Glenair®

*SERIES 96*

# HIGH-PERFORMANCE WIRE AND CABLE

***FAST TURNAROUND, NO MINIMUMS, MIL-SPEC AND COMMERCIAL***

**JUNE 2013**

SERIES 96

# HIGH-PERFORMANCE WIRE AND CABLE FOR INTERCONNECT APPLICATIONS

*The right solution for every mission-critical interconnect harness/assembly*

No Dollar or Quantity Minimum Orders NO MINS.


Glenair is unique in the interconnect industry in that we design and manufacture every key component part used in today's most high-performance interconnect harnesses and assemblies. From discrete contacts to connectors, backshells, EMI/RFI shielding, jacketing—and now wire and cable—Glenair manufactures and supplies the full range of requirements.

**Introducing Glenair high performance wire and cable:** Our line of high-performance wire and cable includes Mil-Spec and commercial variants of commonly specified M22759 type multi-conductor shielded cabling, as well as a full range of Quadrax, Coaxial, fiber optic, and protocol-specific (Ethernet, USB, Firewire and eSATA) cables. We also offer several unique and high-performance cable solutions of our own design for harsh-environment power and signal applications. Best of all, Glenair high-performance wire and cable is offered in short runs with no length or dollar minimums. Fast turnaround—up to and including stock—is our model. Call the factory or visit our website for price and delivery information.

Glenair®

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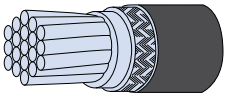
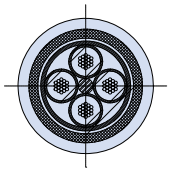


**M22759 Single-Ended Data Transmission Wire**

Glenair's range of AS22759 wire and cable is qualified to SAE requirements

B



**Quadrax Cable**

High-speed transmission solutions for 10/100/1000BASE-T Ethernet applications

C

**Coaxial Cable**

50 and 75 ohm Coaxial cable for use in radio frequency and microwave applications

D

**TurboFlex™ Power Transmission Wire**

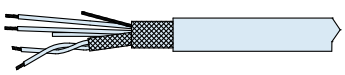
TurboFlex™ power distribution cables are fabricated from highly flexible conductors and high-performance insulation to produce cables ideally suited for applications where flexibility, durability, and weight reduction are required

E

**Optical Fiber**

Singlemode and multimode graded index fiber optic cable for mission-critical applications

F



**Protocol-Specific/High Speed Cable**

For USB, Ethernet, SATA and other general-purpose/protocol-specific applications

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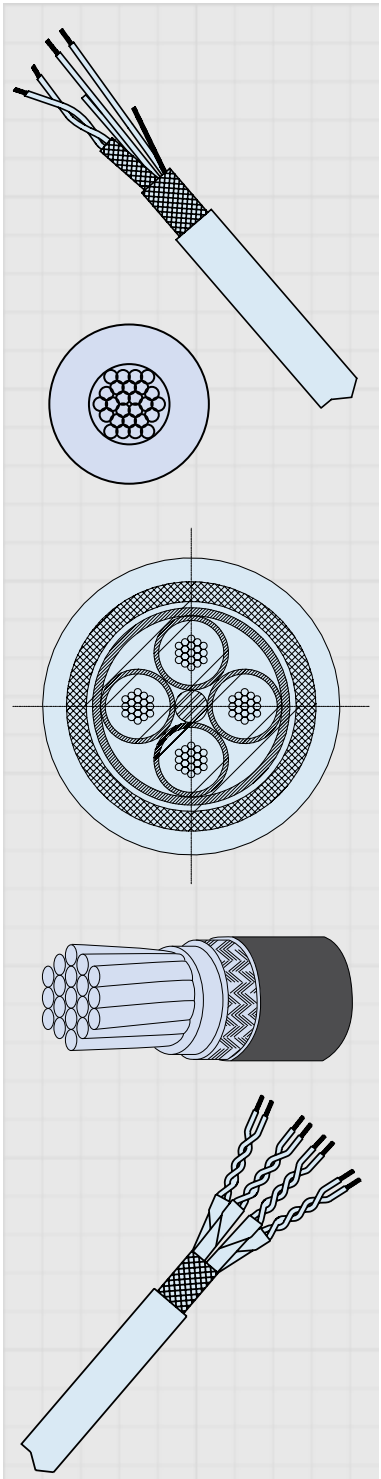
# Series 96 High Performance Cable for Interconnect Applications





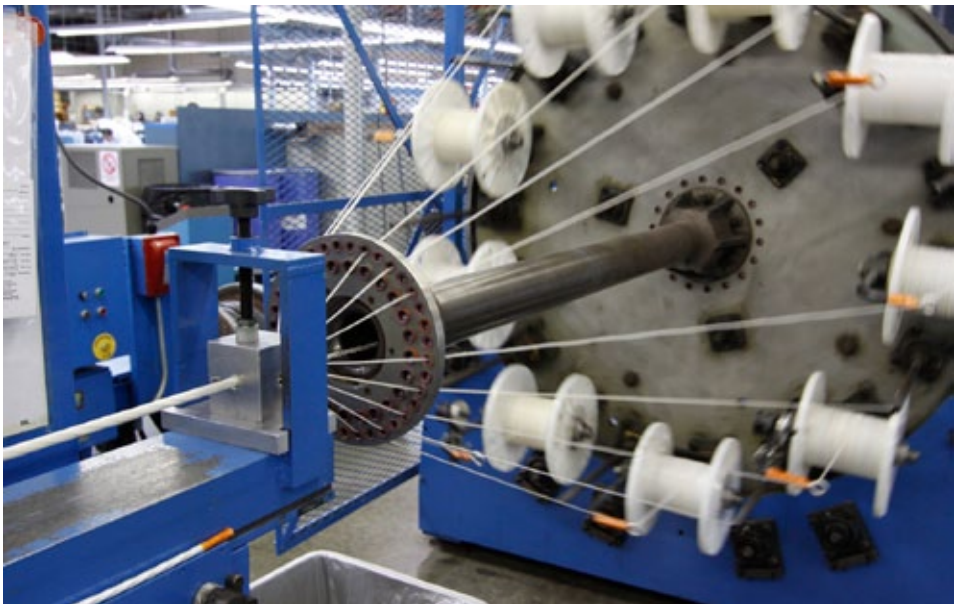
**Engineered wire and cable solutions**

## Sophisticated wire and cable solutions—from optical fiber to high-flexibility power transmission cable

No Dollar or Quantity Minimum Orders NO MINS.

In addition to terminated and tested cable assemblies and cordsets, Glenair is pleased to offer our customers discrete bulk cable for on-site termination. All of the cables in this catalog have been designed and manufactured for optimal performance in mission-critical applications such as soldier systems, medical equipment, aerospace, geophysical and other military and commercial environments that rely on guaranteed signal integrity and cable durability. The catalog is organized according to application type, beginning with general-purpose non-impedance-controlled signal wire, and continuing with a full arange of high-performance shielded multi-conductor cables, including Coaxial, Quadrax, flexible power, fiber optic, and so on. Glenair cables are designed to optimize flexibililty, weight reduction, ruggedness, and insulator quality. Our protocol-specific cables are offered with guidance as to shielding properties, impedance performance, attenuation, temperature rating, bend radius, weight, and maximum practical distance.

| Custom Capabilities | |
|---|---|
| **TurboFlex** | Highly flexible interconnect conductors and cables for power distribution applications |
| **Duralectric** | High-performance, flexible jacket material with outstanding resistance to environmental stress factors including heat, UV radiation and caustic chemicals |
| **Multiconductor cables** | Custom, short-run cables for unique applications such as robotics, defense electronics, and soldier systems |
| **Overbraiding** | Extensive range of conductive and non-conductive wire and fabric braid materials, including ultra-lightweight composites and micro-filaments |



**Glenair's vertically integrated connector, hardware and cable facilities are perfectly positioned to supply catalog and custom short cable runs for the broad range of interconnect applications from non-impedance controlled transmission wire to high-speed, protocol-specific cabling—all with no dollar or length minimums.**

# Series 96 High Performance Cable for Interconnect Applications

Rugged environmental jacketing in a broad range of material types and colors

- **Extruded, blown-on and heat shrink jacketing for harsh application environments**
- **General purpose polyurethane**
- **Low-smoke, zero halogen Duralectric™**
- **Chemically-resistant Viton®**
- **Industry standard neoprene**
- **Selected materials CBRN tested**

## High-performance cable and jacketing materials for every application requirement: Immersion, chemical or caustic fluid exposure, temperature extremes, and UV radiation.

RoHS COMPLIANT

Glenair operates one of the largest multi-spindle overbraiding operations in the world

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

| Wire Type | Application | Commonly Used With |
|---|---|---|
| M22759 Single-Ended Data Transmission Wire | Non-impedance controlled signal applications | Non-shielded 39029 contacts |
| Quadrax Cable | 10/100/1000BASE-T Ethernet applications | 854-001/854-002 Quadrax contacts |
| Coaxial Cable | 50 Ohm/75 Ohm RF transmission | Size #16, #12, #8 Coaxial pin and socket contacts |
| TurboFlex | High-performance (temperature, weight, flexibility) power transmission | Series 970 PowerTrip™, MIL-DTL-38999, Series 80 Mighty Mouse, |
| Optical Fiber | Ruggedized mil-aero singlemode and multimode optical data transmission | EyeBeam (expanded beam)<br>Glenair High Density (GHD)<br>Series 80 Mighty Mouse fiber optic (Size #23, #20HD and #16)<br>MIL-DTL-38999 Size #16 and #20 MIL-T-29504 QPL |
| Protocol Specific Cables | Commercial digital data device connections including Ethernet, USB, SATA/eSATA, Spacewire, LVDS/CML | High Speed Mighty Mouse<br>Mighty Mouse with Ultra-Twinax Differential Twinax contacts<br>SuperSeal USB/RJ45 |

All Glenair cable part numbers are in stock and ready for immediate, same-day shipment with no length or dollar minimums.

SAE AS22759
TYPE

# MIL-SPEC DATA TRANSMISSION WIRE

NO MINS. No Dollar or Quantity Minimum Orders

## *Airframe non-impedance-matched data transmission cable*


Glenair's range of AS22759 wire and cable is manufactured and qualified to SAE requirements for this, the most commonly applied of all aerospace data transmission media. We offer a complete selection of styles, sizes and colors in twist, overbraid, and jacketed configurations. Wire may be supplied etched, stripped and cut to specific lengths to meet any application requirement. Airframe non-impedance matched data transmission cable is often only available in long cable runs and/or minimum dollar or length quantities. Glenair offers same-day shipment on popular wire—and every 39029 contact you might need—all with no minimums.

| AS39029 Contacts for Series 80 Mighty Mouse, MIL-DTL-38999, MIL-DTL-28840, et al | | | |
|---|---|---|---|
|  |  |  |  |
| Crimp | PC Tail | Solder Cup | Thermocouple |

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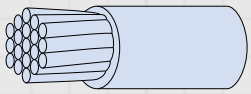
# M22759 Single-Ended Data Transmission Wire
## Selection Guide



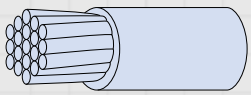

**M22759/11 Silver Coated Copper Wire with Extruded PTFE Insulation**
For high temperature applications such as aircraft engines and where increased abrasion resistance is required — B-6

**M22759/16 Tin Coated Copper Wire with Extruded ETFE Insulation**
For high temperature applications such as aircraft engines and where increased abrasion resistance and solderability is required — B-8

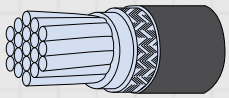
**M22759/18 Tin Coated Copper Wire with Thin-Wall Extruded ETFE Insulation**
For aerospace applications where light weight, abrasion resistance, mechanical durability and solderability are required — B-10



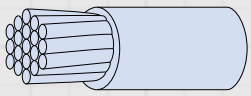
**M22759/32 Tin Coated Copper Wire with Crosslinked, Modified ETFE Insulation**
For high temperature, light weight aerospace applications where mechanical strength, abrasion resistance and solderability are required — B-12



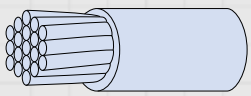
**M22759/33 Silver Coated Copper Wire with Crosslinked, Modified ETFE Insulation**
For high temperature, light weight aerospace applications where increased mechanical strength and abrasion resistance is required — B-14



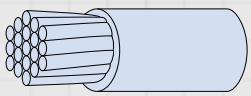
**M22759/34 Tin Coated Copper Wire with Overall Braid and Extruded ETFE Insulation**
For high temperature airframe and avionics applications where abrasion resistance, mechanical durability, and EMI/RFI shielding are required — B-16



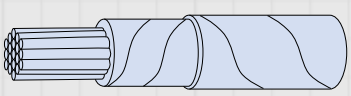
**M22759/44 Silver Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**
For protected harness applications where high temperature resistance, mechanical durability and flexibility are required — B-18



**M22759/45 Nickel Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**
For protected harness applications where high temperature resistance, mechanical durability, corrosion resistance and flexibility are required — B-20



**M22759/46 Nickel Coated High Strength Copper Wire with Crosslinked, Extruded ETFE Insulation**
For high temperature applications where mechanical durability and, corrosion resistance are primary requirements — B-22



**M22759/90 Nickel Coated High Strength Copper Wire with Double Layer Tape Wrap Insulation**
For high temperature applications where mechanical durability, corrosion resistance and cable strength are primary requirements — B-24

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# SAE-AS39029
# Crimp Contact Selection Guide



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

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

# SAE-AS39029
# Crimp Contact Selection Guide

Glenair®

| Military Part Number | Glenair Part Number | Contact Size | Wire Accommodation | Pin / Socket | BIN Color Striping | | |
|---|---|---|---|---|---|---|---|
| M39029/83-450 | 850-004-20-450 | 20 | 22-26 AWG | Pin | Yellow | Green | Black |
| M39029/83-451 | 850-004-20-451 | 20 | 28-32 AWG | Pin | Yellow | Green | Brown |
| M39029/83-508 | 850-004-20-508 | 20 | 20-24 AWG | Pin | Green | Black | Grey |
| M39029/84-452 | 850-005-20-452 | 20 | 22-26 AWG | Socket | Yellow | Green | Red |
| M39029/84-453 | 850-005-20-453 | 20 | 28-32 AWG | Socket | Yellow | Green | Orange |
| M39029/84-509 | 850-005-20-509 | 20 | 20-24 AWG | Socket | Green | Black | White |
| M39029/106-614 | 850-006-22-614 | 22 | 22-28 AWG | Socket | Blue | Brown | Yellow |
| M39029/106-615 | 850-006-20-615 | 20 | 20-24 AWG | Socket | Blue | Brown | Green |
| M39029/106-616 | 850-006-16-616 | 16 | 16-20 AWG | Socket | Blue | Brown | Blue |
| M39029/106-617 | 850-006-12-617 | 12 | 12-14 AWG | Socket | Blue | Brown | Violet |
| M39029/106-618 | 850-006-10-618 | 10 | 10 AWG | Socket | Blue | Brown | Grey |
| M39029/107-620 | 850-007-22-620 | 22 | 22-28 AWG | Pin | Blue | Red | Black |
| M39029/107-621 | 850-007-20-621 | 20 | 20-24 AWG | Pin | Blue | Black | Brown |
| M39029/107-622 | 850-007-16-622 | 16 | 16-20 AWG | Pin | Blue | Red | Red |
| M39029/107-623 | 850-007-12-623 | 12 | 12-14 AWG | Pin | Blue | Red | Orange |
| M39029/107-624 | 850-007-10-624 | 10 | 10 AWG | Pin | Blue | Red | Yellow |

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

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# Series 80 Mighty Mouse Contact Arrangements



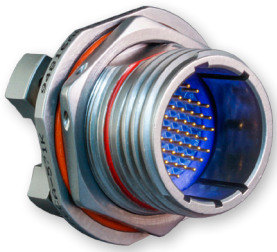
| Series 80 Mighty Mouse Contact Arrangements | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contact Size | | Contact Quantity | | | | | Contact Arrangement | | | | | |
| | | #23 | #20 | #20HD | #16 | #12 | Series 800 | Series 801 | Series 802 | Series 803 | Series 804 | Series 805 |
| Size #23 Contacts 5 Amp Max. Current 500 VAC #22-#28 AWG |  | 3 | | | | | 5-3 | 5-3 | 5-3 | 5-3 | 5-3 | Not Avail. |
| | | 4 | | | | | 6-4 | 6-4 | 6-4 | 6-4 | 6-4 | 8-4 |
| | | 6 | | | | | 6-6 | 6-6 | 6-6 | 6-6 | 6-6 | 8-6 |
| | | 7 | | | | | 6-7 | 6-7 | 6-7 | 6-7 | 6-7 | 8-7 |
| | | 10 | | | | | 7-10 | 7-10 | 7-10 | 7-10 | 7-10 | 9-10 |
| | | 13 | | | | | 8-13 | 8-13 | 8-13 | 8-13 | 8-13 | 10-13 |
| | | 19 | | | | | 9-19 | 9-19 | 9-19 | 9-19 | 9-19 | 11-19 |
| | | 26 | | | | | 10-26 | 10-26 | 10-26 | 10-26 | 10-26 | 12-26 |
| | | 37 | | | | | 12-37 | 13-37 | 12-37 | 12-37 | 12-37 | 15-37 |
| | | 55 | | | | | Not Avail. | 16-55 | 14-55 | 14-55 | 14-55 | 18-55 |
| | | 85 | | | | | Not Avail. | 17-85 | 15-85 | Not Avail. | Not Avail. | 19-85 |
| | | 130 | | | | | Not Avail. | 21-130 | 21-130 | Not Avail. | Not Avail. | 23-130 |
| Size #20HD Contacts 7.5 Amp Max. Current 750 VAC #20-#24 AWG |  | | | 3 | | | 6-23 | 6-23 | 6-23 | 6-23 | 6-23 | 8-23 |
| | | | | 5 | | | 7-25 | 7-25 | 7-25 | 7-25 | 7-25 | 9-25 |
| | | | | 8 | | | 8-28 | 8-28 | 8-28 | 8-28 | 8-28 | 10-28 |
| | | | | 10 | | | 9-210 | 9-210 | 9-210 | 9-210 | 9-210 | 11-210 |
| | | | | 20 | | | 12-220 | 13-220 | 12-220 | 12-220 | 12-220 | 15-220 |
| | | | | 35 | | | Not Avail. | 16-235 | 14-235 | 14-235 | 14-235 | 18-235 |
| | | | | 41 | | | Not Avail. | 17-241 | 15-241 | Not Avail. | Not Avail. | 19-241 |
| | | | | 69 | | | Not Avail. | 21-269 | 21-269 | Not Avail. | Not Avail. | 23-269 |
| Size #16 Contacts 13 Amp Max. Current 1800 VAC #16-#20 AWG |  | | | | 1 | | 6-1 | 6-1 | 6-1 | 6-1 | 6-1 | 8-1 |
| | | | | | 2 | | 8-2 | 8-2 | 8-2 | 8-2 | 8-2 | 10-2 |
| | | | | | 4 | | 9-4 | 9-4 | 9-4 | 9-4 | 9-4 | 11-4 |
| | | | | | 5 | | 10-5 | 10-5 | 10-5 | 10-5 | 10-5 | 12-5 |
| Size #16 Coaxial Contacts 50–75 Ohms |  | | | | 7 | | 12-7 | 13-7 | 12-7 | 12-7 | 12-7 | 15-7 |
| | | | | | 12 | | Not Avail. | 16-12 | 14-12 | 14-12 | 14-12 | 18-12 |
| | | | | | 14 | | Not Avail. | 17-14 | 15-14 | Not Avail. | Not Avail. | 19-14 |
| | | | | | 22 | | Not Avail. | 21-22 | 21-22 | Not Avail. | Not Avail. | 23-22 |
| Size #12 Contacts 23 Amp Max. Current 1800 VAC #12-#14 AWG |  | | | | | 1 | 7-1 | 7-1 | 7-1 | 7-1 | 7-1 | 9-1 |
| | | | | | | 2 | 10-2 | 10-2 | 10-2 | 10-2 | 10-2 | 12-2 |
| | | | | | | 2 | 12-2 | 13-2 | 12-2 | 12-2 | 12-2 | 15-2 |
| | | | | | | 3 | 12-3 | 13-3 | 12-3 | 12-3 | 12-3 | 15-3 |
| Contact Arrangements with Mixed Size (Combo) Layouts | | 4 | 2 | | | | 8-200 | 8-200 | 8-200 | 8-200 | 8-200 | 10-200 |
| | | 8 | 2 | | | | 9-201 | 9-201 | 9-201 | 9-201 | 9-201 | 11-201 |
| | | 4 | | | 2 | | 9-200 | 9-200 | 9-200 | 9-200 | 9-200 | 11-200 |
| | | 8 | | | 2 | | 10-202 | 10-202 | 10-202 | 10-202 | 10-202 | 12-202 |
| | | 4 | | | | 2 | 10-201 | 10-201 | 10-201 | 10-201 | 10-201 | 12-201 |
| | | 6 | | | | 2 | 12-200 | 13-200 | 12-200 | 12-200 | 12-200 | 15-200 |
| | | 10 | | | | 2 | 12-201 | 13-201 | 12-201 | 12-201 | 12-201 | 15-201 |
| | | 12 | | | | 1 | 10-200 | 10-200 | 10-200 | 10-200 | 10-200 | 12-200 |

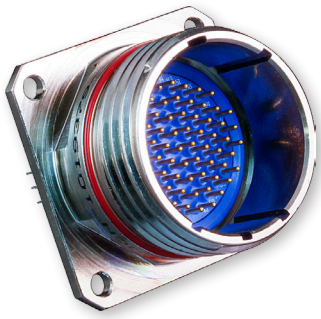
| Series 800 | Series 801 | Series 802 | Series 803 | Series 804 | Series 805 |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

# MIL-DTL-38999 Series I, II, and III
# Contact Arrangements

| Shell Size and Insert Arrangements | | | Number of Pins | | | |
|---|---|---|---|---|---|---|
| MS Series I | MS Series II | D38999 Series III | 22D | 20 | 16 | 12 |
| 9-35 | 8-35 | A35 | 6 | | | |
| 9-98 | 8-98 | A98 | | 3 | | |
| 11-2 | 10-2 | B2 | | | 2 | |
| 11-4 | 10-4 | B4 | | 4 | | |
| 11-5 | 10-5 | B5 | | 5 | | |
| 11-35 | 10-35 | B35 | 13 | | | |
| 11-98 | 10-98 | B98 | | 6 | | |
| 11-99 | 10-99 | B99 | | 7 | | |
| 13-4 | 12-4 | C4 | | | 4 | |
| 13-8 | 12-8 | C8 | | 8 | | |
| 13-35 | 12-35 | C35 | 22 | | | |
| 13-98 | 12-98 | C98 | | 10 | | |
| 15-5 | 14-5 | D5 | | | 5 | |
| 15-15 | 14-15 | D15 | | 14 | 1 | |
| 15-18 | 14-18 | D18 | | 18 | | |
| 15-19 | 14-19 | D19 | | 19 | | |
| 15-35 | 14-35 | D35 | 37 | | | |
| 15-97 | 14-97 | D97 | | 8 | 4 | |
| 17-6 | 16-6 | E6 | | | | 6 |
| 17-8 | 16-8 | E8 | | | 8 | |
| 17-26 | 16-26 | E26 | | 26 | | |
| 17-35 | 16-35 | E35 | 55 | | | |
| 17-99 | 16-99 | E99 | | 21 | 2 | |
| 19-11 | 18-11 | F11 | | | 11 | |
| 19-28 | 18-28 | F28 | | 26 | 2 | |
| 19-30 | 18-30 | F30 | | 29 | 1 | |
| 19-32 | 18-32 | F32 | | 32 | | |
| 19-35 | 18-35 | F35 | 66 | | | |
| 19-45 | 18-45 | F45 | 67 | | | |
| 21-11 | 20-11 | G11 | | | | 11 |
| 21-16 | 20-16 | G16 | | | 16 | |
| 21-24 | 20-24 | G24 | | 24 | | |
| 21-25 | 20-25 | G25 | | 25 | | |
| 21-27 | 20-27 | G27 | | 27 | | |
| 21-35 | 20-35 | G35 | 79 | | | |
| 21-39 | 20-39 | G39 | | 37 | 2 | |
| 21-41 | 20-41 | G41 | | 41 | | |
| 23-21 | 22-21 | H21 | | | 21 | |
| 23-32 | 22-32 | H32 | | 32 | | |
| 23-34 | 22-34 | H34 | | 34 | | |
| 23-35 | 22-35 | H35 | 100 | | | |
| 23-36 | 22-36 | H36 | | 36 | | |
| 23-53 | 22-53 | H53 | | 53 | | |
| 23-55 | 22-55 | H55 | | 55 | | |
| 23-97 | 22-97 | H97 | | | 16 | |
| 23-99 | 22-99 | H99 | | | 11 | |

| Shell Size and Insert Arrangements | | | Number of Pins | | | |
|---|---|---|---|---|---|---|
| MS Series I | MS Series II | D38999 Series III | 22D | 20 | 16 | 12 |
| 25-4 | 24-4 | J4 | | 48 | 8 | |
| 25-19 | 24-19 | J19 | | | | 19 |
| 25-24 | 24-24 | J24 | | | 12 | 12 |
| 25-29 | 24-29 | J29 | | | 29 | |
| 25-35 | 24-35 | J35 | 128 | | | |
| 25-37 | N/A | J37 | | | 37 | |
| 25-43 | 24-43 | J43 | | 23 | 20 | |
| 25-61 | 24-61 | J61 | | 61 | | |





**Selection of MIL-DTL-38999 type subminiature connectors with insert arrangements utilizing standard AS39029 crimp contacts and suited for use with single-ended data transmission wire**

# M22759/11
## Silver Coated Copper Wire with Extruded TFE Insulation

| HOW TO ORDER | | | | | | |
|---|---|---|---|---|---|---|
| **Sample Part Number** | **M22759/11** | **-24** | **-9** | **0** | **1** | **2** |
| **Basic Part Number** | **M22759/11** | | | | | |
| **Wire Gage (AWG)** | See Table I | | | | | |
| **Wire Color** | See Table II | | | | | |
| **First Stripe Color Code** | (Omit for none) See Table II | | | | | |
| **Second Stripe Color Code** | (Omit for none) See Table II | | | | | |
| **Third Stripe Color Code** | (Omit for none) See Table II | | | | | |

**NOTES**

1. Cable identified with manufacturer's name and part number.
2. Cable is sold in 1 foot increments. Specify desired length on purchase order.

