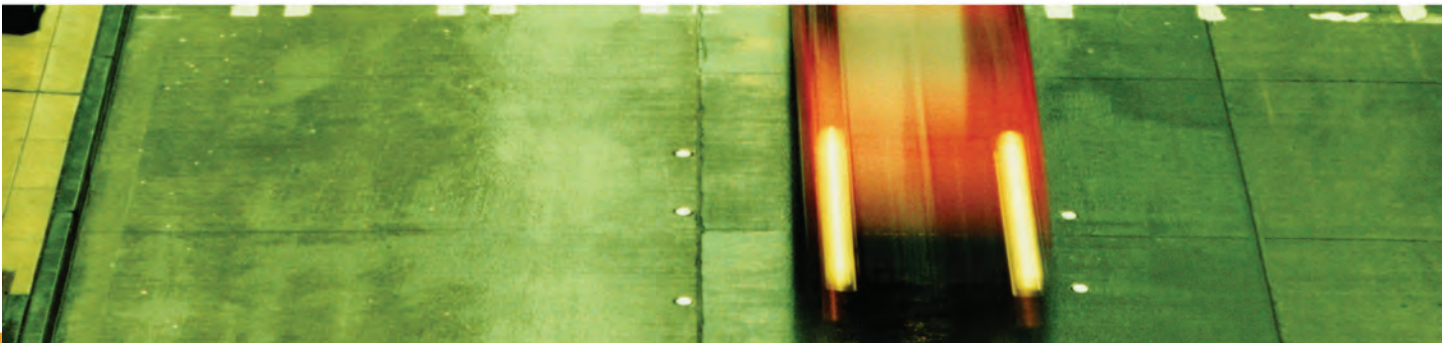


Amphenol

High Speed Solutions CABLE ASSEMBLIES

Amphenol 
HIGH-SPEED SOLUTIONS





AMPHENOL AEROSPACE



LOCATED IN
SIDNEY, NY

HIGH SPEED SOLUTIONS



WE...DESIGN...MANUFACTURE...MARKET

1 One of the largest manufacturers of interconnect products in the world.

INTERCONNECT PRODUCTS FOR



MILITARY...AEROSPACE...INDUSTRIAL

OUR PHILOSOPHY

01



FOCUS

Concentrate all resources on serving a limited number of tightly defined markets, and understanding the needs of those markets.

02



INNOVATION

Provide these markets with new, creative solutions in both products and services.

03



RESPONSIVENESS

Identify and respond to market and product needs more rapidly than any other supplier.

➔ AMPHENOL AEROSPACE OVERVIEW

Amphenol Aerospace, a Division of Amphenol Corporation, is one of the largest manufacturers of interconnect products in the world for the Military, Commercial Aerospace and Industrial markets. Amphenol designs, manufactures and markets circular and rectangular, electronic, fiber optic, EMI/EMP filter, and a variety of special applications connectors and interconnect systems.

➔ HIGH SPEED SOLUTIONS GROUP OVERVIEW

The High Speed Solutions group is one of the fastest growing and most technologically advanced groups within Amphenol Aerospace. Everyday the High Speed Solutions team is developing custom connector and cable solutions for both High Speed Copper and Fiber Optic applications. As a basic business philosophy, the team is dedicated to concentrating on those advanced and challenging market segments that demand an extraordinary level of supplier support and reaction. Our approach to implement this strategy is based on the following key principles:

FOCUS + INNOVATION + RESPONSIVENESS = PERFORMANCE

➔ ENGINEERING CAPABILITIES

The engineers within the High Speed Solutions group are experts in the fields of mechanical and electrical design, fiber optics, signal integrity and testing. Our engineers have over 40 years experience designing cables and harnesses to a wide variety of requirements. The team uses industry standard programs such as: SolidWorks and Pro-E for 3-dimensional designs and layouts before creating 2-dimensional manufacturing drawings. Once the engineers release the manufacturing documentation, Amphenol utilizes its vertical integration capability to quickly and accurately produce the interconnect solution.

➔ MANUFACTURING CAPABILITIES

The 675,000 square foot facility in Sidney, NY houses state-of-the-art manufacturing technologies including CNC machining, die-casting, molding, impact and extruding, plating, screw machining and process controls. Amphenol has been awarded both the AS9100 – Rev C and ISO9001:2008 quality assurance certifications. The AS9100-C:2008 is a quality standard that stems from the ISO and adds additionally stringent requirements aimed at the military and commercial aerospace industry. We also have a facility in Nogales, Mexico, Amphenol Optimize. The Mexico facility is ISO 9001-2008, AS 9100-2009 and ISO 14001-2004 certified ensuring that the stringent quality standards required by major customers in the commercial & industrial as well as the military & aerospace markets are met.

