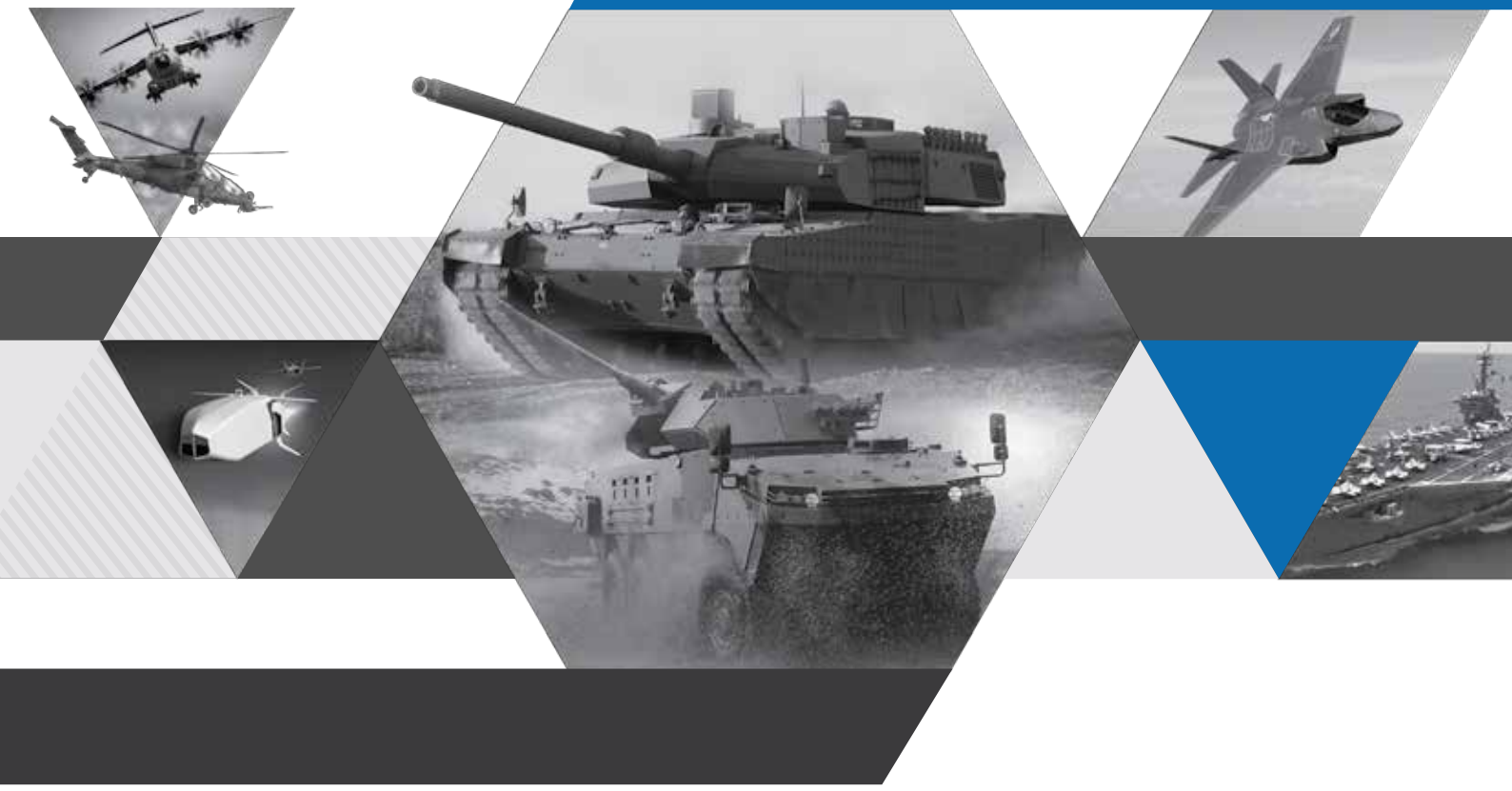
Amphenol

Enabling the Electronics Revolution

Military & Aerospace



Power & Signal

Circular

Rectangular

Board Level

PCB / Flex

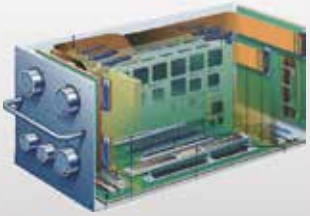
Modular

Distribution Solutions

Attachment Systems

Heavy Duty

Plastic



Custom Solutions

Cable Assemblies

Amphenol's founder Arthur J. Schmitt discovered that insulating plastic could be more effectively used to produce radio tube sockets than brittle Bakelite

**Amphenol is born (1932).*

Circular Connectors

- MIL-DTL-5015
- MIL-DTL-26482
- MIL-DTL-38999
- MIL-DTL-26500
- MIL-DTL-83723
- MIL-DTL-55181
- MIL-DTL-22992
- MIL-DTL-55116
- 7 & 10-Pin Waterproof Breakaway Connectors
- Digital Network Solutions
- Filter Connectors
- Breakaway Fail-Safe Lanyard Release Plug Connectors
- Hermetic Connectors
- M12 Hermetic Miniature Connectors
- Rack & Panel RNJ
- PCB Connectors
- Apex Galley Connector, Circular
- M-SBC Series (Subsea Booted Connector)
- VG Series Connectors
- GCB-M Modular Reverse Bayonet Connectors
- Power Connectors
- AGE96929 (VG96929 Specification) Connectors
- Ex-Proof (Atex) Solutions
- Fiber Optic Solutions
- High Speed Solutions
- 2M Micro-38999
- Miniature Terrapin
- Stingray Magnetic Connector Series
- Pegasus Series
- Bantam Micro Bayonet Connectors
- Backshells

Through participation in the war effort Amphenol establishes itself as a premier technology driven interconnect and cable company. The 5015 AN series connector is born and is soon known as the "Amphenol Connector" by military maintenance crews. The B-29 Super Fortress contains over 1600 Amphenol connectors. Amphenol's Sidney, NY facility is designated a site of national importance and is defended from air strikes.

MIL-DTL-5015

Amphenol MS and 97 series are two series of thread-coupled connectors designed to meet the operating requirements of MIL-C-5015. Available in a variety of styles and classes, these connectors are primarily used in a range of military and industrial applications where specific degrees of environmental protection are required.

Amphenol Aerospace's MIL-DTL-5015 with crimp rear release contacts provides an alternative to the older MIL-C-5015 solder type. It bridges the gap between an old connector standard and the high performance needs of current technologies.

MIL-DTL-26482

Amphenol MIL-C-26482, Series I Connectors are miniature circular connectors with three-point bayonet-coupling and five-key polarization, solder type, British standard 62GB, Amphenol form PT, Amphenol low cost form 62IN, these connectors are widely used in applications calling for quick disconnect connectors.

Amphenol MIL-C-26482, Series 2 Connectors are bayonet-coupling type, and they feature crimp contacts that are rear insert able and rear releasable. They can be ordered through Amphenol, by military or equivalent proprietary part numbers.

MIL-DTL-38999

MIL-DTL-38999 Series III Connectors offer the highest performance capabilities for both general duty and severe environment applications, both in original MIL specified and Amphenol coding TV/CTV series with threaded coupling, scoop-proof features. Al alloy, composite, stainless steel, marine bronze, durmalon and RoHS versions available.

MIL-DTL-38999 Series I LJT - Series II JT
were developed to meet the needs of the aerospace industry, and provided the impetus for development of the MIL-C-38999 specifications. Dependable 5 key/keyway polarization with bayonet lock coupling is incorporated to aid and assure positive mating.

SJT connectors combine unique design features of the scoop-proof LJT series within standard mounting dimensions of JT types. Available in a wide range of shell sizes, finishes, insert arrangements and accessories.

MIL-DTL-26500

High quality and dependability are the earned reputations of the Amphenol®/Pyle® Series of connectors designed to meet the specification requirements of MIL-DTL-26500. Serving such diverse fields as avionics, missile systems, aircraft general-purpose applications, aircraft engines and firewalls.

MIL-DTL-83723

Matrix MIL-DTL-83723 series provides many choices within the range of a medium sized, environmentally resistant circular connector. With three coupling style choices- bayonet, threaded and quick-disconnect - the versatility of this family makes it increasingly popular for panel mount, box mount and line-to-line applications in aircraft. For general duty environmentally resistant requirements, this family of connectors provides a wide range of interconnection solutions.

The Amphenol/Pyle® MIL-DTL-83723*, Series III Connectors were developed for the higher operating temperatures inherent in today's high performance aircraft and aircraft engines.

MIL-DTL-22992

The Amphenol Class "L" 22992 heavy duty connectors are the largest size cylindricals. They are available only in the specific configurations prescribed by MIL-DTL-22992 for either military or industrial applications. This rigid configuration control assures correct interconnection of electrical circuits for maximum safety and reliability.

MIL-DTL-55181

Amphenol MW series power connectors are MIL Qualified & listed in QPL & meets the requirement of MIL-DTL-55116.

MW series power connectors are with center lock coupling screw, waterproof & polarized. Connectors used for interconnection of power & control circuit electric equipment specially in U.S. Army Communication System.

These connectors are designed to withstand high shock & vibrations ensured with center locking screw mechanism.

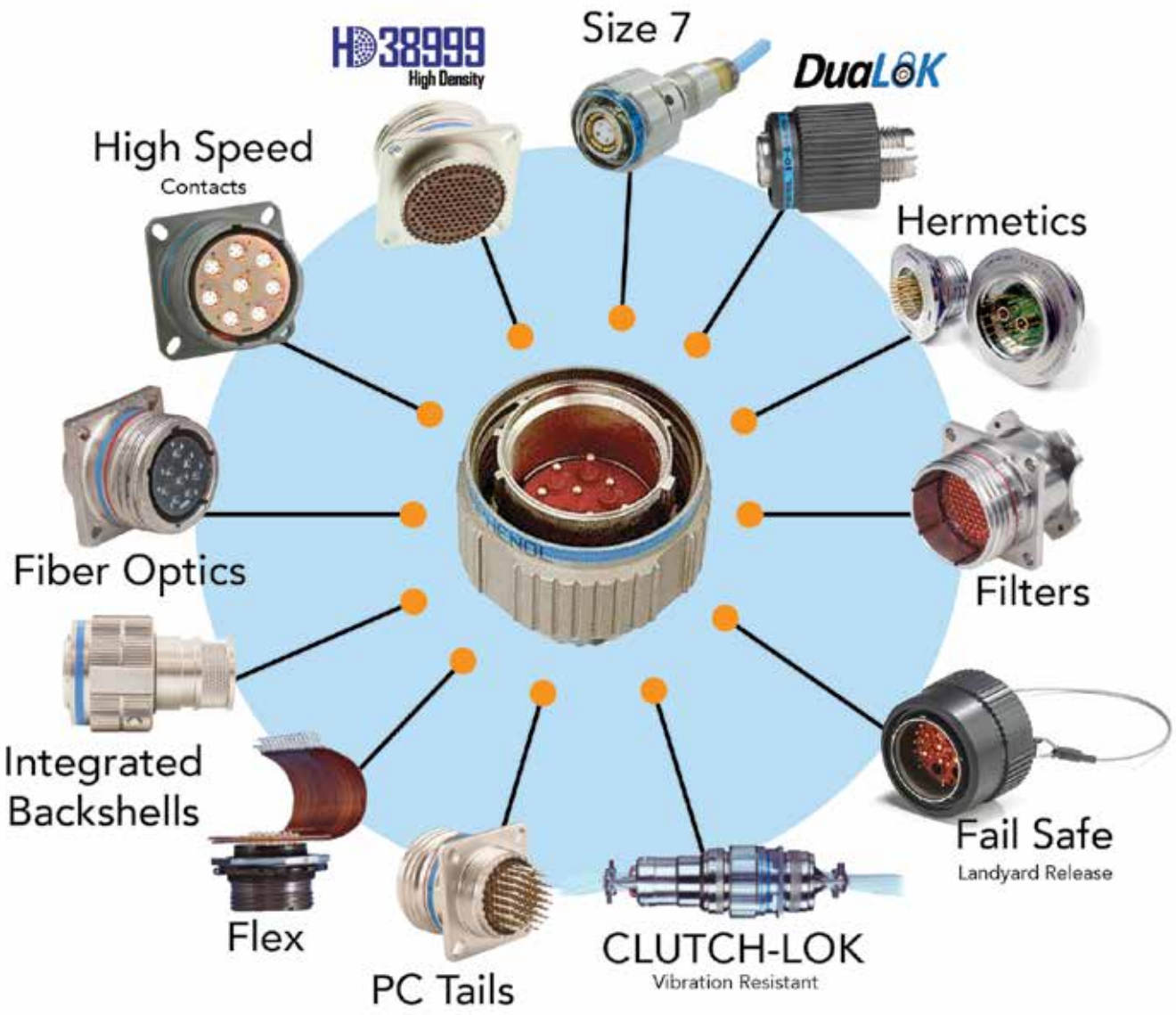
MIL-DTL-55116

These connectors are water resistant, polarized, five and six contact electrical connectors for use in low voltage audio frequency circuits and applications. They employ three-point bayonet coupling for quick disconnect and self - wipe contact. Although designed for use in communications equipment, these versatile connectors, have been successfully adapted for use in numerous industrial, scientific and educational applications.

These connectors are qualified to MIL-DTL-55116, Amphenol form 164 Series.

MIL-DTL-38999 Series III Derivatives

Series III, TV Tri-Start Connectors, offer more versatility & options than any other interconnection family!



C4ISR | Military Aerospace | Navy | Commercial Aerospace | Missiles & UAVs | Ground Vehicles & Battlefield | Industrial

7 & 10-PIN WATERPROOF BREAKAWAY CONNECTORS

Amphenol is the leader in watertight, breakaway connectors designed to meet severe environmental conditions. Our connectors, which are watertight in up to 6 feet of water, have molded-on wiping-action contacts that provide a self-cleaning feature and eliminate issues with pin/socket open contacts. The 7-Pin and 10-Pin connectors are designed for multiple cable diameters, are available in shielded versions, and can include either solder-type contacts of insulation-piercing contacts, which are field replaceable. Many of the 7- and 10-pin Connectors also come in a miniature versions that is 50% smaller than the standard connector. All standard connector options are also available in the miniaturized versions.

- Push-pull breakaway/Quick-disconnect
- Up to 5,000 mating cycles with standard versions (3,000 cycles with miniaturized versions)
- 2 amps max per contact
- Panel-mount plugs and receptacles available

DIGITAL NETWORK SOLUTIONS

Amphenol provides Ethernet Network Solutions for use in harsh environments, where reliability and resistance to outside influences, such as temperature, shock, vibration, water, dust, etc. are paramount.

Our rugged and durable solutions give you the insurance of a continuous and secure data transmission between all your communication devices in the harshest environments. All Amphenol's RJ-Switch products are tested and certified by an external accredited laboratory.

Amphenol Ethernet switches feature 8 to 28 ports with rugged connectors to interconnect terminal devices within armored vehicles, such as rugged PCs, screens, radios, with high data transmission (up to 10 Gbps). Designed to operate in armored vehicles and other harsh environments, our Ethernet switches feature mechanical packaging enhancements designed for MIL- STD-810F airborne and ground environmental compliance and high reliability.

The units have been especially hardened to improve waterproofness, impact, and shock/vibration protection, as well as eliminate all moving parts through passive cooling, and interface through MIL-D-38999 circular or RJ Field connectors.

FILTER CONNECTORS

Amphenol® EMI/EMP Protection Connectors offer the versatility of standard connectors with EMI/EMP protection for sensitive circuits. Internal housing of the EMI/EMP devices eliminates costly and bulky exterior discrete protection devices. Virtually all major MIL-Spec circulars can be incorporated with filter devices:

- MIL-DTL-38999
- MIL-DTL-5015
- MIL-DTL-26482
- MIL-DTL-27599
- MIL-DTL-83723
- MIL-DTL-26500

BREAKAWAY FAIL-SAFE LANYARD RELEASE PLUG CONNECTORS

Amphenol Tri-Start Breakaway Fail Safe Connectors provide unequaled performance in environments requiring instant disengagement. Designed to provide quick disconnect of a connector plug and receptacle with an axial pull on the lanyard. The “Breakaway” Fail Safe connector family offers a wide range of electrical and mechanical features.

- Instant decoupling and damage free separation
- Completely intermateable with standard receptacles (D38999/20 and /24)
- Inventory support commonality through the use of standard insert arrangements and contacts
- Solid metal-to-metal coupling
- EMI grounding fingers
- Conductive finishes

HERMETIC CONNECTORS

Amphenol offers superior electrical performance plus the rugged design of a glass-sealed or epoxy-sealed connector. Amphenol glass-sealed hermetic connectors are available in a wide variety of MIL-Spec and custom configurations. Amphenol epoxy-sealed connectors are a lightweight alternative to glass-sealed hermetic connectors.

- Hermetic: Leak rate of 1X10-7 cc He/sec or less
- Epoxy-Sealed: Leak rate of 10X10-5 cc He/sec or less
- Fused glass hermetic insert in stainless steel shell
- Same epoxy as used on EMI filter connectors
- Custom designs available

Amphenol offers hermetic connectors tailored specifically to your requirements, providing seals able to withstand pressures of up to 60,000psi (4,100Bar), temperatures up to 1,000°C (1832°F) and for use in aggressive and hostile environments.

M12 HERMETIC MINIATURE CONNECTORS

M12 Hermetic Connectors are miniature threaded, hermetically sealed connectors that are designed to meet and exceed the mechanical and environmental requirements IEC-61076-2-101 with fixed pin contacts, fused into a glass dielectric insert. M12 Series available as receptacle with eyelet, solder bucket and/or pcb contacts. M-M12 connectors are designed to exceed IP68 in an unmated state. These connectors have a wide variety of applications and can be found in most industry sectors, such as transport and instrumentation, for use with proximity switches, sensors and interconnection in harsh environmental conditions.

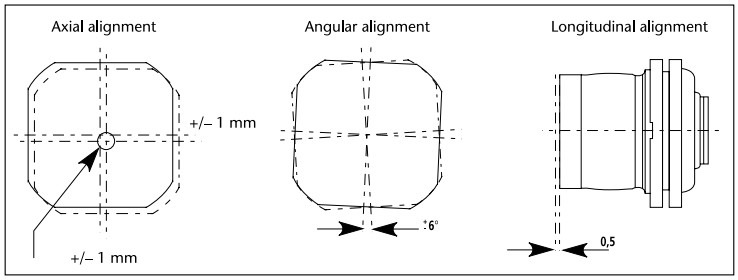
RNJ

Rack and panel cylindrical connectors

The RNJ series rack and panel connectors are used to connect electrical and optical devices between a moving unit (rack) and a fixed unit (panel) without any coupling / uncoupling device.

This function is ensured by a system of moving and the fixed units. The connectors are built to allow for design tolerances (up to the limits shown in figure 1) during the mating of the connectors and the final locking of the moving and fixed units.

These connectors are derived from the LJT series and meet or exceed the MIL-DTL-38999 Series I requirements.



RACK & PANEL RNJ

Rack & panel connection Floating system which provides correction and adjustment to misalignment problem between plug and receptacle during mating. Derived from MIL STD 38999. Large number of inserts available to accommodate signal and power contacts: 7 shell sizes and up to 128 contacts. Version for power application: 1 contact of 230A or 4 contacts 100A.

PCB CONNECTORS

Amphenol provides circular connectors with PC Tail contacts for solder mounting on printed circuit boards. They are available in MIL-DTL-38999 Series I, II, and III, MIL-DTL-26482, and MIL-DTL-5015 Connectors. These connectors incorporate PCB contacts in sizes 16, 20, and 22D.

- Lightweight, compact, high density and high reliability cylindrical
- Operating voltage to 900 VAC (RMS) at sea level
- Environmentally resistant
- Solder or crimp rear release contacts in mating plug
- Press-fit compliant pin contacts also available

M-SBC SERIES (SUBSEA BOOTED CONNECTOR)

Subsea Booted Connector has been developed for mission critical subsea and downhole instrumentation applications. The push on key located boot-plug and receptacle design allows on-site or workshop harnessing using simple hand-held crimp tools.

- Booted plug provides an alternative to hard wiring ideal for applications requiring periodic maintenance.
- Boot provides a robust and reliable retention of plug to the receptacle, suited to harsh environments.
- Field Installation.
- 15 Kpsi (1,000 Bar) pressure tight hermetic glass sealed receptacle.
- Weld mountable receptacle or custom housed.
- Seawater-tight boot with individual pressure energised wire seals, no need for gels or grease.
- Crimp contacts for 22 AWG wire (field installed or factory preassembled)

APEX GALLEY CONNECTOR, CIRCULAR

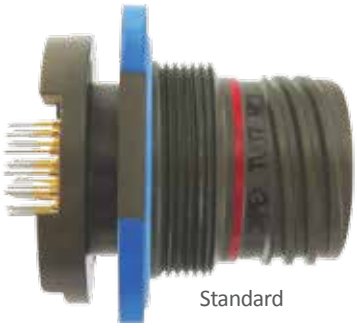
The APeX Galley Connector, Circular is designed specifically for legacy and new galley systems. It was tested to MIL-STD-1344 connector and EN 2591 contact standards. Highly reliable and easy to use, it is also interchangeable and intermateable with other pre-existing equipment in the field.

- Intermateable and Interchangeable - Ability to mate with other pre-existing equipment in the field
- Versatility - Crimp termination connection system with 3 Power (10 AWG) & 3 Control (16 AWG)
- Blind-Mate Connection - Designed with a key feature to enable quick and simple mating
- Highly Reliable and Durable - Tested to MIL-STD 1344 and EN 2591 standards; high frequency mating
- Many Choices - Configurable to PCB contacts; plating options available
- Intuitive and Ergonomic - Smooth, low insertion force to mate connector

Reduced Flange

38999 Jam Nut Receptacles

Derived connectorfrom MIL-DTL-38999 Series III



Standard

Reduced

- Derived from MIL-DTL-38999 series III version
- For Jam Nut Receptacles (TV07/TVS07)
- Higher density on panel **41% average footprint surface reduction**
- Lighter: **30% average lighter than standard 38999 stand off receptacle**
- Mates with standard MIL-DTL-38999 series III plugs and caps
- Matches MIL-DTL-38999 series III performances
- Available in Crimp version, with PC Tail contacts, and in Stand Off version
- Reduced Flange Deviation (to be added at the end of your part number):
  - **F312** for Crimp and Standard PC Tail versions (F311 with safety castle nut*)
  - **F059** for Stand Off PC Tail versions (F058 with safety castle nut*)

FOOTPRINT SAVING

Average 41% footprint reduction:

Shell Sizes	38999 standard diameter ØA max (mm)	38999 Reduced Flange (F312 & F059) diameter ØB max (mm)	Footprint reduction 38999 Standard vs 38999 Reduced Flange
9	30,5	22,1	47%
11	35,2	25,1	49%
13	38,4	28,1	46%
15	41,6	32,1	40%
17	44,8	36,1	35%
19	49,5	38,1	41%
21	52,7	41,1	39%
23	55,9	44,1	38%
25	59	48,1	34%

WEIGHT SAVING

Average 30% weight reduction:

Example:

38999 Series III stand off version:
TV07WCI13-35P F459 = 31.46 g

38999 Series III Reduced flange stand off version : TV07WCI13-35P F059 = 19.49 g

> The #13 Reduced flange stand off version is 38 % lighter than 38999 Series III standard stand off version.

PANEL DIMENSION

Size	B 0 -0,25	ØC +0,25 0	ØG +0,1 0	ØH +0,1 0
9	16,7	17,6	17	16
11	19,59	20,96	20	19,1
13	24,26	25,65	23	22,3
15	27,56	28,83	27	25,5
17	30,73	32,01	31	29,3
19	33,91	35,18	33	31,9
21	37,08	38,35	36	35,1
23	40,26	41,53	39	38,3
25	43,43	44,7	43	41,5

For dimension B, size 9 only, tolerance is +0,10 / -0,06

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VG SERIES CONNECTORS

VG95328 connectors are qualified to the American MIL-DTL-26482 series I standard in crimp, solder, wire wrap, PCB versions, with different sealing levels which are well known in aeronautics, military and industrial applications.

VG95234 connectors are qualified to MIL-C-5015 with reverse bayonet coupling.

VG95319-1006, VG95319-1007, VG95319-1008 connectors are qualified to MIL-DTL-38999 series III with Metal Shells-Aluminum, Stainless Steel, Class K Firewall.

The VG95319-1011 backshells provide a range of popular backshell styles in straight or 90 degree form, to accommodate heat shrink boots, EMC screen termination with band and cone termination for EMC screening braid or non-metallic cable protection braid.

GCB-M MODULAR REVERSE BAYONET CONNECTORS

Reverse Bayonet Modular connector GCB-M, per VG95234, housing size 32, to take up to 4 modules as per EN4165 for contacts: AWG 23- AWG8, FO contacts (MTP, MPO), RJ45, coax-, Quadrax contacts. More than 230,000 various pole arrangements possible.

- Temperature deployment range: from -65° to +150°C Cadmium
- Nickel
- Black-Zinc-Nickel

AGE96929 (VG96929 SPECIFICATION) CONNECTORS

Single pole power connectors with high power at low voltage. Meets requirement of VG96929 Standard Current Rating 225- 950A

Military vehicle & Industrial Equipment, EV application

POWER CONNECTORS

Amphenol offers a wide range of cylindrical products for use in high power, high amperage applications. From ground systems and shipboard power to military vehicles and heavy equipment, Amphenol has the connector you need to power your system. In addition, we'll continue to design new connectors to meet the latest power needs. All major circulars can be incorporated with power RADSOK contact technology.

- MIL-DTL-38999
- MIL-DTL-5015
- MIL-DTL-26482
- MIL-DTL-22992
- GT Power
- 97 / 97B Power
- VG Power
- EV Power

EX-PROOF (ATEX) SOLUTIONS

Certain hazardous environments, including those found in oil & gas exploration, petrochemical plants, fuel storage sites, and pharmaceutical and food manufacturing, require explosion-proof or ATEX-rated connectors. ATEX connector lines Amphe-EX and Star-Line EX, which are suitable for Zone 1 and Zone 2 hazardous areas, as well as provides the cable assembly. ATEX connector lines Amphe-EX, Star-Line EX, RJ Field, which are suitable for Zone 1 and Zone 2 hazardous areas, as well as provides the cable assembly.

Star-Line Series "ZP/ZR" connectors are heavy duty environmentally sealed plugs and receptacles and have been successfully used in all types of Industrial and Aerospace applications. These compact environmental connectors have provided outstanding performance in complex ground support cable networks, automatic and process control systems and instrumentation systems. These connectors combine electrical and mechanical capabilities that equal or exceed the performance parameters established by the Military Specification MIL-5015.

The new Amphe-EX™ is complimentary to Amphenol's industry-proven Star-Line EX™ and has miniature, explosion-proof threaded connector specifically designed to allow a signal to pass through Zone rated areas using coax, fiber optic cables, or standard copper.

Amphenol offers RJ 45 and USB insert options available in rugged form both for Zone-1 and Zone-2.

In its ATEX certified facilities Amphenol can supply a complete cable assembly solution.

FIBER OPTIC SOLUTIONS

Amphenol offers a wide range of fiber optic interconnect solutions for use in the harsh environments found in military and aerospace applications. From multiple fiber optic termini options to connectors to custom cable assemblies, Amphenol can provide solutions for virtually any fiber optics need.

Amphenol has established the rugged and reliable MIL-DTL-38999 as a common connector shell platform that houses a wide variety of fiber optic termini including MIL-PRF-29504 commercial equivalent, HDF20, ARINC 801 and MT ferrules.

Please see "Amphenol Fiber Optics" catalogue for detailed information.

HIGH SPEED SOLUTIONS

The High Speed Solutions group is one of the fastest growing and most technologically advanced groups within Amphenol. Everyday, the High Speed Solutions team is developing custom connector and cable solutions for High Speed Copper, Fiber Optic, and Integrated 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. Amphenol High Speed Guide is based on the following Protocol Guide:

- Ethernet 10Base--T
- Gigabit Ethernet 1000Base--T
- 10 Gigabit Ethernet 10GBase--T
- USB 2.0 - USB 3.0
- DVI
- Display Port 1.0 - Display Port 1.2
- SATA 1.0 - SATA 2.0 - SATA 3.0
- HDMI

Please see "Amphenol RF Solutions" and "Amphenol Fiber Optics" catalogue for detailed information.

MINIATURE TERRAPIN

Amphenol Terrapin is a miniature series of circular push--pull connectors. Within a rugged shell design Terrapin offers superior EMC performance and is sealed to IP68. Resilient in severe battlefield situations the RoHS compliant black-silver plating is both low--lustre and corrosion resistant. Featuring an optional locking mechanism, multiple shell sizes with up to 37 contacts and suitability for over-moulding, Terrapin is the preferred choice for miniature connectors in military and other harsh environment applications.

2M MICRO-38999

Amphenol 2M Micro--Miniature Connector Series product line is designed for interconnect applications requiring high performance and reduced size and weight. This smaller, high density, lightweight connector far exceeds the competition in quality and performance levels. The 2M Series is a superior and versatile connector designed and tested to mil-spec standards, comparable to MIL-DTL-38999. 2M is intermateable with Glenair's Mighty Mouse the test results are available in the Technical Documents area.

STINGRAY MAGNETIC CONNECTOR SERIES

This series offers low profile, compact, sealed connectors that withstand exposure to rain, dust, dirt and chemicals. Stingray connectors are intedended for First Responders, Security and Military personnel.

Stingray features a magnetic, non-keyed mating system which allows the connector to be easily mated without the need for pre-alignment and eliminates the need to operate any coupling mechanisms. The low profi le Stingray connector sits fl at against the body to prevent snagging & damage. It is self-aligning due to the strong magnetic connection, and allows customisation and fl exibility of cable routing as the cable can be rotated through 360° when the connector is mated.

Features:

- Magnetic mating mechanism
- Non-keyed rotatable mating
- Wipe clean interface featuring sprung-loaded contacts 5000+ mating cycles
- Compatible with USB 2.0, Ethernet and Audio signal requirements
- Last mate contact
- 90° Cable exit within the height of the connector
- IP68 sealed (mated and unmated)

Amphenol
Turkey&MiddleEast

OUR SMALLEST CONNECTORS

FOR YOUR MOST IMPORTANT JOBS

2M
Micro38999

TERRAPIN

PEGASUS

Micro-D

HD38999
High Density

HD SIM

µCom

MRC
Ruggedized

Intended for harsh environment applications and used extensively in soldier communications, Amphenol Terrapin is a miniature series of circular push-pull connectors. Within a rugged shell design Terrapin offers superior EMC performance and high environmental sealing to IP68. Resilient in severe battlefield situations the RoHS compliant black-silver plating is both low-lustre and corrosion resistant. Featuring an optional locking mechanism, multiple shell sizes with up to 37 contacts and suitability for overmoulding, Terrapin is the preferred choice for miniature connectors in military and other harsh environment applications.

