344-**	313E455-*
	12273164-3**	770-019SB*03	202E336-**	313E447-*
	12273164-4**	770-019SB*04	202E346-**	313E457-*
Heat Shrinkable Convoluted Strain Relief 2-Entry Boot	12273242-1**	770-022C*01	202C611-**	313C722-9
	12273242-2**	770-022C*02	202C621-**	313C732-9
	12273242-3**	770-022C*03	202C632-**	313C743-9
	12273242-4**	770-022C*04	202C642-**	313C753-9
	12273242-5**	770-022C*05	202C653-**	313C764-9
	12273242-6**	—	202G621-**	—
	12273242-7**	—	202G632-**	—
	12273242-8**	—	202C642-**	—
	12273242-9**	—	202C653-**	—

Description	Military Part Number	Glenair Part Number	Raychem Part Number	Hellermann Part Number
Heat Shrinkable Straight Lipped 2-Entry Long Tail Boot	12273147-1**	770-020S*02	202F211-**	313F322-*
	12273147-2**	770-020S*03	202F221-**	313F332-*
	12273147-3**	770-020S*04	202F232-**	313F343-*
	12273147-4**	770-020S*05	202F242-**	313F353-*
	12273147-5**	770-020S*06	202F253-**	313F364-*
	12273147-6**	770-020S*07	202F263-**	313F374-*
	12273147-7**	770-020S*08	202F274-**	313F385-*
Heat Shrinkable 90° Lipped 2-Entry Long Tail Boot	12273176-1**	770-021A*02	222F211-**	333F322-*
	12273176-2**	770-021A*03	222F221-**	333F332-*
	12273176-3**	770-021A*04	222F232-**	333F343-*
	12273176-4**	770-021A*05	222F242-**	333F353-*
	12273176-5**	770-021A*06	222F253-**	333F364-*
	12273176-6**	770-021A*07	222F263-**	333F374-*
	12273176-7**	770-021A*08	222F274-**	333F385-*

VG QUALIFIED SHRINK BOOTS AND ADHESIVES

DIN

VG Standards are established by the Deutsches Institut für Normung (DIN) and are widely used in European defense programs. Glenair Type 2 shrink boots are qualified to VG95343 Part 28, and our adhesives are qualified to VG95343 Part 18. Consult Glenair UK for price and delivery.

Piggyback boot backshell adapters

Partially recovered for quick and easy assembly

310-048 ENVIRONMENTAL PIGGYBACK BOOT ADAPTER

Pre-positioned and partially recovered shrink-boot/adapter unit is ready for fast and reliable final recovery of the boot. Provides durable environmental sealing and strain-relief to the cable-to-backshell junction. Adapter is lightweight composite thermoplastic.

How To Order							
Sample Part Number	**310**	**F**	**S**	**048**	**XB**	**16**	**–2**
Piggyback Boot Adapter	Environmental						
Connector Designator	**A** = MIL-DTL-83723, Sr. III; MIL-DTL-5015; MIL-DTL-26482 **F** = MIL-DTL-38999, Sr. I & II **H** = MIL-DTL-38999, Sr. III & IV						
Angular Function	**S** = Straight						
Basic Number							
Finish	**XB** = no plating, black composite						
Shell Size	**08**, **10**, **12**, **14**, **16**, **18**, **20**, **22**, **24**						
Boot Material Type	**1** = High-Performance Semi-Rigid Elastomer **2** = Zero-Halogen Semi-Rigid Polyolefin **3** = General Purpose Flexible Polyolefin						

317-102 EMI/RFI ENVIRONMENTAL PIGGYBACK BOOT ADAPTER WITH DROP-IN BANDING PORCH

This Piggyback boot features a unique drop-in conductive banding porch. The pre-positioned and partially recovered shrink boot is ready for final recovery after the cable shield is band terminated to the drop-in accessory. Adapter is lightweight composite thermoplastic.

How To Order								
Sample Part Number	**317**	**F**	**S**	**102**	**XB**	**16**	**–2**	**K**
Piggyback Boot Adapter	EMI/RFI Environmental with drop-in banding porch							
Connector Designator	**A** = MIL-DTL-83723, Sr. III; MIL-DTL-5015; MIL-DTL-26482 **F** = MIL-DTL-38999, Sr. I & II **H** = MIL-DTL-38999, Sr. III & IV							
Angular Function	**S** = Straight							
Basic Number								
Finish	**XB** = electroless nickel **XMT** = Ni-PTFE, Nickel-Fluorocarbon Polymer **XN** = Selective plating, Nickel & Cad O.D.							
Shell Size	**08**, **10**, **12**, **14**, **16**, **18**, **20**, **22**, **24**							
Boot Material Type	**1** = High-Performance Semi-Rigid Elastomer **2** = Zero-Halogen Semi-Rigid Polyolefin **3** = General Purpose Flexible Polyolefin							
Pre-Coiled Band	**K** = Pre-Coiled Band, **Omit** if not required							

635-005 ENVIRONMENTAL PIGGYBACK BOOT CABLE FEED-THROUGH

This composite feed-through is supplied with a pre-positioned and partially recoverd shrink-boot—ready for fast and reliable final recovery of the boot. Provides durable environmental sealing and strain-relief to the feed-through-to-box junction. Adapter is lightweight composite thermoplastic.

How To Order						
Sample Part Number	**635**	**005**	**XB**	**01**	**–2**	**5**
Piggyback Boot Adapter	Environmental Cable Feed-Through					
Basic Number						
Finish	**XB** = no plating, black composite					
Dash No.	**01**, **02**, **03**, **04**, **05**, **06**, **07** (consult factory)					
Boot Material Type	**1** = High-Performance Semi-Rigid Elastomer **2** = Zero-Hal Semi-Rigid Polyolefin **3** = General Purpose Flexible Polyolefin					
Length	in 1/8 inch increments, 5/8" minimum, e.g. 5 = .625 in.					

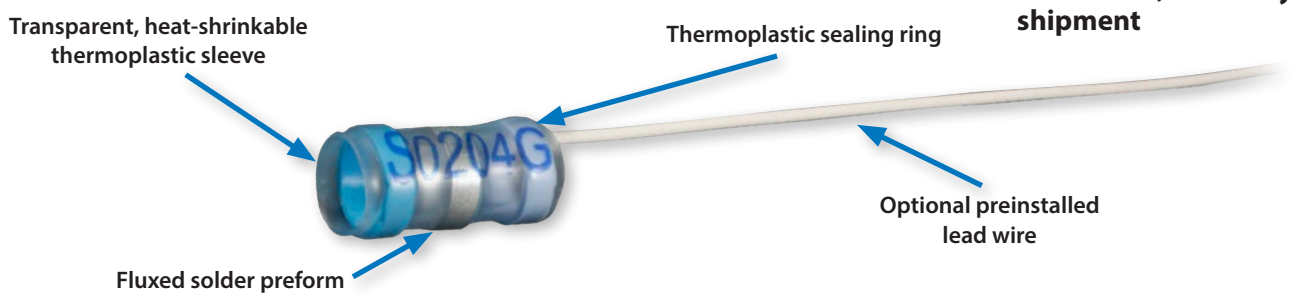
AS83519/1 AND /2 TYPE

Heat Shrink Termination (HST) Sleeves

For fast and reliable termination of EMI cable shielding to ground

Reliable termination of EMI/RFI shielding (to ground) in wire harness applications is universally accomplished with AS83519/1 and /2 type heat shrink termination (HST) sleeves. These devices, supplied in five different sizes—with or without pre-installed ground lead wires—provide environmental encapsulation and insulation of the shield termination site. Lead wire-equipped versions allow for easy and reliable grounding to connector shells, backshells, or ground posts. Transparent heat shrink tubing allows for easy inspection and supplies additional strength and strain-relief. The preflux solder preform delivers a fast and controlled solder joint each and every time.

- **Heat shrink termination sleeves, with and without lead wire**
- **Ultra-fast recovery for reduced assembly time**
- **Pre-installed, pre-tinned braid version available**
- **Mil-qualified 81824/1 in-line-splices**
- **High availability: all Glenair HSTs made in USA and in-stock for immediate, same day shipment**



High-performance jacketing material

Outstanding durability and insulation performance

DURALECTRIC™

Rugged high-temperature, environmental Duralectric™ jacketing is available in a broad range of and colors inculding safety orange

Duralectric™ is the high-performance jacketing material perfectly suited for immersion, chemical or caustic fluid exposure, temperature extremes, UV radiation and more

Glenair *Duralectric™* weatherproof jacketing is halogen free, flame resistant, and functional to 260˚C. *Duralectric™* far surpasses the accelerated solar weathering standards under IEC 60068-2-5, and is tested to 56 accelerated days, equivalent to 53 years of solar exposure. Glenair can supply the material in a variety of formats, including blown jacketing, as an extrusion over wire and cable, as an overmolding compound and as a self-vulcanizing repair tape.