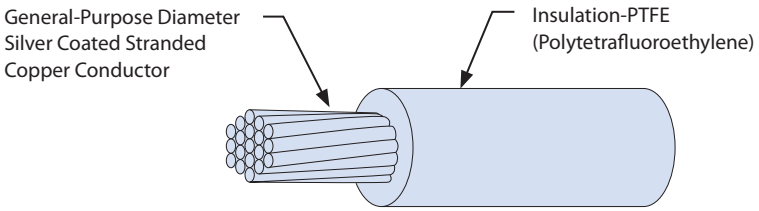



**Table II: Jacket and Stripe Color Codes**

| Color code | Color |
|---|---|
| 0 | Black |
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |
| 7 | Violet |
| 8 | Gray |
| 9 | White |

**Table I: Part Number and Wire Specifications**

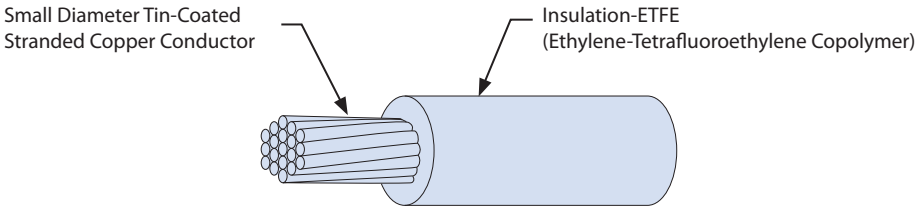
| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/11-28-* | 28 | 7 x 36 | .014 | .015 | 63.8 | .033 ± .002 | 1.36 |
| M22759/11-26-* | 26 | 19 x 38 | .018 | .020 | 38.4 | .038 ± .002 | 1.90 |
| M22759/11-24-* | 24 | 19 x 36 | .023 | .025 | 24.3 | .043 ± .002 | 2.58 |
| M22759/11-22-* | 22 | 19 x 34 | .029 | .032 | 15.1 | .049 ± .002 | 3.72 |
| M22759/11-20-* | 20 | 19 x 32 | .037 | .040 | 9.19 | .058 ± .002 | 5.43 |
| M22759/11-18-* | 18 | 19 x 30 | .046 | .050 | 5.79 | .068 ± .002 | 8.14 |
| M22759/11-16-* | 16 | 19 x 29 | .052 | .057 | 4.52 | .075 ± .002 | 10.0 |
| M22759/11-14-* | 14 | 19 x 27 | .065 | .072 | 2.88 | .090 ± .002 | 15.1 |
| M22759/11-12-* | 12 | 19 x 25 | .082 | .090 | 1.81 | .111 ± .003 | 24.1 |
| M22759/11-10-* | 10 | 37 x 26 | .106 | .112 | 1.19 | .139 ± .004 | 37.8 |
| M22759/11-8-* | 8 | 133 x 29 | .158 | .169 | .658 | .202 ± .004 | 65.5 |

## M22759/11
## Silver Coated Copper Wire with Extruded TFE Insulation

| Table II: Test Data | |
|---|---|
| Temperature Rating | 200° C (392° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Spark Test of Primary Insulation | not required |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) for sizes 18 and smaller<br>6.5 kilovolts (peak) for sizes 16 and larger. |
| Insulation Resistance | 50,000 megohms for 1000 ft (min) |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 313 ± 2°C (500 ± 3.6° F) |
| Blocking | 260 ± 2° C (500 ± 3.6°F) |
| Shrinkage | 0.03 inch max at 290 ± 2° C (554 ± 3.6° F) |
| Wicking | no requirement |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 3,000 volts (rms), 60 Hz |
| Thermal Shock | oven temperature: 200 ± 2° C (392 ± 3.6° F)<br>max change in measurement: 0.06 inch |
| Flammability | post-flame dielectric test not required |
| Life Cycle | oven temperature 275 ± 2° C (527 ± 3.6° F)<br>dielectric test: 3,000 volts (rms), 60 Hz |
| Dielectric Test After Immersion | 3,000 volts (rms), 60 Hz |
| Acid Resistance | dielectric test, 3,000 volts (rms), 60 Hz |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | no requirement |
| Surface Resistance | 500 megohm-inches (min) initial and final readings |
| Smoke | 290° C (554° F) |
| Color | in accordance with MIL-STD-104, class 1; white preferred |
| Color Striping or Banding Durability | 250 cycles (500 strokes) minimum, 500 grams weight |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule A |

# M22759/16
## Tin Coated Copper Wire with Extruded ETFE Insulation

| HOW TO ORDER | | | |
|---|---|---|---|
| **Sample Part Number** | **M22759/16** | **-22** | **-9** |
| **Basic Part Number** | **M22759/16** | | |
| **Wire Gage (AWG)** | See Table I | | |
| **Wire Color** | See Table II | | |




**NOTES**

1. Cable identified with manufacturer's name and part number.
2. Cable is sold in 1 foot increments. Specify desired length on purchase order.

**Table II: Jacket and Stripe Color Codes**

| Color code | Color |
|---|---|
| 0 | Black |
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |
| 7 | Violet |
| 8 | Gray |
| 9 | White |

**Table I**

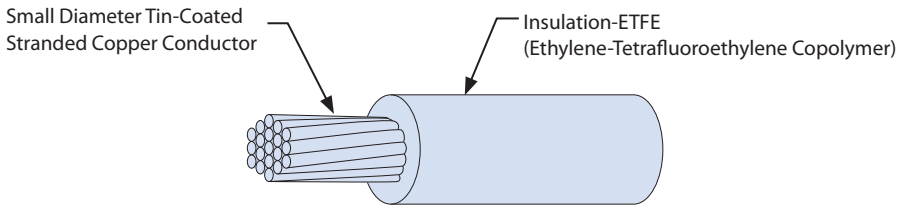
| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/16-24-* | 24 | 19 x 36 | .023 | .024 | 26.2 | .045 ± .002 | 2.57 |
| M22759/16-22-* | 22 | 19 x 34 | .029 | .031 | 16.2 | .052 ± .002 | 3.68 |
| M22759/16-20-* | 20 | 19 x 32 | .037 | .039 | 9.88 | .060 ± .002 | 5.36 |
| M22759/16-18-* | 18 | 19 x 30 | .046 | .049 | 6.23 | .071 ± .002 | 7.89 |
| M22759/16-16-* | 16 | 19 x 29 | .052 | .055 | 4.81 | .079 ± .002 | 9.95 |
| M22759/16-14-* | 14 | 19 x 27 | .065 | .069 | 3.06 | .093 ± .002 | 14.9 |
| M22759/16-12-* | 12 | 19 x 25 | .084 | .089 | 2.02 | .114 ± .003 | 22.6 |
| M22759/16-10-* | 10 | 37 x 26 | .106 | .112 | 1.26 | .139 ± .003 | 35.1 |
| M22759/16-8-* | 8 | 133 x 29 | .158 | .169 | .701 | .199 ± .003 | 63.5 |
| M22759/16-6-* | 6 | 133 x 27 | .198 | .212 | .445 | .250 ± .003 | 99.9 |
| M22759/16-4-* | 4 | 133 x 25 | .250 | .268 | .280 | .312 ± .004 | 157 |
| M22759/16-2-* | 2 | 665 x 30 | .320 | .340 | .183 | .388 ± .004 | 245 |
| M22759/16-1-* | 1 | 817 x 30 | .360 | .380 | .149 | .431 ± .005 | 314 |
| M22759/16-0-* | 0 | 1045 x 30 | .395 | .425 | .116 | .479 ± .006 | 391 |
| M22759/16-00-* | 00 | 1330 x 30 | .440 | .475 | .091 | .546 ± .007 | 504 |

## M22759/16
## Tin Coated Copper Wire with Extruded ETFE Insulation

| Table II: Test Data | |
|---|---|
| Temperature Rating | 150° C (302° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not required |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Resistance, Initial | 24 AWG through 14 AWG: 5,000 megohms for 1000 ft (min)<br>12 AWG through 6: 3,000 megohms for 1000 ft (min)<br>4 AWG through 00: 2,000 megohms for 1000 ft (min) |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 200 ± 2°C (392 ± 3.6° F) |
| Blocking | 200 ± 2° C (392 ± 3.6°F) |
| Shrinkage | 0.125 inch max at 200 ± 2° C (392 ± 3.6° F) |
| Wicking | no requirement |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 2,200 volts (rms), 60 Hz |
| Thermal Shock | oven temperature: 150 ± 2° C (302 ± 3.6° F)<br>max change in measurement:<br>24 AWG through 12 AWG: 0.060 inch<br>10 AWG through 8 AWG: 0.100 inch<br>6 AWG through 00 AWG: 0.125 inch |
| Flammability | vertical flame test; 2 seconds (max) after-flame, 5.50 in (max) burn length. Post-flame dielectric test not required. |
| Life Cycle | oven temperature 200 ± 2° C (392 ± 3.6° F)<br>dielectric test: 2,200 volts (rms), 60 Hz |
| Dielectric Test After Immersion | 2,200 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 24 AWG through 12 AWG: 500 megohm-inches (min) initial and final readings<br>10 AWG through 00 AWG: no requirement |
| Smoke | 200° C (392° F) |
| Color | in accordance with MIL-STD-104, class 1; white preferred |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | Required |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule A |

# M22759/18
## Tin Coated Copper Wire with Thin-Wall Extruded ETFE Insulation

| HOW TO ORDER | | | |
|---|---|---|---|
| **Sample Part Number** | **M22759/18** | **-22** | **-9** |
| **Basic Part Number** | **M22759/18** | | |
| **Wire Gage (AWG)** | See Table I | | |
| **Wire Color** | See Table II | | |




**NOTES**

1. Cable identified with manufacturer's name and part number.
2. Cable is sold in 1 foot increments. Specify desired length on purchase order.

**Table II: Jacket and Stripe Color Codes**

| Color code | Color |
|---|---|
| 0 | Black |
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |
| 7 | Violet |
| 8 | Gray |
| 9 | White |

**Table I**

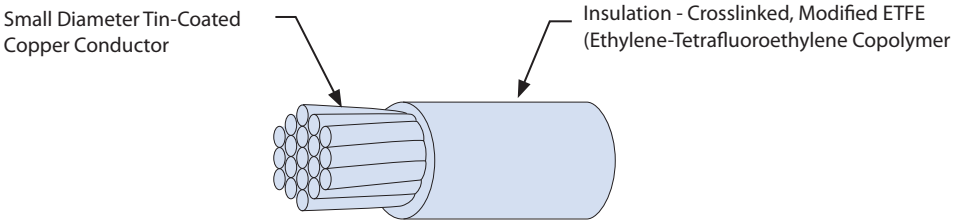
| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/18-26-* | 26 | 19 x 38 | .018 | .020 | 41.3 | .032 ± .002 | 1.52 |
| M22759/18-24-* | 24 | 19 x 36 | .023 | .024 | 26.2 | .036 ± .002 | 2.12 |
| M22759/18-22-* | 22 | 19 x 34 | .029 | .031 | 16.2 | .043 ± .002 | 3.16 |
| M22759/18-20-* | 20 | 19 x 32 | .037 | .039 | 9.88 | .051 ± .002 | 4.76 |
| M22759/18-18-* | 18 | 19 x 30 | .046 | .049 | 6.23 | .061 ± .002 | 7.10 |
| M22759/18-16-* | 16 | 19 x 29 | .052 | .055 | 4.81 | .070 ± .002 | 9.14 |
| M22759/18-14-* | 14 | 19 x 27 | .065 | .069 | 3.06 | .085 ± .002 | 14.1 |
| M22759/18-12-* | 12 | 19 x 25 | .084 | .089 | 2.02 | .107 ± .003 | 21.8 |
| M22759/18-10-* | 10 | 37 x 26 | .106 | .112 | 1.26 | .134 ± .003 | 34.1 |

## M22759/18
## Tin Coated Copper Wire with Thin-Wall Extruded ETFE Insulation

| Table II: Test Data | |
|---|---|
| Temperature Rating | 150° C (302° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not required |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Resistance, Initial | 26 AWG through 20 AWG: 5,000 megohms for 1000 ft (min)<br>18 AWG through 14: 3,000 megohms for 1000 ft (min)<br>12 AWG through 10: 2,000 megohms for 1000 ft (min) |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 200 ± 2°C (392 ± 3.6° F) |
| Blocking | 200 ± 2° C (392 ± 3.6°F) |
| Shrinkage | 0.125 inch max at 200 ± 2° C (392 ± 3.6° F) |
| Wicking | no requirement |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 2,200 volts (rms), 60 Hz |
| Thermal Shock | oven temperature: 150 ± 2° C (302 ± 3.6° F)<br>max change in measurement:<br>26 AWG through 12 AWG: 0.060 inch<br>10 AWG: 0.100 inch |
| Flammability | vertical flame test; 2 seconds (max) after-flame, 5.50 in (max) burn length. Post-flame dielectric test not required. |
| Life Cycle | oven temperature 200 ± 2° C (392 ± 3.6° F)<br>dielectric test: 2,200 volts (rms), 60 Hz |
| Dielectric Test After Immersion | 2,200 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 26 AWG through 12 AWG: 500 megohm-inches (min) initial and final readings<br>10 AWG: no requirement |
| Smoke | 200° C (392° F) |
| Color | in accordance with MIL-STD-104, class 1; white preferred |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | Required. Shall be ink printing only. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule A |

# M22759/32
## Tin Coated Copper Wire with Crosslinked, Modified ETFE Insulation

| HOW TO ORDER | | | |
|---|---|---|---|
| **Sample Part Number** | **M22759/32** | **-26** | **-9** |
| **Basic Part Number** | **M22759/32** | | |
| **Wire Gage (AWG)** | See Table I | | |
| **Wire Color** | See Table II | | |




**NOTES**

1. Cable identified with manufacturer's name and part number.
2. Cable is sold in 1 foot increments. Specify desired length on purchase order.

**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/32-30-* | 30 | 7 x 38 | .011 | .013 | 108.4 | .024 ± .002 | .66 |
| M22759/32-28-* | 28 | 7 x 36 | .014 | .016 | 68.6 | .027 ± .002 | .91 |
| M22759/32-26-* | 26 | 19 x 38 | .018 | .020 | 41.3 | .032 ± .002 | 1.4 |
| M22759/32-24-* | 24 | 19 x 36 | .023 | .025 | 26.2 | .037 ± .002 | 2.0 |
| M22759/32-22-* | 22 | 19 x 34 | .029 | .031 | 16.2 | .043 ± .002 | 2.8 |
| M22759/32-20-* | 20 | 19 x 32 | .037 | .039 | 9.88 | .050 ± .002 | 4.3 |
| M22759/32-18-* | 18 | 19 x 30 | .046 | .049 | 6.23 | .060 ± .002 | 6.5 |
| M22759/32-16-* | 16 | 19 x 29 | .052 | .055 | 4.81 | .068 ± .002 | 8.3 |
| M22759/32-14-* | 14 | 19 x 27 | .065 | .069 | 3.06 | .085 ± .002 | 13.0 |
| M22759/32-12-* | 12 | 37 x 28 | .084 | .089 | 2.02 | .103 ± .003 | 19.7 |

**Table II: Jacket and Stripe Color Codes**

| Color code | Color |
|---|---|
| 0 | Black |
| 1 | Brown |
| 2 | Red |
| 3 | Orange |
| 4 | Yellow |
| 5 | Green |
| 6 | Blue |
| 7 | Violet |
| 8 | Gray |
| 9 | White |

## M22759/32
## Tin Coated Copper Wire with Crosslinked, Modified ETFE Insulation

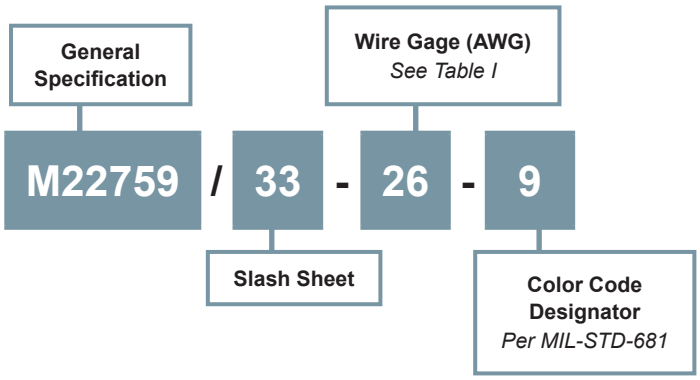
| Table II: Test Data | |
|---|---|
| Temperature Rating | 150° C (302° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not required |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | .005 inch (minimum) |
| Insulation Resistance, Initial | 5,000 megohms for 1000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 200 ± 2°C (392 ± 3.6° F) |
| Blocking | 200 ± 2° C (392 ± 3.6°F) |
| Shrinkage | 0.125 inch max at 200 ± 2° C (392 ± 3.6° F) |
| Wicking | no requirement |
| Solderability | all conductors shall be tested in accordance with MIL-STD-202, method 208 without steam aging. |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock | oven temperature: 150 ± 2° C (302 ± 3.6° F)<br>max change in measurement .060 inch |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 200°C ± 3°C (392 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 200° C (392° F) |
| Color | in accordance with MIL-STD-104, class 1; white preferred. Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

# M22759/33
# Silver Coated Copper Wire with Crosslinked, Modified ETFE Insulation



## SMALL DIAMETER, HIGH-FLEX INSULATION

### How To Order



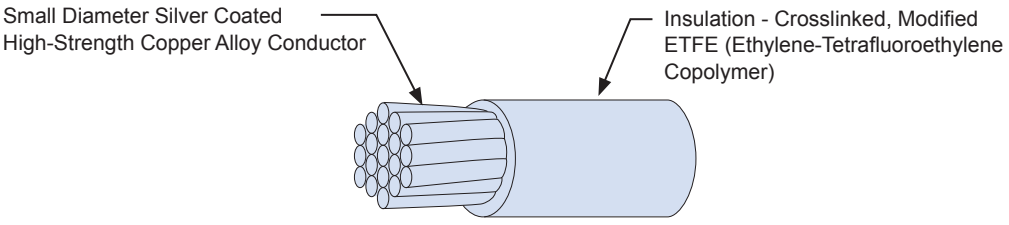




**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/33-30-* | 30 | 7 x 38 | .011 | .012 | 117.4 | .024 ± .002 | .66 |
| M22759/33-28-* | 28 | 7 x 36 | .014 | .016 | 74.4 | .027 ± .002 | .91 |
| M22759/33-26-* | 26 | 19 x 38 | .018 | .020 | 44.8 | .032 ± .002 | 1.4 |
| M22759/33-24-* | 24 | 19 x 36 | .023 | .025 | 28.4 | .037 ± .002 | 2.0 |
| M22759/33-22-* | 22 | 19 x 34 | .029 | .031 | 17.5 | .043 ± .002 | 2.9 |
| M22759/33-20-* | 20 | 19 x 32 | .037 | .039 | 10.7 | .050 ± .002 | 4.4 |

| Table II: Test Data | |
|---|---|
| Temperature Rating | 200° C (392° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not required |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | .005 inch (minimum) |
| Insulation Resistance, Initial | 5,000 megohms for 1000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 313 ± 3°C (595 ± 5.4° F) |
| Blocking | 230 ± 3° C (446 ± 5.4°F) |
| Shrinkage | 0.125 inch max at 200 ± 2° C (392 ± 3.6° F) |
| Wicking | no requirement |
| Solderability | all conductors shall be tested in accordance with MIL-STD-202, method 208 without steam aging. |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock | oven temperature: 200 ± 3° C (392 ± 5.4° F)<br>max change in measurement .060 inch |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 230°C ± 3°C (446 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 250° C ± 5°C (482° ± 9°F); no visible smoke. |
| Color | in accordance with MIL-STD-104, class 1; white preferred. Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

***Notes***

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

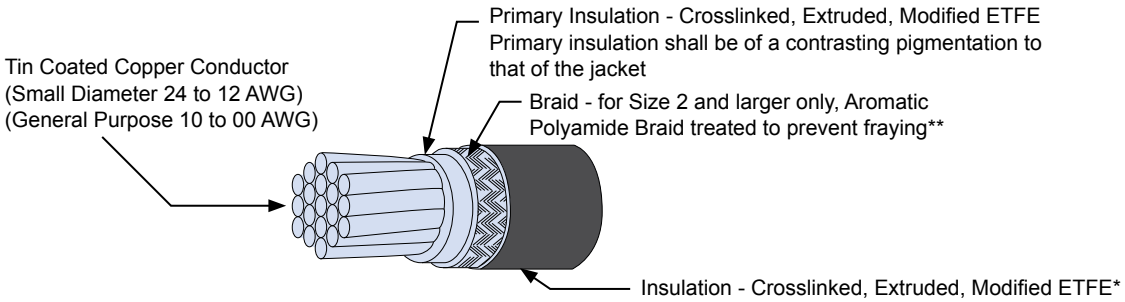
# M22759/34
# Tin Coated Copper Wire with Overall Braid and Extruded ETFE Insulation



## GENERAL-PURPOSE OR SMALL DIAMETER, EXCELLENT SOLDERABILITY; EMI/RFI SHIELDED

### How To Order

| General Specification | | Slash Sheet | | Wire Gage (AWG) *See Table I* | | Color Code Designator *Per MIL-STD-681* |
|---|---|---|---|---|---|---|
| M22759 | / | 34 | - | 26 | - | 9 |




*ETFE - Ethylene-Tetrafluoroethylene Copolymer
**Braid (sizes 2 and larger): Bright aromatic polyamide yarn, 200 denier, 100 filaments, tightly formed, uniform in appearance, treated with a clear finisher coating. The finisher coating shall be compatible with the temperature rating and performance requirements of the insulated wire.

**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/34-24-* | 24 | 19 x 36 | .023 | .025 | 26.2 | .045 ± .002 | 2.3 |
| M22759/34-22-* | 22 | 19 x 34 | .029 | .031 | 16.2 | .050 ± .002 | 3.2 |
| M22759/34-20-* | 20 | 19 x 32 | .037 | .039 | 9.88 | .058 ± .002 | 4.7 |
| M22759/34-18-* | 18 | 19 x 30 | .046 | .049 | 6.23 | .070 ± .003 | 7.2 |
| M22759/34-16-* | 16 | 19 x 29 | .052 | .055 | 4.81 | .077 ± .003 | 9.0 |
| M22759/34-14-* | 14 | 19 x 27 | .065 | .069 | 3.06 | .094 ± .003 | 13.8 |
| M22759/34-12-* | 12 | 37 x 28 | .084 | .089 | 2.02 | .111 ± .003 | 20.5 |
| M22759/34-10-* | 10 | 37 x 26 | .106 | .113 | 1.26 | .134 ± .004 | 32.4 |
| M22759/34-8-* | 8 | 133 x 29 | .158 | .173 | .701 | .195 ± .008 | 60.3 |
| M22759/34-6-* | 6 | 133 x 27 | .198 | .217 | .445 | .241 ± .010 | 94 |
| M22759/34-4-* | 4 | 133 x 25 | .250 | .274 | .280 | .310 ± .010 | 150 |
| M22759/34-2-* | 2 | 665 x 30 | .320 | .340 | .183 | .405 ± .016 | 239 |
| M22759/34-1-* | 1 | 817 x 30 | .360 | .380 | .149 | .445 ± .016 | 290 |
| M22759/34-0-* | 0 | 1045 x 30 | .395 | .425 | .116 | .485 ± .016 | 377 |
| M22759/34-00-* | 00 | 1330 x 30 | .440 | .475 | .091 | .545 ± .016 | 487 |

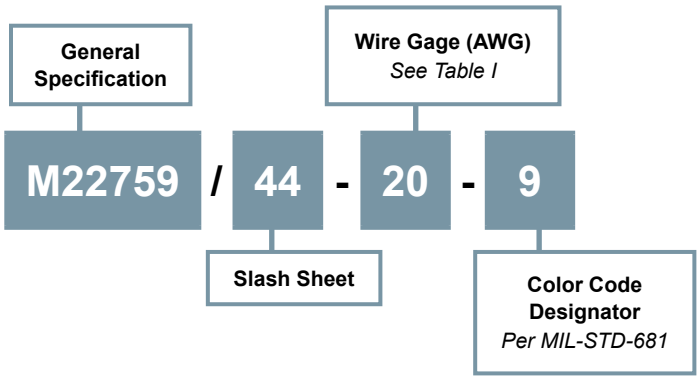
| Table II: Test Data | |
|---|---|
| Temperature Rating | 150° C (302° F) max conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | 1,500 volts (rms), 60 Hz |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | 0.003 inch (min) for primary insulation<br>0.004 inch (min) for outer jacket<br>0.008 inch (min) for total insulation |
| Insulation Resistance, Initial | sizes 24 through 10: 5,000 megohms for 1000 ft (min)<br>sizes 8 through 00: 3,000 meghoms for 1,000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>24-10 AWG: elongation, 125% (min.)<br>8-00 AWG: elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test required, no cracking.<br>Oven temperature: 200 ± 3°C (392 ± 5.4° F)<br>sizes and larger, mandrel diameter shall be 3 times the OD of the wire. |
| Blocking | 200 ± 3° C (392 ± 5.4°F) |
| Shrinkage | 0.125 inch max at 200 ± 2° C (392 ± 3.6° F) |
| Wicking | procedure II; weight increase, no requirement. Dye travel between layers of insulation 2.25 in (max) from end of specimen. |
| Solderability | all conductors shall be tested in accordance with MIL-STD-202, method 208 without steam aging. |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 2° C (-85 ± 3.6° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock Resistance | oven temperature: 150 ± 3° C (302 ± 5.4° F)<br>max change in measurement:<br>24 AWG through 12 AWG: 0.060 in<br>10 AWG through 8 AWG: 0.100 in<br>6 AWG through 00 AWG: 0.125 in |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 200°C ± 3°C (392 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 200° C ± 2°C (392° ± 3.6°F); no visible smoke. |
| Color | in accordance with MIL-STD-104, class 1; white preferred. For braided constructions, color shal be dark green within Munsell color limits of 5Y 3/2 and 5B 2/0.5.<br>Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

# M22759/44
# Silver Coated Copper Wire with Crosslinked, Extruded ETFE Insulation



## SMALL DIAMETER, HIGH-TEMPERATURE, HIGH-FLEX INSULATION

### How To Order



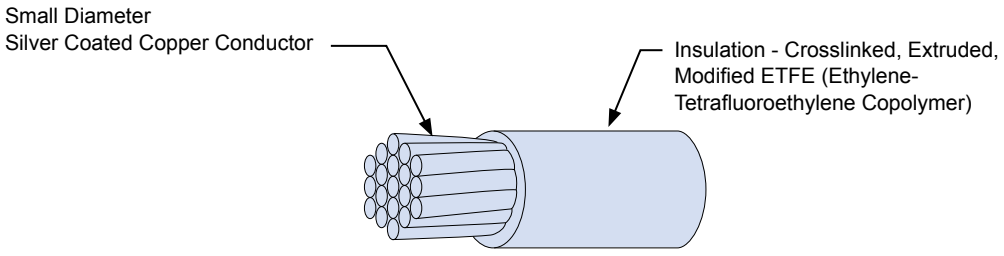




**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/44-28-* | 28 | 7 x 36 | .014 | .015 | 63.8 | .027 ± .002 | .91 |
| M22759/44-26-* | 26 | 19 x 38 | .018 | .019 | 38.4 | .032 ± .002 | 1.4 |
| M22759/44-24-* | 24 | 19 x 36 | .023 | .025 | 24.3 | .037 ± .002 | 2.0 |
| M22759/44-22-* | 22 | 19 x 34 | .029 | .030 | 15.1 | .043 ± .002 | 2.8 |
| M22759/44-20-* | 20 | 19 x 32 | .037 | .039 | 9.19 | .050 ± .002 | 4.3 |
| M22759/44-18-* | 18 | 19 x 30 | .046 | .048 | 5.79 | .060 ± .002 | 6.5 |
| M22759/44-16-* | 16 | 19 x 29 | .052 | .054 | 4.52 | .068 ± .002 | 8.3 |
| M22759/44-14-* | 14 | 19 x 27 | .065 | .068 | 2.88 | .086 ± .003 | 13.0 |
| M22759/44-12-* | 12 | 37 x 28 | .084 | .087 | 1.90 | .103 ± .003 | 19.7 |

| Table II: Test Data | |
|---|---|
| Temperature Rating | 200° C (392° F) maximum continuous conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not applicable |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | 0.005 inch (min) |
| Insulation Resistance, Initial | 5,000 megohms for 1000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test.<br>Oven temperature: 313 ± 3°C (595 ± 5.4° F) |
| Blocking | 230 ± 3° C (446 ± 5.4°F) |
| Shrinkage | 0.125 inch max at 230 ± 3° C (446 ± 5.4° F) |
| Wicking | not applicable |
| Solderability | all conductors shall be tested in accordance with MIL-STD-202, method 208 without steam aging. |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 3° C (-85 ± 5.4° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock Resistance | oven temperature: 200 ± 3° C (392 ± 5.4° F)<br>max change in measurement: 0.060 in |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 230°C ± 3°C (446 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 250° C ± 5°C (482° ± 9°F); no visible smoke. |
| Color | in accordance with MIL-STD-104, class 1; white preferred.<br>Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

***Notes***

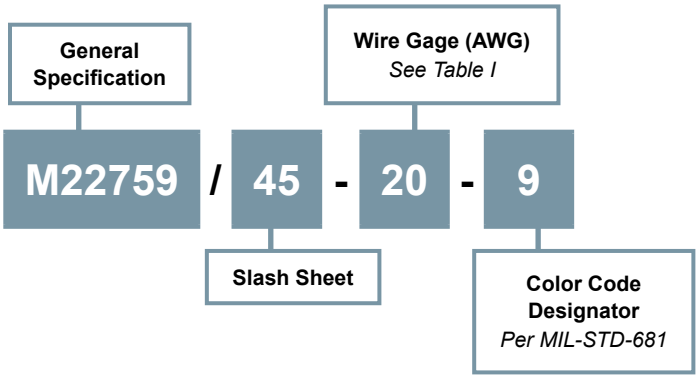
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# M22759/45
# Nickel Coated Copper Wire with Crosslinked, Extruded ETFE Insulation



