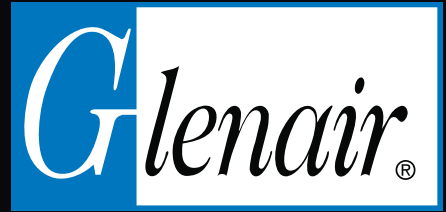


MISSION-CRITICAL
INTERCONNECT
SOLUTIONS



Glennair
SIGNATURE SERIES



Industrial-Strength Interconnect Solutions

Harsh-Environment, High-Speed, High-Current /
High-Power Connectors for Nuclear, Rail, and Industry

Industrial-Strength Interconnect Solutions

Harsh-Environment, High-Speed, High-Current / High-Power Connectors for Nuclear, Rail, and Industry



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

HIGH-PERFORMANCE REVERSE-BAYONET



HIGH-SPEED, HIGH DATA-RATE SOLUTIONS



NUCLEAR-GRADE QUICK-DISCONNECT



INDUSTRY-STANDARD M5015 / VG95234 TYPE AND OTHER RAIL INDUSTRY INTERCONNECTS



HIGH-CURRENT, HIGH-VOLTAGE





HIGH AMPACITY Super ITS - 921

Ultra high-performance reverse-bayonet power connectors

Reverse-bayonet derivatives of M5015 / VG95234 threaded connectors have long been preferred for their rapid mating and rugged resistance to vibration and shock in harsh-environment applications such as military vehicles and missile batteries. Now Glenair introduces an ultra high-performance version of the reverse-bayonet M5015 / VG95234 power connector called the Super ITS - 921. This series is designed for high-ampacity applications where low insertion force LouverBand type contacts, mechanical contact retention, broad temperature tolerance, reduced size, and superior connector and wire sealing is required.

Super ITS - 921 is an extremely durable and environmentally-sealed connector, designed with its own set of high-density contact insert arrangements. Unlike conventional 5015-type connectors designed for industrial and rail applications, the Super ITS - 921 offers uncompromised electrical, mechanical, and environmental performance features such as precision-machined aluminum alloy or stainless steel shells with 2000 mating cycle lifespan, rigid thermoplastic two-piece insulators, and machined, highly conductive copper alloy LouverBand contacts. Designed for extreme harsh environments such as are found in military defense applications, the Super ITS - 921 delivers contact and wire support from #16 to 2/0 and 1 mmq – 70 mmq respectively. With ampacity up to 350 amps, and a max working voltage of 2450 VCC / 1750 VCA, the Super ITS - 921 represents the ultimate in mission-critical power interconnection. This power distribution connector is fully tooled and available for immediate application.

- Super ITS-921 is a high-density reverse-bayonet connector with reduced size compared to standard M5015
- Low insertion force, high-ampacity front-release LouverBand contacts
- Rigid thermoplastic insulator with internal contact retention clips
- Precision-machined aluminum, stainless steel or marine bronze shells with polarization keys
- Interfacial and individual wire sealing for IP67 performance
- Broad operating temperature range: -65° to +180°C
- 2000-cycle reduced insertion-force mating

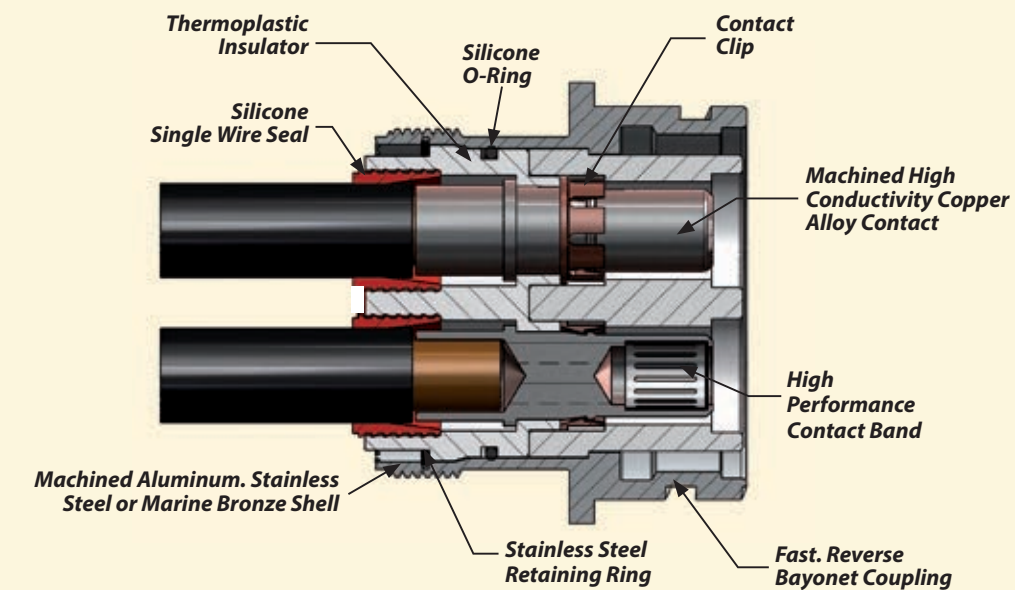
ADVANCED PERFORMANCE Super ITS-921 Reverse-Bayonet Rigid Insert, High-Ampacity Connectors



Features and Benefits

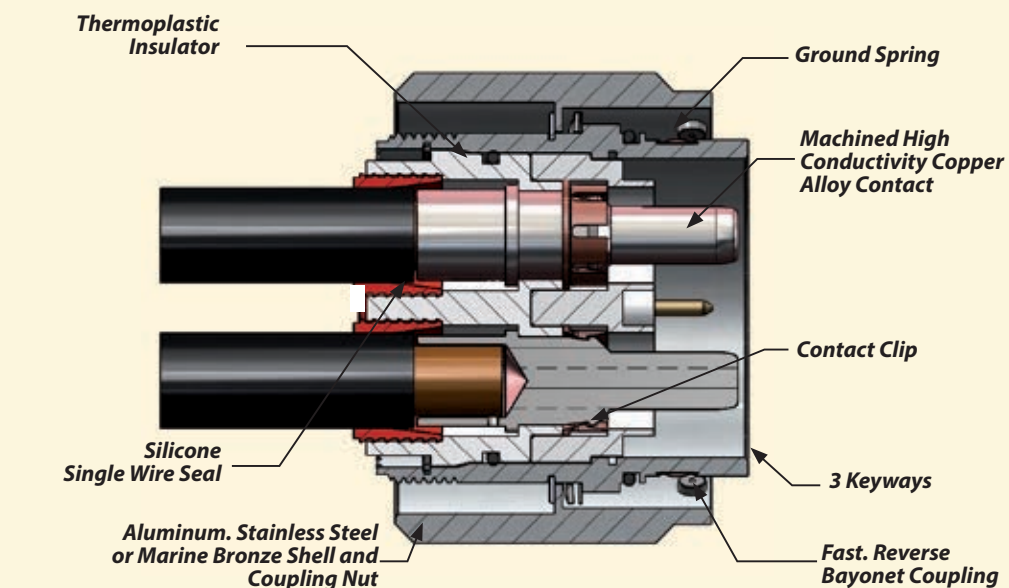
The Super ITS - 921 Connector Series is a high ampacity, harsh environment connector capable of meeting the demanding requirements of power applications utilizing the latest generation of high-temperature power cables. Compared to legacy 5015 solutions, Super ITS - 921 offers better durability, better wire and connector interface sealing, integrated crimp contact retention clips, thermoplastic insulators, precision-machined shells, and more.

RECEPTACLE

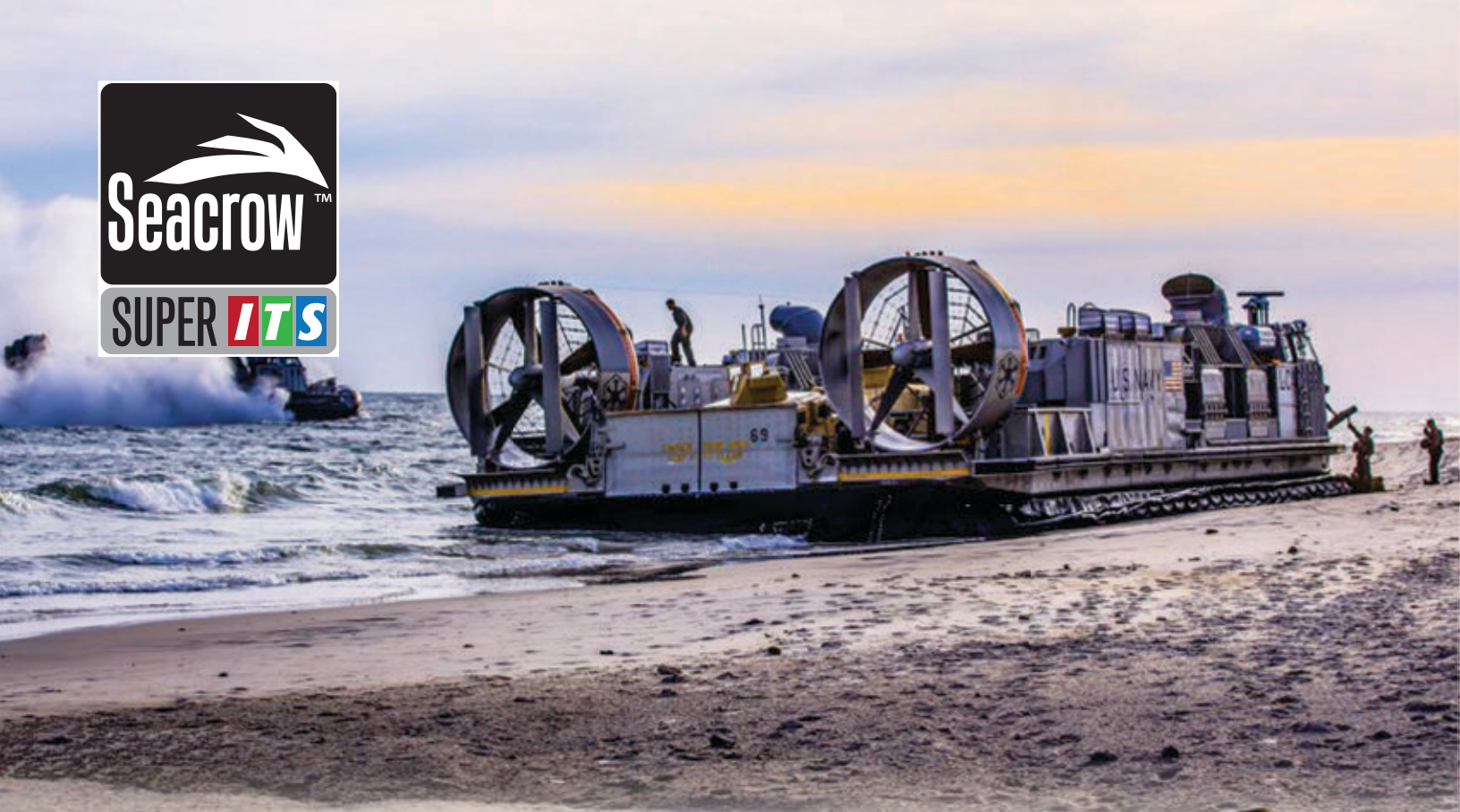


- Fast, easy connector mating with reverse-bayonet coupling
- 3 polarizing keys
- Higher-density insert arrangements for reduced size and weight
- LouverBand Size 0, 4 and 8 socket contacts for high ampacity and longer life

PLUG



- Crimp, front-release high-conductivity copper contacts
- Individual wire seals
- -65° C to +180° C operating temperature range
- Size 8, 4 and 1/0 power contact sizes
- Size 16 and 12 signal contact size
- Precision-machined plug bodies and receptacle shells



REVERSE-BAYONET

Super ITS-MB Seacrow™ Connectors

For amphibious vehicle, geo-marine, and other harsh-environment applications



Super ITS - MB Seacrow reverse bayonet marine bronze series connectors are compliant with MIL-DTL-5015, using the same power and signal insert arrangements but with reverse-bayonet coupling and precision-machined marine bronze construction. Typically used for power and signal transmission, with wires from 26 AWG to 4/0, these ultra-harsh environment connectors are ideally suited for above-deck navy shipboard applications where repeated exposure to seawater and salt spray can quickly degrade effectiveness of connector finishes leading to corrosion and possible failure.