Jacketing Options		
0	Black	Weatherproof, halogen free, flame resistant, functional to 260°C
1	Desert Tan	Fed Std #33446 Desert Tan color
2	Red	Pantone® 1797 U
3	Orange	OSHA Safety Orange to mark energized electrical cables
4	Yellow	Pantone® Yellow U
5	Green	Pantone® 355 U
6	Blue	Pantone® 3005 U
7	Violet	Fed Std 595; #37100
8	Gray	Qualified to US Navy MIL-PRF-24758A, Fed Std 595B #26270 Haze Gray color
9	White	Fed Std 595; #37875

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Jacketing Material Properties	
Material Property	Duralectric™
Temperature Range	-60°C to +260°C
Specific Gravity	1.22
Weight: Lbs./Cubic Inch	.045
Abrasion Resistance	Good
Wear Resistance	Good
Flame Resistance	Excellent
Sunlight Resistance	Excellent

Chemical Resistance	
Aliphatic Hydrocarbons	Excellent
Aromatic Hydrocarbons	Excellent
Ketones, Etc.	Excellent
Oil & Gasoline	Excellent

Glenair Duralectric™ Material Specifications	
Temperature rating: -60°C to +260°C (with excursions to 290°C)	
Halogen free per IEC 60614-1. Less than 5mg of hcl per 1 gm of product tested.	
Accelerated Weathering (Solar) per IEC 60068-2-5; 56 days exposure	
Flame Resistant per IEC 60614-1; Material does not sustain combustion when the source of flame is removed.	
Low Smoke Index per NES 711 (11.75); Minimum standard is 25. The Glenair tested level is 11.75. This makes the material acceptable for interior applications as well as topside.	
Smoke Density Class F1 Per NF F 16-101 IAW DIN EN 60695-2-11:2001	
Toxicity Index per NES 713 (1.9); Minimum standard is 5. The Glenair tested level is 1.9. This makes the material acceptable for interior applications as well as topside.	
Colorable to Fed Std 595B	
Markable IAW MIL-PRF-24758A	
Oxygen Limiting Index = 45.1 Per EN ISO 4589-2:1999; Minimum is 28.	
ASTME E 595 vacuum outgassing–post bake results: TML .06%, CVCM .006%, WVR .02%	
Fungus resistance testing (rating of 0) per MIL-STD-810F, method 508.5	
ASTM D624 DIE B tear test: 150 KN/M	
12 Sec Vertical Burn: (Pass) Per 14CFR Part 25.853(a) amdt 25-116 App F Part 1 (a)(1)(ii)	
Fluids Per MIL STD 810F, Method 504	Cleaner (MIL-C-85570): CALLA-855
Fuel (MIL-T-83133): JPG	Solvent (Isopropyl Alcohol): TT-I-735
Fuel (MIL-T-83133): JPG	De Icer (AMS-1432): E36 Runway Deicer
Hydraulic Fluid (MIL H 5606): ROYCO 756	Coolant (MIL-C-87252): Coolanol 25R
Lube Oil (MIL-L-23699): ROYCO-500	Fire Extinguishant Foam: AMEREX AFFF

LIGHTWEIGHT

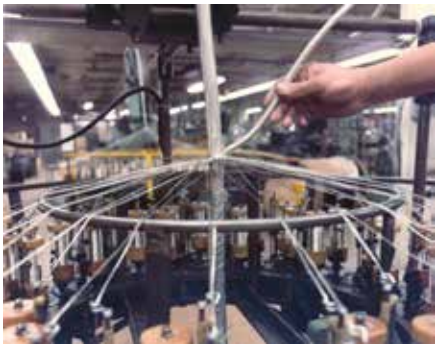
AmberStrand®

Composite metal-clad EMI/RFI braided shielding

AmberStrand® is ultra-lightweight microfilament metal clad EMI/RFI composite braiding

- **Metal-clad EMI/RFI Shielding with a lightweight composite thermoplastic base material**
- **Highly conductive surface plating**
- **Reduce shielding weight up to 80% and more**
- **Reduce operation costs by permanently reducing launch and aircraft all-up weights**
- **Superior high frequency shielding compared to tinned and/or nickel plated copper**
- **Exceptional tensile strength: 590,000 psi (min)**

AmberStrand®:The smart way to reduce launch and flight weights in aerospace systems



Glenair can also offer AmberStrand® users direct factory overbraiding services for both point-to-point as well as multi-branch interconnect assemblies.

Composite strain-relief backshell with integrated AmberStrand® lightweight composite metal-clad braid shield sock.

100% AmberStrand®

103 - 026 - 024

Diameter Dash Number

75%/25% AmberStrand® Blend

103 - 027 - 024

Diameter Dash Number

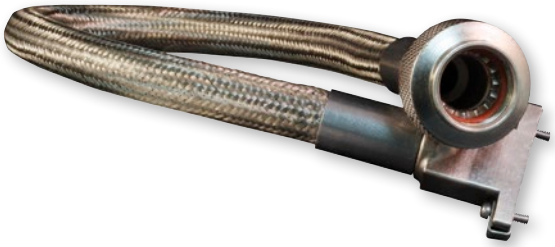
How does Amberstrand® compare, in terms of mechanical performance, to other materials?

Material Type	AmberStrand® Thermoplastic	PEEK (Monofil)	Fluoropolymer (Yarn)	Kevlar (Yarn)	Dacron (Yarn)	Halar (Monofil)	Fluoropolymer FEP (Monofil)	Nomex (Yarn)	Polyester Type FR (Monofil)	Ryton Type R-7 (Monofil)	PTFE-Glass (Yarn)
Glenair P/N	103-026 103-027	102-051	102-061	102-071	102-073	102-023	102-060	103-013	102-001 102-002	102-080	100-022
Temperature Range	-65°C to +200°C	-65°C to +260°C	-55°C to +200°C	-73°C to +175°C	-62°C to +150°C	-65°C to +200°C	-55°C to +260°C	-55°C to +125°C	-55°C to +200°C	-65°C to +200°C	-75°C to +525°C
Tensile Strength (PSI) Yield	590,000	780,000	40,000	400,000	160,000	35,000	14,000	90,000	50,000	19,000	450,000
Elongation Percentage	2.5%	38%	19%	3.6%	12%	15%	50%	25%	20%	35%	5%
Chemical Resistance	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Abrasion Resistance	Good	Excellent	Good	Good	Excellent	Excellent	Good	Good	Good	Excellent	Excellent
Specific Gravity	1.45	1.30	2.10	1.44	1.38	1.68	2.17	1.58	1.38	1.25	2.50
Flammability	Will Not Burn	Very Low	Will Not Burn	Will Not Melt	Flammable	Flammable	Very Low	Will Not Melt	Very Low	Very Low	Will Not Burn

LIGHTWEIGHT

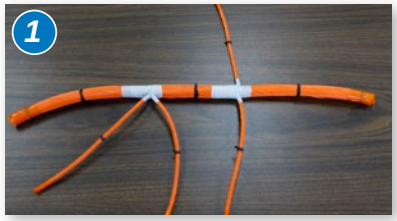
ArmorLite™

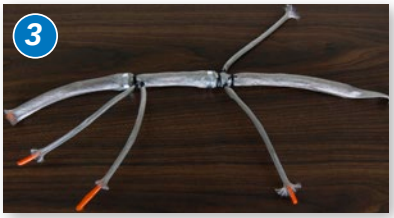
Microfilament nickel-clad stainless steel EMI/RFI braided shielding



- **Ultra-lightweight EMI/RFI braiding for high-temperature applications -80°C to +260°C**
- **Microfilament stainless steel: 70% lighter than NiCu A-A-59569**
- **Outstanding EMI/RFI shielding and conductivity**
- **Reduce shielding weight up to 70% and more**
- **Superior flexibility and "windowing" resistance: 90 to 95% optical coverage**
- **220,000 psi (min) tensile strength**
- **Best performing metallic braid during lightning tests (Run to ANSI/EIA-364-75-1997 Waveform 5B)**

Save weight and money every time you fly! Aircraft All-Up-Weight (AUW) has met its match: ArmorLite™ microfilament stainless steel braid saves pounds compared to standard QQ-B-575/ A-A-59569 EMI/RFI shielding.





Choose user-installable microfilament tubular braid in twelve standard diameters.
Assemble per standard multi-branch cable shielding processes, as above.

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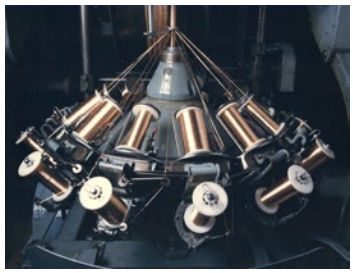


Glenair can also offer ArmorLite™ users direct factory overbraiding services for both point-to-point as well as multi-branch assemblies.