## SMALL DIAMETER HARSH ENVIRONMENT, HIGH-TEMPERATURE RESISTANCE; HIGH-FLEX INSULATION

### How To Order



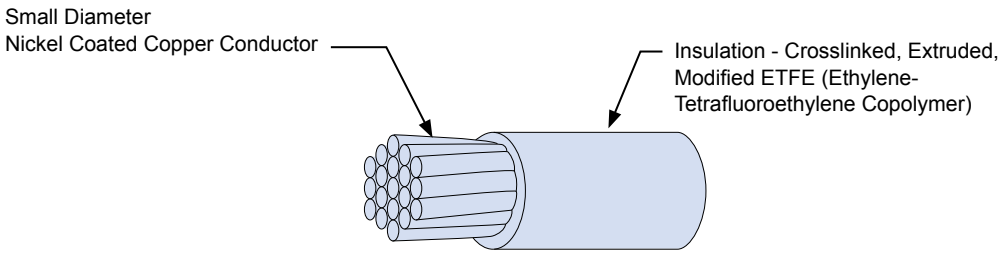




**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/45-28-* | 28 | 7 x 36 | .014 | .016 | 67.9 | .027 ± .002 | .91 |
| M22759/45-26-* | 26 | 19 x 38 | .018 | .020 | 42.2 | .032 ± .002 | 1.4 |
| M22759/45-24-* | 24 | 19 x 36 | .023 | .025 | 25.9 | .037 ± .002 | 2.0 |
| M22759/45-22-* | 22 | 19 x 34 | .029 | .031 | 16.0 | .043 ± .002 | 2.8 |
| M22759/45-20-* | 20 | 19 x 32 | .037 | .039 | 9.77 | .050 ± .002 | 4.3 |
| M22759/45-18-* | 18 | 19 x 30 | .046 | .049 | 6.10 | .060 ± .002 | 6.5 |
| M22759/45-16-* | 16 | 19 x 29 | .052 | .055 | 4.76 | .068 ± .002 | 8.3 |
| M22759/45-14-* | 14 | 19 x 27 | .065 | .069 | 3.00 | .085 ± .003 | 13.0 |
| M22759/45-12-* | 12 | 37 x 28 | .084 | .089 | 1.98 | .103 ± .003 | 19.7 |

| Table II: Test Data | |
|---|---|
| Temperature Rating | 200° C (392° F) maximum continuous conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not applicable |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | 0.005 inch (min) |
| Insulation Resistance, Initial | 5,000 megohms for 1000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test.<br>Oven temperature: 313 ± 3°C (595 ± 5.4° F) |
| Blocking | 230 ± 3° C (446 ± 5.4°F) |
| Shrinkage | 0.125 inch max at 250 ± 5° C (482 ± 9° F) |
| Wicking | not applicable |
| Solderability | all conductors shall be tested in accordance with MIL-STD-202, method 208 without steam aging. |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 3° C (-85 ± 5.4° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock Resistance | oven temperature: 200 ± 3° C (392 ± 5.4° F)<br>max change in measurement: 0.060 in |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 230°C ± 3°C (446 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 250° C ± 5°C (482° ± 9°F); no visible smoke. |
| Color | in accordance with MIL-STD-104, class 1; white preferred.<br>Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

***Notes***

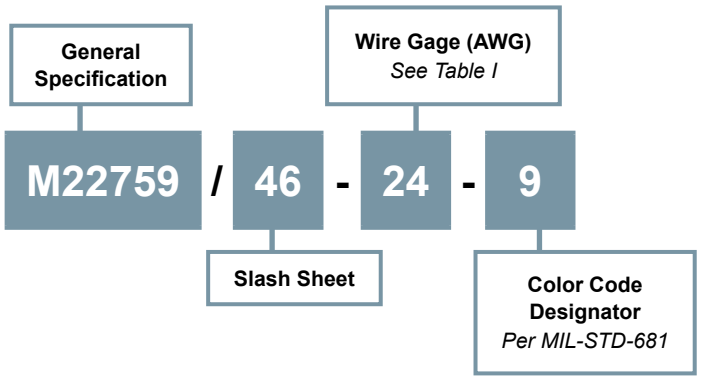
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# M22759/46
# Nickel Coated High Strength Copper Wire with Crosslinked, Extruded ETFE Insulation



## SMALL DIAMETER HIGH-STRENGTH, HARSH ENVIRONMENT, HIGH-TEMPERATURE RESISTANCE; HIGH-FLEX INSULATION

### How To Order



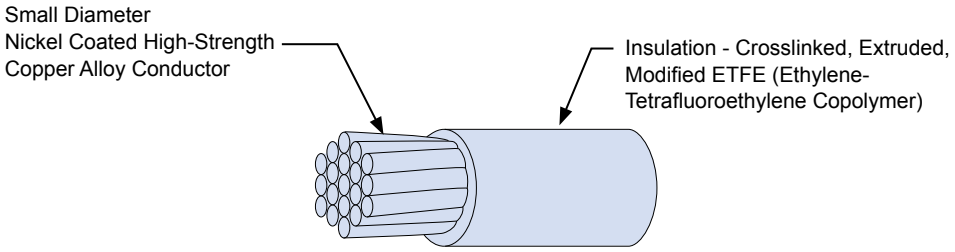




**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | |
|---|---|---|---|---|---|---|---|
| | | | min | max | Resistance at 20° C (68° F) (Ohms/ 1000 ft) max | Diameter (inches) | Weight (lbs/1000 ft) max |
| M22759/46-28-* | 28 | 7 x 36 | .014 | .016 | 79.0 | .027 ± .002 | .91 |
| M22759/46-26-* | 26 | 19 x 38 | .018 | .020 | 49.4 | .032 ± .002 | 1.4 |
| M22759/46-24-* | 24 | 19 x 36 | .023 | .025 | 30.1 | .037 ± .002 | 2.0 |
| M22759/46-22-* | 22 | 19 x 34 | .029 | .031 | 18.6 | .043 ± .002 | 2.8 |
| M22759/46-20-* | 20 | 19 x 32 | .037 | .039 | 11.4 | .050 ± .002 | 4.3 |

| Table II: Test Data | |
|---|---|
| Temperature Rating | 200° C (392° F) maximum continuous conductor temperature |
| Voltage Rating | 600 volts (rms) at sea level |
| Short Term Thermal Stability | 7 hours at 230 ± 2° C (446 ± 3.6° F). Quality conformance test, group II; test procedures and requirements as in life cycle test except for time and temperature of oven exposure. |
| Spark Test of Primary Insulation | not applicable |
| Impulse Dielectric Test | 100% test, 8.0 kilovolts (peak) |
| Insulation Thickness | 0.005 inch (min) |
| Insulation Resistance, Initial | 5,000 megohms for 1000 ft (min) |
| Physical Properties of Insulation | pulled at 2 inches per minute.<br>tensile strength, 5,000 lbf/in2 (min.)<br>elongation, 75% (min.) |
| Propellant Resistance | no dielectric breakdown. |
| Crosslinking Proof Test | 7 hours at 300° C ± 3°C (572 ± 5.4° F). Quality conformance test, group II. Requirements and procedures as for life cycle except for time and temperature. |
| Wrap Test | "wrap back" test.<br>Oven temperature: 313 ± 3°C (595 ± 5.4° F) |
| Blocking | 230 ± 3° C (446 ± 5.4°F) |
| Shrinkage | 0.125 inch max at 230 ± 3° C (446 ± 5.4° F) |
| Wicking | not applicable |
| Solderability | not applicable |
| Low Temperature (Cold Bend) | bend temperature: -65° ± 3° C (-85 ± 5.4° F)<br>dielectric test: 2,500 volts (rms), 60 Hz |
| Thermal Shock Resistance | oven temperature: 200 ± 3° C (392 ± 5.4° F)<br>max change in measurement: 0.060 in |
| Flammability | quality conformance test, group II. |
| Life Cycle | 500 hours at 230°C ± 3°C (446 ± 5.4° F). Dielectric test, 2,500 volts (rms), 60 Hz. Procedure to use mandrels coated with PTFE in the form of either enamel or wrapped tape, such that the diameter of the mandrels, after coating, still conform to the requirements of performance details. |
| Dielectric Test After Immersion | 2,500 volts (rms), 60 Hz |
| Acid Resistance | no requirement |
| Conductor Strand Adhesion Requirements | shall be in accordance with 3.6.11 of MIL-W-22759 |
| Abrasion Resistance After Immersion | no requirement |
| Humidity Resistance | after humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Surface Resistance | 500 megohms - inches (min), initial and final readings |
| Smoke | 250° C ± 5°C (482° ± 9°F); no visible smoke. |
| Color | in accordance with MIL-STD-104, class 1; white preferred.<br>Conformity of color to the limits of MIL-STD-104 shall not be required after crosslinking proof test or life cycle oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Identification of Product | not required for size 24 and smaller. color code designator not required. |
| Identification Durability | 125 cycles (250 strokes) minimum, 500 grams weight |
| Wire Length Requirements | schedule B |

***Notes***

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# M22759/90
# Nickel Coated High Strength Copper Wire with Double Layer Tape Wrap Insulation



## GENERAL PURPOSE, HIGH-STRENGTH, HARSH ENVIRONMENT, HIGH-TEMPERATURE RESISTANCE; HIGH DURABILITY

### How To Order

| General Specification | | Slash Sheet | | Wire Gage (AWG) *See Table I* | | Color Code Designator *Per MIL-STD-681* |
|---|---|---|---|---|---|---|
| M22759 | / | 90 | - | 22 | - | 9 |

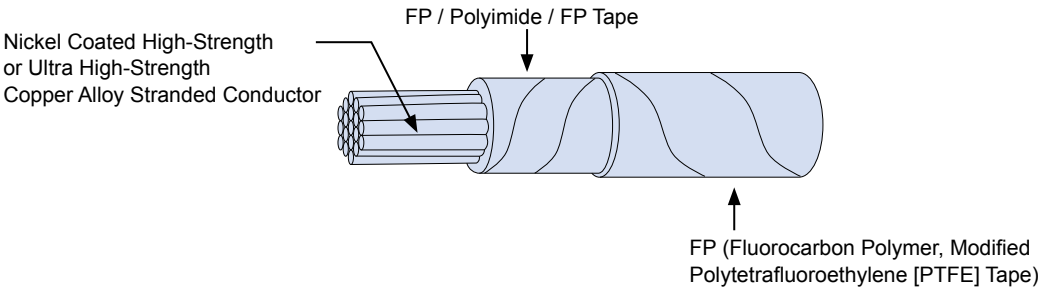



**Table I**

| Part Number | Wire Size (AWG) | Stranding (Number of strands x AWG gage of strands) | Diameter of stranded conductor (inches) | | Finished Wire | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Resistance at 20° C (68° F) (Ohms/1000 ft) max | Diameter (inches) | | Weight (lbs/1000 ft) | | |
| | | | min | max | | min | max | min | target | max |
| M22759/90-26-* | 26 | 19 x 38 | 0.0175 | 0.0204 | 58.4 | 0.033 | 0.037 | 1.34 | 1.47 | 1.60 |
| M22759/90-24-* | 24 | 19 x 36 | 0.0225 | 0.0254 | 30.1 | 0.038 | 0.042 | 1.87 | 2.04 | 2.20 |
| M22759/90-22-* | 22 | 19 x 34 | 0.0285 | 0.0314 | 18.6 | 0.043 | 0.047 | 2.70 | 2.90 | 3.10 |
| M22759/90-20-* | 20 | 19 x 32 | 0.0365 | 0.0404 | 11.4 | 0.051 | 0.055 | 4.25 | 4.45 | 4.65 |

| Table II: Test Data | |
|---|---|
| Temperature Rating | 260° C (500° F) maximum continuous conductor temperature. |
| Voltage Rating | 600 volts (RMS) at sea level |
| Color | white is the preferred color and shall be in accordance with MIL-STD-104, class 2. Colors shall be laser markable and meet the color limits defined. Conformity of color shall not be required after oven exposure. |
| Color Striping or Banding Durability | 125 cycles (250 strokes), 250 grams weight |
| Continuous Lengths | Schedule B |
| Flammability Test | In accordance with AS4373, method 801<br>Requirements:<br>Duration of after-flame 3 seconds max<br>Flame travel 3.0 inches max<br>No flaming of tissue |
| High Frequency Spark Test | (When used in lieu of impulse dielectric test) Test in accordance with AS4373, method 505, 5.7 kilovolts (RMS). Test 100% of the wire. |
| Humidity Resistance | After humidity exposure, wire shall meet the requirements for initial insulation resistance. |
| Identification Durability | 125 cycles (250 strokes), 250 grams weight |
| Impulse Dielectric Test | 8.0 kilovolts (peak). Test 100% of the wire |
| Insulation Resistance | 5000 Megohms for 1000 feet (minimum) |
| Insulation State of Sinter | Quality conformance inspection performed on one sample per lot. Evaluate FP layers with a differential scanning calorimeter per AS4373, method 813. The difference in energy to melt between the first and second heats shall be less than or equal to 3 joules/gram. |
| Lamination Sealing | Group II quality conformance test. When tested in accordance with AS 4373, method 809 at 260° C for 6 hours. There shall be no evidence of tape separation or lifting. Three samples per lot shall be tested. |
| Life Cycle | 500 hours at 290° C ± 2° C (554° F ± 3.6° F) Dielectric test, 2500 volts (RMS), 60 Hz. Use mandrels coated with PTFE such that the diameter of the mandrels after coating still conform to the required test mandrels diameters of table 6. After oven exposure, layers shall not separate and/or tapes shall not lift along the insulation or at the ends. |
| Low Temperature (Cold Bend) | Use mandrels and weights specified in Table 6. Chamber temperature -65°C ± 2° C (-85° F ± 3.6° F) Dielectric test, 2500 volts (RMS), 60 Hz |
| Shrinkage | .091 inch (max) at 290° C ± 2° C (554°F ± 3.6° F) |
| Smoke | 260° C ± 5° C (500° F ± 9° F); no visible smoke |
| Solderability | Not required. |
| Strippability | Group II quality conformance test. After stripping with tools as defined in AS22759 and AS5457, no fragments of any layer shall extend more than .031 inches beyond the end of the polyimide tape layer. |
| Insulation Strip Force | Group II quality conformance test. Test in accordance with ASTM D 3032 section 27. The length of the insulation slugs shall be .25 inches. There shall be no evidence of insulation left on the conductor when viewed with the naked eye. Strip force: 0.25lb (min), 6.0lb (max) |
| Tape Overlap | In accordance with MIL-STD-2223, method 6005 |
| Tensile Modulus | Test composite film in accordance with ASTM D 882, method A |
| Thermal Shock Resistance | Oven temperature 260° C ± 5° C (500° F ± 9° F), maximum change in measurement, .091 inches. No cracking. |

***Notes***

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

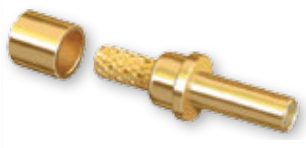
SERIES 962

# HIGH-PERFORMANCE COAXIAL CABLE

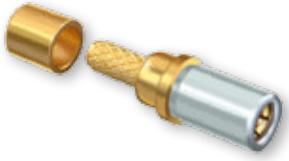
## *MIL-C-17 QPL and commercial*

Glenair high-performance Coax cables are constructed with silver plated conductors, insulated with fluoropolymer material, and finished with single or double layers of conductive shielding and appropriate jacket. Ideally suited for demanding military and commercial aerospace applications, these cables offer stable, predictable electrical performance under rugged mechanical and environmental conditions including repeated flexing, abrasion abuse, vibration, extreme temperatures, and exposure to aerospace fluids and chemicals. Glenair cable and contact engineers are available to review specific program requirements including environmental challenges, frequency requirements, loss budget, VSWR, and so on to select the most appropriate cable for every application.

**High-Performance Contacts for use with Coax Cable**



Coax Pin



Coax Socket

Glenair, Inc.
1211 Air Way
Glendale, CA
91201-2497
818-247-6000
sales@glenair.com
www.glenair.com

# Coaxial Cable

Coaxial cable has an inner conductor surrounded by a tubular insulating layer, surrounded by a tubular conducting shield. All our coaxial cables also have an insulating outer sheath or jacket. The term coaxial comes from the inner conductor and the outer shield sharing a geometric axis. Coaxial cable differs from other shielded cable used for carrying lower-frequency signals, such as audio signals, in that the dimensions of the cable are controlled to give a precise, constant conductor spacing, which is needed for it to function efficiently as a radio frequency transmission line.


**962-001**
TFlex® Low Loss Microwave 50 Ohm Coaxial Cable D-4

**962-002**
M17/93 - RG178 General-Duty 50 Ohm High-Frequency Coaxial Cable with Extended Temperature Range D-6

**962-003**
M17/94 - RG179 75 Ohm High-Frequency Coaxial Cable with Extended Temperature Range D-7

**962-004**
M17/113 - RG316 Low-Loss 50 Ohm High Frequency Coaxial Cable with Extended Temperature Range D-8

**962-005**
M17/152-00001 (RG316-DS) Double Shield 50 Ohm Coaxial Cable with Extended Temperature Range D-9





U.S. CAGE Code 06324 Printed in U.S.A.

GLENAIR, INC. • 1211 AIR WAY • GLENDALE, CA 91201-2497 • 818-247-6000 • FAX 818-500-9912
www.glenair.com E-Mail: sales@glenair.com

# High-Performance Coaxial Contact Cross-Reference

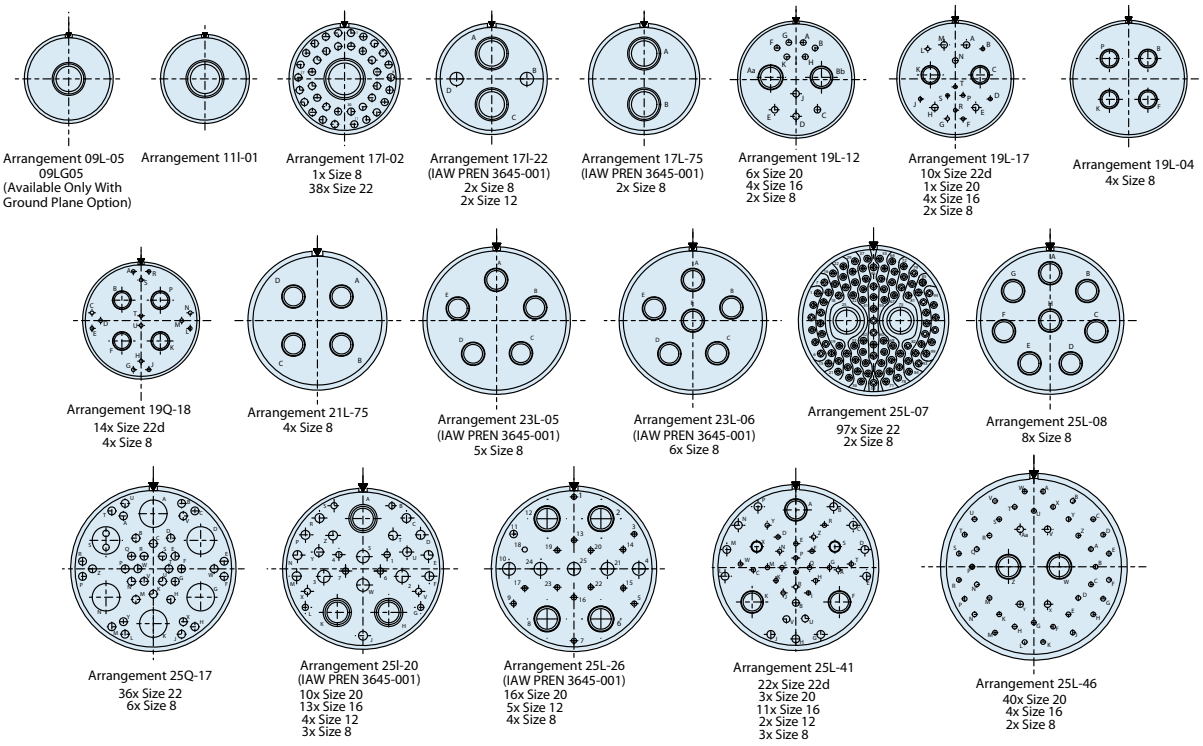


| Military Part Number | Glenair Part Number | Contact Size | Pin / Socket | Type | BIN Color Striping | | |
|---|---|---|---|---|---|---|---|
| M39029/27-210 | 852-001-12-210 | 12 | Socket | Coaxial | Red | Brown | Black |
| M39029/27-402 | 852-001-12-402 | 12 | Socket | Coaxial | Yellow | Black | Red |
| M39029/27-403 | 852-001-12-403 | 12 | Socket | Coaxial | Yellow | Black | Orange |
| M39029/27-404 | 852-001-12-404 | 12 | Socket | Coaxial | Yellow | Black | Yellow |
| M39029/27-405 | 852-001-12-405 | 12 | Socket | Coaxial | Yellow | Black | Green |
| M39029/27-406 | 852-001-12-406 | 12 | Socket | Coaxial | Yellow | Black | Blue |
| M39029/27-407 | 852-001-12-407 | 12 | Socket | Coaxial | Yellow | Black | Violet |
| M39029/27-408 | 852-001-12-408 | 12 | Socket | Coaxial | Yellow | Black | Gray |
| M39029/28-211 | 852-002-12-211 | 12 | Pin | Coaxial | Red | Brown | Brown |
| M39029/28-409 | 852-002-12-409 | 12 | Pin | Coaxial | Yellow | Black | White |
| M39029/28-410 | 852-002-12-410 | 12 | Pin | Coaxial | Yellow | Brown | Black |
| M39029/28-411 | 852-002-12-411 | 12 | Pin | Coaxial | Yellow | Brown | Brown |
| M39029/28-412 | 852-002-12-412 | 12 | Pin | Coaxial | Yellow | Brown | Red |
| M39029/28-413 | 852-002-12-413 | 12 | Pin | Coaxial | Yellow | Brown | Orange |
| M39029/28-414 | 852-002-12-414 | 12 | Pin | Coaxial | Yellow | Brown | Yellow |
| M39029/28-415 | 852-002-12-415 | 12 | Pin | Coaxial | Yellow | Brown | Green |
| M39029/59-366 | 852-006-08-366 | 08 | Socket | Coaxial | Orange | Blue | Blue |
| M39029/60-367 | 852-007-08-367 | 08 | Pin | Coaxial | Orange | Blue | Violet |
| M39029/75-416 | 852-003-12-416 | 12 | Socket | Coaxial | Yellow | Brown | Blue |
| M39029/75-417 | 852-003-12-417 | 12 | Socket | Coaxial | Yellow | Brown | Violet |
| M39029/75-418 | 852-003-12-418 | 12 | Socket | Coaxial | Yellow | Brown | Gray |
| M39029/75-419 | 852-003-12-419 | 12 | Socket | Coaxial | Yellow | Brown | White |
| M39029/75-420 | 852-003-12-420 | 12 | Socket | Coaxial | Yellow | Red | Black |
| M39029/75-421 | 852-003-12-421 | 12 | Socket | Coaxial | Yellow | Red | Brown |
| M39029/75-422 | 852-003-12-422 | 12 | Socket | Coaxial | Yellow | Red | Red |
| M39029/75-423 | 852-003-12-423 | 12 | Socket | Coaxial | Yellow | Red | Orange |
| M39029/76-424 | 852-008-16-424 | 16 | Pin | Coaxial | Yellow | Red | Yellow |
| M39029/76-425 | 852-008-16-425 | 16 | Pin | Coaxial | Yellow | Red | Green |
| M39029/76-426 | 852-008-16-426 | 16 | Pin | Coaxial | Yellow | Red | Blue |
| M39029/76-427 | 852-008-16-427 | 16 | Pin | Coaxial | Yellow | Red | Violet |
| M39029/77-428 | 852-009-16-428 | 16 | Socket | Coaxial | Yellow | Red | Gray |
| M39029/77-429 | 852-009-16-429 | 16 | Socket | Coaxial | Yellow | Red | White |
| M39029/77-430 | 852-009-16-430 | 16 | Socket | Coaxial | Yellow | Orange | Black |
| M39029/77-431 | 852-009-16-431 | 16 | Socket | Coaxial | Yellow | Orange | Brown |
| M39029/78-432 | 852-010-16-432 | 16 | Socket | Coaxial | Yellow | Orange | Red |
| M39029/78-433 | 852-010-16-433 | 16 | Socket | Coaxial | Yellow | Orange | Orange |
| M39029/78-434 | 852-010-16-434 | 16 | Socket | Coaxial | Yellow | Orange | Yellow |
| M39029/78-435 | 852-010-16-435 | 16 | Socket | Coaxial | Yellow | Orange | Green |
| M39029/102-558 | 852-004-12-558 | 12 | Pin | Coaxial | Green | Green | Gray |
| M39029/103-559 | 852-005-12-559 | 12 | Socket | Coaxial | Green | Green | White |

## COAXIAL CONTACTS

Shielded coaxial contacts have a special role in the interconnect system and are designed for use in a wide range of military and aerospace connectors that service analog radio frequency or microwave applications. Most Glenair cylindrical connectors, including our D38999 type, can accommodate shielded contacts. Rectangular connector packages, such as our high-performance HiPer-D are also ideally suited for these shielded contacts.

