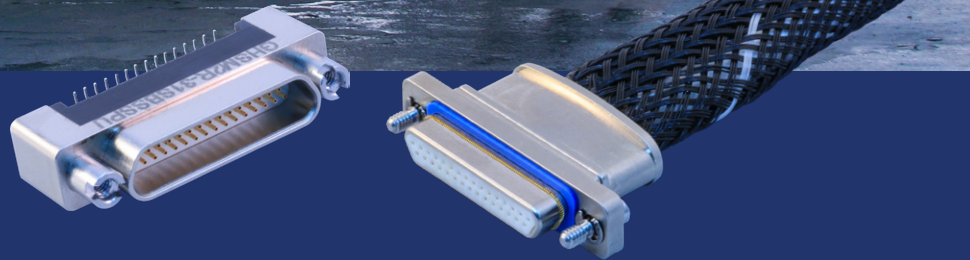


MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS



SERIES GHSM

# Glenair High-Speed Micro-D Connectors and Cables

For USB 3.0 · 10GbE · Camera Link · PCIe 3.0

FEBRUARY 2023

GHSM  
HIGH-SPEED  
MICRO-D

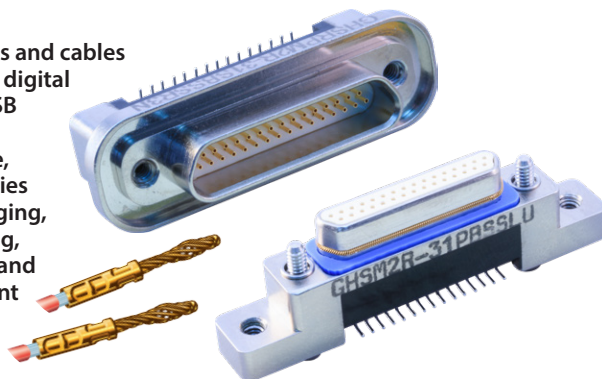


The Smallest and Lightest  
Aerospace-Grade, High-  
Speed Connector Solution



The High-Speed Micro-D uses an impedance optimized open pin field for high-density signal routing flexibility. 1 Amp pre-wired cable and PCB solutions deliver up to 15 Gbps performance per differential pair. Auxiliary EMC ground springs on plugs ensure data integrity and low attenuation performance.

High-Speed Micro-D connectors and cables are optimized for multi-gigabit digital datalink protocols including USB 3.0, 10GbE, Camera Link, and PCIe 3.0. The high-performance, aerospace-grade connector series features machined-shell packaging, low-attenuation contact spacing, low- $\kappa$  PPS dielectric insulators, and Glenair shock- and vibrate-resistant Nano TwistPin contacts.



- Pre-wired factory pigtails, cordsets, and PCB connectors
- Unique contact isolation and spacing for optimal high-speed performance up to 15 Gbps
- Supports maximum #28 AWG wire
- Low- $\kappa$  dielectric insulator combined with optimized contact size and spacing
- Precision-machined shells with gold or nickel plating
- 1 Amp TwistPin contacts for optimal performance in harsh vibration, shock, and high-temperature environments

# SERIES GHSM High-Speed Micro-D



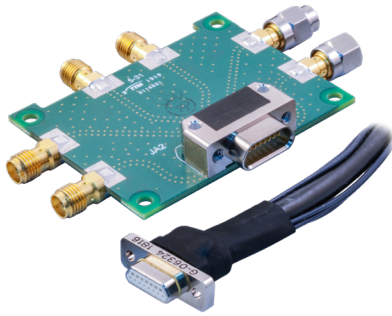
The high-speed micro miniature rectangular interconnect solution for USB 3.0, 10GbE, Camera Link, and PCIe 3.0

<p><b>PERFORMANCE SPECIFICATIONS</b> Application notes</p>		<p>Introduction..... <a href="#">Page 2</a>  Mod Code for Space Applications ..... <a href="#">Page 3</a>  Materials/Finishes, Performance Specifications..... <a href="#">Page 4</a>  Recommended Panel Cut-out Dimensions ..... <a href="#">Page 7</a>  Supported Protocols, Insert Arrangements..... <a href="#">Page 8</a>  Wiring Diagrams ..... <a href="#">Page 9</a></p>
<p><b>GHSM</b> Prewired pin and socket cable connectors: pigtails and double-ended assemblies</p>		<p><b>GHSM</b> How to Order / Dimensions..... <a href="#">Page 10</a></p>
<p><b>GHSRPM</b> Prewired pin and socket rear panel-mount connectors: single-ended pigtails</p>		<p><b>GHSRPM</b> How to Order / Dimensions..... <a href="#">Page 12</a></p>
<p><b>GHSM-BSS</b> Straight surface-mount pin and socket PCB connectors</p>		<p><b>GHSM-BSS</b> How to Order Connectors with Jackpost Hardware..... <a href="#">Page 14</a>  How to Order Connectors with Jackscrew Hardware ..... <a href="#">Page 18</a></p>
<p><b>GHSM-HBR</b> Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors</p>		<p><b>GHSM-HBR</b> How to Order Connectors with Jackpost Hardware..... <a href="#">Page 22</a>  How to Order Connectors with Jackscrew Hardware ..... <a href="#">Page 26</a></p>
<p><b>GHSRPM-BSS</b> Straight surface-mount pin and socket rear panel-mount connectors</p>		<p><b>GHSRPM-BSS</b> How to Order / Dimensions..... <a href="#">Page 30</a></p>
<p><b>GHSRPM-HBR</b> Hybrid right-angle (surface-mount / thru-hole) P and S rear panel-mount connectors</p>		<p><b>GHSRPM-HBR</b> How to Order / Dimensions..... <a href="#">Page 34</a></p>
<p><b>GHSM-USP1</b> Sav-Con® Connector Saver</p>		<p><b>GHSRPM-USP1</b> How to Order / Dimensions..... <a href="#">Page 38</a></p>
<p><b>500-148</b> Plug and Receptacle Dust Covers</p>		<p><b>500-148</b> How to Order / Dimensions..... <a href="#">Page 39</a></p>
<p><b>179-045</b> Jackpost Kit for Panel-Mount Connectors</p>		<p><b>179-045 Jackpost Kit</b> How to Order / Dimensions..... <a href="#">Page 41</a></p>
<p><b>963-128-28</b> <b>963-130-28</b> Twinax Cable</p>		<p><b>963-128-28 • 963-130-28</b> Impedance-Matched Twinax Twisted Pair Cable ..... <a href="#">Page 42</a></p>

TABLE OF CONTENTS

The miniature high-speed connector with mil-spec pedigree connector and contact packaging

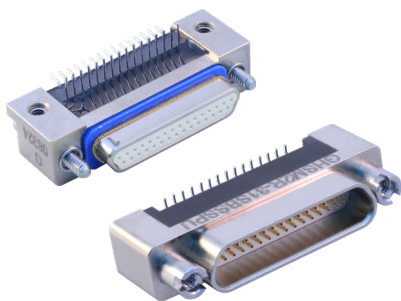
INTRODUCTION



Micro-D High-Speed configurations include wired assemblies and straight or 90° PCB-mount connectors. Insert arrangements feature 1 Amp Nanominiature TwistPin contacts. All designs have been tested for today's popular high-speed protocols.

**EMI SHIELDING AND ENVIRONMENTAL SEALING**

Plug connectors feature a gold-plated stainless steel ground spring for EMI protection, and a silicone gasket for environmental sealing.



Straight and right-angle printed circuit board connectors

**INTRODUCTION TO THE SERIES**

The High-Speed Micro-D achieves its high-speed signal integrity and high data rate performance through innovative modifications to the standard Micro connector insert, principally in the use of an ultra-low dielectric insulation material, but in addition, with the use of Nano TwistPin contacts, exactly spaced and isolated to eliminate cross-talk and maintain impedance levels through the connector mating interface.

Available in both prewired factory cordsets—with hybrid shielded twisted pair (STP) and standard hookup wire cabling—as well as PCB configurations, the High-Speed Micro-D utilizes #28 gauge wire and is rated at 1 amp per contact (instead of the usual 3 amp rating found in standard Micro connectors).

Like other next-generation rectangulars from Glenair, the High-Speed Micro-D incorporates an auxiliary EMI ground spring on the plug, further enhancing the signal integrity of this ultra-small form-factor connector. In fact, the High-Speed Micro-D's size is perhaps its most important advantage as it is now arguably the smallest and lightest aerospace-grade high-speed interconnect.

The downselect process begins with the identification of the target high-speed protocol (see tables, opposite page). Each insert arrangement in the series is purpose-designed to meet the particular requirements of today's most popular high-speed datalink protocols. Prewired pigtail assemblies utilize shielded twisted pair cabling for the high-speed data pairs, and #28 gauge hookup wire for power and low-speed signal requirements. Ground wire terminations are also indicated for each insert arrangement. Consult Glenair Design & Installation of High-Speed Micro-D PCB Connectors Application Note for board layout and termination requirements.

**MATERIALS AND FINISHES**

- Connector Shell: Aluminum Alloy 6061
- Insulator: Polyphenylene Sulfide (PPS)
- Flange Seal: Fluorosilicone Rubber, Blue
- Pin Contact: Copper Alloy, Gold over Nickel Plating
- Socket Contact: Copper Alloy, Gold over Nickel Plating
- Ground Spring: Stainless Steel, Gold Plated
- Hardware: 300 Series Stainless Steel, Passivated
- Encapsulants: Hysol EE4215 and Stycast 2850FT/Catalyst 11

**PERFORMANCE SPECIFICATIONS**

- Current Rating: 1 Amp\*
- DWV: 600 Vac Sea Level
- Insulation Resistance:
  - Differential signal and discrete wires - 5000 Megohms Min. (500 VDC)
  - Differential signal drain wires only - 500 Megohms Min. (500 VDC)
- Contact Resistance: 80 Milliohms Maximum
- Operating Temperature: -55°C To 150°C
- Mating Force: 7 Ounces X # of Contacts
- Durability: 500 Mating Cycles

\*See Glenair Test Report GT-20-786 for temperature rise vs. current performance

## Mod Code 429 for Space Application



**Detail of the Atmospheric Infrared Sounder Instrument (AIRS) with Glenair Micro-D Cables and Connectors**  
*Photo courtesy JPL*

## Save Time and Cost with Modification Codes for Space Grade GHSM connectors

GHSM connectors are a good choice for all types of orbital and deep space projects. Glenair Modification Codes provide special processing for GHSMs to meet NASA requirements without the need for a customer 'Statement of Work' or 'Specification Control Drawing'. This section explains Glenair Modification Code ordering, and provides valuable information on outgassing and other space flight topics.

HOW TO ORDER SPACE GRADE GHSM CONNECTORS	
<b>Step 1: Find a Standard GHSM Part Number</b>	Electroless nickel plated shells and Tefzel® wire are preferred for space flight. Cadmium plating is prohibited.
<b>Step 2: Select a NASA Screening Level</b>	The term "Screening Level" refers to the final inspection procedure and does not include outgassing. Level 1 for mission-critical highest reliability Level 2 for high reliability Level 3 for standard reliability
<b>Step 3: Outgassing Processing</b>	Specify bakeout or thermal vacuum outgassing. Both bakeout and thermal vacuum outgas processes incur additional cost.
<b>Step 4: Select Appropriate Modification Code.</b>	Match the desired level of screening, outgassing or a combination of both. Select from the table below to choose the right modification code. Add the modification code to the connector part number. Example: GHSM2R-25SBSSPU-429C

NASA EEE-INST-02, TABLE 2A SCREENING LEVELS			
Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2(0)	2(0)	
Dielectric Withstanding Voltage	2(0)	2(0)	
Insulation Resistance	2(0)	2(0)	
Contact Engagement & Separation Force	2(0)		
Hermeticity (Sealed Receptacles Only)	100%	100%	
Coupling Force	2(0)		

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

SCREENING LEVEL AND AVAILABLE OUTGASSING MODIFICATION CODES			
NASA Screening Level	Special Screening Only	Special Screening Plus Outgassing Processing	
		48 Hour Oven Bake 175° C.	Thermal Vacuum Outgassing 24 hrs. 125° C.
Level 1 Highest Reliability	Mod Code 429F	Mod Code 429J	Mod Code 429C
Level 2 High Reliability	Mod Code 429D	Mod Code 429K	Mod Code 429A
Level 3 Standard Reliability	Mod Code 432	Mod Code 186	Mod Code 186M

MOD CODE FOR SPACE APPLICATIONS

## Materials and Finishes Performance Specification

HIGH-SPEED MICRO-D PERFORMANCE SPECIFICATION

GLENAIR HIGH-SPEED MICRO-D MATERIALS AND FINISHES	
Connector Shell	Aluminum alloy 6061 in accordance with SAE AMS-QQ-A-200/8 or SAE-AMS4027 • Plating code 2: electroless nickel in accordance with ASTM B733 or SAE-AMS2404 • Plating code 5: gold plated in accordance with ASTM B488 over electroless nickel in accordance with ASTM B733-90
Insulator	Unfilled polyphenylene sulfide (PPS) Fortron 1200L1 or equivalent
Flange Seal	Fluorosilicone rubber in accordance with MIL-R-25988
Pin contact	Suitable copper alloy, gold plated in accordance with ASTM B488, Type II, Class 1.27 (50 micro inches minimum), Code C, over nickel underplate in accordance with SAE AMS-QQ-N-290, class2 (50-150 micro inches)
Socket Contacts	Suitable copper alloy, gold plated in accordance with ASTM B488, Type II, Class 1.27 (50 micro inches minimum), Code C, over nickel underplate in accordance with SAE AMS-QQ-N-290, class2 (50-150 micro inches)
Ground Spring	Stainless steel, gold plated
Hardware	Stainless steel, 300 series, passivated in accordance with SAE-AMS2700
Encapsulant	Epoxy Resin Hysol EE4215/HD3561 and Stycast 2850FT/Catalyst 11
Pigtail Wire, Uninsulated	Suitable copper alloy, gold-plated, solder dipped in 60/40 tin-lead
Pigtail Wire, Insulated Hookup	• Wire Type K: Silver-coated copper wire, extruded PTFE insulation, 600 volts RMS, 200° C, in accordance with SAE AS 22759/11 • Wire Type J: High-strength silver-coated copper alloy wire, crosslinked modified ETFE insulation, 600 volts rms, 200° C, in accordance with SAE AS 22759/33
High-Speed Cable	High-strength silver-coated copper alloy wire, PFA and FEP insulation, 600 volts RMS, 150° C, 90 and 100 ohm impedance matched

### GLENAIR HIGH-SPEED MICRO-D PERFORMANCE SPECIFICATIONS

#### 1. Scope

- 1.1. **Scope:** This specification covers performance requirements for Glenair High-Speed Micro-D connectors manufactured in accordance with MIL-DTL-83513 and MIL-DTL-32139.
- 1.2. **Description:** Metal shell High-Speed Micro-D connectors on .050-inch (1.27 mm) centers, with Nano TwistPin contacts.

#### 2. Order of Precedence

- 2.1. **Order of Precedence:** In the event of a conflict between the requirements of this specification and the references cited herein, this document takes precedence. The requirements set forth in customer specifications and Glenair detail drawings shall take precedence over this document.

#### 3. Requirements

##### 3.1. Electrical Performance Requirements

- 3.1.1. **Insulation Resistance:** 5,000 megohms minimum between any pair of contacts and any contact and the shell when tested in accordance with EIA-364 Procedure 21, which specifies 500 volts DC. Wiring harnesses shall be 500 megohms minimum.
- 3.1.2. **Dielectric Withstanding Voltage:**
  - 3.1.2.1. **Dielectric Withstanding Voltage (sea level):** 600 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.
  - 3.1.2.2. **Dielectric Withstanding Voltage (70,000 feet):** 150 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

## Performance Specification

### 3.1.3. Contact Resistance:

- 3.1.3.1. **Contact Resistance:** The voltage drop of a mated pair of contacts attached to wires shall not exceed 71 millivolt drop maximum using a 1 ampere test current, when tested in accordance with EIA-364-06, using any catalog supported wire types.
- 3.1.3.2. **Low Level Contact Resistance:** When tested with a micro-ohmmeter using a test current of 10 milliamperes maximum, the resistance of a mated pair of contacts shall be 71 milliohms maximum using any catalog supported wire types. Test procedure in accordance with EIA-364-23.
- 3.1.4. **Contact Current Capability:** Contacts shall be capable of carrying 1 ampere in continuous duty operation from -55° to 150° C when tested in accordance with EIA-364-70.
- 3.1.5. **Shell-to-Shell Conductivity:** A mated pair shall not exceed 10 millivolts maximum voltage drop when tested in accordance with EIA-364-83.
- 3.1.6. **Shielding Effectiveness:** A mated pair shall meet a requirement of 65 dB minimum attenuation when tested in accordance with EIA-364-66.
- 3.1.7. **Magnetic Permeability:** Magnetic permeability, when tested in accordance with EIA-364-54, shall not exceed 2 mu.

### 3.2. Mechanical Requirements

- 3.2.1. **Contact Engaging and Separation Force:** Maximum engaging force shall be 5 ounces when tested in accordance with MIL-DTL-32139. Minimum separation force shall be 0.4 ounces.
- 3.2.2. **Connector Mating and Unmating Force:** The maximum mating and unmating force shall be 7 ounces times the number of contacts when tested per MIL-DTL-32139. Mate connectors three times before taking initial measurements.
- 3.2.3. **Contact Retention:** Contacts, when tested in accordance with EIA-364-29, shall withstand a 2 pound axial load for a minimum of 5 seconds.
- 3.2.4. **Crimp Tensile Strength:** Wire shall not pull out of crimp joints at an applied force of less than 3 pounds (1.5 pound for 30 AWG wire) when tested in accordance with IPC-620D, Section 19.7.2. Wire breakage other than at the crimp shall not constitute a failure.
- 3.2.5. **Insert Retention:** Inserts shall not be dislodged or moved from their original position when subjected to an axial load of 50 pounds per square inch when tested in accordance with EIA-364-35.
- 3.2.6. **Resistance to Soldering Heat:** Connectors with printed circuit board terminations shall withstand immersion in a solder bath for 9-11 seconds at 260° C when tested in accordance with EIA-364-56 Procedure 3 Test Condition B. Connectors, after cooling, shall not exhibit damage or warpage when examined at 10X magnification.
- 3.2.7. **Solderability:** Printed circuit terminals shall meet the solderability requirements of MIL-STD-202 Method 208.
- 3.2.8. **Durability:** High Speed Micro-D connectors shall be capable of 500 cycles of mating with no damage or degradation to electrical performance. Engaging and separation force and mating forces shall not exceed the requirements of 3.2.1 and 3.2.2.

## Performance Specification

HIGH-SPEED MICRO-D PERFORMANCE SPECIFICATION

### 3.3. Environmental Requirements

**3.3.1. Salt Spray (corrosion):** Connectors shall show no exposure of base metal due to corrosion when subjected to the salt spray test of EIA-364-26, condition B, with a 48 hour duration. In addition, connectors shall meet contact resistance, low level contact resistance, and mating force requirements.

**3.3.2. Fluid Immersion:** Connectors shall meet mating force requirements following 20 hours immersion in synthetic lubricating oil MIL-PRF-7808, 2 hours in Perchloroethylene cleaning solvent ASTM D4376, and 1 hour immersion in coolant MIL-PRF-87252, when tested in accordance with MIL-DTL-32139. There shall be no degradation of the plastic, bonding adhesives, or elastomers.

**3.3.3. Thermal Vacuum Outgassing:** The assembled connector mass excluding metallic parts shall not exceed 1.0% total mass loss (TML) or 0.1% total volatile condensable materials (CVCM) when tested in accordance with ASTM E595. NOTE: the face seal gasket on plug connectors exceeds the allowable TML/CVCM unless it is specially processed. This is acceptable per MIL-DTL-83513 but may not be permissible for specific space programs.

Outgassing Properties of GHSM Connectors					
Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Molded Insulator	Unfilled PPS	Fortron1200L1	0.09	<0.01	Glenair Test #TR75613-1
Machined Insulator	Unfilled PPS	Techtron 1000	0.08	0.00	NASA Test #GSFC24653
Organizer (HBR only)	40% Glass-filled PPS	Ryton R4-02XT	0.09	0.00	NASA Test #GSFC06826
Potting Compound	Epoxy	Hysol EE-4215	0.55	<0.01	Glenair Test #TR59899-3
(PC Tail Only)	Epoxy	Stycast 2850FT/11	0.47	0.01	NASA Test #GSFC06569
Face Seal Gasket "as received"	Fluorosilicone	None	1.28	0.25	Glenair Test #TR75613-1
Face Seal Gasket with Oven Bakeout 8hr @ 400°F	Fluorosilicone	None	0.08	0.01	Glenair Test TBD
Face Seal Gasket with Vacuum Bakeout 24hr @ 125°C	Fluorosilicone	None	0.07	0.02	Glenair Test TBD

**3.3.4. Thermal Shock:** Unmated connectors shall withstand 5 cycles of thermal shock with a minimum temperature of -55° C and a maximum temperature of 150° C when tested in accordance with EIA-364-32, Condition I. Connectors shall not exhibit any detrimental damage or degradation of electrical performance.