100% ArmorLite™

103 - 051 - 024

Diameter Dash Number

RoHS COMPLIANT

A single layer of ArmorLite™ Shields from 40dB to 80dB in Frequency Ranges from 30kHz to 2.5GHz

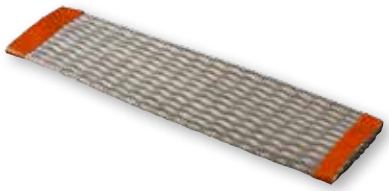
INDUSTRY-STANDARD

EMI/RFI metal braided shielding and fabric braided sleeving

- **Complete range of QQ-B-575B/A-A and ASTM B conductive braided shielding solutions**
- **Tubular, tapered tubular, and overbraided application options**
- **Every size from 1/32" to 3¾"**
- **High performance tubular fabric braided sleeving for every mechanical and wire-protection application requirement**

World's largest selection of metal and fabric cable shields

100-001 TUBULAR METAL BRAID QQ-B-575B/A-A-59569 ASTM B298 TIN COATED COPPER



How To Order				
Sample Part Number	**100-001**	**A**	**XXX**	**L**
Tubular Metal Braid	Tin Coated Copper Braid			
Wire Gauge	**A** = 36 AWG **B** = 34 AWG			
Size	Consult Factory			
Lanyard Option	**L** = Lanyard Omit for none			

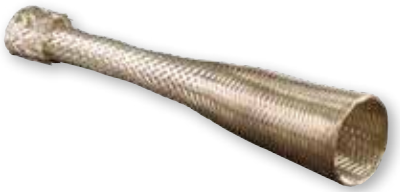
100-002 TUBULAR METAL BRAID QQ-B-575B/A-A-59569 ASTM B298 SILVER COATED COPPER

How To Order				
Sample Part Number	**100-002**	**A**	**XXX**	**L**
Tubular Metal Braid	Silver Coated Copper Braid			
Wire Gauge	**A** = 36 AWG **B** = 34 AWG			
Size	Consult Factory			
Lanyard Option	**L** = Lanyard Omit for none			

100-003 TUBULAR METAL BRAID ASTM B355 CLASS 4 OFHC NICKEL PLATED COPPER

How To Order				
Sample Part Number	**100-003**	**A**	**XXX**	**L**
Tubular Metal Braid	Nickel Plated Copper Braid			
Wire Gauge	**A** = 36 AWG **B** = 34 AWG			
Size	Consult Factory			
Lanyard Option	**L** = Lanyard Omit for none			

100-041 TAPERED TUBULAR METAL BRAID



How To Order					
Sample Part Number	**100-041**	**-06**	**T**	**10**	**A**
Tubular Metal Braid	Tapered Braid				
Dash No.	Diameters .15 – 1.38, Consult Factory				
Material	**A** = 100% AmberStrand® **N** = Nickel/Copper **B** = 75%/25% AmberStrand® **S** = Silver/Copper **L** = 100% ArmorLite™ **T** = Tin/Copper				
Length	In 1 inch increments				
Wire Gauge	A = 36 AWG, Omit for std. 34 AWG (applies to N, S, T materials only.				

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MIL-DTL-24749 TYPE IV

Ground Straps

for Navy shipboard applications

Ground straps utilized in shipboard applications are subject to grueling environmental conditions: wet, cold, salt water spray, and caustic hydraulic fluids. Conventional copper braid/copper lug ground straps corrode, and become a source of electrical resistance problems in these harsh environments.

Glenair MIL-DTL-24749 Rev B Type IV ground straps solve these corrosion and electrical resistance problems with a unique 50% Stainless Steel 316L / 50% Nickel 200 36AWG blend braid, and passivated Stainless Steel lugs. These US Navy-approved ground straps are qualified to the rigorous standards of M24749, and are tested beyond the mil-spec to survive 1000 hours salt spray. Allowed usages for Type IV straps can be found in MIL-STD-1310H.

- **Meets the rigorous specifications of MIL-DTL-24749 Rev. B**
- **Tested to survive 1000 hours salt spray**
- **Unique Stainless Steel/Nickel hybrid braid**
- **Available in six standard configurations, with non-standard length/lug size configurations available**

Glenair MIL-DTL-24749 Rev. B Type IV Stainless Steel/Nickel Ground Straps: US Navy qualified and tested to survive extreme environments

Glenair®

For more information contact Glenair at **818-247-6000** or visit our website at **www.glenair.com**
U.S. CAGE code 06324

LIGHTWEIGHT

ArmorLite™ Microfilament Ground Straps—for Aircraft ESD, Lightning Strike and Other Applications

ARMORLITE™

RoHS COMPLIANT

Lightning interaction mechanisms and protection techniques are well known disciplines in aircraft design. But innovations are still required, particularly in support of efforts to reduce the size, weight and assembly complexity of aircraft electrical systems. Lightweight Glenair technologies for spot grounding are broadly utilized for:

- Grounding airframe sections
- Dissipating static build-up in composite structures
- Dissipating lightning strike energy
- Grounding individual moving parts in complex equipment such as landing gear

ArmorLite™ microfilament braid offers 70+% weight savings over standard NiCu braid—plus advantages in virtually every category due to Glenair's ability to fine-tune the makeup of the material cross-section (core, cladding and protective plating) to the exact requirements of each application. Glenair ArmorLite™ lightweight microfilament braids, and hybrid ArmorLite™ and nickel braids are now approved for use by every major airframe and equipment manufacturer.

CUSTOM CONFIGURATIONS AVAILABLE

Hybrid Materials

Bent Lugs

Heavy Duty

GLENAIR BONDING ENGINEERS ARE EXPERTS IN GROUND STRAP OPTIMIZATION FOR:

- **Weight and conductivity**
- **Electrical resistance and high operating temperature (200°C)**
- **Rapid heat distribution**
- **Bend cycle durability up to 250,000 cycles per EN4199-001**
- **Material aging and corrosion resistance**

Comprehensive test reports available

SERIES 72, 74, AND 75

Metal and Polymer Core Conduit Systems

The flexible, lightweight alternative to standard jacketed cables

Conduit systems are ideally suited when wire protection requirements do not allow the specification of standard jacketed and shielded cabling. Jet aircraft landing gear applications, for example, require greater flexibility and mechanical protection against impact damage than is possible to provide in even the most aggressively armored cables. Glenair metal-core and polymer-core conduit systems provide superior wire protection, electromagnetic compatibility, flexibility, and ease-of-installation and maintenance compared to standard jacketed cables. Choose from turnkey factory-terminated systems or convenient user-installable fittings and materials.

SERIES 72

Annular Polymer-Core Conduit Systems

Standard Black and Natural/Clear Annular Tubing

Blue, Yellow, Red, Desert Tan, and Orange Annular Polymer-Core Tubing

- **Lightweight, flexible polymer-core materials and easy to install fittings, transitions and adapters**
- **Choice of three tubing material choices: Kynar, PVDF and G-FLEX Siltem**
- **A wide range of colors including desert tan**
- **Choice of turnkey, factory-terminated assemblies or user-installable configurations**
- **All popular part numbers in stock and ready for same-day shipment**

High-performance annular convoluted tubing provides an economical, lightweight and durable enclosure for interconnect wiring

Part Number 120-144

For non-environmental and non-EMI/RFI applications

Strong, abrasion resistant annular conduit tubing, supplied in thermally stabilized Kynar®, PVDF, or medium duty Siltem. Available in 7 colors, standard or slit.

Part Number 121-190

For non-environmental EMI/RFI applications

Annular conduit tubing with braided shield for EMI/RFI protection and additional structural integrity, particularly pull (tensile) strength.

Part Number 121-191

For environmental EMI/RFI applications

Annular conduit tubing with braided shielding for EMI/RFI protection and a ruggedized jacket for environmental protection against dust, dirt, and moisture incursion.

Part Number 121-192

For non-environmental EMI/RFI applications with high dB shielding requirements

Annular conduit tubing with double braided shield for high frequency EMI/RFI protection and mechanical strength.

Part Number 121-193

For environmental EMI/RFI applications with high dB shielding requirements

Annular conduit tubing with double braided shield and jacket for optimum EMI/RFI protection, strength and environmental sealing.

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Helical Polymer-Core Conduit Systems

Seven standard tubing configurations,
with and without braided shielding and jacketing

- **Lightweight, flexible helical polymer-core materials and easy to install fittings, transitions and adapters**
- **ETFE, FEP, PFA, PTFE, and PEEK plus AS81914 /1 – 11 qualified materials and configurations**
- **Choice of turnkey, factory-terminated assemblies or user-installable configurations**
- **All popular part numbers in stock and ready for same-day shipment**

AS81914 qualified Series 74 high-performance helical convoluted tubing, backshells, fittings and assemblies

Outstanding mechanical wire protection and lubricity for non-environmental and non-EMI/RFI applications

Helical plastic convoluted tubing , available in a choice of 5 materials. Choose standard black or clear color.