TERRAPIN

Miniature Rugged Connector Series

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PEGASUS SERIES

The Pegasus Series is one of Amphenol's latest innovation in small, lightweight, rugged connectors. Designed for use in harsh environments, Pegasus builds on the successful Luminus Aerospace connector with the addition of EMI shielding. EMI shielding is provided by electroless copper and nickel plate, with a copper alloy spring finger gasket to ensure shell-to-shell conductivity. Tests show between 60db and 40db of attenuation, depending on frequency. This combination of lightweight, small size, and EMI shielding makes Pegasus the ideal choice where protection against ambient noise transients, or suppression of emitted noise is required, and space and weight are at a premium.

BANTAM MICRO BAYONET CONNECTORS

Bantam is a high performance circular connector product range developed for aerospace applications where electrical performance must be met with affordability. High mating cycles along with excellent shell-to-shell electrical bonding for EMI are the benchmark of rugged connectors. Bantam provides the solution that meets your budget and performance goals. Amphenol has filled the gap between the most ruggedized military grade connectors and the consumer grade connectors with Bantam. Bantam utilizes a robust triple bayonet coupling mechanism along with an internal EMI ground spring to provide excellent shell-to-shell conductivity. Various mounting options are available including in-line and 2-hole flange mount configurations. Bantam meets the RoHS and EWIS requirements for the aerospace cabin environment.

BACKSHELLS

Complete range of backshells for all circular connectors is now available from Amphenol now. These backshells are QPL certified to AS85049 standard and any variants of the same could be supported in short lead-time. The full technical details are available from the exclusive website www.backshellworld.com.

In ground and naval application the robustness and the environmental sealing may be more important, where as weight may be prime consideration for space and Aerospace application. Amphenol backshells are available in different types for variety of applications.

- Non-Environmental Backshell
- Environmental Backshell
- Non Environmental EMI/RFI Backshell
- Environmental EMI / RFI Backshell
- Shrink Boot Adapter
- Shrink Boot Nut
- Band Lock Adaptor
- Crimp Adaptor/Ring Backshell
- Quick Clamp
- Strain Relief
- Grommet Nut Backshell

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With the widest range of circular connectors conforming to most Military (MIL) specifications in the product portfolio, Amphenol retains its undisputed leadership in these categories of products. **Backshell** is an integral part of any Circular connector when it comes to reliable cable connections. It is only logical for Amphenol to offer full range of **Backshells** as it creates newer values for our esteemed customers.

PROTECTIVE CAPS

For any receptacle, we have a cap solution

RoHS COMPLIANT

Protect your plugs and receptacles against dust, water, moisture, EMI.

Protective caps for:

- **38999 Series I, II, III (MIL-DTL-38999/EN3645)**
- **26482/PT/451 Series (MIL-DTL-26482)**
- **RJ Field & USB Field**

...with **many benefits**:

- **Time & Cost Saving** with quick delivery (4 weeks max)
- **A large range of caps & receptacles** with Black Zinc Nickel and QPL qualified plating available

Rubber Standard Caps
(for 26482 & 38999)

NEW

Composite Self-Closing Caps
(for 26482)

NEW

Metallic Standard Caps
(for 26482 & 38999)

Metallic Self-Closing Caps
(for 38999)

COMING SOON

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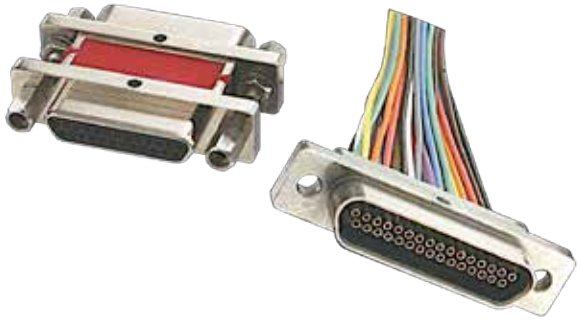
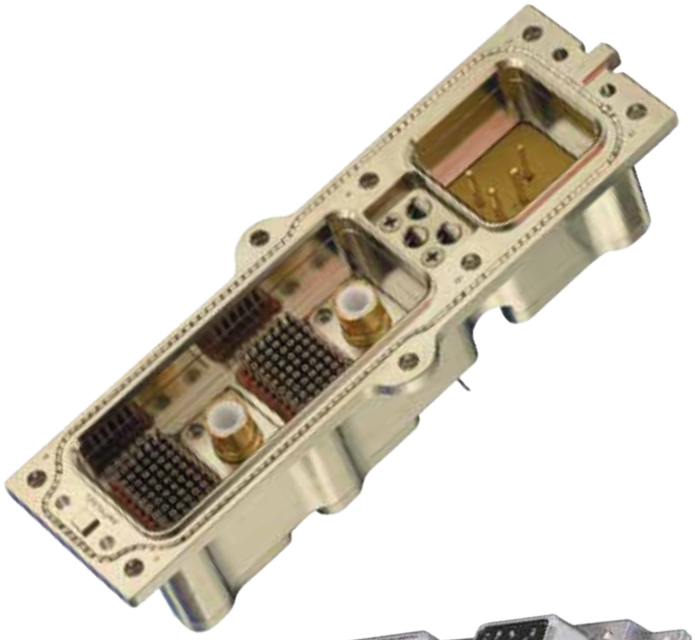




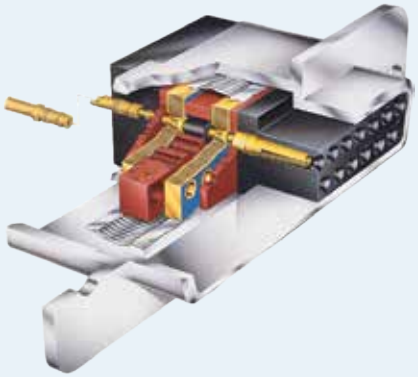
Rectangular Connectors

- ARINC 404
- ASR Connectors
- ARINC 600
- R39 - Rectangular 38999
- R27 - MIL-DTL-83527
- R58 - MIL-DTL-83733 & JN1122
- Brush Rack & Panel Connectors
- EN3545 / 1900 Connectors
- RFM SERIES - Modular Floating Racks
- MIL-DTL-24308 D-SUB
- M83513 - MICRO-D
- MMA - Blind Mate
- RMM Rectangular Modular Micro Series

Advantages of Filter Connectors:

The integration of the filter elements into the connector, rather than a board level solution, results in many advantages to the user:

✓ Reduction in space and weight
✓ Reduction in inspection and assembly labour
✓ Improved high frequency EMI performance by elimination of parasitic effects associated with board level filters
✓ Superior shielding effectiveness



ARINC 404

Amphenol's "AR" Series, ARINC rack and panel ARINC 404 connectors meet or exceed MIL-C-81659 and ARINC Specification 404. The "AR" Series is a multi-purpose connector used in aerospace, military and computer periphery applications.

These connectors are available in five shell styles with up to four insert cavities. Inserts in this product line accommodate signal and power contacts in sizes 12, 16,20 and 22. Coaxial contacts are available in sizes 5 and 9. Insert arrangements are available utilizing a single type contact or a combination of standard and coaxial contacts.

Non-environmental and environmentally sealed connectors are offered. The environmental sealing is accomplished by wire sealing grommets and interfacial seals. Application specific designs, including transient protection, are available from Amphenol.

ASR Connectors

The ASR connector is a compact and easy to use interconnect where shielding, sealing, and space / weight-saving are prime requirements. ASR connectors use MIL-C-39029 contacts, feature a snap-locking mechanism and are available in both male and female versions, as well as with PCB or crimp contacts. Fully Reach / RoHS compliant and conform to ABD0031 and FAR 25853 (Fire, Smoke and Toxicity), the ASR series is perfectly suited for in-seat systems, as well as cabin service systems and in-flight entertainment systems.

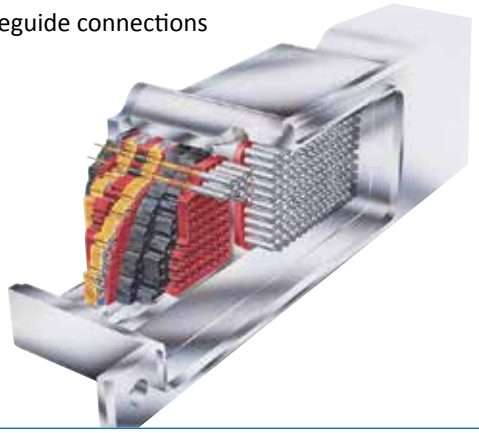
ARINC 600

ARINC 600 Connectors are a recognized standard rack and panel connector for aircraft applications. The ARINC 600 is the successor to the ARINC 404 for many of the new avionic designs. Compared to the ARINC 404, the ARINC 600 features lower mating force contacts, increased contact count and a front release, floating keying system.

Amphenol's extensive product offering will meet the most demanding needs of our customers. At the design-in stage, Amphenol's sales engineers will work with you to select a connector from our standard product line or coordinate the design of an application specific connector. Amphenol's ARINC 600 rack and panel connectors are designed to meet all relevant
ARINC 600 connector specifications.

FEATURES:

- Low insertion force contacts
- Both environmental and non-environmental versions
- Front removable keying posts
- Field replaceable inserts for size 22 and power contacts
- Up to 800 size 22 contact positions in one connector
- Crimp, coaxial, power, printed circuit, and wire wrap contacts
- Waveguide connections



R39 - RECTANGULAR 38999

Amphenol's rectangular connector soars to meet higher expectations. The R39 series provides high performance in the severe environment demands of military specifications. Its lower profile translates into a smaller space-saving footprint. It delivers the same reliable, familiar benefits found in Amphenol's 38999 circular connectors: effortless installation, blind push-pull mating, extreme durability, quick mate.

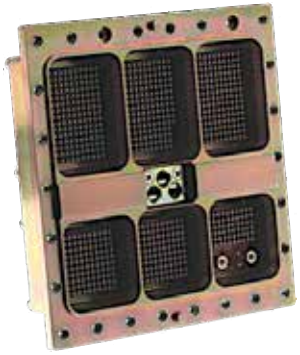
FEATURES:

- Rectangular space savings
- Low profile
- High density 127 position inserts or mixed inserts with power, RF or fibre-optic available
- Blind mate
- Rugged
- Uses same contacts as standard 38999

R58 - MIL-DTL-83733 and JN1122

The R58 series are high performance environment resistant, rectangular connectors designed to exceed the requirements of MIL-DTL-83733 and to meet the EFA requirements of JN1122.

R58 Series Rectangular Connectors are well suited for hostile military aircraft applications where environment is an issue or shielding effectiveness and corrosion resistance is mandatory.

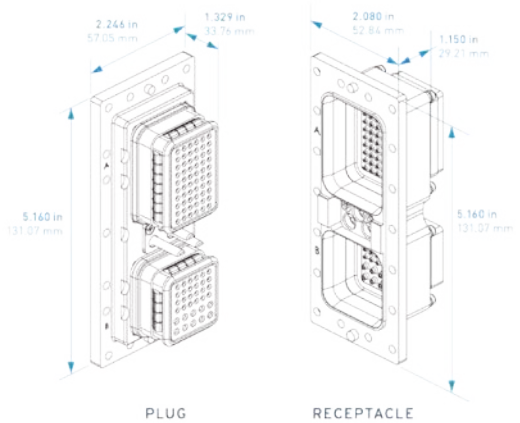


R27 - MIL-DTL-83527

The Amphenol R27 Series is a robust rectangular connector designed to meet or surpass all the requirements of the MIL-DTL-83527 specification and EN 3682European Standard. This series is particularly well suited for military and commercial aircraft applications where harsh environmental issues are a concern. Connectors, shells, inserts, termination modules and contacts are sold separately or fully assembled.

These connectors are intermateable and interchangeable with filtered and non- filtered MIL-DTL-83527 connectors. A wide range of contact arrangements are available using contact types from Fibre Optic, Quadrax, Differential Twinax, Triax, Twinax and Coax to the standard size 12, 16, 20 and 22 contacts, in crimp and PCB.

These connectors are offered in both filtered and non-filtered designs. Filtered designs incorporate Amphenol's solderless construction which reduces stress on the ceramic elements resulting in superior thermal and physical shock performance and unparalleled long term reliability. Custom designs and features such as termination modules, backshells, unique insert patterns and integral shells are also available.



BRUSH RACK & PANEL CONNECTORS

This connector series utilizes Amphenol's durable and reliable B3 contact system in a rugged, non--floating Rack and Panel connector. Included in this series are digital and power/digital "hybrid" insert arrangements. The hybrid series utilizes Amphenol's high performance RADSOK® power contacts along with Amphenol's proven B3 contact.

FEATURES & BENEFITS:

- High performance B3 brush contacts
- 0.100 inch x 0.100 inch square grid footprint
- Environmentally sealed at connector interface when mated (optional feature)
- Environmentally sealed connector mounting interface
- EMI protection is available at mounting surfaces and connector interface
- ESD protection is available – allows use of Class 3 hardened chips (4KV max. voltage)
- Tapered mating surface provides near zero X & Y plane movement between mated connectors

EN3545 / 1900 Connectors

The composite EN3545 / 1900 connectors are available in sealed or unsealed versions and exist for copper or aluminum cable contacts versions. Locking as well as keying and fixing on structure is allowed by the pin & socket polarizers, available in standard screw version, ¼ turn or Quick Lock versions. This product range offers many contact configurations, from 50 contacts gage 20 to 5 contacts gage 8 (as per MIL-C-39029 and EN3155 spec.), as well as hybrid configurations and optical versions using Elio™ Termini (EN4531-101).

RFM SERIES (Modular Floating Racks)

FEATURES:

- Plugs and receptacles with floating fixing
- Stackable modules
- Metallic modules guides
- Allows mis alignment between rack and panel : +/- 1.25 mm around the fixing screw

MAIN CHARACTERISTICS

- Blind mate, floating fixing
- High mating / unmating cycles (up to 5000)
- NF F 61-032 approved (Railways)
- Good behavior in vibrations
- Low insertion forces
- Power contacts (8,15, 25, 50, 60Amps)
- Modular : 5, 3 and 2 contacts modules with removable crimp and wire wrap contacts
- Metallic guiding pins

APPLICATIONS:

For applications demanding Density & Modularity RACK is the solution.

- Railway Racks
- Shelters
- Cabinets
- Power Racks
- Modular equipments
- Automatic assembly machines

MIL-DTL-24308 D-SUB

FEATURES:

Amphenol M2000 Series D Sub Connectors are MIL Qualified & listed in QPL & meets the requirement of MIL-DTL-24308.

M2000 Series D Sub Connectors are subminiature rack & panel type with polarized shell & having pin/socket machined contacts which provide high reliability & density for the connectors. They are used in variety of applications due to it's versatile design where weight & dimensions are constraint factor.

APPLICATION:

- Military Information System
- Aerospace Communication System
- Industrial

MMA - BLIND MATE

The MMA series is the ultimate solution to fit your needs:

- **Mini** - Compact blind mate
- **Modular** - Infinite possibilities
- **Arinc Contacts** - Proven Design

MMA combines many of the best features from popular product lines including Arinc 600's power, RF, Fiber Optic and Quadrax contacts, low mating forces and shrouded size 22 pins. Sealing capabilities are comparable to M83527 with a shell seal, face seal and grommet. Modular, removable inserts are effective for separating signal and power contacts, while providing ease of installation and customization in the field. Choose our 360° EMI spring option if shielding effectiveness is a concern. Customer specific designs lead to endless possibilities!

M83513 - MICRO-D

FEATURES:

Amphenol micro connectors provide small inter-connect solutions, which will exceed the requirements of the US military standard M83513.What differentiates Amphenol from the competition is our overall connector design. Custom solutions can easily be engineered to ensure exact performance in any application.

Amphenol is not limited to the traditional M83513 rectangular connectors but has also developed and produced circular connectors, strip line connectors,PC board connectors,and hybrid connectors utilizing power,signal,coaxial and fiber optics contacts.

RMM SERIES
(RECTANGULAR MODULAR MICRO)

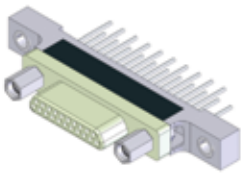
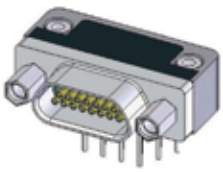
RMM Series is a low-profile, highdensity rugged connector that fills the gap between the Micro-D (MIL-DTL-83513) and D-Sub (MIL-DTL-24308) product lines. Designed to meet the harsh environments of the Aerospace, Defense and Industrial markets, the unique modular insert design allows for a wide variety of insert arrangements combining signal, power and RF contacts. Custom designs featuring Sealing, Filtering, and High Speed contacts are also available.

Features & Benefits

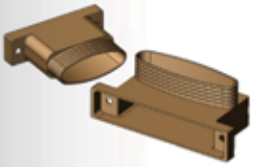
- Modular insert arrangements – Signal, Power and RF positions
- Expandable insert patterns - 1 to 3 rows, 2 to 120 positions
- Mixed layout options : High frequency, high power and low frequency contacts in one connector
- Lower profile than traditional Micro-D series
- Meets performance requirements of MIL-DTL-83513G

Amphenol

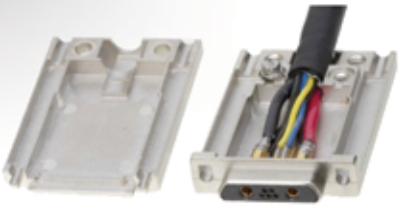
Microminature Products

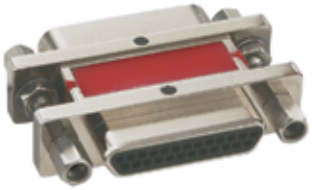




Metal / Plastic “100, 101, 102, 104”
Solder Cup, Pre-Wired, PCB Tails



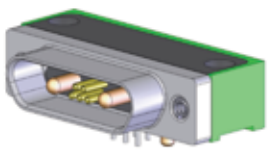

Backshells “MBS” and
Accessories “HM05, MDCE”





Integrated EMI Backshell Strip Line “105” Connector Saver






Hi-Density
Card “106”

Filter Micro
“M13”

Custom Design

Possible Configurations:

✓ Ruggedized
✓ Hi-Speed
✓ Fiber Optic & Power

Termination Options:

✓ PCB Tail Crimp
✓ Compliant Pin
✓ Flex Termination
✓ Surface Mount

Board Level Connectors

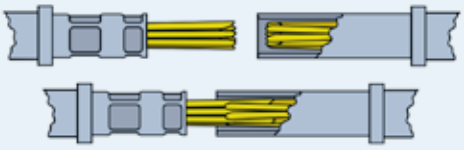
- SIHD
- HDAS
- HILINX
- SMASH
- R-VPX Ruggedized Vita 46
- Viper Connectors
- Module-R
- HE7-HE9/254
- Thermal Clamps
- LMF-Low Mating Force Rectangular M55302
- Ruggedized VME64x, VITA 60, VITA 66 Interconnects
- R-SATA
- LRM (Line Replaceable Module)
- Power to Board
- HDB3 High Density / HSB3 High Speed
- UHD Connectors with Fork & Blade Contacts
- NAFI Connectors with Fork & Blade Contacts

Amphenol is the leader in board level interconnection products through its long history of engineering expertise for product solution solving. New and innovative solutions are under development every day within the highly skilled engineering departments who are teamed with marketing product managers and production specialists.

Brush Contact Technology:

Meets the requirements of MIL-DTL-55302.

Provides high density in tight spacing, low mating/inmating forces, proven durability and long contact life.



Applications :

- Medical equipment
- IC chip testers
- Telecommunications
- Military and Commercial Aviation
- Military Ground Vehicles
- GPS systems

SIHD

FEATURES:

Monolithic staggered grid connector, with floating capability feature.

APPLICATIONS:

- Radar
- On Board Computer
- Actuator

HILINX

FEATURES:

100% modular & hybrid connector. Unique M55302 modular interconnect. System of interlocking signal, power, fiber optics & HF modules.

APPLICATIONS:

- Engine
- Power Unit
- Landing Gear
- Braking System
- Ordnance

HDAS

FEATURES:

Monolithic high density PCB interconnect. Provides higher current rate capability, and extreme withstanding to harsh environments.

APPLICATIONS:

- On Board Computer
- Display Unit
- Actuator
- Engine
- Power Unit
- Landing Gear
- Braking System

SMASH

FEATURES:

Highly robust advanced SEM E form factor connector. For the most demanding electronic packagings interconnects.

APPLICATIONS:

- Radar
- Engine
- Ordnance

R-VPX RUGGEDIZED VITA 46

Amphenol's R-VPX is a ruggedized, high-speed, board-to-board interconnect system capable of data rates in excess of 10 Gbps, meeting and exceeding VITA 46 standards. This connector system gives users modularity and flexibility by utilizing PCB wafer construction with customized wafer-loading patterns.

- Qualified to VITA 46 for Open VPX applications
- Fully intermountable and intermateable to existing VITA 46 connectors
- Meets and exceeds VITA 47 performance requirements
- Supports Ethernet, Fiber Channel, InfiniBand, and other protocols
- Modular COTS lightweight connector system
- Low mating force connector system
- Pin-Less backplane connector family
- Supports .8 inch card slot pitches
- Up to 140 signals per inch
- Contact current rating1.5 Amps
- Can be combined with high power modules, RF Modules (VITA 67) and Optical modules (VITA 66)

VIPER CONNECTORS

VITA 60 provides an alternative backplane connector system for OpenVPX™ systems. To support the VITA 60 standard, ABS developed the VIPER® connector – a powerful backplane and daughtercard interconnect platform providing 63 differential signals per linear inch. The VIPER connector has been designed to meet the demanding requirements of the next generation of rugged military and aerospace applications.

MODULE-R

FEATURES:

Permits direct, blind-mate, and reliable interconnections within avionics racks.

APPLICATION:

- Modular avionics

HE7-HE9/254

FEATURES:

The standardized single or double-sided connector range

APPLICATIONS:

- Industrial
- Navy
- Security & Defense

THERMAL CLAMPS

FEATURES:

Chassis devices, which both help to dissipate components heating and block the daughter cards into the box slots grooves.

APPLICATIONS:

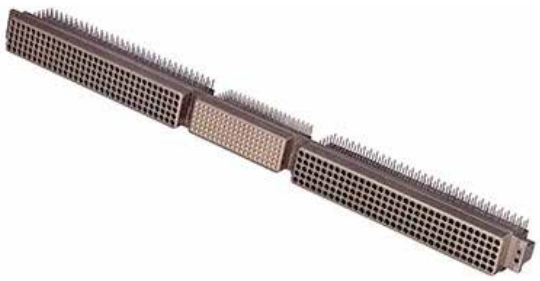
- Radar
- On Board Computer
- Actuator

LMF-Low Mating Force Rectangular M55302

Amphenol's Low Mating Force Connectors are well known in the connector arena – with proven performance on the ground, in the air, and at sea. – In service for over 25 years, with over 50 million brush contacts fielded; and qualified for use on M1A2 Abrams, F-16 Falcon, F/A-22 Raptor, F-35 Lightning II, AIM-132 ASRAAM and many more applications.

FEATURES & BENEFITS:

- 0.100 inch center to center, square grid contact spacing
- Application flexibility (parallel boards, perpendicular boards, wire to board, end to end boards, card extenders)
- 2, 3 and 4 row contact arrangements with 10 to 100 contacts per row in one contact per row increments
- Military versions meet MIL-DTL-55302/166 through / 172
- Termination versatility; straight & 90° PCB stud, wire wrap & crimp
- Options on termination lengths and plating
- Front release/front removable contacts in Mother Board, Daughter Board and PC version; rear release/ rear removable crimp contacts (size 22D) or printed circuit board pins provided with Input/Output connectors
- Accessories available for latching and polarization
- Up to 256 keyed, mating polarizations available
- Hybrids available – mix signal with power, RF or fiber optics
- Smaller sized connector designs with as few as 5 contacts per row
- RoHS compliant versions are available; consult an Amphenol Representative for more information.



Ruggedized VME64x, VITA 60, VITA 66 Interconnects

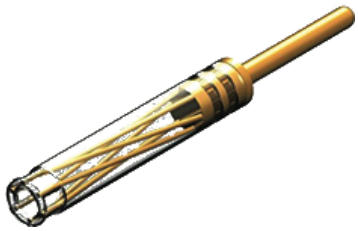
Amphenol Aerospace developed the Ruggedized VME64x in response to the military trend towards VME64x and the utilization of COTS Boards and Chassis. The Amphenol Ruggedized VME64x interconnect has a more rugged interface than standard connectors for improved vibration durability. It meets the needs for a harsh environment connector requiring Level 2 maintenance. Military and commercial aviation, military vehicles and GPS systems are examples of markets that need the ruggedized VME64x connector solution from Amphenol. The Amphenol Ruggedized VME64x connector mounts to standard VME64x cards and backplanes, but it does not mate to other types of VME commercial connectors.

The new VITA based **VIPER** connector:

- VITA46 / 48/60 standards-compatible high-density PCB connector
- 10 + Gb / s high-speed signal response
- 1.8mm × 1.35mm grid that was optimized for differential signal
- High reliability due to four locations contact of beam-like terminal
- Extremely strong resistance to vibration, impact
- Robust frame made of aluminum alloy
- The ESD protection structure by ring with guide pin ▪
- Fitting prevention structure and error due to key rotation

R-SATA

The new (Rugged) R-SATA style connector is perfectly suited as the primary internal storage interconnect for desktop and mobile PCs, connecting the system to peripherals such as hard drives, solid state drives, optical drives, and removable magnetic media drives. The R-SATA supports SATA 3.0 protocol, delivering 6.25 Gb/s data rates & beyond. Amphenol's R-SATA connector utilizes a Micro-Hyperboloid contact with proven performance. The Micro-Hyperboloid contact system offers low insertion and extraction forces, high durability counts and is resistant to shock, vibration and fretting corrosion.



4 body styles for 7 pin & Combo 22 pin arrangements

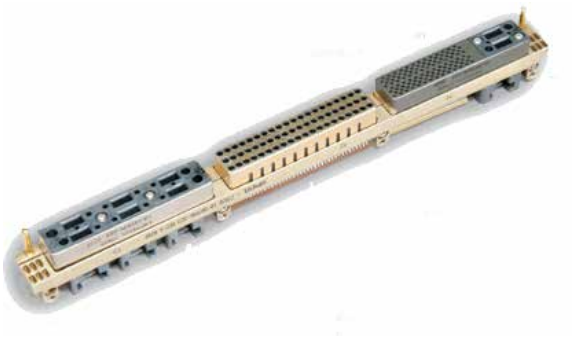
- Right Angle Plug (Daughterboard)
- Straight Receptacle (Motherboard)
- Right Angle Receptacle (PC)
- Straight Plug - Parallel Boards

FEATURES & BENEFITS:

- Ruggedized SATA style
- Supports SATA 3.0 protocol (6.25 Gb/s) & beyond
- Rugged Micro-Hyperboloid contacts
- Low insertion/extraction force
- 20K mating cycles
- Resistant to shock, vibration & fretting corrosion
- 7 pin SATA & Combo 22 pin R-SATA contact arrangements (two differential pairs, 3 ground)
- Foot print compatible with 3M SATA Connectors

LRM (Line Replaceable Module)

Amphenol LRM Surface Mount Connectors meet the high density needs of today's integrated electronic modules. Amphenol goes beyond the usual board level product offering. That's what you expect from a worldwide interconnect product leader.



MODULAR AVIONICS ARCHITECTURAL POSSIBILITIES:

With its flexibility in design, Amphenol LRM interconnects are capable of meeting the wide variety of user requirements for a board mount connector.

- Thousands of combinations of inserts are possible - tailored to meet user needs
- LRM interconnects can be designed in 1, 2, 3 (and more) bay configurations with many shell designs available
- LRM digital (brush contact) inserts can be combined with inserts for power, fiber optics, RF, high speed and high amperage RADSOK® contacts

HDB3 High Density/ HSB3 High Speed

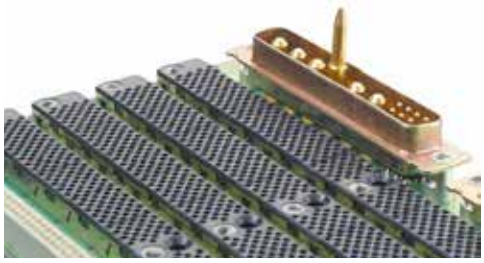
This new connector series incorporates a higher density contact pattern and lower mated height than Amphenol's standard low mating force rectangular connectors. HDB3 connectors utilize the same durable and reliable B3 brush contact in a tighter .070" X .060" staggered grid pattern.

FEATURES:

- 100,000 mating cycles
- Operating Temperature of -65°C to 125°C
- 36 unique keying combinations
- HSB3 data rates up to 6.25 Gbps

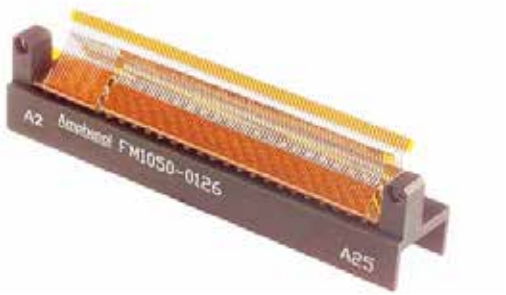
Power to Board

Amphenol **RADSOK®** solution offers options for high current single-point connections with a compact footprint design that can supply up to 120 Amps to the board. The hyperbolic grid contact provides more surface area with many points of contact for heat dissipation at the pin and socket interface. This lowers temperature rise and reduces potential failures. **RADSOK®** Power-to-Board products are designed to be applied manually by press-fit or by a re-flow solder process eliminating the need for additional wires and/or special crimp tools.



UHD Connectors with Fork & Blade Contacts

- 0.100" x 0.050" staggered grid - High density optimizes trace routing through the backplane
- Compliant press-fit termination of backplane connectors - Provides a gas-tight interface with the printed circuit backplane without the need for soldering
- Tuning fork and blade contact system - A proven technology for high reliability
- Low insertion force (2.25oz/contact) - For easy mating Daughtercard connectors feature surface mount termination via rigid pins or flex circuit - Maximum design flexibility depending on the application requirements
- Rugged machined aluminum frames - Ensures excellent performance in harsh environments



NAFI Connectors with Fork & Blade Contacts

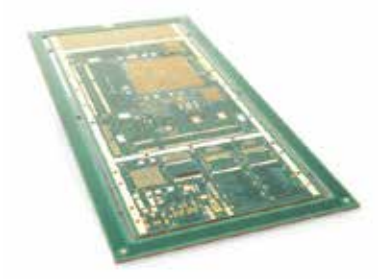
- Available in 2 through 4 rows - Offers maximum design flexibility
- Tested and qualified to MIL-C-28859 and MIL-C-28754 - Confirms the product meets specific performance requirements
- Tuning fork and blade contact system - A proven technology for high reliability
- Low insertion force (2.25oz/contact) - For easy mating
- Rugged machined aluminum frames - Ensures excellent performance in harsh environments
- Compliant pin press-fit, through-hole and flex circuit termination styles available - Support a variety of design application requirements

Printed Circuit Board Technology

The Leading Choice in Printed Circuit Board Technology

PCB / Flex

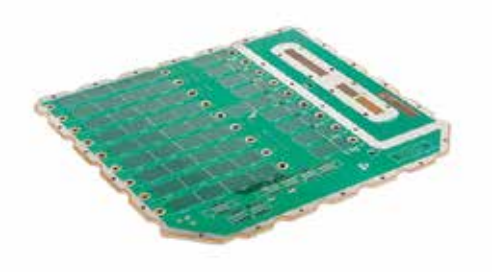
- Standard PCBs
- PCB Backplane
- Flex & Flex-Rigid
- Type 1 Single-Sided Flex
- Type 2 Double-Sided Flex
- Type 3 Multi-Layer Flex
- Type 4 Rigid Flex
- Type 4 Rigid Flex Book Binder



STANDARD PCBs

Categorized by single stage bond, conventional drilling and plating technology.