**3.3.5. Humidity:** Wired, mated connectors shall be subjected to humidity conditioning in accordance with EIA-364-31, Method IV (excluding steps 7a and 7b). On completion of step 6 of the final cycle, connectors shall be removed from the chamber, unmated and surface moisture removed. Connectors shall pass a DWV test of 360 volts (RMS 60 Hertz AC). Within 1 to 2 hours after removal of surface moisture, connectors shall meet 1 megohm insulation resistance. Following 24 hour conditioning, connectors shall meet 1000 megohm insulation resistance (500 megohm for cable harnesses).

**3.3.6. Vibration (sine):** Connectors, when mated, wired in series, and fixtured in accordance with MIL-DTL-32139, shall exhibit no disruption of continuity, which lasts longer than 1 microsecond, in accordance with test procedure EIA-364-28, Condition IV. Connectors shall not be damaged and no loosening of parts shall occur. Peak level 20 g.

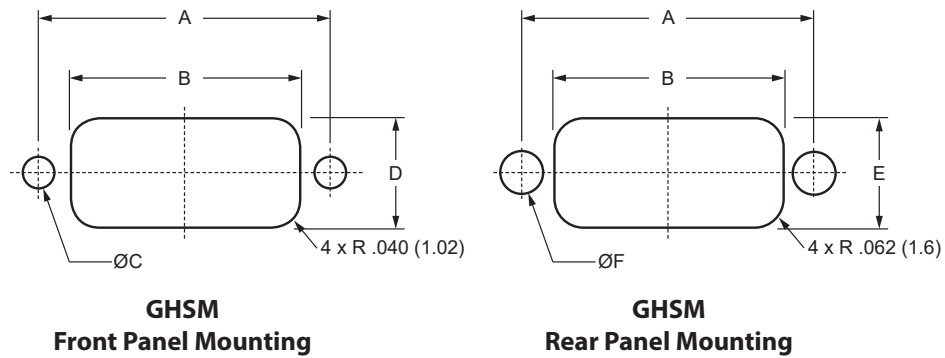
**3.3.7. Shock:** Connectors, when mated, wired in series, and fixtured in accordance with MIL-DTL-32139, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-27, Test Condition G with 100+/-20 milliampere test current. Connectors shall not be damaged and no loosening of parts shall occur. Peak acceleration 100 g.

**3.3.8. Marking Permanency:** Connector marking shall meet the requirements of MIL-STD-202 Method 215.

**3.3.9. Fungus Resistance:** Connector materials shall meet the requirements of MIL-STD-810 Method 508.5.

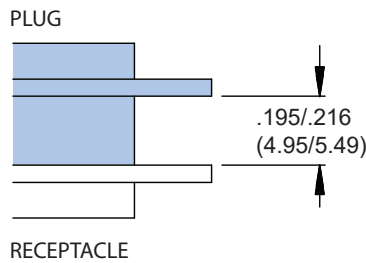


## Recommended Panel Cutout Dimensions for Panel Mount Connectors



GHSM Panel Cutouts						
Layout	A	B	C	D	E	F
	± .003 (0.08)	± .002 (.05)	± .002 (0.05)	± .002 (0.05)	+ .005 (0.13) - .000 (-0.00)	± .002 (0.05)
9	.565 (14.35)	.410 (10.41)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
15	.715 (18.16)	.560 (14.22)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
21	.865 (21.97)	.710 (18.03)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
25	.965 (24.51)	.810 (20.57)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
31	1.115 (28.32)	.960 (24.38)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
37	1.265 (32.13)	1.110 (28.19)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
51-2	1.615 (41.02)	1.460 (37.08)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)
67	2.015 (51.18)	1.858 (47.19)	.091 (2.31)	.347 (8.81)	.256 (6.50)	.126 (3.20)

### Flange to Flange Mated Dimensions



PANEL-MOUNT CUT-OUT DIMENSIONS

The miniature high-speed connector with mil-spec pedigree connector and contact packaging

HIGH-SPEED PROTOCOLS AND INSERT ARRANGEMENTS

**SUPPORTED HIGH-SPEED PROTOCOLS**

Shell Sizes and contact arrangements optimized for today's popular high-speed protocols

 21 Display Port 1.2	 21 HDMI 2.0	 25 DVI-D Dual	 21 DVI-D Single
 15 SATA Gen 1, 2, and 3	 15 USB 3.0 SuperSpeed	 15 Up To: Cat 6A (10GBASE-T Ethernet)	 31 Camera Link

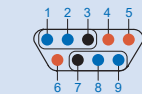
**PREWIRED PIGTAIL AND BACK-TO-BACK CABLES**



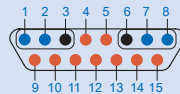
Turnkey, prewired plug and receptacle cable connectors are available as single-ended pigtailed or back-to-back cable assemblies with pin or socket contacts per customer requirements. Shielded twisted pair (STP) wiring for differential data pairs is supplied in either 100 or 90 Ohms with a selection of jacketing and color. Discrete hookup wires may be specified in #28 or #30 gauge. Variable lengths of the assembly may be specified in 1 inch increments.

**High-Speed Micro-D contact arrangements face view pin connector**

- high-speed signal pair
- signal-pair drain wire
- low-speed signal or power contacts



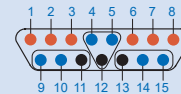
**9 pin**  
(2 high-speed signal pairs)



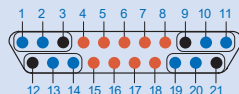
**15 pin**  
(2 high-speed signal pairs)



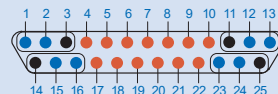
**15E pin**  
up to 10GBASE-T Ethernet  
(4 high-speed signal pairs)



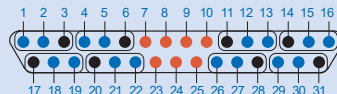
**15U pin**  
USB 3.0  
(3 high-speed signal pairs)



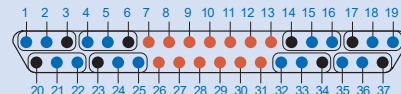
**21 pin**  
(4 high-speed signal pairs)



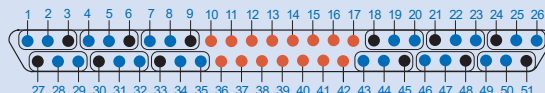
**25 pin**  
(4 high-speed signal pairs)



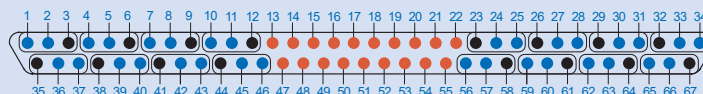
**31 pin**  
(8 high-speed signal pairs)



**37 pin**  
(8 high-speed signal pairs)



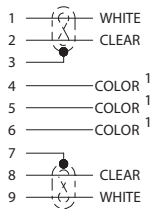
**51 pin (special 2 row)**  
(12 high-speed signal pairs)



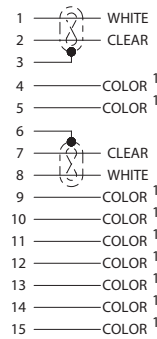
**67 pin**  
(16 high-speed signal pairs)

## Wiring Diagrams

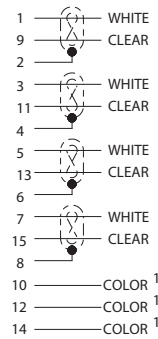
### 9 POSITION



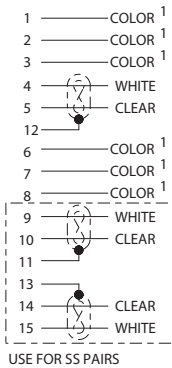
### 15 POSITION



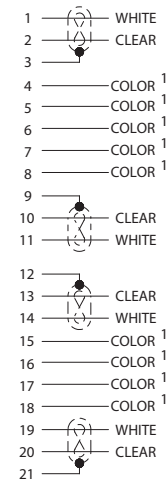
### 15E POSITION



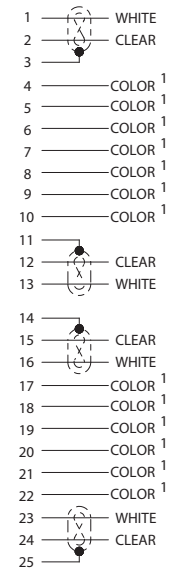
### 15U POSITION



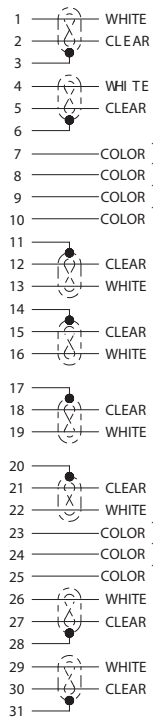
### 21 POSITION



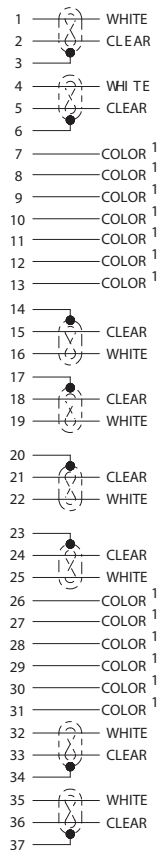
### 25 POSITION



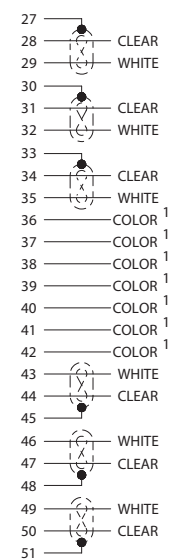
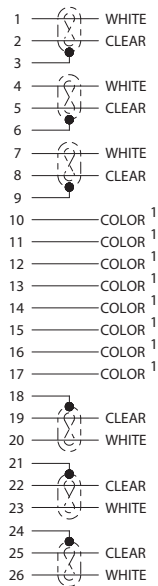
### 31 POSITION



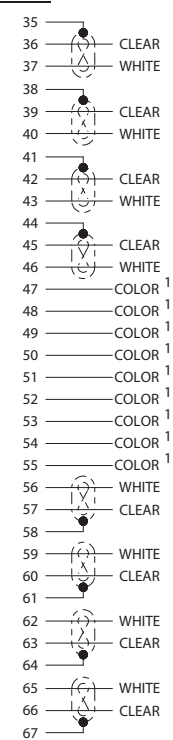
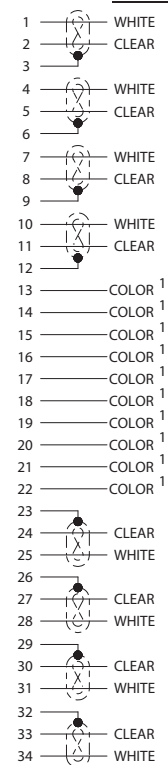
### 37 POSITION



### 51 POSITION

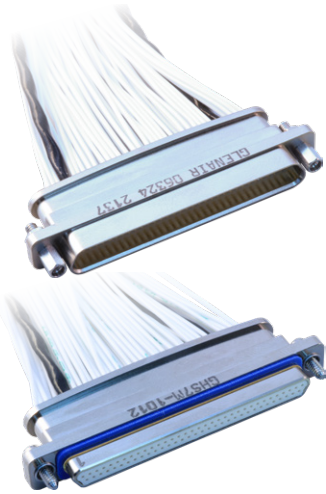


### 67 POSITION



GHSM prewired pin and socket cable connectors:  
pigtails and double-ended assemblies

GHSM



GHSM pin and socket cable assemblies

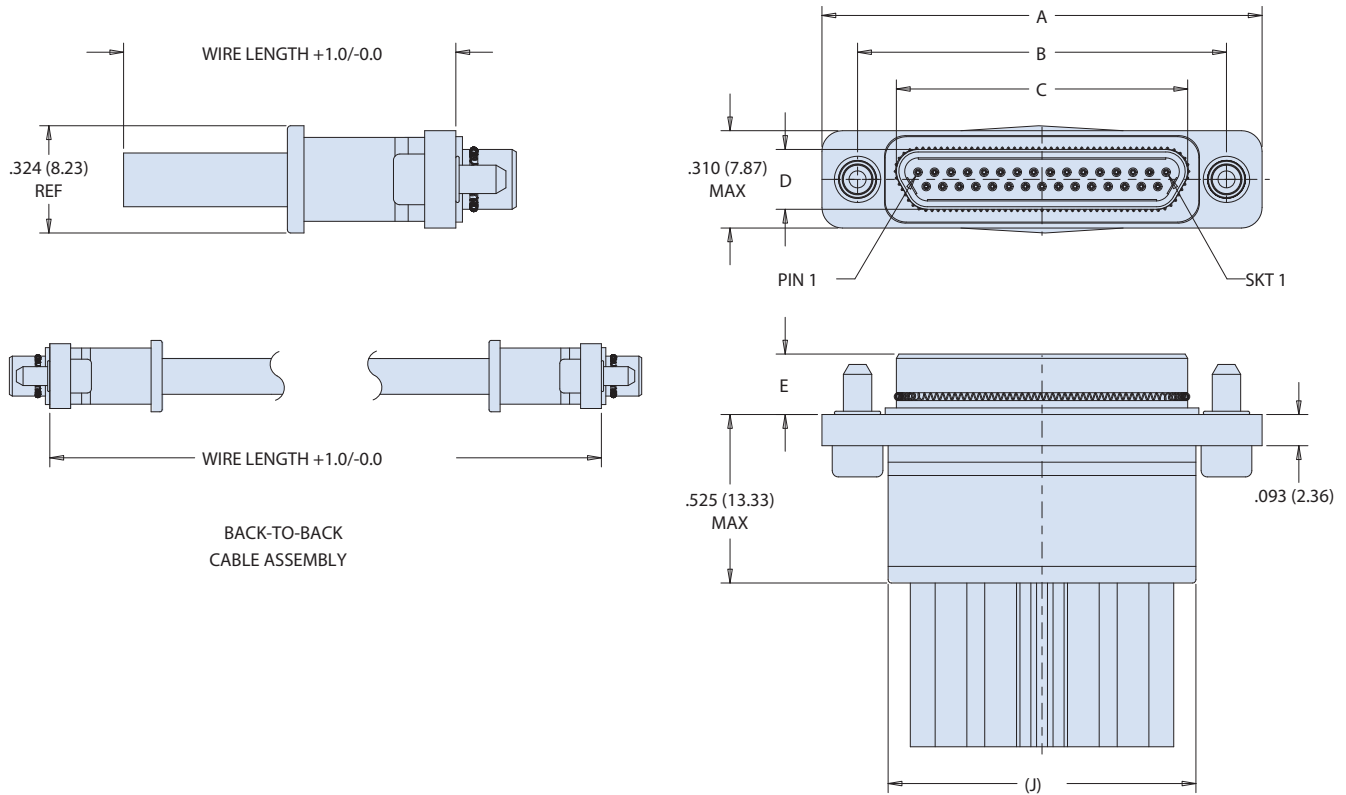
**APPLICATION NOTES**

GHSM cable connectors are pre-wired for use with specific high-speed datalink protocols. Each assembly is available as a single-ended wire pigtail or back-to-back jumper, pre-wired with STP cable for dedicated differential data pairs (plus ground wire). Remaining contacts are terminated with standard hook-up wire for low-speed signal or power. Choose the insert arrangement, per the table, that matches the target high-speed protocol.

		How To Order											
Sample Part Number		GHSM	2	R	-31	P	-A	8	J	1	-18	L	A
Series	GHSM = Glenair High-Speed Micro-D, Cable Assembly												
Shell Finish	2 = Nickel 5 = Gold												
Insulator Material	R = PPS												
Contact Layout	9, 15, 15E, 15U, 21, 25, 31, 37, 51-2, 67												
Contact Type	P = Pin (Single End Plug) S = Socket (Single End Receptacle) GP = Double End Cable, Pin Connectors Both Ends GS = Double End Cable, Socket Connectors Both Ends CS = Double End Cable, Pin and Socket												
High-Speed Cable Type	A = Glenair Cable 963-128-28 (100 Ohm) B = Glenair Cable 963-130-28 (90 Ohm) Omit for discrete wire only												
Discrete Wire Gage (AWG)	8 = #28 0 = #30 (J Wire Type only)												
Discrete Wire Type	K = M22759/11 600 VRMS Teflon (TFE) J = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE)												
Discrete Wire Color	1 = White 7 = Ten Color Repeating												
Wire Length	Wire Length in Inches, 6 Inch Minimum; 18 = 18 Inches												
Hardware Type	F = Float Mount, for Front Panel Mount L = Male Jackscrew, Allen Head, Non-Removeable M = Male Jackscrew, Allen Head, Low Profile P = Female Jackpost R = Float Mount, for Rear Panel S = Male Jackscrew, Slot Head, Low Profile												
Shield and Jacket Option	N = No Shield, No Jacket (Customer to Install) A = Braided Shield Installed (Nickel Over Copper) C = Braided Shield Installed (Nickel Over Copper) with E-CTFE Halar "Expando" Jacket S = 100% Braided Amberstrand Shield Installed T = 100% Braided Amberstrand Shield Installed with E-CTFE Halar "Expando" Jacket V = 75% Braided Amberstrand Shield Installed Z = 75% Braided Amberstrand Shield Installed with E-CTFE Halar "Expando" Jacket W = Armorlite Braided Microfilament Stainless Steel Shield Installed X = Armorlite Braided Microfilament Stainless Steel Shield Installed with E-CTFE Halar "Expando" Jacket												

Hardware Options					
F	L	M	P	R	S
Float Mount For Front Panel Mounting	Hex Head Jackscrew Non-Removable	Hex Head Jackscrew	Jackpost	Float Mount For Rear Panel Mounting	Slot Head Jackscrew

GHSM prewired pin and socket cable connectors:  
pigtails and double-ended assemblies

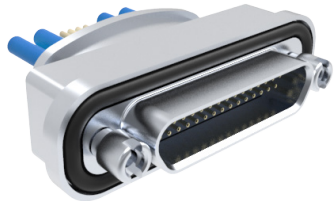
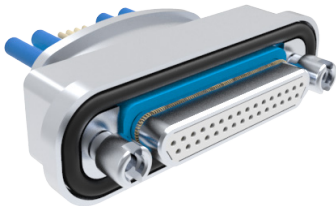


GHSM

Dimensions						
LAYOUT	A MAX	B ±0.003	C MAX	D MAX	E ± 0.003	J REF
9P	0.785 (19.94)	0.565 (14.35)	0.333 (8.46)	0.184 (4.67)	0.183 (4.65)	0.380 (9.65)
9S	0.785 (19.94)	0.565 (14.35)	0.400 (10.16)	0.250 (6.35)	0.195 (4.95)	0.450 (11.43)
15P	0.935 (23.75)	0.715 (18.16)	0.483 (12.27)	0.184 (4.67)	0.183 (4.65)	0.530 (13.46)
15S	0.935 (23.75)	0.715 (18.16)	0.551 (14.00)	0.250 (6.35)	0.195 (4.95)	0.600 (15.24)
21P	1.085 (27.56)	0.865 (21.97)	0.633 (16.08)	0.184 (4.67)	0.183 (4.65)	0.680 (17.27)
21S	1.085 (27.56)	0.865 (21.97)	0.701 (17.81)	0.250 (6.35)	0.195 (4.95)	0.750 (19.05)
25P	1.185 (30.10)	0.965 (24.51)	0.733 (18.62)	0.184 (4.67)	0.183 (4.65)	0.780 (19.81)
25S	1.185 (30.10)	0.965 (24.51)	0.801 (20.35)	0.250 (6.35)	0.195 (4.95)	0.850 (21.59)
31P	1.335 (33.91)	1.115 (28.32)	0.833 (21.16)	0.184 (4.67)	0.183 (4.65)	0.930 (23.62)
31S	1.335 (33.91)	1.115 (28.32)	0.951 (24.16)	0.250 (6.35)	0.195 (4.95)	1.000 (25.40)
37P	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	0.184 (4.67)	0.183 (4.65)	1.080 (27.43)
37S	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	0.250 (6.35)	0.195 (4.95)	1.150 (29.21)
51P	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	0.184 (4.67)	0.183 (4.65)	1.390 (35.31)
51S	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	0.250 (6.35)	0.195 (4.95)	1.460 (37.08)
67P	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	0.184 (4.67)	0.183 (4.65)	1.830 (46.48)
67S	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	0.250 (6.35)	0.195 (4.95)	1.900 (48.26)

