Amphenol Interconnection Products

Today's Broadest Range of Interconnection Solutions.
For Military, Commercial and Industrial Applications.

SL-100-9

Amphenol

Amphenol® /Pyle® /Matrix ® Interconnection Products

Designed and produced in accordance with exacting engineering, manufacturing and quality standards.

TABLE OF CONTENTS

NOTE: Many of the connector products in this brochure were formerly known as Bendix® products. These products are now manufactured and sold under the Amphenol® brand name. The “Bendix” brand name may appear for a period of time in some of the catalogs which are referenced here. The name “Amphenol” will replace the name “Bendix” on products and literature in the future.

This publication is intended to illustrate and briefly describe the Amphenol/Pyle/Matrix Interconnection Product Lines. The sections of this brochure are by family types. Each type of connector is available in a variety of sizes and configurations.

A literature number is given following each product description for the available detailed catalogs for each product. These detailed catalogs include dimensional drawings, insert patterns and how to order information. If more information is needed concerning the products in this publication, or if you have any special application needs, please contact your nearest Amphenol sales office or Amphenol Corporation at the address listed below.

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AMPHENOL’S NEW WEBSITE:

(www.amphenol-aerospace.com)

We invite you to visit our new website, launched October 2000, to view this catalog and several of the detailed catalogs that are referenced herein. Catalogs on-line can now be downloaded to your computer and printed either as single page or multi-page documents. Catalogs will be added and updated on an on-going basis to the website.

WHAT’S NEW IN THIS CATALOG PRINTING:

- Please note within this new catalog printing: MIL-DTL-38999 supersedes MIL-C-38999
- New Pre-Earth First Mate/Last Break (FMLB) Connectors (page 10)
- New Fiber Optic product offerings (pg. 18): Cylindrical MT Series and hybrid rectangular connectors with fiber optic termini and brush contacts in the same connector
- See reference to new Amphenol publication (12-170) on Cylindrical Connectors for Printed Circuit Board Applications - description on page 22.
- See reference to new Amphenol publication (SL-388) on Concentric Twinax Contacts, PC Tail Twinax Contacts and Reduced Component Twinax Contacts - description on page 31.

Amphenol Aerospace Products

Amphenol® /Pyle® /Matrix® Interconnection Products

SUBMINIATURE CYLINDRICAL CONNECTORS

MIL-C-27599 Solder

MS20026	LJT00
MS20027	LJT01
MS20028	LJT06
MS20029	LJT07
MS27334	JT00
MS27335	JT02
MS27336	JT06
MS27337	JT07

MIL-DTL-38999* Series I & II

MS27466	LJT00R
MS27467	LJT06R
MS27468	LJT07R
MS27469	LJT00Y
MS27470	LJT07Y
MS27471	LJTIY
MS27472	JT00R
MS27473	JT06R
MS27474	JT07R
MS27475	JT00Y
MS27476	JT02Y
MS27477	JT07Y
MS27478	JTIY
MS27479	JTS00R
MS27482	JTS00Y
MS27483	JTS07Y
MS27484	JTG06R
MS27496	LJT02R
MS27497	JTPQ00R
MS27499	JT02R
MS27500	JT08R
MS27503	JTSIY
MS27505	LJTP02R
MS27508	JTP02R
MS27656	LJTPQ00R

MIL-DTL-38999* Series III

	Metal	Composite (CTV)
D38999/20	TVP00R	CTVP00R
	TVP02R	CTVP02R
D38999/26	TV06R	CTV06R
D38999/24	TV07R	CTV07R
	TV01R	CTV01R
	TV09R	
D38999/21	TVPS02Y	Hermetic
D38999/23	TVS07Y	Hermetic
D38999/25	TVSIY	Hermetic
D38999/27		
D38999/29	TV Failsafe Lanyard Release Plug	
D38999/30	TV Failsafe Lanyard Release Plug	
D38999/31	MIL-STD-1760 Plug	

Other Proprietary (D38999 Type)

T-Line Series SJT STV

MIL-C-81511

M81511/01E	348-40E
M81511/03E	348-43E
M81511/05E	348-41E
M81511/06E	348-46E
M81511/18	348-140
M81511/21E	348-30E
M81511/23E	348-33E
M81511/25E	348-31E
M81511/26E	348-36E

ENGINE CONNECTORS (CLASS K FIREWALL)