- Multilayer up to 40+ layers
- Wide range of laminate options including high reliability / temperature, low loss and lead-free laminates
- Mixed dielectric (hybrid) constructions
- RF and microwave circuits
- Heavy copper and thermal management solutions
- Embedded components



PCB BACKPLANE

A Printed Circuit Board consisting of multiple layers that is used as a conduit to transfer data, information and power to components within an electronics chassis/sever that supports “box-build” applications.

- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- Larger sized backplanes eliminates “jumper” cabling within a chassis improving reliability, lowers assembly cost and creates stronger signal integrity
- High performance materials for high speed digital applications
- Wide range of material selections to suit the design from power to high-speed (56gb) applications
- Copper weight variability to carry high speed signal or power within one design
- Precision back-drilling for high-speed signal integrity

FLEX & FLEX-RIGID

Flex-rigid circuit technology provides a method to integrate multiple PCB assemblies, eliminate wires, cables or connectors, replacing them with flexible substrate between rigid sections. Flexible circuits allow the board to conform to a desired shape (flex) during its application. Our products can be found in a range of ultra-high reliability markets including aerospace, space and defense. We have developed extensive manufacturing experience, product knowledge and technical expertise through close collaboration with many leading OEMs.

TYPE 1 SINGLE-SIDED FLEX

Single-Sided flex, or Type 1 Flex, is a flex circuit based on one conductive layer of copper

- These types of circuits are very cost effective in replacing low-high volume simple wire harnesses
- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- Military and IPC Specification qualified
- Silver shielding can be added for EMI protection
- Stiffeners can be added to “ruggedize” connection areas
- Full Turnkey Assembly solutions are available including all methods of Soldering, Potting, Conformal Coating, and Electrical Test

TYPE 2 DOUBLE-SIDED FLEX

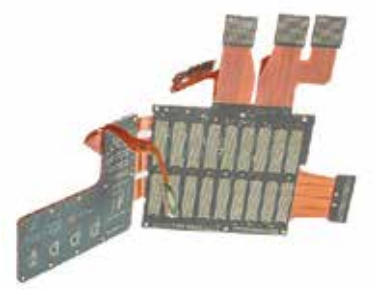
Double-Sided, or Type 2 Flex, is a flex circuit based on two conductive layers of copper that are interconnected through Plated-Through-Holes (PTH’s) or Vias creating electrically active circuitry on both conductive layers

- Cost effective and lightweight
- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- Military and IPC Specification qualified
- Silver shielding can be added for EMI protection
- Stiffeners can be added to “ruggedize” connection areas “Button Plating” or Pads only plating is a method when copper plating a circuit that must maximize its flexibility in its end application
- The ability to plate to a ground plane with one conductor layer is a good cost effective way for stripline impedance
- Full Turnkey Assembly solutions are available including all methods of Soldering, Potting, Conformal Coating, and Electrical Test

TYPE 3 MULTI-LAYER FLEX

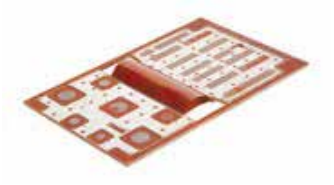
A circuits consisting of more than two copper conductor layers (typically less than 10) that are interconnected through Plated-Through-Holes (PTH's) or Via's creating electrically active circuitry on all conductor layers.

- Cost effective and lightweight
- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- Military and IPC Specification qualified
- Through holes are "supported" as they are plated through creating a more reliable solder-joint
- A four layer circuit (two active layers and two ground planes) are a very common construction for 100-ohm differential impedance pairings
- Full Turnkey Assembly solutions are available including all methods of Soldering, Potting, Conformal Coating, and Electrical Test



TYPE 4 RIGID FLEX

A circuit consisting of more than two copper conductor layers that are interconnected through Plated-Through-Holes (PTH's) or Via's creating electrically active circuitry on all conductor layers. The flexible layers are integral to the "rigidized" layers and both the PTHs or Vias are plated through the rigid and flex areas.



TYPE 4 RIGID FLEX BOOK BINDER

A circuits consisting of more than two copper conductor layers that are interconnected through Plated-Through-Holes (PTH's) or Via's creating electrically active circuitry on all conductor layers. The flexible layers are integral to the "rigidized" layers and both the PTH's or Vias are plated through the rigid and flex areas; the flex-layers are built with a controlled progression to enhance flexibility.

- Cost effective and lightweight
- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- By incorporating PCB and Flex into one design there are less points of failure as well as creating a smaller interconnect area
- Military and IPC Specification qualified
- Short Bend Radius
- High-layer count Rigid Flex that meets the needs of a tight bend radius
- Full Turnkey Assembly solutions are available including all methods of Soldering, Potting, Conformal Coating, and Electrical Test

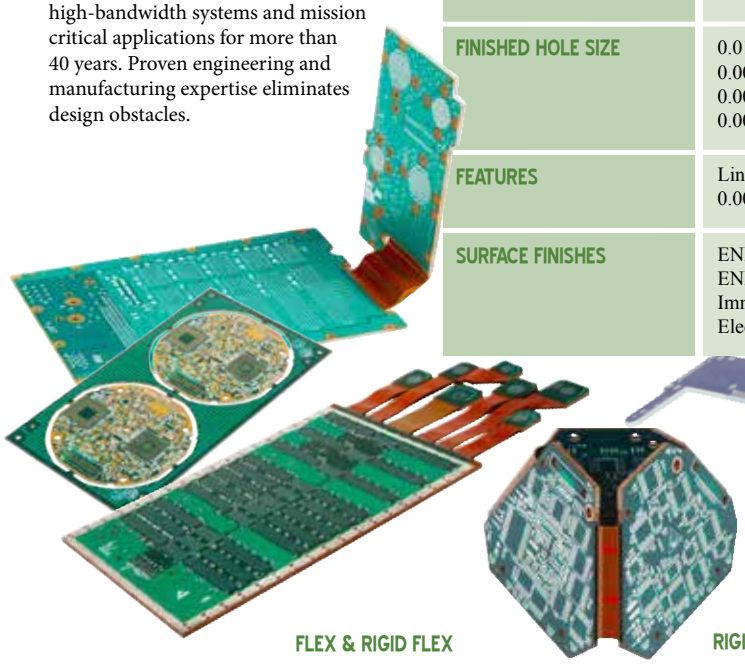
Amphenol

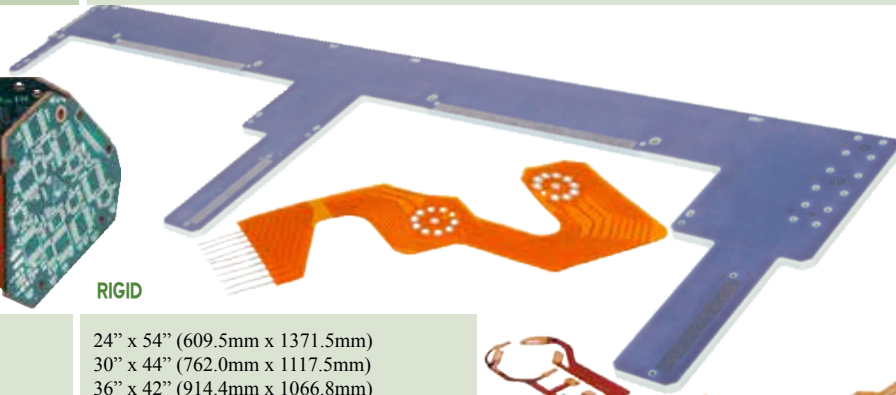
Printed Circuit Board Technology

Printed Circuit Board Capabilities

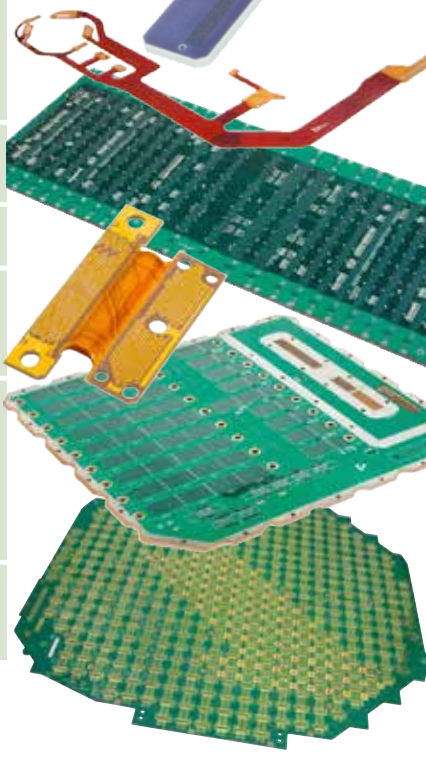
Amphenol Printed Circuit Board Technology is a world leader in the printed circuit industry, building Board Level Connectors, PCB's, Backplanes, Flex and Rigid Flex products and Advanced Assemblies to meet our customers' demanding needs. Amphenol capabilities are among the world's broadest and most advanced, delivering consistent quality and reliability for demanding high-bandwidth systems and mission critical applications for more than 40 years. Proven engineering and manufacturing expertise eliminates design obstacles.

DESIGN FORMATS	DXF PADS IGES	Mentor Graphics Cadence Allegro Design Services	Gerber Zuken	
MANUFACTURING FORMATS	ODB++ (preferred) DXF	Gerber 274x / 274d Autoplot	DPF IPC-D-356	Excellon HPIGL
INTERCONNECT FORMATION TYPES	Via Fill Conductive Via Fill Non Conductive Blind (laser & mechanical)	Back Drilled Dual Diameter Electrically Isolated	Thru Hole Buried SMT	
FINISHED HOLE SIZE	0.014" (0.373mm) 0.008" (0.203mm) 0.006" (0.152mm) 0.004" - 0.006" (0.101mm)	Compliant Pinned (rigid zone only) Via (A/R dependant) Buried Vias Microvias (up to 3 electrical layers)		
FEATURES	Lines / Spacing (Internal) 0.003" (0.0762mm) .5 oz. Copper	Lines / Spacing (External) 0.004" (0.1016mm) .5 oz.	Minimum Core Thickness 0.001" (0.0254mm)	
SURFACE FINISHES	ENIG ENEPIG Immersion Silver Electrolytic Ni/Au (Hard & Soft)	OSP HASL Immersion Tin Reflowed Tin/Lead		



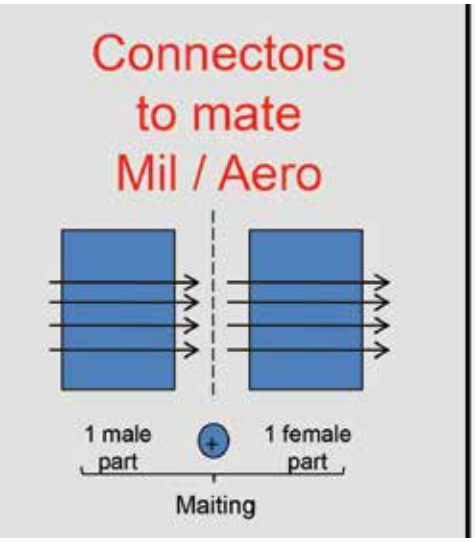


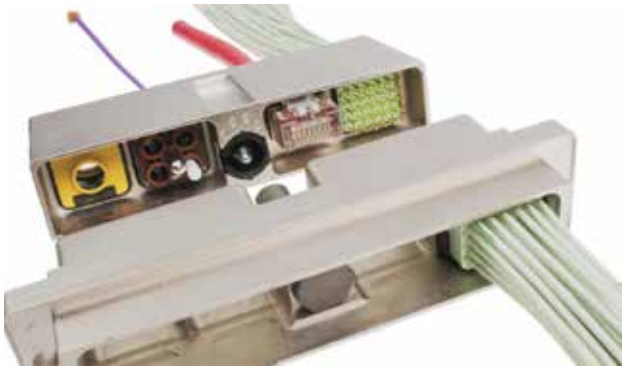
	FLEX & RIGID FLEX	RIGID
PANEL SIZE	18" x 24" 24" x 36" Other sizes available Current Largest is 38" x 54" (2 Layer)	24" x 54" (609.5mm x 1371.5mm) 30" x 44" (762.0mm x 1117.5mm) 36" x 42" (914.4mm x 1066.8mm)
MAXIMUM PANEL THICKNESS	.003" - .225" BookBinders Up to 0.500"	.500" (12.7mm)
LAYER COUNT	Up to 40 +	Up to 64 +
ASPECT RATIOS	Via Holes < 0.012 7:1 Via Holes >= 0.012 13:1 Blind Via Aspect Ratio 1.25:1	Compliant Holes >= 0.0225 17:1 Via Holes < 0.0225 13:1 Blind Via Aspect Ratio 1.25:1
MATERIALS Please contact Applications Engineering for the availability of additional materials - Hybrid Construction Available	Polyimide - LF/ FR/AP/GI/TK LCP Silver Epoxy Shielding Copper Epoxy Shielding Soldermask FR-4/ -24, 26 and 28	FR4 Low & High TG Rogers 3000/4000/6000 Polyimide Megtron 6 & Megtron 7 Nelco 4000-13 SI & EP LCP
IMPEDANCE SINGLE & DIFFERENTIAL	+/- 10%, +/- 7%	+/- 10% , +/- 7.5% , +/- 5.0%



Modular Connectors

- EN4165 SIM Modular Series 2
- MilAero SIM splice
- EN4165 / SIM Monomodule Connectors
- EN4165 / SIM connectors Series 3
- 3559 Push Pull connectors
- Specific SIM Modular Interconnection Unit
- 1900SIM modular connectors





EN4165 SIM Modular Series 2

Amphenol's EN4165 / SIM connectors are rectangular, modular and fully sealed (IP66, 68 and 69K). They are suited for specific (optical termini, RJ45, Quadrax...) or standard electrical crimp and PCB contacts (as per MIL-C-39029 or EN3155 spec. from gage 8 to 23). EN4165 spec. qualified, they come in metallic or composite versions, shielded or not (RoHS / REACH versions), and feature clicker nut or rack & panel plugs, and standard or flange-mount receptacles that can be assembled side by side on a panel providing unparalleled contact density. Available with Bright Nickel or Olive Drab Cadmium plating. 36 keying positions. Fire, Smoke and Toxicity conform to ABD0031 and FAR 25853.

MilAero SIM Splice

This modular composite splice provides a reliable and simple connection between two EN4165 / SIM modules. Available with or without cable clamp, and/or flange, the SIM splice can be fixed on/under a structure or Feed-through. It can be fitted with the whole range of EN4165 / SIM modules.

EN4165 / SIM Monomodule Connectors

These modular EN4165 push-pull connectors are in light weight composite, shielded, sealed and available in 7 keyed versions. Fitted with the whole range of SIM / EN4165 modules, they present a compact design with a push-pull locking system for blind mating. Suited for in-flight entertainment and cabin systems applications

EN4165 / SIM connectors Series 3

Amphenol's EN4165 / SIM connectors series 3 are scoop-proof rectangular, modular and fully sealed (IP66, 68 and 69K). They are suited for electrical crimp and PCB contacts (as per MIL-C-39029 or EN3155 spec. from gage 8 to 22). EN4165 spec. qualified, they come in metallic versions, both standard or shielded, and feature clicker nut or rack & panel plugs, and standard or flange-mount receptacles that can be assembled side by side on a panel providing unparalleled contact density. Available with Olive Drab Cadmium plating. 36 keying positions. Fire, Smoke and Toxicity conform to ABD0031 and FAR 25853.

3559 Push Pull connectors

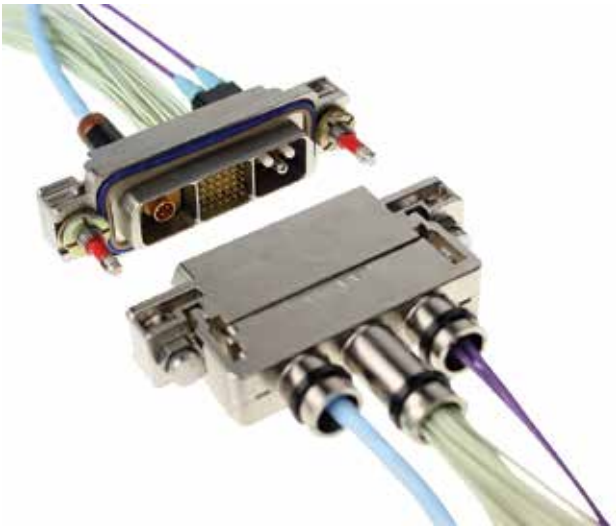
FEATURES:

- Mounted with SIM modules
- Multiple arrangements of contacts, size from 8 to 22 + ethernet
- Contacts gauge 8 to 26 AWG
- Contacts : MIL-C-39029, EN 3155, UTE C 93425 or ABS depending on contact types
- Connectors : AIRBUS ABS 1152, derived from EN 4165

Specific SIM Modular Interconnection Unit

FEATURES:

- Fully customized units:
- Form according to space requirements
- Module type, number and arrangements, as required
- Contacts type (according to MIL-C-39029)
- Connectors: derived from EN 4165



1900SIM Composite Connectors: NEW

The new 1900SIM connectors are modular (fitted with the whole range of EN4165 SIM modules), in light weight composite, shielded (including RoHS / REACH Bright Nickel and Black Zinc Nickel versions) or not, for sealed connections (IP66, 68 and 69K). They are designed to save time while installation: clip in backshells and various locking systems (standard, ¼ turn and Quick Lock Push Pull polarizers). They offer 36 keying positions and are conform to ABD0031 and FAR 25853 (Fire, Smoke and Toxicity).

1900SIM Connectors

Application: Aeronautic & Defence

screw ¼ turn Quick Lock

Except versions with Cadmium plating

SIM Custom Connectors

Application : Defence

Connectors to mate
Mil / Aero

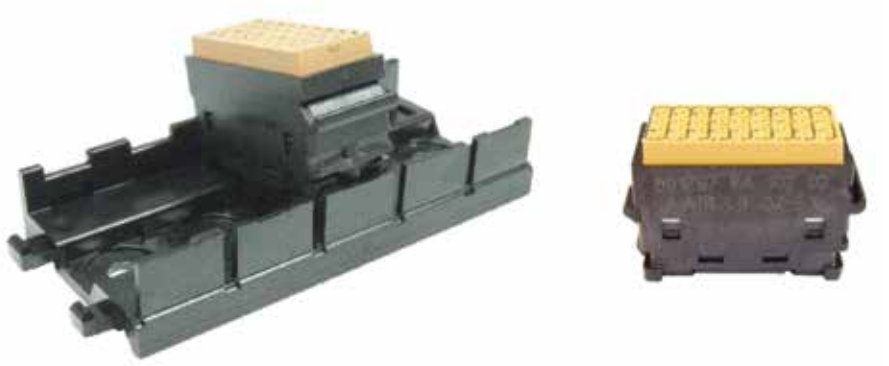
Except versions with Cadmium plating

FEATURES:

- Derived from EN4165
- Customized plates
- Metallic
- Shielding (Bright Nickel or Olive Drab Cadmium) for EMC
- Sealed - IP66 / IP68 / IP69K
- Possible coupling polarization
- Standard module range fitted with MIL-C-39029 / EN 3155 crimp contacts for electrical connection (size 23 / 22 / 20 / 16 / 12 / 8)
- Modules with PCB contacts (23 / 22 / 20 / 16 / 12)
- Also available: modules for RJ45, optical termini Lumiere®/Elio® or Amphelux®/Luxcis®, and special contacts (Quadrax, Twinax, Coax, Triax...)
- Operating Temperature : -55°C to +175°C (permanent)
- Conform to ABD 031 and FAR 25853

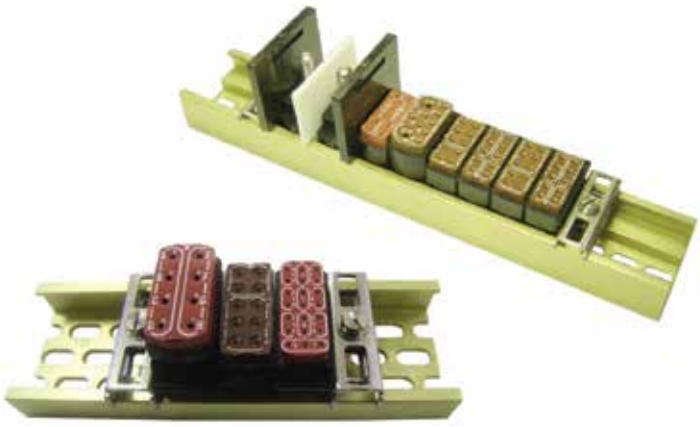
BENEFITS:

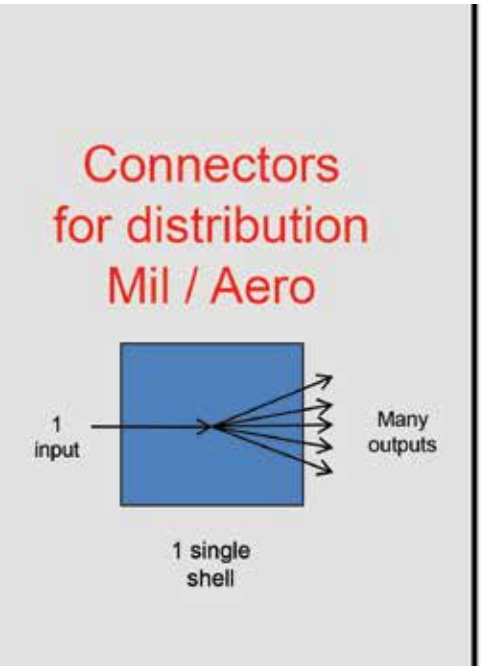
- Custom design
- Robust (metallic versions)
- Compact and High contact density : Space saving
- Sealed
- Modularity
- "Compartmenting" is possible inside the connector shell (signal, power, optical, RJ45, Quadrax…)
- Time saving : Use plates or custom connectors instead of many stackable connectors --> easy implementation

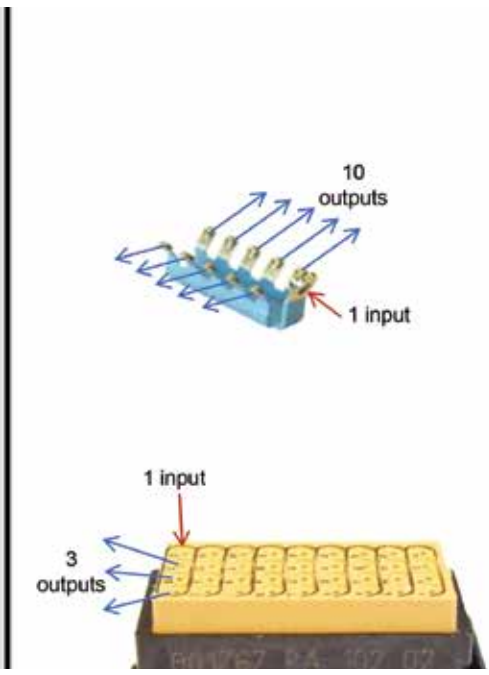


Distribution Solutions

- Bus Bar – Power Distribution
- Monoblock Assemblies
- Quick Junction Modules
- In-Line Junction 1119 Series
- Relay Sockets
- MIL-T-81714 Series I
- MIL-T-81714 Series II
- M81714-style Electronic Splices and Modules
- 2759 Modules
- Ground Modules 1758 Series
- Sockets for Lights
- Sockets for Switch







Bus Bar – Power Distribution

Amphenol's bus bars provide a means of power distribution between power generator boxes, terminal blocks, and smaller terminal block interconnects. Bus bars are available in various standard sizes and shapes as well in custom designs. Bus bars present high mechanical resistance and are resistant to high temperatures.

Monoblock Assemblies

Designed for power distribution purposes, the monoblock assemblies are made of terminal junction block, for copper or aluminum cable connections. Monoblock assemblies are available with individual or shunted terminals, from 1 to 12 terminals, in different diameters. The protective cover fixing, as well as the terminal assembly's fixing on structure are ensured by pillar bolts.

Quick Junction Modules

Quick junction modules for signal and low current distribution, where sealing (IP66 / IP68 and IP69K), space and weight-saving are prime requirements. Specifically suited for wiring optimization, then offering weight and cost savings, these track-mounted modules (on metallic or composite track) are available from 8 contacts size 12 up to 36 contacts size 22 in different contact configurations. They also come in hybrid or ground versions, as well as PCB or component carrier versions. Fully REACH / RoHS compliant and conform to ABD0031 and FAR 25853 (Fire, Smoke and Toxicity).

In-Line Junction 1119 Series

These in-line junctions are available in 1 to 4 contacts versions, for copper or aluminum cable contacts, and also exist in components carrier versions (diodes, resistors or fuses inserted). Fully sealed, compact, thin and easy to use, they are perfectly suited in a cable harness, to easily insert a component and change a signal, or simply to repair a damaged wire.

Relay Sockets

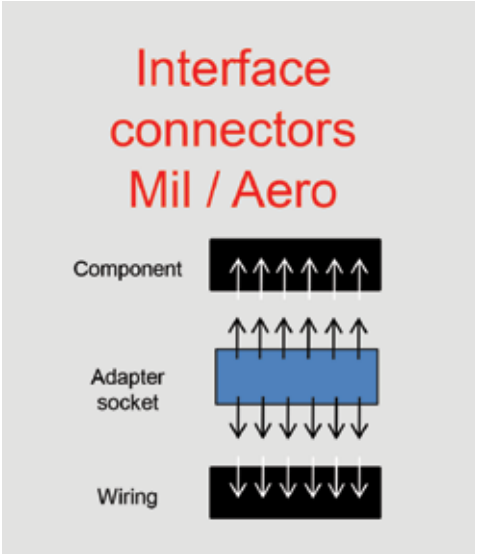
- NF C 93422 Relay Sockets
- MIL-S12883 Relay Sockets
- Solder Cup and PCB Relay Sockets
- Airbus-ATR Relay Sockets
- Railway Relay Sockets
- Quick connect Relay Sockets

Features:

- Adaptation device between a Relay and a Cable harness
- Lightweight composite
- For 4, 14 or 16 cts size 20 / 16 (crimp contacts)
- Operating temperature : -55°C to +150°C (permanent)
- Conform to ABD 031 and FAR 25853

Benefits:

- Lightweight (composite + silicone)
- Sealed connection



MIL-T-81714 Series I

Designed and qualified to MIL-T-81714, Amphenol's Series 1 Terminal Junction Modules are robust, reliable, and always perform to the highest standards. They're offered in various types and configurations -- Feedback/ Feedthru, Electronic, In-Line Splice, and Ground -- and they use standard M39029/1 pin contacts. Mounting rail and installation/termination accessories are available, and customization is always an option for your particular requirement and/or application.

Features:

- M39029/1 contacts
- Integral Socket/Bus Bar -assures electrical and mechanical integrity over long product life
- Stainless Steel Contact Retainers -high conductivity allow for optimum electrical performance
- Split Socket Design -provides peripheral surface wipe and contact; Uses the maximum mating surfaces of pin and contact
- Five standard sizes, accommodating 12-26 AWG wires
- High Density Modules -conform to all dimensions and performance requirements of MIL-T-81714/17
- Feedback Modules -lightweight junction system with a full range of bussing arrangements
- Distribution Modules -provides variety of contact combinations for power distribution applications
- Ground Modules -available in both center stud and mounting flange versions
- Electronic Modules - embedded diodes, resistors, capacitors, and fuses; based on M81714/62 requirements
- Board Mount Pin Modules -Provided in solder pin version that mounts directly to printed circuit boards

MIL-T-81714 Series II

Designed and qualified to MIL-T-81714, Amphenol's Series 2 Socket Junction Modules are robust, reliable, and always perform to the highest standards. They're offered in various types and configurations -- Feedback/ Feedthru, Board Mount, Sealed Splice, and Ground -- and they use standard M39029/22 socket contacts. Mounting rail and installation/termination accessories are available, and customization is always an option for your particular requirement and/or application.

Features:

- MIL-T-81714 Approved -meets high quality standards M39029/22 contacts
- Multiple product types -wide range of products to choose from;
- Five standard sizes; Accommodates 12-26 AWG wires
- Feedback Modules -lightweight junction system with a full range of bussing arrangements
- Distribution Modules -provides variety of contact combinations for power distribution applications
- Ground Modules -available in both center stud and mounting flange versions
- Electronic Modules - embedded diodes, resistors, capacitors, and fuses; based on M81714/62 requirements
- Board Mount Pin Modules -Provided in solder pin version that mounts directly to printed circuit boards; Eliminates need for mounting track

M81714-style Electronic Splices and Modules

Single and Dual Electronic splices and Electronic Junction Modules are designed to provide a quick and efficient solution to application design wiring requirements. Single and Dual Wire Splices conform to M81714/21, /23 and /24. TJSE Electronic Modules conform to M81714/26. SJE Electronic Modules conform to M81714/62. All can be supplied with a wide variety of diodes, resistors, capacitors, and fuses. Amphenol's electronic solutions allow customers to incorporate system modifications into a wire bundle, avoiding changes in panels or boards.

Features:

- 22, 20 & 16 awg wire support
- M81714 Series 1 and Series 2 Styles available
- Available with a variety of components and in a wide range of configurations
- Diodes, resistors, fuses, capacitors, thyristors, and inductors
- Available with multiple components within one module
- New configurations produced regularly and customized components are also available

2759 Modules

Density distributor module in the 2759 Series that has up to 6 crimp contacts and adheres to the MBBN3495 standard. It's suitable for aircraft and military. Modules are ratcheted onto a rail. Twinax contacts for various cable types.

Features:
- Protection class IP67
- Temperature range from -55° to +175°C

Ground Modules 1758 Series

Quick junction modules for signal and low current distribution, where sealing (IP66 / IP68 and IP69K), space, and weight-saving are prime requirements. Specifically suited for wiring optimization, while offering weight and cost savings, these modules come with individual mounting brackets or can be mounted on metallic tracks. They are available from 36 contacts size 22 to 8 contacts size 12, including mixed configurations.