## SPECIAL CONTACT ARRANGEMENTS FOR COAXIAL CONTACTS



Arrangement 09L-05
09LG05
(Available Only With Ground Plane Option)

Arrangement 11I-01

Arrangement 17I-02
1x Size 8
38x Size 22

Arrangement 17I-22
(IAW PREN 3645-001)
2x Size 8
2x Size 12

Arrangement 17L-75
(IAW PREN 3645-001)
2x Size 8

Arrangement 19L-12
6x Size 20
4x Size 16
2x Size 8

Arrangement 19L-17
10x Size 22d
1x Size 20
4x Size 16
2x Size 8

Arrangement 19L-04
4x Size 8

Arrangement 19Q-18
14x Size 22d
4x Size 8

Arrangement 21L-75
4x Size 8

Arrangement 23L-05
(IAW PREN 3645-001)
5x Size 8

Arrangement 23L-06
(IAW PREN 3645-001)
6x Size 8

Arrangement 25L-07
97x Size 22
2x Size 8

Arrangement 25L-08
8x Size 8

Arrangement 25Q-17
36x Size 22
6x Size 8

Arrangement 25I-20
(IAW PREN 3645-001)
10x Size 20
13x Size 16
4x Size 12
3x Size 8

Arrangement 25L-26
(IAW PREN 3645-001)
16x Size 20
5x Size 12
4x Size 8

Arrangement 25L-41
22x Size 22d
3x Size 20
11x Size 16
2x Size 12
3x Size 8

Arrangement 25L-46
40x Size 20
4x Size 16
2x Size 8

| Series 80 Mighty Mouse Contact Arrangements with Size #12 and #16 Cavities for Coaxial Contacts | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Contact Quantity | | | | | Contact Arrangement | | | | | |
| Contact Size | | #23 | #20 | #20HD | #16 | #12 | Series 800 | Series 801 | Series 802 | Series 803 | Series 804 | Series 805 |
| Size #16 Coaxial Contacts 50–75 Ohms |  | | | | 7 | | 12-7 | 13-7 | 12-7 | 12-7 | 12-7 | 15-7 |
| | | | | | 12 | | Not Avail. | 16-12 | 14-12 | 14-12 | 14-12 | 18-12 |
| | | | | | 14 | | Not Avail. | 17-14 | 15-14 | Not Avail. | Not Avail. | 19-14 |
| | | | | | 22 | | Not Avail. | 21-22 | 21-22 | Not Avail. | Not Avail. | 23-22 |
| Size #12 Contacts 23 Amp Max. Current 1800 VAC #12-#14 AWG |  | | | | | 1 | 7-1 | 7-1 | 7-1 | 7-1 | 7-1 | 9-1 |
| | | | | | | 2 | 10-2 | 10-2 | 10-2 | 10-2 | 10-2 | 12-2 |
| | | | | | | 2 | 12-2 | 13-2 | 12-2 | 12-2 | 12-2 | 15-2 |
| | | | | | | 3 | 12-3 | 13-3 | 12-3 | 12-3 | 12-3 | 15-3 |
| Contact Arrangements with Mixed Size (Combo) Layouts | | 4 | | | 2 | | 9-200 | 9-200 | 9-200 | 9-200 | 9-200 | 11-200 |
| | | 8 | | | 2 | | 10-202 | 10-202 | 10-202 | 10-202 | 10-202 | 12-202 |
| | | 4 | | | | 2 | 10-201 | 10-201 | 10-201 | 10-201 | 10-201 | 12-201 |
| | | 6 | | | | 2 | 12-200 | 13-200 | 12-200 | 12-200 | 12-200 | 15-200 |
| | | 10 | | | | 2 | 12-201 | 13-201 | 12-201 | 12-201 | 12-201 | 15-201 |
| | | 12 | | | | 1 | 10-200 | 10-200 | 10-200 | 10-200 | 10-200 | 12-200 |

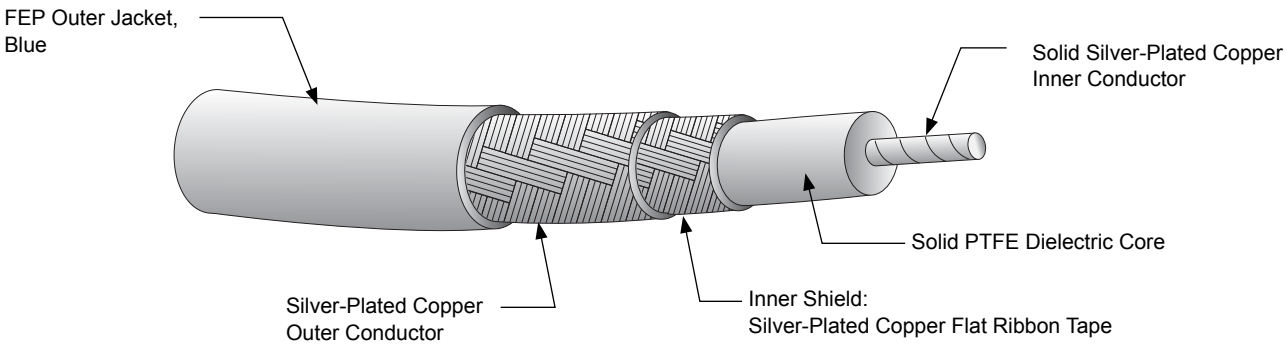
# 962-001
## TFlex® Low Loss Microwave 50 Ohm Coaxial Cable

## 962-001 LOW-LOSS MICROWAVE, SHIELDED, OPTIMAL VSWR LEVELS

**How To Order**

| Basic Part Number | | Dash Number |
|---|---|---|
| 962-001 | - | 405 |

**Dash Number**
*405* - *TFlex®-405*
*402* - *TFlex®-402*
*401* - *TFlex®-401*
*047* - *TFlex®-047*






### *Features and Notes*
- Excellent Shielding Effectiveness
- Low Passive Intermod (PIM)
- Stable Loss, Phase and VSWR vs. Flexing
- Uses Standard Solder-on Semirigid Connectors

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

| Table I - Physical and Mechanical Specifications | | | | |
|---|---|---|---|---|
| | -405 | -402 | -401 | -047 |
| **Dimensions (Inches)** | | | | |
| Conductor | 0.0201 | 0.036 | 0.0641 | 0.0113 |
| Dielectric | 0.064 | 0.118 | 0.208 | 0.0370 |
| Shield | 0.085 | 0.139 | 0.249 | 0.057 |
| Jacket | 0.104 | 0.160 | 0.270 | 0.074 |
| Minimum Static Bend Radius (In) | 0.250 | 0.500 | 1.125 | 0.125 |
| Weight (lbs/ft) | 0.015 | 0.033 | 0.095 | 0.0075 |
| Temperature Range | -65° C to +125°C | | | |
| **Electrical Specifications** | | | | |
| Impedance | 50 Ohms | | | |
| Velocity % | 69.5 | | | |
| Capacitance Per Foot | 29.3 | | | |
| Shielding | >100 dB | | | |
| Cutoff Frequency | 60 GHz | 34 GHz | 19 GHz | 108 GHz |

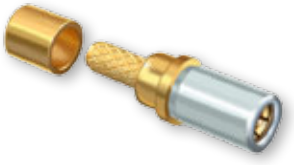
## Compatible Contacts

**852-018**
Size #12 D38999 Sr. II/Mighty Mouse Pin

**852-025**
D38999 Sr. I/III/IV Pin

**852-036**
D38999 Sr. I/III/IV Pin

**852-071**
D38999 Sr. I/III/IV Pin



**852-017**
Size #12 D38999 Sr. II/Mighty Mouse Socket

**852-024**
D38999 Sr. I/III/IV Socket

**852-032**
D38999 Sr. II/Mighty Mouse Socket

**852-035**
D38999 Sr. I/III/IV Socket

**852-037**
D38999 Sr. I/III/IV Socket

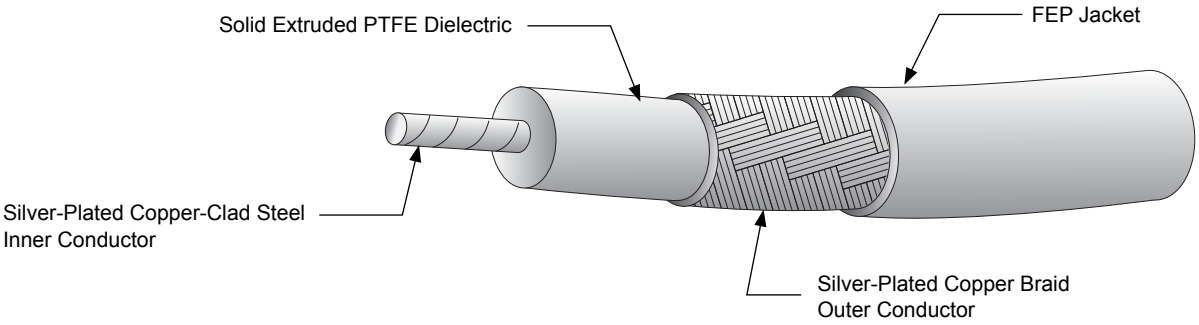
**852-070**
D38999 Sr. I/III/IV Socket

| Table II: Attenuation (dB per 100 feet at +25° C) | | | | |
|---|---|---|---|---|
| | -405 | -402 | -401 | -047 |
| Frequency Styles | 0.104 | 0.160 | 0.270 | 0.074 |
| 100 MHz | 6.4 | 3.4 | 2.2 | 12 |
| 400 MHz | 13.1 | 7.1 | 4.7 | 24 |
| 1,000 MHz | 21.1 | 11.6 | 7.8 | 37 |
| 2,000 MHz | 31.0 | 17.0 | 12.0 | 53 |
| 3,000 MHz | 38.0 | 22.0 | 15.0 | 66 |
| 10,000 MHz | 75.0 | 45.0 | 33.0 | 124 |
| 12,000 MHz | 83.0 | 51.0 | 37.0 | 137 |
| 13,500 MHz | 89.0 | 55.0 | 41.0 | 145 |
| 16,000 MHz | 99.0 | 61.0 | 46.0 | 160 |
| 18,000 MHz | 106.0 | 66.0 | 50.0 | 170 |
| Attenuation at Frequency | A = K1 FMHz + K2 FMHz | | | |
| K1 | .630 | .330 | .210 | 1.156 |
| K2 | 0.00120 | 0.00120 | 0.00120 | 0.00120 |

| Table III: Maximum CW Power Handling (Watts at +40° C, sea level 1:1 VSWR) | | | | |
|---|---|---|---|---|
| | -405 | -402 | -401 | -047 |
| Frequency Size | 0.104 | 0.160 | 0.270 | |
| 100 MHz | 401 | 999 | 2119 | |
| 400 MHz | 195 | 480 | 1002 | |
| 1,000 MHz | 119 | 290 | 595 | |
| 2,000 MHz | 81 | 195 | 394 | |
| 3,000 MHz | 65 | 154 | 306 | N/A |
| 10,000 MHz | 31 | 72 | 136 | |
| 12,000 MHz | 28 | 63 | 120 | |
| 13,500 MHz | 26 | 58 | 110 | |
| 16,000 MHz | 23 | 52 | 97 | |
| 18,000 MHz | 21 | 48 | 88 | |

# 962-002
## M17/93 - RG178
## General-Duty 50 Ohm Coaxial Cable

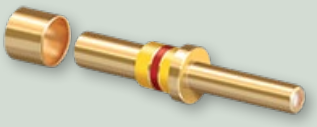
## 962-002 GENERAL-DUTY 50 OHM M17 HIGH-FREQUENCY CABLE WITH EXTENDED TEMPERATURE RANGE




| Physical and Mechanical Specifications | |
|---|---|
| **Dimensions (Inches)** | |
| Center Conductor | Ø .012 ± .001 (7 x .0004)<br>silver plated copper clad steel |
| Dielectric Core | Solid PTFE extruded to Ø .033 ± .002 |
| Outer Conductor | 38 AWG silver plated copper braid<br>Ø .054 Max |
| Jacket | FEP to Ø .071 ± .004 |
| Operating Temperature | -55° C to +200° C |

| Electrical Specifications | |
|---|---|
| Working Voltage | 750 volts RMS (continuous) |
| Operating Frequency | 3 GHz max |
| Velocity of Propogation | 69.5% nominal |
| DC Resistance (Inner Conductor) | 24.45 Ohm per 100 ft (max, at 20° C) |
| Spark Test | 2,000 volts RMS +25%/-0% |
| DWV | 2,000 volts RMS (minimum) |
| CEV | 1,000 volts RMS (minimum) |
| Impedance | 50 ± 2 Ohms |

### Compatible Contacts



**852-008**
Size #16 D38999 Sr. I/III/IV Pin

**852-016**
Size #12 D38999 Sr. II/Mighty Mouse Pin

**852-009**
Size #16 D38999 Sr. I/III/IV Socket

**852-010**
Size #16 D38999 Sr. II/Mighty Mouse Socket

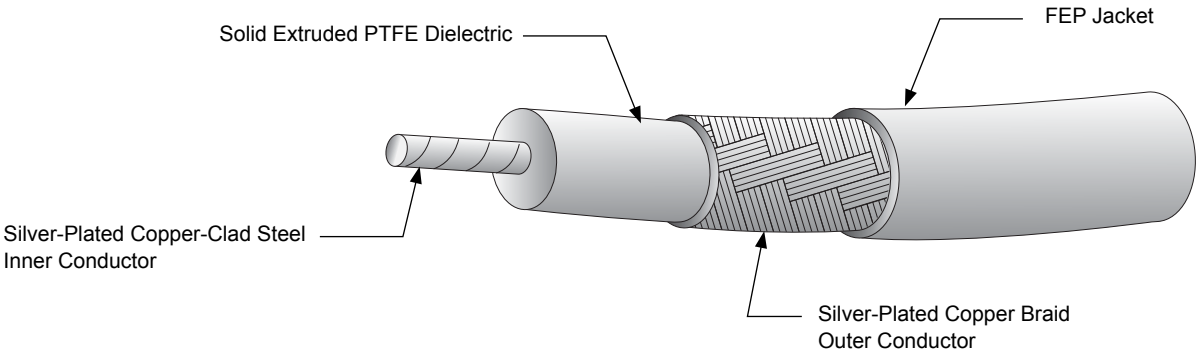
**852-015**
Size #12 D38999 Sr. II/Mighty Mouse Socket

| Attenuation | |
|---|---|
| **MHz** | **dB per 100 ft** |
| 50 | 11.6 |
| 100 | 16 |
| 400 | 33 |
| 1,000 | 52 |
| 3,000 | 94 |

| Structural Return Loss | |
|---|---|
| **MHz** | **dB** |
| 50 | 26 |
| 100 | 25 |
| 400 | 22 |
| 1,000 | 19 |
| 3,000 | 14 |

### *Notes*
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

## 962-003 75 OHM M17 HIGH FREQUENCY CABLE WITH EXTENDED TEMPERATURE RANGE




| Physical and Mechanical Specifications | |
|---|---|
| **Dimensions (Inches)** | |
| Center Conductor | Ø .012 ± .001 (7 x .004)<br>silver plated copper-clad steel |
| Dielectric Core | solid PTFE extruded to Ø.068 ± .003 |
| Outer Conductor | 38 AWG silver-plated copper braid, Ø.084 maximum<br>Coverage: 92.3% nominal |
| Jacket | FEP to Ø.100 ± .005 |
| Operating Temperature | -55° C to +200° C |

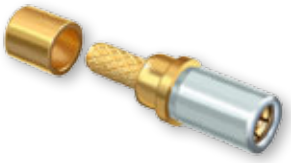
| Electrical Specifications | |
|---|---|
| Working Voltage | 900 volts RMS (continuous) |
| Operating Frequency | 3 GHz max |
| Velocity of Propogation | 69.5% nominal |
| DC Resistance (Inner Conductor) | 24.45 Ohm per 100 ft (max, at 20° C) |
| Spark Test | 2,000 volts RMS +10%/-0% |
| DWV | 2,000 volts RMS (minimum) |
| CEV | 1,200 volts RMS (minimum) |
| Impedance | 75 ± 3 Ohms |
| Attenuation | 21.0 dB/100 ft maximum (0.4 GHz) |
| Capacitance | 23.0 pf/ft maximum |

### Compatible Contacts

**852-002**
Size #12 D38999 Sr. I/II/III/IV Pin

**852-004**
Size #12 D38999 Sr. I/II/III/IV Pin

**852-008**
Size #16 D38999 Sr. I/III/IV Pin



**852-001**
Size #12 D38999 Sr. II/Mighty Mouse Socket

**852-003**
Size #12 D38999 Sr. I/III/IV Socket

**852-005**
Size #12 D38999 Sr. I/III/IV Socket

**852-009**
Size #16 D38999 Sr. I/III/IV Socket

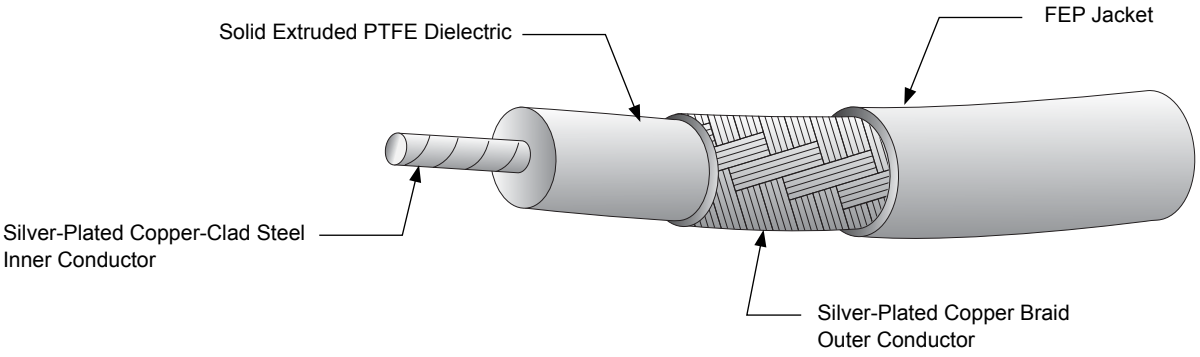
**852-010**
Size #16 D38999 Sr. II/Mighty Mouse Socket

### *Notes*

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# 962-004
## M17/113 - RG316
## Low-Loss 50 Ohm Coaxial Cable

## 962-004 LOW-LOSS 50 OHM M17 HIGH FREQUENCY CABLE WITH EXTENDED TEMPERATURE RANGE



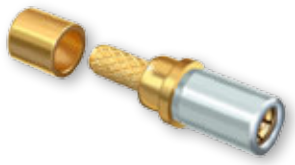



### Compatible Contacts

**852-002**
Size #12 D38999 Sr. I/II/III/IV Pin

**852-004**
Size #12 D38999 Sr. I/II/III/IV Pin

**852-008**
Size #16 D38999 Sr. I/III/IV Pin



**852-001**
Size #12 D38999 Sr. II/Mighty Mouse Socket

**852-003**
Size #12 D38999 Sr. I/III/IV Socket

**852-005**
Size #12 D38999 Sr. I/III/IV Socket

**852-009**
Size #16 D38999 Sr. I/III/IV Socket

**852-010**
Size #16 D38999 Sr. II/Mighty Mouse Socket

| Physical and Mechanical Specifications | |
|---|---|
| **Dimensions (Inches)** | |
| Center Conductor | Ø .0201 ± .001 (7 x .0067)<br>silver plated copper-clad steel |
| Dielectric Core | solid PTFE extruded to Ø.060 ± .003 |
| Outer Conductor | 38 AWG silver-plated copper braid, Ø.081 maximum<br>Coverage: 95.2% nominal |
| Jacket | FEP to Ø.098 ± .004 |
| Operating Temperature | -55° C to +200° C |

| Electrical Specifications | |
|---|---|
| Working Voltage | 900 volts RMS (continuous) |
| Operating Frequency | 3 GHz max |
| Velocity of Propogation | 69.5% nominal |
| DC Resistance (Inner Conductor) | 8.41 Ohms/100 ft max (20° C) |
| Spark Test | 2,000 volts RMS +25%/-0% |
| DWV | 2,000 volts RMS (minimum) |
| CEV | 1,200 volts RMS (minimum) |
| Impedance | 50 ± 2 Ohms |

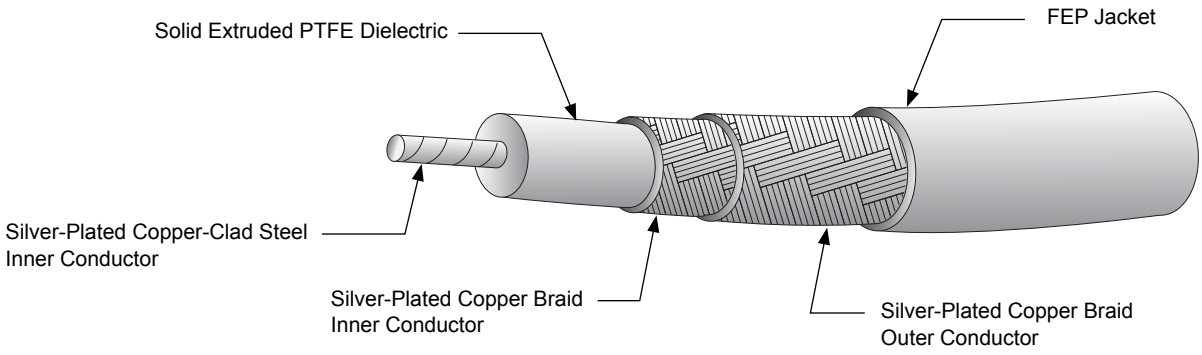
| Attenuation | |
|---|---|
| **MHz** | **dB per 100 ft** |
| 50 | 7.5 |
| 100 | 11 |
| 400 | 21 |
| 1,000 | 38 |
| 3,000 | 58 |

| Structural Return Loss | |
|---|---|
| **MHz** | **dB** |
| 50 | 30 |
| 100 | 30 |
| 400 | 23 |
| 1,000 | 21 |
| 3,000 | 17 |

### *Notes*
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# 962-005
## M17/152-00001 (RG316-DS)
## 50 Ohm Ultra-High Frequency Coaxial Cable with Double Shield

## 962-005 50 OHM M17 ULTRA-HIGH FREQUENCY CABLE WITH EXTENDED TEMPERATURE RANGE



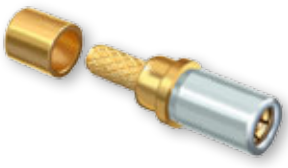

| Physical and Mechanical Specifications | |
|---|---|
| **Dimensions (Inches)** | |
| Center Conductor | Ø .0201 ± .001 (7 x .0067)<br>silver plated copper-clad steel |
| Dielectric Core | solid PTFE extruded to Ø.060 ± .003 |
| Outer Conductor | 38 AWG silver-plated copper braid, Ø.096 maximum<br>Inner Braid: 95.4% nominal coverage<br>Outer Braid: 94.6% nominal coverage |
| Jacket | FEP to Ø .114 ± .004 |
| Operating Temperature | -55° C to +200° C |

| Electrical Specifications | |
|---|---|
| Working Voltage | 900 volts RMS (continuous) |
| Operating Frequency | 12.4 GHz max |
| Velocity of Propogation | 69.5% nominal |
| DC Resistance (Inner Conductor) | 8.41 Ohms/100 ft max (20° C) |
| Spark Test | 2,000 volts RMS +10%/-0% |
| DWV | 2,000 volts RMS (minimum) |
| CEV | 1,200 volts RMS (minimum) |
| Impedance | 50 ± 2 Ohms |
| Capacitance | 32 pf/ft (minimum) |

### Compatible Contacts

**852-016**
Size #12 D38999 Sr. II/Mighty Mouse Pin

**852-031**
Size #8 D38999 Sr. I/III/IV Pin



**852-015**
Size #12 D38999 Sr. II/Mighty Mouse Socket

**852-019**
Size #12 D38999 Sr. III Socket

**852-030**
Size #8 D38999 Sr. I/III/IV Socket

| Structural Return Loss | |
|---|---|
| MHz | dB |
| 500 | 26 |
| 3,000 | 20 |
| 12,400 | 15 |

| Attenuation / Max Power | | |
|---|---|---|
| MHz | dB per 100 ft | Watts |
| 50 | 7.5 | 600 |
| 500 | 26 | 190 |
| 1,000 | 40 | 130 |
| 3,000 | 75 | 75 |
| 10,000 | 170 | 45 |
| 12,400 | 200 | 37 |

### *Notes*
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.


U.S. CAGE Code 06324
Printed in U.S.A.

POWER
DISTRIBUTION
CABLE

# TURBOFLEX™

*Ultra flexible, rugged power cable*

NO MINS. No Dollar or Quantity Minimum orders

TurboFlex™ power distribution cables are fabricated from highly flexible conductors and high-performance insulation to produce cables ideally suited for applications where flexibility, durability, and weight reduction are required. Amazingly light and flexible—especially in cold weather—the 12 AWG – 450 MCM TurboFlex™ cable features rope lay inner conductors from either copper, tin-copper, or silver and nickel copper materials. TurboFlex also features Glenair's unique Duralectric™ jacket material that offers outstanding flexibility, performance, and resistance to environmental and caustic chemical exposure. Duralectric is also halogen-free, flame resistant and has a low smoke index appropriate for interior applications. Long life and performance are critical in power distribution applications. TurboFlex,™ with its flexible conductors and durable jacket material delivers both. Contact the factory for a sample.

TurboFlex™ cable is optimized for use with Series 970 PowerTrip™ connectors and LouverBand contacts

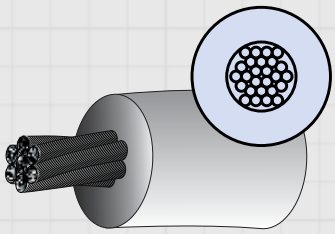
**High-Performance LouverBand™ Contacts**

LouverBand™ Pin

LouverBand™ Socket

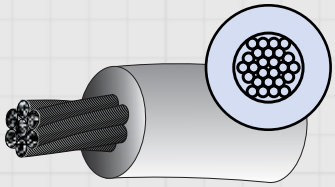
Glenair®

Glenair, Inc.
1211 Air Way
Glendale, CA
91201-2497
818-247-6000
sales@glenair.com
www.glenair.com



**961-001**
TurboFlex Power Cable with .125″ Duralectric™ Jacket
4500 VAC

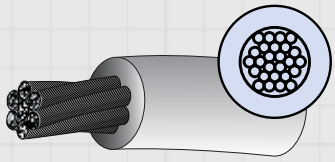
E-6



**961-002**
TurboFlex Power Cable with .093″ Duralectric™ Jacket
3500 VAC

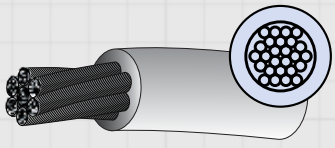
E-7





**961-003**
TurboFlex Power Cable with .062″ Duralectric™ Jacket
3000 VAC

E-8



**961-004**
TurboFlex Power Cable with .032″ Duralectric™ Jacket
2000 VAC

E-9

# TurboFlex™
# Ultra-Flexible Power Distribution Cable
## Product Showcase • Voltage Rating Data

The heart of TurboFlex™ power distribution cable is its ultra-flexible, ultra-fine wire conductor. TurboFlex™ power leads and flexible power transmission cables are made from bare copper, tin/copper, silver/copper or nickel/copper. Each material offers unique electrical performance, including current-carrying capability and temperature range. Ultra-flexible stranded bare copper or silver-plated copper conductors provide optimal conductivity. Tin/copper conductors offer superior solderability, and nickel/copper conductors offer superior corrosion resistance. All TurboFlex™ conductor materials deliver maximum flexibility and ability to handle the high voltage and temperature ranges inherent in such applications as military vehicles, aerospace ground support systems, and charging stations. Duralectric™, the TurboFlex jacketing delivers superior flexibility/durability compared to other high-performance jacket materials.

**Ultra flexible rope lay construction**

| | |
|---|---|
| **Abrasion Resistance** | Good |
| **Wear Resistance** | Good |
| **Flame Resistance** | Excellent |
| **Sunlight Resistance** | Excellent |
| **Flex Resistance** | Excellent |

| Jacketing Options | | |
|---|---|---|
| Weatherproof, halogen free, flame resistant, functional to 260°C | | |
| 0 | Black | Fed-Std-595C #17038 |
| 1 | Desert Tan | Fed-Std-595C #33446 |
| 2 | Red | Fed-Std-595C #11120 |
| 3 | Orange | Fed-Std-595C #12300 |
| 4 | Yellow | Fed-Std-595C #13591 |
| 5 | Green | Fed-Std-595C #14193 |
| 6 | Blue | Fed-Std-595C #15125 |
| 7 | Violet | Fed-Std-595C #17142 |
| 8 | Gray | Fed-Std-595C #26270 |
| 9 | White | Fed-Std-595C #17875 |
| Consult factory for other specific Fed Std colors | | |

## DURALECTRIC™ ENVIRONMENTAL PERFORMANCE

Temperature rating: -60°c to 260°c

Halogen free per IEC 60614-1

Accelerated weathering and simulated solar radiation at ground level per IEC 60068-2-5; 56 Days exposure, suitable for greater than 50 years of service in direct sunlight

Flame resistant per IEC 60614-1

Flame resistant per UL 1685, section 12 (FT4/IEEE120), vertical-tray fire-propagation and smoke release test

Flame resistant per FAR 25.853 (A) amendment 25-116, appendix Fpart I (A) (1) (i), 60 second vertical burn test

Limiting oxygen index of 45 per ISO 4589-2:1999

Low smoke per NES 711, smoke density of 11.75

Smoke density class F1 per NF F 16-101 IAW DIN EN 60695-2-11:2011

Low smoke toxicity per NES 713, tested value of 1.9

Fungus rating of 0 per MIL-STD-810g method 508.5, Does not support fungal growth

ASTM D624, die B tear strength, 150 pounds per inch minimum on jacket material

Low outgassing per ASTM e595 after post curing, TML .06%, CVCM .006%, WVR .02%

Resistant to fluids per MIL-STD-810F, method 504

- JP-8 per MIL-DTL-83133 (NATO type 34)
- MIL-H-5606 hydraulic fluid
- MIL-PRF-23699 lubricating oil
- MIL-C-85570 cleaner
- TT-I-735 Isopropyl alcohol
- AMS 1432 potassium acetate deicing/anti-icing fluid
- MIL-C-87252 coolant
- Amerex AFF fire extinguishing foam

## 961-001 TURBOFLEX, .125 WALL, 4500 VAC

| 961-001 Wire Weight and Outer Diameter | | | |
|---|---|---|---|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| G | 494.50 | .681 (17.30) | .125 (3.18) |
| H | 600.00 | .733 (18.62) | |
| I | 749.50 | .797 (20.24) | |
| J | 916.00 | .863 (21.92) | |
| K | 1055.60 | .913 (23.19) | |
| L | 1806.20 | 1.140 (28.96) | |

## 961-002 TURBOFLEX, .093 WALL , 3500 VAC

| 961-002 Wire Weight and Outer Diameter | | | |
|---|---|---|---|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| D | 138.40 | .386 (9.80) | .093 (2.36) |
| E | 207.40 | .457 (11.61) | |
| F | 304.60 | .528 (13.41) | |
| G | 455.80 | .617 (15.67) | |
| H | 558.20 | .649 (16.48) | |
| I | 703.90 | .733 (18.62) | |
| J | 866.50 | .799 (20.29) | |
| K | 1003.10 | .849 (21.56) | |
| L | 1740.10 | 1.076 (27.33) | |

## 961-003 TURBOFLEX, .062 WALL , 3000 VAC

| 961-003 Wire Weight and Outer Diameter | | | |
|---|---|---|---|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| A | 40.20 | .223 (5.66) | .062 (1.57) |
| B | 56.20 | .250 (6.35) | |
| C | 81.00 | .283 (7.19) | |
| D | 117.90 | .324 (8.23) | |
| E | 182.80 | .395 (10.03) | |
| F | 275.90 | .466 (11.84) | |
| G | 422.00 | .555 (14.10) | |
| H | 521.40 | .607 (15.42) | |

## 961-004 TURBOFLEX, .032 WALL , 2000 VAC

| 961-004 Wire Weight and Outer Diameter | | | |
|---|---|---|---|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| R | 14.40 | .127 (3.23) | .032 (.81) |
| S | 20.70 | .144 (3.66) | |
| A | 29.40 | .163 (4.14) | |
| B | 43.90 | .190 (4.83) | |
| C | 66.90 | .223 (5.66) | |
| D | 101.40 | .264 (6.71) | |
| E | 162.40 | .335 (8.51) | |
| F | 251.60 | .406 (10.31) | |
| G | 392.70 | .495 (12.57) | |

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

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

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

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

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

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

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



 U.S. CAGE Code 06324 Printed in U.S.A.