Super-ITS MB Seacrow connectors exceed VG95234 standards for both sealing and durability. Over 200 plus MIL-STD-1651A, standard and combo insert arrangements are available, in 9 shell sizes fully tooled and ready for immediate shipment. A wide selection of backshell options including cable shield termination for EMI/RFI applications and cable sealing backshells for conduit termination are also available. IP67 protection standard with IP68 available on request.

- Precision-machined marine bronze alloy for superior corrosion resistance and reliable mating in seawater and other harsh environments
- Ideal for shipboard and other harsh geo-marine applications
- IP67 environmental sealing in mated condition; IP68 versions available
- Super ITS - MB Seacrow connectors accommodate wires from 26 AWG square to 4/0 AWG
- Over 200 power and signal arrangements IAW MIL-DTL-5015 / VG95234
- Precision-machined for outstanding mating performance and durability

REVERSE-BAYONET

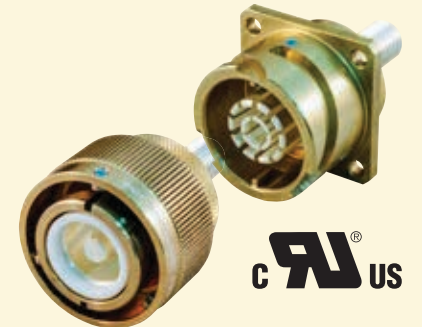
Super ITS - MB and IGE - MB Seacrow

Harsh-environment, precision-machined marine bronze connectors

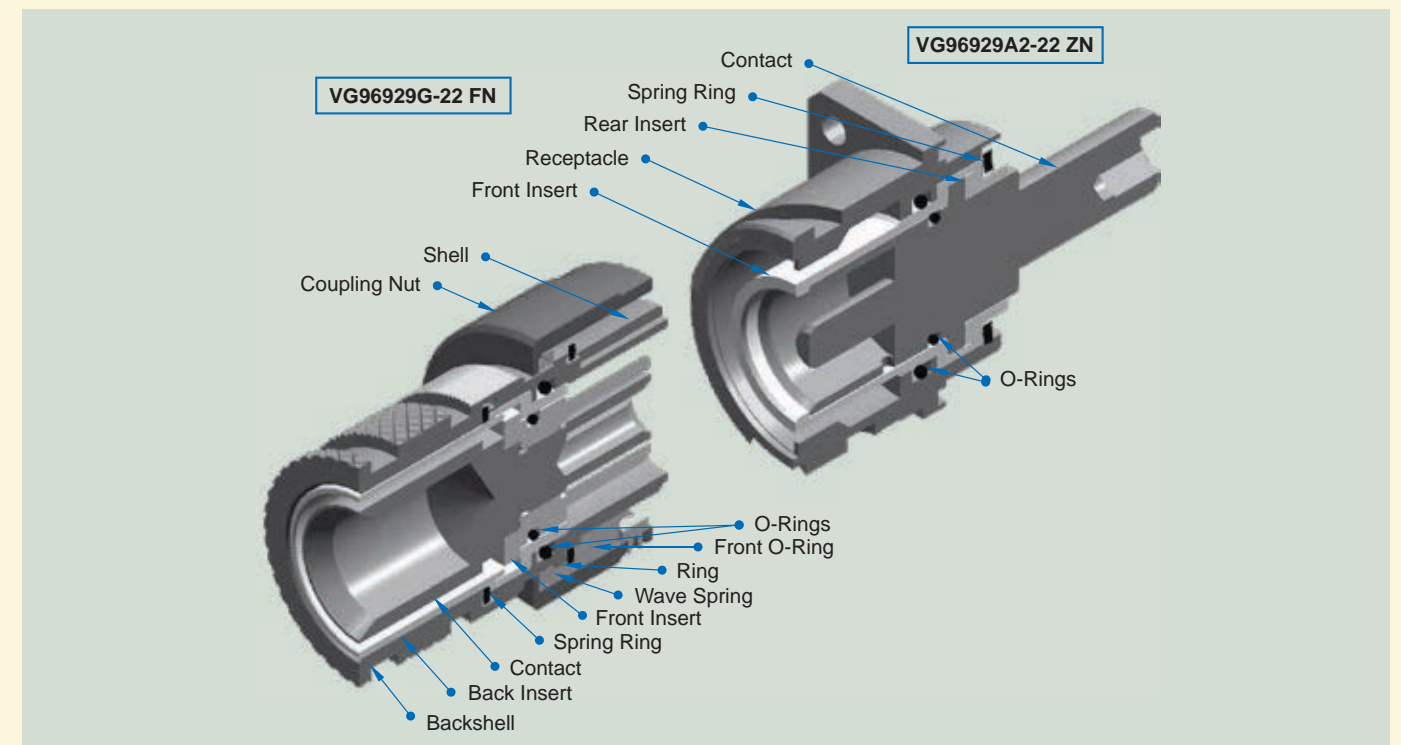


Low- to medium-voltage single-pole power connector versions

Super ITS - IGE marine bronze Seacrow™ connectors achieve high-performance working current and peak current, making them ideal for engines, power supplies, and power distribution boxes. Seacrow 5015-type reverse-bayonet connectors are qualified to VG96929 standards. Several backshells available in either straight or 90° elbows for convenient cable routing, IP67 standard, IP68 available.



- Precision-machined marine bronze alloy for superior corrosion resistance in seawater and other harsh environments
- Chemical-resistant Viton® gaskets and O-rings
- Single-pole high-power VG96929 qualified
- IP67 environmental sealing in mated condition; IP68 available
- High power, single pole connectors accommodating cables from 25 mm square to 240 mm square
- Keyed polarization
- Rugged reverse-bayonet mating





REVERSE-BAYONET
 Super ITS - RG RadGrip™
 Rubber Overmolded Plug Connectors
 Product Selection Guide



REVERSE-BAYONET
 Super ITS - RG RadGrip
 Rubber-Covered Plug Connectors

For Improved User Ergonomics and Ease-of-Use

Better grip, improved durability

Glenair Super ITS-RG Series connector plugs with RadGrip™ rubber coupling nut covers are ideal for harsh environmental field applications such as geophysical exploration in arctic conditions. Super ITS-RG RadGrip™ connectors feature wide, easy-to-grip castellations as well as a raised thumb tab. Built for maximum durability and mechanical protection of plug coupling nuts, Super ITS-RG RadGrip™ is the perfect solution for protection against abusive handling and other forms of mechanical damage. In addition, RadGrip™ facilitates rapid mating and demating of connectors, even when surfaces are slick with oil, dust, water and other fluids. The highly durable rubber compound may be specified in seven different colors for improved connector and cable identification and management.

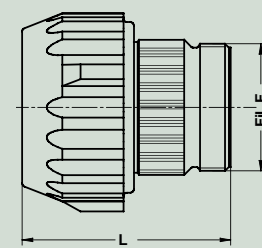
Colors available: Black, Yellow, Red, Blue, Light Green, Orange and Grey.

Super ITS-RG RadGrip™ material specifications

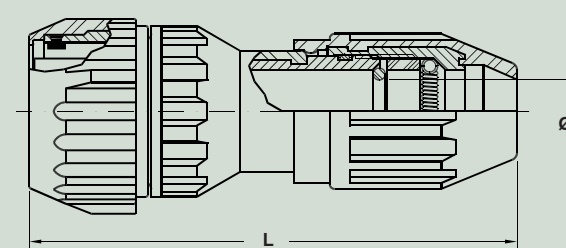
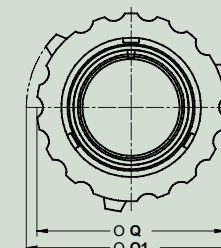
IAW UNI-CEI 11170 - AFNOR NF-F 16101 - BSS 7239 - ASTM E - 162, ASTM E-662 RadGrip™ covers adhere easily to Aluminum alloy, Stainless steel, and Marine bronze.

- **Fast, easy, reverse-bayonet coupling: 1/4 Turn**
- **IP67 rated (mated condition)**
- **Compatible with all Series ITS 5015 Type connectors**
- **High shock and vibration Resistance**
- **200 Plus Insert Arrangements Available with Contact Sizes from #20 to #4/0**
- **Audible and Visual Coupling Indicators**
- **Colored materials facilitate connector and cable identification and/or connector phases**

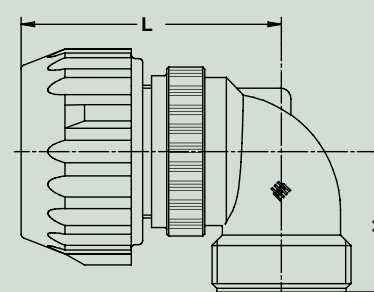
AVAILABLE RADGRIP-EQUIPPED SUPER ITS CONFIGURATIONS



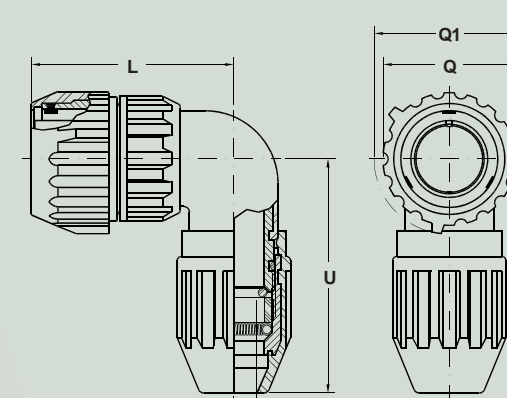
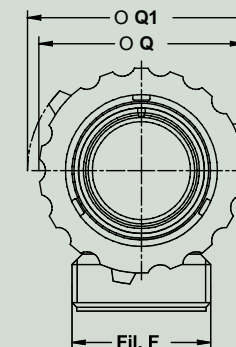
ITS-RGG (06) Straight Plug



ITS-RRG (06) Straight Plug with EMI/RFI Cable Sealing Backshell



ITS-RGG (08) 90° Right-Angle Plug



ITS-RRG (08) 90° Right-Angle Plug with EMI/RFI Cable Sealing Backshell



Turnkey Super ITS-RG RadGrip cable assemblies available. Example shown equipped with high-speed Octabyte contacts and high-temperature wire-protection conduit.

SUPER ITS-RG RADGRIP™ REINFORCED RUBBER COUPLING NUT CONNECTORS



Super ITS-RG (Basic Black)



Super ITS-RG (Yellow)



Super ITS-RG (Fiber Optic Blue)



Super ITS-RG (Safety Red)



SERIES 928 HMI

Quarter-Turn Bayonet Connectors

Interconnects for head-to-ballast HMI lighting

Theatrical lighting demands reliable, built-to-last connectors and cables. Glenair Series 928 quarter-turn bayonet connectors meet demanding European "VG" standards for performance, durability and ruggedness. Available in all standard lighting industry configurations, these connectors feature electrocoated aluminum housings, neoprene inserts and machined copper alloy contacts.