Features:
- Distribution modules for grounding applications
- Suited for wiring optimization (cable linear meters : weight, space and cost saving)
- Very compact design and high contact density
- 2 versions : Individual mounting brackets or mounted on metallic tracks
- Overmold Technology offering excellent sealing performances

Sockets for Lights

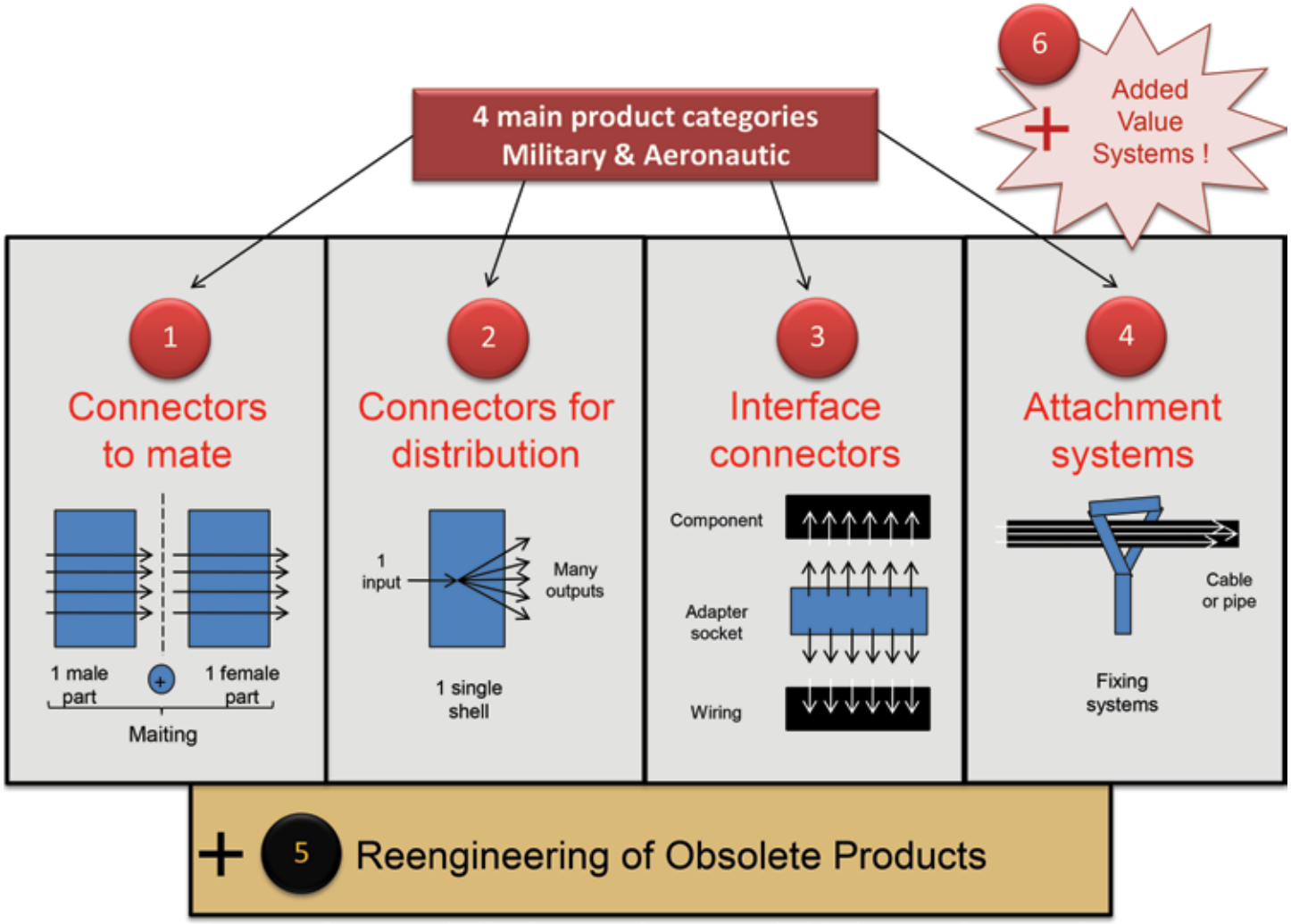
Features:
- Adaptation device between a Lighting or a Push button and a Cable harness
- Lightweight composite
- For 18 cts size 22 (crimp contacts)
- Operating temperature : -55°C to +175°C (permanent)
- Conform to ABD 031 and FAR 25853

Benefits:
- Lightweight (composite)
- Sealed

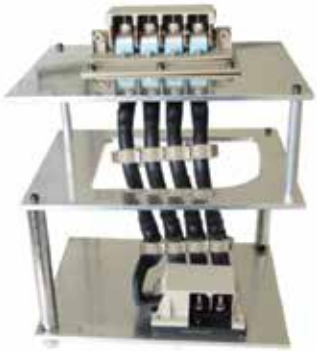
Sockets for Switch

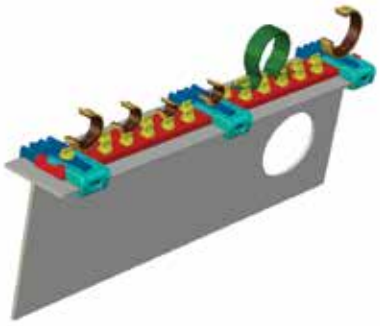
Features:
- Adaptation device between a Switch button and a Cable harness
- Lightweight composite
- For cts size 20 or 22 (crimp contacts or solder cup)
- Operating temperature : -55°C to +175°C (permanent)
- Conform to ABD 031 and FAR 25853

Benefits:
- Lightweight (composite)
- Sealed



Added Value Systems Mil / Aero





- ABS 1339 Monoblock Cable Clamps
- ABS 1339 Light Clamps
- CC516 Monoblock Cable Clamps
- Pipe Clamps
- Wiring Accessories

Attachment Systems Solutions

ABS 1339 Monoblock Cable Clamps

The monoblock ABS 1339 cable clamp allows the perfect fixing of electrical cable harnesses on structure. These cable clamps are fully designed in composite with silicon overmolding, providing a perfect bundle protection from shocks and vibrations. They are available in 8 sizes, for bundles from 3 to 48 mm, and are available for general (brown silicon) or fuel zone use (blue silicon). They are fixed on structure by a screw and are closed by a simple cable tie.

ABS 1339 Light Clamps

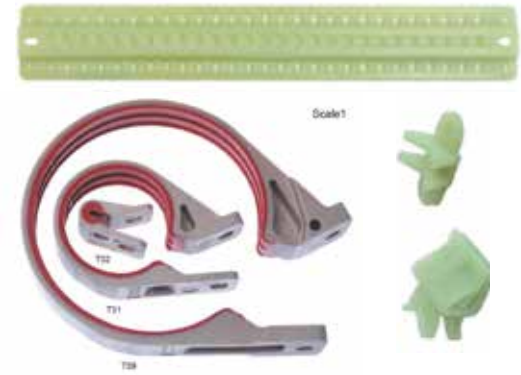
"The monoblock ABS 1339 Light cable clamp allows the perfect fixing of electrical cable harnesses on structure. Derived from the legacy ABS1339 standard, they offer up to 18% weight saving. These cable clamps are fully designed in composite with silicon overmolding, providing a perfect bundle protection from shocks and vibrations. They are available in 8 sizes, for bundles from 3 to 48 mm, and perfectly suited for general use. They are fixed on structure by a screw and are closed by a simple cable tie.

CC516 Monoblock Cable Clamps

The new monoblock CC5516 composite cable clamp are a lightweight version of standard metallic NSA5516 clamps, offering -60% weight saving. They are mounted on structure and locked in one step by screw. CC5516 clamps are available in 37 sizes, for bundles or pipes from 3 to 60 mm diameters. The overmoulded silicone provides a perfect protection of bundles and pipes from shocks and vibrations.

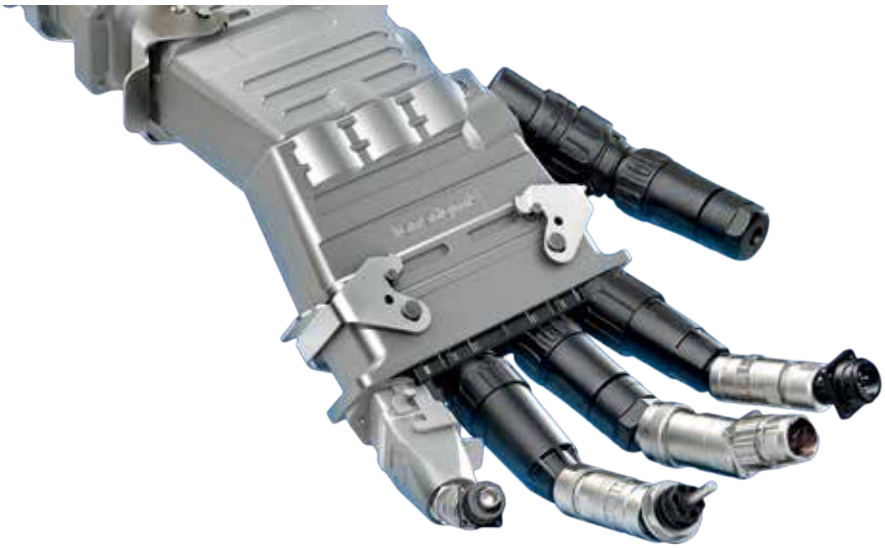
Pipe Clamps

Amphenol monoblock pipe clamps allows the perfect fixing of hydraulic pipes on structure. These pipe clamps are fully designed in composite with silicon overmolding, providing a perfect protection to the pipes from shocks and vibrations. Multiple versions are available, for general (brown silicon) or fuel zone use (blue silicon), with 1 to 5 holes from various and mixed diameters (from 6.3 to 19 mm). They are closed and fixed on structure by screws



Wiring Accessories

- Mil/Aero Wiring Accessories
- Railway/Industrial Wiring Accessories
- Mil/Aero Cable Clamps
- Railway/Industrial Cable Clamps
- P & Omega Clamps Mil / Aero accessories



Heavy Duty Connectors

The Heavy Equipment market segment is one of the most demanding markets in the industry that is subject to environmental impacts. It includes agricultural vehicles, construction equipment, commercial vehicles, etc.

Amphenol has a wide range of connectors specially made for this market, starting with small sealed signal connectors, and going up to complex high-voltage and high-current solutions. Amphenol is a leading specialist for this market and understands the demands, therefore even customer-specific solutions are no problem for Amphenol to design.

RT360 Series

Rugged metal circular connector with power and signal, multiple insert arrangements available.

M23 and M40

DIn-style IP67-rated connector system with control & power for automation environments.

A Series

Amphenol's A Series connectors encompass a wide range of products serving a variety of industries. With applications in Heavy Duty, Transportation, Marine, Diagnostic, Military, Alternative Energy and Agricultural industries, as well as spanning the gap between controlled to harsh environmental conditions, our A Series connectors keep you connected with confidence.

FEATURES:

- Sealed
- Submersible
- Vibration-resistant
- Cost Effective

HEAVY|MATE C146

HEAVY|MATE C146 is a Modular Metal Connector Line consisting of:

- Hoods & Housings
- Inserts
- Contacts

FEATURES:

- Hybrid interconnections
- Good costs
- Voltage up to 1000V
- VDE, UL, CSA approvals
- Vibration proof
- High current
- Signal transmission
- High pole sizes
- IP65 to IP68
- Corrosion resistance
- Robust

BENEFITS:

- Indoor & outdoor applications
- A wide range of inserts for signal and power transmission
- A large variety in pole sizes from 3 up to 280 poles per connector
- Current ratings up to 250A per contacts and voltages up to 1000V
- A modular connector system to configure customized solutions

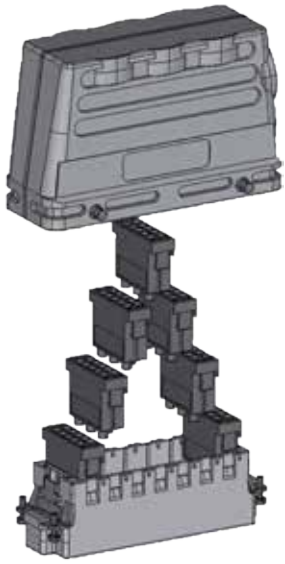
APPLICATION:

- Connections in harsh environment
- High number of poles or different kinds of signals transmitted
- Power and signal transmission outdoor
- Very safe & quick locking required
- Good EMC protection required

HEAVY|MATE C146 MODULAR

In addition to HEAVY|MATE standard single insert system, Amphenol offers a new modular system that consists of:

- Hoods & Housings
- Frames
- Individually specialized modules
- Contacts



ADDITIONAL FEATURES:

- Fully intermateable with market standards
- Stamped contacts and the Radsok contact technology
- Wide range of Power- and Signal modules
- Large selection of contact-safe male contacts
- Easy Handling
- Robust metal or plastic frame options
- Modules are easy to assemble and disassemble

ADDITIONAL BENEFITS:

- Great cost savings potential
- Pin modules separately protected against mechanical influences
- High flexibility for future developments

Amphenol is the innovator and solution provider for all products that are to be used in the harsh and rugged environments (indoor or outdoor).
Amphenol has a big spectrum of rugged and harsh environment interconnects ranging from IP65 to IP69K.

Plastic Connectors

LUMINUS

The Luminus Series are small, cost-effective connectors that are highly reliable and simple to use. With multiple product options to choose from, they meet MIL-T-81714, accept AS39029 & Stamped & Formed contacts, and are environmentally-sealed. Ideal for where space is limited, these innovative connectors feature a locking mechanism that ensures stability, and are suitable for blind-mating.

FEATURES:

- Quick Connect & Blind-Mate
- Multiple keying options
- Environmentally sealed
- Durable
- S&F contacts for non-military applications

Pulse-Lok

Pulse-Lok® connectors have a unique locking coupling system with both tactile and audible confirmation for secure connections as well as quick-release action. These connectors are excellent for medical, factory automation, and instrumentation field applications. Many contact types are available, including signal, power, high-voltage, and Ethernet.

FEATURES:

- Quick release action
- Small package (.500 — 1.2” diameter)
- Tactile confirmation
- 1 to 78 contacts

ECO|MATE

This connector meets the high requirements for applications in industrial technology. Easy operation, reduced dimensions and a more robust design are only a few of the features of the series.

The connector's main area of application is in the fields of plant construction and machine building. The connector is used for measuring and controlling applications as well as for power supply.technology. The series is comprised of a large selection of housings and shapes and offers models with screw, solder and crimp termination.

FEATURES:

- Circular Connectors with 3+PE and 6+PE contacts
- Housing components from premium molding material
- Cable housing straight or angled
- IP 65/67 in mated condition (DIN EN 60526)
- Clamping ring or internal strain relief

ADVANTAGES:

- Quick and easy assembly
- Screwed cable gland with clamping ring
- Strain relief and mounted gasket all in one component
- Cable housing, straight or angled, for the cable diameter 6 - 12,5 mm
- Robust thread for the screwed cable gland
- Ergonomically designed product range for safe handling
- Pre-loaded ground contact
- Fastening for the protective caps on the housing of the receptacles

Plastic Waterproof Connector Series

FEATURES:

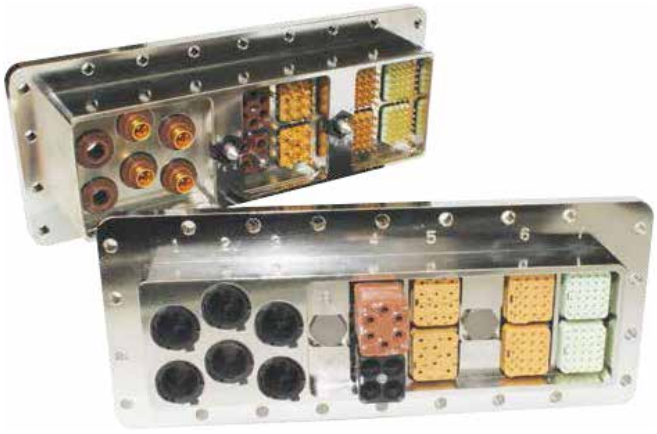
- Mating Options: Screw Threaded Type, Lock Bayonet Type or Push Lock Type
- Contact options: Stamped, Screw-In, PCB and Solder (up to 30A per contact)
- Receptacle, Receptacle with cable, Over-molded With Cable & Field Installable available
- Insert Arrangement: Variety of configurations are available including:
  - Circular
  - Power
  - Hybrid
  - DVI
  - RJ
  - USB
  - D-Sub
  - HDMI
  - e-SATA
  - Fiber Optic
  - M type Sensor
  - IEEE 1394
- M8/M12 Series meets industry standards (IEC, NMEA2000, DeviceNet, EtherNet, I/P, Profibus & ProfiNet)
- Various sizes, over 1000 items
- UV Resistant
- IP65/66/67/68/69K waterproof (mated or unmated)
- PVC, PUR Jackets available for cables (Sun, Oil Resistant & Flame rated)
- UL/CSA Approval

ADVANTAGES:

- Cost Effective Solution
- High level of customization possibility
- Easy mating

Consider Amphenol as an extension of your design team, providing expert design and applications engineering assistance every step of the way to ensure program success. This is a perspective that other individual connector, board, and backplane assembly suppliers cannot match.

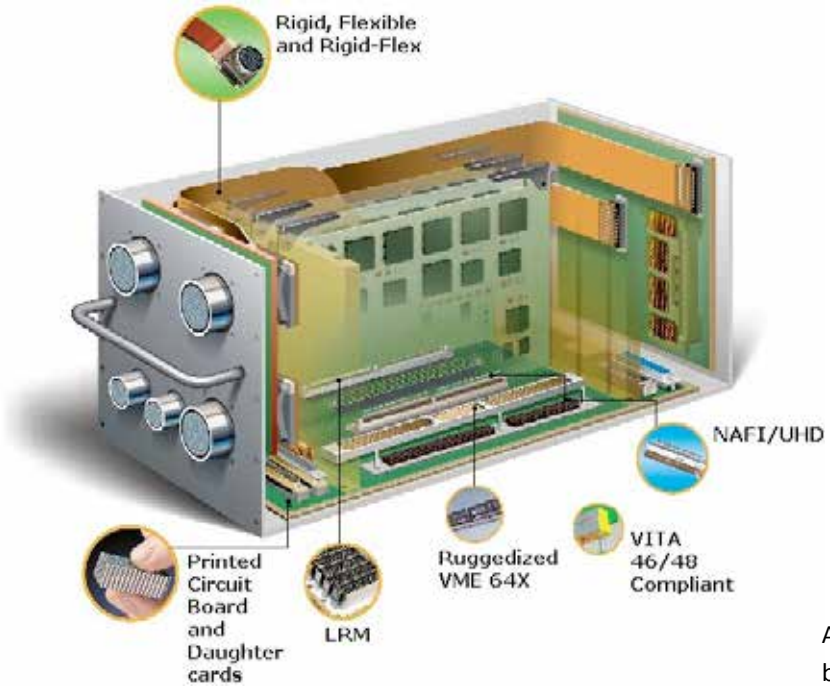
Custom Solutions



8 SIM modules
6 quadrax contacts

Metallic custom design rackable modules

Cable Harness Test Kit Box with MIL-Spec Circulars



Integrated Systems

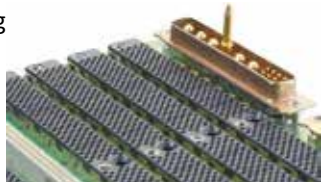
From Avionics to Ground and Naval Systems, Amphenol's Integrated Systems solutions are found aboard commercial airliners, helicopters, Navy and Air Force Fighters, C41 electronics, missiles, ground vehicles, Homeland Security Systems, and Navy warships around the world.

Amphenol Integrated Systems tackles problems such as PWB routing, signal integrity, mechanical robustness, and thermal reliability concurrently rather than independently by value-added applications engineering support. Solving complex packaging challenges depends on making sure that environmental, mechanical, and electrical factors are all addressed at the system-level. By taking this system-level perspective and focusing on these factors, Amphenol Integrated Systems is able to meet your program's most challenging packaging requirements.

Backplane Systems

Amphenol is the leading manufacture of custom backplane assemblies using high - density, ruggedized, board to backplane interconnects. Our Backplane production capabilities include:

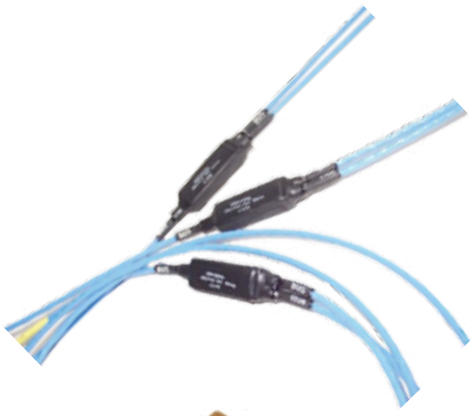
- Press-Fit
- Rigid and Rigid Flex PWB's
- Surface Mount Soldering
- Through-Hole Soldering
- Hybrid Optical Electric
- Conformal Coat
- Electrical test



Amphenol Backplanes are required to perform in the most demanding environments such as commercial airliners, Army helicopters, Navy and Air Force fighters, C4I electronics, missiles, ground vehicles, and Navy warships. Our Backplanes are used on programs such as the F-35 Joint Strike Fighter, F-22 Raptor, F-18 Super Hornet, Theater High Altitude Air Defense Radar, AH-64 Apache, RAH-66 Comanche, and AEGIS radars used on U.S. Navy warships.

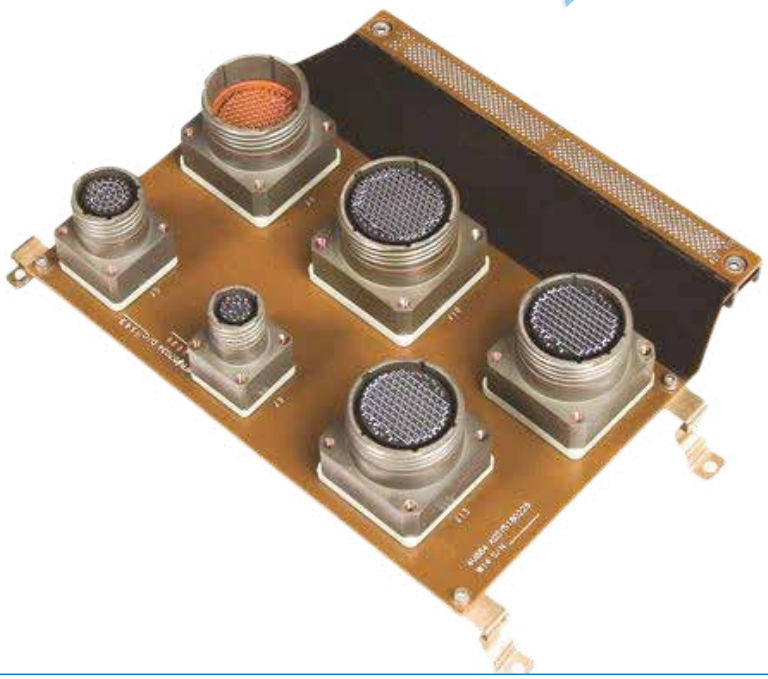
Amphenol provides printed circuit processing capabilities that are among the world's most advanced, specializing in high technology multilayer backplane applications.

Cable Assemblies



Amphenol is the world leader in the design, manufacture and supply of high-performance interconnect systems for military, commercial and industrial applications. Amphenol offers an extensive global portfolio of interconnect solutions for demanding and harsh environments which includes value added services.

Amphenol Ltd has an extensive design and manufacturing facility with the capability to offer customers added value services from cable systems to complete box build.



Type 2 Double-Sided Flex

CHARACTERISTICS:

- Double-Sided, or Type 2 Flex, is a flex circuit based on two conductive layers of copper that are interconnected through Plated-Through-Holes (PTH's) or Via's creating electrically active circuitry on both conductive layers

FEATURES:

- Worlds most popular flex circuit design
- Ease of manufacturing or assembly
- Through holes are

OPTIONS:

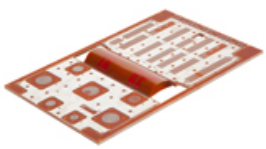
- Silver shielding can be added for EMI protection
- Stiffeners can be added to "ruggedize" connection areas
- "Button Plating" or Pads only plating is a method when copper plating a circuit that must maximize it's flexibility in it's end application
- The ability to plate to a ground plane with one conductor layer is a good cost effective way for stripline impedance

BENEFITS:

- Cost effective and light weight
- Ease of assembly as circuit 1 and 1,000 are built with the same tooling guaranteeing reproducibility
- Military and IPC Specification qualified

OTHER Flex Options from Amphenol:

- Type 1 Single-Sided Flex
- Type 3 Multi-Layer Flex
- Type 4 Rigid Flex
- Type 4 Rigid Flex Book-Binder



Amphenol
Turkey&MiddleEast

RF Solutions

Integrated High Speed Solutions

High Frequency Specialized Interconnects

Standard RF Connectors

Large Form RF Solutions

Coaxial Cables

Antenna Solutions

A diversified product offering of copper contacts for circular and rectangular type connectors supporting a variety of protocols in data rates ranging from 30 MHz to 10Gbps per pair.

Integrated High Speed Solutions

Quadrax 2.5 Gbps

Octonet 8 pin
Quadrax 4 Gbps

Oval Contact
10 Gbps

HSTrip9
14 Gbps

Contact	Size	Speed	Impedance
Coax	12, 16	500-700 MHz	Multiple
Matched Impedance Coax	8, 12	3 GHz	50, 75
Spring Loaded Coax	8, 12, 16	2-65 GHz	50, 75
Concentric Twinax	8, 10, 12	0-30 MHz	Multiple
Triax	8, 10, 12	30-500 MHz	Multiple
Differential Twinax	8, 10D	3 Gbps	100-150
Quadrax 1st Gen	8	2.5 Gbps	90-150
Quadrax 2nd Gen	8	6.5 Gbps	100
Oval Contact System	~8	10 Gbps	100

38999 | **2M** | **ARINC** | **MICRO-D** | **D-SUB** | **BOARD** | **CUSTOM**

OCS (Oval Contact System) Connectors

OCS Features and Benefits

- High Density: A wide variety of insert arrangements available
- Patterns range from (1) to (21), 100 Ohm differential pairs capable of delivering data transfer speeds of 10Gbps per pair
- MIL-DTL-38999 shell styles available from size 9 to 25
- Front release rear removable contact system for easy repair
- Solder or PCB tail contacts available
- Meets environmental requirements of MIL-DTL-38999
- Uses off-the-shelf Mil Spec backshells

OCS Signal Integrity Performance

- Data rate: 10Gbps per pair
- Insertion loss: <0.3 dB up to 5 GHz
- Return loss: >20 dB up to 5 GHz
- NEXT and FEXT: >40 dB up to 5 GHz
- Differential to common mode conversion:

>50 dB up to 5 GHz

Applications for OCS Connectors

High Speed Applications; for use with but not limited to, the following electrical protocols*:

- 10G Base T
- HDMI
- Fibre Channel (AI)
- 40G Base-T
- SATA 2.0, 3.0
- Serial RapidIO
- PCI Express 3.0

* Cable selection may limit data rate of above protocols.

New “Split-Pair” Quadrax Contacts & Cable

Amphenol offers the high performance interconnect solution for CAT6A type cable.

Features and Benefits

- Overall higher bandwidth than standard CAT5E quadrax
- Enhanced crosstalk performance (compared to standard quadrax) due to compatibility with shielded twisted pair of cables
- Can be used for a variety of high speed applications beyond current quadrax design**
- Four strategically spaced inner contacts form two 100 Ohm matched impedance differential pairs
- Outer contact has rugged wall section for durability
- Available in size 8 crimp termination style
- Also available in size 8 PC tails
- Can be installed into existing quadrax contact connector cavities
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts

Applications:

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

- 10/100/1000/10GBASE-T Ethernet
- DVI
- USB 2.0
- Serial RapidIO (up to 3.125 Gbps)
- PCI-Express 2.0
- HDMI 1.3a
- SATA 2.0 (up to 3 GHz)

µCom-10Gb +

OCS Features and Benefits

µCom-Series is a new range of connectors designed to address the latest trends of the industry : miniaturization and high speed, with the highest resistance for use in the harshest environments.

µCom-10Gb + is the first product of this new range.

MAIN FEATURES

- 10Gb+ exceeds 10Gb/s Ethernet following IEEE 802.3an-2006 : 10GBase-T
- Cat.6A connector according to TIA568C.2 and ISO/IEC11801 standard
- Environmental testing based on MIL-DTL-38999 series III military specifications
- Miniature : 15 mm(.59˝) max external diameter

FEATURES AND BENEFITS

- 4 pairs totally insulated throughout the connector
  - minimum cross-talk between the four pairs
- Patent pending special interfacial shapes
  - minimum perturbation at the interface of each pair
- Thread coupling mechanism
  - 2000 mating cycles & high vibration resistance
- Machined Brass shells and RoHS compliant plating
  - shell to shell continuity and 500h salt spray resistance
- Machined & gold plated Solder and Crimp contacts
  - design & performance according to the innercontact of M39029/77-429#16 M39029/76-425#16 38999 contact
- Solder contact : max AWG24
- Crimp contact : AWG 24 to 26
- IP68 sealing mated and unmated for receptacles
- 1500 Vrms Dielectric Withstanding voltage
- Temperature range : - 55°C / + 125°C

MIL-DTL-38999 with Coaxial, Concentric Twinax, and Triax Connectors

Amphenol Connectors are ideally suited for the incorporation of shielded contacts for high performance interconnection applications. The circular family is built around MIL-DTL-38999 specifications, with Mil-approved and commercial styles offered. Normal operating voltage for circulars with power contacts only is up to 900 VAC (RMS) at sea level.

The MIL-DTL-38999 family offers these features for contact termination flexibility and Widest selection of insert arrangements that can incorporate:

- Size 8 high speed Quadrax and Differential Twinax contacts for MIL-DTL-38999 Series III (specially modified to accommodate keyed contacts)
- Transition adapters for use in attaching D38999 Series III connectors with high speed quadrax or differential contacts to PCB boards
- Size 8, 12 and 16 Coax contacts
- Size 8 and 12 Twinax contacts
- Size 8, 10 & 12 Triax contacts

Wide selection of connector shell styles and sizes:

- Scoop-proof recessed design in LJT-R, TV-R and SJT-R connectors provide protection for contacts
- Standard power contacts are crimp rear release, qualified to SAE AS39029
- Coax, Twinax, and Triax contacts employ the same retention system as power contacts, simplifying user substitution

MIL-DTL-38999 with Coaxial, Differential Twinax, and Quadrax Connectors

- High speed Quadrax contacts consist of an outer contact with four inner contacts spaced to form two 100 or 150 Ohm controlled impedance differential pair.
- Both contacts, when used in Amphenol MIL-DTL-38999 Series III and ARINC type connectors, provide an excellent alternative for harsh environment applications such as:
- Ethernet 100 Base-T-100 Ohm
- Gigabit Ethernet 1000 Base-T-100 Ohm
- Fibre Channel-150 Ohm
- IEEE1394B FireWire-110 Ohm

Differential Twinax and Quadrax contact options include:

- Crimp or printed circuit board termination
- Established designs to accommodate a variety of cable types and gages
- Ground plane connectors can incorporate quadrax contacts. These connections have conductive inserts that ground the outer conductor of the contact body to the shell of the connector. They accommodate size 8 and 12 shielded contacts of which the size 8 can be quadrax type.

Fiber to Copper Converter

Amphenol offers the Fiber to Copper Converter product line, a flexible, affordable, and rugged fiber copper converter system with many options available. This Amphenol connector will transform your high speed needs to a new level. We have taken two technologies and combined them into a hybrid connector. Now you can transfer high speed data seamlessly from copper to fiber and from fiber to copper.