# Series 970 PowerTrip™ Connectors for use with TurboFlex™ Cable

Lightweight plug with ratcheting coupling nut and LouverBand contacts

Keyed receptacle with superior sealing and EMI shielding

- **Fast, easy mating with triple-start ACME thread: 360° turn for full mating**
- **Reduced size and weight compared to MIL-DTL-5015**
- **LouverBand sockets for improved current ratings and longer life**
- **Splined backshell interface for improved backshell attachment and EMI shielding**
- **Ratcheting coupling nut for secure mating**
- **Operating temperature -65° C to +200° C**

## PowerTrip™ and TurboFlex™—The ultimate rugged-environment power transmission solution

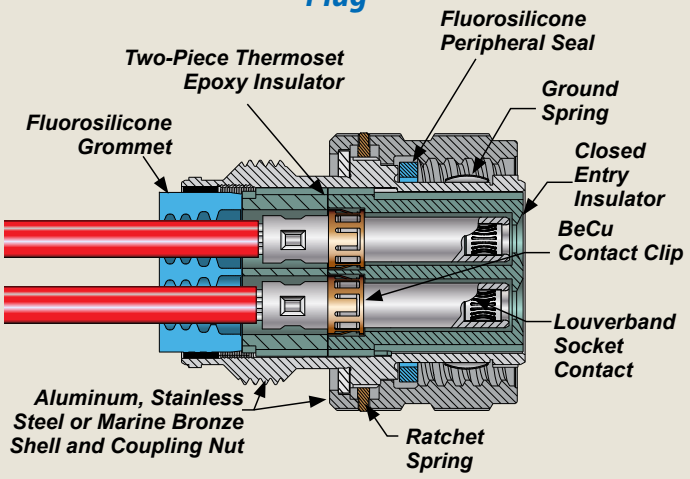
MIL-DTL-5015 contact arrangements + MIL-DTL-38999 triple-start coupling + MIL-DTL-28840 splined backshell interface = Series 970 PowerTrip™

E

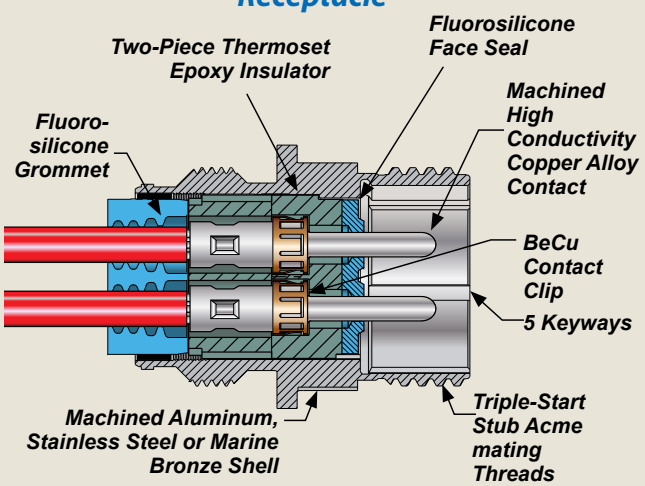
### Series 970 PowerTrip™ Connector Styles

Plug 970-001 | Square Flange Receptacles 970-003 | Jam Nut Receptacles 970-004 | Cable Receptacles 970-005 | Feed-Thru Bulkhead 970-006 | Hermetic Feed-Thru Bulkhead 970-007

### Plug




### Receptacle

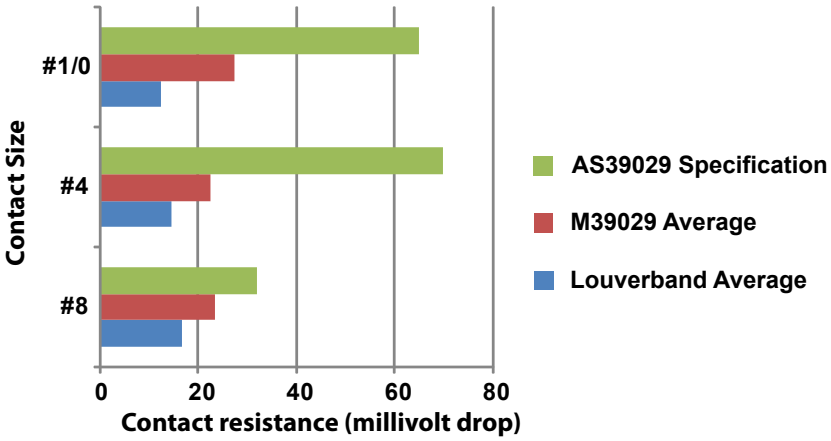


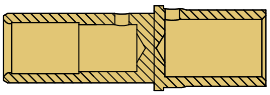


U.S. CAGE Code 06324 Printed in U.S.A.

## Lower contact resistance of LouverBand vs. conventional split-tine contacts

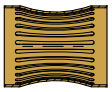
### Contact Resistance after 1000 Mating Cycles



Socket Contact Body

LouverBand Spring



Pin and Assembled Socket Contact

Split-tine contact on the left, LouverBand contact on the right

| PowerTrip™ Materials | |
|---|---|
| Shells, Jam Nuts | Aluminum alloy, stainless steel or marine bronze |
| Contacts | High conductivity copper alloy, gold or silver-plated |
| Insulators | Glass-reinforced epoxy |
| Contact Retention Clip | Copper alloy |
| Seal, O-rings, Grommet | Fluorosilicone rubber |
| Spring | Nickel-plated copper alloy |


**Heavy-duty PowerTrip™ backshells may be ordered by using the "P" connector designator in any standard backshell series part number**

| Series 970 PowerTrip™ Specifications | |
|---|---|
| Current Rating | Up to 225 A. |
| Dielectric Withstanding Voltage | 2000 VAC |
| Insulation Resistance | 5000 megohms minimum |
| Operating Temperature | -65° C. to +200° C. |
| Shock | 300 g. |
| Vibration | 37 g. |
| Shielding Effectiveness | 65 dB minimum from 1GHz to 10GHz. |
| Durability | 2000 mating cycles |

| Series 970 Contact Arrangements | | | | | | |
|---|---|---|---|---|---|---|
| Principal Contact Size | Contact Arrangement | Contact Size and Qty | | | | |
| | | #16 | #12 | #8 | #4 | #1/0 |
| Size #8 | 18-2 | | | 2 | | |
| | 18-4 | | 2 | 2 | | |
| | 20-3 | | | 3 | | |
| | 20-5 | | 2 | 3 | | |
| | 20-7 | 4 | | 3 | | |
| | 20-4 | | | 4 | | |
| | 24-5 | | | 5 | | |
| Size #4 | 24-2 | | | | 2 | |
| | 24-6 | | 4 | | 2 | |
| | 24-3 | | | | 3 | |
| | 24-A6 | | 3 | | 3 | |
| | 28-4 | | | | 4 | |
| | 28-9 | 5 | | | 4 | |
| | 32-5 | | | | 5 | |
| Size #1/0 | 32-2 | | | | | 2 |
| | 32-4 | | | | 2 | 2 |
| | 32-3 | | | | | 3 |
| | 32-6 | | 3 | | | 3 |
| | 36-4 | | | | | 4 |
| | 40-5 | | | | | 5 |

# 961-001
# TurboFlex Power Cable with .125" Duralectric™ Jacket
## 4,500 VAC

## 961-001 FOR USE WITH A VARIETY OF POWER CONNECTOR SERIES

### How To Order

**Flexible Conductor Material**
- *T - Tin/Copper (-60° to +150° C)*
- *S - Silver/Copper (-60° to +200° C)*
- *N - Nickel/Copper (-60° to +260° C)*

**Product Series**

961 - 001 - C - A - 2

**Basic No.**

**Wire Size/ Dimensions** *(See Table I)*

**Duralectric™ Jacket: Color Options**
- *0 - Black*
- *1 - Desert Tan*
- *2 - Red*
- *3 - Orange*
- *4 - Yellow*
- *5 - Green*
- *6 - Blue*
- *7 - Violet*
- *8 - Grey*
- *9 - White*

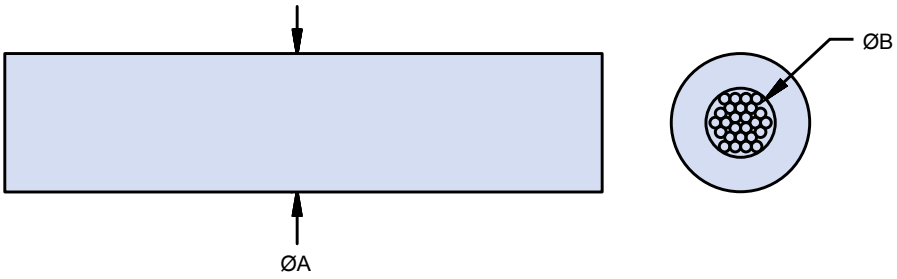



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**Table I TurboFlex .125 Jacket Wall: Wire Size and Dimensions**

| AWG Code | AWG | Strand / Count / AWG | Cir Mil (nom) | Weight lbs/1000 ft. (nom.) | Ø A in. (mm | Ø B in. (mm) | DC Resistance @ 20°C (Ohms / 1000 ft.) | | | Ampacity (Amps) 40°C Ambient | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nickel Copper | Tin Copper | Silver Copper | Nickel Copper | Tin/Silver Copper |
| G | 1/0 | 7 X 7 X 86/36 | 105350 | 494.50 | .681 (17.30) | .431 (10.95) | .1178 | .1188 | .1107 | 532 | 399 |
| H | 2/0 | 7 X 7 X 108/36 | 132300 | 600.00 | .733 (18.62) | .483 (12.27) | .0938 | .0946 | .0882 | 591 | 467 |
| I | 3/0 | 19 X 7 X 51/36 | 169575 | 749.50 | .797 (20.24) | .547 (13.89) | .0738 | .0745 | .0694 | 708 | 546 |
| J | 4/0 | 19 X 7 X 64/36 | 212800 | 916.00 | .863 (21.92) | .613 (15.57) | .0588 | .0594 | .0553 | 830 | 629 |
| K | 250 MCM | 19 X 7 X 75/36 | 249375 | 1055.60 | .913 (23.19) | .663 (16.84) | .0479 | .0483 | .0450 | 910 | 705 |
| L | 450 MCM | 19 X 7 X 135/36 | 448875 | 1806.20 | 1.140 (28.96) | .890 (22.61) | .0266 | .0263 | .0250 | 1320 | 1020 |

*Consult factory for correction factors for ambient temperatures other than 40°C (104°F)

### *Notes*
1. Consult factory for other federal standard color options.
3. Bend radius is 3x the outer diamter
4. Cable shall be marked with "Glenair TurboFlex," wire gauge, FR and voltage rating.

# 961-002
# TurboFlex Power Cable with .093" Duralectric™ Jacket
## 3,500 VAC

## 961-002 FOR USE WITH A VARIETY OF POWER CONNECTOR SERIES

### How To Order

**Flexible Conductor Material**

*T - Tin/Copper (-60° to +150° C)*
*S - Silver/Copper (-60° to +200° C)*
*N - Nickel/Copper (-60° to +260° C)*

**Product Series**

961 - 002 - C - A - 2

**Basic No.**

**Wire Size (See Table I)**

**Duralectric™ Jacket: Color Options**

*0 - Black*
*1 - Desert Tan*
*2 - Red*
*3 - Orange*
*4 - Yellow*
*5 - Green*
*6 - Blue*
*7 - Violet*
*8 - Grey*
*9 - White*

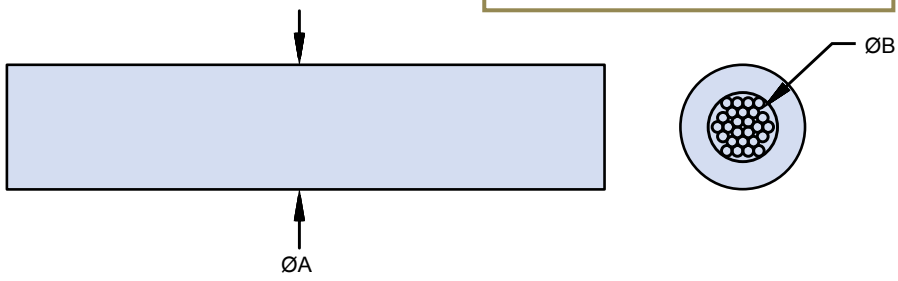



**Table I TurboFlex .093 Jacket Wall: Wire Size and Dimensions**

| AWG Code | AWG | Strand / Count / AWG | Cir Mil (nom) | Weight lbs/1000 ft. (nom.) | Ø A in. (mm) | Ø B in. (mm) | DC Resistance @ 20°C (Ohms / 1000 ft.) | | | Ampacity (Amps) 40°C Ambient | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nickel Copper | Tin Copper | Silver Copper | Nickel Copper | Tin/Silver Copper |
| D | 6 | 7 x 150/36 | 26250 | 138.40 | .386 (9.80) | .200 (5.08) | .4551 | .4593 | .4278 | 205 | 165 |
| E | 4 | 7 x 7 x34/36 | 41650 | 207.40 | .457 (11.61) | .271 (6.88) | .2979 | .3006 | .2800 | 278 | 220 |
| F | 2 | 7 x 7x 54/36 | 66150 | 304.60 | .528 (13.41) | .342 (8.69) | .1876 | .1893 | .1763 | 381 | 293 |
| G | 1/0 | 7 X 7 X 86/36 | 105350 | 494.50 | .617 (15.67) | .431 (10.95) | .1178 | .1188 | .1107 | 532 | 399 |
| H | 2/0 | 7 X 7 X 108/36 | 132300 | 600.00 | .649 (16.48) | .483 (12.27) | .0938 | .0946 | .0882 | 591 | 467 |
| I | 3/0 | 19 X 7 X 51/36 | 169575 | 749.50 | .733 (18.62) | .547 (13.89) | .0738 | .0745 | .0694 | 708 | 546 |
| J | 4/0 | 19 X 7 X 64/36 | 212800 | 916.00 | .799 (20.29) | .613 (15.57) | .0588 | .0594 | .0553 | 830 | 629 |
| K | 250 MCM | 19 X 7 X 75/36 | 249375 | 1055.60 | .849 (21.56) | .663 (16.84) | .0479 | .0483 | .0450 | 910 | 705 |
| L | 450 MCM | 19 X 7 X 135/36 | 448875 | 1806.20 | 1.076 (27.33) | .890 (22.61) | .0266 | .0263 | .0250 | 1320 | 1020 |

*Consult factory for correction factors for ambient temperatures other than 40°C (104°F)

### *Notes*

1. Consult factory for other federal standard color options.
3. Bend radius is 3x the outer diamter
4. Cable shall be marked with "Glenair TurboFlex," wire gauge, FR and voltage rating.

# 961-003
# TurboFlex Power Cable with .062" Duralectric™ Jacket
## 3,000 VAC

## 961-003 FOR USE WITH A VARIETY OF POWER CONNECTOR SERIES

### How To Order

**Flexible Conductor Material**

- *T - Tin/Copper (-60° to +150° C)*
- *S - Silver/Copper (-60° to +200° C)*
- *N - Nickel/Copper (-60° to +260° C)*

**Product Series**

961 - 003 - C - A - 2

**Basic No.**

**Wire Size (See Table I)**

**Duralectric™ Jacket: Color Options**

- *0 - Black*
- *1 - Desert Tan*
- *2 - Red*
- *3 - Orange*
- *4 - Yellow*
- *5 - Green*
- *6 - Blue*
- *7 - Violet*
- *8 - Grey*
- *9 - White*

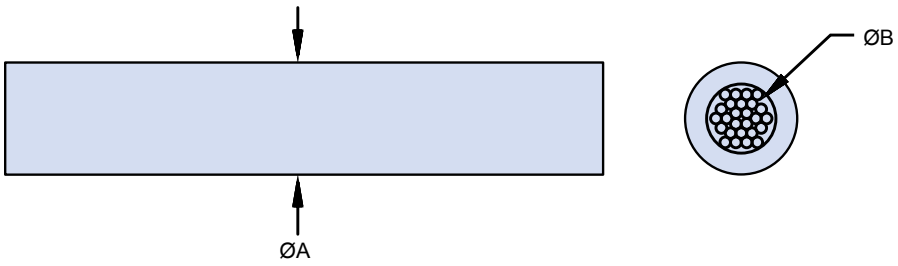



**Table I TurboFlex .062 Jacket Wall: Wire Size and Dimensions**

| AWG Code | AWG | Strand / Count / AWG | Cir Mil (nom) | Weight lbs/1000 ft. (nom.) | Ø A in. (mm) | Ø B in. (mm) | DC Resistance @ 20°C (Ohms / 1000 ft.) | | | Ampacity (Amps) 40°C Ambient | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nickel Copper | Tin Copper | Silver Copper | Nickel Copper | Tin/Silver Copper |
| A | 12 | 7 X 37/36 | 6475 | 40.20 | .223 (5.66) | .099 (2.51) | 1.8450 | 1.8620 | 1.7340 | 78 | 68 |
| B | 10 | 7 X 59/36 | 10325 | 56.20 | .250 (6.35) | .126 (3.20) | 1.1570 | 1.1680 | 1.0880 | 107 | 90 |
| C | 8 | 7 X 95/36 | 16625 | 81.00 | .283 (7.19) | .159 (4.04) | .7188 | .7252 | .6755 | 142 | 124 |
| D | 6 | 7 x 150/36 | 26250 | 138.40 | .386 (9.80) | .200 (5.08) | .4551 | .4593 | .4278 | 205 | 165 |
| E | 4 | 7 x 7 x34/36 | 41650 | 207.40 | .457 (11.61) | .271 (6.88) | .2979 | .3006 | .2800 | 278 | 220 |
| F | 2 | 7 x 7x 54/36 | 66150 | 304.60 | .528 (13.41) | .342 (8.69) | .1876 | .1893 | .1763 | 381 | 293 |
| G | 1/0 | 7 X 7 X 86/36 | 105350 | 494.50 | .617 (15.67) | .431 (10.95) | .1178 | .1188 | .1107 | 532 | 399 |
| H | 2/0 | 7 X 7 X 108/36 | 132300 | 600.00 | .649 (16.48) | .483 (12.27) | .0938 | .0946 | .0882 | 591 | 467 |

*Consult factory for correction factors for ambient temperatures other than 40°C (104°F)

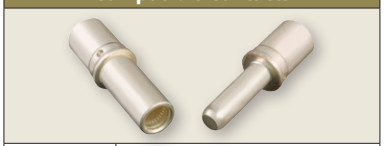
### *Notes*

1. Consult factory for other federal standard color options.
3. Bend radius is 3x the outer diamter
4. Cable shall be marked with "Glenair TurboFlex," wire gauge, FR and voltage rating.

# 961-004
# TurboFlex Power Cable with .032" Duralectric™ Jacket
## 2,000 VAC

## 961-004 FOR USE WITH SERIES 970 POWERTRIP™ CONNECTORS AND LOUVERBAND CONTACTS AND/OR OTHER POWER CONNECTOR SERIES

**Compatible Contacts**



| AWG | Contact P/N |
|---|---|
| 20 | 850-037-16 Pin<br>850-038-16 Socket |
| 16 | 850-037-16 Pin<br>850-038-16 Socket |
| 14 | 850-037-12 Pin<br>850-038-12 Socket |
| 12 | 850-037-12 Pin<br>850-038-12 Socket |
| 10 | 850-026-8-10-X Pin<br>850-027-8-10-X Socket |
| 8 | 850-026-8-8-X Pin<br>850-027-8-8-X Socket |
| 6 | 850-026-4-6-X Pin<br>850-027-4-6-X Socket |
| 4 | 850-026-4-4-X Pin<br>850-027-4-4-X Socket |
| 2 | 850-026-0-2-X Pin<br>850-027-0-2-X Socket |
| 1/0 | 850-026-0-0-X Pin<br>850-027-0-0-X Socket |

**How To Order**

**Flexible Conductor Material**
- *T - Tin/Copper (-60° to +150° C)*
- *S - Silver/Copper (-60° to +200° C)*
- *N - Nickel/Copper (-60° to +260° C)*

**Product Series**

961 - 004 - C - A - 2

- 004 — **Basic No.**
- C — **Wire Size (See Table I)**

**Duralectric™ Jacket: Color Options**
- *0 - Black*
- *1 - Desert Tan*
- *2 - Red*
- *3 - Orange*
- *4 - Yellow*
- *5 - Green*
- *6 - Blue*
- *7 - Violet*
- *8 - Grey*
- *9 - White*

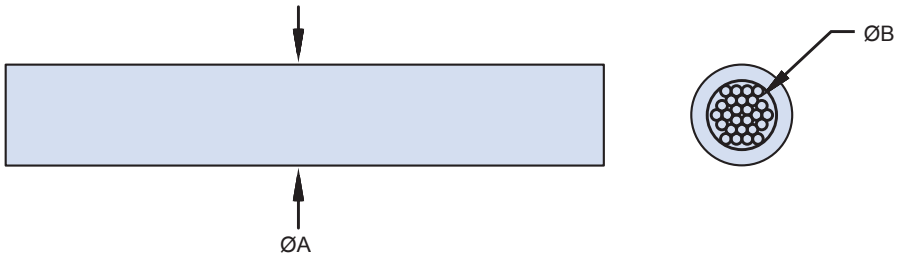



**Table I TurboFlex .032 Jacket Wall: Wire Size and Dimensions**

| 16 AWG up to I/O Code | AWG | Strand / Count / AWG | Cir Mil (nom) | Weight lbs/1000 ft. (nom.) | Ø A in. (mm) | Ø B in. (mm) | DC Resistance @ 20°C (Ohms / 1000 ft.) | | | Ampacity (Amps) 40°C Ambient | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nickel Copper | Tin Copper | Silver Copper | Nickel Copper | Tin/Silver Copper |
| T | 20 | 42/36 | 1050 | 7.60 | .101 (2.6) | .037 (0.9) | 10.7178 | 10.7538 | 10.0747 | 16 | 14 |
| R | 16 | 7 X 15/36 | 2625 | 14.40 | .127 (3.2) | .063 (1.6) | 4.5510 | 4.5930 | 4.2780 | 40 | 36 |
| S | 14 | 7 X 24/36 | 4200 | 20.70 | .144 (3.7) | .080 (2.0) | 2.8450 | 2.8710 | 2.6470 | 59 | 54 |
| A | 12 | 7 X 37/36 | 6475 | 29.40 | .163 (4.14) | .099 (2.51) | 1.8450 | 1.8620 | 1.7340 | 78 | 68 |
| B | 10 | 7 X 59/36 | 10325 | 43.90 | .190 (4.83) | .126 (3.20) | 1.1570 | 1.1680 | 1.0880 | 107 | 90 |
| C | 8 | 7 X 95/36 | 16625 | 66.90 | .223 (5.66) | .159 (4.04) | .7188 | .7252 | .6755 | 142 | 124 |
| D | 6 | 7 X 150/36 | 26250 | 101.40 | .264 (6.7) | .200 (5.08) | .4551 | .4593 | .4278 | 205 | 165 |
| E | 4 | 7 X 7 X 34/36 | 41650 | 162.40 | .335 (8.5) | .271 (6.88) | .2979 | .3006 | .2800 | 278 | 220 |
| F | 2 | 7 X 7 X 54/36 | 66150 | 251.60 | .406 (10.3) | .342 (8.7) | .1876 | .1893 | .1763 | 381 | 293 |
| G | 1/0 | 7 X 7 X 86/36 | 105350 | 392.70 | .495 (12.6) | .431 (10.9) | .1178 | .1188 | .1107 | 532 | 399 |

*Consult factory for correction factors for ambient temperatures other than 40°C (104°F)

### *Notes*
1. Consult factory for other federal standard color options.
3. Bend radius is 3x the outer diamter
4. Cable shall be marked with "Glenair TurboFlex," wire gauge, FR and voltage rating.

SERIES 964

# OPTICAL FIBER CABLE

NO MINS.