➔ TESTING CAPABILITIES

Amphenol Aerospace and the High Speed Solutions group has on-site, fully equipped materials evaluation lab and analysis tools that allow us to test and qualify interconnect systems to a wide variety of military, industry, and customer specifications. Our signal integrity engineers use CST Microwave Studio for 3D EM modeling to ensure the best possible solution for our customers.

➔ HIGH SPEED COPPER OVERVIEW

When you need superior electrical performance plus shielding to eliminate interference from outside in a connector or cable assembly, Amphenol High Speed Solutions has the most reliable contact, connector - circular or rectangular, and cable solutions. The High Speed Solutions team can provide interconnect and cable solutions that use the following high speed contacts:

Coaxial	Concentric Twinax	Triax	Quadrax	Differential Twinax	High Frequency	Transition Adapters
Pin and socket contacts designed for RF/microwave and shielded wire applications. Sizes 8, 12, 16.	Pin and socket contacts designed for protection from magnetic and electrostatic interference including nuclear electromagnetic pulse. Sizes 8 & 12.	Pin and socket contacts designed for shielded wire applications with 3 conductors. Sizes 8, 10, 12.	Size 8 pin and socket contacts. An outer contact with 4 strategically spaced inner contacts forming two 100, 110, or 150 Ohm matched impedance differential pairs.	Size 8 pin and socket contacts. An outer contact with 2 inner contacts spaced to form one 100 or 150 Ohm matched impedance differential pair.	Size 8, 12, & 16 Coaxial contacts that provide high frequencies (DC to 40 GHz). Unique "Float Mount" technology maintains tight mechanical tolerances.	Matched impedance quadrax and twinax transition adapters provide a method of launching from the high speed connectors to PCB boards.

For use with, but not limited to, the following electrical protocols:

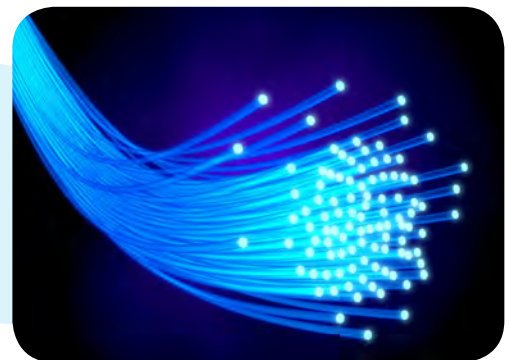
- 10/100/1000/10GBASE-T Ethernet
- DVI
- SMPTE 292M
- USB 2.0, 3.0
- Serial Rapid IO (up to 3.125 Gbps)
- PCI-Express 2.0
- HDMI 1.3a
- SATA 2.0 (up to 3 GHz)

➔ FIBER OPTIC OVERVIEW

Fiber optic interconnect technologies deliver high data rate and virtually unlimited bandwidth performance in land, sea, air, space and C4ISR applications. Precision-engineered fiber optic termini are the key to delivering low data loss and reliable, repeatable performance over long distances in mission-critical applications with bandwidth. Our depth of understanding of connector and termini design, and the complete control of connector materials, make Amphenol's fiber optic cable assemblies one of the best in the industry.

Five Reasons to Upgrade to Fiber Optics:

- 5**
- 01** Reduced Size and Weight
 - 02** EMI Immunity
 - 03** High Data Rate Capacity
 - 04** Spark/Arc Immunity
 - 05** Enhanced Security



➔ CABLE CAPABILITIES

Not only is choosing the correct connector system crucial in meeting protocol-specific performance, but Amphenol High Speed Solutions also selects the best cable to ensure compatibility for your application. There are many types of cable assemblies for both electrical and fiber optic (as well as hybrid fiber/copper) applications, but in general they are classified into four categories:

- 1 Point-to-Point
- 2 Open Wire Harness Assemblies
- 3 Overmolded Cables
- 4 Higher Level System Assemblies including Panel and/or Box Manufacturing

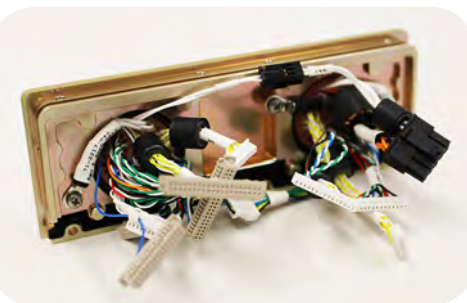
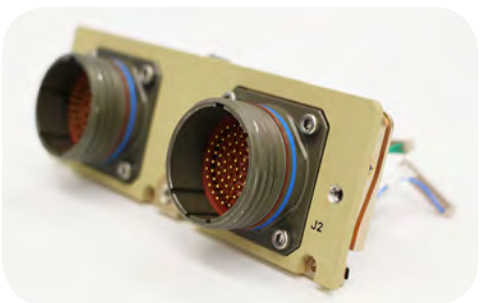
Design creativity, experience and an understanding of harsh environments will ensure a functional and manufacturable design for your application.