GHSRPM Prewired pin and socket rear panel-mount connectors:  
single-ended pigtails

GHSRPM



How To Order	
<b>Sample Part Number</b>	<b>GHSRPM 2 R -31 P -A 8 J 1 -18 R3 N</b>
<b>Series</b>	GHSRPM = Glenair High-Speed Micro-D, Rear Panel Mount
<b>Shell Finish</b>	2 = Nickel 5 = Gold
<b>Insulator Material</b>	R = PPS
<b>Contact Layout</b>	9, 15, 15E, 15U, 21, 25, 31, 37, 51-2, 67
<b>Contact Type</b>	P = Pin (Plug) S = Socket (Receptacle)
<b>High-Speed Cable Type</b>	A = Glenair Cable 963-128-28 (100 Ohm) B = Glenair Cable 963-130-28 (90 Ohm)
<b>Discrete Wire Gage (AWG)</b>	8 = #28 0 = #30 (J Wire Type only)
<b>Discrete Wire Type</b>	K = M22759/11 600 VRMS Teflon (TFE) J = M22759/33 600 VRMS Modified Cross-Linked Tefzel (ETFE)
<b>Discrete Wire Color</b>	1 = White 7 = Ten Color Repeating
<b>Wire Length</b>	Wire Length in Inches, 6 Inch Minimum; 18 = 18 Inches
<b>Hardware Type*</b>	Rear Panel Jackpost options R1 = .031" Panel R2 = .047" Panel R3 = .062" Panel R4 = .094" Panel R5 = .125" Panel R6 = .080" Panel
<b>O-Ring Material</b>	C = Conductive N = Non-Conductive (Nitrile)

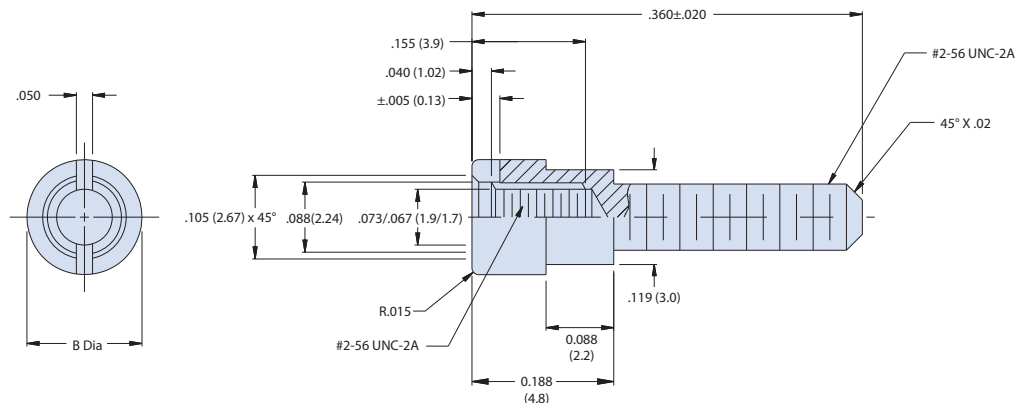
\*Refer to Appendix A for recommended panel cutout.



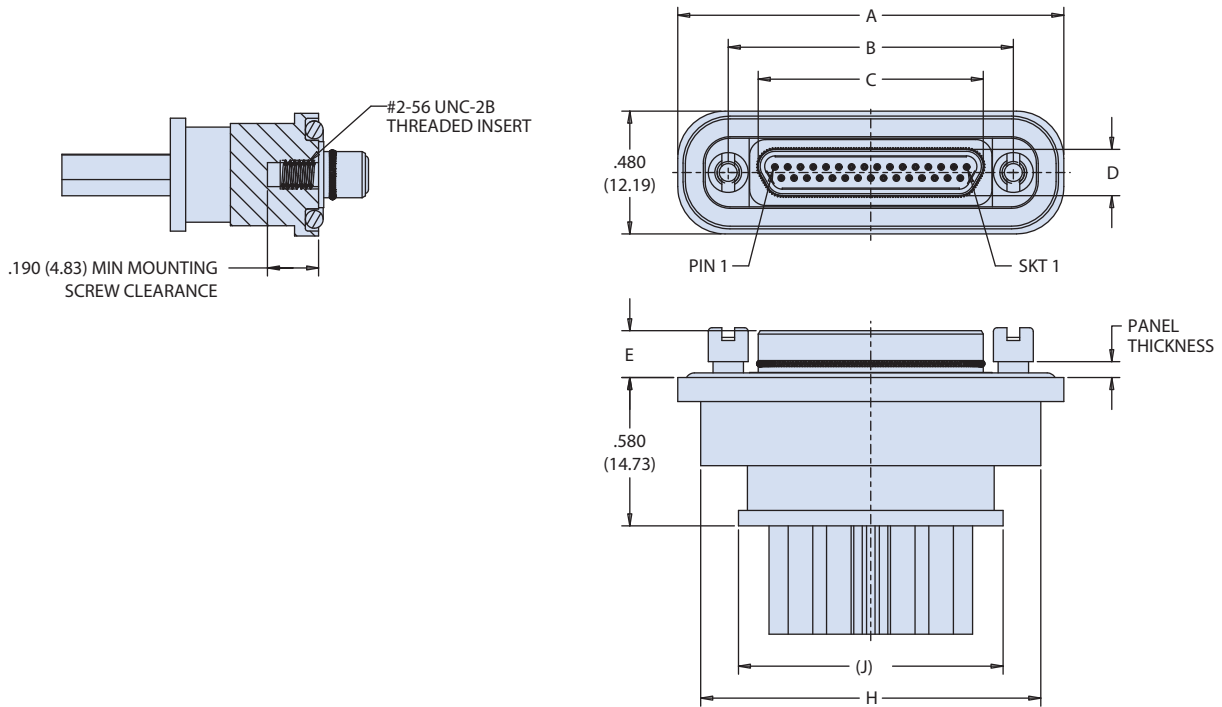
Rear Panel-Mount Mounting Hardware				
Code	Panel Thickness		J ± .003 (0.08)	K ± .005 (0.13)
	Fractional Value	Decimal Value		
R1	1/32	.031 (0.8)	.024 (0.6)	.050 (1.3)
R2	3/64	.047 (1.2)	.041 (1.0)	.050 (1.3)
R3	1/16	.062 (1.6)	.055 (1.4)	.050 (1.3)
R4	3/32	.094 (2.4)	.086 (2.2)	.050 (1.3)
R5	1/8	.125 (3.2)	.118 (3.0)	.030 (0.8)
R6	2/25	.080 (2.0)	.074 (1.9)	.050 (1.3)

**HARDWARE MATERIAL**

Corrosion-Resistant Steel IAW  
ASTM-A484 and ASTM-A582



GHSRPM Prewired pin and socket rear panel-mount connectors:  
single-ended pigtails

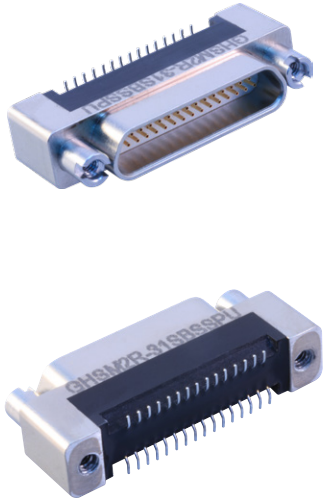


GHSRPM

Dimensions								
LAYOUT	A	B±.003	C MAX	D MAX	E±.003	F ±.003	J Ref	H
9P	1.510 (38.35)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)	1.110 (28.19)	.450 (11.43)	.720 (18.29)
9S	1.510 (38.35)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)	1.110 (28.19)	.450 (11.43)	.720 (18.29)
15P	1.660 (42.16)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)	1.260 (32.00)	.600 (15.24)	.870 (22.10)
15S	1.660 (42.16)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)	1.260 (32.00)	.600 (15.24)	.870 (22.10)
21P	1.810 (45.97)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)	1.410 (35.81)	.750 (19.05)	1.020 (25.91)
21S	1.810 (45.97)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)	1.410 (35.81)	.750 (19.05)	1.020 (25.91)
25P	1.910 (48.51)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)	1.510 (38.35)	.850 (21.59)	1.120 (28.45)
25S	1.910 (48.51)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)	1.510 (38.35)	.850 (21.59)	1.120 (28.45)
31P	2.060 (52.32)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)	1.660 (42.16)	1.000 (25.40)	1.270 (32.26)
31S	2.060 (52.32)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)	1.660 (42.16)	1.000 (25.40)	1.270 (32.26)
37P	2.210 (56.13)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)	1.810 (45.97)	1.150 (29.21)	1.420 (36.07)
37S	2.210 (56.13)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)	1.810 (45.97)	1.150 (29.21)	1.420 (36.07)
51-2P	2.560 (65.02)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)	2.160 (54.86)	1.500 (38.10)	1.770 (44.96)
51-2S	2.560 (65.02)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)	2.160 (54.86)	1.500 (38.10)	1.770 (44.96)
67P	2.960 (75.18)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)	2.560 (65.02)	1.900 (48.26)	2.170 (55.12)
67S	2.960 (75.18)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)	2.560 (65.02)	1.900 (48.26)	2.170 (55.12)

# GHSM-BSS Straight surface-mount pin and socket PCB connectors (jackpost hardware)

GHSM-BSS

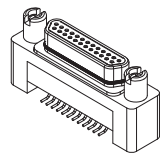
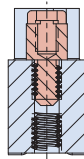


		How To Order							
Sample Part Number		GHSM	2	R	-25	S	BSS	PU	-513
Series	GHSM = Glenair High-Speed Micro-D, Straight								
Shell Finish	2 = Nickel 5 = Gold								
Insulator Material	R = PPS								
Contact Layout	9, 15, 21, 25, 31, 37, 51-2, 67								
Contact Type	P = Pin (Plug) S = Socket (Receptacle)								
Termination Type	BSS = Board Straight Surface Mount								
Hardware Type (see options below)	<b>Jackpost Options</b>				<b>Rear Panel Jackposts with Threaded Inserts*</b>				
	PN = Extended Jackposts for .062" PCB				R1 = .032" Panel				
	RN = Extended Jackposts for .196" PCB				R2 = .047" Panel				
	PU = Short Jackposts with Threaded Inserts				R3 = .062" Panel				
					R4 = .093" Panel				
					R5 = .125" Panel				
					R6 = .080" Panel				
Gold-Plated Terminal Mod Code	Connectors are solder-dipped in 60/40 Tin-Lead solder To delete solder dip and change to gold-plated terminals, add Mod Code -513								

\*Refer to Appendix A for recommended panel cutout.

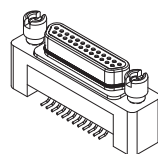
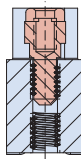
## HARDWARE OPTIONS

PU STYLE



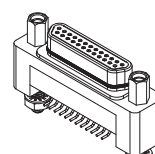
PLUG SHOWN WITH SHORT JACKPOSTS AND THREADED INSERTS

R1 - R6 STYLE



PLUG SHOWN WITH REAR PANEL JACKPOSTS AND THREADED INSERTS

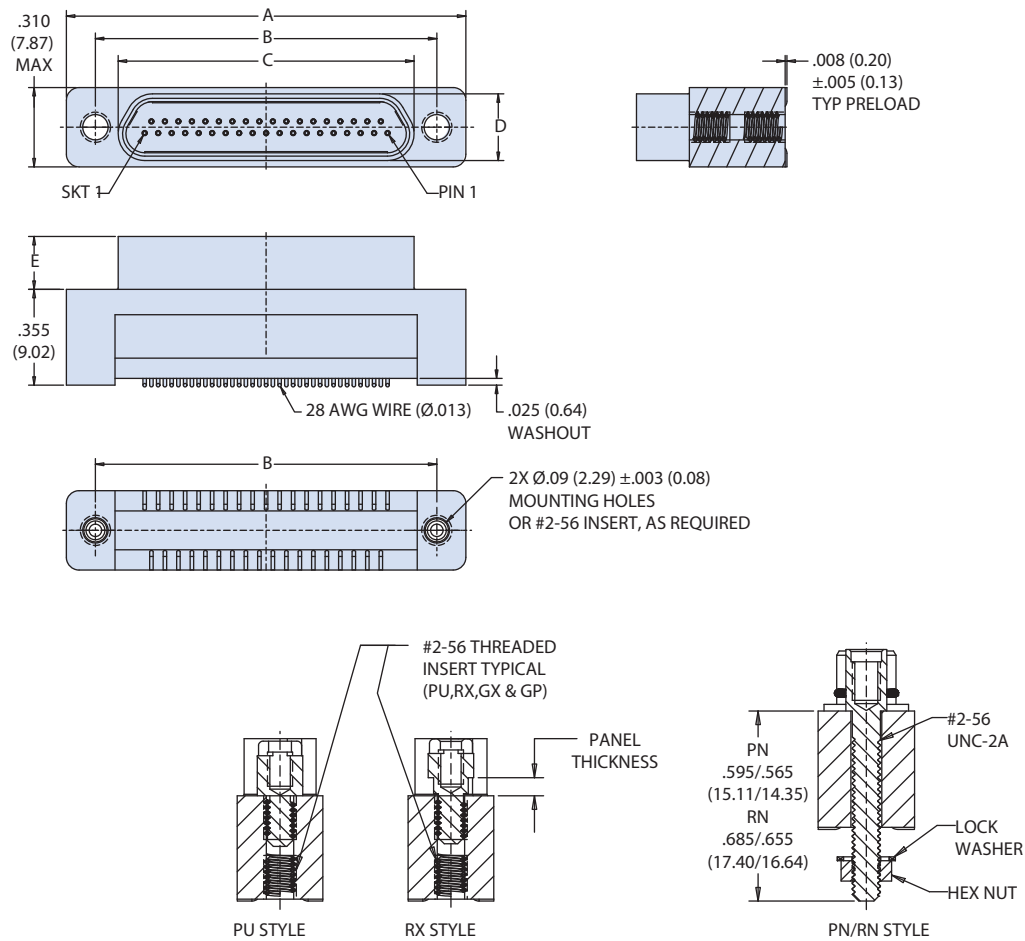
PN/RN STYLE



PLUG SHOWN WITH EXTENDED JACKPOSTS



# GHSM-BSS Straight surface-mount pin and socket PCB connectors (jackpost hardware)



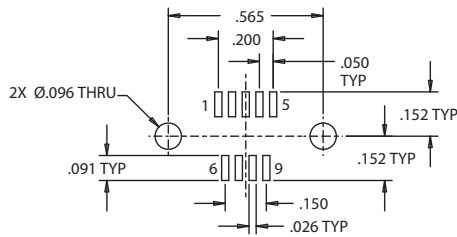
GHSM-BSS

### Dimensions

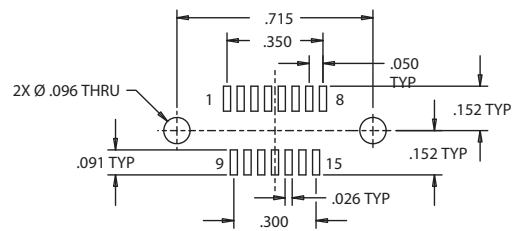
LAYOUT	A MAX	B±.003	C MAX	D MAX	E±.003
9P	.785 (19.94)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)
9S	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)
15P	.935 (23.75)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)
15S	.935 (23.75)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)
21P	1.085 (27.56)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)
21S	1.085 (27.56)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)
25P	1.185 (30.10)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)
25S	1.185 (30.10)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)
31P	1.335 (33.91)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)
31S	1.335 (33.91)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)
37P	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)
37S	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)
51-2P	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)
51-2S	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)
67P	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)
67S	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)

GHSM-BSS Straight surface-mount pin and socket PCB connectors (jackpost hardware)

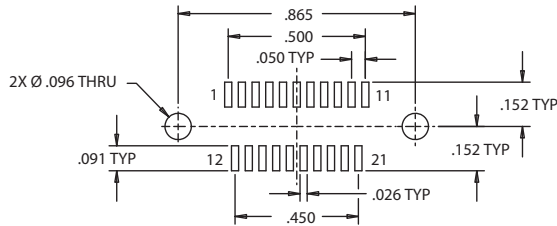
GHSM-BSS



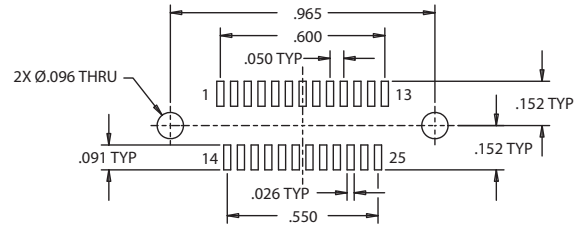
9 PIN



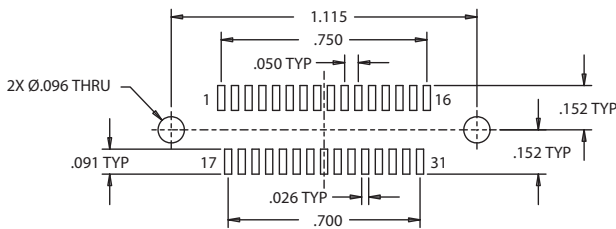
15 PIN



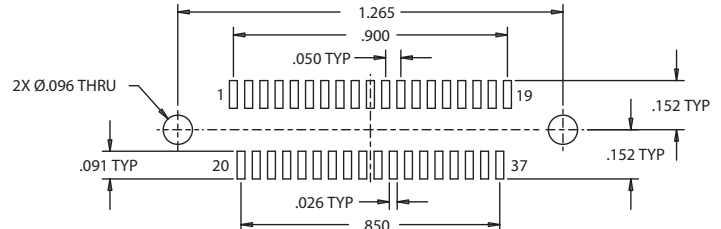
21 PIN



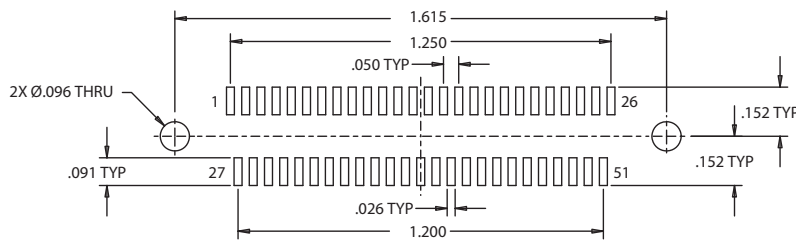
25 PIN



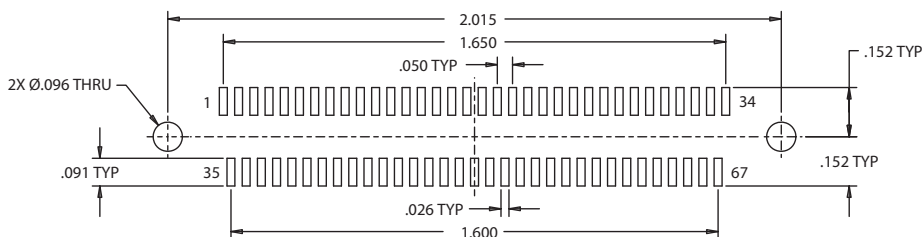
31 PIN



37 PIN



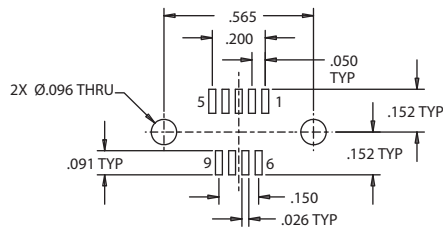
51-2 PIN



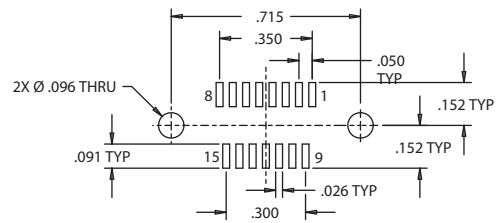
67 PIN

GHSM-BSS Straight surface-mount  
pin and socket PCB connectors (jackpost hardware)