Features:

- No need for internal subsystem fiber harnesses, interconnect, or transceivers
- Utilizes copper transceivers and existing interconnect (backplane, harnessing, faceplate) for system fiber connection
- Media conversion at the connector reduces system complexity and cost
- APH Epoxy staking protects delicate fiber components for environment and assembly process

Overall Unit Dimensions:

- 13 shell size & flex copper assembly; other shell sizes available

Fiber Interface:

- Jamnut or flange mount
- Shell size 13 38999; options for EPX/ARINC 400/600
- MS29504 system fiber interface; options for expanded beam/ARINC 801/MT
- 2X bi-directional interfaces
- Speeds of 1G, 2G, 4G, 10Gbps
- Interface support for 1/2/4/8G FC and 1/10GbE; option for DVI, SFDP

Copper Interface:

- 2X high speed channels on 6.5 Gbps capable split pair quadrax PC tails or flex assembly
- Interfaces for power, diagnostics, and others

MRC Multi-Media Ruggedized

Amphenol now offers a connector series that can be used for all of your multi-media needs. This series is capable of running Gigabit Ethernet, USB 2.0/USB 3.0, HDMI and 10 Gigabit Ethernet when specified and designated to a specific configuration. MRC is a micro-miniature connector ideal for Commercial, Industrial and Military Communication Systems.

The MRC can be easily cleaned by simply wiping off debris whereas standard pin and socket style connectors tend to be more difficult to remove debris once it has been compacted in the contacts.

The MRC cable assemblies feature connectors with spring loaded contacts and two coupling styles (Push/Pull and Push w/ ¼ turn lock). Both of these coupling styles mate with the standard flange mounting plug. Cable assemblies are available in various lengths and can either be supplied as double ended with MRC connectors on both ends or with standard COTS RJ45, USB, HDMI connections on one end.

MRC Series Specifications

Current Rating	2.5 AMPS Max Per Contact
Protocols Sup - Ported	Gigabit Ethernet, USB 2.0/3.0, 10 Gigabit Ethernet, & HDMI
Durability	2000 Mating Cycles
Unmating Force	15 lb. Min

Materials & Finishes

Shells	Aluminum Alloy
Contacts	Copper Alloy, Gold Plated
Insulators	Polyphenylene Sulfide (PPS), Teflon
Canted Coil Spring	Stainless Steel, Gold Plated

R393 – HIGH SPEED CONNECTORS

Features

- Low Profile and light weight design
- Ideal for maximum number of high speed RF contacts in minimal space
- 38999 size 8 Quadrax, Twinax, Fibre Optic
- Environmental and Filtered options available
- Multiple shell sizes including custom geometry
- Captive Hardware
- Backshells

Applications

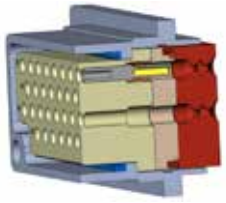
- Military and Commercial Avionics
- Cable to Avionics box applications
- Cable to cable applications

R393 with 16 Quads Custom Rectangular

Environmental R39

Future Combat – NLOS-C, Grommet, Shell Seal, Panel Seal

R393 special w/ Quads Custom Rectangular



D83 – COMPACT HIGH DENSITY

- One Piece Shell – Sealed Construction
- Available Features – Ground Spring, Blind Mate Hardware, Combo Hybrid Arrangement
- Contact Interface is MIL-C-39029, fixed or crimp terminated

D83 – MICRO RF COAX HIGH DENSITY

- One Piece Shell – Sealed Construction (IP67)
- Available Features – Combo Hybrid Arrangement
- EPDM flange o-ring, PCB tail termination, compliant to NBC ruggedness standards

INTEGRATED RF CONTACTS

Features

- Sealed, one-piece, plated aluminum shell, grounded to panel
- Integrated dual size 8/10 differential twinax / quadrax
- EPDM flange o-ring, PCB tail termination, compliant to NBC ruggedness standards

Connector Basics

- Common ground, integrated dual size 10 twinax d-sub style receptacle, PCB tail termination
- One piece, cadmium plated aluminum shell, grounded to panel
- Sealed, and supplied with mounting jackposts, and EPDM flange o-ring
- Compliant to NBC ruggedness standards

COMBO STACK: MICRO-D + USB

Features

- Smallest Footprint, where size, performance, and functionality are critical
- Integrated USB receptacle (“A” configuration), grounded to shell assembly, with integrated LEDs
- One piece, plated aluminum shell, grounded to panel
- Allows independent mating of micro-D and USB

Applications

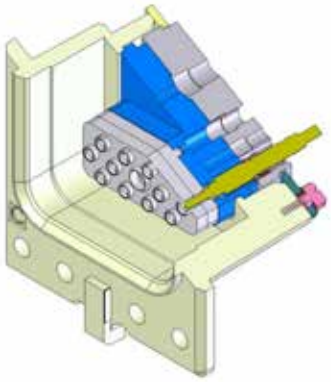
- Embedded, Modular Computers

ARINC 600

- Low Insertion Force contacts
- Specified for Hi speed Twinax, Triax, Coax, Quadrax and Fiber optic (M29504 & Arinc 801)
- Available in 3 shell sizes and holds up to 800 contacts
- Environmental and Filtering options available
- Enhanced EMI Shielding to Boeing S280W601
- Intermateable with Commercial and Military versions
- Designed to meet Boeing BACC 66 & ARINC 600 Specifications

Filtered Arinc 600 with Fiber Optics and Quadrax Contacts

Arinc 600 with Arinc 801 Fiber Optics



Custom Avionics Connector -787
Wing Engine Breakaway connector

Amphenol® High Frequency Contacts

HF38999 High Frequency Contacts

FEATURES & BENEFITS

- Operating frequency range DC to 40 GHz
- Compatible with all Size 8 D38999 Series I & III Inserts
- True float mount for optimal performance

APPLICATIONS

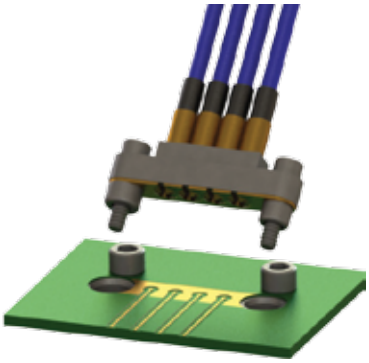
- Military Communication Terminals
- Shipboard and Airborne Systems
- Phased Array Radars
- High Density Multiport Requirements
- Harsh Environment Applications

Amphenol

Focus on high performance RF interconnect
Great for "inside-the-box" applications for RF signals that transition to PCB for signal processing
The first coaxial interconnect VITA specification
Unique retention mechanism offers significant ease of assembly/disassembly over competitor designs

High Frequency Specialized Interconnects

Type	Prefix	Freq (GHz)	VSWR*	DWV**	Coupling	Relative Size
7/16	84	6	1.15:1	4000	Threaded	3 X
1.85mm	33	65	1.60:1	500	Threaded	1 X
2.4mm	16	50	1.40:1	500	Threaded	1 X
2.92mm	15	40	1.34:1	750	Threaded	1 X
3.5mm	92	26.5	1.30:1	500	Threaded	1 X
BMA	17	22	1.15:1	1000	Slide-on	1 X
BMMA	14	28	1.30:1	750	Slide-on	0.75 X
BMZ	89	18	1.20:1	1000	Slide-on	0.75 X
BNC	47	6	1.20:1	1500	Bayonet	1.5 X
BZ	88	2	1.10:1	1500	Slide-on	1.5 X
PN	65	18	1.30:1	3000	Threaded	2.5 X
PTNC	45	18	1.20:1	1500	Threaded	2 X
SC	52	11	1.30:1	3000	Threaded	3 X
SMA	29	18	1.20:1	1000	Threaded	1 X
SMB	23	4	1.10:1	1000	Slide-on	0.5 X
SMC	22	10	1.40:1	1000	Threaded	0.5 X
SMP	12	40	1.40:1	500	Snap-on	0.25 X
SMPM	32	65	1.30:1	325	Snap-on	0.2 X
SMPS	38	100	1.30:1***	250	Snap-on	0.15 X
SSMA	27	36	1.30:1	750	Threaded	0.75 X
SVMS	49	23	1.30:1	1500	Snap-on	1 X
TNC	40	15	1.30:1	1500	Threaded	2 X
TRIAX (BNC)	48	6	1.30:1	1500	Bayonet	2 X
TRIAX (TNC)	48	11	1.30:1	1500	Threaded	2 X
TYPE N	50	12.4	1.30:1	3000	Threaded	2.5 X
ZMA	87	18	1.20:1	1500	Bayonet	1.5 X



FeatherMate

Features

- Zero force to disengage
- 40 GHz frequency range
- .085” [2.16mm] pitch
- 1,000 min mating cycles
- 4 and 8 port available
- CPW/Microstrip or Stripline Launch
- Keying eliminates mismating
- Two cable options
- RoHS Compliant

Applications

- Bench-top testing
- Evaluation boards
- Automated Test Equipment (ATE)
- High density multiports

Benefits

- Zero disengagement eliminates damage to PCB solder joints
- Direct contact with PCB trace for optimal performance
- No custom tooling required
- Solder free installation
- Reflow oven (265°C) safe

QuarterBack

Features

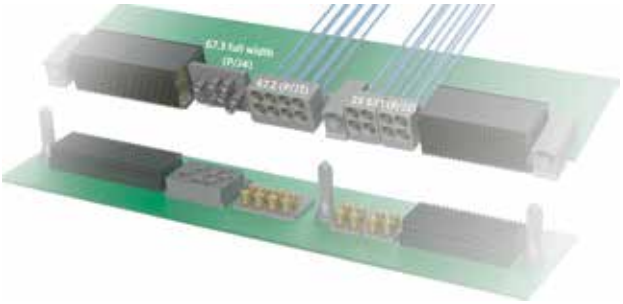
- Quarter turn bayonet locking feature on standard SMP/SMPM interface
- Female cable connector options available for all flexible cable types .085” diameter and smaller
- All standard SMP/SMPM male connector options available upon request
- Low VSWR through 40 GHz (SMP) / 65 GHz (SMPM) O: 561.840.1800 marketing@svmicrowave.com

Applications

- Bench-top testing
- High vibration environments
- Applications requiring a high number of mating cycles
- Military and Commercial options available

Benefits

- Zero disengagement eliminates damage to PCB solder joints
- Low insertion/extraction forces, compared to standard full detent SMP and SMPM, mean less torque on board mount connector solder joints during mating and demating
- Spring loaded positive mating feature allows excellent electrical performance even in extreme vibration environments
- Low mating forces allow for more mating cycles without failure compared to full detent SMP and SMPM



VITA 67

Features

- The foundational coaxial interconnect for RF on the VPX platforms
- Cable assembly daughtercard modules that mate to backplane adapters
- Designed for side-by-side implementation with VITA 46 hardware
- Floating SMPM coaxial contacts ensure excellent RF performance in any mating condition
- Available in 3U (4 position) and 6U (8 position) formats

Applications

- Robust and rugged high speed cabled solution
- High-reliability, high-density for aerospace & defense applications
- SIGINT, EWR, ground base station & communication systems, avionics, radar systems
- Air Transport Racks (ATRs) without Rear Transition Modules (RTMs) or limited speed through RTM

Benefits

- MIL-STD 810 for shock and vibration
- Minimal footprint of I/O slot
- Significant reduction in Mean-Time-To-Repair (MTTR) since rear panel interface enables quick disconnect
- Utilizes existing and proven SMPM interfaces
- Unique SV connector retention mechanism offers significant ease of assembly/disassembly

FleXtra

Features

Standard and custom cable options, including SMA, BMA, 2.92 mm, SMP, SMPM, SMPS connectors

Three unique cable solutions available:

- Standard Fl extra - Flexible replacement for Ø.047” semi-rigid
- Rapid Flextra - Lowest loss Ø.047” flex cable on the market
- Ultra Flextra - The most flexible Ø.047” flex cable on the market

Applications

- Inside-the-box short cable runs where space is at a premium and tight bends are required
- High frequency applications (up to 100 GHz)
- Dynamic applications requiring low flex resistance

Benefits

- The most flexible cable options available with proven performance at < 0.125” bend radius
- Low solder wicking and high flexibility allows for tight bends behind the cable ferrule
- High flex-life ensures excellent performance after repeated usage

BMA

Government designation BMA (Blindmate A) was developed in the 1980's. The originally designated OSP™ connector by M/A-Com has excellent electrical performance up to 22 GHz in a compact size. SV Microwave offers extended frequencies on most BMA connector designs up to 26.5 GHz. With a slide-on interface and a connector durability of 5000 cycles, the BMA blindmate is suitable for high performance microwave applications.

Electrical Specifications

Impedance	50Ω
Frequency	22 GHz
VSWR	1.02 + .008 f
Insertion Loss	.03 √ f
Shielding Effectiveness	≥ -90 - f dB
Dielectric Withstanding Voltage	1000 VRMS

Mechanical Specifications

Mating Cycles	5000
Insertion Force	3.0 lbs
Withdrawal Force	1.5 lbs
Axial Float (Spring Loaded)	.060"
Radial Float (Spring Loaded)	.020"

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

Coaxial Contacts

System design and platform needs have required smaller packaging with RF, D/C signal and power all in close proximity. Our proven designs and blindmate technology have enabled the integration of multiport RF signals into single housings for gang mating capability. Various existing form factors such as D38999, ARINC, Micro-D and D-Sub have provided standard components and familiar shell sizes. Hybrid technology fuses RF and D/C contacts into a single connector simplifying design and installation while eliminating discrete wiring.

Electrical Specifications

Impedance	50Ω
Frequency	3 GHz
VSWR	1.20 + .04 f
Insertion Loss	.11 √ f
Shielding Effectiveness	≥ -80 dB
Dielectric Withstanding Voltage	250 - 1000 VRMS

Mechanical Specifications

Mating Cycles	500
Insertion Force	30 oz
Withdrawal Force	2 oz

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

SMA

SMA is an acronym for SubMiniature version A and was developed in the 1960's. Using a threaded interface, 50 Ohm SMA connectors are precision subminiature units that provide excellent electrical performance from DC to 26.5 GHz. These high-performance connectors are compact in size and mechanically have outstanding durability. Built in accordance with MIL-PRF-39012 and CECC 22110/111, SMA connectors can be mated with all connectors that meet these spec mating diameters regardless of manufacturer.

Electrical Specifications

Impedance	50Ω
Frequency	18 GHz (select models to 26.5 GHz)
VSWR	1.05 + .005 f
Insertion Loss	.03 √ f
Shielding Effectiveness	≥ -90 - f dB
Dielectric Withstanding Voltage	1000 VRMS

Mechanical Specifications

Mating Cycles	500
Mating Torque	7 - 10 in - lbs

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

2,92 mm

The 2.92mm connector was developed for use to 40 GHz. The male pin is shorter than that of an SMA or 3.5mm to ensure that the outer contacts of the male and female connectors engage before the pin and female receptacle do. This ensures that the pin and socket will not see excessive wear and mating stress seen by misalignment in an SMA or 3.5mm connector. The 2.92mm connector also has a thicker wall than a standard SMA. The 2.92mm series mates with SMA and 3.5mm connectors.

Electrical Specifications

Impedance	50Ω
Frequency	40 GHz
VSWR	1.03 + .005 f
Insertion Loss	.04 √ f
Shielding Effectiveness	≥ 100 dB

Mechanical Specifications

Mating Cycles	500
Mating Torque	7 - 10 in - lbs
Inter-mate ability	SMA, 3.5mm

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

2,4 mm

The 2.4mm connector was developed for use to 50 GHz. This connector series uses a thick outer wall to eliminate the fragility seen in SMA and 2.92mm connectors. The female socket is also strengthened to ensure reliable mating. The 2.4mm series mates with SMA, 3.5mm and 2.92mm connectors with adapters and can mate with the 1.85mm series without adapters.

Electrical Specifications

Impedance	50Ω
Frequency	40 GHz
VSWR	1.03 + .005 f
Insertion Loss	.04 √ f
Shielding Effectiveness	≥ 100 dB

Mechanical Specifications

Mating Cycles	500
Mating Torque	5 - 7 in - lbs
Inter-mate ability	1.85mm

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

1,85 mm

The 1.85mm connector was designed for mode free operation through 65 GHz. The interface uses a mostly air-dielectric with a support bead that is set back in the body of the connector to reduce bead interaction in a mated pair. Like the 2.92mm and 2.4mm connector, the body has been designed to ensure that the outer conductors engage before the center conductors make contact. The 1.85mm interface uses an M7 thread and is compatible only with the 2.4mm interface. SV Microwave supplies adapters to mate 1.85mm connectors to SMA and 2.92mm connectors.

Electrical Specifications

Impedance	50Ω
Frequency	65 GHz
VSWR	1.03 + .005 f
Insertion Loss	.04 √ f
Shielding Effectiveness	≥ 100 dB

Mechanical Specifications

Mating Cycles	500
Mating Torque	5 - 7 in - lbs
Inter-mate ability	2.4mm

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

SMP

SV Microwave offers a complete line of SMP connectors that conform to DSCC 94007, 94008 and MIL-STD-348. The SMP connector was developed to meet an industry need for a smaller high frequency compact design that incorporated ease of use and functionality. The SMP bullet is the heart of this unique design.

Electrical Specifications

Impedance	50Ω
Frequency	40 GHz
VSWR	1.15:1 to 26.5 GHz typ.; 1.5:1 to 40 GHz typ.
Insertion Loss	.06 √ f
Shielding Effectiveness	≥ -80 dB DC - 3 GHz; ≥ -65 dB 3 - 26.5 GHz
Dielectric Withstanding Voltage	500 VRMS

Mechanical Specifications

	SB	LD	FD
Mating Cycles	1000	500	100
Force to Engage/Disengage	3.0 / 0.5 lbs	5.0 / 7.0 lbs	7.0 / 9.0 lbs
Axial Misalignment			.010"
Radial Misalignment			± .010"

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +165°C
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

SMPM

SV Microwave offers a complete line of SMPM connectors. The SMPM connector was developed to improve on the application density and operating frequency range of the SMP connector. The SMPM connector is widely used in high density, high performance applications today.

Electrical Specifications

Impedance	50Ω
Frequency	65 GHz
VSWR	1.10:1 to 26.5 GHz typ.; 1.30:1 to 50 GHz typ.
Insertion Loss	.07 √ f
Shielding Effectiveness	≥ -80 dB typ.
Dielectric Withstanding Voltage	325 VRMS

Mechanical Specifications

	SB	FD
Mating Cycles	500	100
Force to Engage/Disengage	2.5 / 1.5 lbs	4.5 / 6.5 lbs
Axial Misalignment		.010"
Radial Misalignment		± .010"

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +165°C
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

SMPS

SV Microwave offers a complete line of SMPS connectors. The SMPS connector utilizes the same great features of the SMP and SMPM connector series in an even smaller package. The SMPS series is ideal in applications where density is of the utmost importance.

Electrical Specifications

Impedance	50Ω
Frequency	100 GHz
VSWR	1.10:1 to 26.5 GHz typ.; 1.25:1 to 65 GHz typ.
Insertion Loss	.07 √ f
Shielding Effectiveness	≥ -80 dB typ.
Dielectric Withstanding Voltage	250 VRMS

Mechanical Specifications

	SB	FD
Mating Cycles	500	100
Force to Engage/Disengage	2.5 / 1.5 lbs	4.5 / 6.5 lbs
Axial Misalignment	.010"	
Radial Misalignment	± .010"	

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107. Cond. B, -65°C to +165°C
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70k Ft.

TNC

Developed in the late 1950's, the TNC stands for Threaded Neill Concelman and is named after Amphenol engineer Carl Concelman. Designed as a threaded version of the BNC, the TNC series features screw threads for mating. TNC are miniature, threaded weatherproof units with a constant impedance of 50 Ohms and operate at DC to 11 GHz. As a ruggedized version of the BNC, the TNC features a threaded coupling that offers extra mating stability. TNC connectors are used in many applications including Mil-Aero, instrumentation, and cable assemblies.

Electrical Specifications

Frequency	11 GHz	18 GHz
VSWR	1.3:1 at 11 GHz	1.2:1 at 18 GHz
Impedance	50Ω	
Insertion Loss	.06 √ f	
Shielding Effectiveness	≥ -90 dB	
Dielectric Withstanding Voltage	1500 VRMS	

Mechanical Specifications

Mating Cycles	500
Mating Torque	12 - 15 in - lb

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D
Shock	MIL-STD-202, Method 213, Condition I
Thermal Shock	MIL-STD-202, Method 107
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B

Type N

Named after Paul Neill of Bell Labs after being developed in the 1940's, the Type N offered the first true microwave performance. The Type N connector was developed to satisfy the need for a durable, weatherproof, medium-size RF connector with consistent performance through 11 GHz.

Electrical Specifications

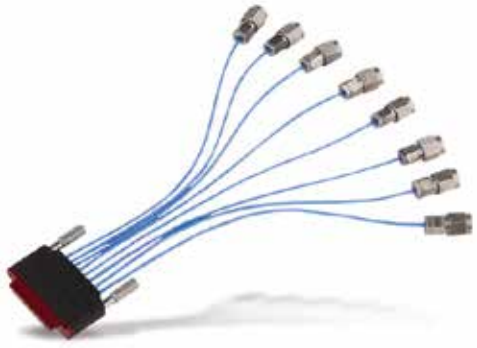
Frequency	12.4 GHz	18.0 GHz
Impedance		50Ω
VSWR		1.3:1
Insertion Loss		.07 √ f
Shielding Effectiveness		≥ -90 dB
Dielectric Withstanding Voltage		3000 VRMS

Mechanical Specifications

Mating Cycles	500
Mating Torque	12 - 15 in - lbs

Environmental Specifications

Temperature Rating	-65°C to +165°C
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D
Shock	MIL-STD-202, Method 213, Condition I
Thermal Shock	MIL-STD-202, Method 107
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B



Mini-D RF

Mini-D RF Connection System is industry leading. 110" port-to-port spacing and uses removable SMPS bullets for high mating cycle applications without damaging the housing. Low profile edge and surface mount PCB connector options are available with excellent RF performance through 67 GHz.

Features & Benefits

- High Frequency RF performance to 67 GHz
- High density design (.110" port-to-port spacing)
- Proven SMPS interface - bullets (female-to-female adapters) used as connector savers for long product life
- SMPS interface recessed from D-Sub housing to protect from damage
- Bullets easily removed with standard SMPS removal tool
- PCB Edge Mount and Surface Mount connector options available
- Keyed D-Sub design to avoid mis-mating
- Easy mating/de-mating with thumbscrews

Applications

- Automated Test Equipment (ATE)
- Bench-Top Testing \ Product Evaluation Boards
- Test and Instrumentation
- Military and Aerospace
- Embedded Systems

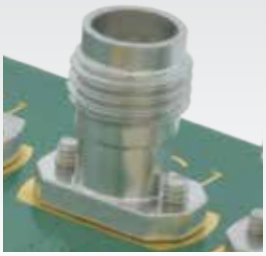
Solderless PCB Connectors

Features & Benefits

- Solderless compression mount for fast and easy installation (available with installation screws)
- Cost effective solutions for testing
- Durable and rugged design
- SMA, 2.92mm, 2.4mm, 1.85mm and SMP QuarterBack® (secure locking) series available
- Customized PCB footprint design through simulation optimization
- Available with multiple screw lengths to fit your PCB application
- COTS versions readily available through distribution

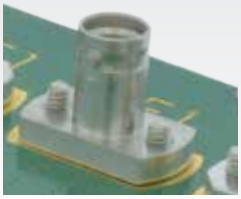
Applications

- RF test and measurement boards
- High Speed Digital component test
- Stripline, microstrip and coplanar waveguide PCB launch

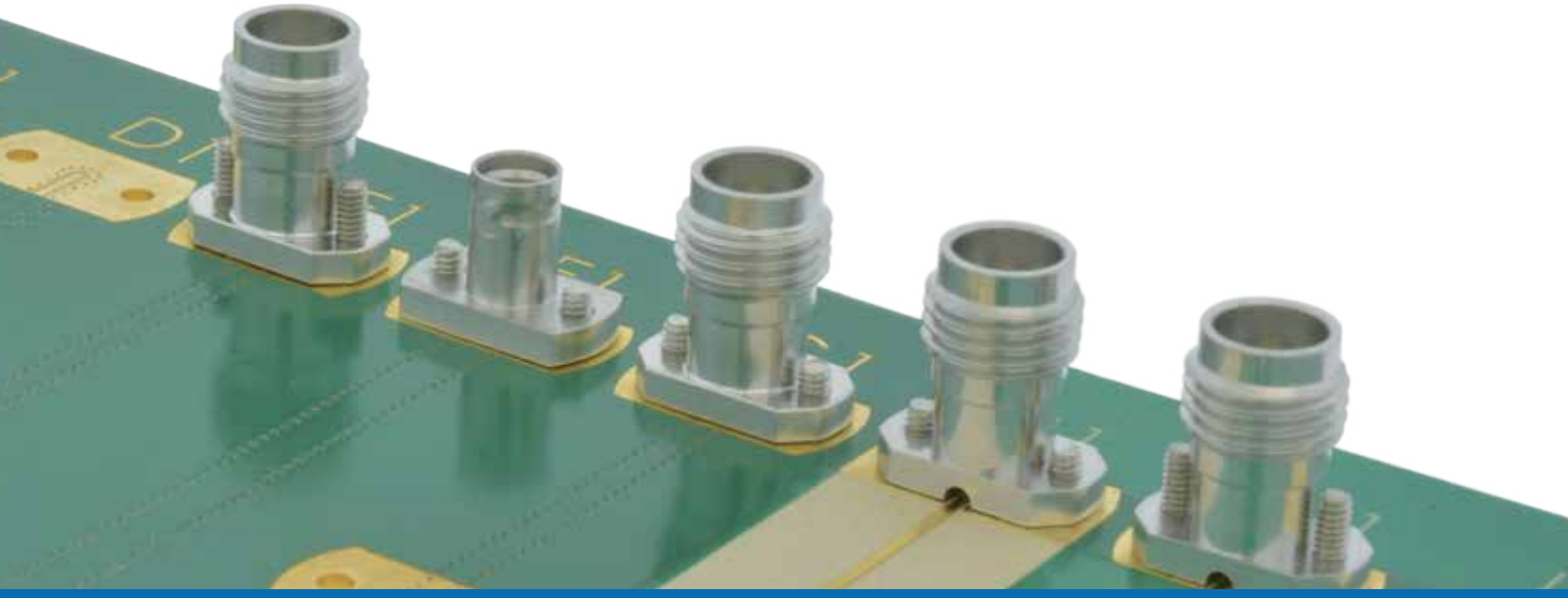


Launches directly to a plated via leading to a stripline transmission line within the PCB

Launches directly to a Coplanar Waveguide or Microstrip trace, which exits through a small mouse hole on the side



Positive bayonet locking in small compression mount form factor



VITA 67.3

High Density & High Performance RF Addition to the OpenVPX™ Platform

Features & Benefits

- Coaxial interface standard for daughtercard to backplane connectors
- Edge launch option eliminates cable assemblies on plug-in card
- Customizable RF contact locations within module
- SMPM min pitch .228" and SMPS min pitch .155"
- Designed for side-by-side implementation with other VITA connector standards
- Floating SMPM coaxial pins ensure excellent RF performance in any mating condition
- Overlapping bodies reduce crosstalk
- Blindmate and simplified cable routing reduces Mean-Time-To-Repair (MTTR)
- Unique SV connector retention mechanism offers significant ease of assembly/disassembly
- Meets or exceeds environmental tests (shock, vibe, temperature) as specified in VITA 67

Applications

- Robust and rugged high speed coax solution
- High-reliability, high-density for aerospace & defense applications
- SIGINT, EWR, ground base station & communication systems, avionics, radar systems
- Air Transport Racks (ATRs) without Rear Transition Modules (RTMs) or limited speed through RTM

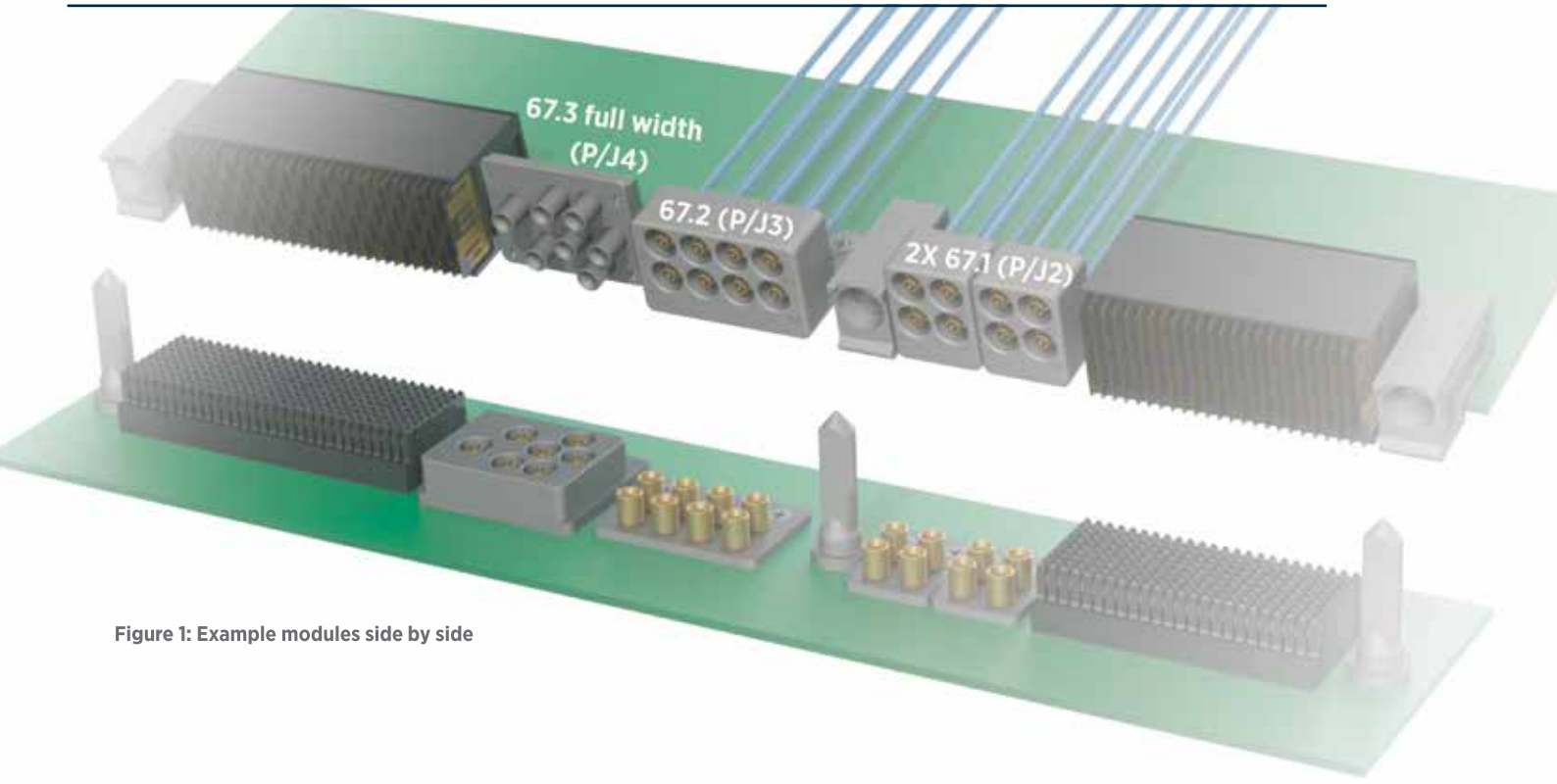


Figure 1: Example modules side by side

Amphenol Turkey&MiddleEast

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sales@amphenol.com.tr

Amphenol® RF

Unmanned Aerial Vehicle

Amphenol RF offers the largest selection of RF interconnect products to complete your Unmanned Aerial Vehicle development. We offer QPL and ITAR products, IP67 sealed solutions for harsh environments, and low cost commerical solutions for non-rugged use.