D38999/20	BACC63BR/BT/CN/CM
D38999/24	BACC63X
D38999/26	M83723/82-92
ESC-10, -11	M83723/95,/96,/97
EN2997	ASN-EO

MIL-C-26500 types: FPK, FPL, FP5K, FYL

* MIL-DTL-38999 supersedes MIL-C-38999

MINIATURE CYLINDRICAL CONNECTORS

MIL-C-26482 Series 1 Solder

MS3110	PT00
MS3111	PT01
MS3112	PT02
MS3113	PTIH
MS3114	PT07
MS3116	PT06

MIL-C-26482 Series 1 Crimp

MS3120	PT00SE
MS3121	PT01SE
MS3122	PT02SE
MS3124	PT07SE
MS3126	PT06SE
MS3127	MF02SE
MS3128	MF00SE

MIL-C-26482 Series 2

	Amphenol Part No.	Matrix Part No.
MS3470	PTS00DR	MB10
MS3471	PTS01DR	MB13
MS3472	PTPS00DR	MB11
MS3474	PTS07DR	MB14
MS3475	PTGS06DR	MB16
MS3476	PTS06DR	MB18

Other Proprietary (MIL-C-26482 Type)

PT-CE	SP-CE	PC-SE
SP	PC	PC-CE
SP-SE	Matrix MBL	AIPT

MIL-C-83723 Series III

Available in Pyle or Matrix Part No.

M83723/71 thru /78
M83723/82 thru /92
M83723/95, /96

Matrix only: M83723/66 thru /69 Quick Disconnect

MIL-C-26500

MS24264	ZZY
MS24265	ZZW
MS24266	MS27613
BACC45FN, FT, FS, FM	MS27614
BACC63BP, BV	MS27615
BACC63CB, CC	

Other Proprietary

67 Series 165 Series

EMI FILTER/TRANSIENT PROTECTION DEVICES

Intermateable with/Features of

- FTV - MIL-DTL-38999 Series III
- FJT - MIL-DTL-38999/27599 Series II
- FLJT - MIL-DTL-38999/27599 Series I
- FSJT - Proprietary SJT
- FBL - MIL-DTL-38999 Series IV
- FPT - MIL-C-26482 Series 1 & 2, MIL-C-83723 Series I

Other EMI Filter/Transient Protection Devices

MOVs	Hermetic Filters
Diodes	Programmable
ESA	Front Repairable
EMP	Filter Adapters
"AN" Filters	Filtered Plugs

STANDARD/HEAVY DUTY CYLINDRICAL CONNECTORS

Amphenol MIL-C-5015

Solder	Solder	Crimp
MS3100	97-3100*	97-4100*
MS3101	97-3101*	97-4101*
MS3102	97-3102	97-4102
MS3106	97-3106*	97-4106*
MS3107	97-3107*	97-4107*
MS3108	97-3108*	97-4108*

*Available in Environmental E Style
97 Series is UL Approved file E115497(N) and CSA Approved certification file LR69183

Matrix MIL-C-5015

Crimp Rear Release

MS3450	9440
MS3451	9441
MS3452	9442
MS3454	9444
MS3456	9446
MS3459	9816
	9817, 9818 Quick Disconnect

QWLD	Class L
MS17343	MS90555
MS17344	MS90556
MS17345	MS90557
MS17346	MS90558
MS17347	
MS17348	

Proprietary

GT Series (Reverse Bayonet)

GT-A	GT-G	GT-AGG
GT-AF/F	GT-R	GT-PP
GT-CF/CFZ	GT-RV	GT-PC
GT-CFGG	GT-E	GTC-M
GT-LCF/LCFZ		

Other Proprietary

QWL	BT-M
DC Series	BT-RA
7 Series	QDP
AC Threaded	
AC-B Reverse Bayonet	

RECTANGULAR

MIL-C-55302

M55302/166	MB ( )-( )P
M55302/167	MB ( )-( )W
M55302/168	PC ( )-( )P
M55302/169	IO ( )-( )C
M55302/169	IO ( )-( )P
M55302/170	DB ( )-( )P
M55302/67-69	PCB 90A
M55302/70-71	PCB 100A
M55302/76-77	PCB 100B
M55302/74-75	PCB 100C
M55302/72-73	PCB 150A

LRM Surface Mount

Series available in 80-472 positions
SEM-E Format available
Power Supply, RF and Fiber Optic Modules

Other Rectangulars

LPSRC	LE	LMD
SR	LPX	LMS
217 Series		

Other product offerings include:

- Fiber Optics: CF- Part Numbers
- Data Bus Systems
- Contacts and M85049 Accessories
- Stinger Missile Products
- Freight-mate Cable Assemblies
- ACT Flex Termination Assemblies

Amphenol Aerospace is a Certified ISO 9001 Manufacturer.