- Nine industry-standard contact arrangements for use on Arri, DeSisti, Cinemills, Filmgear, Mole-Richardson and other HMI lighting solutions
- Rugged shells and couplings resist handling damage
- Fluted and/or rubber-coated coupling nuts facilitate easy mate and demate

SERIES 928 HMI CONNECTOR SELECTION GUIDE



HMI Line Receptacle

HMI Panel Receptacle

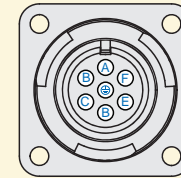
HMI Line Plug, Heavy-Duty Coupling Ring

HMI Line Plug, RadGrip Coupling Ring

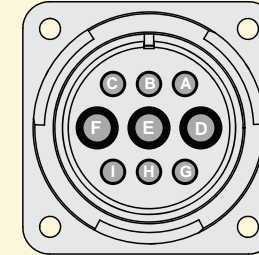
HMI Panel Plug

SERIES 928 HMI Lighting Connectors

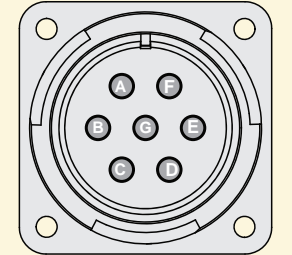
Available industry-standard insert arrangements



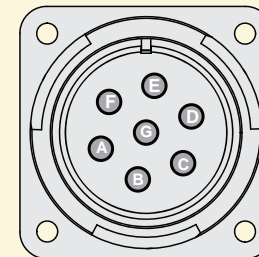
14S-07
Interchangeable, intermateable with Veam 14SA7
(7) size #16 contacts
This connector is used on:
Arri 200W
Mole-Richardson 200W and 800W
K5600 Jokerbug 200W, 400W, and 800W.



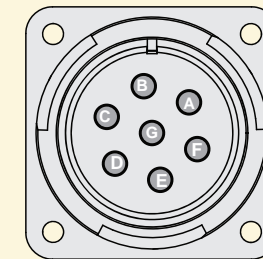
24-11
(3) size #8 contacts, (6) #12 contacts
This connector is used on:
DeSisti 4KW (blue)



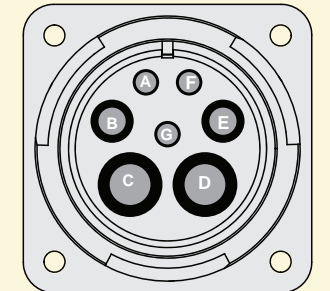
24-2
(7) size #12 contacts
This connector is used on:
Arri 2.5 KW, 4KW
DeSisti 2.5KW (red)
Cinemills 2.5KW, 4KW
Filmgear 2.5KW, 4KW
Mole-Richardson 2.5KW, 4KW



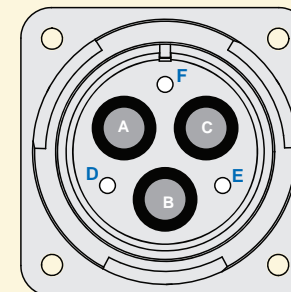
24-2W
(7) size #12 contacts
This connector is used on:
Arri 575W, 1200W, 1800W
DeSisti 1200W (yellow)
Cinemills 575W, 1200W, 1800W
Filmgear 575W, 1200W
Mole-Richardson 1200W



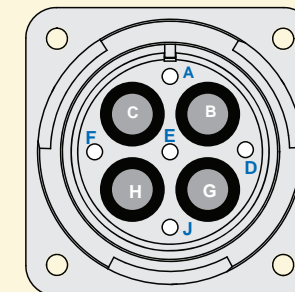
24-2Z
(7) size #12 contacts
This connector is used on:
DeSisti 575W (green)



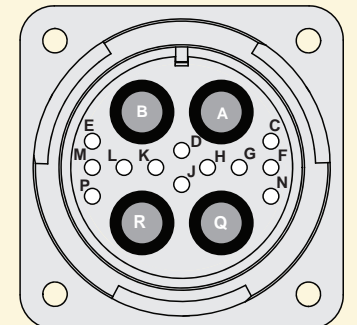
28-10
(3) #12 contacts, (2) #8 contacts, (2) #4 contacts
This connector is used on:
Cinemills 12KW, 18KW, 24KW
Filmgear 24KW
Mole-Richardson 12KW, 18KW, 24KW



28-22
(3) #16 contacts, (3) #4 contacts
This connector is used on:
Arri 6KW, 9KW
Filmgear 6KW



28-09
(5) #16 contacts, (4) #4 contacts
This connector is used on:
Arri 12KW, 18KW
Filmgear 12KW, 18KW



32-68
(12) #16 contacts, (4) #4 contacts
This connector is used on:
DeSisti 6KW (white), 12KW (pink), 18KW (orange)
Mole-Richardson 6KW

Mating face of socket connector. Pin connector identification is reversed.



ETHERNET-READY

Super ITS-ITH Octobyte

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

Glenair series ITH connectors with Ethernet-ready Octobyte™ contacts are available for harsh-environment mass transit applications that depend on sealed environmental (IP67) connector performance. Octobyte contacts, packaged in ruggedized ITH reverse-bayonet connectors, deliver both dedicated Ethernet datalink as well as mixed serial databus and power for high-speed data applications

Octobyte™ contacts are vibration resistant and designed to work with Ethernet cables from CAT 5 to CAT 7A, MVB-WTB, and RG58 Coax. Reverse-bayonet ITH series connectors with Octobyte™ contacts are easy and fast to assemble and deliver reliable locking performance in severe vibration and shock applications.



Tested for compliance IAW EN50173-1 standards for CAT5E and CAT7. Proven performance in numerous rail applications (consult factory for references)



- For harsh-environment transit, industrial, or marine/subsea applications
- RF Coax applications (RG58 and RG59U cables)
- High-speed interconnect solution for audio, video, and digital displays
- Qualified for use in safety systems, sensors, detection devices, and control panels
- Tested in accordance with: ISO F0 STP: CAT 7A
EN50173-1 F600-STP: CAT 7
EN50173-1 D STP: CAT 5E

RUGGED REVERSE-BAYONET Super ITS-ITH Octobyte™ High-Speed Ethernet Connectors



OCTOBYTE CONTACTS FOR ETHERNET CAT 5 · CAT 6 · CAT 7 · COAX · MVB-WBT

How To Order Octobyte contacts	
Sample Part Number	Q 0 8 P -A B1 -XXX -7A
Product Series	Octobyte contacts
Contact Size	0 = contact size 0
Number of Contacts	8 = 8 poles 4 = 4 poles CX = Coax
Contact Gender	P = Male S = Female
Cable O.D. Range/Coax Cable Type	A = O.D. 6-7 B = O.D. 7-8 C = O.D. 8-9 RG58 = 50 Ohm RG59U = 75 Ohm [Coax only]
Plating	B1 = gold plating
Alternative Color (Cat 7A only)	G14 = Black G14GN = Green G14GY = Grey G14R = Red G14Y = Yellow Omit for standard
Ethernet	7A = Cat 7A AD = Ethernet MVB - WBT Contacts Omit for Cat 5



SERIES ITH CONNECTORS FOR OCTOBYTE CONTACTS

Reverse bayonet-lock connectors

Rugged environmental performance – the perfect Octobyte packaging solution



Dozens of contact arrangements available including hybrid Octobyte, power, and signal.

- Rugged MIL-DTL-5015 type design with fast reverse bayonet coupling
- Rigid dielectric inserts with contact retention clips
- Positive lock technology provides reliable vibration and shock resistance
- Proven performance in even the most rugged applications
- Conforms to the European VG 95234 standard, French (NFF 61030) and British (BS 6853) electrical standards and EEC compliance directives
- Threaded coupling version available, contact factory for ordering information

Ethernet-ready Octobyte solutions for rail and transit applications are available as discrete contacts, packaged in rugged reverse-bayonet ITH series connectors, or as turnkey inside-the-box or environmental cable assemblies, tested and ready for immediate use.



Available flop-lid protective cover

RadGrip rubber-covered coupling nuts available in a wide range of colors including safety red



RUGGED REVERSE-BAYONET

Super ITS - IFO B Fiber Optic Connectors

High-speed, high data rate fiber optic connectors for harsh environmental conditions

Glenair Super ITS - IFO B connectors meet the need for high-speed, multi-gigabit data transmission in rugged harsh environments such as armored combat support vehicles, communications shelters and bunkers, military aircraft, harsh wayside rail applications, and more. These optical fiber-equipped interconnects far outstrip the data carrying capacity and speed of conventional copper wire systems. Super ITS - IFO B interconnects pack orders of magnitude more data with almost instantaneous delivery to the user, and are immune to all forms of electromagnetic interference.

Glenair Super ITS - IFO B fiber optic connectors are available with 2, 4, 6 or 12 termini configurations. Termini accommodate 9/125 (Singlemode), 50/125 and 62/125 (Multimode) optical fibers with a maximum 1.4dB insertion loss. Backshells and adapters are engineered to minimize bend radius and provide strain relief with design improvements such as integral wire sealing grommets and retractable conduit fittings. Fiber optic cleaning and inspection toolkits as well as fiber optic termination training and certification are also available.



Features:

- EMI and spark/arc immunity for high-reliability settings
- 2, 4, 6, or 12 fiber optic termini configurations available
- Termini accommodate 9/125 (Singlemode), 50/125 and 62/125 (Multimode) optical fibers
- Turnkey high-speed fiber optic interconnect cables and harnesses available
- Environmentally sealed (IP67)
- UL94-V0 compliant fiber optic cable
- Integrated optical media alignment grommet

RUGGED REVERSE-BAYONET Super ITS-IFO B High-Speed High-Data Rate Fiber Optic Connectors Product Selection Guide



Super ITS - IFO B Fiber Optic Connectors

2-Pole fiber optic, shell size 10SL connector with environmental sealing PHM or Strain Relief PHM backshell



Super ITS - IFO B Fiber Optic Connectors

4-Pole fiber optic, shell size 16S connector with environmental sealing strain relief backshell and Kevlar fiber retention



Super ITS - IFO B Fiber Optic Connectors

6-Pole fiber optic, shell size 24 connector with environmental sealing PG backshell for conduit termination or PGSW backshell with strain relief for use with jacketed cables



Super ITS - IFO B Fiber Optic Connectors

12-Pole fiber optic, shell size 32 fiber optic connector with environmental sealing PG backshell for conduit termination



SUPER ITS - RJ45 SUPERSEAL™

Ruggedized RJ45 MIL-DTL-5015 type reverse-bayonet field connectors for harsh-environment applications

IP67 open-face rated connectors with RJ45 jack, crimp contacts, solder cups, or PC tails

Glenair Super ITS RJ45 SuperSeal Cat 5e Ethernet connectors provide IP67 sealing in the un-mated condition and meet IP68 requirements in the mated condition. Rugged environmental VG95234 type / 5015-intermountable connector interface features quick reverse-bayonet coupling for fast reliable mating in hard-to-reach locations. In addition to reliable environmental sealing, Glenair Super ITS SuperSeal RJ45 solutions are designed for superior EMC performance and are supplied with the industry's broadest range of wire terminations including crimp, solder cup, and PC tail.



VG95234 type connector with sealed RJ45



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

REVERSE-BAYONET Super ITS - RJ45 SuperSeal™ Ruggedized Cat 5e Ethernet Connectors Product Selection Guide



Super ITS - RJ45 SuperSeal Ethernet Connectors
Connector Overview and Performance, Material and Finish, Panel Cutouts and Modifications Codes



Super ITS RJ45 SuperSeal 300
Super ITS 300: Rugged reverse-bayonet plugs and receptacles with easy plug-and-play cabling to commercial Cat 5e RJ45 cables.



Super ITS RJ45 SuperSeal 301
Super ITS 301: crimp contact connectors



Super ITS RJ45 SuperSeal 302
Super ITS 302: PC tail connectors



Super ITS RJ45 SuperSeal 303
Super ITS 303: solder cup connectors



Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector and ZL cable shield banding adapter with shrink boot groove



Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector pigtail assembly—with ZL banding adapter and shrink boot



Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector with M or PG style adapter for flexible conduit wire protection applications



Super ITS RJ45 SuperSeal 300H
Super ITS 300H: connector with cable-sealing backshell and optional cable shield termination



Super ITS RJ45 SuperSeal 330
Super ITS 330: feedthrough connector with RJ45 jack/jack mating interface



SUPER ITS - USB SUPERSEAL

Ruggedized USB Type A MIL-DTL-5015 reverse-bayonet field connectors for harsh-environment applications

IP67 open-face rated connectors for wire and printed circuit board terminations plus pigtail cable assemblies.