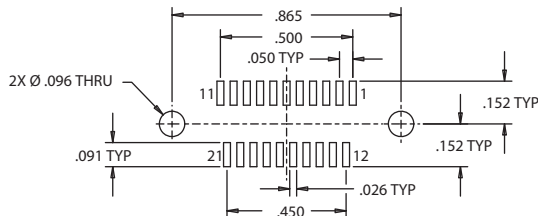
GHSM-BSS



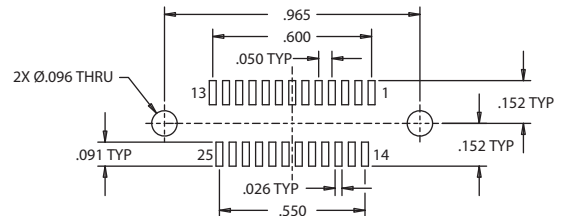
9 SOCKET



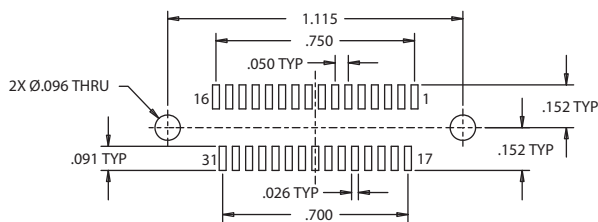
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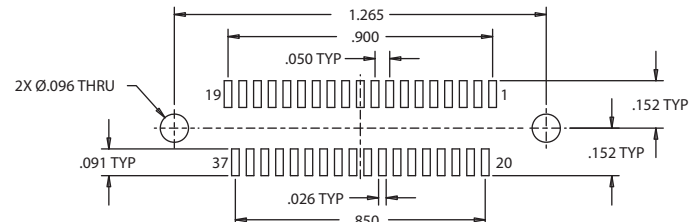
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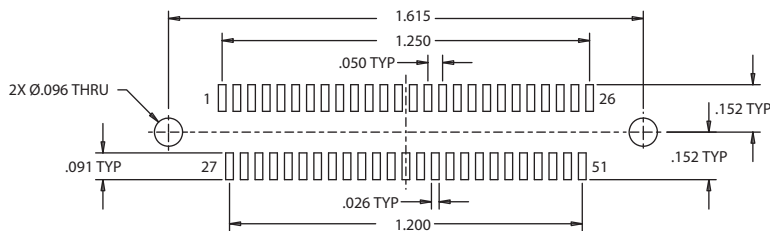
25 SOCKET



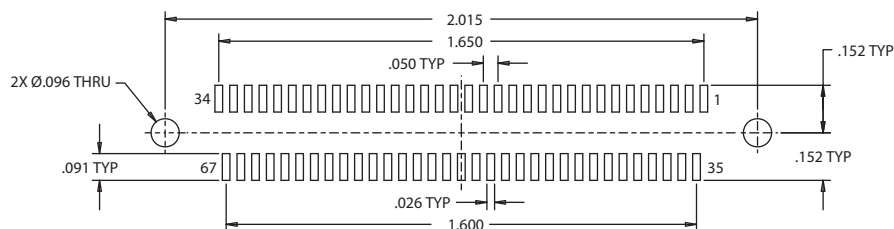
31 SOCKET



37 SOCKET



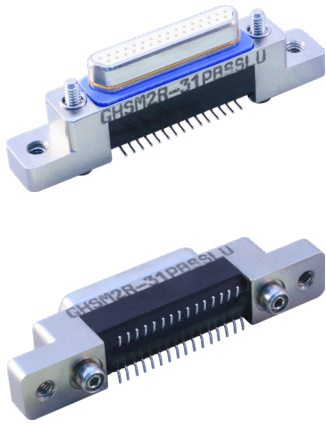
51-2 SOCKET



67 SOCKET

GHSM-BSS Straight surface-mount  
pin and socket PCB connectors (jackscrew hardware)

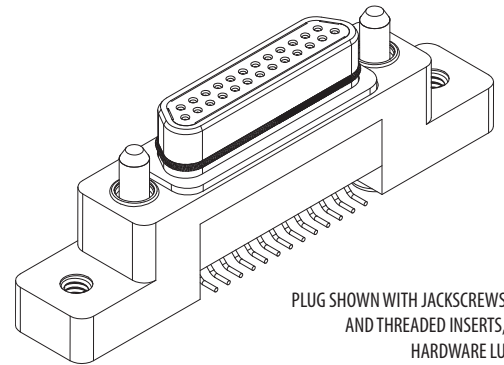
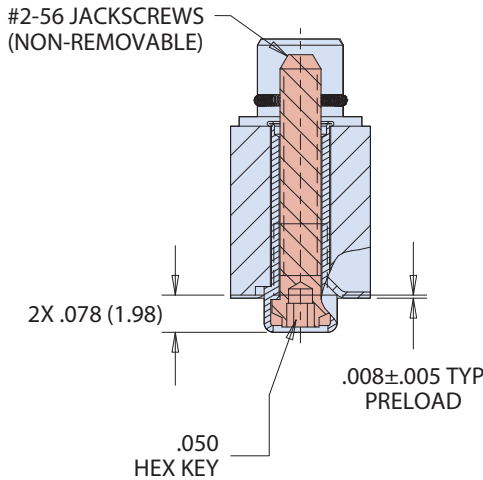
GHSM-BSS



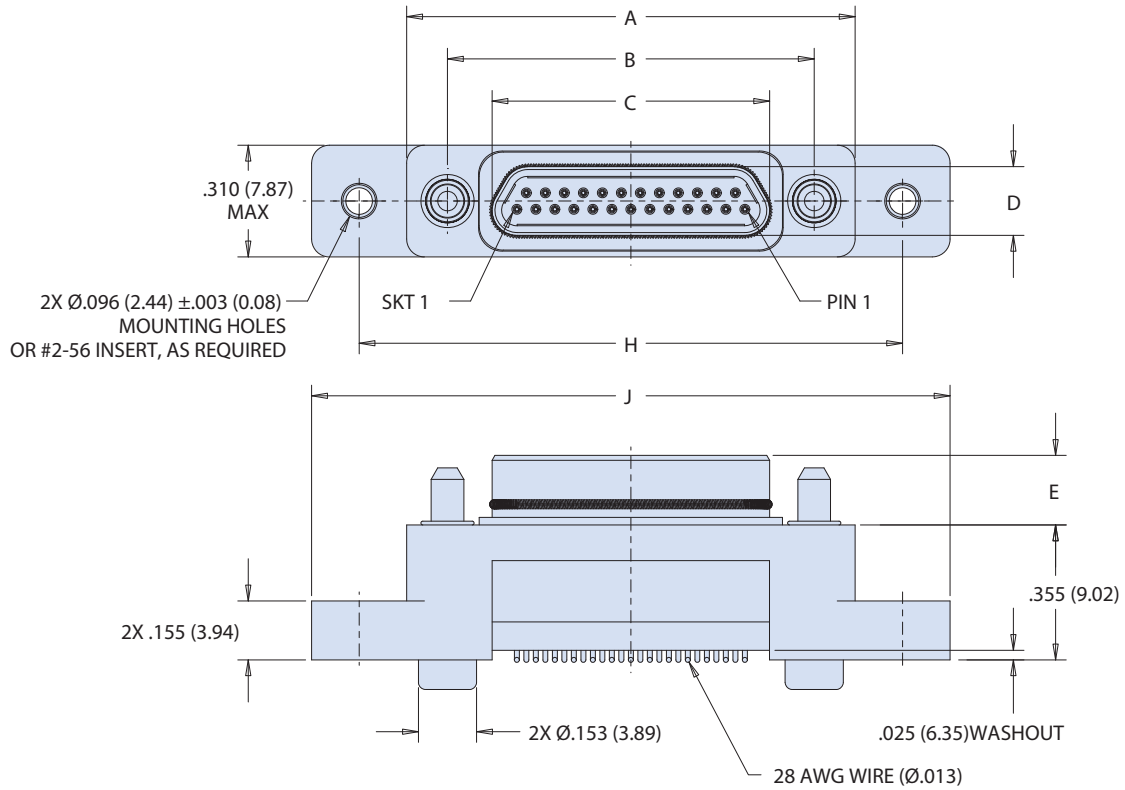
		How To Order							
<b>Sample Part Number</b>		<b>GHSM</b>	<b>2</b>	<b>R</b>	<b>-25</b>	<b>S</b>	<b>BSS</b>	<b>LU</b>	<b>-513</b>
<b>Series</b>	GHSM = Glenair High-Speed Micro-D, Straight								
<b>Shell Finish</b>	2 = Nickel 5 = Gold								
<b>Insulator Material</b>	R = PPS								
<b>Contact Layout</b>	9, 15, 21, 25, 31, 37, 51-2, 67								
<b>Contact Type</b>	P = Pin (Plug) S = Socket (Receptacle)								
<b>Termination Type</b>	BSS = Board Straight Surface Mount								
<b>Hardware Type (see options below)</b>	<b>Jackscrews and Mounting Holes, with or without Threaded Insert</b> LU = Hex Head Jackscrews (Non-Removable) with Threaded Inserts L = Hex Head Jackscrews (Non-Removable) with Thru-Holes								
<b>Gold-Plated Terminal</b>	Connectors are solder-dipped in 60/40 Tin-Lead solder								
<b>Mod Code</b>	To delete solder dip and change to gold-plated terminals, add Mod Code -513								

**HARDWARE OPTIONS**

**LU/L STYLE**



GHSM-BSS Straight surface-mount  
pin and socket PCB connectors (jackscrew hardware)

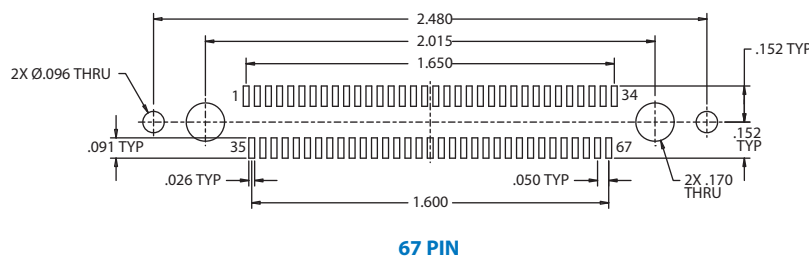
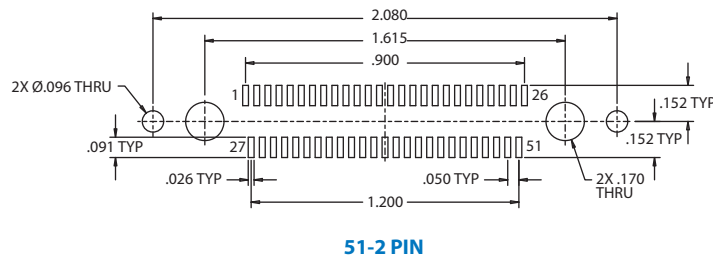
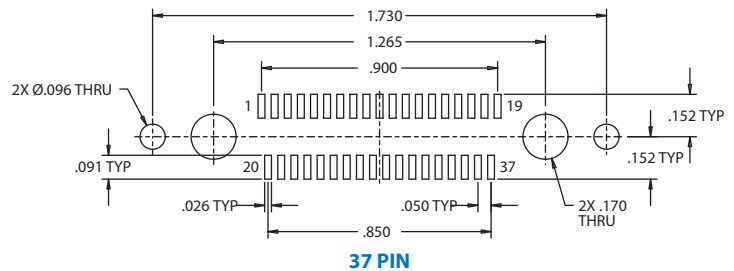
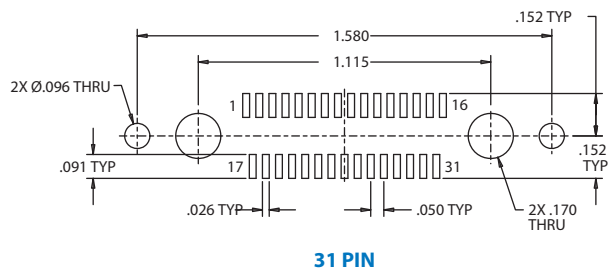
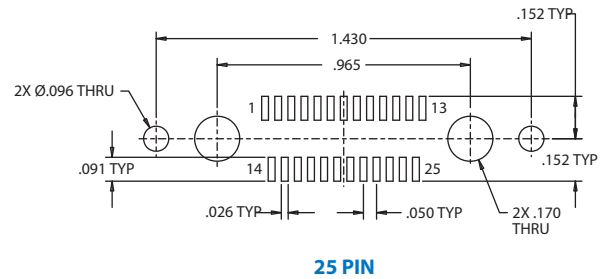
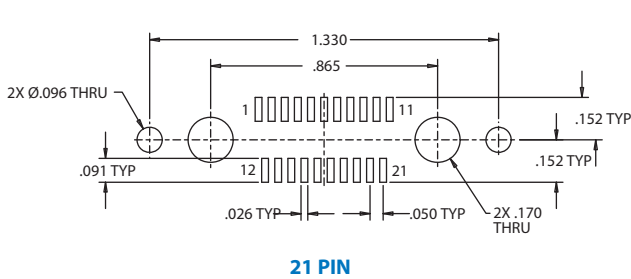
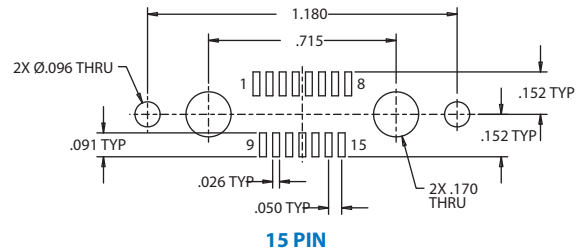
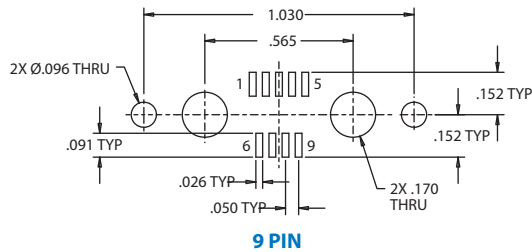


GHSM-BSS

Dimensions							
LAYOUT	A MAX	B±.003	C MAX	D MAX	E±.003	H	J MAX
9P	.785 (19.94)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)	1.030 (26.16)	1.285 (32.64)
9S	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)	1.030 (26.16)	1.285 (32.64)
15P	.935 (23.75)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)	1.180 (29.97)	1.435 (36.45)
15S	.935 (23.75)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)	1.180 (29.97)	1.435 (36.45)
21P	1.085 (27.56)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)	1.330 (33.78)	1.585 (40.26)
21S	1.085 (27.56)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)	1.330 (33.78)	1.585 (40.26)
25P	1.185 (30.10)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)	1.430 (36.32)	1.685 (42.80)
25S	1.185 (30.10)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)	1.430 (36.32)	1.685 (42.80)
31P	1.335 (33.91)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)	1.580 (40.13)	1.835 (46.61)
31S	1.335 (33.91)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)	1.580 (40.13)	1.835 (46.61)
37P	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)	1.730 (43.94)	1.985 (50.42)
37S	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)	1.730 (43.94)	1.985 (50.42)
51-2P	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)	2.080 (52.83)	2.335 (59.31)
51-2S	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)	2.080 (52.83)	2.335 (59.31)
67P	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)	2.480 (62.99)	2.735 (69.47)
67S	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)	2.480 (62.99)	2.735 (69.47)

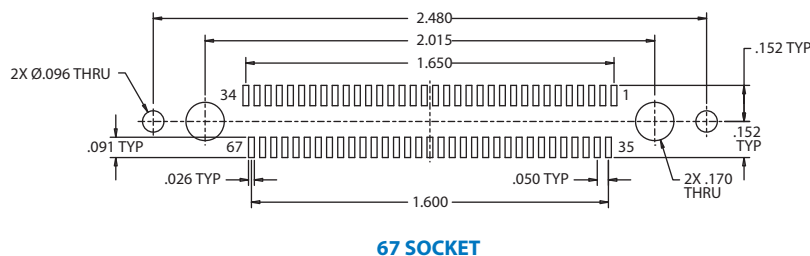
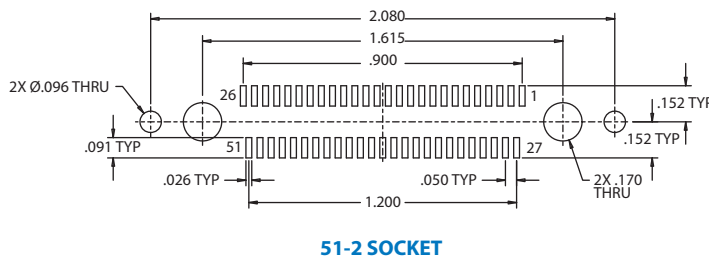
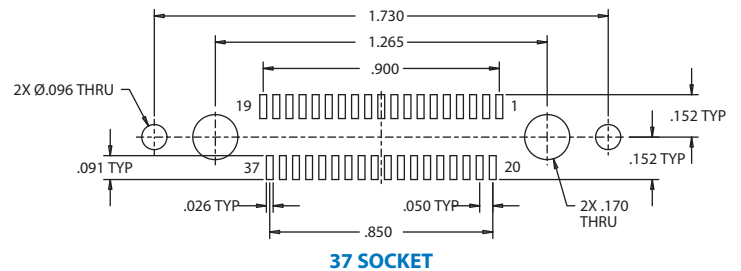
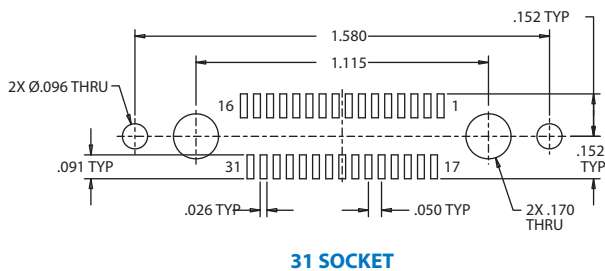
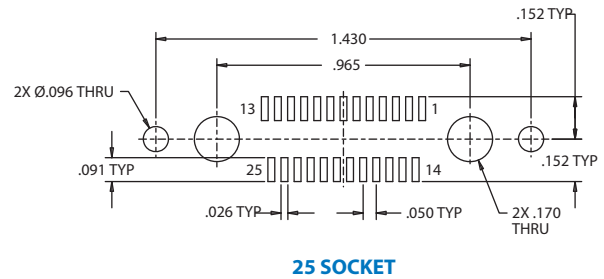
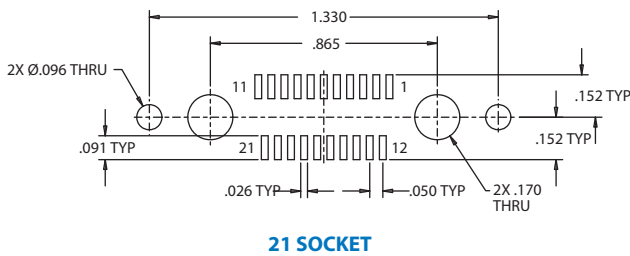
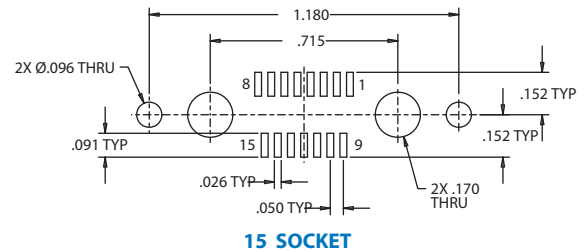
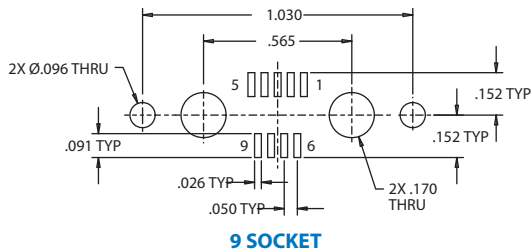
GHSM-BSS Straight surface-mount  
pin and socket PCB connectors (jackscrew hardware)

GHSM-BSS



GHSM-BSS Straight surface-mount  
pin and socket PCB connectors (jackscrew hardware)

GHSM-BSS



GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackpost hardware)

GHSM-HBR

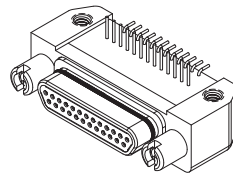
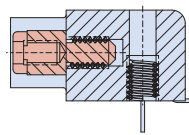


		How To Order									
Sample Part Number		GHSM	2	R	-25	S	HBR	P	T	-.110	-513
Series	GHSM = Glenair High-Speed Micro-D, Right Angle										
Shell Finish	2 = Nickel 5 = Gold										
Insulator Material	R = PPS										
Contact Layout	9, 15, 21, 25, 31, 37, 51-2, 67										
Contact Type	P = Pin (Plug) S = Socket (Receptacle)										
Termination Type	HBR = Hybrid Board Right Angle										
Hardware Type (see options below)	P = Jackposts <b>Rear Panel Jackposts with Threaded Inserts*</b> R1 = .032" Panel R2 = .047" Panel R3 = .062" Panel R4 = .093" Panel R5 = .125" Panel R6 = .080" Panel										
Threaded Insert Option	T = Threaded Insert in Board Mounting Hole Omit for Thru-Hole										
Right Angle Lead Length	.080, .110, .140, .172; Length in inches ±.015										
Gold-Plated Terminal Mod Code	Connectors are solder-dipped in 60/40 Tin-Lead solder To delete solder dip and change to gold-plated terminals, add Mod Code -513										

\*Refer to Appendix A for recommended panel cutout.