Subminiature Cylindrical
MIL-DTL-38999, MIL-C-27599, MIL-C-81511

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4

DESIGN CHARACTERISTICS

- **Lightweight, compact, hi-contact density** cylindrical
- **Operating voltage to 900 VAC (RMS)** at sea level
- **Environmental resistant**
- **Quick positive coupling** assured by three point bayonet coupling system
- **Visual confirmation** of complete coupling
- **Eliminates mismating** by the use of five key/keyway guide design
- **Error proof alternate positioning** insured by rotation of master keyway location during machining of shell

CUSTOMER OPTIONS

- **Five mounting styles** provide maximum flexibility in product design
- **Nine shell sizes** - 8 through 24 or 9 through 25
- **Fifty-six different contact arrangements** - accommodate minimum of three circuits to a maximum of one hundred and twenty-eight circuits
- **Solder or crimp** rear release contacts
- **Sizes 22D to 12 contacts** accept wire sizes 28 through 12 AWG
- **Eight finishes** provide protection in a wide variety of corrosive and mechanical environments
- **Push-Pull, space-saving T-Line series** available
- **Coaxial (shielded), twinax, triax, PCB, wire wrap and thermocouple contacts** optional
- **Hermetic seal (glass fusion) receptacles**
- **Firewall Capability** - qualified to MIL-DTL-38999 Series III, Class RK, RS
- **Quick disconnect "Breakaway" connectors** available within Series III (Tri-Start), Series I (LJT) and Series II (JT) - see page 13

JT, MS-JT

1. For applications requiring maximum weight/space savings and reliability. Also available in designs approved to MIL-DTL-38999 Series II (crimp termination) and MIL-C-27599 Series II (solder terminations).

Catalog 12-090 (Crimp), Product Data Sheet 158 (Solder)

LJT, MS-LJT

2. Popular 100% "scoop-proof" (recessed pins) version of the JT family. Shell design is such that contacts cannot be bent or damaged by improper mating. The LJT offers maximum contact protection against bending and user aggressiveness. Also available in designs approved to MIL-DTL-38999, Series I (crimp termination) and MIL-C-27599, Series I (solder termination).

Catalog 12-090 (Crimp)
Product Data Sheet 158 (Solder)

SJT

3. A further expansion of the basic JT family, incorporating the LJT 100% scoop-proof feature and standard mounting dimensions of JT types.

Catalog 12-091

T-LINE SERIES

4. Pyle-National® T-Line subminiatures are a push-pull, space saving connector design utilizing MIL-DTL-38999 inserts and standard M39029/56,/58 series contacts. Easily adapted for lanyard release or in-line applications. For applications requiring a larger push-pull connector design, the T-Line series now offers larger shell sizes and increased contact densities per MIL-DTL-38999.

Bulletin TL-100

5

MIL-DTL-38999, SERIES III

5. Amphenol® Tri-Start™ and Pyle-National® subminiatures designed for general duty as well as severe environmental applications, completely mate in one full turn. Lockwiring is eliminated in this self locking, quick coupling connector. Superior EMI shielding is achieved through the combination of grounding fingers and solid metal to metal mating. Universal mounting holes for front or rear mounting, and locksmith metal keying to aid in blind mating. Potential contact damage is minimized in this 100% "scoop-proof" MIL-DTL-38999 Series III threaded connector. Also available in a complete line of stainless steel firewall connectors qualified to MIL-DTL-38999 Series III.

Catalog 12-092

COMPOSITE TRI-START

6. Tri-Start Composite Connectors are Military Qualified to MIL-DTL-38999, Rev. J. They are intermateable with metal MIL-DTL-38999 Series III and equivalent commercial product in the field today. These connectors provide the highest performance capabilities for both general duty and severe environment applications. Utilizing standard inserts, contacts and assembly procedures the composite connector affords a lightweight, corrosion resistant product. EMI shielding effectiveness capabilities exceed the requirements of military specification MIL-DTL-38999 Series III. Standard Mil Spec features retained in the composite design include "scoop-proof" recessed pin contacts, quick coupling, moisture resistance and operation under high temperature vibration thru 200° C.