Features:

- Superior sealing—IP68 mated, IP67 unmated—for complete protection against water, sand and dust
- Highly durable USB 2.0 Type A-equipped designs, with enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Crimp, solder-cup, USB jack, and PC tail termination options



Rugged reverse-bayonet connector with USB Type A commercial connector interface

Complete range of connector configurations including bulkhead feedthrus

Wide range of wire termination options (crimp contact version shown)

COMPATIBLE WITH USB 2.0 AND 1.1 Super ITS - USB Type A SuperSeal™ Rugged Field Connectors



Environmental, shielded, reverse-bayonet connectors



Super ITS - SuperSeal USB 2.0 Connectors
[Connector Overview and Performance, Material and Finish, Panel Cutouts and Modifications Codes](#)



ITS 340
USB 2.0 Type A connector with rear USB jack



ITS 345
USB 2.0 Type A connector with crimp contacts



ITS 342
USB 2.0 Type A connector with PC tails



ITS 343
USB 2.0 Type A Connector with Solder Cups



ITS 340H
USB 2.0 Type A connector with rear USB jack and adapter with shield termination platform and shrink boot groove



ITS 340H
USB 2.0 Type A connector with rear USB jack and EMI backshell with pre-installed Cat 5e cable and shrink boot; loose wire end is unterminated



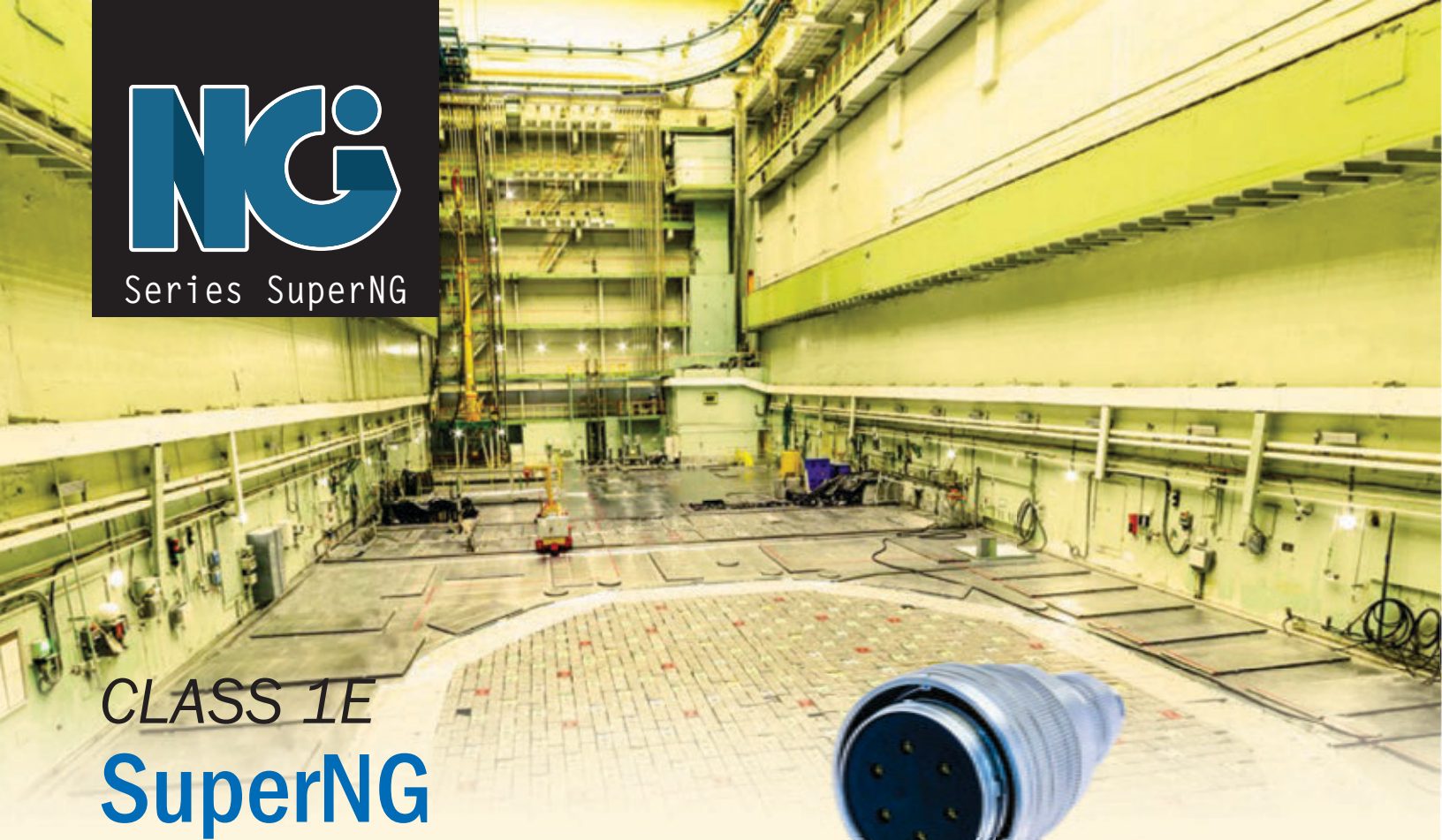
ITS 340H
USB 2.0 Type A connector with rear USB jack and metric or PG thread backshell for conduit attachment



ITS 340H
USB 2.0 Type A connector with rear RJ45 jack and backshell with metallic cable gland with optional shielding and pigtails



ITS 370
USB 2.0 Type A feedthrough connector with RJ45 jacks on both sides for connectorized mating on both sides of a bulkhead



CLASS 1E SuperNG

Double peripheral seal reverse-bayonet connectors designed to meet the latest, most stringent global Zone 1E qualification standards including those requiring long-term submersion

Glenair SuperNG connectors have been designed to withstand the most stringent LOCA qualification criteria, including those requiring long-term submersion, 60-year thermal cycle simulation, and long-term radiation exposure. SuperNG utilizes machined stainless steel shells and polymeric insert materials for maximum resistance to cumulative radiation, thermal, seismic, and pressure for class 1E harsh nuclear environments. Double peripheral seals ensure life-of-system environmental performance.

Built with proven reverse-bayonet technology for rapid mating and demating during maintenance cycles, and support for the broad range of military 5015 insert arrangements, the connectors can be configured in small shell sizes with as few as two signal contacts, all the way up to large size shell sizes accommodating over sixty 20-amp power contacts. Need a single 500 amp power contact layout for a three-phase motor application? The Series SuperNG supports that too.



Signature double O-ring peripheral seal

Wire-to-connector termination is facilitated with precision-machined crimp or solder-cup contacts with ample wiring space in the connector housing for back-potting or environmental shrink boot accommodation.



- Machined / passivated stainless steel shells
- Available EMC grounding fingers for improved shell-to-shell resistance
- Stainless steel backshells suitable for band termination and backpotting
- NPT threaded plugs and receptacles
- Radiation-hardened inserts, gaskets, seals, O-rings
- Standard signal, power or thermocouple contacts
- Polarization keys and keyways

NUCLEAR-GRADE QUICK-DISCONNECT CONNECTORS Double Peripheral Seal Interconnect for Stringent Containment Area (Class 1E) Applications SuperNG performance and applications



KEY PERFORMANCE ATTRIBUTES: Glenair SuperNG Connectors

Glenair SuperNG connectors are optimized for containment area (Class 1E) applications in modern nuclear power plants with stringent LOCA test and performance requirements including radiation resistance, high-temperature tolerance, sealed, high-pressure tolerance, fluid/chemical resistance, and corrosion resistance. Radiation-hardened inserts, gaskets, seals, and O-rings ensure 60-year life-of-system performance and are manufactured in accordance with a 10CFR50 Appendix B quality system.

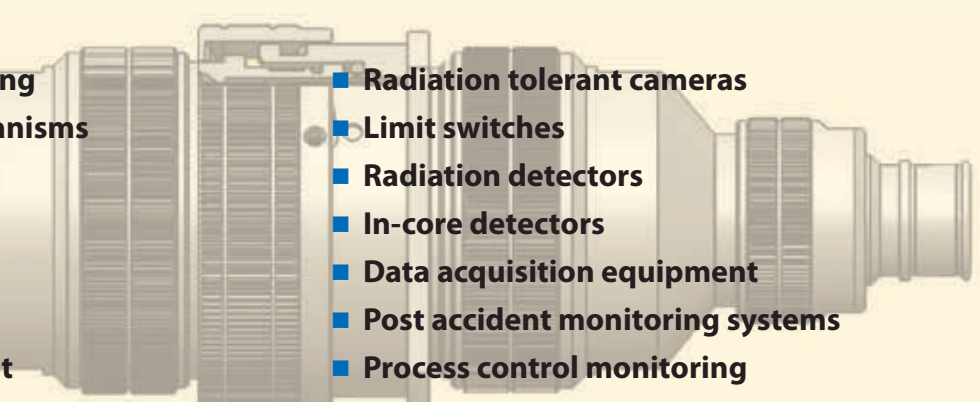
Test	Zone 1 Requirements
Vibration aging	90 minutes of vibration each orthogonal axis, no discontinuity of 1 ms or greater, sinusoidal motion 0.75 g from 5 Hz to 100 Hz to 5 Hz
Thermal cycling	13 cycles between 30°C [86°F] and 121°C [250°F]
Mechanical cycle aging	500 mating/un-mating cycles
Environmental Requirements (Temperature and Pressure)	Normal Operating Conditions: Normal Temperature: (10 - 48.9°C) [50 -120°F] Normal Pressure: -0.001 +0.007 Mpa [-0.2 +1.0 psig] Group 1 Abnormal Operating Conditions, 18 4-h events: Abnormal Temperature: (10 - 65.6°C) [50 -150°F] Abnormal Pressure: Atmospheric Group 2 Abnormal Events Operating Conditions, 1-5 30-day events: Abnormal Temperature : (10 - 121°C) [50 - 250°F] Abnormal Pressure: ≤ 0.124 Mpa [≤18 psig]
Normal Service Radiation	60-Year Equivalent Gamma Total Integrated Dose= 4,12 E+07 rads [412 kGy]
Total Accumulated Dose (TAD)	250 MRads (2.5 X 10 ⁸)
Seismic test	In accordance with IEEE 344 and IEEE 382, max peak value 6.5g
Thermal Aging	Qualified Life 60 years
Containment pressure test	4.7 bar [68 psig] for 24 hours
DBA (LOCA) Test	DBA Operating Conditions in 1-year-long event: Maximum Accident Temperature (for aprox. 3 s): 216.7°C [422°F] Maximum Accident Pressure (for aprox. 3 s): 406.8 kPa [59 psig] Post Accident Gamma Total Integrated Dose for 1 year = 3.7 E+07 rads [370 kGy] Post Accident Beta Total Integrated Dose for 1 year = 2.6 E+08 rads [2600 kGy] Chemical Spray 30 hours Post DBA 30 days in chemical spray fluid
Post DBA test	1-year long immersion as per IEEE 383:09-2015, water at 85.2°C [185.38°F] pressure 0.11 Mpa [16.62 psig]



GLENAIR SuperNG ZONE 1 INTERCONNECT APPLICATION SUPPORT

SuperNG is optimized for equipment applications in containment area Class 1E including:

- Valve controls/monitoring
- Control rod drive mechanisms
- Rod position indicators
- Pressure transmitters
- Solenoids
- Hydrogen detectors
- Fuel handing equipment
- Radiation tolerant cameras
- Limit switches
- Radiation detectors
- In-core detectors
- Data acquisition equipment
- Post accident monitoring systems
- Process control monitoring





Series ITS-NG



CLASS 1E

Series ITS-NG Reverse-Bayonet Coupling

Nuclear industry standard power and signal connectors for existing plant refurbishment

Glenair ITS-NG series connectors meet previous-generation nuclear industry LOCA test requirements and are suitable for equipment retrofit and refurbishment applications for power plants with legacy containment zone 1E requirements. These industry-standard reverse bayonet lock connectors offer fast and reliable mating and demating. The Nuclear-Grade ITS series connector is Glenair's qualified equivalent for MIL-DTL-5015 (VG95135)

reverse-bayonet connectors. The popular series offers hundreds of crimp-contact power and signal insert arrangements with gold-plated copper contacts. Polymeric insert materials deliver maximum radiation and temperature tolerance, as well as long-term durability. Stainless steel, environmentally-resistant materials are fabricated in accordance with NQA-1 (10CFR50 Appendix B). All material selections meet cumulative radiation, thermal, seismic, and pressure-induced stress factors for legacy class 1E harsh nuclear environments.