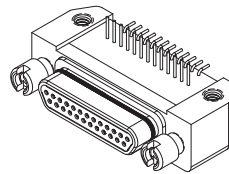
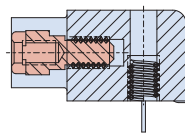
HARDWARE OPTIONS

P STYLE



PLUG SHOWN WITH JACKPOSTS AND THREADED INSERTS

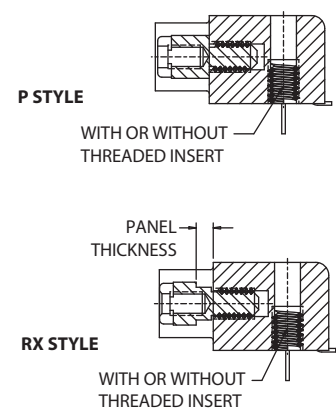
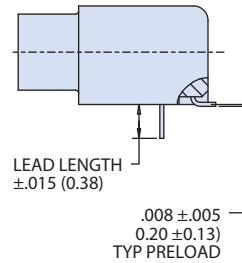
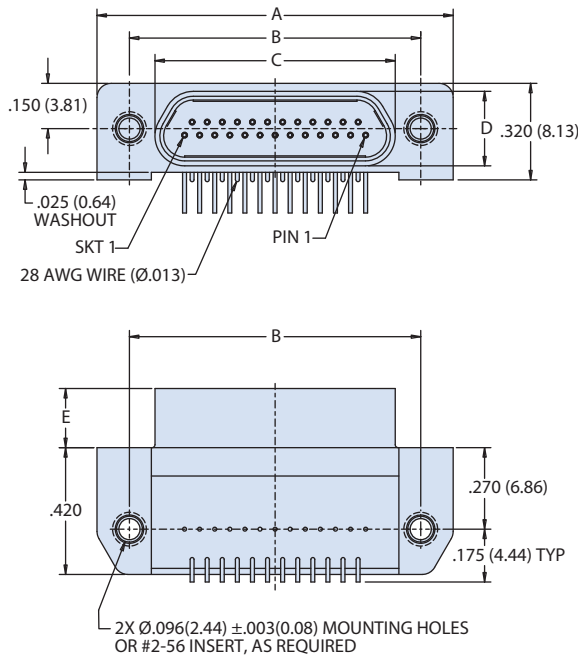
R1 - R6 STYLE



PLUG SHOWN WITH REAR PANEL JACKPOSTS AND THREADED INSERTS



GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackpost hardware)

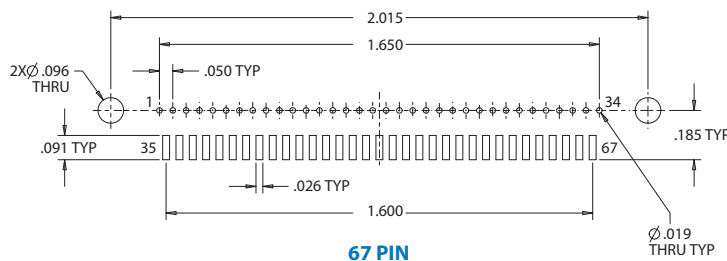
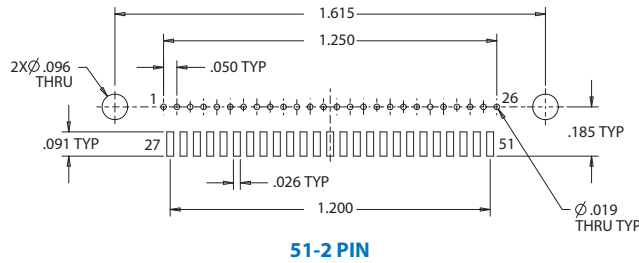
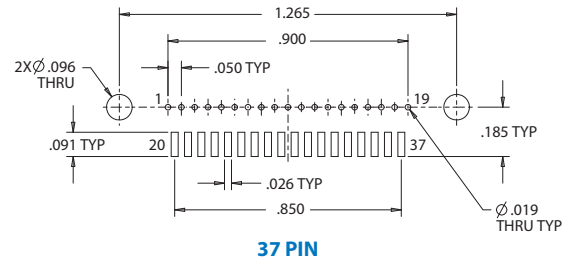
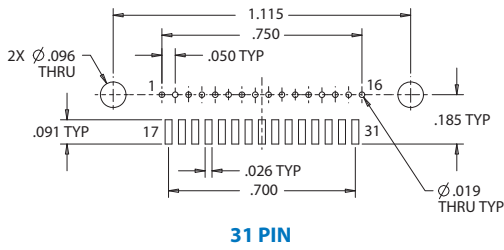
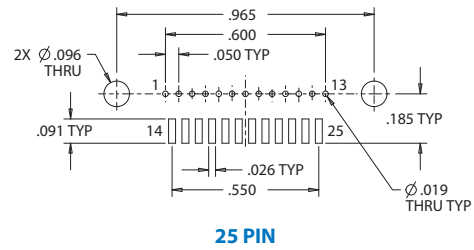
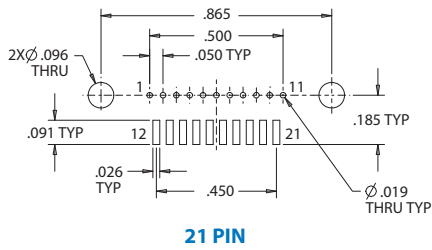
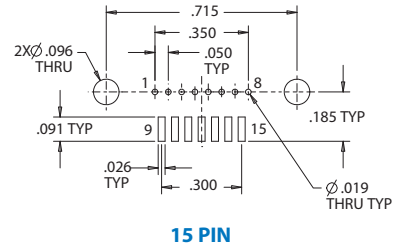
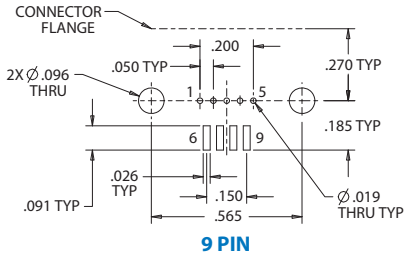


GHSM-HBR

Dimensions					
LAYOUT	A MAX	B±.003	C MAX	D MAX	E±.003
9P	.785 (19.94)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)
9S	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)
15P	.935 (23.75)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)
15S	.935 (23.75)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)
21P	1.085 (27.56)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)
21S	1.085 (27.56)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)
25P	1.185 (30.10)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)
25S	1.185 (30.10)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)
31P	1.335 (33.91)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)
31S	1.335 (33.91)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)
37P	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)
37S	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)
51-2P	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)
51-2S	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)
67P	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)
67S	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)

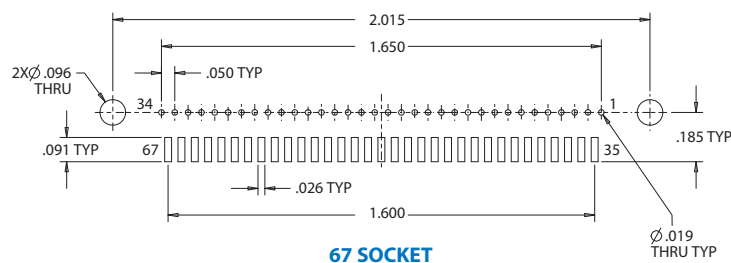
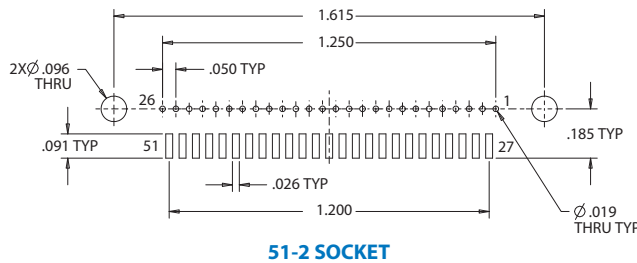
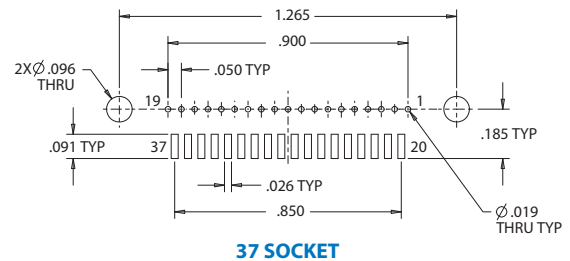
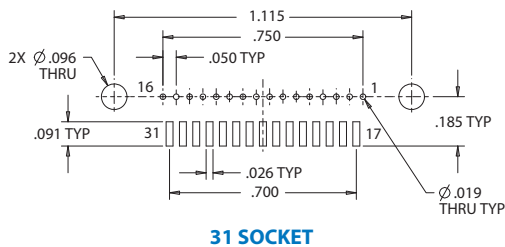
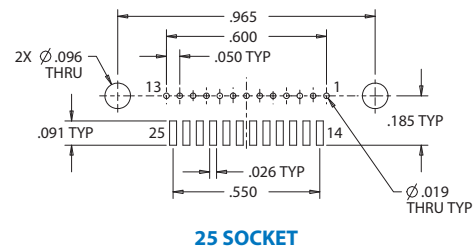
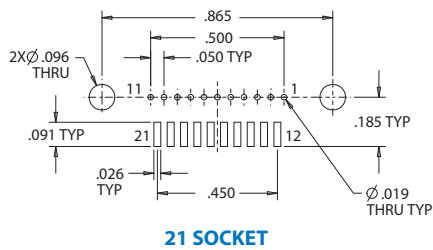
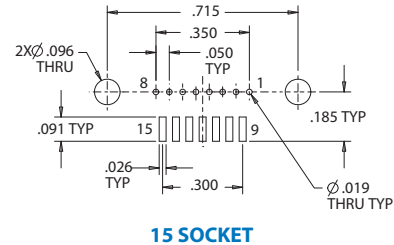
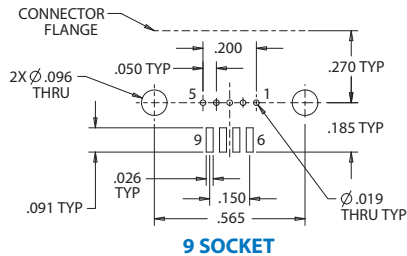
GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackpost hardware)

GHSM-HBR



## GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackpost hardware)

GHSM-HBR



GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackscrew hardware)

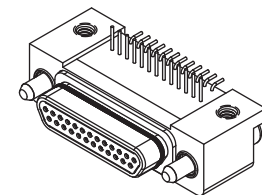
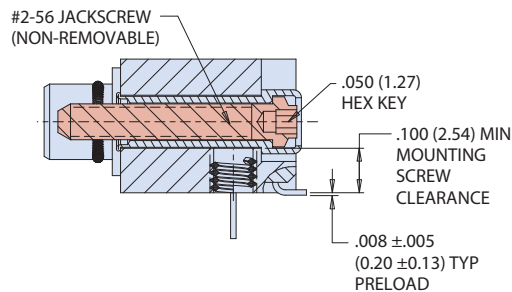
GHSM-HBR



		How To Order									
Sample Part Number		GHSM	2	R	-25	S	HBR	L	T	-.110	-513
Series	GHSM = Glenair High-Speed Micro-D, Right Angle										
Shell Finish	2 = Nickel 5 = Gold										
Insulator Material	R = PPS										
Contact Layout	9, 15, 21, 25, 31, 37, 51-2, 67										
Contact Type	P = Pin (Plug) S = Socket (Receptacle)										
Termination Type	HBR = Hybrid Board Right Angle										
Hardware Type (see table below)	L = Hex Head Jackscrews (Non-Removable)										
Threaded Insert Option	T = Threaded Insert in Board Mounting Hole										
Right Angle Lead Length	.080, .110, .140, .172; Length in inches ±.015										
Gold-Plated Terminal Mod Code	Connectors are solder-dipped in 60/40 Tin-Lead solder To delete solder dip and change to gold-plated terminals, add Mod Code -513										

**HARDWARE TYPE**

**L STYLE**

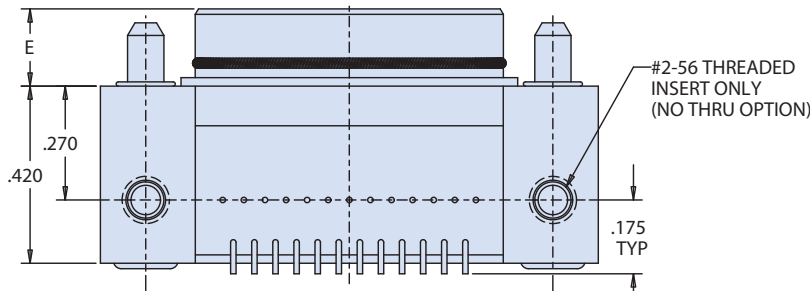
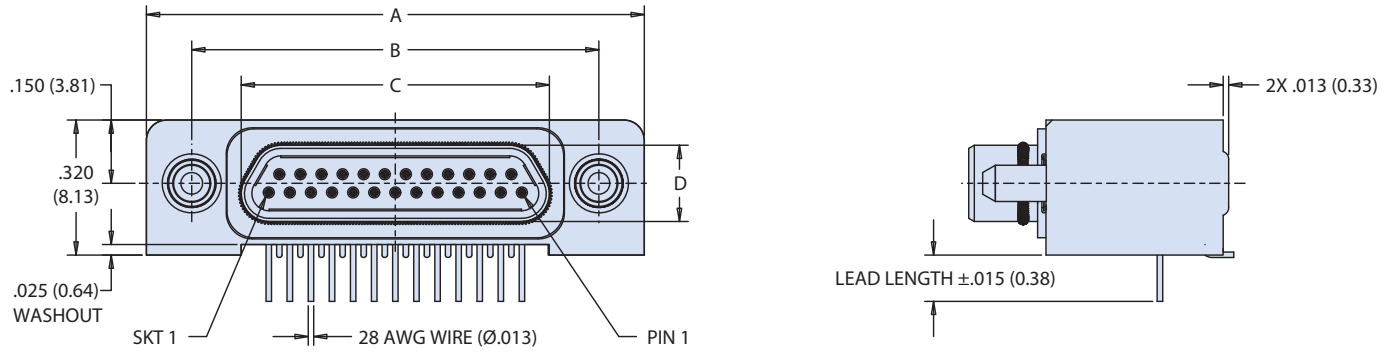


PLUG SHOWN WITH HEX HEAD JACKSCREWS

# SERIES GHSM High-Speed Micro-D



## GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackscrew hardware)

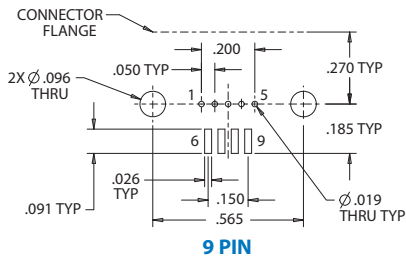


GHSM-HBR

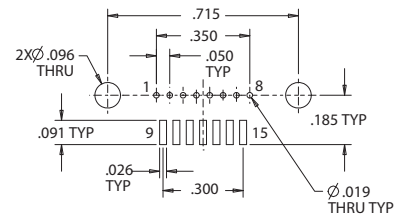
Dimensions					
LAYOUT	A MAX	B±.003	C MAX	D MAX	E±.003
9P	.785 (19.94)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)
9S	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)
15P	.935 (23.75)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)
15S	.935 (23.75)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)
21P	1.085 (27.56)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)
21S	1.085 (27.56)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)
25P	1.185 (30.10)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)
25S	1.185 (30.10)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)
31P	1.335 (33.91)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)
31S	1.335 (33.91)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)
37P	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)
37S	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)
51-2P	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)
51-2S	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)
67P	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)
67S	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)

GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackscrew hardware)

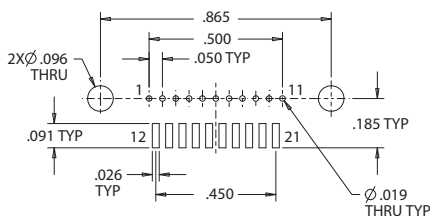
GHSM-HBR



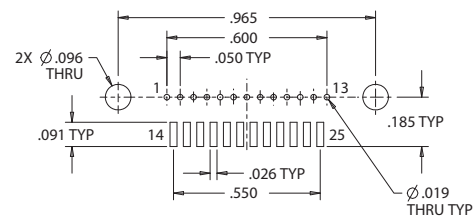
9 PIN



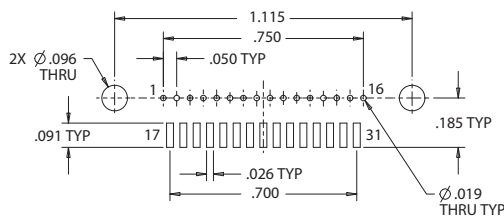
15 PIN



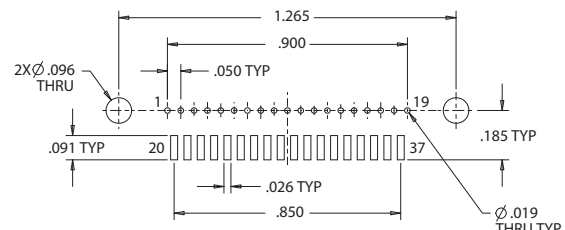
21 PIN



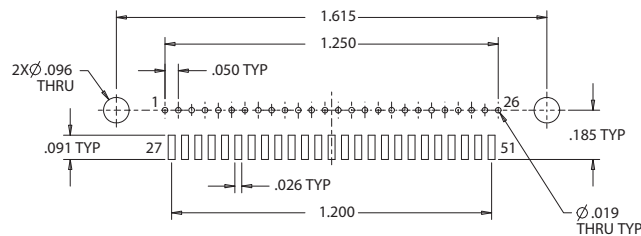
25 PIN



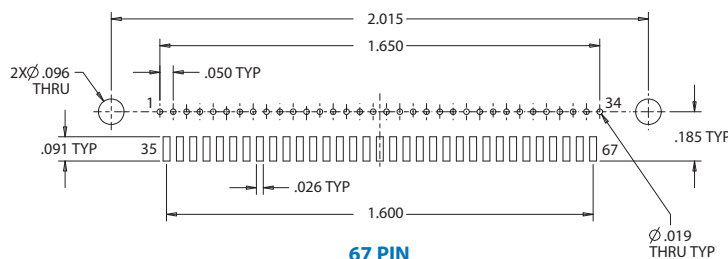
31 PIN



37 PIN



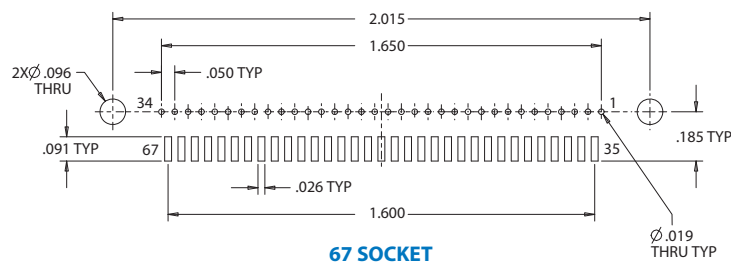
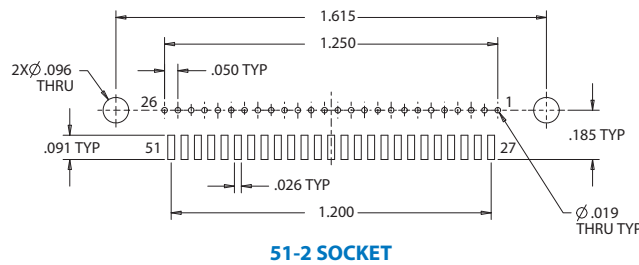
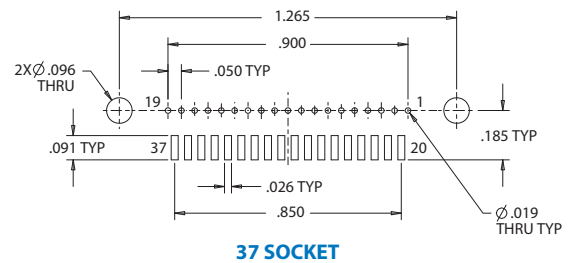
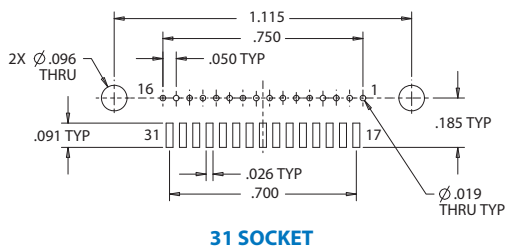
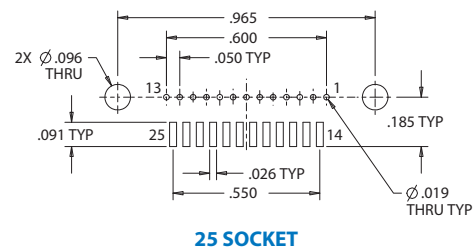
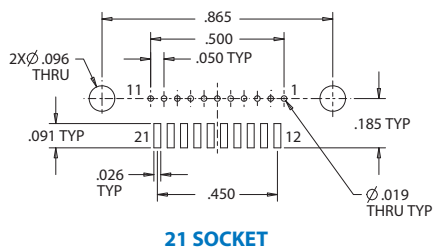
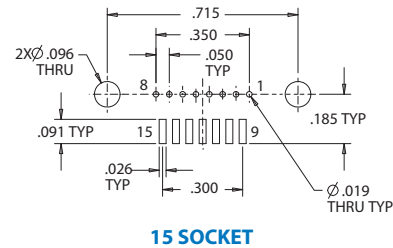
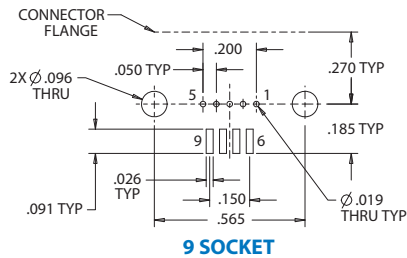
51-2 PIN