➔ ELEMENTS TO CONSIDER

There are many elements to consider when designing a High Speed cable assembly. This may include, but is not limited to the following:

Shock	Temperature
Vibration	Outgassing
Fluid Immersion	Pull Forces Bend Radius
Insertion Loss	Fungus Flammability
Corrosion	Environmental Sealing
EMI	Impact Crush Protection

➔ CABLE EXAMPLES



➔ ENGINEER'S DESIGN CHECKLIST

The following checklist is provided to help you specify a connector and cable system that meets your application requirements.

FIBER OPTIC CHECKLIST

Environmental Criteria:

Low Temperature _____
Salt Spray _____
Mechanical Shock _____
Tolerance _____
Durability _____
ROHS Compliant _____

Components:

Termini

MIL-PRF-29504 Style
 ARINC 801
 MTC
 HD20
 Other _____

Connectors-Circular

MIL-DTL_38999
 ARINC 801
 MTC

Fiber Performance Criteria:

Optical Wavelength

850
 1300
 1310
 1550
 Other _____

Fiber Core Size

9/215 Single Mode
 50/125 Multi-mode
 62.5/215 Multi-mode
 100/140 Multi-mode
 Other _____

Connectors-Rectangular

Low-mating Force/PCB
 LRM
 Rack and Panel

Performance

Insertion Loss _____
Return Loss _____

Cable Assembly

Length _____
Tolerance _____

Cable Type

Field Tactical
 LSZH
 Breakout
 Avionics
 Other _____

Connectors-Material/Finish

Aluminum/OD Cad
 Aluminum/Electroless Nickel
 Aluminum/Durmalon
 Composite/Electroless Nickel

Accessories

Backshells/Strain Reliefs
 Straight
 90
Protection Caps
 Plastic
 Metal w/ Lanyard

COPPER CHECKLIST

Copper Performance Criteria:

Electrical Protocol _____
VSWR Requirement 1 to 1 _____
Cross Talk (dB) _____
Operating Frequency _____
Attenuation _____
Insertion Loss _____
Operating Voltage _____
VAC (RMS) _____
Current Outer Contact (Amp) _____
Current Inner Contacts (Amp) _____
Application Temperature _____
Environmental Requirement _____

Connector Information:

Connector Family

TV-R
 LJ-T-R
 JT-R
 Other _____
 Insert Arrangement _____
 Shell Style _____
 Shell Finish _____

Contact Information:

Type

Coaxial
 Concentric Twinax
 Triax
 Differential Twinax (Size 8 only)
 Quadrax (Size 8 only)

Size

8
 12
 16

Contact Impedance Matched?

Yes or No
 50 Ohm
 75 Ohm
 100 Ohm
 110 Ohm
 150 Ohm
 Other _____

Cable Information:

Cable Type

Coaxial
 Twinax
 Triax
 Quadrax

Cable Impedance



SIDNEY FACILITY

Our 675,000 square foot facility is nestled at the foot of the Catskill mountains in Sidney, NY. The complex houses over 1,000 employees, incorporating state-of-the-art manufacturing technologies.



NOGALES FACILITY

The Amphenol facility in Nogales, Mexico houses the manufacture of several industrial and aerospace connector product lines. Consisting of nine manufacturing and assembly buildings in Nogales, Sonora, Mexico, one plant in Hermosillo, Sonora, Mexico and a key distribution center in Nogales, Arizona.



HIGH SPEED SOLUTIONS GROUP

Jared Sibrava - Director, High Speed Solutions

E-mail: jsibrava@amphenol-aao.com

Phone: 607-563-5372

Sandra Wildenstein - Product Marketing Manager, High Speed Copper

E-mail: swildenstein@amphenol-aao.com

Phone: 607-563-5379

Joe Ingold - Product Marketing Manager, Fiber Optics

E-mail: jingold@amphenol-aao.com

Phone: 607-267-0699

Mike MacBrair - Business Development Manager

E-mail: mmacbrair@amphenol-aao.com

Phone: 607-643-3122