Discrete connectors or turnkey cable assemblies



- Fast connect / disconnect reverse-bayonet coupling
- High corrosion-resistant stainless steel shells and bodies
- Chemical and moisture-resistant inserts and O-rings
- Performance tested for advanced temperature, radiation, and seismic stress factors
- Ideally suited for power generation monitoring, valve control devices, sensors, and other electronic equipment in Class 1E harsh nuclear / safety-related applications

NUCLEAR-GRADE QUICK-DISCONNECT CONNECTORS Reverse-Bayonet (5015 type) Interconnect for Legacy Containment Area (Class 1E) Applications Series ITS-NG applications and specifications



GLENAIR SERIES ITS-NG APPLICATION NOTES

- Glenair Series ITS-NG connectors are based on the MIL-DTL-5015 standard, but feature an improved reverse-bayonet coupling technology in place of the threaded interface used in MIL-DTL-5015.
- The ITS-NG family of connectors features improved O-ring sealing and other design enhancements for applicability in containment area (Class 1E) / safety-related applications, particularly in existing or older nuclear facilities with legacy LOCA test requirements. For new interconnect applications in modern-day power plants, Glenair recommends the SuperNG or Mighty Mouse NG series connectors currently undergoing qualification to the latest LOCA test and long-term durability requirements.
- ITS-NG is an industry-standard connector design, intermateable and intermountable with all other 5015-based reverse-bayonet connector series. The ITS-NG is considered particularly appropriate for retrofit and refurbishment applications as the 3-point bayonet coupling mechanism reduces mating time—an important consideration in time-sensitive plant refurbishment work. Positive locking of the three stainless steel pins provides reliable resistance to vibration and shock, and prevents connector de-coupling in severe vibration applications.
- Both plug and receptacle connector configurations are available with dynamic peripheral seals for environmental sealing. Equipped with appropriate backshells and accessories, the connectors are submersible for up to 1 year at 85°C to 1m depth.
- Glenair Series ITS-NG connectors share the same insert arrangements, shell dimensions, supported contacts, and electrical performance ratings as MIL-DTL-5015 and VG 95234 and are fully interchangeable with VG standard connectors.
- Glenair ITS-NG connectors are particularly well-suited for use in applications where electromagnetic compatibility is a requirement. A complete range of EMI shield termination accessories is available for both overall as well as individual wire shields.

CONTACT SPECIFICATIONS

Copper alloy with gold plating (standard)

Contact Size	Rated Current at 20 C	Rated Current at 80 C	Max. Contact resist.	Wire size
20	7.5 A	7.5 A	12.0 mΩ	20-26 AWG
18	10A	7.5 A	12.0 mΩ	18-26 AWG
16	22 A	13 A	6.0 mΩ	16-22 AWG
12	41 A	23 A	3.0 mΩ	12-14 AWG
8	73 A	46 A	1.0 mΩ	8-10 AWG
4	135 A	80 A	0.5 mΩ	4-6 AWG
0	245 A	150 A	0.3 mΩ	0-2 AWG
4/0	350 A	225 A	0.2 mΩ	4/0 AWG

SERVICE RATING

(Minimum Insulating resistance: $\geq 5 \times 10^3$ MΩ)

Class	Operating voltage Vdc	Operating voltage Vac RMS	Test voltage Vac RMS
INST.	250 V	200 V	1000 V
A	700 V	500 V	2000 V
D	1250 V	900 V	2800 V
E	1750 V	1250 V	3500 V
B	2450 V	1750 V	4500 V
C	4200 V	3000 V	7000 V

Materials and Finishes	
Shells, Coupling Nuts	316 Stainless Steel, Passivated
Contacts	Copper alloy, Gold Plated
Hoods (Socket contacts)	Copper Alloy, Nickel Plated
Pencil Clip (Socket contacts)	Stainless Steel
Wave Spring	Stainless Steel
Grounding Finger	Beryllium Copper





CLASS 1E

Ultraminiature Mighty Mouse NG

High-pressure small form-factor connectors designed to meet the latest, most stringent global Zone 1E qualification standards including those requiring long-term submersion

High density, small form-factor Mighty Mouse NG connectors are designed for use in new nuclear power plant containment zone (class 1E) equipment. Series 802 Mighty Mouse NG connectors are built to meet the most severe nuclear industry test requirements, including long-term submersion, radiation, and 60-year thermal cycle simulation. The series is available in ten sizes from 1 to 130 contacts.

These ultraminiature connectors (fully half the size and weight compared to standard nuclear-grade connectors) feature high-density inserts, 316 stainless steel shells and a piston O-ring for high-pressure, 3500 psi sealing. Gold-plated crimp contacts accept #12 – #30 AWG wire. Connectors are backfilled with epoxy potting compound to achieve an open face pressure rating 1000 PSI.



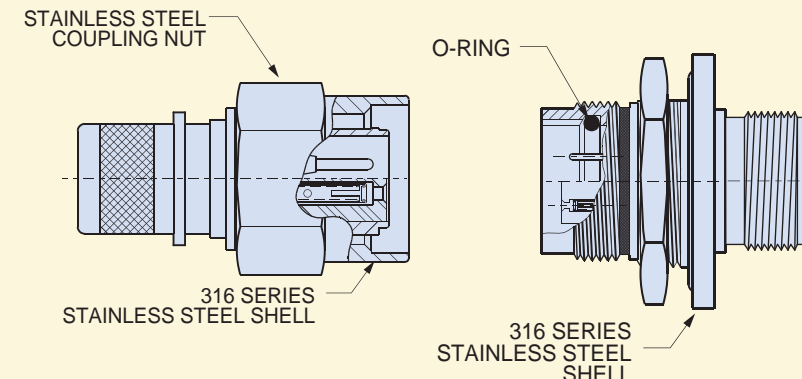
Custom high-pressure glass sealed and bulkhead feed-thru versions available, consult factory.



- 3500 psi pressure rated
- Ultraminiature #23 contacts
- Size #20, #20HD, #16, #12, #8 signal, power, fiber optic and shielded contacts
- Discrete connectors and turnkey cable assemblies

NUCLEAR-GRADE QUICK-DISCONNECT CONNECTORS Ultraminiature High-Pressure Interconnect for Stringent Containment Area (Class 1E) Applications Mighty Mouse NG specifications

GLENAIR MIGHTY MOUSE NG DELIVERS HIGH-PRESSURE SEALING AND RUGGED DESIGN IN A MINIATURE PACKAGE



Mighty Mouse NG Plug

Mighty Mouse NG Receptacle

Stainless Steel

Available in ten sizes from 1 to 130 contacts, Series 802 connectors feature 316 stainless steel shells.

3500 psi

These connectors withstand up to 3500 PSI hydrostatic pressure in a mated condition. Potted versions withstand 1000 PSI open face pressure.

MIGHTY MOUSE NG SPECIFICATIONS AND PLUG KEY POSITIONS

Plug Key Positions		
	Key Rotation	
Key Position	A°	B°
Normal (A)	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°
E	75°	275°
F	9°	210°

Performance Specifications	
Current Rating	#23-5 A, #20-7.5 A, #16-13 A, #12-23 A
Dielectric Withstanding Voltage	#23-750 VAC, #20HD-1000VAC, #16 and #12-1800 VAC
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +175° C.
Hydrostatic Pressure	3500 PSI mated, 1000 PSI open face (hermetic)
Shock	300 g.
Vibration	37 g.
Durability	2000 mating cycles

Material and Finish	
Shells, Jam Nuts, Coupling Nuts	316 stainless steel
Contacts	Copper alloy, 50 µlnch gold plated. Socket hood: stainless steel, passivated. Hermetic pin contacts: Nickel-Iron alloy per ASTM-F-30, 50 µlnch gold plated.
Contact Retention Clip	Beryllium copper alloy



SR. ITS REVERSE-BAYONET

Rugged reverse-bayonet circular power and signal connectors for general-purpose rail and industrial applications

Environmental and mechanical protection of cables, conductors and contacts is a critical requirement in rail and industrial applications especially when frequent mating and unmating is required, or when cables are routed through exposed intercar or undercar locations. To ensure rapid and accurate car linking and cabin reconfigurations, interconnects must be easy to couple and keyed to avoid mismatching. Vibration, shock and connector decoupling problems are also common in rail applications, and require focused attention when selecting shell materials and mating technologies. As passenger and crew safety is paramount, interconnection systems must not compound flammability, smoke or toxicity risks. Series ITS meets all of these requirements and more, and has demonstrated proven performance on virtually every rail industry sub-system.

Multi-pole signal and power contact arrangements as well as single-pole (VG96929 / Glenair IGE Series) configurations



SERIES ITS (EXPLODED VIEW)



- Machined body and shell components
- Broad range of industry-standard plating including innovative new Tin-Zinc formulas
- Silver-plated and gold-plated crimp and/or solder cup contacts
- Reverse-bayonet mating with stainless steel locking pins
- Environmentally sealed

REVERSE-BAYONET

Industry-Standard 5015-Type Power and Signal Connector Series

VG-qualified and Glenair Signature solutions

FR ITS SERIES



FR ITS is the fire-resistant ITS connector series, designed with Flame, Smoke, and Toxicity-compliant insulating materials, FRITS is broadly utilized for environmental and non-environmental rail applications. More than 230 insert arrangements are available, from 1 to 150 contacts. FRITS connectors are RoHS-compliant, and IP67 environmentally sealed.

Available FRITS - STR backshells provide versatile locking of cables or wires into the connector, providing IP67 sealing and EMI/RFI termination.



FR-ITS STR backshell for EMI shielding and IP67 sealing

ITH SERIES



The ITH connector series is based on the MIL-C-5015 standard, but with improved reverse bayonet coupling. Rigid inserts and crimp contacts provide better electrical insulation and reduced assembly time. The 3-point, positive-locking reverse bayonet coupling mechanism provides easier mating in awkward positions, reliable resistance to vibration and shock, and prevents de-coupling. ITH connectors conform to the VG95234 standard, French (NFF 61030) electrical standards, as well as EEC compliance directives for electromagnetic compatibility. EMI shield termination accessories are available for both overall as well as individual wire shields.

- Design IAW MIL-C-5015 and VG95234
- Temperature range -40°C to +100°C (conductive plating) or -55°C to +125°C (non-conductive plating)
- RoHS compliant
- Low fire hazard inserts, UL94V0 and NFF 16-102 compliant
- Halogen-free silicone rubber gaskets per NFF 16-102

ITK SERIES

Standard plug and receptacle



The high-temperature tolerant ITK series is a rugged reverse-bayonet mating connector that utilizes stainless steel connector shells and special high-temperature ceramic inserts. Compliant to EN 45545 standards, ITK connectors are capable of operation at +700°C for 15 minutes without electrical discontinuity.

ITK "piccolo" 2-pin plug and receptacle

- Ultra high-temperature tolerant ceramic inserts
- Stainless-steel construction
- EN 45545 compliant
- Operates at +700°C for 15 minutes, with no electrical discontinuity

STANDARD BAYONET Series IPT and IPT SE

Rugged, industry-standard
multipin power and signal connectors



SERIES IPT AND IPT SE Rugged environmental bayonet connector series is resistant to vibration, shock, and environmental damage



Wide range of straight and 90°
backshells available for ease of
cable routing

Series IPT and IPT SE are industry-standard solder contact and crimp contact multipin circulars IAW MIL-DTL-26482. Designed for use in both military and industrial applications that depend on a quick-mating and demating bayonet connector with a broad available range of power and signal contact arrangement.