67 PIN

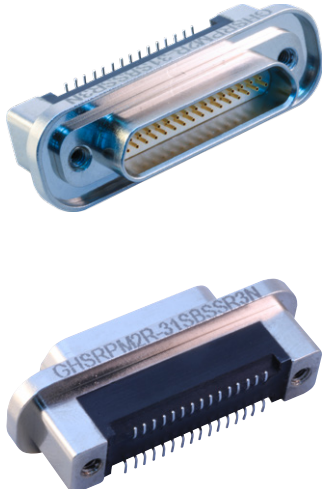
GHSM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket PCB connectors (jackscrew hardware)

GHSM-HBR



## GHSRPM-BSS Straight surface-mount pin and socket rear panel-mount connectors (jackpost hardware)

GHSRPM-BSS



How To Order	
<b>Sample Part Number</b>	<b>GHSRPM 2 R -25 P BSS R3 N -513</b>
<b>Series</b>	<b>GHSRPM</b> = Glenair High-Speed Micro-D, Rear Panel Mount, Straight
<b>Shell Finish</b>	<b>2</b> = Nickel <b>5</b> = Gold
<b>Insulator Material</b>	<b>R</b> = PPS
<b>Contact Layout</b>	<b>9, 15, 21, 25, 31, 37, 51-2, 67</b>
<b>Contact Type</b>	<b>P</b> = Pin (Plug) <b>S</b> = Socket (Receptacle)
<b>Termination Type</b>	<b>BSS</b> = Board Straight Surface Mount
<b>Hardware Type (see table below)</b>	<b>Rear Panel Jackposts with Threaded Inserts*</b> <b>R1</b> = .031" Panel <b>R2</b> = .047" Panel <b>R3</b> = .062" Panel <b>R4</b> = .094" Panel <b>R5</b> = .125" Panel <b>R6</b> = .080" Panel
<b>O-Ring</b>	<b>C</b> = Conductive <b>N</b> = Non-Conductive (Nitrile)
<b>Gold-Plated Terminal Mod Code</b>	Connectors are solder-dipped in 60/40 Tin-Lead solder To delete solder dip and change to gold-plated terminals, add Mod Code <b>-513</b>

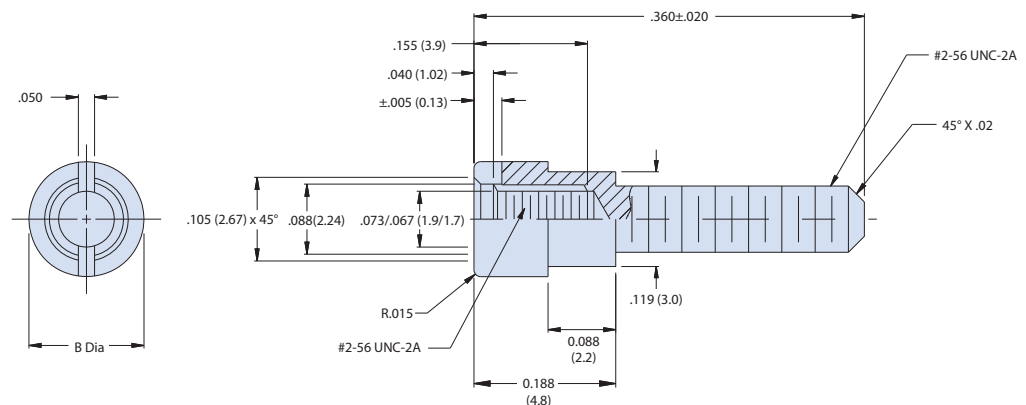
\*Refer to Appendix A for recommended panel cutout.



Rear Panel-Mount Mounting Hardware				
Code	Panel Thickness		J ± .003 (0.08)	K ± .005 (0.13)
	Fractional Value	Decimal Value		
<b>R1</b>	1/32	.031 (0.8)	.024 (0.6)	.050 (1.3)
<b>R2</b>	3/64	.047 (1.2)	.041 (1.0)	.050 (1.3)
<b>R3</b>	1/16	.062 (1.6)	.055 (1.4)	.050 (1.3)
<b>R4</b>	3/32	.094 (2.4)	.086 (2.2)	.050 (1.3)
<b>R5</b>	1/8	.125 (3.2)	.118 (3.0)	.030 (0.8)
<b>R6</b>	2/25	.080 (2.0)	.074 (1.9)	.050 (1.3)

### HARDWARE MATERIAL

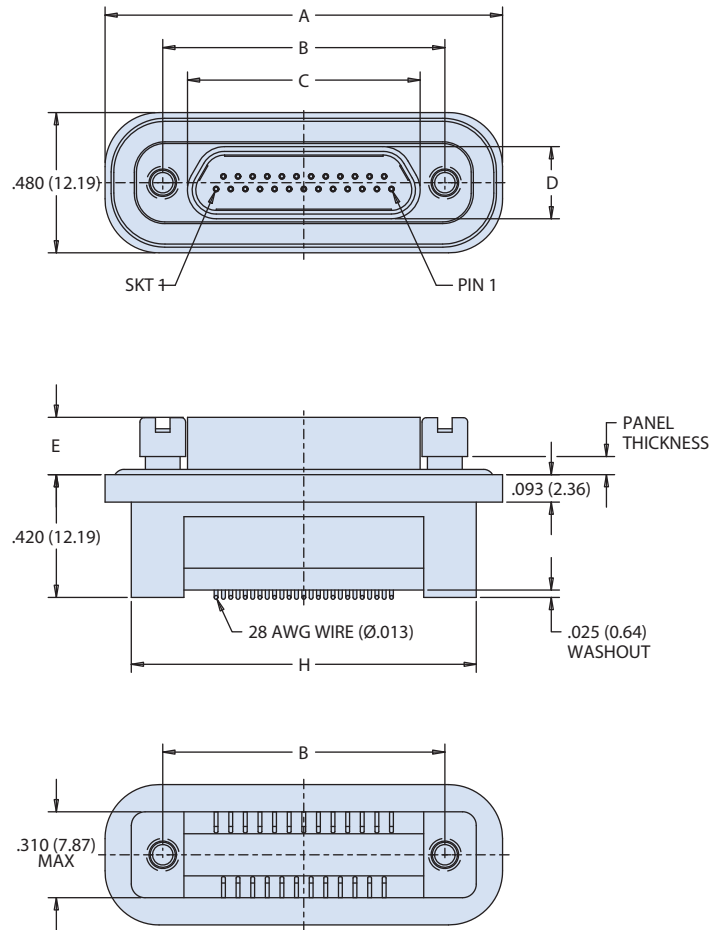
Corrosion-Resistant Steel IAW  
ASTM-A484 and ASTM-A582





GHSRPM-BSS Straight surface-mount pin and socket rear panel-mount connectors (jackpost hardware)

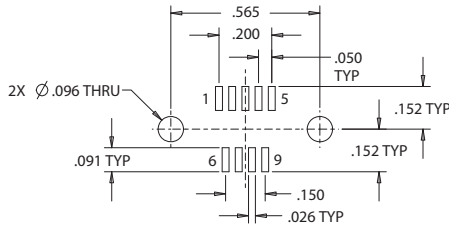
GHSRPM-BSS



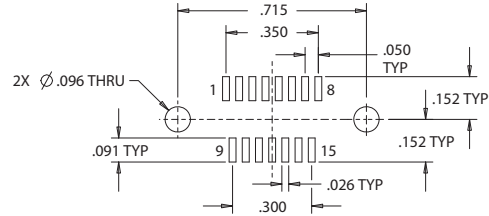
Dimensions						
LAYOUT	A	B±.003	C MAX	D MAX	E±.003	H MAX
9P	.960 (24.38)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)	.785 (19.94)
9S	.960 (24.38)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)	.785 (19.94)
15P	1.110 (28.19)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)	.935 (23.75)
15S	1.110 (28.19)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)	.935 (23.75)
21P	1.260 (32.00)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)	1.085 (27.56)
21S	1.260 (32.00)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)	1.085 (27.56)
25P	1.360 (34.54)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)	1.185 (30.10)
25S	1.360 (34.54)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)	1.185 (30.10)
31P	1.510 (38.35)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)	1.335 (33.91)
31S	1.510 (38.35)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)	1.335 (33.91)
37P	1.660 (42.16)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)	1.485 (37.72)
37S	1.660 (42.16)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)	1.485 (37.72)
51-2P	2.010 (51.05)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)	1.835 (46.61)
51-2S	2.010 (51.05)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)	1.835 (46.61)
67P	2.410 (61.21)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)	2.235 (56.77)
67S	2.410 (61.21)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)	2.235 (56.77)

GHSRPM-BSS Straight surface-mount pin and socket rear panel-mount connectors (jackpost hardware)

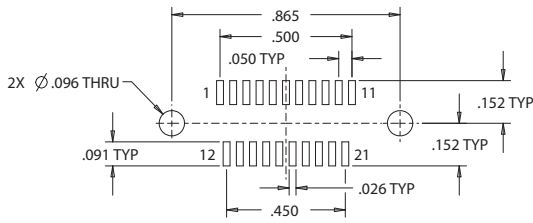
GHSRPM-BSS



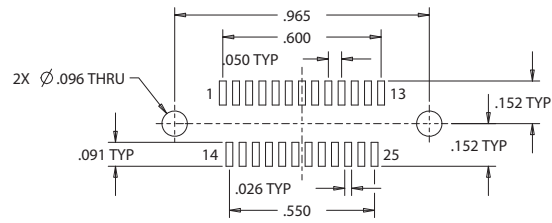
9 PIN



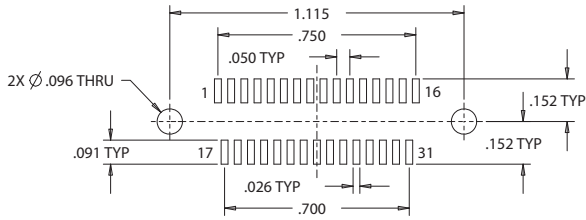
15 PIN



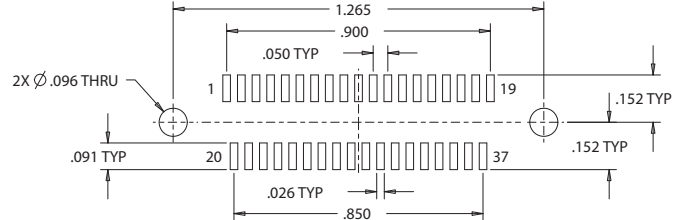
21 PIN



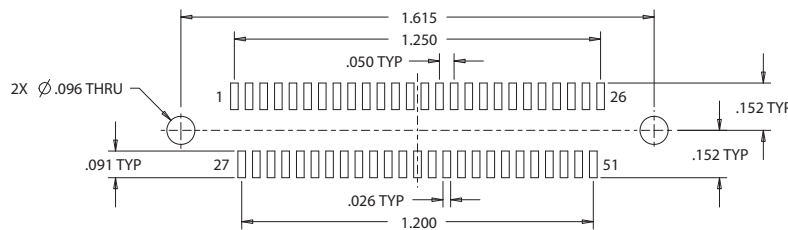
25 PIN



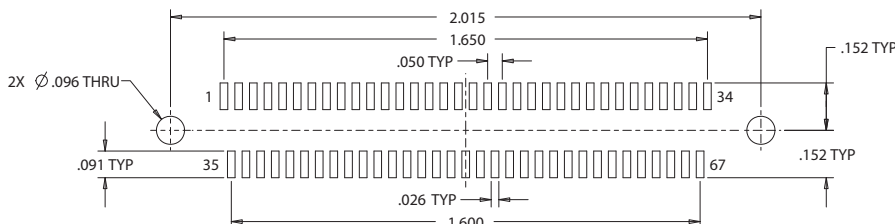
31 PIN



37 PIN



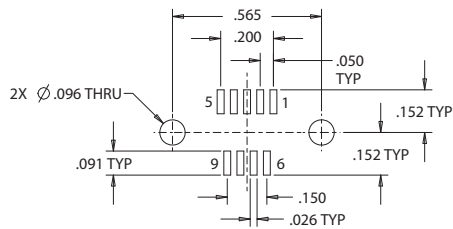
51-2 PIN



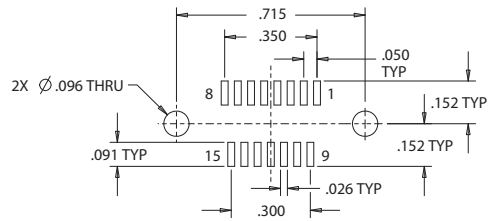
67 PIN

GHSRPM-BSS Straight surface-mount pin and socket rear panel-mount connectors (jackpost hardware)

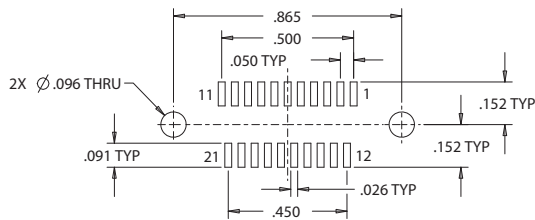
GHSRPM-BSS



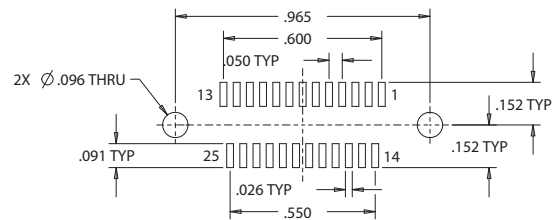
9 SOCKET



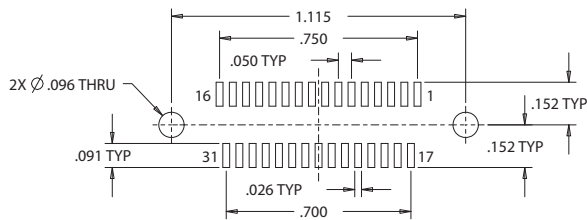
15 SOCKET



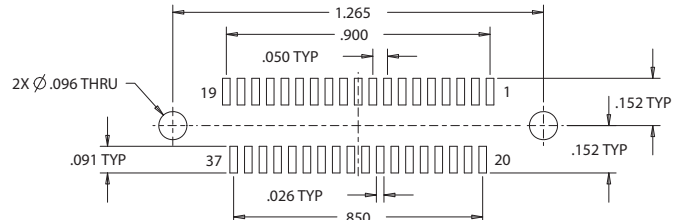
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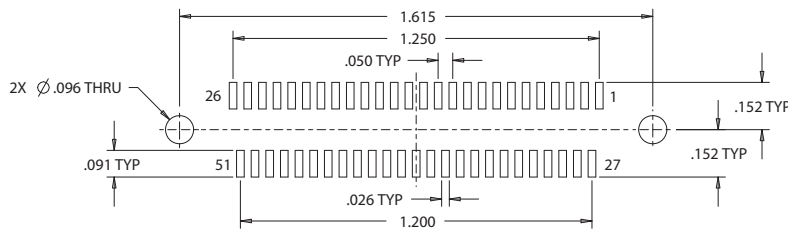
25 SOCKET



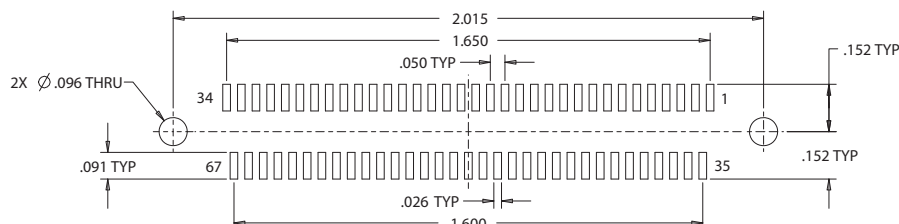
31 SOCKET



37 SOCKET



51-2 SOCKET



67 SOCKET

GHSRPM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket rear panel-mount connectors (jackpost hardware)

GHSRPM-HBR



How To Order	
<b>Sample Part Number</b>	<b>GHSRPM 2 R -25 P HBR R3 T N -.110 -513</b>
<b>Series</b>	GHSRPM = Glenair High-Speed Micro-D, Rear Panel Mount, Right Angle
<b>Shell Finish</b>	2 = Nickel 5 = Gold
<b>Insulator Material</b>	R = PPS
<b>Contact Layout</b>	9, 15, 21, 25, 31, 37, 51-2, 67
<b>Contact Type</b>	P = Pin (Plug) S = Socket (Receptacle)
<b>Termination Type</b>	HBR = Hybrid Board Right Angle Rear Panel Jackposts*
<b>Hardware Type (see options below)</b>	R1 = .032" Panel R2 = .047" Panel R3 = .062" Panel R4 = .093" Panel R5 = .125" Panel R6 = .080" Panel
<b>Threaded Insert Option</b>	T = Threaded Insert in Board Mounting Hole Omit for Thru Hole
<b>O-Ring Material</b>	C = Conductive N = Non-Conductive (Nitrile)
<b>Right Angle Lead Length</b>	.080, .110, .140, .172 Length in inches ±.015
<b>Gold-Plated Terminal Mod Code</b>	Connectors are solder-dipped in 60/40 Tin-Lead solder To delete solder dip and change to gold-plated terminals, add Mod Code -513

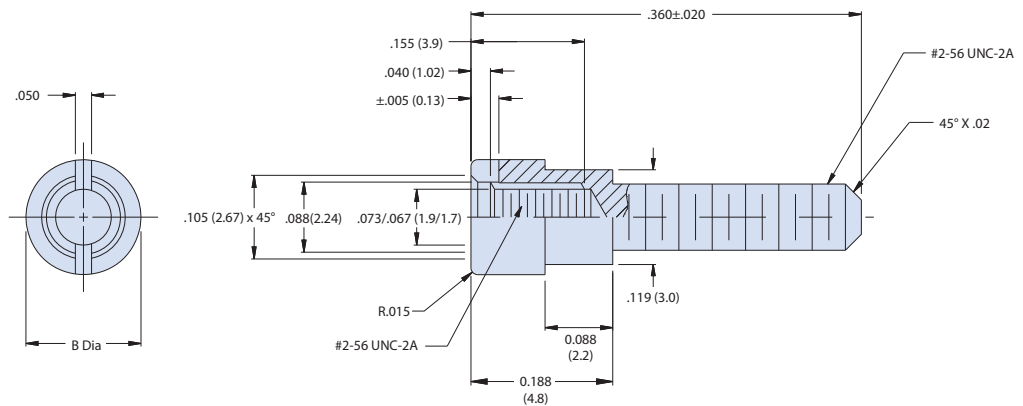
\*Refer to Appendix A for recommended panel cutout.