Amphenol RF currently participates on many of the largest UAV programs in the world, giving us years of experience. Whether the aircraft is being used for surveillance, communications, agriculture, or just for hobby use, we have the engineering expertise to support your build.

Applications:

Flight Control modules
GPS/Networking modules
Remote Control modules
Military: Direct Action, Surveillance, Comms
Commercial: Agriculture, Delivery, Photography

Connectors

PCB SMA

Flange mount TNC

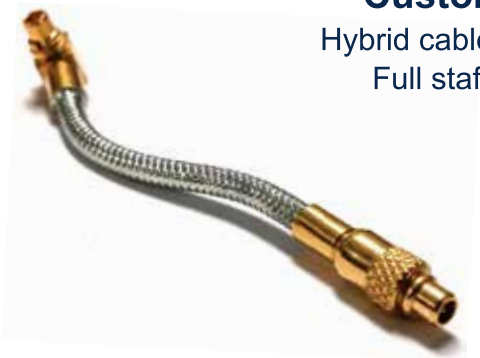
Adapters

BNC to SMA bulkhead adapter

SMA to RP SMA adapter

Custom Designs

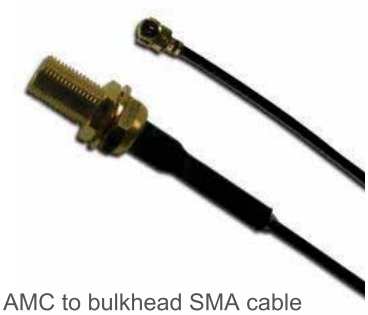
Hybrid cables/connectors
Full staff of engineers
Harnessing
Gangmate
Adapters



MCX to R/A MCX hand conformable cable

Cable Assemblies

BNC to BNC cable

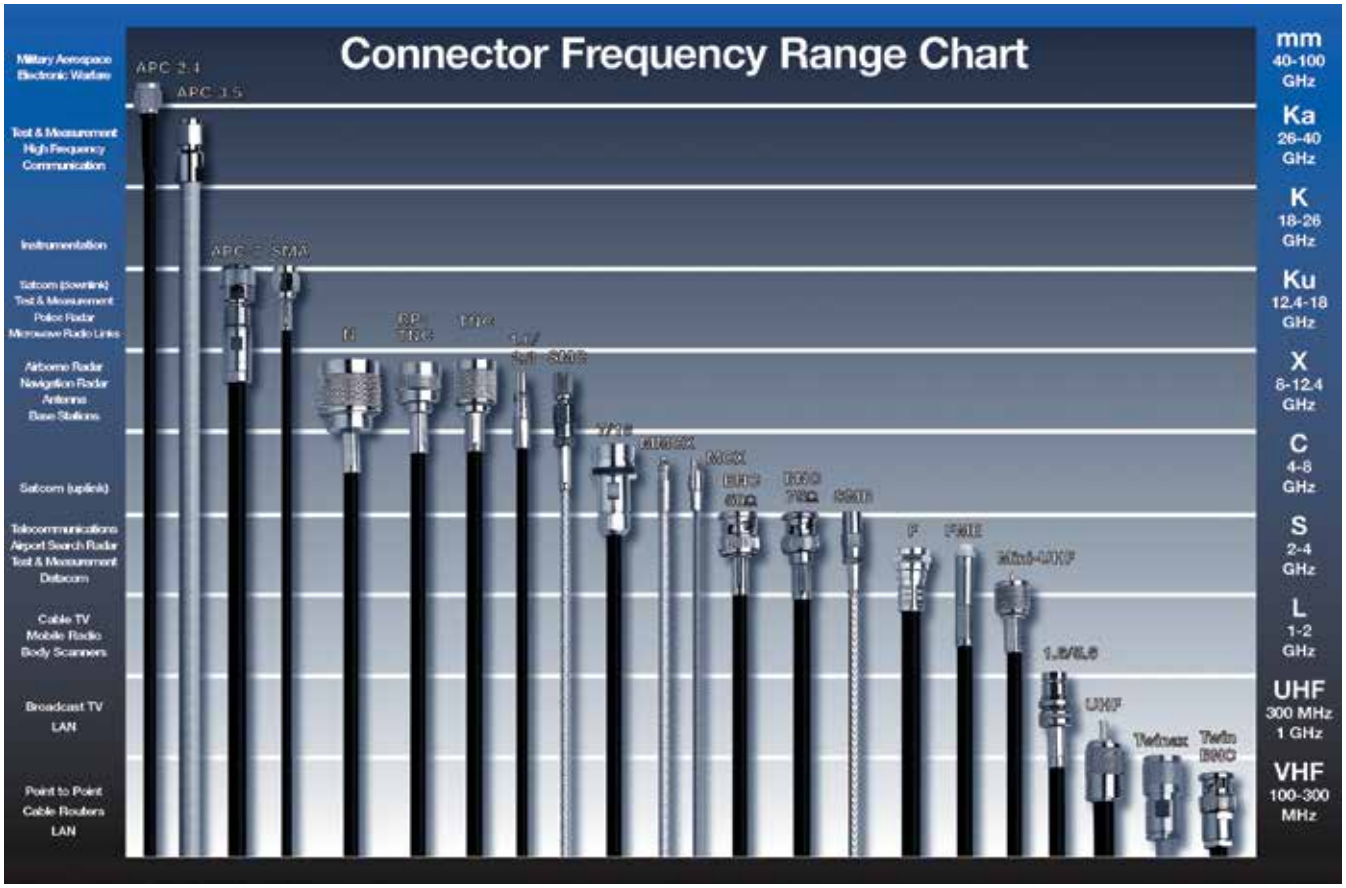


AMC to bulkhead SMA cable

RF components perform vital functions in mission-critical military electronic systems. Such products require superior performance and reliability in hostile environments and stressful conditions. We offer solutions to defense applications such as ruggedized communications, flight management systems, missiles and radar.

Amphenol RF is recognized as a leading supplier in the military industry for its quality MIL-C-39012 interconnects and innovative product solutions. With decades of expertise in harsh environment interconnects for land, sea, and space, we are a natural partner to support a broad range of ruggedized, high-performance connector and cable assembly requirements. Our forward looking designs and industry leading manufacturing excellence ensures consistent dependability in any battlefield.

Standard RF Connectors



AMC

Description

Amphenol RF manufactures a family of Amphenol Micro Coaxial (AMC) connectors and cable assemblies for use in applications with 50 Ω impedance requirements. AMC connectors are low profile (2.5 mm off the board) and offer an extremely small board footprint (3mm x 3mm).

Features/Benefits

- Easy snap-on/off mating
- Ultra low-profile (2.5mm mating height)
- Small foot print (3mm x 3mm)
- 100% Compatible with Hirose U.Fl series
- Right angle plugs are pre-installed on 1.13mm, 1.32 mm or 1.37 mm coaxial cable and tested prior to shipment.

Applications

- Wireless Internet (WiFi, WiMax, EvDO/EvDV Solutions)
- Wireless Infrastructure (Cellular Base Stations)
- RFID
- Bluetooth
- Inventory/Barcode Scanners
- Handheld Devices

SMP

Description

Amphenol RF offers a solution for high frequency, high data rate applications in the SMP line of RF connectors. SMP connectors provide microwave performance and offer a push-on, high performing microwave interconnect system. The available detent systems, full and limited, provide respective levels of engagement/ disengagement forces. This family of interconnects addresses all package design needs. Outside of microwave performance it can be utilized as a highly shielded interconnect for high data rate applications or in a board-to-board blind mate application using a floating bullet. This floating bullet provides a link between mated pairs compensating for both radial and axial misalignment. Available in a cable-to-board mated pair, the plug side can be provided in either right angle or straight with termination capability to either 0.047", 0.086", semi-rigid or conformable coax. The receptacles are designed for surface-mount termination (SMT) or through hole, end launch for board edge or vertical mount. Other configurations are available. Consult factory for price and lead time.

Features/Benefits

- Smaller Package Size
- Higher Frequency Range
- Compensate for Radial and Axial Misalignment

Applications

- Military/Aerospace
- Board-to-Board Interconnect
- Blind Mate
- Broadband
- Instrumentation
- Optical Nodes
- Phased Array Antennas
- Routers
- Telecom

MMCX

Description

MMCX (also called MicroMateTM), is a micro-miniature connector series with a snap-lock mechanism allowing for 360 degrees rotation enabling flexibility in PCB layouts. MMCX connectors conform to the European CECC 22000 specification. The MicroMate Family of products is a 6 GHz 50 Ω interconnect system. A range of connectors is available including surface mount, edge card, and cable connectors.

Features/Benefits

- Broadband performance with low reflection DC to 6 GHz
- Quick connect/disconnect snap-on mating reduces installation time
- Conforms to European CECC 22000 specifications
- Available in straight and right angle plugs and printed circuit board connectors

Applications

- Antennas
- Cable Assemblies
- Instrumentation
- Satcom
- Base Stations
- Components
- PCMCIA Cards
- Telecom
- Broadband Communications
- GPS
- Radio Boards

1.0 / 2.3 Connector

Description

The compact European design of the 1.0/2.3 series permits dense connector packing; they are ideally suited to applications where space limitation is a factor. Versions are available with threaded coupling mechanisms which provide positive mating or a unique push-pull coupling system which allows quick installation. The Amphenol push-pull process is patented and ensures positive locking. Amphenol 1.0/2.3 coaxial connectors are 50 Ω units operating from DC-10 GHz. This series complies with DIN 41626, DIN 47297, and NFC 93-571 international specifications.

Features/Benefits

- Push-pull coupling with patented locking mechanism allows quick installation.
- Push-pull offers safe coupling.
- Locking mechanism will not vibrate loose as threaded connectors are prone to do.
- Push-pull connectors can be more densely packed saving panel space in components that are shrinking in size.

Applications

- Amplifiers
- Base Stations
- Cable Assemblies
- Components
- Filters
- Routers
- Switching Equipment
- Telecom

SMB

Description

The SMB name derives from SubMiniature B (the second subminiature design). Developed in the 1960's, this sub miniature interface has snap-on coupling. Amphenol's SMB connectors conform to the requirements of MIL-C-39012, and the interface is in compliance with MIL-STD- 348. Available in 50 Ω and 75 Ω, the SMB provides broadband capability through 10 GHz with a snap-on connector design and utilizes die cast components on non-critical areas to provide a low-cost solution.

Features/Benefits

- Broadband performance with low reflection DC to 4 GHz provides low cost connector combined with high quality.
- Quick connect/disconnect snap-on mating reduces installation time.
- Various plating options in nickel, gold, and tin. Selective plating provides corrosion resistance finish as well as good solderability characteristics.
- SMB PCB slide-on plug and jack allows board-to-board mounting with a low insertion force. This is ideal for mating a high number of connectors on a pair of PCB's.

Applications

- Automotive
- Base Stations
- Cable Assemblies
- Components
- Instrumentation
- PC/LAN
- Process Controls
- Radio Boards
- Surge Protection
- Telecom
- Test and Measurement
- Video Systems

Mini 75 Ω SMB

Description

Amphenol's Mini 75 Ω SMB connector provides broadband capability through 2 GHz. Its designs utilize die cast components on non-critical areas to provide a low cost solution. These connectors offer snap-fi t mating for quick connect/disconnect. The reduced housing allows circuit miniaturization and efficient "real estate" utilization. Built in accordance with requirements of MIL-C-39012, the interface is in compliance with MIL-STD 348 and is interchangeable with Industry Standard for Miniature 75 Ω SMB.

Features/Benefits

- 75 Ω snap-on coupling allows for quick installation.
- Same interface as 50 Ω SMB.
- Product is interchangeable with competitors.
- Diecast components which offers low cost solution.

Applications

- Telecommunication
- Networking
- Switching Equipment

SMC

Description

The SMC name derives from SubMiniature C (the third subminiature design). The SMC design was developed in the 1960's. SMC has threaded coupling with 10-32 threads. Available in 50 Ω impedance, the SMC Series utilizes die cast components on noncritical areas to provide a low cost solution.

Features/Benefits

- Broadband performance with low reflection DC to 10 GHz.
- Conforms to the interface dimensions of MIL-STD-348.
- 10-32 screw-on (threaded) coupling mechanism allows performance to 10 GHz with low reflection.
- Right Angle connectors available in one piece construction.

Applications

- Antennas
- Automotive (GPS)
- Base Stations
- Cable Assemblies
- Instrumentation
- Video Systems
- Process Controls
- Radio Boards
- Telecom
- Test and Measurement

SMA

Description

SMA is an acronym for SubMiniature version A and was developed in the 1960's. It uses a threaded interface. 50 Ω SMA connectors are semi-precision, subminiature units that provide excellent electrical performance from DC to 18 GHz. These high-performance connectors are compact in size and mechanically have outstanding durability. For phase array radar, test equipment, ILS landing systems and other instrumentation using phase matching techniques, these SMA connectors for semi-rigid coaxial cables and the SMA Plug-to-Jack adapter offer a precise and simple means of phase adjustment for microwave devices. Built in accordance with MIL-C-39012 and CECC 22110/111, SMA connectors can be mated with all connectors that meet these interface specifications, regardless of manufacturer. SMA is available both in Standard and Reverse Polarity. Reverse polarity is a keying system accomplished with a reverse interface, and ensures that reverse polarity interface connectors do not mate with standard interface connectors. Amphenol accomplishes this by inserting female contacts into plugs and male contacts into jacks.

Features/Benefits

- Broadband performance DC to 18 GHz with low reflection stainless steel construction and ¼-36 threaded coupling.
- Brass SMA available in nickel or gold plating which provides approximately 30% cost reduction with 100 mating cycles.
- Available for .085" and .141" diameter semi-rigid cables and all the standard flexible cables including double shielded RG-316.
- Phase Adjustable SMA connectors provide ease of mechanical screw adjustments.

Applications

- Base Stations
- Cable Assemblies
- Instrumentation
- Mil/Aero
- Process Controls
- PC/LAN
- Telecom

QMA

Description

The QMA connector is a quick disconnect version of the SMA connector and shares the same internal construction, which allows the connector to have excellent performance. The electrical performance benefits of the QMA include low loss RF performance up to 18 GHz. Because of the innovative coupling mechanism, a 360-degree butt joint is maintained which results in low RF leakage. Since the RF line is identical to the SMA series, the QMA connectors also offer the same high power handling capability. This gives the series significant advantages over other quick disconnect connectors. Amphenol RF is a member of the Quick Lock Formula® Alliance. For further information on the QLF®, visit www.qlf.info.

Features/Benefits

- Operates at the same electrical performance as SMA up to 18 GHz
- Snap-on interface for quick and easy installation
- Rotatable 360˚ after connection for flexibility with installation

Applications

- Base Station Equipment
- Amplifiers
- Higher Packaging Density, Size equivalent to SMA, but space saving as there is no need for wrench clearance.

Mini - UHF

Description

Mini-UHF is a miniature version of the UHF connectors that were developed for use in the radio industry. Mini-UHF connectors are designed for use as coaxial interconnection in cell phones, automotive systems, and similar applications where size, weight, and cost factors are critical. Mini-UHF connectors terminate to RG-58, RG-58A, RG-58B, RG-58C, and Belden 9258 cables. Crimp-type cable plugs and jacks are available as well as panel and printed circuit board receptacles.

Features/Benefits

- Miniature 3/8-24 thread size provides excellent RF performance
- The small size and light weight provide excellent electrical characteristics
- Crimp-type cable terminations provide low installation cost
- Diecast bodies and molded insulators ensure low cost
- Teflon insulators provide higher temperature range

Applications

- Antennas
- Cable Assemblies
- Cellular

Type F

Description

Type F connectors are miniature threaded connectors used extensively in the cable television industry. The connectors feature a 3/8-32 threaded interface, and cable mounted connectors feature crimp termination. Amphenol's line of F connectors are designed to meet the demands of high speed cable modems and customer interface units. Primary applications are for cable television (CATV), set top boxes, and cable modems.

Features/Benefits

- Patent pending contact design provides a truly cylindrical coaxial contact and provides superior RF performance and excellent insertion/withdrawal characteristics.
- 30 dB return loss to 1 GHz ensures a high performance specification that outperforms competition.
- Multiple PCB mount packages: surface mount, edge mount, right angle and straight.
- Accommodates .022-.042 inch center conductor sizes.

Applications

- Cable Assemblies
- CATV
- CIMs
- Head End Equipment
- High Speed Cable Modems
- Hybrid Fiber Coax Networks
- Set Top Boxes

Type G

Description

Type G is a slide-on alternative to the Type F with 15A continuous current rating. All connectors comply with the MIL-STD-202 specification for vibration, shock, thermal shock, moisture resistance and salt spray. Since the Type G has an impedance of 75 Ω, it is ideal for CATV applications. This connector line consists of Bulkhead Mount Jack Receptacles and PCB Mount Jack Receptacles.

Features/Benefits

- Push-on blind mate capabilities using BeCu springs provide quick installation and multiple matings
- Version available with 15 Amp continuous current capability meets new generation equipment for HFC Networks (Hybrid Fiber Coax)
- Truly cylindrical coaxial contact provides superior RF performance and excellent insertion/withdrawal characteristics
- 30 dB return loss to 1 GHz with 10 Amp current capability. 20 dB return loss with 15 Amp version provides high performance.

Applications

- CATV
- Head End Equipment
- Components (Amplifiers)
- Hybrid Fiber Coax Networks
- Set Top Boxes

Mini - BNC

Description

Amphenol RF introduces the new generation of quality BNC connectors for the telecommunication and broadband applications for higher connector densities while preserving the positive characteristics of the Amphenol full-size BNC's for 75 Ω systems. This allows 40% more interconnects in the same area. The Mini-BNC series provides the same positive locking bayonet system found on the BNC. These connectors were designed to be field installed or repaired. Also, the Mini- BNC is designed to be a drop-in replacement used in Telco DS3/DS4 applications and is compatible with the present field installer tooling and strip dimensions. DS3 and DS4 lines in Telco Central Offi ces are 75Ω and the Mini-BNC is as well.

Features/Benefits

- Smaller than the Telco standard BNC allowing 40% more interconnects in the same area
- Crimp/Crimp design compatible with all major manufacturer's tooling
- True 75 Ohm impedance end to end
- Drop-in replacement for most high-density SMB/SMZ applications
- Bayonet coupling provides a positive lock and allows for quick and easy connect/disconnects
- Qualified by most major OEMs
- Made by the Inventors of the BNC

Applications

- Broadcast
- Custom Cable Assemblies
- Digital Video – HDTV
- Network Routing & Switching
- Instrumentation
- Medical Equipment
- Mil/Aero
- Satellite Headends
- DS3/DS4
- Telco Central Offi ce

BNC

Description

Developed in the late 1940's as a miniature version of the Type C connector, BNC stands for Bayonet Neill Concelman and is named after Amphenol engineer Carl Concelman. BNC's are ideally suited for cable termination for miniature to subminiature coaxial cable (RG-58, 59, to RG-179, RG-316, etc.) Amphenol 50 Ω BNC connectors are miniature, lightweight units useable up to 11 GHz and typically yield low reflection through 4 GHz. Amphenol also offers a full line of 75 Ω BNC connectors to meet the needs for higher performance impedance-matched cable interconnections. Part numbers that are listed with the appropriate M39012 number are military grade connectors produced in accordance with and actively qualified to the military specification MIL-C-39012.

Features/Benefits

- Bayonet coupling mechanism provides quick mating and unmating
- 50 Ω and 75 Ω impedance designs allow customers to match system requirements
- 50 Ω and 75 Ω connectors are intermateable
- Four grades of connectors are available for military, industrial, commercial and performance applications

Applications

- Antennas
- Base Stations
- Broadcast
- Cable Assemblies
- Computers/LANs
- Radios
- Surge Protection
- Telecom
- Instrumentation
- Oscilloscopes
- Medical Equipment
- Satellite Communications

TNC

Description

Developed in the late 1950's, the TNC stands for Threaded Neill Concelman and is named after Amphenol engineer Carl Concelman. Designed as a threaded version of the BNC, the TNC series features screw threads for mating. TNC connectors are miniature, threaded weatherproof units with a constant 50 Ω impedance, operating from DC – 11 GHz. There are two types of TNC connectors: Standard and Reverse Polarity. Reverse polarity is a keying system accomplished with a reverse interface, and ensures that reverse polarity interface connectors do not mate with standard interface connectors. Amphenol accomplishes this by inserting female contacts into plugs and male contacts into jacks. Other manufacturers may use reverse threading to accomplish reverse polarity keying. Amphenol's commercial grade connector offering carries the part number designation "RFX" for easy recognition. These low-cost connectors typically utilize die cast and molded components. While performance will not be equal to the industrial or military grade products, these connectors are ideal for use on a variety of commercial applications.

Features/Benefits

- Threaded coupling interface ensures connector will not de-couple in vibration-intensive applications.
- Available in both standard and reverse polarity interfaces.
- Performance from DC – 11 GHz operations in many applications.

Applications

- Antennas
- Cable Assemblies
- Instrumentation
- WLAN Networks
- Telecom
- Base Stations
- Cellular
- Mil-Aero
- Radar
- RFID Readers

UHF

Description

Invented in the 1930's by an Amphenol Engineer named E. Clark Quackenbush, UHF coaxial connectors are general purpose units developed for use in low frequency systems from DC – 300 MHz. Invented for use in the radio industry, UHF is an acronym for Ultra High Frequency. UHF connectors feature a threaded coupling. Because these connectors are low-cost, the impedance is variable. Amphenol's commercial grade connector offering carries the part number designation "RFX" for easy recognition. These low-cost connectors typically utilize die cast and molded components. While performance will not be equal to the industrial or military grade products, these connectors are ideal for use on a variety of commercial applications.

Features/Benefits

- Optional reducing adapters accommodate a wide range of popular coaxial cables
- Solder termination types require no special assembly tools
- Crimp termination types provide a lower cost installation method
- Large-size threaded coupling is rugged design
- Non-demanding specifications and low cost

Applications

- Antennas
- Cable Assembly
- Low Frequency Applications
- Public Address Systems
- CB Radios

C

Description

C Connectors are medium size and weatherproof. Coupling is two-stud bayonet lock. C connectors provide constant 50 Ω impedance. They may be used with 75 Ω cable, at lower frequencies (below 300 MHz) where no serious mismatch is introduced.

Features/Benefits

- Two-stud bayonet lock allows quick & easy coupling

Applications

- Airframe
- Cable Assemblies
- Instrumentation
- MIL Aerospace
- Test & Measurement

Tools

Tool Series

- Bench Mounted Pneumatic Crimp Machine
- CTL Series Crimp Tools
- Hand Crimp Tool
- ECONOHEX Crimp Tool
- MMCX CTL Crimp Tool
- CAP Installation and Connector Removal Tool

Multi-Ports(M8) & Mini Multi-Ports (MMP)

High Density Interfaces provide connectivity and maintainability with quick mate/de-mate of multiple cable assemblies. High performance M8 Multi-Port, Mini-Multi-Port (MMP) and BMB 38999 contacts fit standard and custom connector shell designs and provide broadband performance up to 40 GHz. These High Density Interconnect products have been developed to provide extended life and full performance in harsh environments. Sealing features are built into the contact interfaces and connector shells, providing redundant assurance of long-term performance in fielded systems that make them very popular in the military aerospace market.

Features and Benefits

- Interchangeable connector front ends
- Drastically reduces panel space requirements for multiple connector outputs/inputs
- Minimize box installation clearances for connections
- Prevents cross connected cable assemblies
- Improves overall system maintainability
- Reduce costs and downtime associated with equipment installation and removal
- Eliminates the need to Torque or Lockwire individual connectors

RF Feeder Connectors

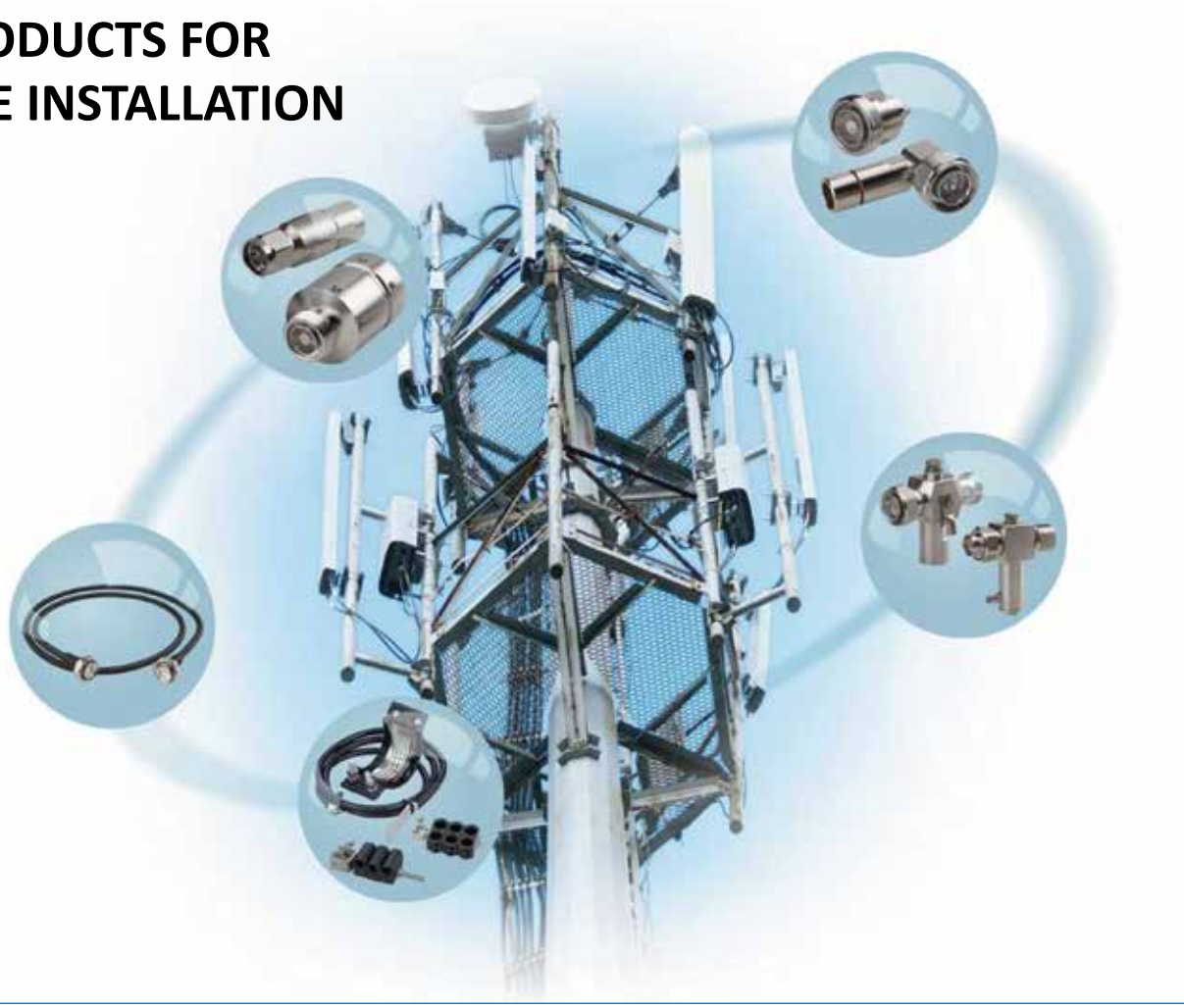
- One piece pin design
- O ring seals
- Outstanding RF performance
- N and DIN types are available
- Suit for both copper and aluminum cables

RF Panel Mount Connectors

- Different designs for pin termination
- Waterproofing IP68
- Broadband performance covering all wireless service band
- N and DIN types are available

Large Form RF Solutions

PRODUCTS FOR SITE INSTALLATION



Type N

Description

Named after Paul Neill of Bell Labs after being developed in the 1940's, the Type N offered the first true microwave performance. The Type N connector was developed to satisfy the need for a durable, weatherproof, medium-size RF connector with consistent performance through 18 GHz. There are two families of Type N connectors: Standard N (coaxial cable) and Corrugated N (helical and annular cable). Their primary applications are the termination of medium to miniature size coaxial cable, including RG-8, RG-58, RG-141, and RG-225.

Features/Benefits

- Accommodates a wide range of medium to miniature-sized RG coaxial cables in a rugged medium-sized design.
- Broad line of Military (M39012), Industrial (UG) and Commercial (RFX) grade products available.
- Meets many customer application demands with plug styles available in straight and right angle and jack styles available in panel mount, bulkhead mount, and receptacle.

Applications

- Antennas
- Base Stations
- Broadcast
- Instrumentation
- Microwave Radio
- Mil-Aero
- PCS
- Radar
- Radios
- Satellite Communications
- Surge Protection
- WLAN

HN

Description

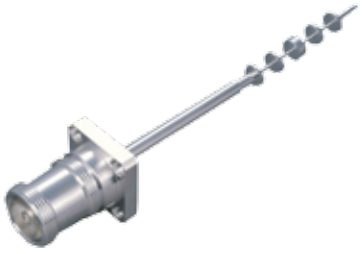
HN connectors are medium size weatherproof units designed for high voltage applications. HN connectors feature captivated contact design which prevents contact recession under temperature extremes and mechanical stresses. The coupling mechanism features a ¾ -20 threaded interface.

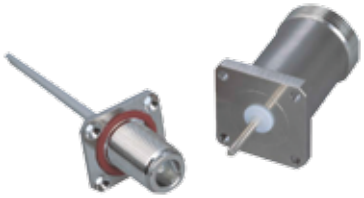
Features/Benefits

- Rugged construction for high voltage applications
- Captivated contacts prevent movement under temperature extremes
- Nickel plated bodies provide durable surface finish

Applications

- Instrumentation
- Cable Assemblies
- Mil Aerospace
- Airframe
- Test & Measurement





7/16

Description

The 7/16 series name derives from the metric dimensions of the connector interface: 7mm OD of inner contact, 16 mm ID of outer contact. 7/16 connectors are designed for use in communications systems with power levels of 100 watts per channel. Long popular in Europe, the 7/16 interface has gained acceptance in the U.S. for its ability to operate at elevated power levels. There are three families of 7/16 DIN connectors: corrugated cable (both Annular and Superflex), standard cable connectors, and custom. RF coaxial connectors are the most important element in the cable system. Corrugated copper coaxial cables have the potential to deliver all the performance your system requires, but they are often limited by the performance of the connectors. Corrugated connectors have been designed from the ground up to deliver optimum performance, while retaining ease of installation. Inter-modulation distortion, a major concern in today's communications systems, is consistently low with these connectors. Typical performance is -120 dBm (-165 dBc). Amphenol's in-house IMD measurement capability gives us the unique ability to understand the effects of connector design elements on IMD generation so that we can design the best performing connectors in the industry.