The Glenair Series IPT SE bayonet-lock connector is designed for all general and environmental applications that require a high-performance military-type cylindrical connector with support for crimp-removable contacts, standard wire gages and tools. Qualified to VG95328, the bayonet mechanism provides fast and easy coupling, especially when the connector is situated in an awkward or hard-to-reach location.

Environmental protection to IP67 levels provides additional reliability and the flexibility to specify these rugged connectors in harsh applications such as in machine tools and factory automation. Supplied crimp contacts are gold-plated copper alloy. Inserts are made from high-insulation synthetic rubber, oil and temperature resistant from -55° C to +125° C (polychloroprene) to +200° C (silicone).

The IPT Series connector is similar in all regards, utilizing the same contact arrangements, but is supplied with solder contact wire termination.

The Series IPT SE Connector is interchangeable and intermateable with the wide range of industry-standard bayonet connectors designed around MIL-DTL-26482 Series I and/or qualified to VG 95328, including ITT Cannon KPT.

AVAILABLE CONFIGURATIONS



VG95328 Bayonet-Lock
IAW MIL-DTL-26482

Series IPT-SE crimp-contact
In Accordance With MIL-DTL-26482

Series IPT solder contact
In Accordance With MIL-DTL-26482

Glenair IPT and IPT SE series connectors offer rugged, high vibration performance and rapid mating for both high-performance and general duty signal connector applications. The products are environmentally sealed and can be equipped with EMI/RFI shield termination backshell accessories. IPT SE is qualified to VG 95328. Both product series are in accordance with MIL-DTL-26482 Serie I

IPT-SE AND IPT PRODUCT FEATURES AND SPECIFICATIONS	
Feature	Description
Applications	Factory equipment, off-road vehicles, military vehicles, sensors, power generators, and other industrial applications.
Shell Construction	Aluminum shell bodies provide durable performance in a lightweight package.
Mating System	Three pin bayonet system, 1/2 turn to full mate.
Shell Surface Coatings	A range of conductive and non-conductive surface coatings including standard Cadmium finishes as well as RoHS compliant electrostatic paint.
Environmental Sealing	Individual wire sealing grommets and optional environmental backshells provide moisture protection up to IP67.
Temperature Tolerance	F6, F7, F11 and G3 plated connectors are tested to -55°C to 125°C.
Contacts	High performance crimp contacts and retention clips (IPT SE) and general duty crimp and solder contacts (IPT).
Contact Plating	Copper alloy with gold plating.
Wire Gauge	Contacts support wire sizes #12 - #14 (Size 12), #16 - #20 gauge (Size 16) and #20 - #24 (size 20).
Insert Materials	Resilient high-insulation synthetic insert (polychloroprene or silicone). IPT SE version includes hard plastic retention clip retainer.
Insert Arrangements	IPT SE: 25 different power and signal insert arrangements, featuring 16 and 20 gauge contacts; 3 to 61 contacts. IPT: 39 different power and signal insert arrangements, featuring 12, 16 and 20 gauge contacts; 2 to 61 contacts.
EMI Shielding	Shield termination backshell accessories are available for all plug and receptacle configurations.
Shell Styles	Complete range of shell styles is available, including front and rear mount flange receptacles, jam nut receptacles, bulkhead feedthrus, and straight and 90° plugs.
Polarization	5 keyway configuration with optional polarization.
Approvals	IPT SE is qualified to VG 95328. Both IPT and IPT SE meet all requirements of MIL-DTL-26482 Serie I.
Intermateability	Intermateable with all industry standard bayonet connectors designed to MIL-DTL-26482 Serie I and VG 95328 including Veam VPT, Amphenol PT and ITT Cannon KPT.



THREADED SERIES

Industrial-strength power and signal connector series with unique threaded coupling interfaces for special-purpose power and signal applications



Glenair ITS-Ex series encompasses both in-line cable plugs and receptacles as well as fixed bulkhead-mountable designs

RANGE OF APPLICATIONS FOR THREADED 5015-TYPE POWER AND SIGNAL CONNECTORS

- Oil & gas extraction
- Oil refineries
- Gas pipelines and distribution
- Chemical processing plants
- Aircraft refuelling and hangars
- Transportation control panels
- Pharmaceuticals
- Sugar refineries
- Grain handling and storage
- Coal mining



Available RadGrip coupling nut covers assist in mating threaded connector series in harsh weather applications

IT, ITZ, ITS-EX Threaded-Coupling 5015-Type Special-Purpose Power and Signal Connectors



IT SERIES



Glenair's IT series threaded-coupling connectors are designed in accordance with the MIL-DTL-5015G specification and comply with all its requirements of performance, reliability and intermateability with connectors from other manufacturers that share the same material/plating characteristics and contact insert arrangements.

These rugged circular connectors, originally designed for military applications, are used widely in industrial applications where reliable environmental and mechanical performance is required.

A wide range of connector backshell accessories allows these connectors to be used in virtually any environment, while the high number of available contact arrangements cover every power and signal requirement commonly encountered in rail, industrial, robotic, and mining applications. Available in either crimp contact or solder cup termination with optional silver or gold contact plating as well as thermocouple contacts.

ITZ SERIES WITH RAPID-ADVANCE THREADED COUPLING



The ITZ connector series provides the same electrical characteristics as the IT and ITS families, but utilizes rapid-advance threaded coupling in place of bayonet coupling. Originally designed to be used on special amphibious military vehicles, the series evolved into a versatile railway and industrial connector, used where threaded coupling is desired. The ITZ connector series uses solder and crimp contacts in accordance with MIL-C-5015 and a trapezoidal threaded coupling system with rubber O-ring environmental seals.

- Aluminum alloy construction with electrodeposited (cataphoresis) black coating (F6)
- Copper alloy contacts, silver plated
- Oil-resistant synthetic rubber insulators and O-rings
- Temperature tolerance -55° to +125°C

ITS-EX ICEx / ATEX-QUALIFIED EXPLOSIVE ZONE CONNECTORS



Designed for safe operation in petrochemical refineries, oil & gas drilling platforms, and other explosion zone applications, the Glenair ITS-Ex series connector is optimized for life-of-system durability and reliability. Qualified by the globally-recognized IEC and IECEx standards bodies, the connector series is suitable for use in application areas where flammable gases and vapors are present as a normal condition of operation (group IIC) and with temperature classes T6 and T5, zones 1 and 2; and for applications where potentially flammable dust is present as a normal condition of operation (group IIIC) and with temperature classes T80°C and T95°C in zone 21 and 22. A full range of power and signal contacts, from size #16 to size #0 in over 40 insert arrangements are available to address all common voltage, wire size and connector service class ratings.

- Utilizes all standard features of 5015 inserts, contacts, tools, etc.
- Grub nuts (set screw) to lock coupling nut
- Long plug barrels provide cooling zone
- Labyrinth gas exit port/pathway augments cooling
- Accessory accommodation for potted glands
- Increased wall thickness
- Stainless steel and Marine Bronze available



IRIS CERTIFIED

International Railway Industry Standard Interconnect Solutions

Glenair Italia (BLQ) qualifies annually for the European rail industry's highest quality certification standard. IRIS (International Railway Industry Standard) Certification complements the ISO 9001 quality standard and Glenair Worldwide Quality System by introducing rail-specific requirements.

IRIS certification seeks to avoid multiple business management system audits and enhance industry efficiency. The IRIS Certificate replaces individual management system evaluations by at least the four founders of this initiative (Alstom Transport, AnsaldoBreda, Siemens Transportation Systems and Bombardier Transportation).

Companies seeking IRIS certification undergo extensive quality systems review and documentation, as well as auditing by a third-party examiner.



- Harsh-environment solutions in accordance with rolling stock, trackside, signaling, and infrastructure applications
- Single-pin power and multipin signal connectors with support for high-speed data, power, and RF
- Broad range of IRIS quality system certified solutions including the four series highlighted on this spread



RUGGED Power and Signal Connectors for mass transit applications

Micro-Switch · One Cable - Two Contacts · ERTMS

MICRO-SWITCH CONNECTOR

Receptacle connector with micro-switch sensing contact



The Glenair Micro-Switch connector is a rugged, reverse-bayonet connector for enhanced-safety mating in rail applications. The connector is supplied with 3 #4/0 power contacts and a specially-designed sensing contact that allows current to flow only when the connector pair is fully mated.

- 3 #4/0 contacts and 1 sensing contact
- Thermoplastic resin insert (UL94 V0)
- IP67 environmental sealing
- Sensing contact is suitable for standard cavity
- 4 Amps current rating
- Operating Temp: -30°C to +75°C
- Solder lug termination

ONE CABLE - TWO CONTACTS



The "One Cable - Two Contacts" system is a rugged, RFI-shielded connector design that divides the source power in a 70 mm² cable into two contacts of 35 mm² each, enabling the plug connector to divide and deliver RFI shielded power via two separate cables. Designs for additional contact gages and power requirements are available. Mated pairs are sealed to IP67.

ERTMS INTERCONNECTION SYSTEM



Specially designed for utilization on the European Rail Traffic Management System, the ERTMS connector family offers plug connectors with integrated RFI shield termination backshells for complete electromagnetic compatibility when mated. Mated pairs offer IP67 environmental sealing.

"STINGER" SYSTEM



The Stinger System connector is equipped with integrated short circuit contacts which will cut power should the single-pole power circuit be unmated under load. The push-pull connector incorporates a fully insulated (rubber covered) coupling nut for additional user safety. Three backshell/rear fitting options accommodate conduit, PG gland, or rubber-covered backshell.



Melbourne Metro Train
Wikimedia commons photo by Shou-Hui Wang

Signal and Lighting Systems

for mass transit

- Buttons
- Light Information Panels
- Communication Systems
- Operating Consoles
- LED Displays
- Signal Lights
- Touch Screen Monitors
- Test Equipment

LED LIGHTS AND LIGHT SIGNALING SYSTEMS

LED devices are designed to be installed in all compartments, from coaches to locomotives. Case and electronic components can be customized.

- Case: Aluminum
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



LIGHT BUTTONS

Circular and rectangular devices, timed or not, with writing in relief for blind persons. Pictographs and case can be customized. Programmable, with LED light source.

- Case: Aluminum
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



SPECIAL-USE BUTTONS

Circular and rectangular devices, timed or not, with writing in relief for blind persons. Pictographs and case can be customized. Programmable, with LED light source.

- Case: Aluminum
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



HIGH RELIABILITY Signal and Lighting Systems for mass transit



WARNING LED LIGHT PANELS

Panels are designed with LED lights. Number of lights, case and pictographs can be customized.

- Case: Aluminum
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



LED LIGHT INFORMATION PANELS

Number of lights, case and pictographs can be customized.

- Case: Aluminum
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



INTERCOM SYSTEMS

Customizable intercom units designed as communication system between coaches and between coaches and locomotives.

- Case: Aluminum
- Painting: Epoxy paint
- Source: 18-36Vdc
- Working Temperature: -25/+70°C
- Standards: EN50155; UNI CEI 11170



SIGNAL DEVICES

Signaling units designed for heavy duty conditions, when long life and high reliability are required. LED light source. The Ground Signal Device is available with fixed lights.

- Ground Signal; Modular High Signal; Permissive and Directional Signals
- Case: Fiberglass
- Color: Black
- Source: 150Vac
- Working Temperature: -25/+80°C
- Mechanical Degree Protection: IP54
- Standards: EN50155; UNI CEI 11170



CONTROL PANELS



SENSORS



TEST EQUIPMENT





HIGH-CURRENT / HIGH-VOLTAGE Rugged Connectors for Metro Traction Motor Applications



UJ SERIES UNIPOLE POWER JOINT CONNECTOR SYSTEM

The Glenair UJ Power Joint system allows connection of medium and high power cables without the need for bulky junction boxes. The UJ Power Joint System offers the same environmental protection with substantial size and weight savings and better temperature tolerance than junction boxes.