*Singlemode and multimode graded index fiber optic cable for mission-critical applications*

Well designed fiber optic connection systems begin with high-reliability single and multimode cable. Glenair is able to fabricate and supply a targeted range of fiber media—all available without expensive minimum length requirements. The goal of our fiber media shop is to provide a fast-turn supply of specialty F/O media for use in our own cable assemblies, customer prototype projects and other short-run, limited bulk length applications. Nobody can beat Glenair when it comes to providing fiber optic media with rugged and yet flexible media protection. We are absolute experts in this field and can suggest and supply everything from jacketed cable resistant to fuel exposure to crush-proof polymer-core conduit solutions. And because we make and stock all the component parts ourselves, we can offer lightning-fast turnaround on even highly specialized requirements.

| Compatible Fiber Optic Termini | | | |
|---|---|---|---|
|  |  |  |  |
| M29504 type for D38999 Series III type connectors | Glenair High Density (GHD) | M29504 QPL for MIL-PRF-28876 connectors | Mighty Mouse #16, #20HD, #23 |

Glenair, Inc.
1211 Air Way
Glendale, CA
91201-2497
818-247-6000
sales@glenair.com
www.glenair.com

# Optical Fiber Cables
## Selection Guide


**964-002**
9.3/125 Singlemode graded index fiber optic cable with Hytrel jacket — F-6

**964-007**
9.3/125 Singlemode graded index fiber optic cable with ETFE jacket — F-7

**964-003**
50/125 Multimode graded index fiber optic cable with Hytrel jacket — F-8

**964-008**
50/125 Multimode graded index fiber optic cable with ETFE jacket — F-9

**964-004**
62.5/125 Multimode graded index fiber optic cable with Hytrel jacket — F-10

**964-005**
62.5/125 Multimode graded index fiber optic cable — F-11

**964-006**
100/140 Multimode graded index fiber optic cable with Hytrel jacket — F-12

**964-009**
100/140 Multimode graded index fiber optic cable with ETFE jacket — F-13


F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www.glenair.com

E-Mail: sales@glenair.com

SERIES 050


*SERIES 050 Harsh-Environment*

# Opto-Electronic Interconnect Solutions

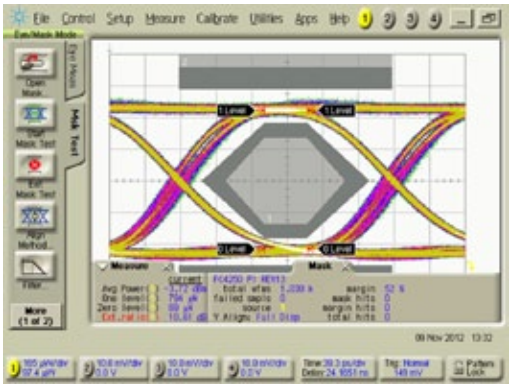
## Opto-electronic media converters and active components for Ethernet, high-speed digital data, video media, and signal aggregation

- **Significant performance advantages over electrical copper including expanded bandwidth, reduced size and weight, increased distance, and improved eletromagnetic compatibility**
- **Take advantage of fiber optic virtues, while reducing complexity and maintenance of fiber optic systems**
- **Size #8 Opto-Electronic contacts for singlemode and multimode optical fiber**

### SIZE #8 CAVITY OPTO-ELECTRONIC CONTACTS AND ACTIVE CONNECTORS

- **Fast and Gigabit Ethernet, DVI, HDMI capable transmitter and receiver-equipped contacts**
- **ARINC 664, 801, 803, 804 and 818 standard compliant**
- **Link distances up to 550 meters, multimode**
- **Single, 3.3 V power supply**
- **Wave-solderable termination with RoHS-compliant solders**

Mighty Mouse receptacle incorporating size #8 opto-electronic contacts



4.25 Gbps / +25°C

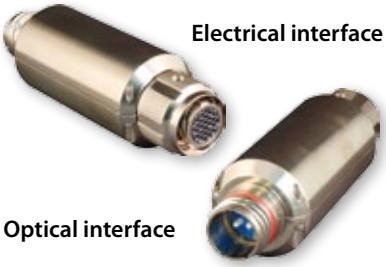
*SERIES 050 Harsh-Environment*

# Opto-Electronic Interconnect Solutions

## ENVIRONMENTAL OPTO-ELECTRONIC SOLUTIONS

- Ethernet media converters10/100/1000 and 10G
- Video media converters DVI, SDI, ARINC 818
- High-Speed digital data to 12.5 GB/sec
- Signal aggregation media converters
- Custom solutions with ruggedized, ultraminiature packaging to suit any application

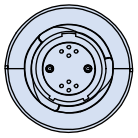
## MEDIA CONVERTER



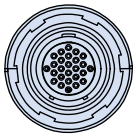

Series 80 Mighty Mouse media converter

- 10/100/1000BASE-T to 1000BASE-SX/LX10 media converter
- IEEE 802-3-2005 Gigabit Ethernet standard compliant
- Up to 550 meters, multimode
- Up to 10 kilometers, singlemode

| Table I: Signal Protocol | | |
|---|---|---|
| Code | Name | Medium |
| SX | 1000BASE-SX | Multimode Fiber |
| LX10 | 1000BASE-LX | Singlemode Fiber |



J1
Mighty Mouse
Receptacle, Optical



J2
Mighty Mouse
Plug, Electrical

## SEVEN PORT UNMANAGED ETHERNET SWITCH

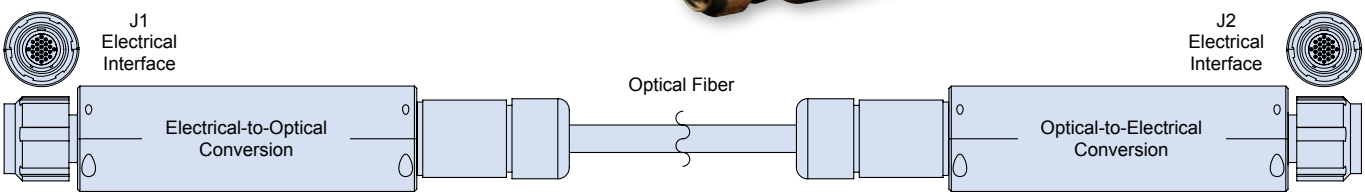
7-port Ethernet switch and breakout cables

- Seven copper (10/100/1000 Mbps) Ethernet ports IAW IEEE 802.3:2005
- Cable distances up to 100 meters
- Unmanaged Ethernet switch, no configuration required
- Non-blocking switch fabric allows 1000 Mbps datarate on all seven ports simultaneously

## ACTIVE/OPTICAL CABLE WITH MEDIA CONVERTER

- 10/100/1000BASE-T to 1000BASE-SX/LX10 active cable
- IEEE 802.3:2005 Gigabit Ethernet standard compliant
- Up to 550 meters, multimode
- Up to 10 kilometers, singlemode

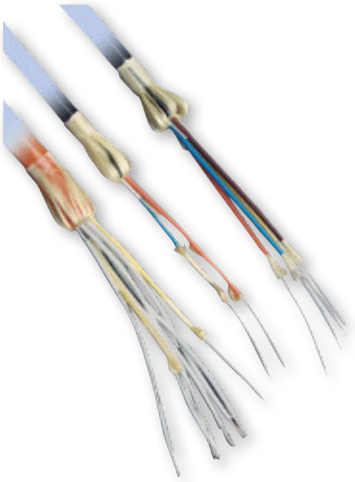
Active optical cable media converter

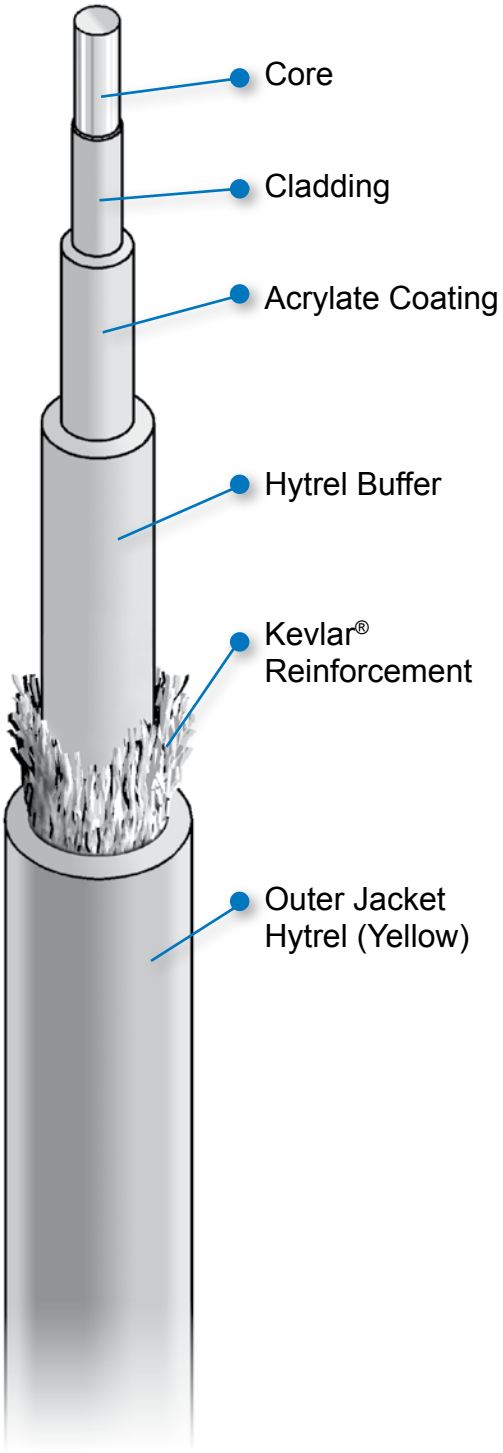


Glenair®

# 964-002
# Bulk Simplex Fiber Optic Cable
## 9.3/125 Singlemode Stepped Index

## 9.3/125 SINGLEMODE GRADED INDEX FIBER OPTIC CABLE WITH HYTREL JACKET



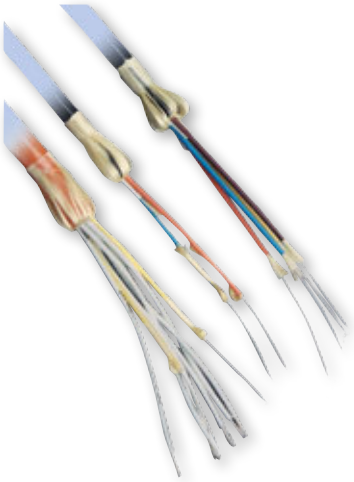


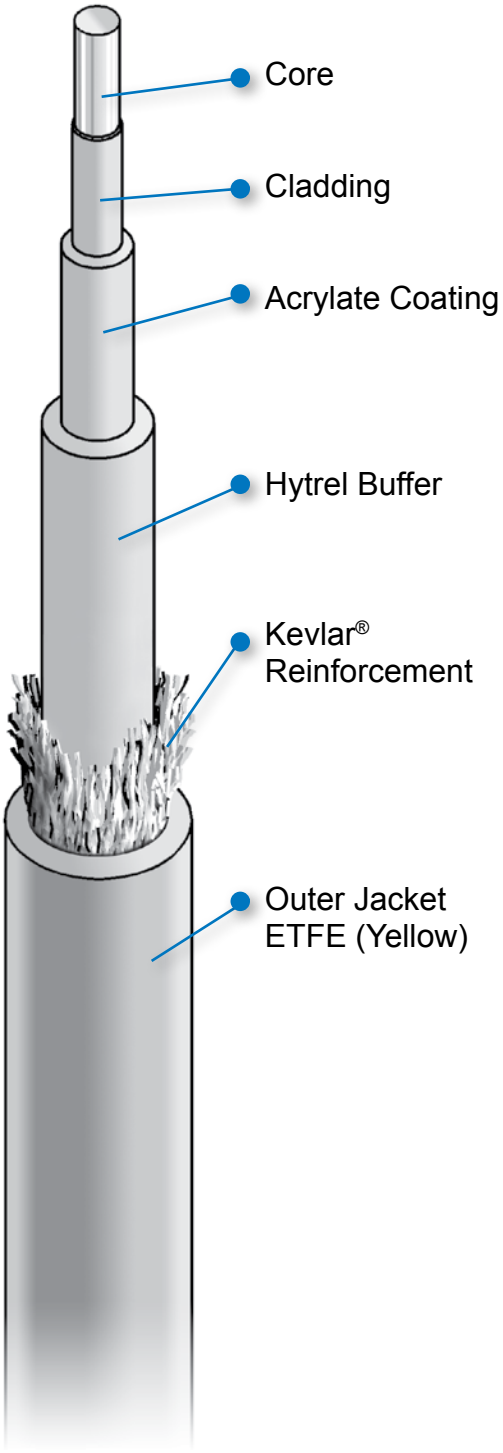

| Cable Specifications | |
|---|---|
| Core/Mode Field Diameter | 9.3 µm ± 3 µm |
| Cladding Diameter | 125 µm ± 2 µm |
| Primary Buffer | 500 µm ± 25 µm |
| Secondary Buffer | 900 µm ± 50 µm |
| Jacket | .083 + .007 Inch Diameter |
| Attenuation:<br>@ 1310 nm<br>@ 1550 nm | <br>3.0 dB/km<br>2.0 dB/km |
| Numerical Aperture | .110 + .020 |
| Index Profile | Stepped |
| Proof Test | >100 KPSI |
| Operating Temperature | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

Kevlar® is a registered trademark of DuPont Company.

## 9.3/125 SINGLEMODE GRADED INDEX FIBER OPTIC CABLE WITH ETFE JACKET






| Cable Specifications | |
|---|---|
| Core/Mode Field Diameter | 9.3 µm ± 3 µm |
| Cladding Diameter | 125 µm ± 2 µm |
| Primary Buffer | 500 µm ± 25 µm |
| Secondary Buffer | 900 µm ± 50 µm |
| Jacket | .083 + .007 Inch Diameter |
| Attenuation:<br>@ 1310 nm<br>@ 1550 nm | <br>3.0 dB/km<br>2.0 dB/km |
| Numerical Aperture | .110 + .020 |
| Index Profile | Stepped |
| Proof Test | >100 KPSI |
| Operating Temperature | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

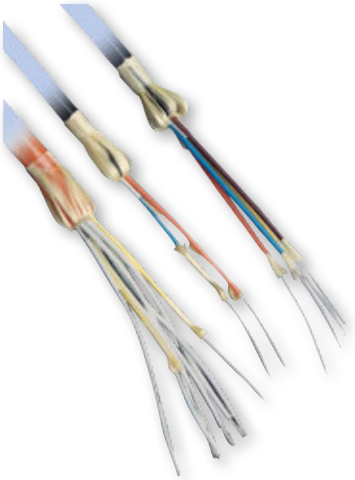
Kevlar® is a registered trademark of DuPont Company.

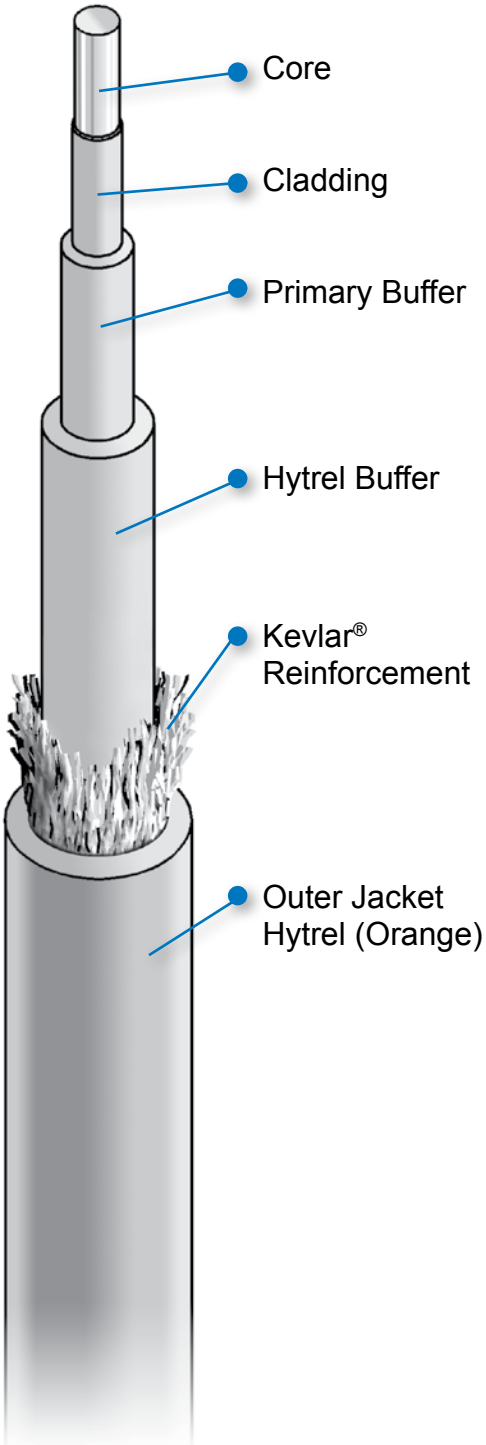
F

Glenair®

# 964-003
# Bulk Simplex Fiber Optic Cable
## 50/125 Graded Index

## 50/125 MULTIMODE GRADED INDEX FIBER OPTIC CABLE WITH HYTREL JACKET






| Cable Specifications | |
|---|---|
| **Core/Mode Field Diameter** | 50 µm ± 3 µm |
| **Cladding Diameter** | 125 µm ± 3 µm |
| **Primary Buffer** | 500 µm ± 25 µm |
| **Secondary Buffer** | 900 µm ± 50 µm |
| **Jacket** | .083 + .007 Inch Diameter |
| **Attenuation:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>4.0 dB/km<br>2.5 dB/km |
| **Bandwidth:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>400 Mhz/km Minimum<br>400 Mhz/km Minimum |
| **Numerical Aperture** | .200 Nominal |
| **Index Profile** | Graded |
| **Proof Test** | 100 KPSI |
| **Operating Temperature** | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

Glenair also carries 62.5 and 50 µm Multimode fiber that meet FAR25 flammability requirements. Consult factory for more information.

Kevlar® is a registered trademark of DuPont Company.



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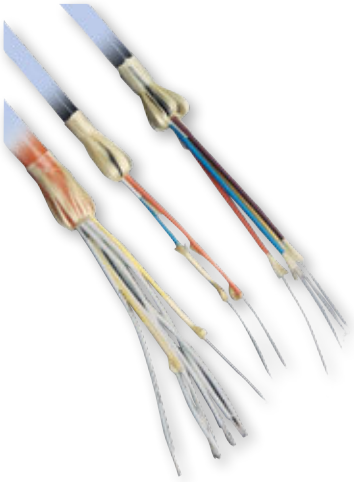
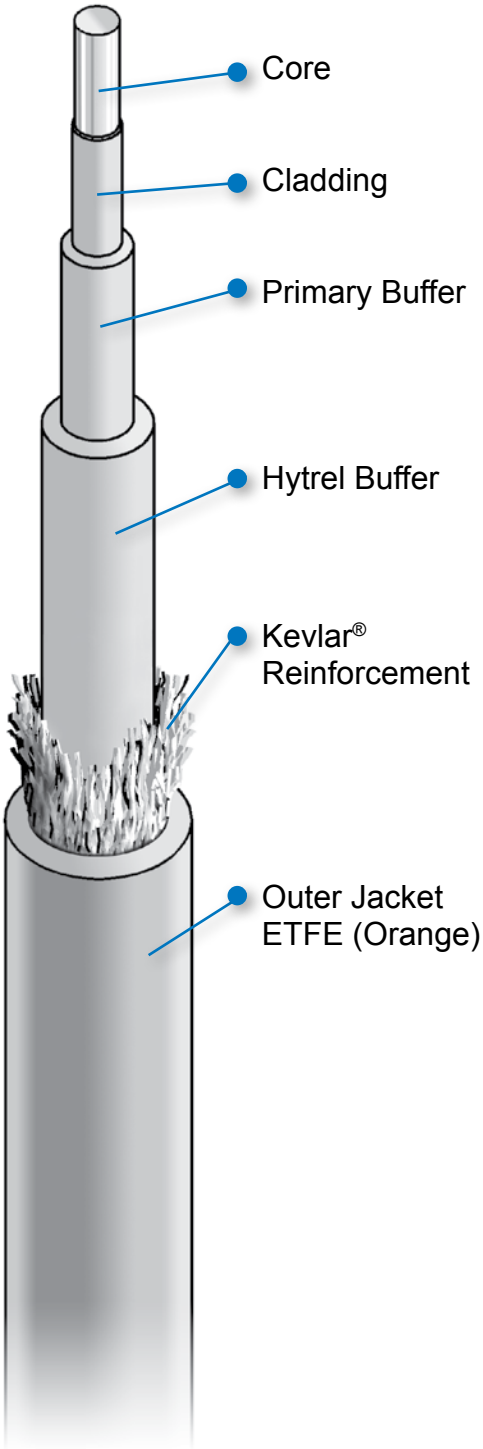
www.glenair.com E-Mail: sales@glenair.com

## 50/125 MULTIMODE GRADED INDEX FIBER OPTIC CABLE WITH ETFE JACKET






| Cable Specifications | |
|---|---|
| **Core/Mode Field Diameter** | 50 µm ± 3 µm |
| **Cladding Diameter** | 125 µm ± 3 µm |
| **Primary Buffer** | 500 µm ± 25 µm |
| **Secondary Buffer** | 900 µm ± 50 µm |
| **Jacket** | .083 + .007 Inch Diameter |
| **Attenuation:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>4.0 dB/km<br>2.5 dB/km |
| **Bandwidth:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>400 Mhz/km Minimum<br>400 Mhz/km Minimum |
| **Numerical Aperture** | .200 Nominal |
| **Index Profile** | Graded |
| **Proof Test** | 100 KPSI |
| **Operating Temperature** | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

Glenair also carries 62.5 and 50 µm Multimode fiber that meet FAR25 flammability requirements. Consult factory for more information.

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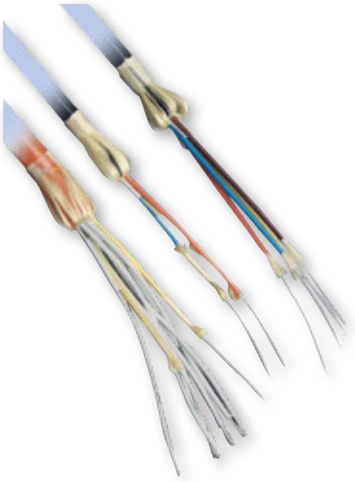
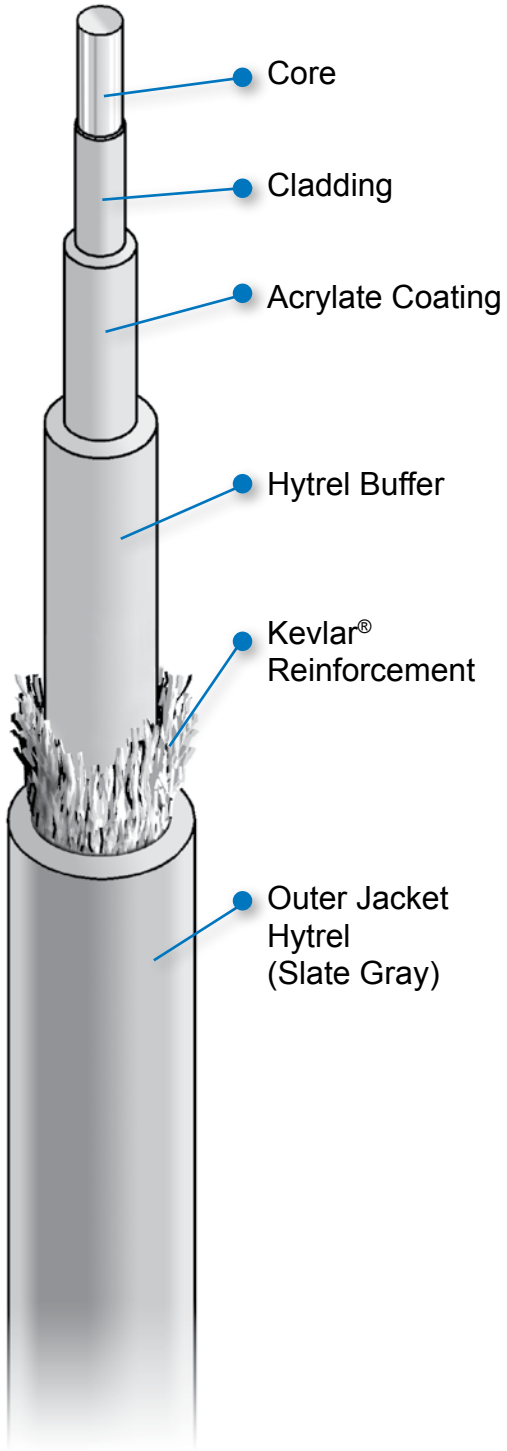
# 964-004
# Bulk Simplex Fiber Optic Cable
## 62.5/125 Graded Index

## 62.5/125 MULTIMODE GRADED INDEX FIBER OPTIC CABLE WITH HYTREL JACKET






| Cable Specifications | |
|---|---|
| **Core/Mode Field Diameter** | 62.5 µm ± 3 µm |
| **Cladding Diameter** | 125 µm ± 3 µm |
| **Primary Buffer** | 500 µm ± 25 µm |
| **Secondary Buffer** | 900 µm ± 50 µm |
| **Jacket** | .083 + .007 Inch Diameter |
| **Attenuation:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>4.0 dB/km<br>2.0 dB/km |
| **Bandwidth:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>160 Mhz/km Minimum<br>500 Mhz/km Minimum |
| **Numerical Aperture** | 0.275 Nominal |
| **Index Profile** | Graded |
| **Proof Test** | >100 KPSI |
| **Operating Temperature** | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

Glenair also carries 62.5 and 50 µm Multimode fiber that meet FAR25 flammability requirements. Consult factory for more information.

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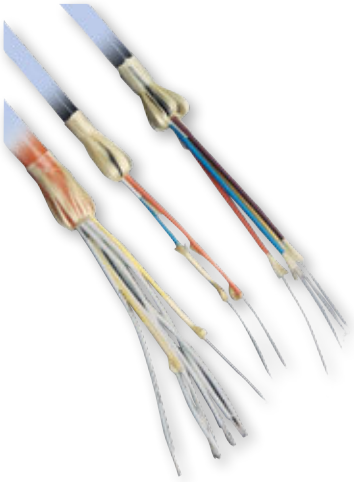
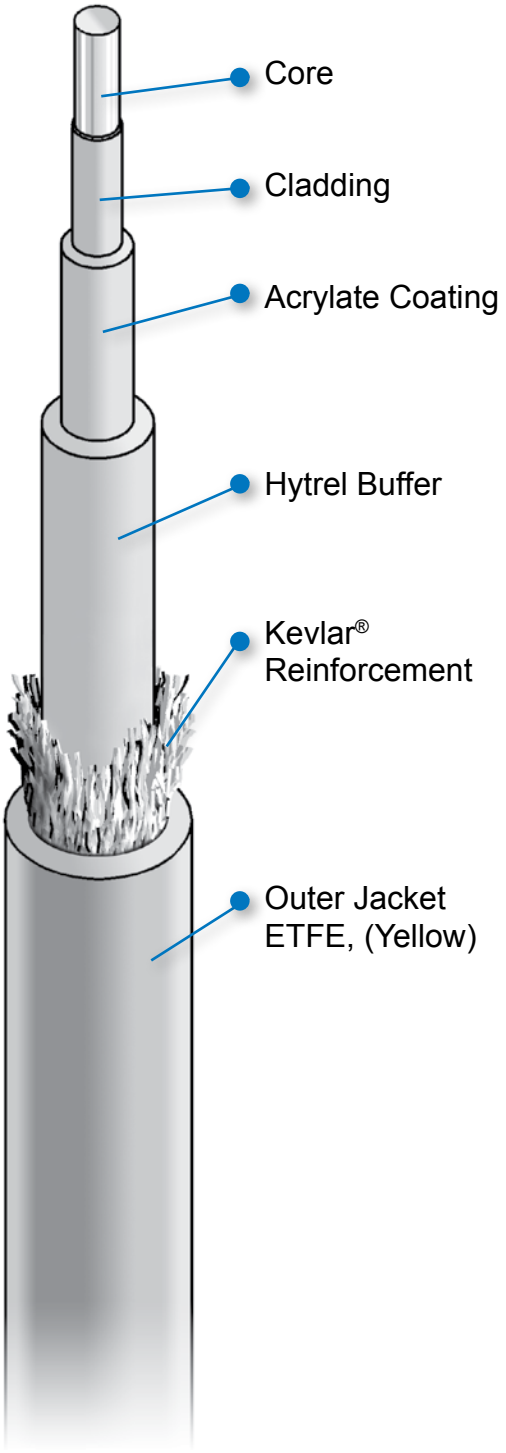
## 62.5/125 MULTIMODE GRADED INDEX FIBER OPTIC CABLE






| Cable Specifications | |
|---|---|
| **Core/Mode Field Diameter** | 62.5 µm ± 3 µm |
| **Cladding Diameter** | 125 µm ± 3 µm |
| **Primary Buffer** | 500 µm ± 25 µm |
| **Secondary Buffer** | 900 µm ± 50 µm |
| **Jacket** | .083 + .007 Inch Diameter |
| **Attenuation:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>4.0 dB/km<br>2.0 dB/km |
| **Bandwidth:**<br>**@ 850 nm**<br>**@ 1300 nm** | <br>160 Mhz/km Minimum<br>500 Mhz/km Minimum |
| **Numerical Aperture** | 0.275 Nominal |
| **Index Profile** | Graded |
| **Proof Test** | >100 KPSI |
| **Operating Temperature** | -40° C to 85° C |
| **Core Noncircularity** | < 5% |
| **Cladding Noncircularity** | < 2% |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

Glenair also carries 62.5 and 50 µm Multimode fiber that meet FAR25 flammability requirements. Consult factory for more information.