Features/Benefits

- Low IMD and VSWR
- Self-flaring design ensures ease of installation
- Pre-assembled gasket protects against dust (P68) and water (IP68) per IEC 169
- Limited internal junctions reduce sources of IMD
- Silver-plated contacts and silver or white
- Bronze-plated bodies deliver a high conductivity and corrosion resistance for a long, trouble-free life
- Easy-Hex coupling nut allows tightening by hand or with a standard wrench for ease of mating

Applications

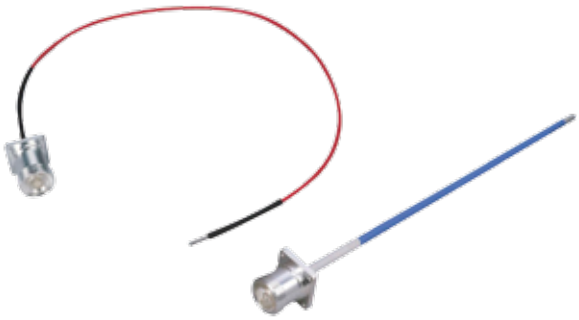
- Antennas
- Base Stations
- Broadcast
- Jumper Assemblies
- Lightning Protection
- Satellite Communications

RF Adapters

- Low reflection coefficient
- Customer configuration

RF Incabinet Jumpers

- Excellent VSWR and PIM performance
- Using flame retardant cable
- Soldering assembly design
- In BTS cabinet application



RF Pig Tail Jumpers

- 100% PIM performance testing
- Automatic soldering assembly
- Apply to wireless base station antenna

RF Feeder Jumper Cables

- Excellent VSWR and PIM performance covering all wireless service band
- Complete product range ---- available for any cable type & length with a various connector combination
- Waterproof per IP67 water immersion testing

RF Other Jumpers

- Different design jumpers for different application
- Customized design is available

Earthing Kit

- Broadband

Surge Arrestors

1/4 wave type

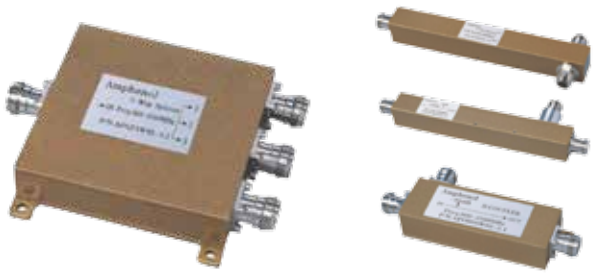
- Broadband performance up to 3.9 Ghz
- Fully weatherproof
- Available with type N and DIN connectors
- Provide multiple strike capability

Gas tube type

- DC pass capability
- Field replaceable gas discharge tube

Hybrid type

- Combine the functions of 1/4 wave design and gas tube design



Splitter Coupler

- Broadband characteristics covering all wireless service band
- Outstanding RF performance, high isolation, low insertion loss & low VSWR
- Available with SMA, N and DIN type connectors
- Fully weatherproof to satisfy class IP67 (DIN and N type connector styles)

The Leader in phase stable cables and assemblies
The Leader in low loss cables and assemblies
The Leader in test cables
The Leader in lightning & surge protection

TMS/Amphenol is the leader in the design, qualification, manufacture, and on-time delivery of high performance cable and cable assembly products to the commercial wireless and military marketplace. In 2003, TMS was selected by Lockheed Martin Aeronautics to supply the Broadband Airborne Cable Assemblies on the F-35 Joint Strike Fighter (JSF). TMS was chosen to supply this solution since its high performance cable assemblies are able to handle high-speed data in extreme avionics environments including wide variations in temperature and pressure.

Coaxial Cables

Amphenol

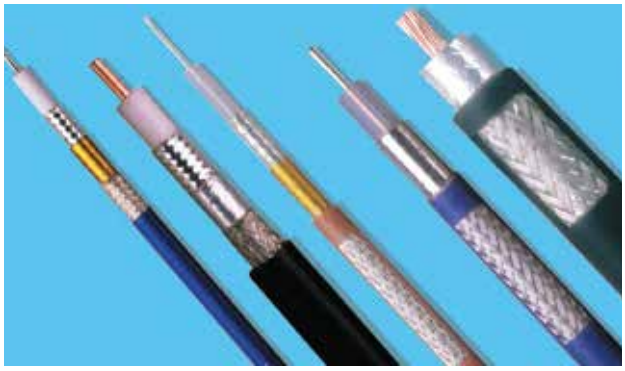
TIMES MICROWAVE SYSTEMS
An Amphenol Company

TMS/Amphenol was instrumental in the development of military specifications, including MIL-C-17 for coaxial cables and MIL-T-81490 for Transmission Lines. Times is the leading source of MIL-C-17 qualified products, holding more QPL's (Qualified Product Listings) than any other manufacturer, and Times products meet rigorous MIL-T-81490 and MIL-C-87104 requirements.

Times LMR cables are high performance broadband, flexible, low loss 50 Ohm coaxial communication cables designed for use in wireless applications

TFC FIBER COMMMUNICATION
An Amphenol Company

TFC/Amphenol is recognized worldwide as one of the pioneer developers of broadband cable technology and has to its credit a long list of technical expertise in foam polymer processing, application-specific product development, and unsurpassed, world-class customer service and support.



RG Cables

M17/RG

Features & Benefits

- Meets all MIL-C-17 Requirements
- Good Shielding Effectiveness
- Low Passive Intermod (PIM)
- Readily available in Distribution
- Uses Standard Connectors

M17/RG's are traditional MIL Spec coax cables that were born 50-60 years ago. Originally created to support WWII military applications, these cables quickly became the products of choice for commercial wireless applications once they hit the surplus market, and continue to be used today.

M17/RG's have been widely adopted for commercial and military applications. Their QPL stature insures a high quality product made to the same spec regardless of the manufacturer.

LMR

Flexible Low Loss Communications Coax

Ideal for...

- Drop-in Replacement for specific RG cables (uses standard connectors)
- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application (e.g. WLL, GPS, LMR, WLAN, WISP, WiMax,SCADA, Mobile Antennas) requiring an easily routed,low loss RF cable

Armored Assemblies

Armored versions of many cable types are available as custom cable assemblies. Armored cable assemblies are available in the Miltech, Silverline, and TCOM product lines, as well as others. Available armor types include a range of thick wall flexible jacketing, flexible wire reinforced with extruded thick wall jackets, and full metal coverage crush resistant square-lock styles with various outer jacket types.

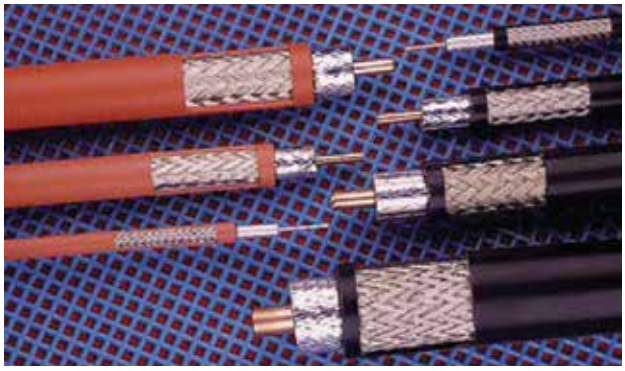
LSRG Military Shipboard Coax

MIL-C-17 Qualified

- MIL-Spec Air Frame, Shipboard, Ground (Tactical) Interconnect (M17/180–/200)
- Fire Retardant / Low Smoke (non-halogen)
- Flexible For Easy Deployment / Routing

Features & Benefits

- Rugged Abrasion Resistant Jacket
- Excellent Shielding Effectiveness
- Fire Retardant (non-halogen)
- Light Weight
- Flexible for Ease of Deployment
- Excellent Connector Selection



CATV

The low smoke CATV cables are designed to provide a low loss shipboard entertainment system interconnect, yet meet the rigid shipboard requirements per MIL-C-17 “G”. Detailed data sheets are available upon request.

TFlex®

Flexible Alternative to Semirigid Coax for Military and Commercial Applications including, Low Loss Microwave and Wireless Base Station Interconnects.
Developed over ten years ago as a lighter weight, flexible alternative to semirigid coax, TFlex® has been widely adopted for both military and commercial communication systems. Its Teflon FEP jacket provides excellent protection in corrosive environments and its flexible nature eliminates the need for hand or precision machine bending. Following the most convenient routing, TFlex® can be preterminated to its desired length and can then be just “plugged in”.

Features & Benefits:

- Meets all MIL-C-17 Requirements
- Excellent Shielding Effectiveness
- Low Passive Intermod (PIM)
- Stable Loss, Phase and VSWR vs. Flexing
- Uses Standard Solder-on Semirigid Connectors

HELIFOIL

Flexible, High Power Interconnect and Jumper Cables for Military/Aerospace and Commercial/Telecom Applications.

HELIFOIL™ ultra low loss, flexible microwave coaxial cable and assemblies provide excellent performance over the DC-18 GHz frequency range. HeliFoil cable comes in three different sizes, with options of stranded center conductors for better flexibility. All sizes provide lowest attenuation, excellent phase stability, broad operating temperature range and high power handling making them a good choice for interconnect and testing applications in both field and laboratory conditions.

LSSB™

Low Smoke - Non-Halogen Military/Aerospace Coax
MIL-Spec Air Frame, Shipboard, Ground (Tactical)

Features & Benefits

- Rugged Abrasion Resistant Jacket
- Excellent Shielding Effectiveness
- Fire Retardant (non-halogen)
- Light Weight
- Flexible for Ease of Deployment
- Excellent Connector Selection

Hybrid Cell Tower Cables

Power + Optical

Support Next-Generation Wireless
Whether you are installing new or upgrading with wireless remote radio heads (RRHs), you need to reduce installation costs, boost performance to support 4G broadband, and ensure long-term reliability in a scalable solution to future-proof your investment.

Hybrid cables from Times Fiber simplify tower cabling by providing power and optical connectivity in a single cable.

- Flexible Configurations : Get the right mix of power and optical for your tower
- High Performance : Support the latest 4G protocols, such as LTE
- Economical : Lower installation costs by running one cable instead of multiple cables
- Rugged : Tough, sunlight-resistant PVC jacket
- Lightweight : Significantly lighter than designs using corrugated metal shielding, our cables allow easier installation and less tower loading
- Complete : Install faster with factory-terminated assemblies built to your specifications
- Customizable : Specify other configurations of conductor counts, cable types, or shielding— with fast-turn delivery

LLSB

Low Loss Military/Shipboard Coax

MIL-C-17 Qualified
- Low Loss Air Frame, Shipboard,
- Ground (Tactical) Interconnect
- Fire Retardant / Low Smoke (non-halogen)
- Flexible For Easy Deployment / Routing

Features & Benefits
- Lower Loss
- Superior Shielding

Effectiveness
- Fire Retardant (non-halogen)
- Light Weight
- Flexible for Ease of Deployment
- Excellent Connector Selection

Waterblocked, Low-Smoke Triaxial Cables

For applications that require watertightness in addition to the performance requirements of the LS/LT designs, Times is qualified to the M17/134 and M17/135 designs. These triaxial designs meet the 25 psi-6 hour watertightness test, as well as the 1000 psi-2 hour hydrostatic tests that are requirements of MIL-C-17.

Broadband Cables

T10 & TX10 Hardline Cable Solutions

The T10 & TX10 Hardline cable line is constructed with seamless extruded tube. TFC's T10 & TX10 cable will outlast the standard welded tube cables. This cable is designed to eliminate pinhole leaks and micro-cracking. This cable line can be used with industry standard coring tools and connectors.

Features

- Clean coreability and preparation
- Triple bonded
- Tighter bend radius than double bonded cable
- No air gap. eliminates a common path for moisture found in double bonded cable
- Prevents inner conductor pull-out (suckouts) as result of temperature swings.
- Eliminates outer sheath shrink-back due to temperature cycles.
- Works with all industry standard coring tools and connectors
- NEC 820 CATV & CATVR listings available
- Recyclable reels and packaging
- Seamless Extruded Aluminum Tubing

PhaseTrack Cables

Times Microwave TF4 dielectric material is the key ingredient, making our PhaseTrack products the best choice for phase critical interconnect applications.

PhaseTrack cable dielectric has been developed to eliminate the "PTFE knee" in the phase/temperature performance of cables for phase-critical applications.

The PhaseTrack flexible cable product line is available in a range of sizes using TF4 dielectric.

SiO2 Phase Cable Assemblies

SiO2 Semi-Rigid cable assemblies provide formable phase stable performance using materials developed specifically for use in applications where repeatable phase performance is critical. In short, matched TMS SiO2 cable assemblies exhibit the best phase-tracking performance available.

Work with your Times Military/Aerospace Regional Applications Engineer to get the SiO2 Semi-Rigid assembly configurations you need.

The SiO2 product line consists of cables sized from 0.090 to 0.270 inches in diameter.

QEAM

The ultimate cable design for field deployable applications is the QEAM (Quick Erecting Antenna Mast) cable. This cable series is designed specifically for use in demanding, mission critical applications, where reeling and unreeling are required over a wide temperature range. Its performance has been proven on systems such as the Hawk and Patriot Missile. The use of a taped PTFE dielectric results in exceptionally low bending moment and long bend life (typically more than 10,000 bends, depending upon radius, etc.). In the larger sizes, use of a composite center conductor further improves bend properties. Based on our MilTech aerospace cable assemblies, these assemblies are fully weather sealed and constructed in accordance with the requirements of MIL-T-81490.Heavy duty stainless steel connectors provide long term corrosion resistance and ruggedness. Qeam cables are sold only as finished assemblies, tested over the required frequency band and fitted with hoisting grips or otherwise customized to the requirements of the application.

MaxGain

DC-18 GHz Ultra Low Loss Coaxial Cable and Connectors

- Times Unique Spiral Outer Conductor Technology
- Lighter Weight Compared to Competing Technologies

MaxGain™ ultra low loss, flexible Microwave Coaxial Cable and a full range of passivated stainless steel connectors are available as fully tested custom cable assemblies.
MaxGain™ assemblies are used for general applications in both field and laboratory conditions. They are ideally suited for applications where lowest loss and good stability with bending is required.

Features & Benefits:

- Lowest Insertion Loss Available, DC - 18 GHz
- Ultra Stable Insertion Loss and VSWR with Flcxing
- With wide Temperature Range (-65”C to + 150”C)
- Extremely Flexible, Low Minimum Bend Radius
- Superior Shielding Effectiveness (> 100 dB)

TCom®-LS

Low Loss Coaxial Cables
For applications that require repeated flexing and the need for excellent electrical performance, the TCOM-LS series offers a non-halogen, low smoke alternative to the more rigid MIL-C-28830 corrugated copper designs.

Miltech Cables

This is our high performance workhorse series in the MilTech™ product line. These rugged, low insertion loss, broadband (0.5-18GHz), vapor sealed, cable assemblies with braided Nomex™ outer jackets for abrasion resistance, are qualified to MIL-T-81490 and MIL-C-87104/2 requirements.

Cable sizes from 0.13" dia up to 0.65" diameter provide a wide range of cables - allowing you make the appropriate loss/size/weight trade-off. Replaceable connectors allow field maintenance, and enhanced versatility. Vapor sealed cables provide long life in extreme environments. The MilTech™ cables are "inherently ruggedized," and are engineered using the basic cable design and construction to enhance the handling characteristics of the finished assemblies. Captivated contact terminations provide long-term interface stability. These assemblies were designed from the ground up to provide reliable microwave connections you can count on.

SFT

High Performance Microwave Coaxial Cable, Connectors and Assemblies

SFT™ - Strip Flex Taped

- Low Loss
- Flexible
- Rugged
- High Temperature
- High Power Handling
- Sizes from — SFT-316 (0.120") to SFT-600 (0.565")

SFT™ high performance microwave cables are rugged and flexible, making them ideal for interconnect applications from inside LRU's to system interconnects and antenna feeders in military and commercial systems. The wide range of available connectors covers many interface types and frequency ranges.

Features & Benefits:

- Much lower loss than solid dielectric cables
- Superior shielding effectiveness >100 dB
- Stable Loss, VSWR and phase with flexing
- Available as fully tested, custom cable assemblies

SilverLine Test Cables

SilverLine™ Test Cables are cost effective, durable, high-performance cable assemblies designed for use in a broad range of test and interconnect applications. Fabricated from rugged, solid PTFE dielectric cable with stainless steel connectors and a proven strain relief system, these cables provide long life and excellent stability in applications where they are repeatedly flexed and mated/unmated. SilverLine™ test cables are ideal for use in production, field and laboratory test environments. They're also economical enough to be used as interconnects in test systems.

Features and Benefits:

- Phase & Loss Stable
- Long Flex Life
- Triple Shielded Cable
- High Mating Cycle, Stainless Steel Connectors
- Rugged, Solder/Solder Attachment
- Redundant, Long Life Strain Relief System

Silverline Cable Types:

- BronzeLine Test Cables
- SilverLine-LP Low PIM Test Cables
- SilverLine-VNA Network Analyzer Test Cables
- SilverLine-SF Super Flexible Test Cables
- SilverLine-XF Extra Flexible Test Cables
- SilverLine-LL Low Loss Test Cables
- SilverLine-TT Temperature Testing Test Cables
- SilverLine-75 75 Ohm Test Cables
- SilverLine-DAS Low PIM DAS & Component Test Cables
- SilverLine-LPA Low PIM DIN, Mini-DIN and Type N Test Adapters

T-LNC

50 and 75 Ohm Low Noise High Performance Cables

- Stable low noise performance
- Reduced mechanically induced electrical noise
- Stranded center conductor for flexibility
- Semi-conductive layering technology
- Ruggedized polyurethane or PVC jacket
- 80° C rated

T-LNC-300-50-PUR
T-LNC-240-75-PVC

Vibration monitoring and wear detection for:

- Aerospace
- Oil & Gas
- Transportation
- Public Utility
- Machinery
- Non-Destructive Testing

Applications:

- Accelerometers
- Strain gages
- Transducers
- Low voltage signaling in high vibration

Antenna Solutions

One Source. Global Site Solutions

50 MHz to 1.5 GHz. Omnis, yagis, panels and stacked dipole arrays for Private Mobile Radio (PMR), Land Mobile Radio (LMR) and Terrestrial Trunked Radio (TETRA).

C & S Antennas offers a broad range of UHF, VHF and SHF antennas.

Directional Antennas

A range of Directional Panel Antennas, Stacked Dipole Array Antennas, Sector Antennas and a comprehensive portfolio of multi-element VHF/UHF & SHF yagi directional antennas. Serving markets such as PMR/ LMR /Trunked Radio, Broadcast, Air Radio, GSM-R and TETRA applications.
Produced to the highest quality standards, these robust antenna designs will ensure reliable operation in harsh environmental conditions. Low IMP rated models provide a consistently lower noise floor over the life of the antenna whilst some models are covered in a shroud ideal for in tunnel applications.

- Yagi Antennas
- Shrouded Yagi Antennas
- Stacked Dipole Array Antennas
- Directional Panel Antennas
- Sector Antennas
- Miscellaneous Antennas

Omnidirectional Antennas

Amphenol's colinear antennas are designed for deployment in VHF, UHF and SHF networks. A wide variety of options are available including gain, tilt, lightening protection and designs that have low passive intermodulation to minimize network interference.
Antennas are housed inside a high-strength glass fibre shroud and manufactured to the highest quality standard, ensuring long term, reliable operation.

- Colinear Antennas
- Centre-fed Dipole Antennas
- End-fed Dipole Array Antennas
- Ground Plane Antennas
- Miscellaneous Antennas

Indoor/Microcell Antennas

Amphenol's DAS, in-building and microcell antennas have been deployed by network operators worldwide to provide improved coverage in office buildings, campuses, tunnels and urban canyons. Our aesthetically pleasing, low profile designs are available in an assortment of directional and omnidirectional configurations giving network engineers the tools needed to optimize coverage in these difficult environments.
Innovative wide band, dual band and tri band configurations are available allowing one distributed antenna system to serve multiple service providers with minimum visual impact.

- Directional Antennas
- Omnidirectional Antennas

Accessories

- Phasing Harnesses
- Mounting Hardware

HF Antenna Systems (1.6-30 MHz)

C&S Antennas manufactures HF wire antennas for short, medium and long range communications. The antennas are designed for tactical, emergency and fast-reaction situations. Wires are Kevlar cored, copper braided and pvc coated with a no-kink feature. They are numbered for accurate set-up and are designed for the military environment with the solider in mind.

SOF230™ Special Forces Antenna Kit

Special Operations Forces Multi-Configurable Antenna Kit
The SOF230 antenna was designed specifically for the US Special Operations Forces for use in any environment that they may encounter. The SF230 antenna system has fifteen configurations including NVIS, Omnidirectional and Directional that cover short, medium and long range. The kit includes a counterpoise for use when poor ground conditions exist due to dry soil, such as desert conditions. The kit contains a 1:1 and 6:1 BALUN and terminating resistors that allow a broadband antenna to be erected if a tuner or coupler is not used or damaged in the field. All components are built to meet MIL-STD 810G and are extremely durable and long lasting.

MULTILITE™ Tactical Antenna (MTA)

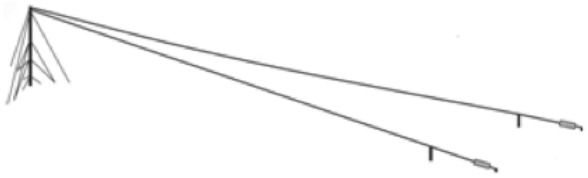
Multi-Configuration Hf Tactical Antenna Sy
The Multilite™ Tactical Antenna system or MTA is a key element in a communication system since its deployment can be controlled by the operator to suit all operational requirements. It is comprised of seven separate antennas for seven roles:

1. Horizontal dipole – omnidirectional at short or medium-range, broadside at long-range
2. Sloping dipole – omnidirectional for short/medium-range
3. Bent dipole – low frequency ground wave
4. Inverted L – low frequency ground waves
5. Base Feed Vertical – omnidirectional for ground and long-distance skywave
6. Sloping V – directional medium-range
7. Inverted V – inverted V long-range directional

LFH-230 FANLITE™

Omnidirectional Theater Range Hf Wire Ant

The LFH-230 FANLITE™ antenna is a lightweight, transportable HF wire antenna intended for omnidirectional skywave communications to a range of about 2,000 miles, including short-range Near Vertical Incidence Skywave (NVIS) operation. Supplied in a rapidly assembled kit form, the antenna is designed for use with C&S Antennas' telescopic CARRYMAST™. When erected on one of these masts, the LFH-230 FANLITE™ may be set-up by two people in less than 25 minutes.



LONGSHOT™

Tactical Long Range Hf Wire Anten

The Longshot™ is a lightweight, transportable HF wire antenna intended primarily for long-range skywave communications. Supplied in a rapidly assembled kit form, the antenna may be erected in a variety of long wire configurations (including a low profile, jam-resistant mode) to meet contingency. The Longshot™ has a 500 Foot Sloping Vee – Long-Range, Transmit/ Receive.

Man-portable Telescopic Masts

CARRYMAST™

CARRYMAST™ is a range of lightweight, man-portable carbon fiber masts available in 9m (30 ft), 10m (34 ft), 12m (38 ft) and 15m (50 ft) standard heights. These lightweight masts are designed to be carried by one person and can be erected in the field in minutes, even under severe weather conditions. CARRYMAST™ was designed to support C&S Antennas' range of Tactical HF Antennas Systems. An assortment of adapters and accessories are available to support UHF, VHF and microwave antennas as well.

- Rapid deployment, simple operation
- Low weight
- One or two man setup
- Robust and reliable, proven in action
- No pumps or winches necessary
- Compact stowed size
- Low radar cross-section
- Ice resistant
- MIL-STD 810C and NSN listed
- Multi-antenna capable
- Ground, hardstand or vehicle

CARRYMAST™ Accessories

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational

conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

Integral Tripod

- Used for temporary roof mounting
- Folds along mast body

Tilter / Positioner

- Used to provide boresight stabilization and elevation tilt of narrowbeam antennas

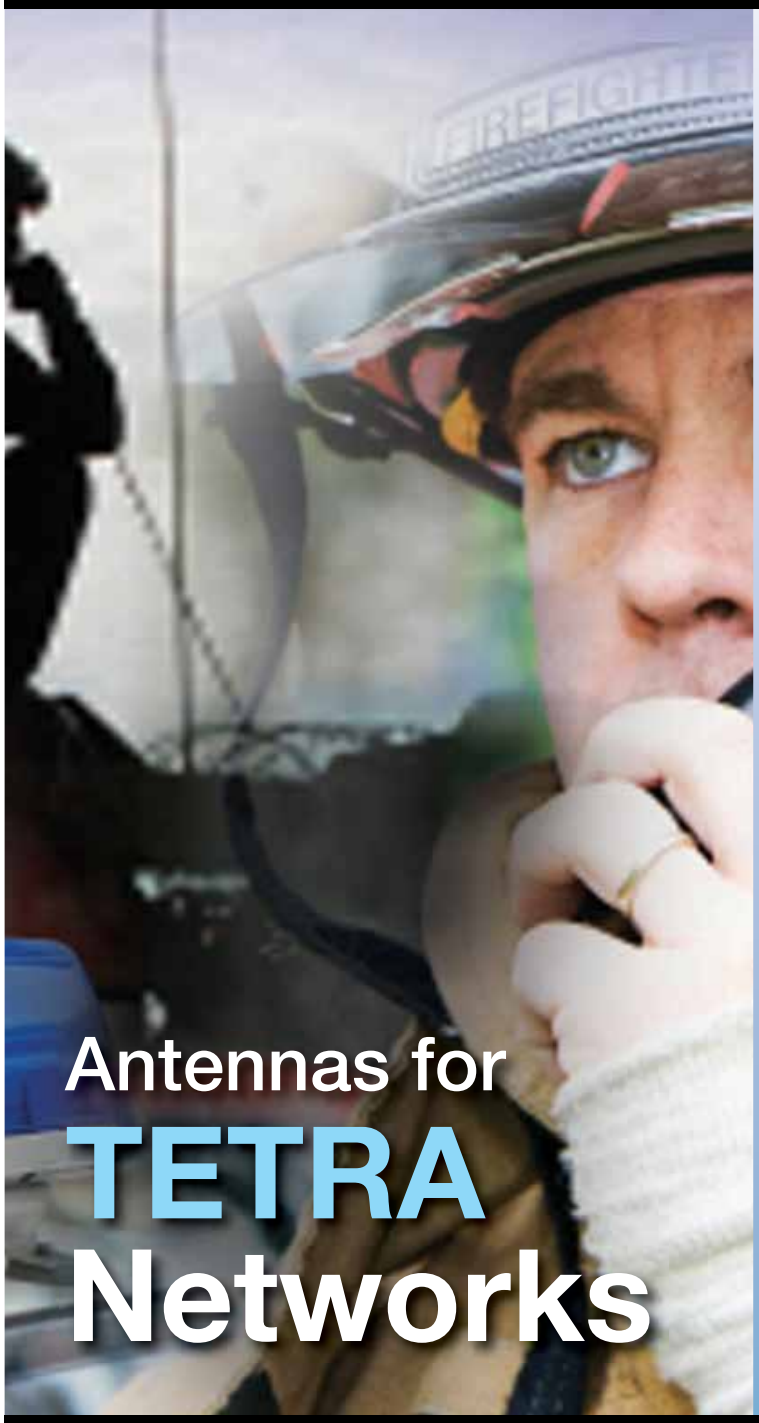
T-Bar Adaptor

- Enables two antennas to be mounted at mast head simultaneously
- Straps to mast body for transportation

Half-Way Up Adaptor

- Side mounting for antenna

Amphenol
ANTENNA SOLUTIONS



Antennas for TETRA Networks

Amphenol Antenna Solutions, designs and manufactures antenna technology for TETRA, PMR, Air Radio, Marine, Automobile and Broadcast industries. With over 80-years of experience, Amphenol's comprehensive range consists of 600 products serving system integrators, installer- and network operators.

Our Private Networks division offers a bespoke design service to create an antenna product that exactly matches the electrical and mechanical characteristics required by our customers, or, we can make minor modifications to existing designs, all tested in-house on our outdoor range and indoor anechoic environments.

Amphenol Antenna Solutions operates from eight strategically located manufacturing and R&D centres around the world: USA (2), Mexico, Brazil, France, UK, India and China. With teams of engineers in each regional market working directly with OEMs, operators, system integrators and installers, Amphenol remains at the forefront of relevant antenna design.

Amphenol
Turkey&MiddleEast

Fiber Optic

High Speed Fiber Optic Solutions

Tactical Network Solutions

Optical Interconnect Products

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.

High Speed Fiber Optic Solutions

Five Reasons to Upgrade to Fiber Optics:

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

Connector	Termination	Features
	MIL-PRF-29504	CF38999 pin and socket termini that feature high precision, pre-radiused ceramic ferrules to help improve insertion loss performance and reduce polishing time. Products are available in both single mode and multi-mode versions. The socket has a plastic protective shroud over the ceramic alignment sleeve that incorporates a built-in anti-rotation feature. HD20 - Pin and socket termini that have the same benefits of the MIL-PRF-29504 termini, but in a smaller size 20 contact that allows for increased density in D38999 connector shells.
	JSF	Tight tolerance, nickel-plated composite plugs and receptacles approved for use in F35/JSF applications.
	ARINC 801 termini	Genderless fiber optic termini that use a precision 1.25 mm ceramic ferrule. Precision inserts with guide pins and keyed termini enhance multi-mode and single mode performance. ARINC 801 termini facilitate an angled polish for improved return loss.
	MT ferrules	Industry-standard, very high density plastic ferrules available in either 12-fiber or 24-fiber versions, in multi-mode PC, single mode PC, and single mode APC configurations.

38999 ARINC 801

Features:

- Removable alignment sleeve insert for easy cleaning of fiber optic termini
- Three stages of alignment: shell-to-shell keys, guide pins and ceramic alignment sleeves
- Includes all of the features of standard D38999 straight plug and wall mount receptacle shells
  - Scoop-proof designs
  - Option for alternate keys and keyways
  - Rear accessory threads
  - Standard insertion/extraction tools (M81969/14-03)
- Genderless terminus allows for use on both sides of a connector
  - Precision ceramic ferrules and sleeves ensure accurate fiber to fiber alignment
  - Keyed to provide anti-rotation
  - Available with both PC and APC end-face finishes
  - Terminus body is crimped to the cable providing a "Pull- Proof" advantage

TVOP - LJTOP - RNJOP - STARTOP

TVOP, LJTOP, RNJOP and Startop product range offers the most comprehensive range of ruggedized optical connectors based on MIL DTL 38999 Series and its derivatives. More than ten years ago, Amphenol developed the first generation of optical termini for multiway connectors in accordance with the MIL 29504 specification. Combined with the MIL DTL 38999 serie III shells, the Startop offers the intermateability with other MIL 29504. The new generation TVOP, LJTOP, RNJOP uses the proven 38999 or derivated shell, and the standard termini (Ø 2.5 mm) which is designed to provide a high reliability performance and cost effectives solutions for outdoor and indoor applications. These products are widely used in navy, rail + mass transit, industrial, aeronautic civil and military applications.