3-position configuration



Head-to-head size comparison: UJ connector vs. junction box



2-position configuration

	UJ Series	Junction Box
Dimensions	Small	Regular / Big
Weight	Light	Heavy
Protective Varnish	No	Yes
Modularity	Yes	No
Environmental	Yes	Yes
Electrical Performance	Yes	Yes
Cost Reduction	Yes	No
Temperature Range	High	Standard

HIGH-CURRENT / HIGH-VOLTAGE Power Connectors for Mass Transit Traction Motor Applications



Series UJ • Series ITS 901 • Series ITS 500

ITS 901 SERIES REVERSE BAYONET MULTI-POLE MEDIUM VOLTAGE JUMPER CONNECTORS



Reverse-Bayonet Panel-Mount Receptacle Connector



Wide range of available backshell accessories



Reverse-Bayonet Plug with Castellated Coupling Nut



Reverse-Bayonet Plug with RadGrip Coupling Nut



Reverse-Bayonet Plug with Wing-Lock Mechanism

ITS 901 Series is the extension of the ITS Reverse Bayonet connector family, for power cables over AWG 1/0. Suitable for harsh environmental conditions, 901 Series Connectors accept cable from AWG 4 to 262 MCM (35 - 120 mm²), for current up to 450 Amps. Working voltage is from 800 - 1000 VAC. Available for single wires and multipole jacketed cables, with cable clamp or conduit.

Male contacts offer Finger Test Protection, Load Side (Receptacle or Plug). Long bayonet ramps, three polarization keys and rubber recovered coupling facilitate mating and unmating operations.

Plug connectors are available with coupling nut castellations or with special wing lock mechanism to prevent accidental de-mating.

901 Series meet the most important rail requirements and specifications:

- Salt Spray Test Corrosion: 500 hours;
- 500 Mating Cycles;
- Shock and Vibrations for Under-Car and Car-To-Car Applications;
- IP67 Sealing (Coupled Connectors);
- Fire Resistant and RoHS Compliant Materials.

ITS 500 SERIES REVERSE BAYONET SINGLE-POLE HIGH VOLTAGE JUMPER CONNECTORS



Single-Pole Plug Connector with Castellated Coupling Nut



Single-Pole Receptacle Connector

ITS 500 Series derives from the VG96929 Military Specification for Power Connectors. Suitable for harsh environmental conditions, ITS 500 accepts cable gauges AWG 3/0 to 444MCM (95-240 mm²), for current up to 750 Amps.

Special insulator drawing allows high working voltage, up to 3000 Vcc. Suitable for jacketed cables, with or without conduit protection.

Receptacle with finger protection (Load side).

ITS 500 meets the most important rail requirements and specifications:

- 500 Mating Cycles
- Salt Spray Test Corrosion: 500 hours
- Shock and Vibrations for Under-Car and Car-To-Car Applications
- IP67 Sealing (Coupled Connectors)
- Fire Resistant and RoHS Compliant Materials



Standard and ProSeal-style Protective Covers





HIGH-CURRENT / HIGH-VOLTAGE

Multipole Traction Motor Connectors with IRIS Certification



High current/high voltage electrical connectors for traction motor, lighting, data communications and more.

The interconnection of power transmission cables in traction motors is a critical application. Conventional systems may employ bulky and inefficiently-sealed junction boxes for cable interconnection. Glenair offers a number of different special-purpose designs for traction motors and other power requirements on transit cars. Features such as integral mounting, robust environmental sealing, screw and/or lever-action mating, as well as compliance to transit industry standards such as IRIS, FST, and RoHS make Glenair the natural design partner and supplier to the worldwide mass transit / rail industry. The following pages present an overview of our most popular power and signal connector series, principally manufactured, tested, and qualified in our Bologna, Italy factory. Glenair delivers worldwide application engineering and support to the mass transit / rail industry with support teams located in every major market.

- Innovative screw and lever mated power connectors for mass transit / rail applications
- Proven performance and qualification credentials in hundreds of installations
- IRIS International Railway Industry Standard certified (Rev. 02, May 2009)

RUGGED Power and Signal Connectors for mass transit applications



IRT Rectangular Multipole Connectors

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 back-end styles:

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

Series IRT Connector Selection Guide



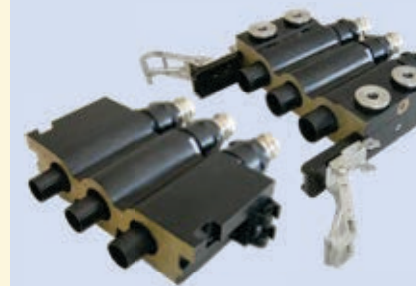
Size 01
3 contacts, Screw Mating



Size 02
4 contacts, Screw Mating



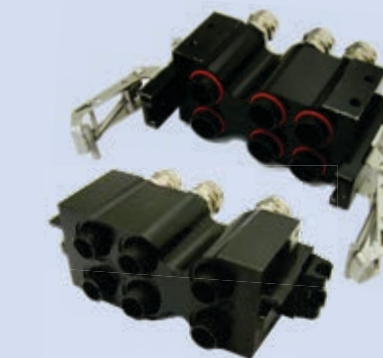
Size 03
3 contacts, Lever Mating



Size 04
3 contacts, Double-Lever Mating



Size 05
4 contacts, Lever Mating



Size 06
6 contacts, Stacked, Lever Mating

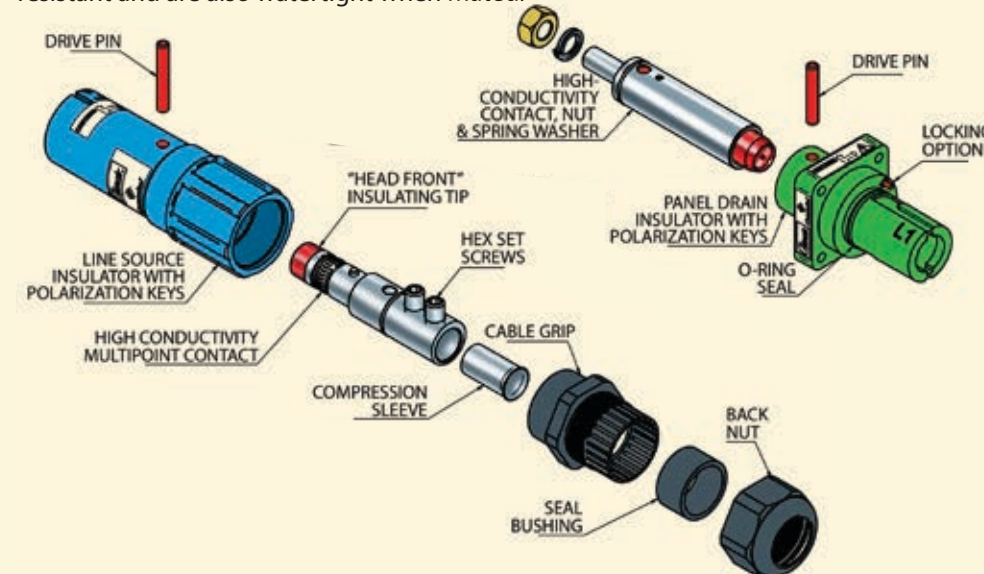
UNIPOWER
Safe, rugged and reliable
multi-phase power distribution connectors



UniPower™ Connectors

Safe, rugged, and reliable multi-phase power distribution connectors

Glenair UniPower™ Connectors provide reliable interconnection between power generation and distribution systems and high-powered equipment such as three-phase motors, concert sound systems, lighting panels, carnival rides and municipal emergency power systems. The color-coded plastic bodies are fire and high impact resistant and are also watertight when mated.



- For heavy industry, mobile generators, sound equipment, and entertainment industry power distribution applications
- Color-coded for three-phase application
- Easy termination and assembly
- Secondary locking mechanism and contacts with dielectric covers for added safety

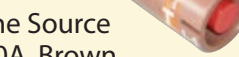


LINE SOURCE

Line Source 400A, Black



Line Source 800A, Brown



Glenair UniPower™ line source connectors are available in 400A and 800A ratings, and feature rigid male contacts with a dielectric cover to prevent accidental shock. A secondary locking pin slot ensures connector pairs will stay mated—free from accidental decoupling. Cable sealing glands protect against environmental damage to contact terminations. Finally, a rugged nylon cotter pin secures everything in place, for long-term, reliable power connectivity for even the most challenging of applications.

The 400A version allows users to terminate a wide range of cables, from 25mm² to 120mm², by means of a reduction sleeve. Simply tightening the two set screws atop the contact fastens the reducer onto the wire—providing complete versatility in the selection of cable and wire for power system applications.

LINE DRAIN

Line Drain 400A, Black



Line Drain 800A, Blue



Glenair UniPower™ line drain connectors are available in 400A and 800A max current ratings, and feature rigid IP2X spring loaded contacts secured firmly in place with rugged nylon cotter pins. Like their source counterparts, shock-resistant insulating tips safeguard users from accidental electrocution.

Standard O-ring and cable sealing glands ensure IP67 environmental rating when connectors are mated for long-term durability and reliability.

Tugged cables or curious hands can't accidentally decouple UniPower™ connector pairs, thanks to a secondary locking pin that securely joins the connectors in the mated position. A secondary remote locking key disengages the mated connectors safely and quickly. Color coded connectors prevent mis-mating and comply with EU, UK and US standards.

PANEL SOURCE AND DRAIN

Panel Source 400A, Black



Panel Drain 400A, Black



Glenair UniPower™ panel source and drain connectors offer complete flexibility in power system device configuration. Choose between source and drain formats, in either 400A or 800A ratings. All panel connectors feature a rigid IP2X 'finger proof' dielectric insulating tip to protect users from accidental electrocution.

The panel source connector features a male contact and secondary locking pin slot to prevent accidental cable de-mating due to cable torsion. Panel drain connectors are supplied standard with female contacts that feature an IP2X spring loaded nose and IP67 rated O-ring environmental seal. The connectors are ideally suited for industrial power distribution systems, three-phase motors, concert sound systems and other outdoor, environmental applications. All panel receptacles are shipped fully assembled. Color coding prevents mis-mating and ensures compliance with EU, UK and US standards.

Product Specifications

Formats: Panel Drain, Panel Source, Line Drain, and Line Source
 Cable Section: Crimp Contact Version: 300 mm²max ; Set Screw Version: 120 mm²max
 Contact Types: Crimp, Set Screw or Threaded Post (Panel Versions Only)
 Contact Retention/Extraction System: Drive Pin with Secondary Lock
 Mating Method: Polarization Keyways with Lock Pins
 Mating Cycles: 500
 Layout: Single Contact with Finger Touch Insulating Tip
 Maximum Current Rating: 400A (120 mm² Set Screw), or 800A (300 mm² Crimp)
 Maximum Rated Voltage to Ground: 2KVAC; 3KVDC
 Test Voltage: 8.000 Vac

Minimum Insulating Resistance: >5x10³ MΩ at 500 Vac
 Operating Temperature Range: -30°C to +125°C
 Flammability: UL 94 V0
 Shell Material: Thermoplastic Resin
 Environmental Resistance: Watertight in Mated Condition to IP67
 Safety Features: Mechanical and Color-Coded Mis-Mate Protection; Finger-Proof Contact Nose
 Shell Colors: Green, Black, Red, Yellow, Blue, Brown, White, and Grey
 Accessories: Compression Sleeves, Lock Pin Release Key, and Protective Covers
 Crimp Tools: Industry Standard Crimp Tools and Dies Available for All Crimp, Set Screw and Panel Mount Terminations.



GLENNAIR ITALIA BLQ:
 Manufacturing harsh-
 environment military,
 nuclear, rail, and industrial
 interconnects for power,
 high-speed Ethernet, and
 fiber optic applications.