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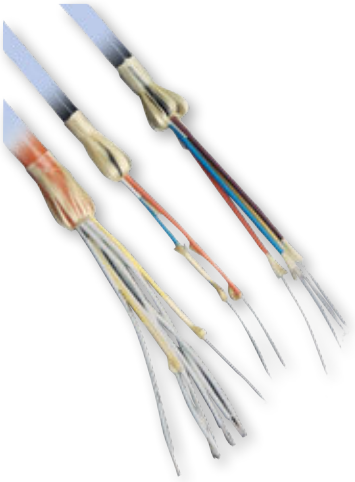
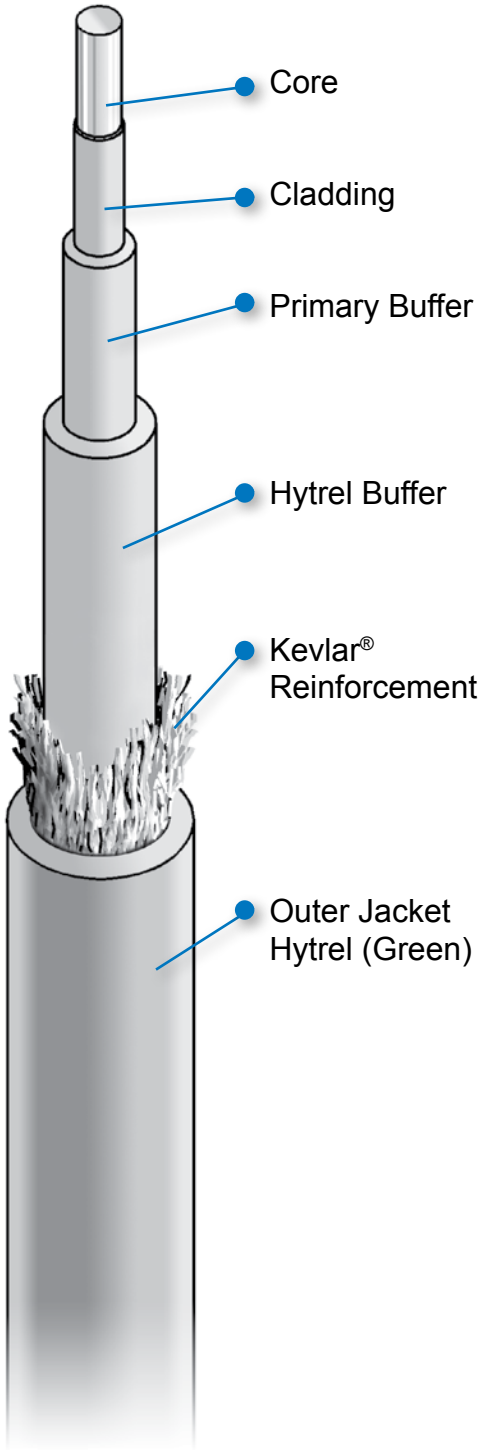
# 964-006
# Bulk Simplex Fiber Optic Cable
## 100/140 Graded Index

## 100/140 MULTIMODE GRADED INDEX FIBER OPTIC CABLE WITH HYTREL JACKET






| Cable Specifications | |
|---|---|
| Core/Mode Field Diameter | 100 µm ± 4 µm |
| Cladding Diameter | 140 µm ± 3 µm |
| Primary Buffer | 500 µm ± 25 µm |
| Secondary Buffer | 900 µm ± 50 µm |
| Jacket | .083 + .007 Inch Diameter |
| Attenuation:<br>@ 850 nm<br>@ 1300 nm | <br>6.0 dB/km<br>4.0 dB/km |
| Bandwidth:<br>@ 850 nm<br>@ 1300 nm | <br>100 Mhz/km Minimum<br>100 Mhz/km Minimum |
| Numerical Aperture | .290 + .015 |
| Index Profile | Graded |
| Proof Test | >100 KPSI |
| Operating Temperature | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

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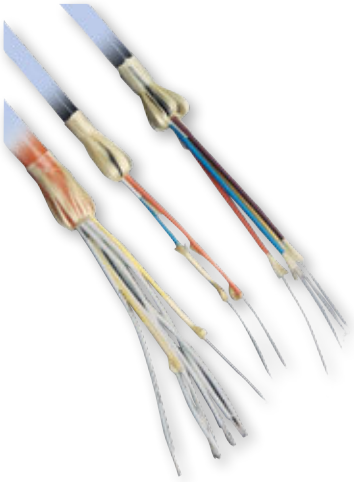
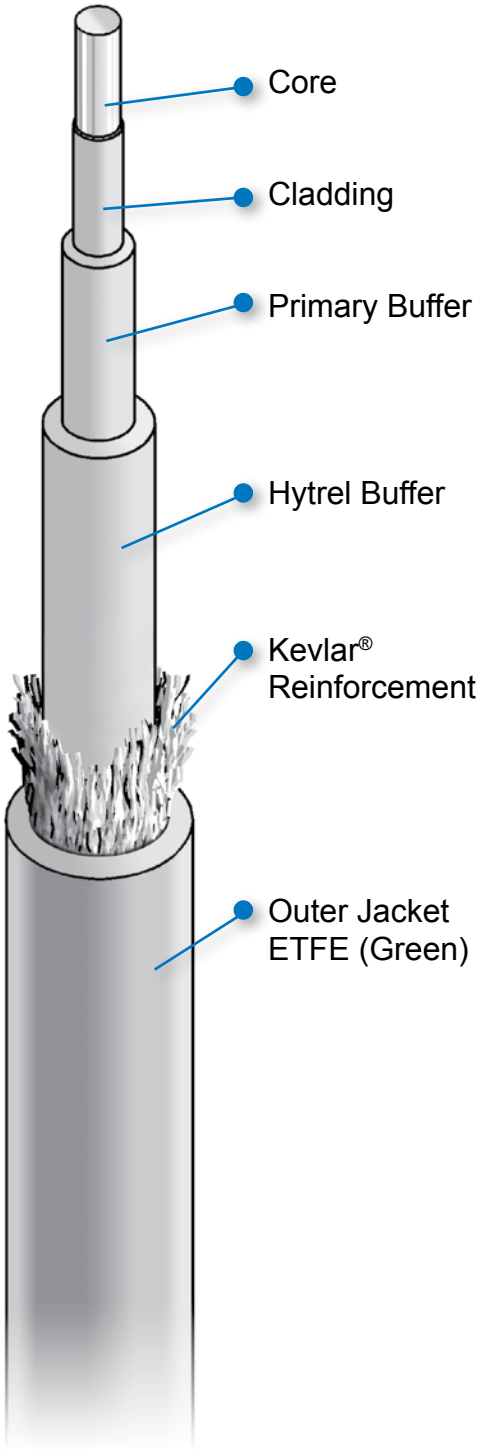
## 100/140 MULTIMODE GRADED INDEX FIBER OPTIC CABLE WITH ETFE JACKET






| Cable Specifications | |
|---|---|
| Core/Mode Field Diameter | 100 µm ± 4 µm |
| Cladding Diameter | 140 µm ± 3 µm |
| Primary Buffer | 500 µm ± 25 µm |
| Secondary Buffer | 900 µm ± 50 µm |
| Jacket | .083 + .007 Inch Diameter |
| Attenuation:<br>@ 850 nm<br>@ 1300 nm | <br>6.0 dB/km<br>4.0 dB/km |
| Bandwidth:<br>@ 850 nm<br>@ 1300 nm | <br>100 Mhz/km Minimum<br>100 Mhz/km Minimum |
| Numerical Aperture | .290 + .015 |
| Index Profile | Graded |
| Proof Test | >100 KPSI |
| Operating Temperature | -40° C to 85° C |

**Consult Factory for price in feet or meters and for Standard Length Tolerance**

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SERIES 963

# PROTOCOL-SPECIFIC HIGH-SPEED CABLE

## *For USB, Ethernet, SATA and other general-purpose/protocol-specific applications*

NO MINS. No Dollar or Quantity Minimum Orders


All of the cables in this section have been selected for protocol compliance in accordance with industry-standard Ethernet, USB, and SATA/eSATA specifications and harsh mission-critical application environments. Without exception, cables have been designed and fabricated to optimize flexibililty, weight reduction, ruggedness, and insulator quality. Each cable is offered with specific guidance as to shielding properties, impedance performance, attenuation, temperature rating, bend radius, weight, and maximum practical distance. Many of these cables are ideally suited for application with Glenair designed connectors such as our Series 80 Mighty Mouse, Series 79 Micro-Crimp, and other connectors designed for use in high-speed applications. All of the cable part numbers detailed here are in stock and ready for immediate, same-day shipment with no length or dollar minimums.

| Compatible Contacts | |
|---|---|
|  Size 12 Differential Twinax Pin |  Size 12 Differential Twinax Socket |

Glenair®

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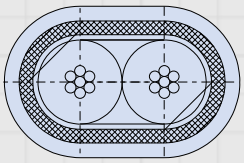
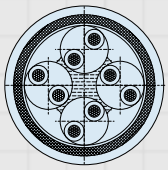
# Protocol Specific Cables
# For USB, Ethernet, HDMI and Others
## Selection Guide

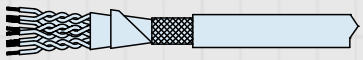


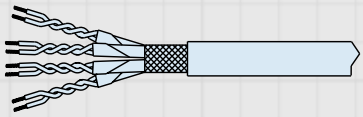
**963-001**
100 Ohm differential parallel pair data cable — G-4



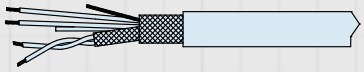
**963-002**
1000 BASE-T Ethernet Cable with Polyurethane Jacket — G-5



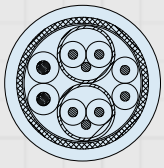
**963-003**
10G BASE-T Ethernet Cable with FEP Jacket — G-6



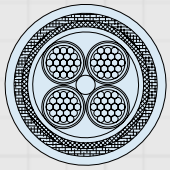
**963-004**
10G BASE-T Ethernet Cable with PVC Jacket — G-7



**963-005**
USB 2.0 Cable with FEP, Polyurethane or No Jacket — G-8

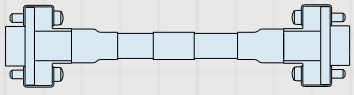


**963-012**
USB 3.0 Cable with Polyurethane Jacket — G-9



**963-006**
110 Ohm Firewire Quad Cable with FEP, Polyurethane or No Jacket — G-10

**963-013**
100 Ohm SATA/eSATA Cable with Polyurethane Jacket — G-11



**GWSM**
Glenair Spacewire Micro-D — G-12






U.S. CAGE Code 06324

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E-Mail: sales@glenair.com

# Mighty Mouse High-Speed and Ultra-Twinax: high-speed performance and signal integrity in an ultraminiature package

Glenair has expanded the Mighty Mouse line to include contacts and connectors optimized for high-speed digital applications. A wide range of interconnect technologies are available, including

- *High-Speed* series 80 with DuPont™ Teflon® insulators for superior electrical performance in protocol-specific applications like eSATA and USB 2.0/3.0. These connectors are ideally suited for use with Ethernet, USB and other protocol-specific wire types presented in this chapter.
- Mighty Mouse *Ultra-Twinax* connectors utilizing size #12 Twinax contacts for differential pair applications such as LVDS and CML, and 963-001 100 Ohm differential parallel pair data cable

## MIGHTY MOUSE *HIGH-SPEED*

Series 80 Mighty Mouse *High Speed* Connectors with DuPont™ Teflon® PFA Insulators

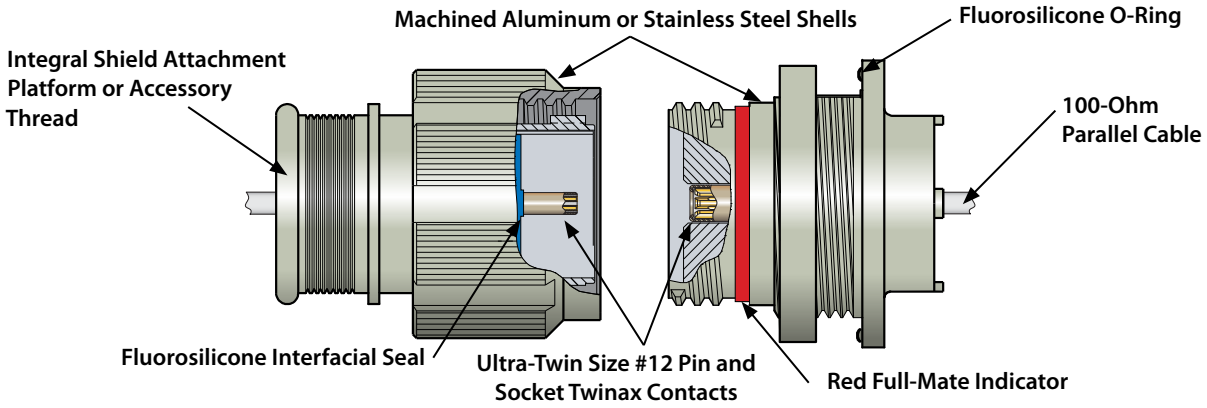
- **For use with high-speed protocol wire including eSATA, 10GBASE-T, USB 2.0 / 3.0**
- **DuPont™ Teflon® PFA insulators for superior insertion loss and balanced impedance**
- **Series 801 double-start ACME thread and Series 804 push-pull quick disconnect connectors available**
- **Discrete components or overmolded cordsets**

## MIGHTY MOUSE *ULTRA-TWINAX*

- **For ultra high-speed differential pair applications such as LVDS, CML and 963-001 100 Ohm differential parallel pair data cable**
- **Size #12 Twinax and hybrid contact arrangements**
- **Series 801 double-start ACME thread connectors**
- **Discrete components or overmolded cordsets**

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

**Mighty Mouse *ultra-twinax* plug and receptacle cutaway**



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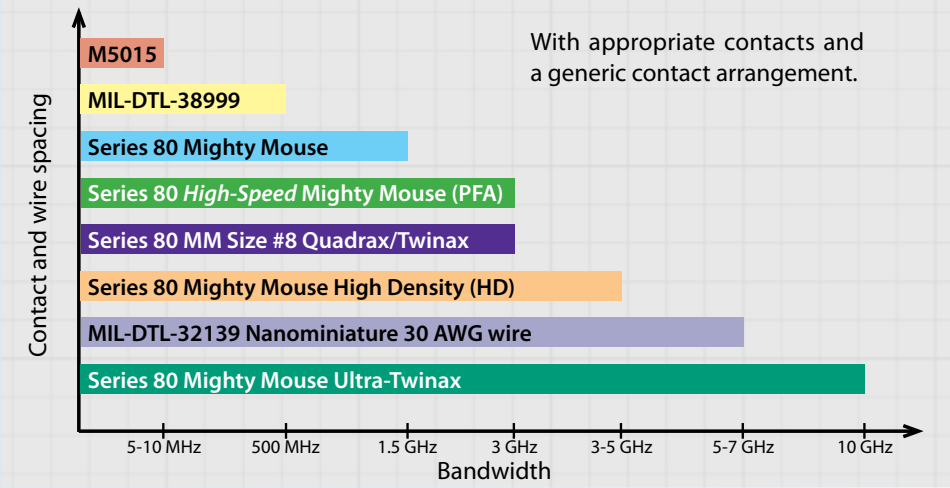
# Protocol Specific Cables
# For USB, Ethernet, HDMI and Others
## Compatible Connectors

This table compares contact and wire spacing and bandwidth performance in miniaturized interconnect applications. As contact density increases, the performance of the interconnect improves. Note the position of the High-Speed PFA and Size #8 Mighty Mouse compared to standard Mighty Mouse, and the position of the Ultra-Twinax Mighty Mouse with performance up to 10 GHz. The Series 80 Mighty Mouse High Density (HD) connector also performs exceptionally well in bandwidths up to 5 GHz, by virtue of its high-density TwistPin contact insert arrangements.




**Mighty Mouse *High Speed* Contact Arrangements**
**Mating Face View of Pin Connector (Socket Connector Numbers are Reversed)**

| 6 - 4 | 6 - 7 | 7 - 10 | 9 - 19 | 10 - 26 |
|---|---|---|---|---|
| Shell Size 6<br>4 Size #23 Contacts | Shell Size 6<br>7 Size #23 Contacts | Shell Size 7<br>10 Size #23 Contacts | Shell Size 9<br>19 Size #23 Contacts | Shell Size 10<br>26 Size #23 Contacts |

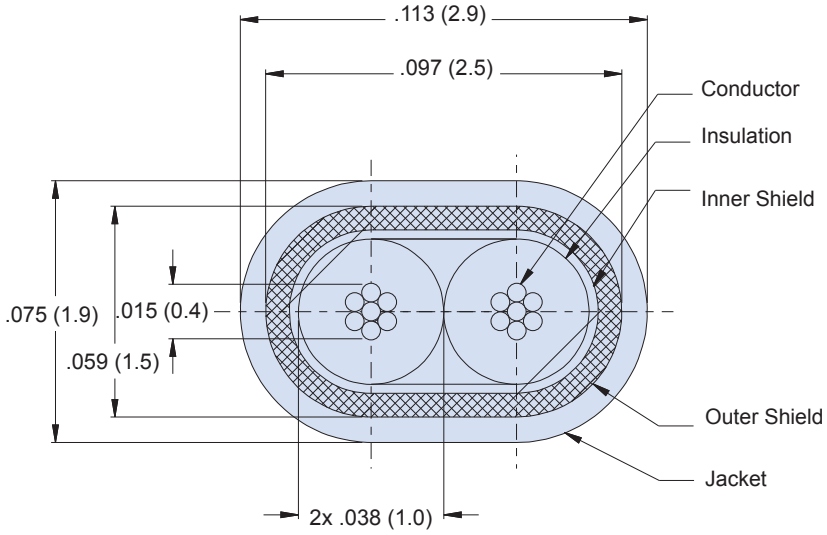
**Mighty Mouse *Ultra Twinax* Size #12 Differential Twinax Contact Arrangements (Mating Face/Pin Connector)**

| 7-1 | 10-2 | 16-5 | 17-7 | 21-12 | 10-201 | 10-200 |
|---|---|---|---|---|---|---|
| Shell Size 7<br>1 Size #12<br>Twinax Contact | Shell Size 10<br>2 Size #12<br>Twinax Contacts | Shell Size 16<br>5 Size #12 Twinax<br>Contacts | Shell Size 17<br>7 Size #12 Twinax<br>Contacts | Shell Size 21<br>12 Size #12 Twinax<br>Contacts | Shell Size 10<br>2 Size #12 Twinax<br>4 Size #23 Contacts | Shell Size 10<br>1 Size #12 Twinax<br>12 Size #23 Contacts |

**Glenair SuperSeal™ Ethernet and USB connectors are optimized for use with our Series 963 Ethernet and USB cables**

# 963-001
## 100 Ohm Differential Parallel Pair Data Cable

## 963-001: 100 OHM DIFFERENTIAL PARALLEL PAIR DATA CABLE



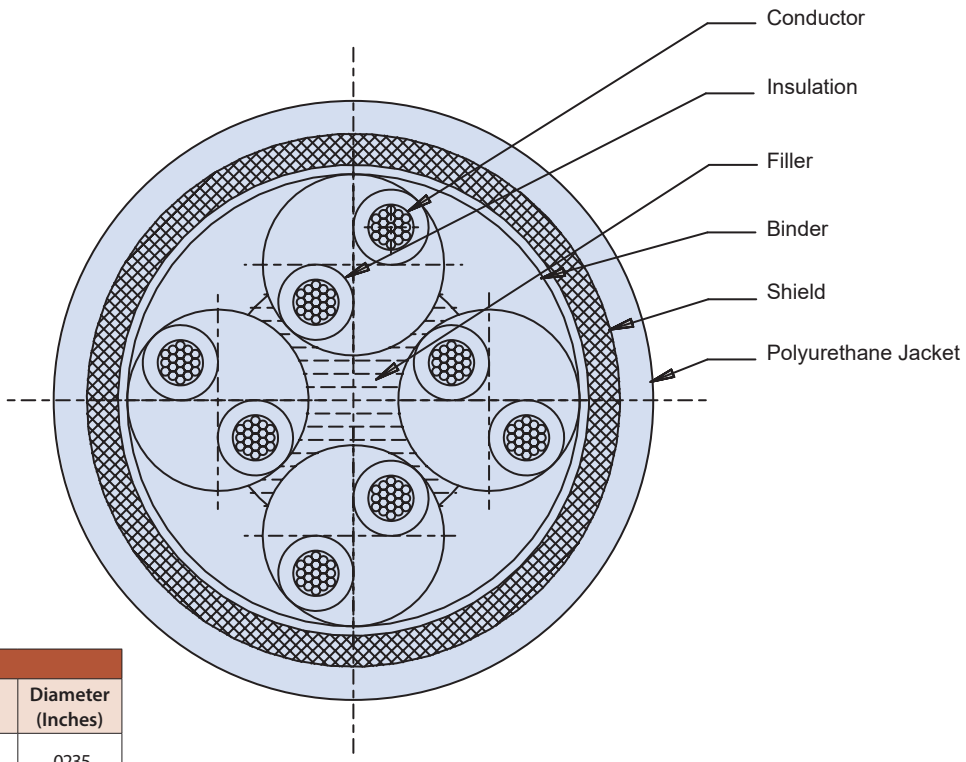

| Properties | |
|---|---|
| Impedance | 100 Ohms ± 10 |
| Attenuation | 0.25 dB/m @ 100 MHz<br>.075 dB/m @ 500 MHz<br>1.25 dB/m @ 1000 MHz |
| Impedance | 100 ± 10 Ohms |
| Capacitance | 12.0 pF/ft (nom) |
| Velocity of Propogation | 80% |
| Temperature Rating | 150°C |

| Construction Details | | |
|---|---|---|
| Data Pair | Conductor | 2x 28 AWG (7/36) silver plated high strength copper alloy (.015" OD) |
| | Insulation | Extruded Foamed Fluoropolymer (.038") |
| | Colors | Blue and white |
| | Shield Coverage | Silver plated copper, 38 AWG, 95% minimum |
| Inner Shield | | Aluminum/ Polyester tape, 100% coverage |
| Outer Shield | | Round silver plated copper braid, 90% coverage |
| Jacket | | Extruded FEP |
| Color | | Transparent blue |



***Notes***
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

## 963-002: 1000 BASE-T ETHERNET CABLE WITH POLYURETHANE JACKET




| Construction Details | | |
|---|---|---|
| | **Details** | **Diameter (Inches)** |
| **Conductor** | 24 AWG 19x36 silver plated copper alloy | .0235 |
| **Insulation** | Fluoropolymer | .045 |
| **Colors** | Pair #1 white/blue and blue<br>Pair #2 white/orange and orange<br>Pair #3 white/green and green<br>Pair #4 white/brown and brown | .235<br>.300 |
| Two insulated conductors twisted together (varied lays) | | |

| Properties | |
|---|---|
| **Impedance** | 100 Ohms ± 15% (1 to 100 MHz) |
| **Attenuation** | 8.0 dB/100 ft @ 100 MHz |
| **NEXT** | 35.3 dB @ 100MHz |
| **PSNEXT** | 32.3 dB @ 100 MHz |
| **ELFEXT** | 23.8 dB @ 100 MHz |
| **PSELFEXT** | 20.8 dB @ 100 MHz |
| **Temperature Rating** | 90 ° C |
| **Minimum Bend Radius** | 1.25" (dynamic)<br>1.00" (static) |
| **Weight** | 4.8 lbs/100 ft |
| **Max Cabling Distance** | 80 meters (100BASE-T) |

| Final Assembly | |
|---|---|
| **Cable** | Four twisted pairs caled around a center filler |
| **Binder** | Skive PTFE tape |
| **Shield 1** | Aluminum polyester |
| **Shield 2** | 38 AWG silver plated copper braid<br>80% coverage |
| **Jacket** | Polyeurethane (Estane 58244)<br>Color: Black<br>.030" minimum jacket wall |

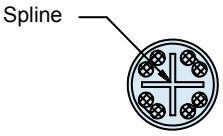
G

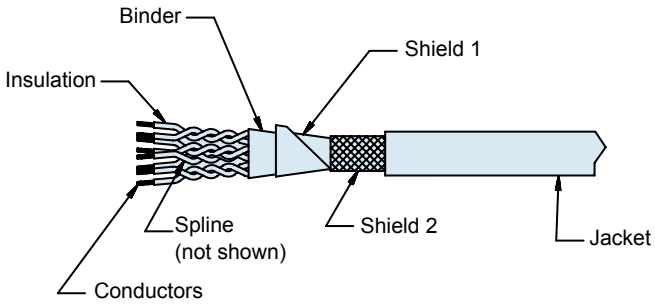
***Notes***
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

# 963-003
# Avionic Cat 6a Ethernet Cable

## 963-003: 10G BASE-T ETHERNET CABLE WITH FEP JACKET

| How to Order | |
|---|---|
| 963-003-24 | 24 AWG |
| 963-003-26 | 26 AWG |




| Construction Details | | |
|---|---|---|
| | 963-003-24 | 963-003-26 |
| Conductor | 24 AWG silver plated copper | 26 AWG stranded silver plated copper |
| Insulation | FEP | PFA |
| Colors | Pair #1 white/blue and blue stripe<br>Pair #2 white/orange and orange stripe<br>Pair #3 white/green and green stripe<br>Pair #4 white/brown and brown stripe | Pair #1 white/blue and blue stripe<br>Pair #2 white/orange and orange stripe<br>Pair #3 white/green and green stripe<br>Pair #4 white/brown and brown stripe |

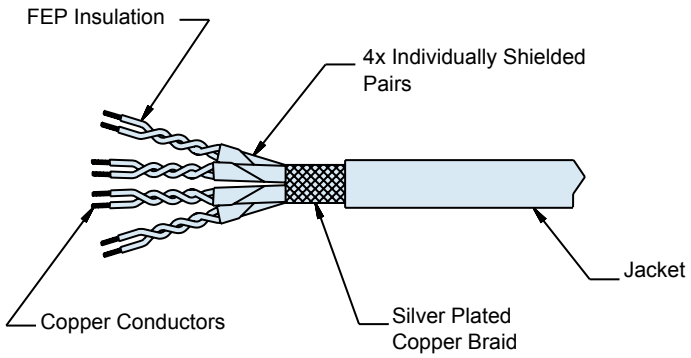
| Final Assembly | | |
|---|---|---|
| | 963-003-24 | 963-003-26 |
| Conductors | Silver plated copper | Silver plated copper |
| Insulation | FEP | PFA |
| Cable | Four twisted pairs cabled around a center filler | Four twisted pairs cabled around a center filler |
| Spline | FEP | Fluoropolymer |
| Binder | Skive PTFE tape | Fluoropolymer tape |
| Shield 1 | Aluminum mylar | n/a |
| Shield 2 | 38 AWG silver plated copper braid 90% coverage | silver plated copper braid 80% coverage |
| Jacket | FEP<br>Color: Translucent blue<br>.275" Nominal OD | PTFE laser printable jacket<br>Color: White<br>.220" nominal OD |

| Properties | | |
|---|---|---|
| | 963-003-24 | 963-003-26 |
| Impedance | 100 Ohms ± 10% | 100 Ohms ± 10% |
| Attenuation (dB/100 Ft) | 10 MHz - 2.4<br>100 MHz - 7.5<br>500 MHz - 17.7 | 10 MHz - 3.7<br>100 MHz - 11.2<br>500 MHz - 24.0 |
| NEXT | 10 MHz - 59.3<br>100 MHz - 44.3<br>250 MHz - 38.3<br>500 MHz - 33.8 | 10 MHz - 59.3<br>100 MHz - 44.3<br>250 MHz - 38.3<br>500 MHz - 33.8 |
| SRL | 10 MHz - 25.0<br>100 MHz - 20.1<br>250/500 MHz - 15.2 | 10 MHz - 25.0<br>100 MHz - 20.1<br>250/500 MHz - 15.2 |
| Capacitance (pF/ft) | 14.5 (nominal) | 14.5 (nominal) |
| Velocity of Propogation | 70% (nominal) | 70% (nominal) |
| DWV | 1.5 KV RMS | 1.5 KV RMS |
| Temperature Rating | -55° to +200° C | -55° to +200° C |
| Minimum Bend Radius | 1.4 Inches | .660 Inches |
| Weight | 5.5 lbs/100 ft | 3.05 lbs/100 ft |
| Max Cabling Distance | 240 Feet (10GBASE-T) | 188 Feet |

### *Notes*

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.
Meets TIA-568B CAT-6A requirements when terminated to appropriate high speed connectors.
Skydrol resistant, RoHS compliant and passes flamability requirements of FAR part 23 and 25, appendix F.

## 963-004: 10G BASE-T ETHERNET CABLE WITH PVC JACKET




| Construction Details | |
|---|---|
| **Conductor** | 23 AWG solid copper alloy (.024" OD) |
| **Insulation** | Foam FEP (.057" OD) |
| **Colors** | Pair #1 white with blue stripe<br>Pair #2 orange/white with orange stripe<br>Pair #3 green/white and green stripe<br>Pair #4 brown/white and brown stripe |
| **Pair Shield** | Aluminum mylar, 100% aluminum side facing out (.115" OD) |
| **Overall Shield** | Braid, silver plated copper 38 AWG, 85% minimum (.274" nominal OD) |
| **Jacket** | 0.298" nominal OD |

| Properties | |
|---|---|
| **Impedance** | 100 Ohms ± 10% |
| **Attenuation (dB/100 M)** | 10 MHz - 5.7<br>100 MHz - 18.5<br>300 MHz - 33.3<br>600 MHz - 48.9<br>1000 MHz - 64 |
| **NEXT** | 10 MHz - 80<br>100 MHz - 72.4<br>300 MHz - 65.3<br>600 MHz - 60.8<br>1000 MHz - 67 |
| **SRL** | 10 MHz - 25<br>100 MHz - 20.1<br>300 MHz - 17.3<br>600 MHz - 17.3<br>1000 MHz - 18 |
| **Capacitance (pF/ft)** | 14.5 (nominal) |
| **Velocity of Propogation** | 80% (nominal) |
| **DWV** | 1000V RMS |
| **Temperature Rating** | -20° to +70° C |
| **Weight** | 4.1 lbs/100 ft |

### *Notes*

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.