Catalog 12-092

6

STV

7. The STV connector is based on the Tri-Start, MIL-DTL-38999 Series III connector. It expands the Tri-Start (TV series) with a product offering for manned space applications. It is intermateable and intermountable with the NASA SSQ-21635 NATC types as well as the European ESA Specification SCC3401.

Consult Amphenol, Sidney NY for further information

348 SERIES II

8. To meet general duty requirements the Amphenol® 348 Series II connector gives high reliability and high contact density. The 348 Series II MS version is approved to MIL-C-81511 Series II (crimp termination).

Catalog 12-093

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348 SERIES I

The Amphenol® 348 Series I offers the features of the 348 Series II connector plus 100% scoop-proof design (recessed pins). The shell design is such that contacts cannot be bent or damaged by improper mating. The 348 Series I MS version is approved to MIL-C-81511 Series I (crimp termination).

Catalog 12-093

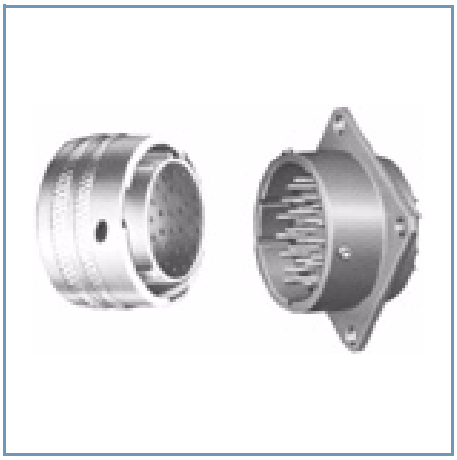
Tri-Start Connector U.S. Patent No. 4,109,990

Tri-Start Composite Connector U.S. Patent Nos. 4,268,103, 4,648,670, 4,682,832, 4,703,987

Note: MIL-DTL-38999 supersedes MIL-C-38999

Miniature Cylindrical
MIL-C-26482, MBL Series, AIPT, 67 & 165 Series

1



2

MIL-C-26482 FAMILY DESIGN CHARACTERISTICS

- **Medium size,** widely used cylindrical
- **Operating voltage to 1,000 VAC (RMS)** at sea level
- **Environmental resistant**
- **Quick positive coupling** assured by three point bayonet coupling system
- **Visual confirmation** of complete coupling
- **Eliminates mismating** by the use of five key/keyway design
- **Several finishes available;** standard is cadmium, cadmium-free is also available

MIL-C-26482 FAMILY CUSTOMER OPTIONS

- **Seven mounting styles** provide optimum flexibility in product design
- **Ten shell sizes -** 6 through 24
- **Solder or crimp** front and rear release contacts
- **PT Solder is UL recognized** under file #E115497, Section 5
- **Sizes 20 through 12 contacts** accept wire sizes 20 through 12 AWG
- **Seven finishes** provide protection in a wide variety of corrosive and mechanical environments
- **Coaxial (shielded), thermocouple and PCB contact** options
- **Hermetic seal (glass fusion) receptacles**
- **Threaded and bayonet coupling series** available
- **Alternate positioning**
- **Stainless steel shells**
- **Miniature "Breakaway" connectors** available which incorporate MIL-C-26482 receptacles and specially designed plugs with lanyard release mechanism (See pg. 13)

PT, MS/PT

1. Basis for popular miniature line, incorporating bayonet coupling and solder contacts. Also available in MS approved designs to MIL-26482 Series 1, Service Classes E, F & P.

PT-SE, MS/PT-SE

2. A derivative of the basic PT line incorporating crimp, front release removable contacts. The MS version is approved to MIL-C-26482 Series 1 with MIL-C-39029 contacts.

PT-CE

Miniature connector featuring crimp, front release removable contacts and a voidless one piece insert and grommet assembly offering continuous dielectric separation between contacts.

Catalog 12-070

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4

PTS-DR, MS/PTS-DR

3. A series featuring the latest innovations in miniature cylindrical connector technology including crimp rear-release removable contacts, dielectric retention, electroless nickel plate, inserts with "hard faced" closed entry socket design, and temperature capabilities to 392°F. Also obtainable as MS versions in accordance with MIL-C-26482 Series 2.

PC

4. An additional derivative of the basic PT line with double stub thread coupling, solder contacts, single key polarization. This series has performance levels equal to the PT series.

Catalog 12-070

PC-SE, PC-CE

Threaded coupling and crimp, front release removable contacts. Engineered for applications requiring a threaded coupling and the convenience of crimp contacts.