Adds EMI/RFI braided shielding for use in non-environmental applications

Helical plastic convoluted tubing, available in a choice of 5 materials, with a single braided shield for EMI/RFI protection.

Adds a second layer of high dB EMI/RFI shielding for use in non-environmental applications

Helical plastic convoluted tubing, available in a choice of 5 materials, with double braided shield for high frequency shielding applications.

A jacketed configuration with one EMI/RFI shield for use in environmental applications

Helical plastic convoluted tubing, available in a choice of 5 materials, with braided shielding for EMI/RFI protection and a ruggedized jacket for environmental protection.

Double-braided and jacketed configuration for environmental and high dB EMI/RFI shielding protection

Helical plastic convoluted tubing, available in a choice of 5 materials with double shielding and jacket for optimum EMI/RFI protection and environmental sealing.

For environmental applications without EMI shielding requirements

Helical convoluted tubing in choice of 5 materials with a ruggedized jacket for environmental protection.

Internal braid configuration for harsh chemical environment applications, with EMI/RFI shielding

Chemical- and UV-resistant plastic conduit tubing with internal braid for weight savings and harsh-environment EMI/RFI protection.

Metal-Core Conduit Systems

Copper-clad nickel iron conduit

- **Hermetically sealed, flexible metal-core conduit for interconnect applications**
- **Choice of three materials: Brass, Stainless Steel, and Nickel Iron Alloy**
- **Turnkey, factory-terminated assemblies for landing gear and other rugged aerospace applications**
- **All materials deliver superior EMC performance as well as crush resistance and environmental sealing**

The ultimate in highly flexible, crush-proof EMI/EMP protection: Series 75 helically-wound metal-core conduit

Superior EMI protection and crush-proof strength for static applications

Highly flexible crush-proof metal conduit, available in Nickel-Iron, Brass, or SST.

Adds braided shielding for additional tensile strength applications

Flexible metal-core conduit tubing with numerous braided shielding options, for additional tensile strength and effective grounding of electromagnetic interference.

Adds a jacket for environmental protection

Flexible metal-core conduit tubing with braided shielding plus a ruggedized jacket for environmental protection against contaminants and moisture.

Adds a second braided shield for high dB EMI/RFI shielding

Flexible metal-core conduit tubing with double braided shield for high frequency EMI/RFI shielding requirements.

A jacketed, double-braided configuration for combined environmental and EMI/RFI applications with high dB shielding requirements

Flexible metal-core conduit tubing with double braided shield and jacket for optimum EMI/RFI protection, strength and environmental sealing.

Triple-braided conduit for predictable and reliable grounding of surface-borne/high frequency electromagnetic interference

Flexible metal-core conduit tubing with triple braided shield for optimal tensile strength and enhanced high frequency EMI/RFI protection.

Triple-braided and jacketed conduit for maximum EMI shielding in environmental applications

Flexible metal-core conduit tubing with triple braided shield and jacket for enhanced high-frequency EMI/RFI protection, strength and environmental sealing.

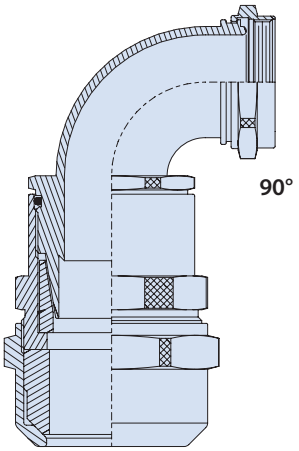
MIL-PRF-24758

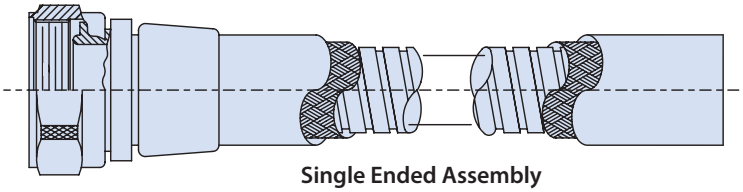
Navy Shipboard Conduit Systems

and other special-purpose conduit systems

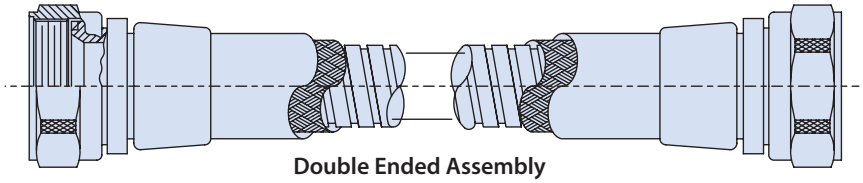
- **Qualified to MIL-PRF-24758A(SH)**
- **User-installable and factory terminated configurations**
- **Innovative stainless steel fittings with advanced environmental sealing, EMI shield termination and rotatable coupling nut**
- **Adapters for all shipboard interfaces—fully compatible with legacy MIL-C-24758 conduit system components**

Do it once, do it right with Glenair MIL-PRF-24758 and other special purpose wire protection conduit systems





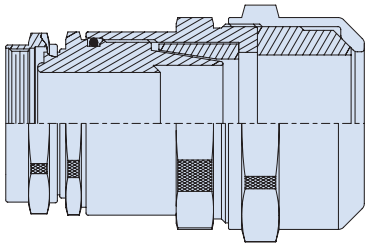
Single Ended Assembly

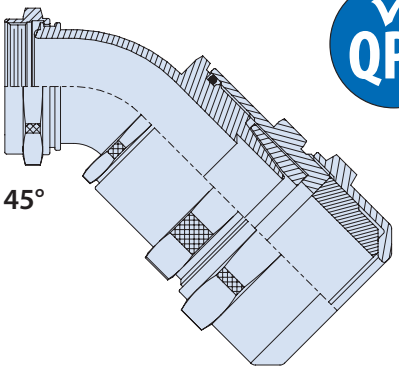


Double Ended Assembly

MIL-PRF-24758 Configuration Options: Choose from high-performance user-installable fittings or lighter weight factory terminated assemblies

Straight





QPL

H

CONVOLUTED POLYMER-CORE TUBING WITH DRAIN HOLES

Reference Part No.
(Consult factory for additional materials and configurations)

120 - 143

For aerospace applications where altitude changes can cause moisture condensation within conduit, Glenair produces convoluted polymer-core tubing with drain holes. All major aircraft OEM hole patterns are on file, contact the factory for details on specific configurations.

QPL AND COMMERCIAL

Backshells and Connector Accessories

For every environmental, mechanical, and EMI requirement

Glenair is one of the original military/aerospace manufacturers engaged in the design and production of high-performance backshells, dustcaps, shield termination devices and other connector accessories. In operation since 1956, Glenair has designed and produced more innovative connector accessory products than the rest of our industry combined. Glenair interconnect engineers are responsible for developing literally thousands of innovative connector accessories—from lightweight and corrosion-free composite thermoplastic strain reliefs to innovative fiber optic backshells. Today, the company is able to supply accessory solutions for every requirement, no matter how unique or challenging.

QPL AND COMMERCIAL

Circular Connector Backshells and Accessories

Innovation and availability: the Glenair connector accessory product line

- **High-performance circular connector accessories for every environmental, mechanical and electromagnetic shielding requirements**
- **QPL'd AS85049 backshells**
- **Tens of thousands of popular part numbers in inventory ready for same-day shipment**
- **Fast turnaround on non-standard and made-to-order accessories, typically only two to three weeks**
- **RoHS compliant plating options**

PROTECTIVE COVERS AND STOWAGE RECEPTACLES

Proper environmental and mechanical protection of mission-critical connectors relies on protective covers and stowage receptacles. Only Glenair offers the complete range of these accessories for every connector series in active use, including the hard-to-find protective covers for MIL-PRF-39012 RF connectors shown here. All Glenair protective covers and dummy stowage receptacles are in-stock and available for immediate, same-day shipment.

METAL AND COMPOSITE

Rectangular backshells and accessories

Proven performance backshells and accessories for rectangular connectors

Glenair offers more tested and tooled rectangular interconnect products–including the world's broadest range of rectangular backshells–than any other supplier in the industry. Simply put, from the smallest Micro-D subminiature to the largest ARINC 600, Glenair has an unparalleled range of solutions. Need something light and corrosion free? Glenair is the industry leader in tooled composite thermoplastic connector accessories.

- **All forms of environmental, mechanical and EMC backshells**
- **Straight, 45° and 90° cable routing**
- **High-temp composite thermoplastic and metal shell versions**
- **To fit all current and legacy rectangular connectors**
- **Innovative split-shell versions for easy access to wire terminations**
- **Equally large range of protective covers and caps**
- **Thousands of part numbers in stock and ready for immediate shipment**

QWIKSNAP™

Glenair has developed an extensive range of lightweight QwikSnap™ backshells that completely eliminate assembly hardware in split-shell backshells. QwikSnap™ utilizes innovative composite spring latch technology to reduce weight, FOD, and accelerate assembly.