 U.S. CAGE Code 06324 Printed in U.S.A.

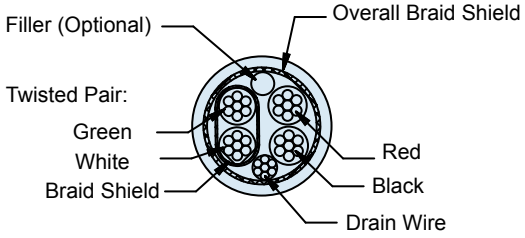
Glenair®

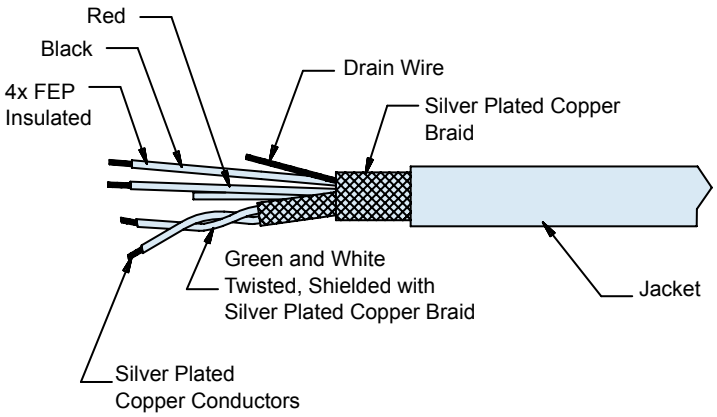
# 963-005
## USB 2.0 Cable

## 963-005: USB 2.0 CABLE WITH FEP, POLYURETHANE OR NO JACKET

### How To Order

| Product Series | Basic No. | Cable Jacket Material |
|---|---|---|
| 963 | 005 | 1 - Less Jacket<br>2 - FEP (translucent blue)<br>3 - Polyurethane, zero halogen, Estane 58244 TPU or equivalent (black) |



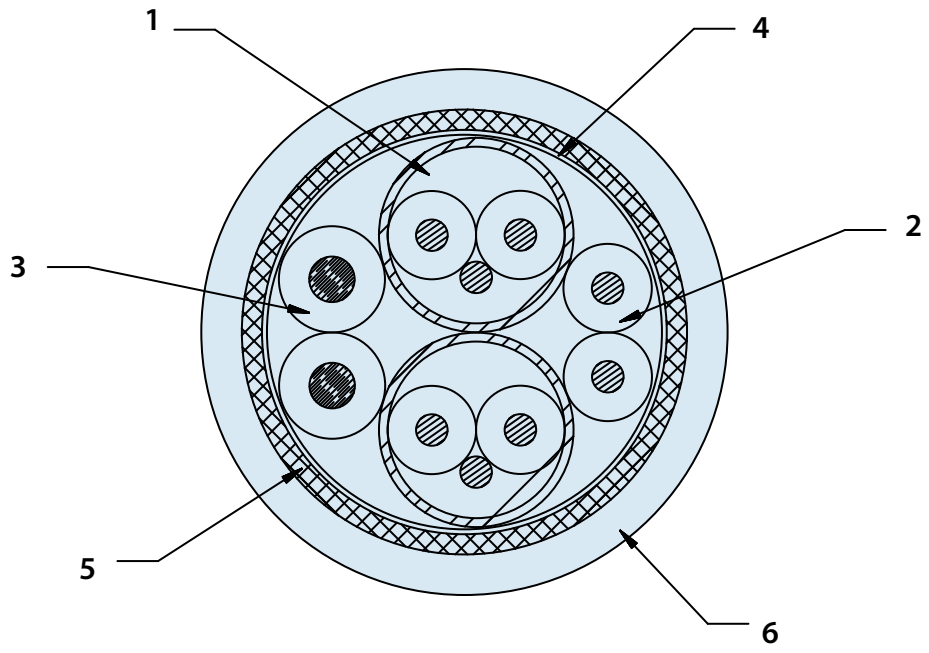

| Properties | |
|---|---|
| Impedance | 90 Ohms ± 10 |
| Attenuation (dB/100 ft) | 1 MHz - 1.2<br>4 MHz - 2.4<br>8 MHz - 3.5<br>12 MHz - 4.1<br>24 MHz - 5.8<br>48 MHz - 8.2<br>96 MHz - 11.6<br>200 MHz - 19.5<br>400 MHz - 35.0 |
| Skew | 100 ps max / 16.4 feet (5 meters) |
| Velocity of Propogation | 70% (nominal) |
| DWV | 1000V RMS |
| Temperature Rating | FEP: -55° to +200° C<br>Polyurethane: -30° to +105° C |
| Weight | 2.9 lbs/100 ft |

| Construction Details | | |
|---|---|---|
| Data Pair | Conductor | 2x 26 AWG (19/38) silver plated copper alloy (.019" OD) |
| | Insulation | FEP (.035") |
| | Colors | Green and white |
| | Shield Coverage | Silver plated copper, 38 AWG, 95% minimum |
| Power Pair | Conductor | 2x 22 AWG (19/34) silver plated copper alloy (.030" OD) |
| | Insulation | FEP (.050") |
| | Colors | Red and black |
| Drain Wire | Conductor | 26 AWG (19/38) silver plated copper alloy (.019" OD) |
| Filler | | PTFE rod, optional |
| Overall Shield Coverage | | Silver plated copper, 38 AWG, 95% minimum (.176" nominal OD) |
| Jacket Diameter | | .200" nominal |

### *Notes*

Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

## 963-012: HIGH DATA RATE CABLE • 3.0 USB TYPE WITH POLYURETHANE JACKET




| Construction Details | | | |
|---|---|---|---|
| 1 | 2x Data Pair 90 Ohms (Twisted, Shielded) | Conductors | 2x 26 AWG (19/38) silver plated copper |
| | | Insulation | FEP |
| | | Colors | Pair 1: Violet and orange<br>Pair 2: Blue and yellow |
| | | Drain | 26 AWG (19/38) silver plated copper |
| | | Shield | Al/Polyester, 50% lap (foil side in) |
| 2 | Data Pair 90 Ohms (Twisted) | Conductors | 2x 26 AWG (19/38) silver plated copper |
| | | Insulation | FEP |
| | | Colors | Green and white |
| 3 | Power Pair | Conductors | 2x 24 AWG (19/36) silver plated copper |
| | | Insulation | FEP |
| | | Colors | Black and red |
| 4 | Mylar Tape | | 50% Min Overlap |
| 5 | Overall Shield | | 36 AWG silver plated copper braid. 90% coverage minimum |
| 6 | Overall Jacket | | Polyurethane, Ø .272 In nominal, black |

| Properties | | | |
|---|---|---|---|
| Impedance | 90 Ohms ± 10 | | |
| STP Performance (nominal) | f (GHz) | IL (dB/m) | Next (dB) |
| | 1.25 | -1.8 | -74.6 |
| | 2.5 | -2.6 | -67.7 |
| | 5 | -4.0 | -53.1 |
| | 7.5 | -5.7 | -53.5 |
| DWV | 300VAC | | |
| Temperature Rating | -30C to +105C | | |
| Weight | 47.8 lb/1000 ft | | |



***Notes***
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

 U.S. CAGE Code 06324 Printed in U.S.A.

Glenair®

# 963-006
## IEEE 1394 (Firewire)

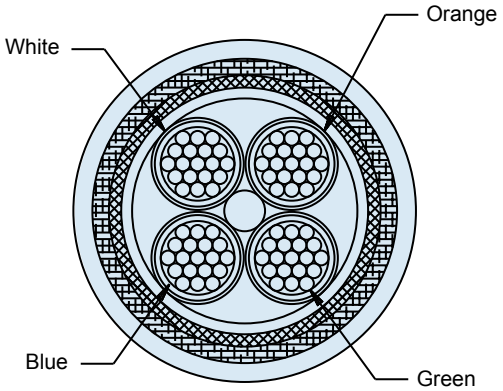
## 963-006: 110 OHM QUAD CABLE WITH FEP, POLYURETHANE OR NO JACKET

### How To Order

| Product Series | Basic No. | Cable Jacket Material |
|---|---|---|
| 963 | 006 | 2 |

**Cable Jacket Material**
*1 - Less Jacket*
*2 - FEP (translucent blue)*
*3 - Polyurethane, zero halogen, Estane 58244 TPU or equivalent (black)*

| Construction Details | |
|---|---|
| Conductors | 24 AWG (19/36) silver plated copper alloy (.0235" OD) |
| Insulation | Foam FEP, .054" OD |
| Filler | FEP .022" nominal OD |
| Overal Binder | PTFE tape wrap |
| Overall Shield #1 | 40 AWG silver plated copper braid |
| Overall Shield #2 | 38 AWG silver plated copper braid |
| Jacket Diameter | .190" nominal, .200" max |

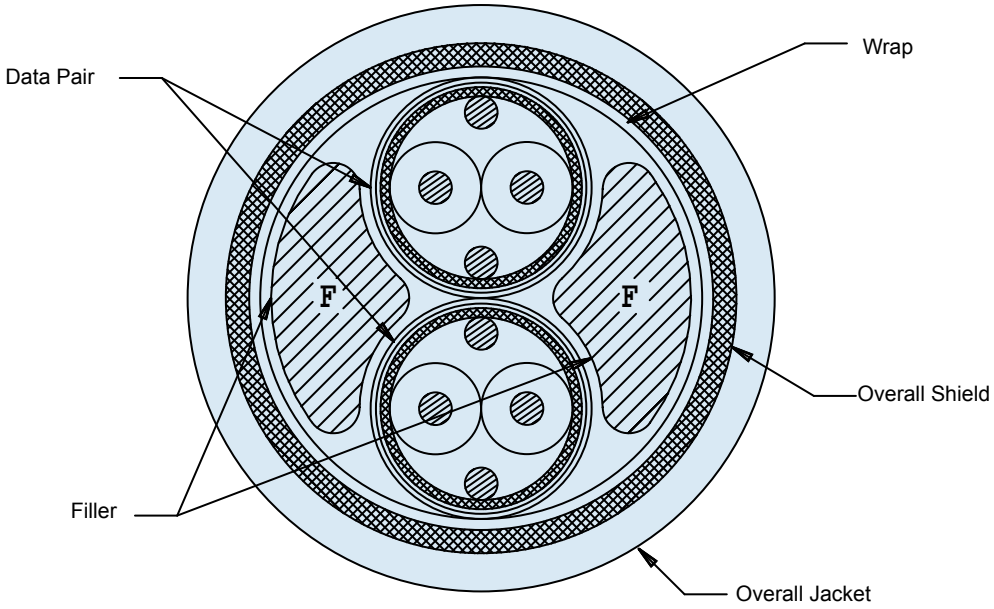



| Properties | |
|---|---|
| Impedance | 110 Ohms ± 6 (measured differentially) |
| Attenuation (dB/100 ft) | 10 MHz - 2.9<br>100 MHz - 7.5<br>500 MHz - 15.0<br>1 GHz - 22.5 |
| Skew | 2.0 PS/ft typical, 3.5 PS/ft Max (within pair) |
| Velocity of Propogation | 80% (nominal) |
| Capacitance | 12.5 PF/ft nominal (between pairs, ground floating) |
| DWV | 1500V RMS conductor/conductor<br>1000V RMS conductor/shield |
| Temperature Rating | FEP: -55° to +200° C<br>Polyurethane: -30° to +105° C |
| Weight | 3.5 lbs/100 ft |



### *Notes*
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.

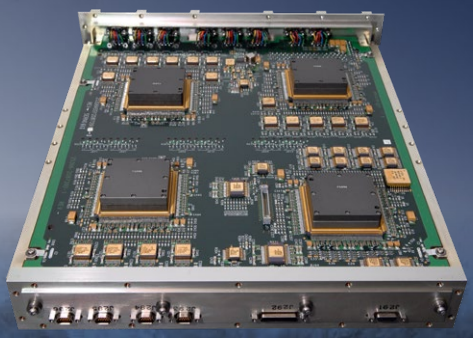
## 963-013: 100 OHM SATA/eSATA CABLE WITH POLYURETHANE JACKET




| Construction Details | |
|---|---|
| **Conductors** | 2x 28 AWG (7/36) silver plated copper |
| **Insulation** | .0115" NEWcel to .038" ± .002" |
| **Drain Wire** | 2x 28 AWG (7/36) silver plated copper |
| **Braid** | 44 AWG silver plated copper, 90% coverage minimum |
| **Tape** | .0015 Al/polyester, 50% lap (foil side in) |
| **Jacket** | .005" PFA to .099" ± .005 |
| **Wire Colors** | white and blue (pair 1)<br>white and orange (pair 2) |
| **Filler** | LSNW polyester |
| **Wrap** | .002" PTFE tape, 50% lap |
| **Overall Shield** | 35 AWG tin copper braid, 90% coverage minimum |
| **Overall Jacket** | .035" polyurethane, .299" OD nominal, (black) |
| **Marking** | print on outer jacket in white ink |
| **Temperature Range** | -30°C to +130°C |



***Notes***
Cable identified with manufacturer's name and part number.
Cable is sold in 1 foot increments. Specify desired length on purchase order.



Physical layer SpaceWire router aboard the James Webb Space Telescope (NASA)

# SpaceWire Cable Assemblies

## Flight- and lab-grade SpaceWire qualified cable assemblies for IEEE 1355 space network node interconnection of routers, switches, recorders, transceivers, and other physical layer devices

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

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

### TYPICAL USES INCLUDE

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

### APPROVED FOR USE BY:

- ESA
- NASA
- JAXA
- RKA

### CONNECTOR/CABLE

- **Laboratory and space-grade versions available**
- **Qualified MIL-DTL-83513 Micro-D connectors**
- **Gold-plated copper alloy TwistPin contacts**
- **Basic cable, 4 twisted pair cables and a ground**
- **Epoxy resin potting**
- **EMI banding backshell**

### PERFORMANCE

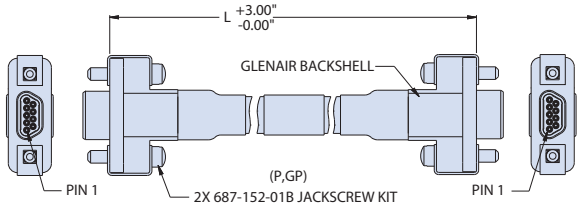
- **3 Amps**
- **Temperature tolerance -200° to 180° C**
- **100 Ω impedance shielded signal pair**
- **Very low skew, signal attenuation and crosstalk**
- **65dB minimum attenuation shielding effectiveness**
- **Low magnetic permeability IAW EIA-364-54**

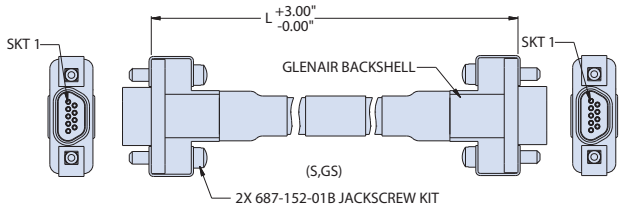
*POINT-TO-POINT AND SINGLE-ENDED*

# SpaceWire cable assemblies

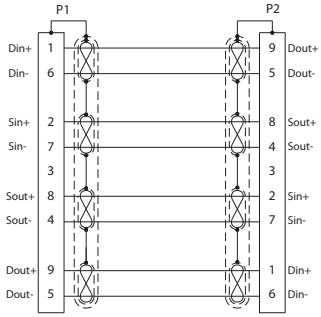
## Technical specifications / how-to-order

| How To Order SpaceWire Cable Assembly | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Part Number** | **GSWM** | **2** | **L** | **-9** | **GP** | **-6** | **F** | **B** | **-16** | **S** | **-A** | **G** |
| **Product Series** | **GSWM** Glenair SpaceWire Micro-D | | | | | | | | | | | |
| **Shell Plating** | **2** - Electroless Nickel **5** - Gold | | | | | | | | | | | |
| **Insulator Material** | **L** - LCP | | | | | | | | | | | |
| **Shell Size** | **9** | | | | | | | | | | | |
| **Connector Type** | **P** - Single-Ended Pin (Plug) **S** - Single-Ended Socket (Receptacle)<br>**GP** - Pin (Plug) Connector Both Ends **GS** - Socket (Receptacle) Both Ends | | | | | | | | | | | |
| **Wire Gauge** | **6** - 26 AWG **8** - 28 AWG **0** - 30 AWG (30 AWG–Lab Only) | | | | | | | | | | | |
| **Cable Type** | **F** - Flight Grade **L** - Lab Grade | | | | | | | | | | | |
| **Termination Option** | **B** - Backshell | | | | | | | | | | | |
| **Cable Length In Inches** | **16** - 16 inches (12 inches minimum) | | | | | | | | | | | |
| **Hardware** | **S** - Male Slotted Jackscrew **P** - Female Jackpost | | | | | | | | | | | |
| **Wiring Schedule Type** | **-A** - as per ECSS-E-ST-50-12C Rev 1 figure 5-4 **-AL** - as per ECSS-E-ST-50-12C Rev 1 figure 5-5 | | | | | | | | | | | |
| **Ground Spring Option** | **N** - No Ground Spring **G** - Ground Spring Installed | | | | | | | | | | | |

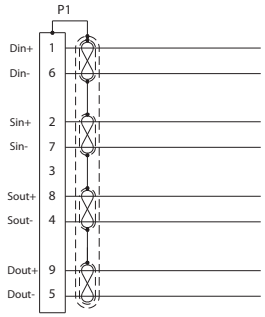



BACK TO BACK WIRING
CABLE ASSY TYPE **-A**
ECSS-E-ST-50-12C REV 1, FIGURE 5-4

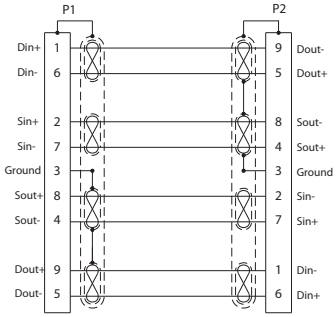



SINGLE ENDED WIRING
CABLE ASSY TYPE **-A**
ECSS-E-ST-50-12C REV 1, FIGURE 5-4

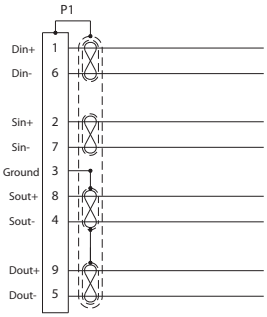



NOTE: Inner shields are tied to one another and connector shell.

BACK TO BACK WIRING
CABLE ASSY TYPE **-AL**
ECSS-E-ST-50-12C REV 1, FIGURE 5-5




SINGLE ENDED WIRING
CABLE ASSY TYPE **-AL**
ECSS-E-ST-50-12C REV 1, FIGURE 5-5




NOTE: Inner shields of Din and Sin pairs are Isolated from one another.
Inner shileds of Sout and Dout are connected and tied to pin 3.

### NOTES:

1. Flight grade (cable Type F) assemblies to be screened IAW NASA EEE-INST-002, Table 2. Level 1 with 100% thermal vacuum outgassing (24 hours/+125°C/$10^{-6}$ torr). Reference Glenair Mod Code 429C.
2. Operating temperature -55°C to +125°C
3. Electrical performance:
   Dielectric withstanding voltage: 600 VAC.
   Insulation resistance: 5000 megohms @500 VDC.

### MATERIALS/FINISH:

- Shells/backshells - aluminum alloy/electroless nickel.
- Insulators - high grade rigid dielectric/N.A.
- Contacts - copper alloy, gold plated.
- Hardware - stainless steel/passivated.



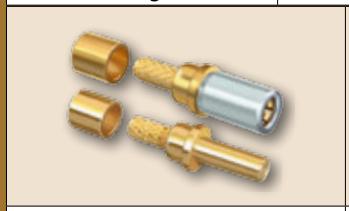
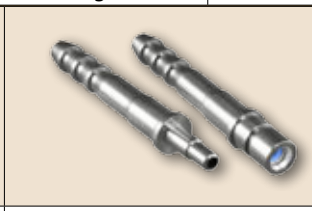
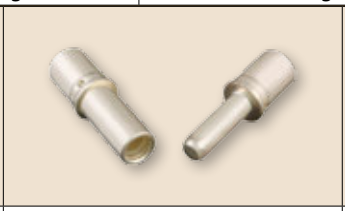
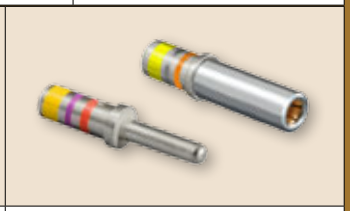
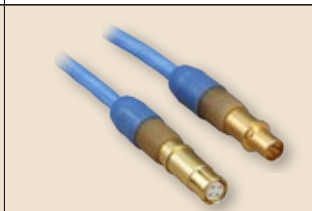
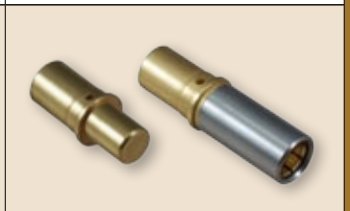
Dimensions in Inches (millimeters) are subject to change without notice.

SERIES 85

# HIGH-PERFORMANCE CONNECTOR CONTACTS

NO MINS. No dollar or quantity minimum orders

*For every application requirement, from standard signal and power to opto-electronics*

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| #23 Signal | #20HD Signal | #20 Signal | #16 and #12 Signal | #16 and #12 Coaxial |
|  |  |  |  | |
| #12 50 Ohm Matched Impedance Coaxial | Pneumatic | High-Ampacity LouverBand | Thermocouple | |
|  |  |  |  | |
| #12 Differential Twinax | #8 100 Ohm Quadrax | #8 100 Ohm Differential Twinax | #8 Power | |
|  |  |  |  | |
| Concentric Twinax | Printed Circuit Board | Opto-Electronic | Size #16, #20, #23 Fiber Optic | |

Glenair has developed an extensive range of innovative contacts including solutions for fiber optic and pneumatic applications. The development of our own range of high-performance contacts was a key step in gearing Mighty Mouse, Micro-Crimp, PowerTrip, and our many other innovative connector solutions to meet any interconnection challenge. This page highlights a selection of these high-performance contacts, from standard 39029 crimp signal and power contacts to our own unique shielded differential Twinax contact, miniaturized fiber optic contacts and highly specialized gas and pneumatic contact solutions. All our contacts are supported with appropriate extraction and crimp tools—and of course the wire and cable catalogued in this book. As always, these Glenair technologies are available with no dollar or quantity miniumums, and are in-stock and ready for immediate, same-day shipment.

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# Glenair High-Performance Cable
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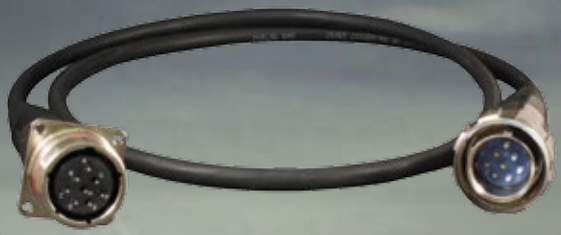
# WHY CHOOSE GLENAIR

## *for your next interconnect cable and harness application?*

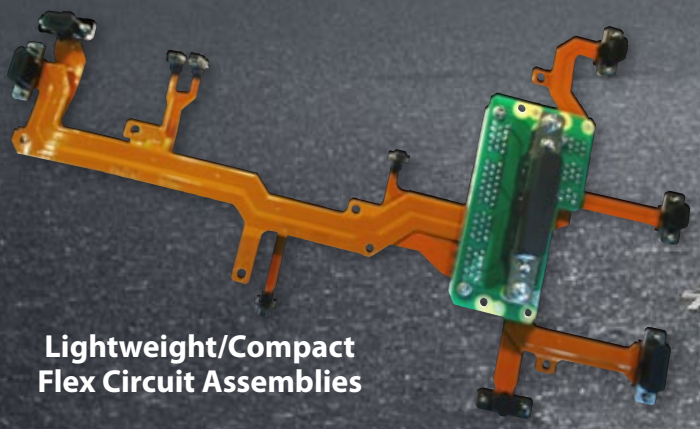
Harsh Environment Overmolded Multi-Branch Assemblies



Harsh Environment Fiber Optic/ Electrical Assemblies

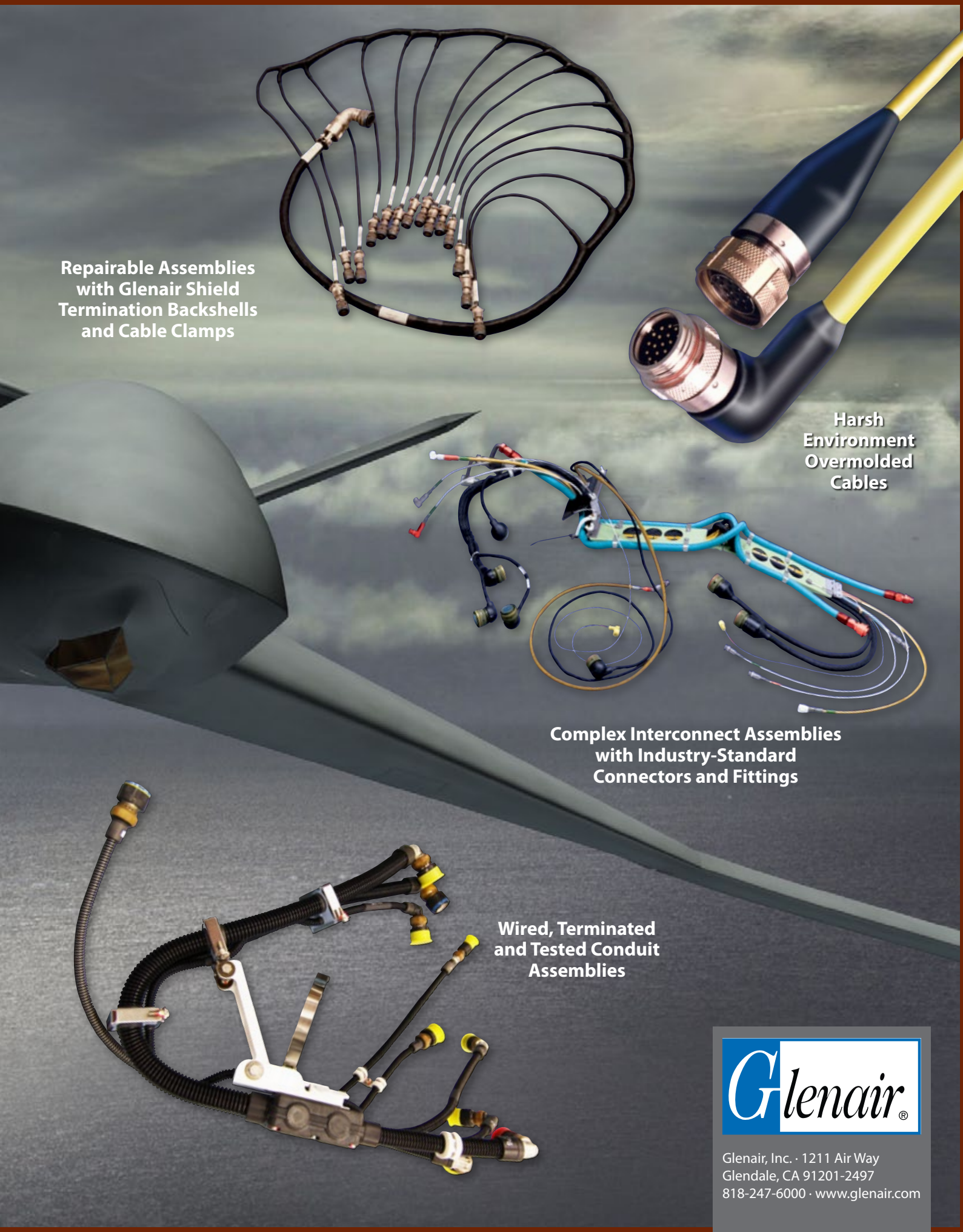
Inside-the-Box Fiber Optic/Electric Pigtail Assemblies

Multi-Branch Assemblies with Protective Fabric Braiding



Lightweight/Compact Flex Circuit Assemblies

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

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