Consult Amphenol Aerospace
for further information

5

MATRIX MIL-C-26482, SERIES 2

5. Amphenol broadens their miniature cylindrical family of products with the Matrix® MIL-C-26482, Series 2. These are bayonet coupling type, and they feature crimp contacts that are rear insertable and rear releaseable. Six shell styles are available and 34 insert arrangements. Military numbers include: MS3470 - MS3472, MS3474 - MS3476.

Catalog 12-071

MATRIX MBL SERIES

6. Within the Amphenol®/Matrix® MIL-C-26482 family, the lightweight, environmental resisting MBL Series is offered. This is a bayonet locking connector available with rear insertable and rear releaseable contacts. Four shell styles and 31 insert arrangements make up the MBL Series offering. Meets all requirements of NAS1599 Standards. Aerospatiale part numbers: ASN-E0052, through -E0053 and -E0054.

Consult Amphenol, Sidney NY for further information

AIPT SERIES

7. Amphenol Aerospace announces the offering of the AIPT series, a PT MIniature cylindrical connector modification. The AIPT uses modified standard MIL-C-26482 shells to insure the proven durability of the PT series, along with a UL approved plastic insert with a closed entry design on the socket insert to prevent contact probe damage. Stamped and formed crimp or PC tail contacts with first mate/last break capability are available. Crimp contacts are offered on reels, quantities to customer specifications.

Product Data Sheet No. 186

6

67 SERIES

8. A lightweight, durable, environmentally sealed connector with gray anodized aluminum shell; positive locking bayonet coupling. This series meets or exceeds temperature and moisture resistance requirements of MIL-C-5015 with half the weight of MS Standard cylindricals. UL approved under recognition file E115497.

Catalog 12-023

165 SERIES

9. A lightweight pressure sealed connector meeting the requirements of MIL-C-5015 Class C with approximately one third the size and weight of the MS Standard cylindricals. Features include gray anodized aluminum shells, quick positive bayonet coupling and O-ring seals in plug and receptacles. UL approved under recognition file E115497.

Catalog 12-023

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Miniature Cylindrical
MIL-C-26500

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DESIGN CHARACTERISTICS

- **Medium size,** widely used cylindrical
- **Operating voltage to 1,500 VAC (RMS)** at sea level
- **Environmental resistant**
- **Threaded or bayonet coupling**
- **Eliminates mismating** by the use of five key/keyway design
- **Rear insertion/front release contact system**

CUSTOMER OPTIONS

- **Square flange or single hole receptacles, and straight plug shell styles**
- **Shell sizes 8 through 28**
- **Ratchet lock plug style,** which eliminates the need for safety wiring
- **Black anodize non-conductive finish and a conductive finish**
- **Available in stainless steel and aluminum configurations**
- **Special application, low profile, "short skirt" design** available
- **Space saving, single contact, wire splice module** available
- **Firewall capability**
- **Hermetically sealed**
- **Various contacts and accessories**

ZZY

1. Pyle-National® threaded coupling, general purpose connector series qualified to MIL-C-26500. Available in stainless steel and aluminum. Conductive and non-conductive plating finishes are offered in shell sizes 8 through 24. Environmental resistant, front release contacts. Designed to meet requirements for the Boeing Commercial Airplane Company. Qualified to specifications BACC45FM, BACC45FT, BACC63BP, BACC63BV.

Catalog MS-101

ZZW

2. Pyle-National® bayonet coupling, general purpose connector series qualified to MIL-C-26500. Same features as the ZZY except for three point bayonet coupling. Qualified to Boeing specifications BACC45FN, BACC45FT, BACC63CB, BACC63CC.

Catalog MS-101

FPK FIREWALL

3. Pyle-National® MIL-C-26500 firewall Class K connector series. Available in stainless steel construction for firewall applications. Environmental design construction. High temperature resistant up to 400°F. Qualified to BACC63X, BACC63Y, BACC63AE, BACC63AF.

FYL FIREWALL

Pyle-National® MIL-C-26500 connector. Derivative of the FPK firewall, except with three point bayonet coupling.