Rear Panel-Mount Mounting Hardware				
Code	Panel Thickness		J ± .003 (0.08)	K ± .005 (0.13)
	Fractional Value	Decimal Value		
R1	1/32	.031 (0.8)	.024 (0.6)	.050 (1.3)
R2	3/64	.047 (1.2)	.041 (1.0)	.050 (1.3)
R3	1/16	.062 (1.6)	.055 (1.4)	.050 (1.3)
R4	3/32	.094 (2.4)	.086 (2.2)	.050 (1.3)
R5	1/8	.125 (3.2)	.118 (3.0)	.030 (0.8)
R6	2/25	.080 (2.0)	.074 (1.9)	.050 (1.3)

**HARDWARE MATERIAL**

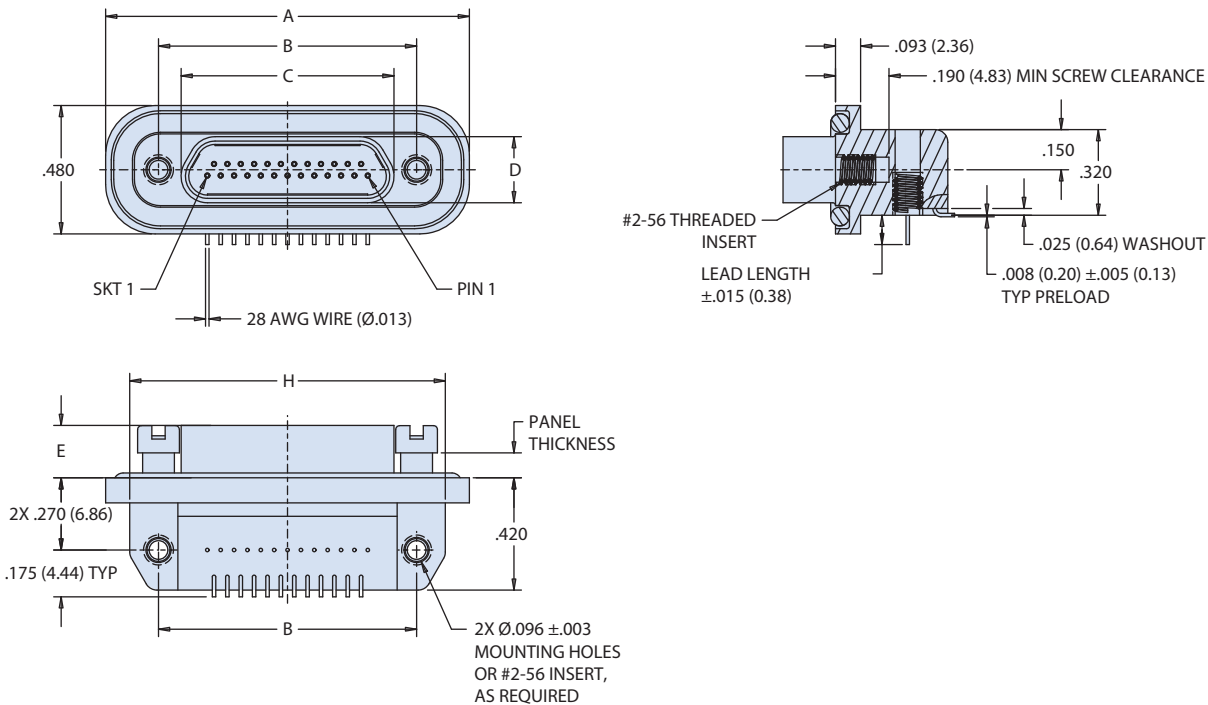
Corrosion-Resistant Steel IAW  
ASTM-A484 and ASTM-A582



# SERIES GHSM High-Speed Micro-D



## GHSRPM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket rear panel-mount connectors (jackpost hardware)

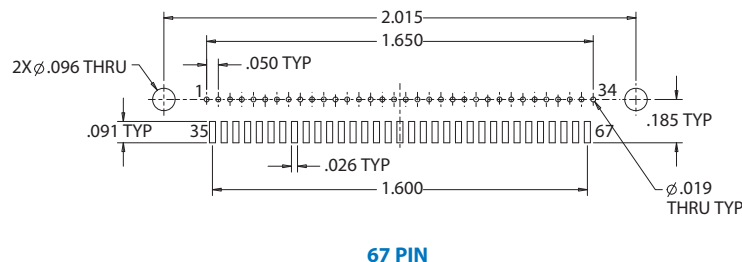
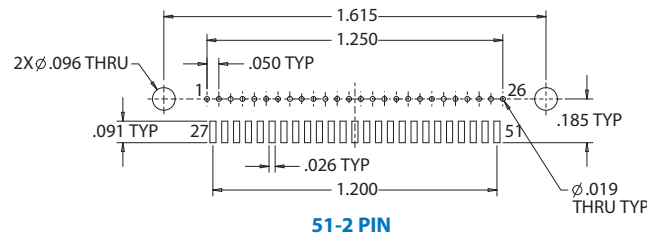
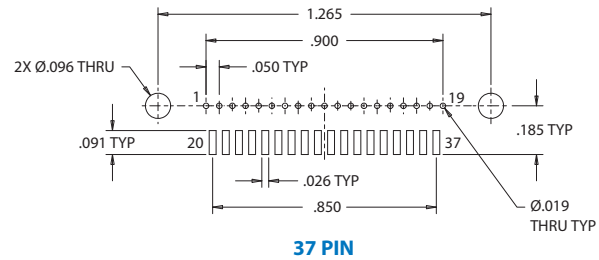
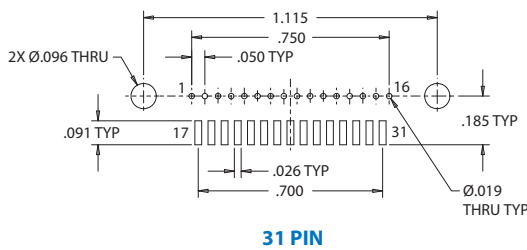
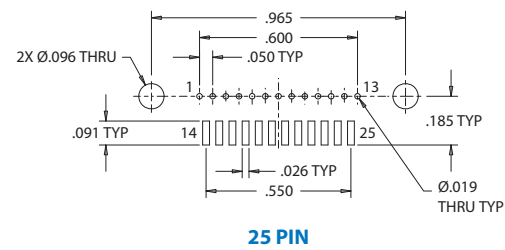
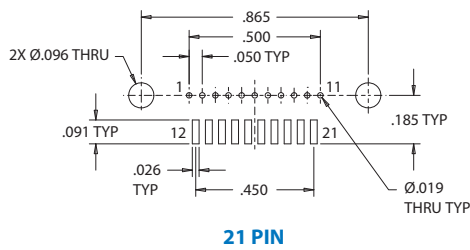
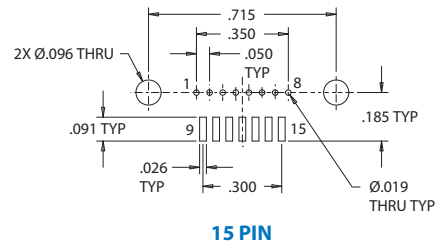
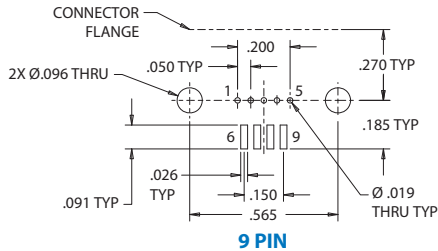


GHSRPM-HBR

Dimensions						
LAYOUT	A	B±.003	C MAX	D MAX	E±.003	H MAX
9P	.960 (24.38)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.183 (4.65)	.785 (19.94)
9S	.960 (24.38)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)	.785 (19.94)
15P	1.110 (28.19)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.183 (4.65)	.935 (23.75)
15S	1.110 (28.19)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.195 (4.95)	.935 (23.75)
21P	1.260 (32.00)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.183 (4.65)	1.085 (27.56)
21S	1.260 (32.00)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.195 (4.95)	1.085 (27.56)
25P	1.360 (34.54)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.183 (4.65)	1.185 (30.10)
25S	1.360 (34.54)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.195 (4.95)	1.185 (30.10)
31P	1.510 (38.35)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.183 (4.65)	1.335 (33.91)
31S	1.510 (38.35)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.195 (4.95)	1.335 (33.91)
37P	1.660 (42.16)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.183 (4.65)	1.485 (37.72)
37S	1.660 (42.16)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.195 (4.95)	1.485 (37.72)
51-2P	2.010 (51.05)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.183 (4.65)	1.835 (46.61)
51-2S	2.010 (51.05)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.195 (4.95)	1.835 (46.61)
67P	2.410 (61.21)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.183 (4.65)	2.235 (56.77)
67S	2.410 (61.21)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.195 (4.95)	2.235 (56.77)

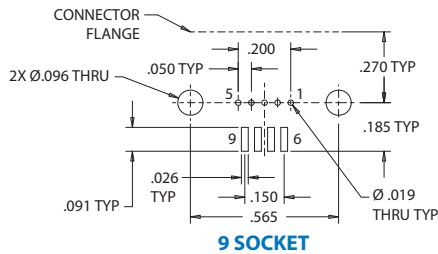
GHSRPM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket rear panel-mount connectors (jackpost hardware)

GHSRPM-HBR

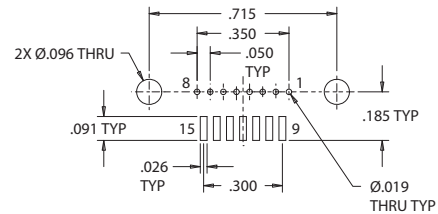


GHSRPM-HBR Hybrid right-angle (surface-mount / thru-hole) pin and socket rear panel-mount connectors (jackpost hardware)

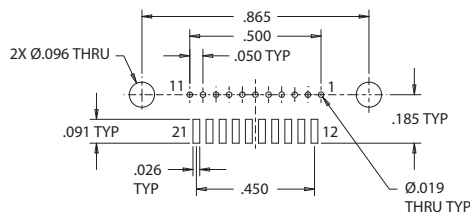
GHSRPM-HBR



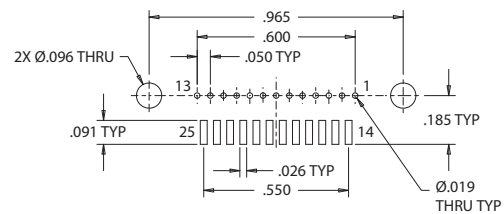
9 SOCKET



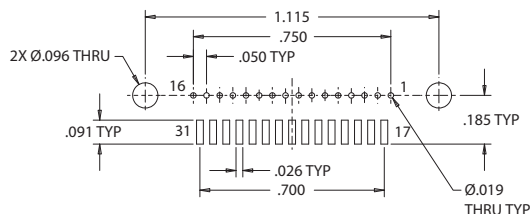
15 SOCKET



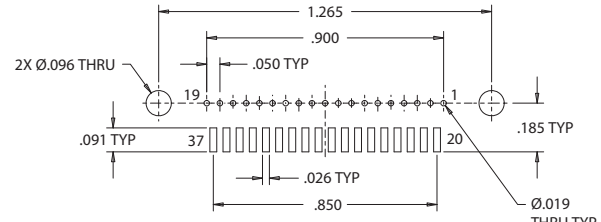
21 SOCKET



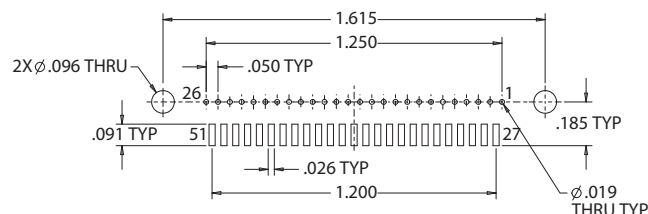
25 SOCKET



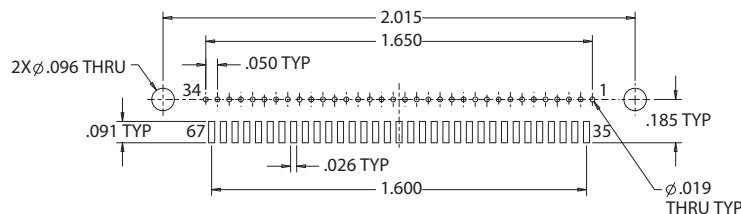
31 SOCKET



37 SOCKET



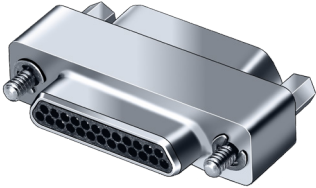
51-2 PIN



67 PIN

GHSM-USP1 Sav-Con® Connector Saver  
2-row, 9 thru 67 position

GHSM-USP1 SAV-CON®

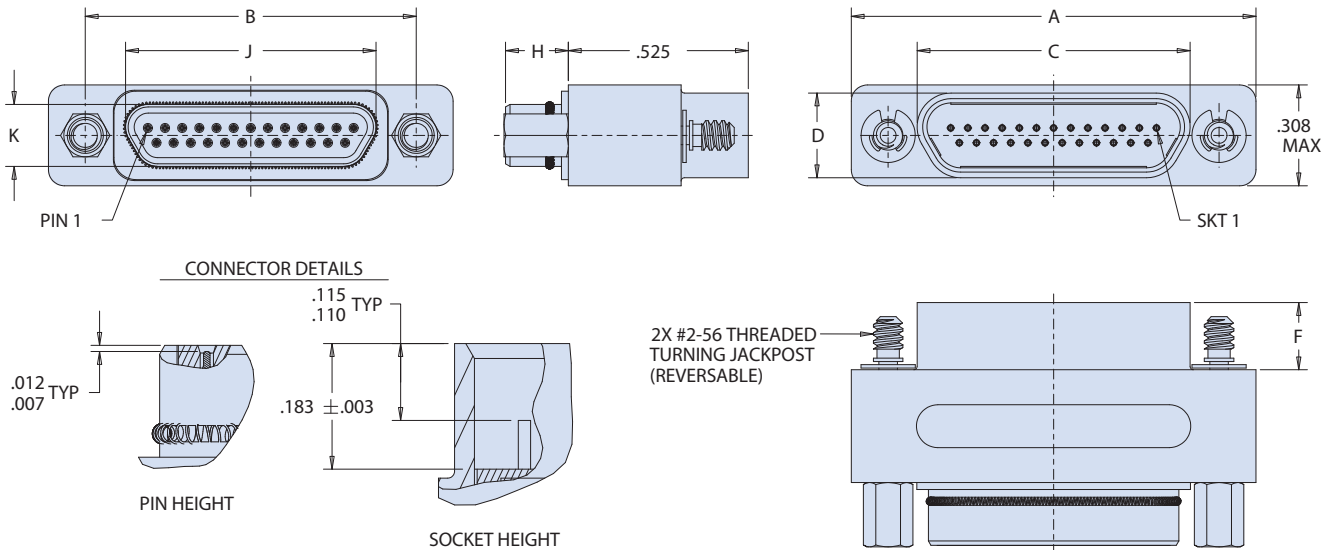


GHSM-USP1 Sav-Con®  
for High-speed Micro-D

**PROTECT SENSITIVE EQUIPMENT WITH THE GHSM-USP1 SAV-CON® CONNECTOR SAVER**

Prevent contact damage and extend the service life of cable assemblies. Protect High-Speed Micro-D connectors that are mated and unmated frequently during manufacturing, test, check-out phases, and environmental test programs. Sav-Con®s prevent costly repair or replacement by absorbing connect and disconnect abuse.

**How-To-Order / Dimensions**



Part Number	A Max	B±.003	C Max	D Max	F±.003	H±.003	J Max	K Max
GHSM2R-9USP1	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.195 (4.95)	.183 (4.65)	.33 (8.38)	.184 (4.67)
GHSM2R-15USP1	.935 (23.75)	.715 (18.16)	.551 (14.00)				.483 (12.27)	
GHSM2R-21USP1	1.085 (27.56)	.865 (21.97)	.701 (17.81)				.633 (16.08)	
GHSM2R-25USP1	1.185 (30.10)	.965 (24.51)	.801 (20.35)				.733 (18.62)	
GHSM2R-31USP1	1.335 (33.91)	1.115 (28.32)	.951 (24.16)				.833 (21.16)	
GHSM2R-37USP1	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)				1.033 (26.24)	
GHSM2R-51USP1	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)				1.384 (35.15)	
GHSM2R-67USP1	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)				1.784 (45.31)	



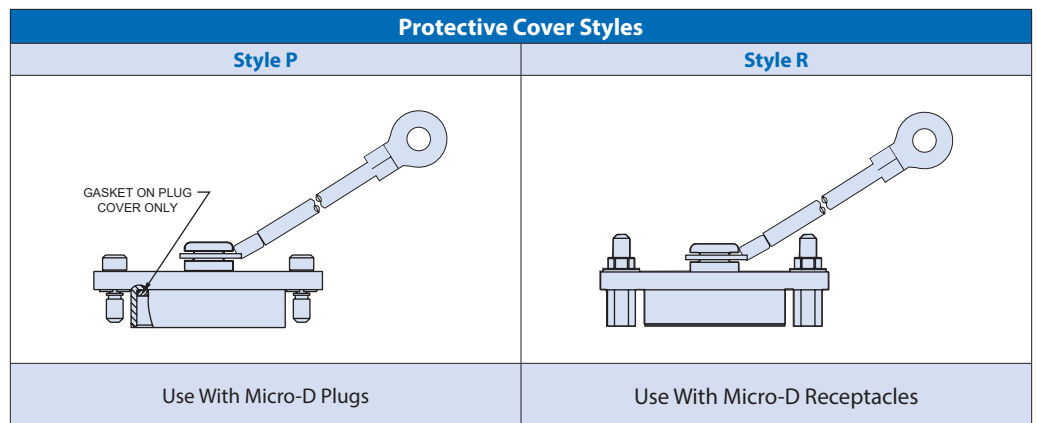
## 500-148 Dust Covers for High-Speed Micro-D connectors



Dust Cover for High-Speed Micro-D connector

		How To Order									
Sample Part Number		500-148	M	25	P	B	T	N	-110	-513	
Series	500-148 = Dust Covers for Glenair High-Speed Micro-D Plug or Receptacle										
Shell Finish	M = Electroless Nickel Z2 = Gold Plate										
Shell Size	9, 15, 21, 25, 31, 37, 51-2, 67										
Style	P = Dust Cover for Plug R = Dust Cover for Receptacle										
Hardware Type	B - No Hardware (Ø.093) M - Hexhead Jackscrew S - Slotted Jackscrew P - Female Jackpost M1 - Extended Hexhead Jackscrew S1 - Extended Slotted Jackscrew L - Hexhead Non-Removable Jackscrew K - Extended Non-Removable Jackscrew										
Attachement Type	F - Wire Rope, Nylon Jacket H - Wire Rope, Fluoropolymer Jacket N - No Lanyard Attachment NB - No Lanyard Or Attachment Boss R - Wire Rope, PVC Jacket T - Wire Rope, No Jacket G - Flexible Nylon Rope										
Attachment Length	Length in One Inch Increments; Example: "6" equals six inches.										
Attachment Diameter (I.D. of Ring Terminal)	01 - .140 (3.6)	02 - 0.182	03 - 0.191								
	04 - .197 (5.0)	05 - .167 (4.2)	06 - .125 (3.2)								