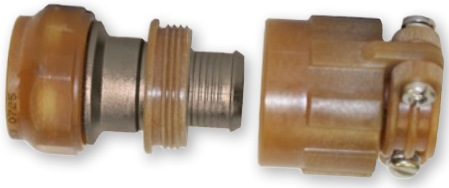
LIGHTWEIGHT

Composite Backshells and Accessories

Corrosion resistance, weight reduction, durability and design innovation

- **High temperature engineered thermo-plastics for maximum strength and durability**
- **Total immunity to galvanic corrosion**
- **Up to 70% weight reduction compared to standard metal connectors and accessories**
- **Hundreds of innovative, tooled designs in stock**

Composite Swing-Arm™ shield termination strain-relief clamp



Composite Band-in-a-Can shield termination backshell and strain-relief clamp

1000 HOUR GREY™ Ni-PTFE NICKEL FLUOROCARBON POLYMER PLATING

The MIL-DTL-38999 Rev L detail specification lists Nickel Fluorocarbon Polymer as a qualified Cadmium free plating alternative. This highly conductive, RoHS compliant plating formula is now available on composite interconnect products from Glenair and offers the following benefits in harsh-environment applications:

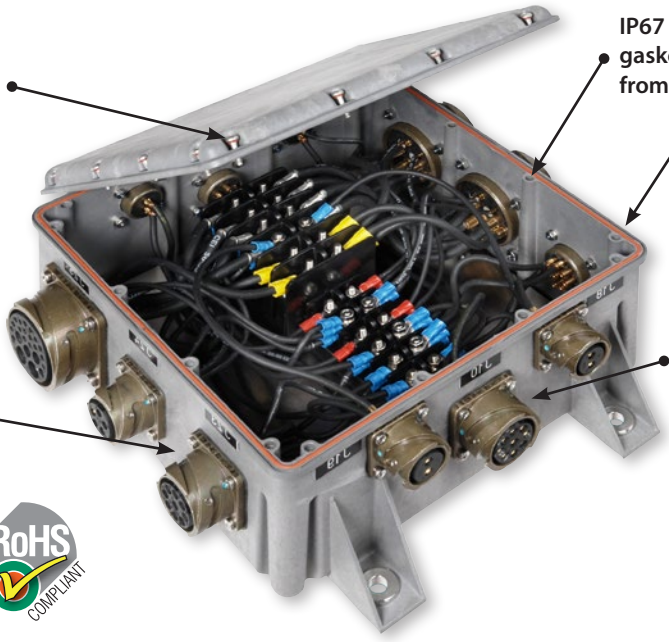
- **2000+ hour salt spray**
- **Cadmium free**
- **Outstanding mating lubricity**
- **Hexavalent Chromium free**
- **500+ mating cycles**
- **Non-Magnetic**

COST SAVER

Shielded Composite Junction Boxes

Install it and forget it: Glenair corrosion-free EMI/RFI shielded composite junction boxes

- **Over a dozen different tooled sizes and shapes.**
- **Extremely durable, corrosion-free, high temperature engineering composite thermoplastic**
- **Tested and qualified to U.S. Navy, UK MOD and hundreds of commercial aircraft and marine applications**



Series 316 stainless steel hardware provides long-term durability

IP67 rated seals and gaskets protect equipment from moisture and dust

Unlimited corrosion resistance compared to metal junction boxes reduces repair and maintenance costs.

Glass reinforced composite thermoplastic material is strong and durable and yet extremely lightweight.

Low harmonic resonance and inherent attenuating properties reduce loosening and decoupling of feed-through fittings and accessories.

RoHS COMPLIANT

INDUSTRY STANDARD

Interconnect Assembly Tools

The right tool for every interconnect assembly requirement

Glenair offers its connector and connector accessory customers every convenience in the provision of contact termination, shield termination, and backshell-to-connector assembly tooling. We are also proud to offer branded solutions from other well-known tool manufacturers such as Daniels (DMC) crimp tools. From pneumatic Earth-Bond tooling for the rail industry, to fiber optic termination and test equipment, Glenair is your most knowledgeable and reliable source for special-purpose interconnect assembly tooling.

BAND-MASTER™ ATS

EMI/RFI Shield Termination System

The advanced termination system for interconnect cable shielding

- **Fast, cost-effective cable shielding termination**
- **Precision hand-held tool and bands deliver reliable, repeatable performance**
- **Single piece stainless steel bands in various sizes and lengths**
- **Clamp both small and large diameters easily and reliably**
- **Pneumatic banding tool for high-speed mass production**
- **Qualified for both military and commercial aviation**

The Band-Master™ ATS provides quick, easy, cost-effective and highly reliable termination of braided metallic shielding or fabric braid to connectors and backshells.

Band-Master™ ATS is the advanced termination system for interconnect cable shielding. The unique low profile and smooth inside diameter of the one-piece type 304 austenitic stainless steel clamping band virtually eliminates RFI/EMI/EMP leakage paths. The lock maintains constant tension under extreme environmental conditions. Band-Master™ ATS bands have passed severe shock, vibration and thermal cycle testing with negligible deterioration of shell conductivity.

RoHS COMPLIANT

QPL qualified

Glenair Band-Master™ ATS Bands are also AS85049/128 qualified

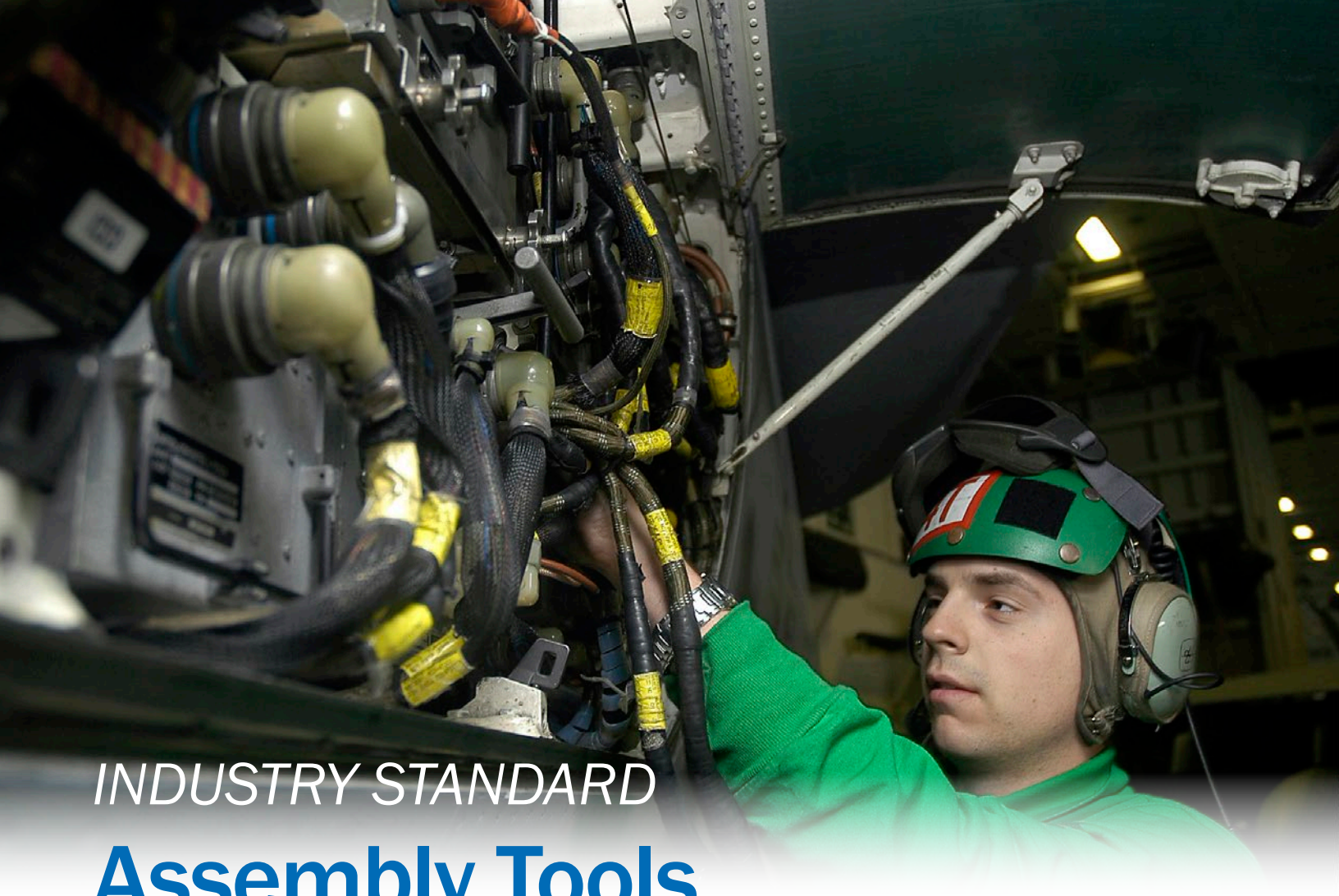
BAND-MASTER™ ATS ADVANCED TERMINATION SYSTEM