HIGH-CAPACITY CNC MACHINING CENTERS
 allow Glenair BLQ to provide lightning-fast
 turnaround on small and custom orders as well
 as large production runs, all with superior surface
 finishes and better part quality.

ADVANCED PLATING LINE
 Capabilities include VG95328-qualified Marine
 Bronze and "Code J" Tin-Zinc plating—VG95211
 and VG95212 qualified cadmium alternative for
 corrosion-resistant interconnects.

TOTAL VERTICAL INTEGRATION
 includes In-house rubber and
 thermoplastic injection molding.

SAME-DAY SHIPMENT INVENTORY
 Glenair Italia BLQ offers the fastest turnaround on orders of any
 industrial-strength connector manufacturer.

MISSION-CRITICAL
INDEPENDENT
TEST LAB



ISO/IEC 17025

Environmental Test Laboratory

Fast and reliable IEC qualified assessment laboratory for electronic components (IECQ)

Environmental testing, consisting of the complete range of mechanical, electrical and environmental stress factors that affect electronic equipment, cabling, and systems is now available from Glenair's IEC/IECQ certified testing laboratories. Test engineers and technicians follow qualified processes, and report generation protocols to deliver timely and professional environmental testing services. As an interconnect component manufacturer and wire and cable assembly supplier, Glenair is well-versed in all aspects of qualification testing including corrosion resistance, solvent resistance, electromagnetic compatibility, dielectric withstanding voltage, current rating and so on. Our test laboratories are equipped with current-generation equipment, and are maintained in accordance with industry best practices and certification agency requirements. Perhaps most importantly, Glenair environmental test services are offered with accelerated lead times—from initial quoting to final test report delivery. Please contact the factory for more information

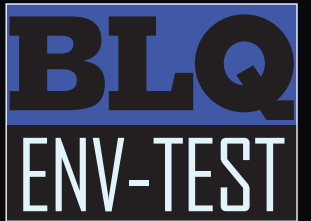


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- Mechanical / dynamic testing for fiber optic systems, electrical components, wiring harnesses
- Broad spectrum of electrical testing (resistance, current rating, EMC shielding and more)
- Heat, cold, and thermal shock testing
- Corrosion and solvent resistance testing
- Fast turnaround on quotes and testing services
- Decades of experience



Mechanical / Dynamic Testing IEC QUALITY ASSESSMENT SYSTEM FOR ELECTRONIC COMPONENTS (IECQ)



MECHANICAL / DYNAMIC TESTING

ELECTRICAL AND ELECTRONIC COMPONENTS/DEVICES TESTED
Electrical/Fibre optic connectors
Electro/Mechanical Devices
Wiring Harnesses
Switches
Aerospace Components & Equipment
Automotive Components & Equipment
Railway Components

VIBRATION-SINUSOIDAL (Ambient temperature)	
MECHANICAL/DYNAMIC TESTS	STANDARD
Freq. Range: 5 to 2000 Hz	BS EN/IEC 60068-2-6
Peak thrust: 8,90kN	EIA-364-28
Max pk/pk displacement: 50mm	

VIBRATION/RANDOM (Ambient temperature)	
MECHANICAL/DYNAMIC TESTS	STANDARD
Freq. Range: 5 to 2000 Hz	BS EN / IEC 60068-2-64
Peak thrust: 5,76 kN	EN 61373
Max pk/pk displacement: 50mm	EIA-364-28

SHOCK (Half sine, Sawtooth, and Trapezoidal waveforms)	
MECHANICAL/DYNAMIC TESTS	SPECIFICATION APPLICABLE
Peak thrust : 17,36kN	BS EN / IEC 60068-2-27
	EIA-364-27
	EN 61373

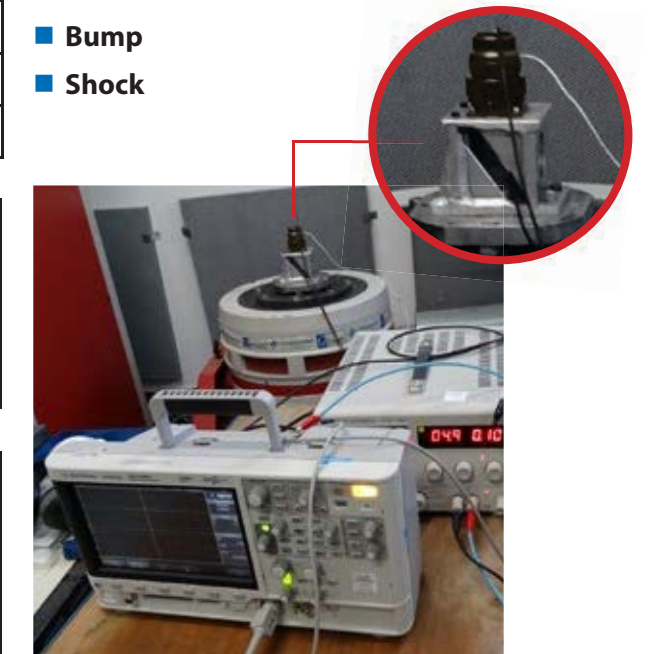
BUMP (Half sine)	
MECHANICAL/DYNAMIC TESTS	STANDARD
Severity: 20/40 gn	BS EN / IEC 60068-2-29:1993

DISCONTINUITY (During vibrations)	
MECHANICAL/DYNAMIC TESTS	STANDARD
1µs Electrical discontinuity	EIA-364-28

Controlled vibration and shock testing ensures electrical and electronic components can withstand specified forms of dynamic stress encountered during operation and shipping.

Available Tests:

- Vibration sine
- Vibration random
- Bump
- Shock



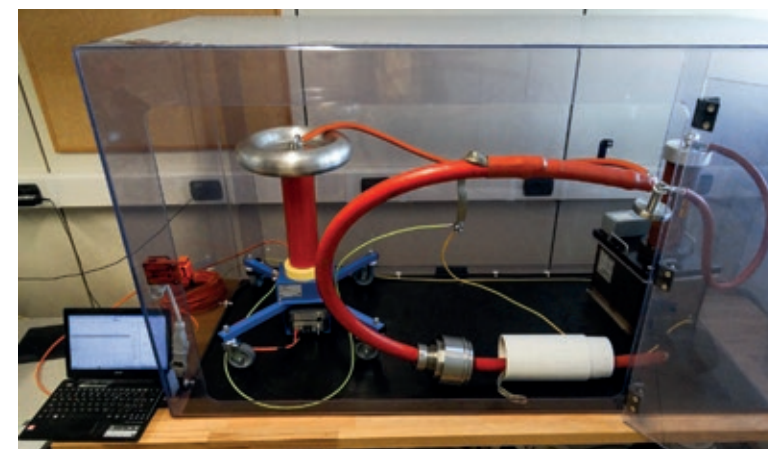
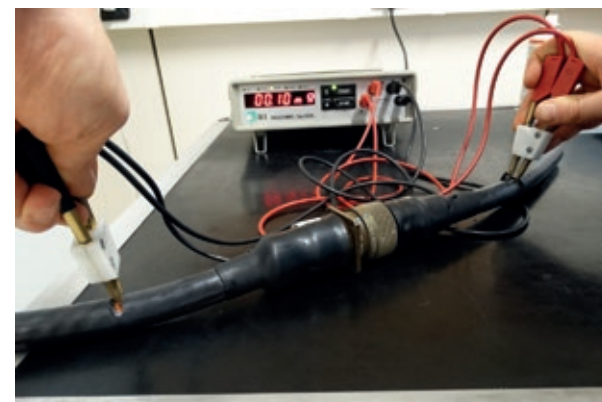
ELECTRICAL / EMC TESTING

ELECTRICAL	
EMC	SPECIFICATION APPLICABLE
Shielding effectiveness	BS EN / IEC 62153-4-7
Tiaxial Method	
9 kHz - 2,6 GHz	
CONTACT RESISTANCE	SPECIFICATION APPLICABLE
DC Voltage	BS EN / IEC 60512-2-1 BS EN / IEC 60512-2-2 EIA-364-06
20 mΩ - 200 kΩ	
1 μΩ	
INSULATION RESISTANCE	SPECIFICATION APPLICABLE
DC Voltage	BS EN / IEC 60512-3-1 EIA-364-21
1 - 1500 V	
100 Ω - 2000 TΩ	
DIELECTRIC WITHSTANDING VOLTAGE	SPECIFICATION APPLICABLE
AC Voltage 50 Hz : 0 - 50 kV	BS EN / IEC 60512-3-1 EIA-364-21
TEMPERATURE RISE AND CURRENT DE-RATING	SPECIFICATION APPLICABLE
DC Current : 0 - 2000 Ampere	BS EN / IEC 60512-5-1 BS EN / IEC 60512-5-2 EIA-364-70
PARTIAL DISCHARGE	SPECIFICATION APPLICABLE
Test voltage: 0 - 50KVAC Max I. Leak: 60mA	IEC 60270:2000 BS EN 60270:2001
Test voltage: 0 - 10KVAC Max I. Leak: 300mA	
PD event time resolution: < 2 ns	
PD resolution: 0,01 pC	
Minimum PD level: 3 pC	
PD level accuracy: ± 2 % of calibrated PD value	
Center frequency 0 Hz ±32 MHz	
Frequency domain bandwidth: 9 kHz, 40 kHz, 100 kHz, 160 kHz,300kHz, 650kHz, 1MHz, 1.5MHz	

Electrical / EMC Testing services cover the complete range of performance requirements for interconnect cabling and electronic components. Glenair brings years of EMC design engineering experience into the testing process, ensuring equipment under test is always correctly fixtured and prepared for the most accurate results.

Available Tests:

- Contact resistance
- Dielectric withstanding voltage (DWV)
- Current rating
- Insulation resistance
- EMC shielding
- Partial discharge



TEMPERATURE / HUMIDITY TESTING

CLIMATIC (High Humidity - Constant)	
DAMP HEAT STEADY STATE	SPECIFICATION APPLICABLE
Temp. Range : +10°C to +90°C	BS EN / IEC 60068-2-3 EIA-364-31
Humidity Range : 10 to 98%rh	
Chamber Size: 690mmx600mmx610mm 500mmx610mmx500mm	
DAMP HEAT-CYCLIC	SPECIFICATION APPLICABLE
Temp. Range : +10°C to +90°C	BS EN / IEC 60068-2-30 EIA-364-59
Humidity Range : 10 to 98%rh	
Chamber Size : 650mmx500mmx600mm 800mmx600mmx500mm	
DAMP DRY COLD	SPECIFICATION APPLICABLE
Min Temp : -75°C	BS EN / IEC 60068-2-1 EIA-364-59
Max chamber size : 800mmx600mmx500mm	

CLIMATIC (High Temperature-Constant)	
TEMPERATURE-DRY HEAT	SPECIFICATION APPLICABLE
Maximum Temp : +300°C	BS EN / IEC 60068-2-2 EIA-364-17
Chamber Size : 500mmx600mmx600mm	
THERMAL SHOCK	SPECIFICATION APPLICABLE
Temp. Range : -60°C to +300°C	BS EN / IEC 60068-2-14
Manual (two chambers method)	
Gradual in air	
CHANGE OF TEMPERATURE	SPECIFICATION APPLICABLE
Maximum Temp : +180°C	BS EN / IEC 60068-2-14
Minimum Temp : -75°C	
Maximum rate of change : -75°C to +180°C: 5°C/Min +180°C to -75°C: 2,5°C/Min	

Temperature and Humidity Testing is performed using industry-standard and IEC accepted practices of temperature cycling and humidity exposure. New and high-quality testing equipment ensures accurate results.

Available Tests:

- Dry heat
- Dry cold
- Damp heat steady state
- Damp heat cyclic
- Thermal shock



SALT SPRAY / CORROSION TESTS

CORROSION	
SALT/SO2 SPRAY (FOG)	SPECIFICATION APPLICABLE
Max chamber size : 500 Lt	BS EN / IEC 60068-2-11 EIA-364-26



MISSION-CRITICAL INTERCONNECT SOLUTIONS

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