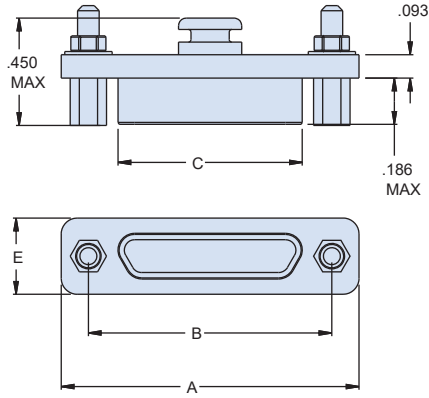
500-148 DUST COVERS



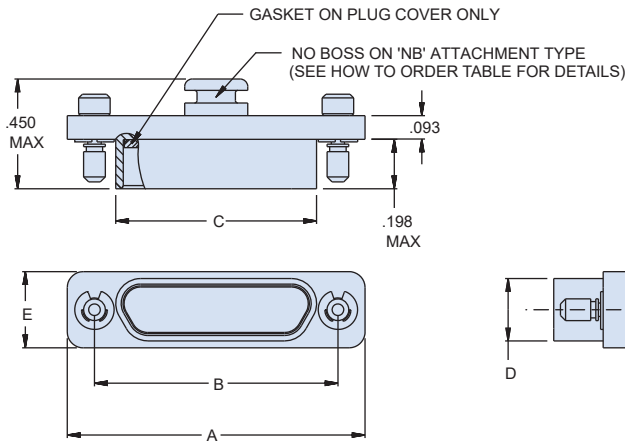
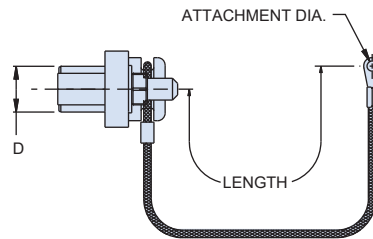
500-148 Dust Cover for High-Speed Micro-D connectors

500-148 DUST COVERS

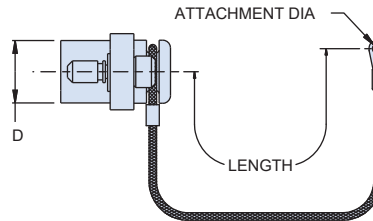
Table II: Dimensions



**Style R**  
Dust Cover For Receptacle



**Style P**  
Dust Cover For Plug



Layout	A Max	B ±.003	C Max	D Max	E Max
9R	.785 (19.94)	.565 (14.35)	.333 (8.46)	.184 (4.67)	.308 (7.82)
9P	.785 (19.94)	.565 (14.35)	.400 (10.16)	.250 (6.35)	.308 (7.82)
15R	.935 (23.75)	.715 (18.16)	.483 (12.27)	.184 (4.67)	.308 (7.82)
15P	.935 (23.75)	.715 (18.16)	.551 (14.00)	.250 (6.35)	.308 (7.82)
21R	1.085 (27.56)	.865 (21.97)	.633 (16.08)	.184 (4.67)	.308 (7.82)
21P	1.085 (27.56)	.865 (21.97)	.701 (17.81)	.250 (6.35)	.308 (7.82)
25R	1.185 (30.10)	.965 (24.51)	.733 (18.62)	.184 (4.67)	.308 (7.82)
25P	1.185 (30.10)	.965 (24.51)	.801 (20.35)	.250 (6.35)	.308 (7.82)
31R	1.335 (33.91)	1.115 (28.32)	.883 (22.43)	.184 (4.67)	.308 (7.82)
31P	1.335 (33.91)	1.115 (28.32)	.951 (24.16)	.250 (6.35)	.308 (7.82)
37R	1.485 (37.72)	1.265 (32.13)	1.033 (26.24)	.184 (4.67)	.308 (7.82)
37P	1.485 (37.72)	1.265 (32.13)	1.101 (27.97)	.250 (6.35)	.308 (7.82)
51R	1.435 (36.45)	1.215 (30.86)	.983 (24.97)	.228 (5.79)	.351 (8.92)
51P	1.435 (36.45)	1.215 (30.86)	1.051 (26.70)	.296 (7.52)	.351 (8.92)
51-2R	1.835 (46.61)	1.615 (41.02)	1.384 (35.15)	.184 (4.67)	.308 (7.82)
51-2P	1.835 (46.61)	1.615 (41.02)	1.450 (36.83)	.250 (6.35)	.308 (7.82)
67R	2.235 (56.77)	2.015 (51.18)	1.784 (45.31)	.184 (4.67)	.310 (7.87)
67P	2.235 (56.77)	2.015 (51.18)	1.850 (46.99)	.250 (6.35)	.310 (7.87)
69R	1.735 (44.07)	1.515 (38.48)	1.284 (32.61)	.228 (5.79)	.351 (8.92)
69P	1.735 (44.07)	1.515 (38.48)	1.350 (34.29)	.296 (7.52)	.351 (8.92)

# 179-045 Jackpost Kit 179-276 Replacement O-Ring for GHSRPM Connectors

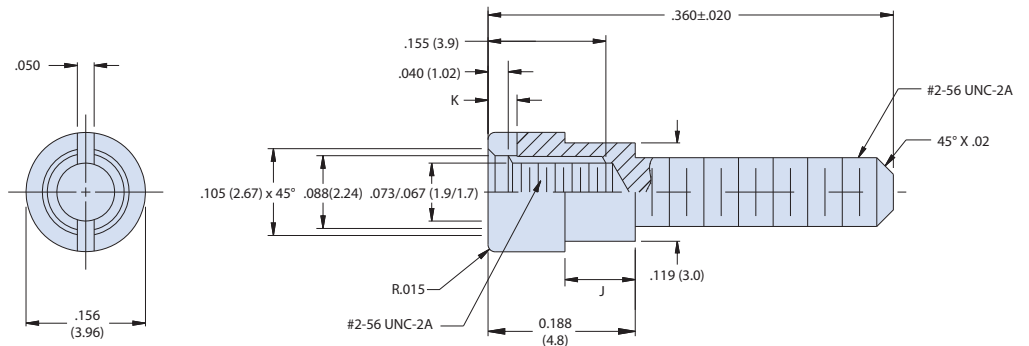


How To Order				
Part Number	Panel Thickness		J ± .003 (0.08)	K ± .005 (0.13)
	Fractional Value	Decimal Value		
179-045-2-2	1/32	.031 (0.8)	.024 (0.6)	.050 (1.3)
179-045-2-3	3/64	.047 (1.2)	.041 (1.0)	.050 (1.3)
179-045-2-4	1/16	.062 (1.6)	.055 (1.4)	.050 (1.3)
179-045-2-5	3/32	.094 (2.4)	.086 (2.2)	.050 (1.3)
179-045-2-6	1/8	.125 (3.2)	.118 (3.0)	.030 (0.8)
179-045-2-7	2/25	.080 (2.0)	.074 (1.9)	.050 (1.3)

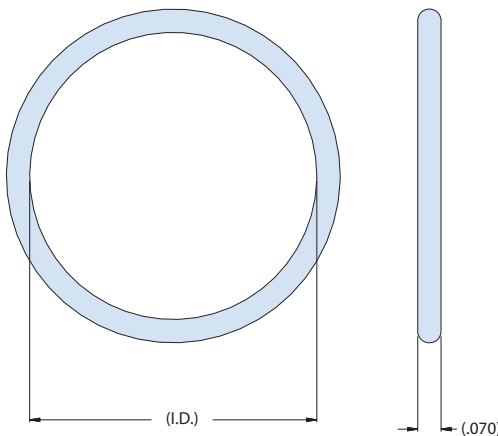
Kit consists of 2 Jackposts

### HARDWARE MATERIAL

Corrosion-Resistant Steel IAW  
ASTM-A484 and ASTM-A582



### 179-276 O-RING FOR SEALING OF PANEL MOUNT GHSRPM CONNECTORS



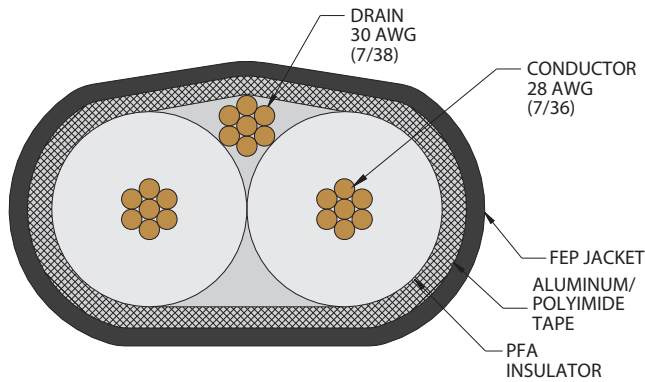
How To Order			
Sample Part Number	179-276	-15	-N
Series	179-276 = Replacement O-Ring for Panel Sealing of GHSRPM Connectors		
Shell Size	Table I		
Material	N - Non-Conductive (Nitrile) C - Conductive (Chomerics 1215) F - Fluorosilicone		

Table I	
Shell Size	I.D. Ref.
9	0.551 (14.00)
15	0.676 (17.17)
21	0.739 (18.77)
25	0.864 (21.95)
31	0.926 (23.52)
37	1.051 (26.70)
51-2	1.239 (31.47)
67	1.489 (37.82)

Impedance-matched Twinax twisted pair cable  
963-128-28 (100 Ohm) • 963-130-28 (90 Ohm)

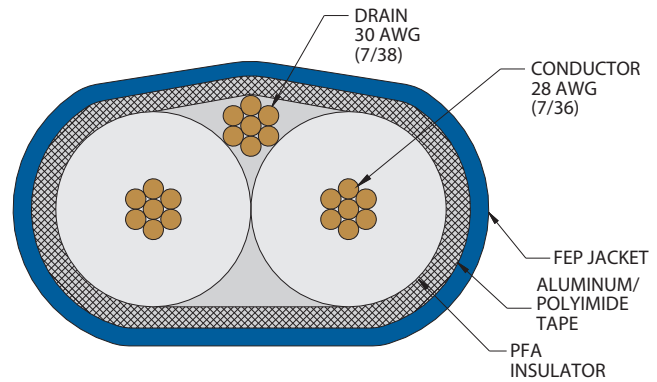
IMPEDANCE-MATCHED TWINAX CABLE

**963-128-28 100 Ohm Impedance-Matched Twinax Twisted Pair Cable - High-Temperature**  
Construction Details



Conductor / Drain	Silver-Plated High-Strength Copper Alloy
Insulation	PFA, White / Clear
Shield	.0015" Aluminum / Polyimide Tape
Jacket Material	FEP, Black
<b>Properties</b>	
Temperature Rating	150°C
Impedance	100 Ohms (±10 Ohms)
Insertion Loss	1 Meter: 10 dB @ 13 GHz

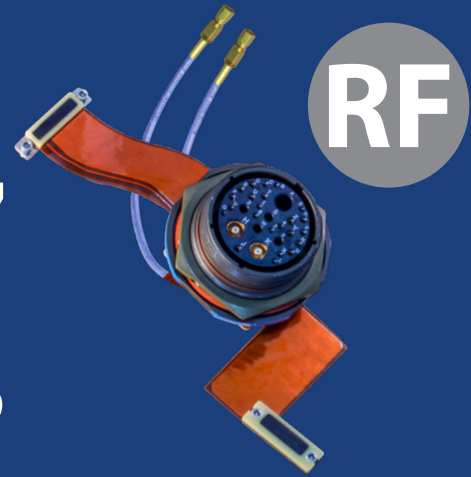
**963-130-28 90 Ohm Impedance-Matched Twinax Twisted Pair Cable - High-Temperature**  
Construction Details



Conductor / Drain	Silver-Plated High-Strength Copper Alloy
Insulation	PFA, White / Clear
Shield	.0015" Aluminum / Polyimide Tape
Jacket Material	FEP, Blue
<b>Properties</b>	
Temperature Rating	150°C
Impedance	90 Ohms (±10 Ohms)
Insertion Loss	1.0 dB/m @ 0.625 GHz
	1.5 dB/m @ 1.250 GHz
	2.5 dB/m @ 2.500 GHz
	3.6 dB/m @ 5.000 GHz
	4.7 dB/m @ 7.500 GHz

FLIGHT-GRADE

# RF, MICROWAVE, AND mmWAVE INTERCONNECTS



RF

turnkey assemblies · discrete components

MISSION-CRITICAL INTERCONNECT SOLUTIONS **Glenair**

**RF, Microwave, and mmWave Interconnects**

Integrated RF Interconnect Assemblies built from Aerospace-Grade Connectors, Contacts, Adapters, and Coax Cable

JULY 2022

High-frequency RF interconnects for I/O and cable applications

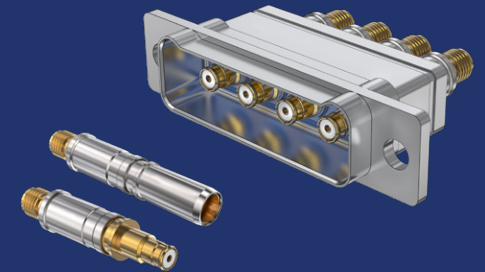
MISSION-CRITICAL INTERCONNECT SOLUTIONS **Glenair**

**GM MD Modular Micro-D**

Innovative Modular Micro-D Connectors and Cables for RF, Signal, and High-Speed Data Links

JANUARY 2023

Micro miniature RF interconnects for board applications



## G-Link<sup>RF</sup>

Glenair multipin aerospace-grade connectors are optimized for use with 26.5 GHz G-Link RF contacts with integral female SMA adapter for easy attachment of SMA adapter and cable directly to the contact.

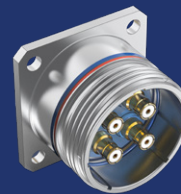
### GLENAIR SIGNATURE MULTI-PIN CONNECTORS FOR RF / MICROWAVE APPLICATIONS



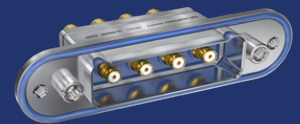
Series 23 SuperNine "better-than-QPL" MIL-DTL-38999 Series III type connector



Series 80 Mighty Mouse reduced size and weight aerospace-grade connector



Series 806 Mil-Aero micro miniature circular with performance IAW D38999



Series 795 RF precision-machined aerospace-grade coax connector

RUGGEDIZED

# HIGH-SPEED DATALINK CONNECTORS



contacts · connectors · cables · jumpers

MISSION-CRITICAL INTERCONNECT SOLUTIONS **Glenair**




**SERIES 882**  
**SuperFly® Datalink**

Harsh-Environment Ultraminiature Connector for High-Speed Applications Including 40 Gigabit Ethernet, HDMI, SuperSpeed USB, DisplayPort, and SATA

SEPTEMBER 2022

MISSION-CRITICAL INTERCONNECT SOLUTIONS **Glenair**



**SERIES 85**  
**RF, MICROWAVE AND DATALINK CONTACTS**

for MIL-DTL-38999, Series 23 SuperNine®, Series 80 Mighty Mouse, and Series 79 Micro-Crimp® connectors

APRIL 2016

MISSION-CRITICAL INTERCONNECT SOLUTIONS **Glenair**



**Glenair**  
SIGNATURE SERIES  
**High-Speed Interconnect Solutions**

Rugged Electrical, Optical, and Hybrid Solutions for Mission-Critical Aerospace and Defense Applications

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



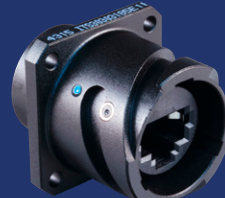
MIL-DTL-38999 Sr. III type SuperSeal™ RJ45



Series 80 Mighty Mouse SuperSeal™ RJ45



Series IPT 26482 type SuperSeal™ RJ45



Series ITS 5015 type SuperSeal™ RJ45



MIL-DTL-28840 type SuperSeal™ RJ45

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



MIL-DTL-38999 Sr. III type SuperSeal™ USB



Series 80 Mighty Mouse SuperSeal™ USB



Series IPT 26482 type SuperSeal™ USB

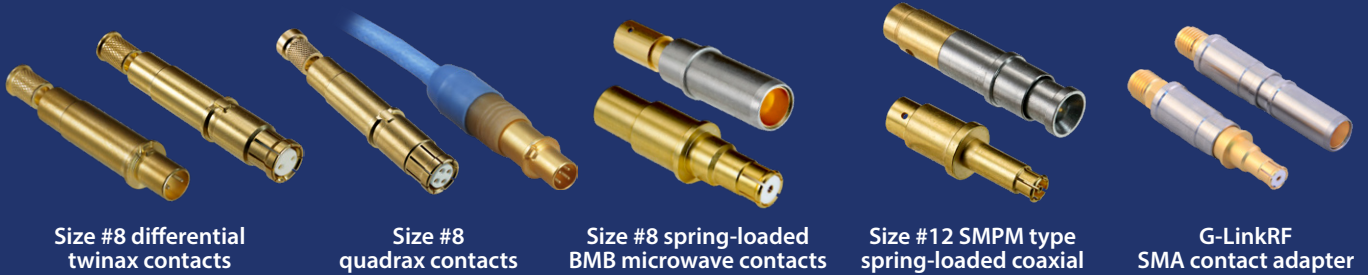


Series ITS 5015 type SuperSeal™ USB



MIL-DTL-28840 type SuperSeal™ USB

## RF / HIGH-SPEED DATALINK CONTACTS



Size #8 differential twinax contacts

Size #8 quadrax contacts

Size #8 spring-loaded BMB microwave contacts

Size #12 SMPM type spring-loaded coaxial

G-LinkRF SMA contact adapter

**El Ochito**

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



**El Ochito®:**  
The high-speed octaxial contact with patented data pair isolation

Discrete contacts for D38999 Series III, Series 806 Mil-Aero, SuperNine®, ARINC 600, and Series 79 for both #24 and #26 gauge cable

Turnkey jumpers with Cat 6A #24 or #26 gauge flexible aerospace cable

Series 79 right-angle PCB connector with El Ochito white (Ethernet), blue (USB 3.0), and red (100 Ohm HDMI, DVI, SATA, and PCI)



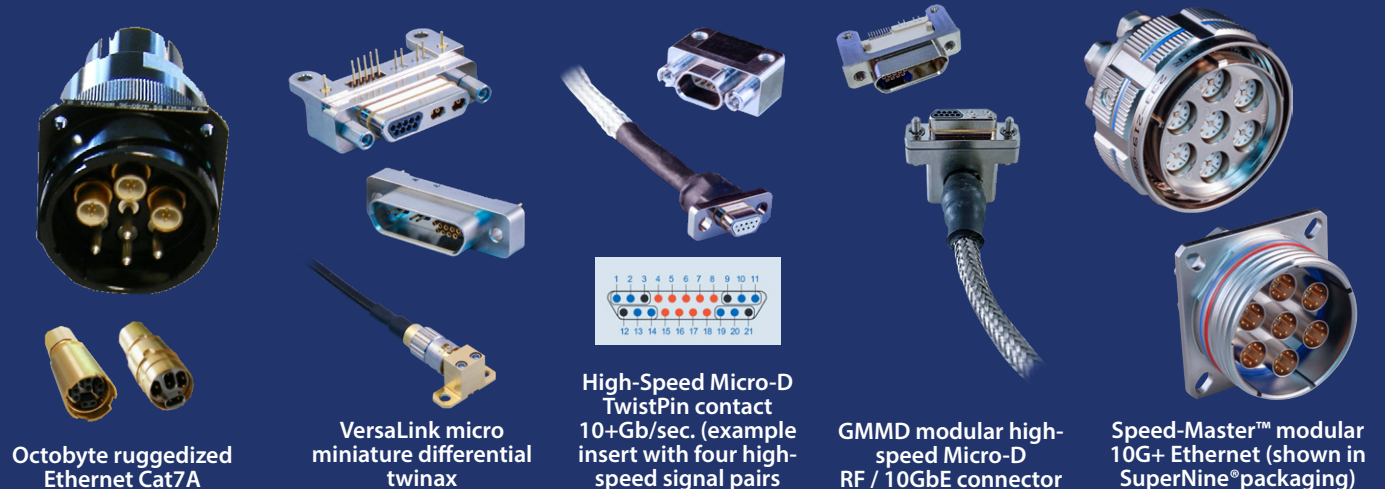
Series 882 SuperFly Datalink El Ochito nanominiature

Series 806 Mil-Aero high-speed El Ochito micro miniature

SuperNine MIL-DTL-38999 "Better than QPL" high-speed El Ochito

Series 792 Micro-Crimp precision-machined high-speed El Ochito

## GLENAIR SIGNATURE HIGH-SPEED CONNECTOR SERIES



Octobyte ruggedized Ethernet Cat7A

VersaLink micro miniature differential twinax

High-Speed Micro-D TwistPin contact 10+Gb/sec. (example insert with four high-speed signal pairs)

GMMD modular high-speed Micro-D RF / 10GbE connector

Speed-Master™ modular 10G+ Ethernet (shown in SuperNine® packaging)



# MISSION-CRITICAL INTERCONNECT SOLUTIONS

## Glenair, Inc.

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[www.glenair.com](http://www.glenair.com)

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06492

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60712

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