Easy-to-use manual tools with built-in calibration counter

High-volume pneumatic tool for bench use

Save time and tool maintenance costs with the Glenair band tool calibration system

K



INDUSTRY STANDARD

Assembly Tools

Glenair offers a complete family of backshell assembly tools for most Mil-Standard circular connectors, as well as connector wrenches, strap wrenches, and universal connector holding tools

- **Backshell-to-connector holding tools for all cylindrical connectors and accessories in current use**
- **Special composite thermoplastic coupling nut holding tools**
- **Discrete tools and complete sets available**
- **Popular Glenair strap wrenches**
- **Hand-held and bench-mountable digital torque wrenches**
- **Cutting shears and other special-purpose cable assembly tools**
- **Instructional videos, installation procedures and manuals available at glenair.com**

HIGH-RELIABILITY

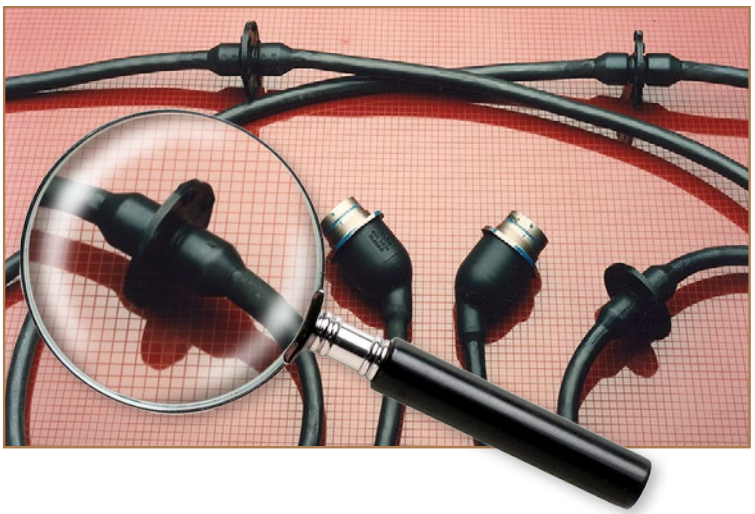
Cable Assemblies and Integrated Systems

Customer bespoke cable harnesses and assemblies for mil/aero applications

Glenair has been the go-to cable house for high-performance interconnect cable assemblies for more than 50 years. We specialize in delivering terminated, tested cable harnesses and assemblies with 100% reliability and quality control. We offer complete, turnkey cable assembly services from design engineering to fabrication and test, and are qualified to all military and commercial aerospace standards.

MADE-TO-ORDER

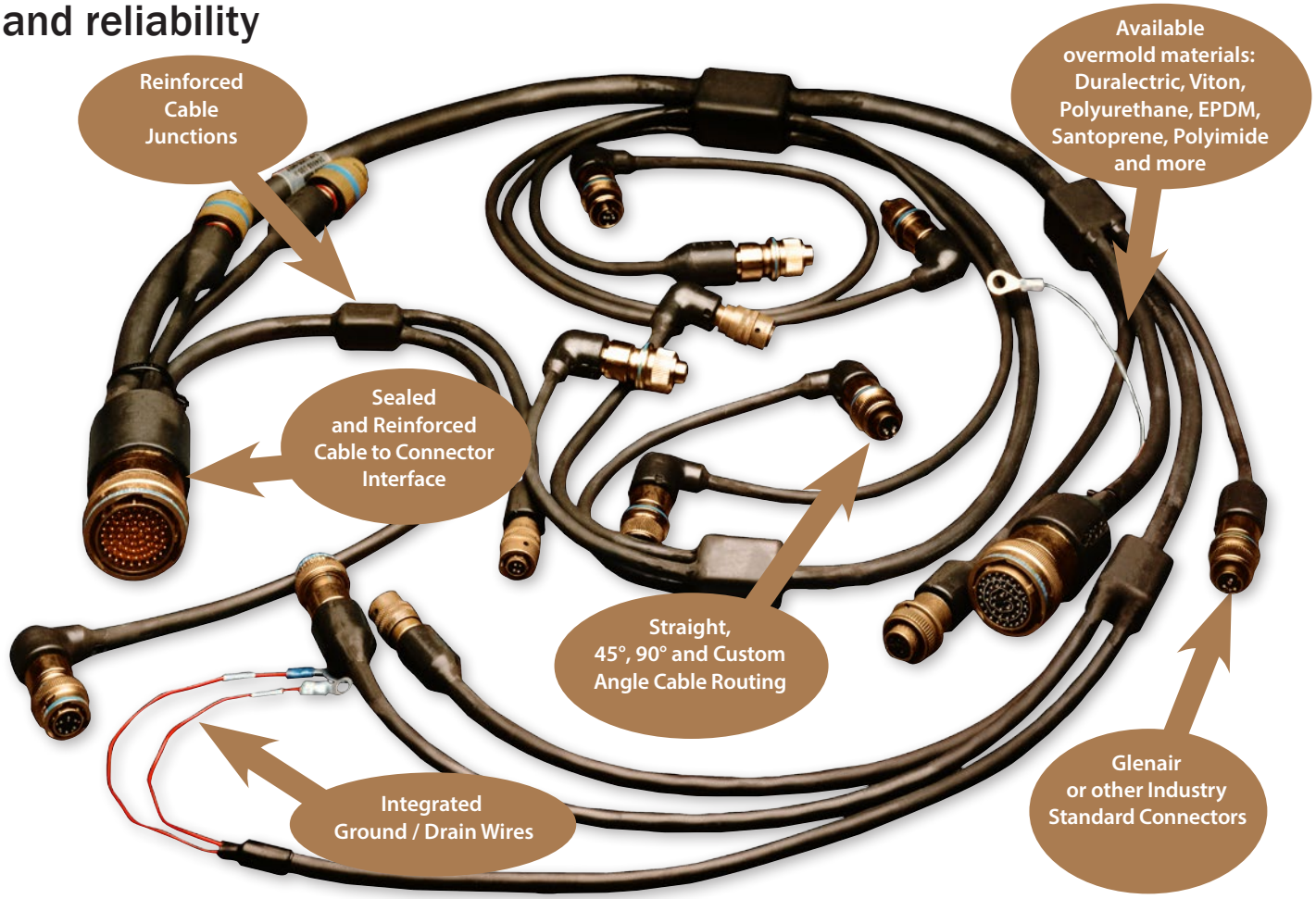
Complex Cable Assemblies
Glenair: *The* Overmold Specialists



Advantages of Overmolding

- **Waterproof sealing**
- **Robust mechanical protection**
- **Protection of terminations**
- **Ideally suited for chemical and fuel cell applications**
- **No induced cold flow stress**
- **Electrical isolation and insulation**
- **Reduced wear damage**
- **Flexible routing/cable entry**

Terminated, overmolded, tested, and ready for use. Glenair cable harnesses and assemblies are recognized industry-wide for quality and reliability



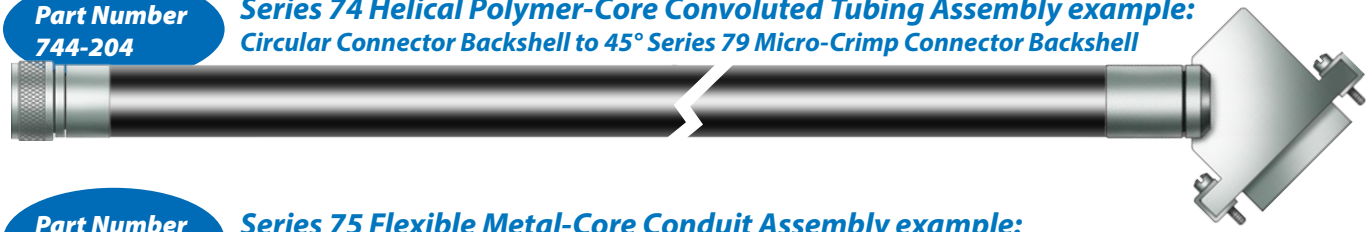
L

- **Glenair can design, build, terminate—and even pre-wire—turnkey conduit wire routing solutions.**
- **Certified factory assemblers and calibrated tooling create better-performing systems.**
- **Simple point-to-point or complex multi-branch.**

Reduce package size, weight, and labor with turnkey factory assemblies

Part Number 744-204

Series 74 Helical Polymer-Core Convoluted Tubing Assembly example:
Circular Connector Backshell to 45° Series 79 Micro-Crimp Connector Backshell