- Wide range of various locking mechanism :
  - Screw
  - Bayonet
  - Rackable
- Developed for 100% Scoop proof and blind mating
- Up to 8 channels
- Wavelength 850 - 1300 nm -1550nm
- Multimode for all series
- Singlemode for TVOP and LJTOP

Multi Channel 38999 Fiber Optic

- Meets or exceeds MIL-DTL-38999 Series III requirements
- EMI Shielding-solid metal to metal coupling, grounding fingers, electroless nickel plating, and thicker wall sections provide superior EMI shielding capability of 65dB min. at 10 GHz.
- Termini Protection-recessed pins in this 100% scoop-proof connector minimize potential termini damage
- Corrosion Resistance-shells of stainless steel or cadmium over nickel plating withstand 500 hr. salt spray exposure
- Vibration/Shock-operates under severe high temperature vibration
- Threaded coupling quickly and completely mates in one 360° turn of the coupling nut

Additional, composite connectors features include:

- Lightweight - 17%-70% weight savings
- Increased Corrosion Resistance-olive drab cadmium (175°C) and electroless nickel plating (200°C) both withstand 2000 hours of salt spray exposure.
- Durability-1500 couplings minimum (in reference to connector couplings, not termini)

38999 Embedded LC

The patented RJStop® system allows use of a standard LC or LX5 patchcord in a metallic plug, which will protect it from shock, dust and fluids. There is no need for field termination.

This metallic plug is c onnected into a receptacle, using a Tri Start Thread coupling mechanism (MIL-DTL-38999 Series III type) with anti-decoupling device for high vibrations.

Features

- Sealed against fluids and dust (IP67)
- Shock and vibration proof
- No cabling operation in field and no tools required for installation

Specifications

Description	Measurement/Detail
Number of Channels	2
Typical Insertion Loss	0.5db in multimode and single mode
Durability	500 mating/unmating cycles

THDM Modular Series MT Connector System

Amphenol has announced the latest addition to its high density product portfolio. The THDM is a MIL-PRF-28876 derived mechanical transfer (MT) rugged fiber optic connector for military and aerospace applications.

Feature & Benefits:

- 3 configurations: 2, 4 and 8 MT ferrules for up to 192 fiber channels
- Ratcheting coupling nut for high vibration environments (derived from M28876)
- IP 68 sealing
- Removable and replaceable MT ferrules
- Expanded beam capable
- Environmental :
  - Operating temperature -54C to + 65C
  - 500 cycles mating durability
  - Vibration per MIL-STD-1344, method 2005
- Available in cadmium and nickel plated aluminum, stainless steel, PTFE and black anodize
- Performance :
  - IL: 0.5dB nominal MM
  - IL: 0.65dB nominal SM

Applications:

- Military and Aerospace • Shipboard • Oil & Gas

Lux Beam

Amphenol introduces the LUX-BEAM™ Single Expanded beam termini. A solution to upgrade the optical physical contact technology to an optical contacless technology. LUX-BEAM™ is easy to clean, less sensitive to pollution by dust or debris. The contactless coupling of LUX-BEAM™ is not subject to degradation of performances resulting from friction of optical surfaces as it usual is on traditional butt joint termini. With its patented pin to socket realignment feature, LUX-BEAM™ is compatible with connectors from different suppliers and provides an efficient adjustment to tolerances during mating. Per design, LUX-BEAM™ is as easy to install or replace as a FUSE on a patch board.

Features And Benefits

Expanded Beam technology

- Surface expanded bundle > 35X
- Reduced sensitivity to dust
- No degradation of the optical face
- Easy cleaning
- Low maintenance

Compatibility

- Cavity #12
  - MIL-DTL-38999 series III TV/CTV, EN3645
  - EN 4165 (SIM)
- Accept ARINC 801 or dia. 1.25 mm optical termini

Other benefits technology

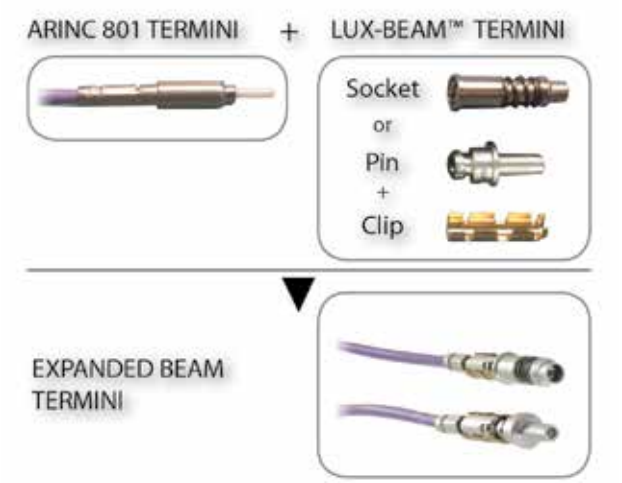
- Easy installation and replacement as a FUSE (without optical wiring)
- Realignment Patented, for compatibility with multisources connectors
- Possibility to mix with Electrical contact for Hybrid solutions

LRM with Fiber Optic Termini

High speed fiber optic transmission is available within LRM connectors for use in advanced avionics systems. Optical performance of fiber optic termini within in LRM connectors are the same as termini used in circular connectors.

Insertion losses range from .3dB to <1.5dB depending upon launch conditions, fiber NA, fiber size and the type of termination. Inserts for MIL-T-29504/1, /2, /14 and /15 can be incorporated. Termini for LRMs can be supplied - consult Amphenol Aerospace for ordering information. The termini are determined by insert and shell style of the connector.

LRM interconnects can have hybrid arrangements of fiber optics with Brush contacts, as well as other contact types.



Copper to Fiber 4G

Features and Benefits:

- No need for internal subsystem fiber harnesses, interconnect, or transceivers
- Utilizes copper transceivers and existing interconnect (backplane, harnessing, faceplate) for system fiber connection
- Media conversion at the connector reduces system complexity and cost
- APH Epoxy staking protects delicate fiber components for environment and assembly process

Overall Unit Dimensions:

- Connector + dog house
- 13 shell size + flex copper assembly; other shell sizes available
- PC tails available

Fiber Interface:

- Jamnut or flange mount
- Shell size 13 38999; options for EPX/ARINC 400/600
- MS29504 system fiber interface; options for expanded beam/ARINC 801/MT
- 2X bi-directional interfaces
- Speeds of 1G, 2G, 4G, 10Gbps
- Interface support for 1/2/4/8G FC and 1/10GbE; option for DVI, SFDP

Copper Interface:

- 2X high speed channels on 6.5 Gbps capable split pair quadrax PC tails or flex assembly
- Interfaces for power, diagnostics, and others

Ruggedization:

- Full ruggedization for environmentals and EMI/EMP
- Interfaces for power, diagnostics, and more

Copper to Fiber 10G

Features & Benefits:
- 1 channel (1 Tx, 1 Rx)
- D38999 Shell Size 11
- 10.3125 Gbps
- XAUI interface
- Built-in Test
- 12 dB worst case between transmit power and receive sensitivity
- Up to 10G Ethernet, 8G Fibre Channel, PCI-Express 3.0, DVI and more

Fiber Interface:
- Uses M29504/5 Fiber Termini

Copper Interface:
- Samtec EQDP Series

Ruggedization:
- Industry standard rugged transmitters and receivers -40˚C to +85˚C
- Qualified for Airborne and Ground Vehicles

Flexibility:
- Options for ARINC-801, MT, PC Tail Copper and more

Copper to Fiber Quad

Features & Benefits:
- Quadrax form factor embedded fiber optic transmitters and receivers
- Replace any quadrax pin in receptacle and configure with media conversion copper to fiber and fiber to copper
- Utilizes standard quadrax receptacle connectors and inserts

Fiber Interface:
- Industry standard 1.25mm fiber optic ferrules (LC & ARINC-801)
- Plug/socket side utilizes quadrax socket to ARINC-801 pin adapter for system fiber connection

Copper Interface:
- Speed support from DC to 10 Gbps in both transmitter and receiver
- PCB lead connection to customer circuit board or PCB lead connection to flex with nano

Ruggedization:
- Industry standard rugged transmitters and receivers -40˚C to +85˚C
- Components epoxy sealed in place

Cable Assemblies

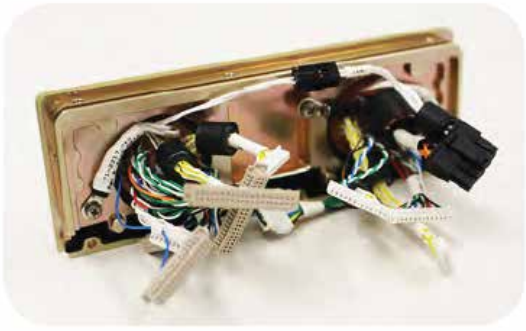
The D38999 circular connector series is designed for harsh environments, particularly those with wide temperature ranges and high mechanical vibrations. This electrical connector is adapted for fiber optics by using M29504/4 and /5 termini. These termini fit into any size 16 contact cavity.

Precise alignment is critical to fiber optic connectors. The tightly toleranced fiber optic D38999 connectors ensure precise alignment with precision-machined polarization keys and keyways which reduce radial misalignment. This precision yields superior optical performance when compared to standard D38999 connectors. Tight tolerance D38999 connectors also have a positive bottoming surface and conductive surface plating, assuring exceptional EMI/ RFI performance.

All D38999 connectors feature a non-conductive insert, making this an excellent connector choice when optical fibers and electrical wires must be used in the same connector. The D38999 series offers a wide range of shell sizes, backshells and insert patterns. Standard contacts and termini are available, making any design simple and cost-effective.

Features

- Rugged, multi-channel D38999 Series III connectors
- Incorporates proven M29504 termini
- Available in aluminum, stainless steel or composite materials
- Size 16 single and multimode termini
- Butt joint interface is guaranteed through a spring loaded terminus design



Amphenol

High Speed Solutions
CABLE ASSEMBLIES

Amphenol XXXX
HIGH SPEED SOLUTIONS

Amphenol
Turkey&MiddleEast

www.amphenol.com.tr
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Expanded beam technology expands and collimates the optical signal through the connector interface path resulting in a diameter many times that of the original beam. The optical beam is then refocused into the core of the receiving fiber. The larger beam diameter improves insertion loss performance in the presence of dust and debris. Also, because the lenses do not physically contact, there is no wear on the termini, which allows the connector to be mated and demated thousands of times without affecting optical performance.

Tactical Network Solutions

Amphenol provides Ethernet Network Solutions for use in harsh environments, where reliability and resistance to outside influences, such as temperature, shock, vibration, water, dust, etc. are paramount. Our rugged and durable solutions give you the assurance of a continuous and secure data transmission between all your communication equipments in the harshest environments.

Amphenol capabilities in Ethernet networks include:

Network Design
Network Evaluation
Network Gateways and Converters
Cable Assemblies and Accesorries
Measurement Equipment

CTOS

CTOS and CTOL series are robust optical connectors for rapid deployment of high-speed transmission links under harsh environments. The hermaphroditic mating makes it possible to “daisy chain” cable assemblies without using any interconnect adapters. The specific lens design guarantees a large beam diameter and a low loss connection, less sensitive to dirt and dust. A specific front design and ergonomic keys ensure blind mating. The flat protective window mounted On shock absorbers provides an easy to clean surface for improved performances and protection. CTOS and CTOL harnesses are easily and cost effective field maintainable with the FTOS splice kit.
Amphenol unique CTOS and CTOL design have already gained worldwide acceptance in the ground military using. CTOS has been qualified by NATO according to STANAG 4290 requirements. These products are also widely used in geophysical, civil safety, railway, broadcast and industrial markets.
In the CTOS, 1, 2 or 4 channels are inserted in a small size design (o.d. 38mm). CTOL is a CTOS larger version up to 8 channels (o.d. 52mm). CTOL is intermateable with CTO, the first expanded beam connectors version.

- Hermaphroditic interface with rapid ramp coupling
- Design for gloved handling and blind mating in difficult conditions
- Large expanded beam
- Anti-reflective protective window easily reached and cleaned
- The rubber ergonomic shell allows an easy handling with or without gloves and ensures a high protection against shocks
- Up to 8 channels
- Cost effective field repairs
- Multimode Wavelength 850 - 1300 nm (Z version); 1300 nm (Y version)
- Singlemode Wavelength 1300 - 1550 nm (W version)

AXOS

The Amphenol AXOS fiber optic expanded beam is a miniature, hermaphroditic and cost effective alternative to other expanded beam connectors, offering a robust and protected optical connection in a small size (OD 27 mm). This allows the user to establish a variable length daisy-chain link in both indoor and outdoor applications. The beam diameter makes the connection resistant to environmental contamination, temperature variations and humidity, while the design facilitates easy cleaning of the mechanical and optical connector parts.

Features

- 1, 2 or 4-channel plugs and receptacles with protective plastic caps
- Hermaphroditic interface with rapid ramp coupling
- Protective window to ensure an easy cleaning of the optical device
- Moving coupling nut allows cleaning the front mechanical parts
- Anti-corrosion metal body with ergonomic protective rubber shell
- Termination and maintenance tool kits available

Drums and accessories available

Specifications

Description	Measurement/Detail
Insertion Loss	1.5 dB typically; 2 dB max @ 1300 nm 1.6 dB typically/ 2.5 dB max @ 850 nm
Operational Wavelength	850 nm and 1300 nm
Fiber Size	50/125 and 62.5/125 µm
Cable Type	4 to 7 mm OD tactical tight structure
Durability	2500 mating cycles
Operating Temperature	-40°C +85°C

TACBEAM

Amphenol offers a MIL-PRF-83526/20A & /21A compliant expanded beam rugged fiber optic connector for military and industrial applications.
TACBeam® is hermaphroditic, which facilitates the concatenation of multiple cable assemblies to support varying distance requirements. The connector is available in both single mode and multimode versions, can be configured to support one to four fiber optic channels using a common insert and has been designed to accept a wide variety of cables to suit any application.

Features

- Supports both multimode and single mode fiber
- Expanded beam technology is less susceptible to dust and debris
- Monolithic insert design facilitates cleaning
- Hermaphroditic design enables daisy-chaining of cable assemblies to support varying distances
- Non-contacting interface allows thousands of mating cycles

Specifications

Description	Measurement/Detail
Insertion Loss	≤2.0 dB multimode, ≤2.5 dB single mode
Return Loss	≥-31.0 dB mated, ≥-34.0 dB unmated
Mating Durability	>2000 cycles
Operating Temperature	-46°C to 71°C
Transit Temperature	-54°C to 71°C
Storage Temperature	-57°C to 85°C

TFOCA

The TFOCA connector is a hermaphroditic design utilized for tactical deployable communications systems. This genderless characteristic allows for concatenations of cable assemblies without regard for connector interface compatibility.
The ruggedized connector and housing will withstand the repeated handling and mating cycles typically required for rapid fiber optic cable deployment and retrieval in a tactical environment.

Features

- Hermaphroditic design ideal for deployable conditions
- Replacement for US Army and US Marine Corps legacy TFOCA (AT&T)
- Multimode
- Field maintainable and repairable
- Biconic termini

Benefits

- The TFOCA's unique design and environmentally protected construction provide protection from high compressive and tensile loads. Seals at every interface ensure outstanding resistance to moisture penetration. The cable termination is designed to firmly anchor the cable Kevlar® strength members to the connector housing without special tooling. The AFSI TFOCA connectors can be terminated and repaired in the field using existing US Army equipment or the AFSI TFOCA Termination Kit (P/N KTBK7000).

TFOCA-II® 4-Channel
TFOCA-II® 12-Channel
TFOCA-II® EX
TFOCA-III®

The heart of the TFOCA-II® family of deployable fiber optic connectors centers on the TFOCA-II® sealed free floating termini. The unique termini design enables TFOCA-II® connectors to seal against high humidity and moisture conditions while allowing full axial and orbital movement of the mated termini, providing low insertion loss and minimal back reflection.

Features

- Hermaphroditic design for versatility, enables multiple TFOCA-II® plug assemblies to be concatenated
- Removable end cap, allows for easy field maintenance and cleaning
- 4-channel connector design, two fold improvement over TFOCA with better optical performance
- 12-channel connector design - six fold channel increase over TFOCA with better optical performance
- TFOCA-II® EX connector to provide fiber optic connectivity in Zone 1 and Zone 21 hazardous environments. AFSI was awarded an ATEX certification number (09ATEX1033X) from Sira for its fiber optic 4-channel TFOCA-II® hermaphroditic plug and receptacle connectors.
- 6 & 24-channel connector design is ideal for high-density harsh environment applications
- Improved cable retention strength, designed to meet 400 lb pull strength while protecting fibers from stress
- Zn-Ni plating, provides substantial longevity to corrosive environments. Meets new mandate set by the Environmental Protection Agency for eliminating heavy metal plating
- Commercial ceramic ferrule technology, enables TFOCA-II® connector to provision multimode and single mode interconnect with a variety of polishes including SPC and UPC
- Solid core alignment sleeves, more robust than split alignment sleeves
- Hermaphroditic dust cap, plug and/or receptacle dust caps connect together to prevent dust and moisture penetration during deployable conditions
- Field repairable using existing parts, additional connector components (other than termini) are not required to perform field repair
- Also available in stainless steel and brass, allowing the connector to be used in a variety of applications

TFOCA-XBT4™

The TFOCA-XBT4™ is the next logical step, integrating expanded beam technology into the most popular harsh environment fiber optic connector in the world.
Features:

- Expanded beam technology less susceptible to contaminants affecting optical performance
- Available in both multimode and single mode fiber
- Hermaphroditic design enables daisy-chaining of cable assemblies to support varying distances
- Non-contacting interface allows thousands of mating cycles
- 2 and 4-channel configurations available
- Cable retention designed to meet 400 lb pull strength while protecting fibers from stress
- Zn-Ni plating, provides substantial longevity to corrosive environments. Meets new mandate set by the Environmental Protection Agency for eliminating heavy metal plating
- Easy field maintenance and cleaning
- Also available in stainless steel and brass, allowing the connector to be used in a variety of applications

mTACh

Features

- Hermaphroditic design facilitates concatenation
- Single mode and multimode versions
- Compact size
- Multiple finishes and materials available
- RoHS compliant
- Environmentally sealed
- 2000 mating cycles durability

Performance

- Insertion loss (SM or MM): -0.75dB max

Ethernet Switches & CTOS Media Converters
Ethernet Switches & TACBEAM Media Converters

Our Ethernet Switches, the heart of the network, meet the following standards:
MIL-STD-810 (environment)
MIL-STD-461 (EMI)
MIL-STD-704 or MIL-STD-1275 (power)

Our range of Media Converters and Connectors Adapters:
Ethernet Copper/Fiber optic
Ethernet/CAN Bus
RJ45/Quadrax adapters
RJ45 and USB/38999 adapters

Our Network Design is 100% secure for data transmission with:
MIL-STD standards compliance
Resistant components selected to support extreme conditions

TACBeam® FOM

Amphenol offers the TACBeam® Fiber Optic Modem (FOM) to provide optical-electrical (O-E) and electrical-optical (E-O) conversion for harsh environments. This stand-alone unit features ruggedized optical transceivers integrated in a compact housing with single or dual T1 RJ48 electrical interfaces and TACBeam® 4-channel expanded beam connector.
The TACBeam® FOM's compact size also significantly reduces the footprint devoted to O-E and E-O conversion. The standard TACBeam® FOM provides conversion for G.703 T1 (1.544Mb/s) electrical signals via a standard RJ-48 to multimode optical signals via TACBeam®. The TACBeam® is compliant to the M83526/20 & /21 specification and uses expanded beam technology to reduce the impact of particulate matter on the optical performance. Expanded beam technology also facilitates the cleaning of the connector, reducing maintenance costs and improving up-time. Because the connector faces do not touch, the TACBeam® can be mated/demated more frequently than traditional physical contact connectors.

MediaTAC

Amphenol offers MediaTac harsh environment fiber optic active cable assemblies for oil & gas land seismic and military applications. Active cable assemblies allow equipment manufacturers to enjoy the advantages of fiber optics (lighter weight, longer distances, higher bandwidth, and EMI immunity) over copper without needing to redesign their external interfaces.

The MediaTac supports bi-directional operation and can provide full duplex transport of 10/100 BaseT Ethernet over one single mode or multimode fiber.

In addition, the unit can be configured to support simplex (one single mode or multimode fiber) or full duplex over two single mode or multimode fibers. The unit is equipped with a universal adapter plate, allowing the user to select a simple cable entry or various fiber optic connector interfaces (mTACh,TFOCA-II®,TACBeam®), depending upon requirements.

Ideal for extended outdoor use, the MediaTac is sealed to IP68 and is equipped with a sacrificial anode used to protect a submerged MediaTac from corrosion. The unit can be specified with rugged tactical or Amphenol's ArmorLite rodent-resistant fiber optic cable.

Features

- Active plug eliminates system redesign when converting to fiber optic transport
- Extensive sealing and sacrificial anode allows the unit outdoor exposure indefinitely
- Supports simplex or full duplex transport over a single fiber
- Supports single mode or multimode fiber
- Auto-configurable 10/100 Base T
- Universal adapter plate allows straight cable entry or your choice of harsh environment connector types

TFOCA-II® Fiber Optic Modem

Amphenol offers the TFOCA-II® Fiber Optic Modem (FOM) to provide optical-electrical (O-E) and electrical-optical (E-O) conversion for harsh environments. This stand-alone unit features ruggedized optical transceivers integrated into a compact housing with 10/100/1000 Ethernet electrical interface and TFOCA-II® connector.

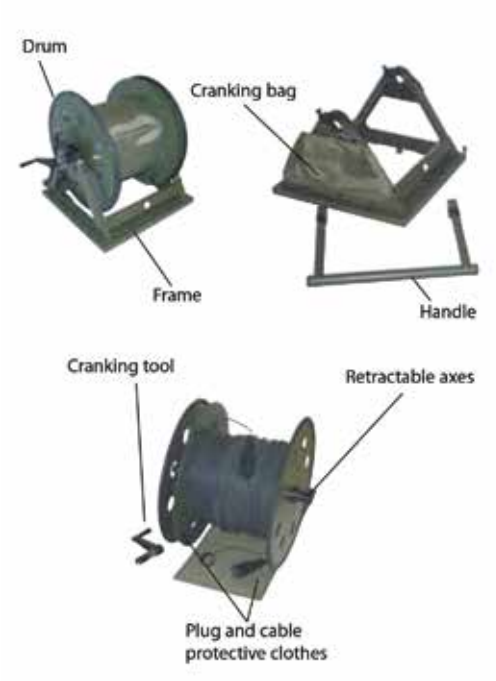
The "plug and play" unit allows systems engineers to effortlessly convert their systems to take advantage of the benefits of fiber optics without the need to design and develop harsh environment fiber optic transceivers and associated electronics. Also, the TFOCA-II® FOM's compact size significantly reduces the footprint devoted to O-E and E-O conversion using discrete components. The standard TFOCA-II® FOM supports conversion for 10/100/1000 (auto adaptable) Ethernet providing up to 1.0Gb/s transport over 10 miles using single mode fiber. The unit incorporates TFOCA-II® field-proven connector (US Army standard fiber optic connector) with hundreds of thousands of units deployed. The rugged four-channel TFOCA-II® is hermaphroditic, allowing the user to easily concatenate cable assemblies in the field to meet the required length.

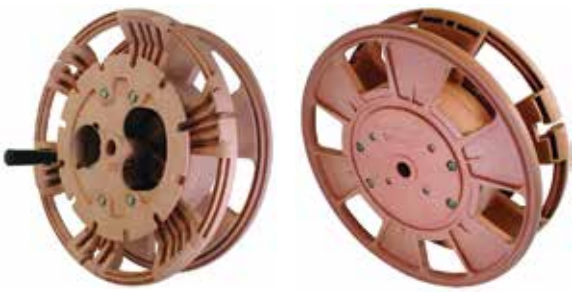
Features

- Effortlessly converts systems to fiber optics (longer distances, EMI/RFI immunity, lighter weight) without major system design/redesign
- Compact size significantly reduces O-E/E-O conversion compared to traditional discrete designs
- Harsh environment transceivers support extended temperature range and military vibration/shock requirements
- Supports single mode or multimode operation
- Supports single or dual auto-adaptable 10/100/1000 Ethernet O-E/E-O conversion
- Compliant with IEEE 802.3
- Field-proven TFOCA-II® connector

DRUMS

Amphenol can offer a wide range of tactical cable drums designed to cater for deployable harsh environment optical links. Drums are available in a variety of applications, sizes, materials, accessories, and for various diameters and lengths of cable.





Tactical Cable Assemblies

Amphenol builds custom cable assemblies for virtually any applications. Our stringent quality system, certified to MIL-STD-790, ensures the highest levels of workmanship and performance available today in each and every cable assembly built.

In addition to 100% optical performance testing, Amphenol also provides value-added services such as thermal cycling, high-temperature aging, and other post-build environmental testing.

- Expanded Beam, Lens and Window technology
- Stainless steel and rubber protection
- Hermaphroditic & easy daisy chaining
- Singlemode & Multimode option
- Ethernet & RF compliant
- STANAG 4290 compliant

Amphenol

GLOBAL ETHERNET NETWORK SOLUTIONS

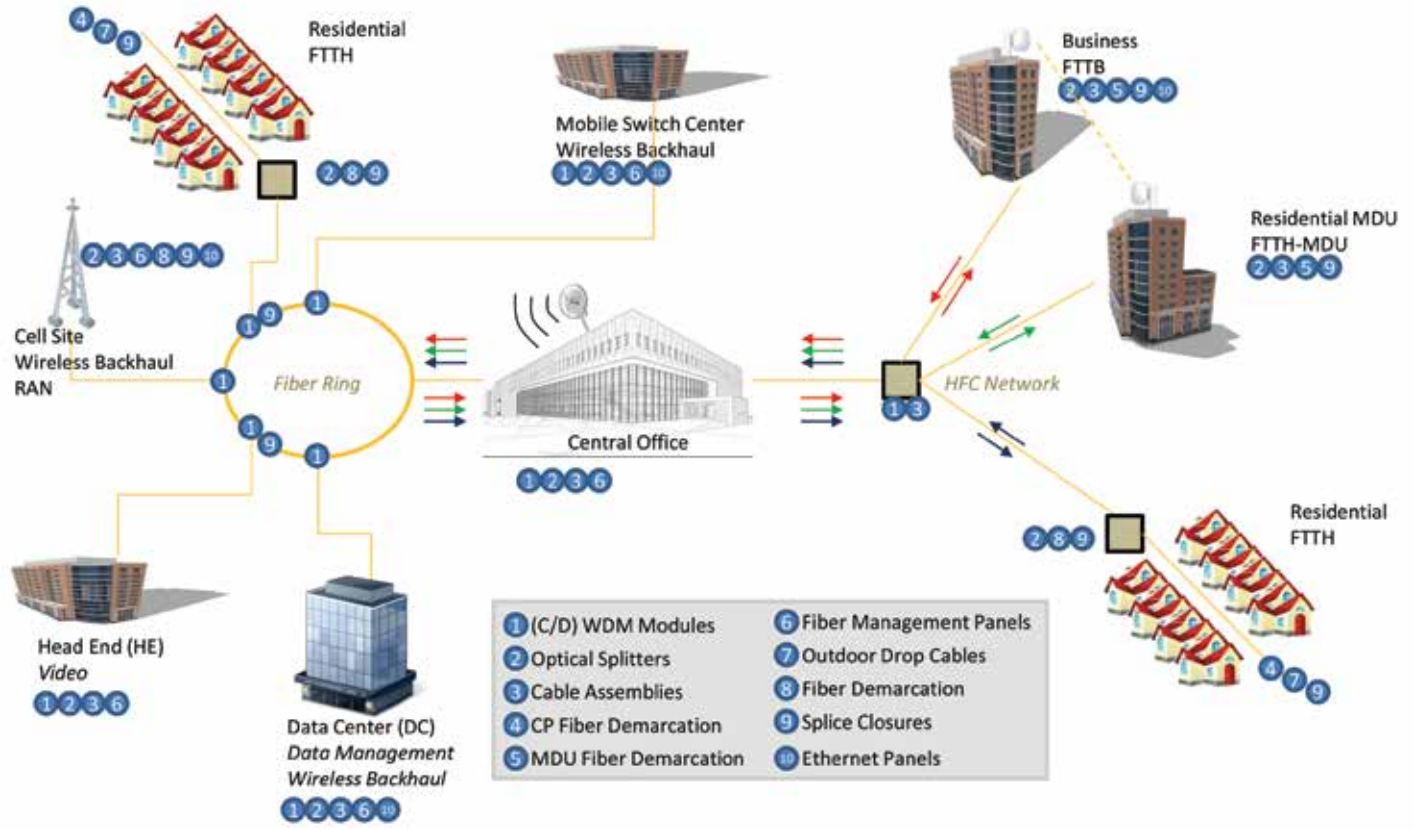
Network Design & Evaluation

Amphenol
Turkey&MiddleEast

www.amphenol.com.tr
sales@amphenol.com.tr

Amphenol is a premier manufacturer of optical interconnect products. Amphenol's experience in fiber optics dates back more than thirty years when the company developed the first industry standard connector, the SMA. The product line rapidly expanded to include other popular connector types, cable assemblies and optical couplers. Today, Amphenol Fiber Optic Products is an ISO 9001 certified company providing complete fiber optic interconnect solutions. A broad product offering includes fiber management systems, cable assemblies, adapters, attenuators, couplers and wavelength divison multiplexers for use in virtually any fiber optic application.

Optical Interconnect Products



Indoor Cable Assemblies

- Amphenol offers a wide variety of standard optical connectors and cable assemblies, including:
  - LC
  - SC
  - MTP/MPO
  - ST
  - FC
  - MU
  - MT-RJ

- Multitude of cable types available, including:
  - OS1, OM1, OM2, OM3, OM4, and bend insensitive versions
  - Simplex, zip cord, ribbon, distribution, breakout, outside plant, etc.

Service Cables (Node Cables)

Amphenol's Service Cable Assemblies are primarily used to link the fiber optic transport cable directly to the fiber optic processing equipment. This connection is critical and requires an environmental seal between the cable and the node housing. Amphenol's Service Cables utilize a unique feed-through adapter, featuring an anti-twist coupling body. The anti-twist feature, allows the coupling body to be secured to the outdoor housing, without twisting of the cable. Amphenol's Service Cables also use a fully water blocked loose tube cable, with either armored or non-armored versions available. Assemblies can be equipped with a variety of breakout lengths, fan-out types or connector options.

Connectors and Adapters

FC Connectors and Adapters

LC Connectors and Adapters

MPO Adapters

SC Connectors and Adapters

ST Connectors and Adapters

AMPHENOL

HIGH SPEED SOLUTIONS

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

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

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.

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