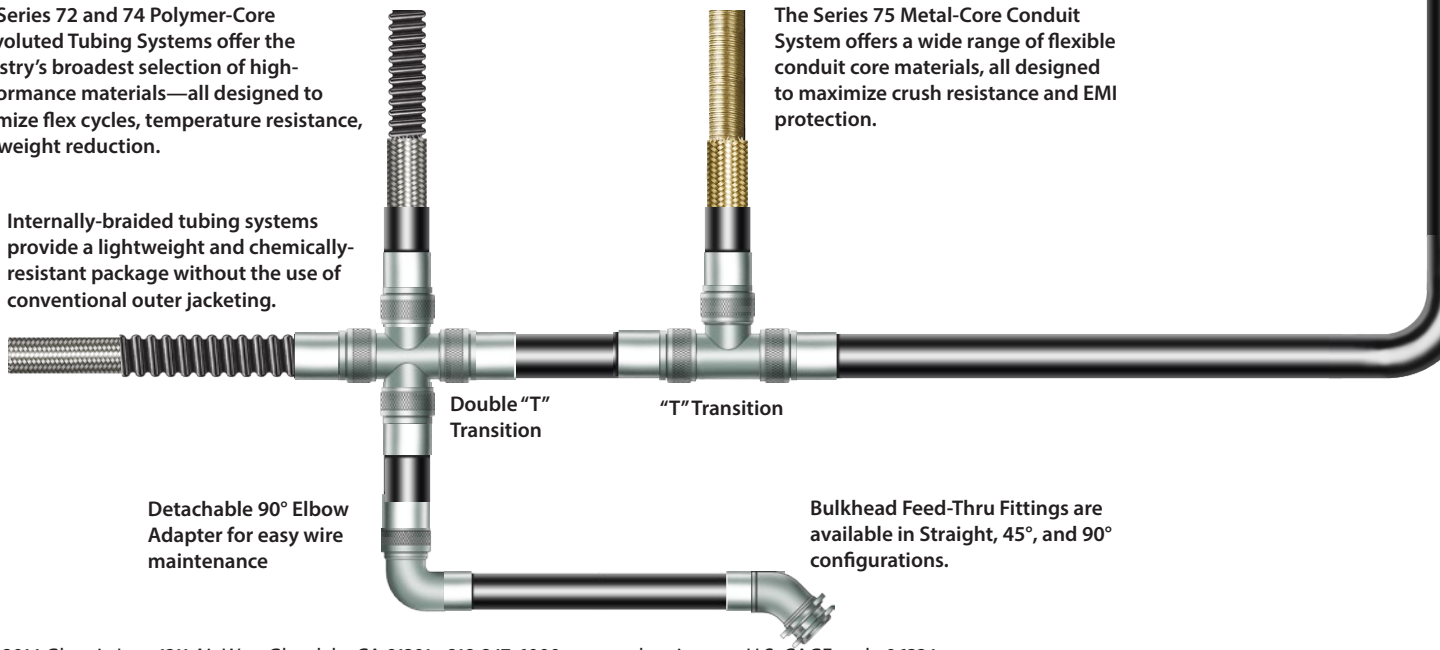
Part Number 754-007

Series 75 Flexible Metal-Core Conduit Assembly example:
Band-In-A-Can Connector Backshell to Band-In-A-Can Connector Backshell

The Series 72 and 74 Polymer-Core Convoluted Tubing Systems offer the industry's broadest selection of high-performance materials—all designed to optimize flex cycles, temperature resistance, and weight reduction.

Internally-braided tubing systems provide a lightweight and chemically-resistant package without the use of conventional outer jacketing.

The Series 75 Metal-Core Conduit System offers a wide range of flexible conduit core materials, all designed to maximize crush resistance and EMI protection.



L

MICRO/NANO

Flex Circuit Assemblies

Build-to-print interconnect assemblies that combine circuit board technology and cabling into a lightweight, integrated package.

Glenair turnkey design, termination and assembly services available worldwide.

ADVANTAGES OF FLEX CIRCUITRY

- **Unsurpassed size and weight reduction**
- **Outstanding mechanical performance**
- **Convenient packaging and integration**
- **Reliable resistance to Harsh environments**

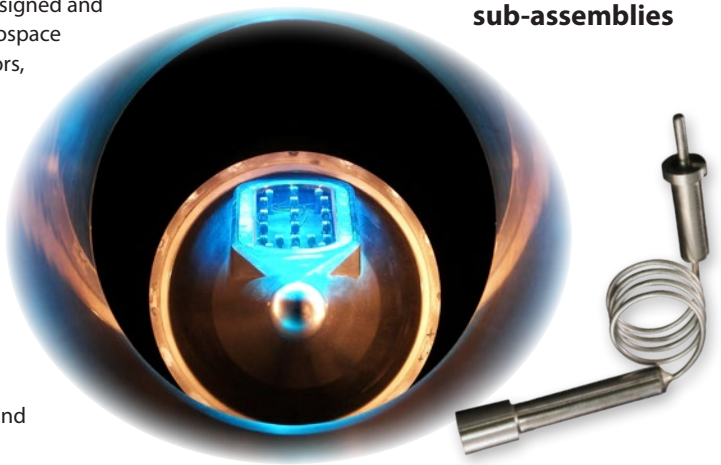
Turnkey AlphaLink™ Flex Jumpers					
					
Circular Nano to AlphaLink® flex jumper	SuperFly to AlphaLink® flex jumper	Mighty Mouse to AlphaLink® flex jumper	Rectangular Nano to AlphaLink® flex jumper	Micro-D to AlphaLink® flex jumper	Micro-Crimp to AlphaLink® flex jumper

Pure Air/Nitrogen Cooling Systems

Complete systems and ancillaries for IR guided weapons and weapons ejection applications

- **Ultraminiature and lightweight pneumatic components and sub-assemblies**
- **Brazed stainless steel pipework**
- **Pure air and nitrogen (DEF STAN 58-96)**
- **High-pressure cylinders, soleniod valves, manifolds, and complete sub-assemblies**

Glenair high pressure Pure-Air/Nitrogen gas solutions are designed and performance tested for use in a wide variety of Defence, Aerospace and Other applications, including cooling of infrared detectors, missile seekers and all high pressure pneumatic actuation and deployment systems. Products include, Sealed for Life Gas Supply Systems, Re-chargeable Gas Supply Systems, High Pressure Solenoid Valves (miniature & low voltage), Small Bore pipe Assemblies, Relief Valves, Integrated Manifold Assemblies, Charge Valves and High Pressure Vessels. All Systems and Ancillaries are designed for direct incorporation into Joule Thompson (JT) cryogenic systems and all applications which require reliable pressurization, blow down, actuation, and IR Cooling. Glenair Pure-Air and High Pressure Systems and components are designed to exact customer requirements and specifications.



SERIES 06

Hold-Down Release Mechanism Technology

High-reliability, non-explosive electromechanical release mechanism technology for dependable stowage and release of deployable space systems

Glenair HDRM device technology is optimized for reliability with built-in mechanical and electrical redundancy. The planned release of the deployable system is activated by a pre-determined value of electrical current to a fuse-wire system which causes the wire to break under tension and allow the pre-loaded mechanical bolt to actuate. Glenair is now positioned to incorporate HDRM technology into a broad range of customer-defined housing and mounting configurations.

- **Electromechanical (non-explosive) technology**
- **Immune to electromagnetic interference**
- **User-serviceable and reusable**
- **Scalable design, up to 40,000 lbs. preload**
- **Ultra-low-shock release**

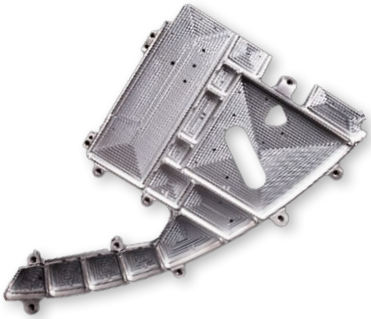
Glenair®

For more information contact Glenair at **818-247-6000** or visit our website at **www.glenair.com**

Integrated Systems

Turnkey, precision-machined wired chassis, integrated electronic/photonic systems *plus* Glenair-built interconnect cabling

Glenair, together with our precision machining partner Dynomax, is able to offer our defense, aerospace and other customers fast, turnkey build-to-print integrated system solutions. From landing gear assemblies to in-flight entertainment platforms, Glenair is uniquely positioned to leverage our component manufacturing, interconnect cable assembly and structural member fabrication capabilities to meet the broadest range of integrated system requirements. Our US-based factories in Glendale, California and Chicago, Illinois are FAA, Mil and ISO 9001 certified, and ready to tackle any integrated system requirement for today's high-performance military and aerospace applications. Our Glenair UK facility is also Mil and ISO 9001 certified and in addition offers ESA and BS certified components and technologies. Glenair Italia is equally credentialed and adds IRIS (International Railway Industry Standard) certification and operates an IEC certified test lab. Our worldwide design and manufacturing teams are ready to provide start-to-finish engineering and assembly support on even the most complex integrated system projects.



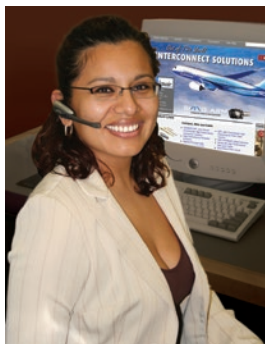
Precision-machined, injection molded or stamped-and-formed boxes and structural members

Multibranch interconnect cable harnesses and assemblies—terminated, tested, and ready for use

Turnkey integrated system components: Vertically integrated manufacturing, from backplanes to avionic control panels

Glenair®

Service and Support



Fast Turnaround on Quotes and Orders

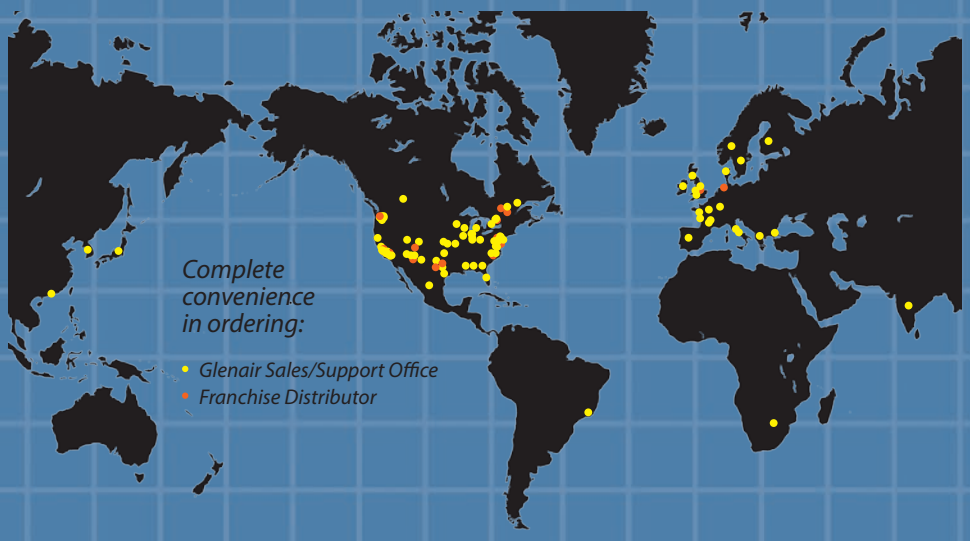
Our high-availability business model puts customer service, support, and convenience first

Huge "Same-Day" Inventory

NO MINS. No Dollar or Quantity Minimum Orders

Made in America since 1956

Abundant Machining Capacity



Plenty of Raw Materials

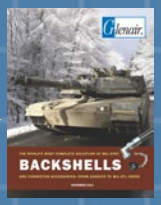
Glenair® Backshells and Beyond

Glenair is a full-spectrum interconnect supplier—manufacturing a complete range of solutions in Glendale since 1956

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



1997: Glenair introduces the ultra-miniature Series 80 Mighty Mouse

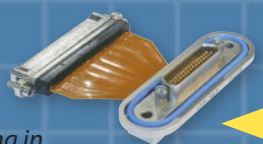
2001: Glenair launches high-performance fiber optic product line

2005: Glenair launches its line of EMI/EMP Filter connectors

2010: Glenair invents high-performance Series 970 PowerTrip

1950 1960 1970 1980 1990 2000 2010 2020 2030

1965: Glenair manufactures the "Golden Umbilical" spacewalk cable

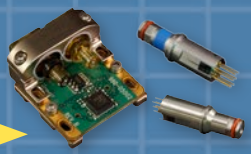


1972: Glenair launches Mansfield, UK factory specializing in complex cable assemblies and Micro-D flex circuitry

1997: Glenair acquires Micro-D connector and TwistPin contact manufacturer, Microway Systems

SWING ARM®
COMPOSITE THREE-IN-ONE BACKSHELL

1999: Glenair introduces the composite 3-in-1 Swing-Arm strain-relief



2012: Glenair launches Opto-Electronic connector division

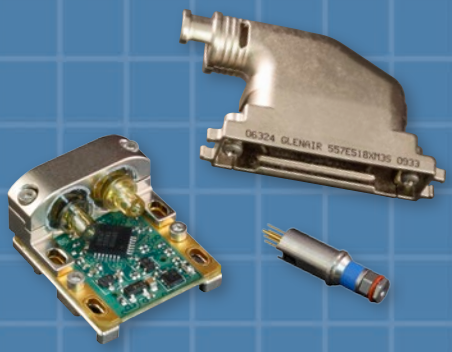
2005: Glenair acquires Italian industrial/rail connector manufacturer, Commital

SuperFly®

2012: Glenair introduces nanominiature Series 88 SuperFly

Glenair®

Engineering Services



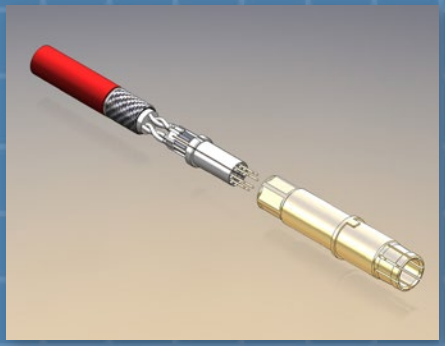
Glenair design expertise extends from innovative composite backshells to complex opto-electronic assemblies

The industry's most experienced engineering and design team—in every discipline—from backshells to flex circuit boards

LIBERAL NRE POLICY

Let us be your design partner: Glenair has the most liberal NRE policy in the industry

Glenair's engineering team in Glendale is augmented by regional teams worldwide, and we love to travel. Our place or yours? We work at our customers' convenience.



Glenair excels in the design of miniaturized components such as this full Gigabit Ethernet contact

No one in our industry has more engineering experience with composites, and other innovative materials, than Glenair

Glenair®

Committed to Quality

How can you be sure Glenair connectors are high-quality and will deliver long-term reliable performance?

1 Mil-Spec Certifications: *Glenair is qualified to hundreds of rigorously controlled product and process certifications administered by the US government.*

2 Certified Quality System: *Glenair is ISO 9001:2008 and AS9100:2009 Rev. C certified and registered in North America; IRIS (International Railway Industry Standard), AS9100 SAE Aerospace and ISO 9001 certified and registered in Italy, and AS9100 certified and registered in the U.K.*

Raytheon · Northrop Grumman · DRS Technologies · Boeing · Lockheed Martin · COMAC · L3 · GE · Bombardier · Honeywell · SAAB · Embraer · eurocopter · SpaceX · General Dynamics · Gulfstream · BAE · Airbus · Harris · Thales · Orbital

3 Satisfied Customers: *Hundreds of world-class OEMs and system manufacturers have tested and qualified our products. Many conduct independent audits of Glenair quality on an annual basis.*

4 Design Partner: *Not just a supplier, Glenair has been a key design partner on thousands of successful electrical/optical interconnect applications*

F-35 LIGHTNING II

Glenair®

Out of This World

INTERCONNECT SOLUTIONS

Glenair, Inc.
1211 Air Way • Glendale, California • 91201-2497
Telephone: 818-247-6000 • Fax: 818-500-9912 • sales@glenair.com
www.glenair.com

Glenair Power Products Group
860 N. Main Street Extension
Wallingford, CT
06492
Telephone: 203-741-1115
Facsimile: 203-741-0053
sales@glenair.com

Glenair Microway Systems
7000 North Lawndale Avenue
Lincolnwood, IL
60712
Telephone: 847-679-8833
Facsimile: 847-679-8849

Glenair Electric GmbH
Schaberweg 28
61348 Bad Homburg
Germany
Telephone: 06172 / 68 16 0
Facsimile: 06172 / 68 16 90
germany@glenair.com

Glenair Italia S.p.A.
Via Del Lavoro, 7
40057 Quarto Inferiore –
Granarolo dell'Emilia
Bologna, Italy
Telephone: +39-051-782811
Facsimile: +39-051-782259
info@glenair.it

Glenair UK Ltd
40 Lower Oakham Way
Oakham Business Park
P.O. Box 37, Mansfield
Notts, NG18 5BY England
Telephone: +44-1623-638100
Facsimile: +44-1623-638111
sales@glenair.co.uk

Glenair Nordic AB
Gustav III : S Boulevard 46
S - 169 27 Solna
Sweden
Telephone: +46-8-50550000
Facsimile: +46-8-50550001
sales@glenair.se

Glenair Iberica
C/ La Vega, 16
45612 Velada
Spain
Telephone: +34-925-89-29-88
Facsimile: +34-925-89-29-87
sales@glenair.es

Glenair France SARL
7, Avenue Parmentier
Immeuble Central Parc #2
31200 Toulouse
France
Telephone: +33-5-34-40-97-40
Facsimile: +33-5-61-47-86-10
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Largest Supplier of Electrical and Electronic Components

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