Catalog MS-101

Miniature Cylindrical
MIL-C-83723

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DESIGN CHARACTERISTICS

- **Medium size,** widely used cylindrical
- **Military Qualified** in all classes
- **Operating voltage to 1,500 VAC (RMS)** at sea level
- **Environmental resistant**
- **Unique threaded coupling mechanism** provides greater resistance to decoupling
- **Metal to metal bottoming**
- **Unique sealing grommet** accepts wide range of wire diameters

CUSTOMER OPTIONS

- **Seven mounting styles** provide optimum flexibility in product design
- **Shell sizes -**8 through 28
- **Solder or crimp** front and rear release contacts
- **Sizes 20 through 12 contacts** accept wire sizes 20 through 12 AWG
- **Five finishes** provide protection in a wide variety of corrosive and mechanical environments
- **High Temperature/Firewall capability** meet performance requirements of:
  - Aerospatiale: ASN-EO44X Class KE/SE
  - Boeing: BACC63CM, BACC63CN
  - European: AECMA EN2997
  - General Electric: M50TF3564
  - Rolls Royce/SBAC: ESC 10/ESC 11
- **Coaxial (shielded) and thermocouple contact** options
- **Hermetic seal (glass fusion) receptacles** available
- **Threaded and bayonet coupling series** available
- **Alternate positioning**
- **Quick disconnect "Breakaway",** with or without lanyard, available (see page 13)

MATRIX MIL-C-83723, SERIES III

1. Amphenol broadens their miniature cylindrical family of products with the Matrix® MIL-C-83723, Series III. These connectors are offered in three coupling styles - bayonet or threaded plugs and receptacles, and quick-disconnect plugs with or without lanyards. They feature crimp rear release contacts. Shells are aluminum or passivated stainless steel. The versatility within this family makes it increasingly popular for panel mount, box mount and line-to-line applications in aircraft. Military numbers include: M83723/71-/78 for bayonet styles, M83723/82-/87, /91 & /92, /95 & /96 for threaded styles, and M83723/66-69 for quick-disconnect styles.

Catalog 12-073

BT

2. Pyle-National® MIL-C-83723 threaded connector series, available in aluminum or stainless steel. Environmental design. Classes A, G, K, R and W.

Catalog MS-102

BY

3. Pyle-National® MIL-C-83723 bayonet coupling connector series, available in aluminum only. Environmental design. Classes A, R and W.

Catalog MS-102

ESC-11/HTK

4. Pyle-National® MIL-C-83723 Class K Firewall connector capable of high temperature resistance (operation at 260°C/500°F). The ESC-11/Pyle HTK series is the 100% scoop-proof version of the high temperature 83723 family. Other firewall versions include the ESC-10, basic high temperature connector (both the ESC-10 and ESC-11 are qualified for the Society of British Aerospace Companies/Rolls Royce Standards); BACC63BR/BT Firewall and the BSK (both qualified for Boeing Company); EN2997 (AECMA designation); and ASN-EO (Aerospatiale designation).

Catalog MS-102

MS/Standard Cylindrical (threaded coupling)
MIL-C-5015, MIL-C-5015 modifications

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DESIGN CHARACTERISTICS

- **Medium-heavy weight,** time-tested cylindrical
- **Operating voltage to 3000 VAC (RMS)** at sea level
- **Environmental resistant or general duty**
- **Threaded coupling**

CUSTOMER OPTIONS

- **Five mounting styles** in strict accordance with military specification
- **Four additional styles** to expand user mounting options
- **Self-locking plug style** available in Matrix® series
- **Firewall connectors** available in Matrix® series
- **Nineteen shell sizes -** 8S through 48 with **over 270 arrangements** accommodating from a minimum of one to a maximum of 104 circuits
- **Solder or MS Modified crimp** rear insertion contacts or **crimp rear release contacts** in Matrix® series
- **Sizes 16 to 0 contacts** accepting wire sizes 16 through 0 AWG
- **Coaxial (shielded) and thermocouple contact** options
- **Hermetic configurations** available
- **Alternate positioning**
- **Black/green zinc alloy plating (cadmium-free)** available*
- **Push-on/pull-off quick disconnect plug,** with or without lanyard, included in the Matrix® MIL-C-5015 Series (see page 13)

AMPHENOL MS-A, MS-C, MS-E, MS-F, MS-R

1. Produced in strict accordance with MIL-C-5015. For use with open bundle wiring on airborne electrical equipment, and other environmental resistant applications.

- Class A, Solid Shell - intended for general connector usage.
- Class C, Pressurized - for use on pressurized bulkheads or pressure barriers. Unique design allows pressurization of connectors with either pin or socket contact arrangements.
- Class E/F, Environmental Resisting - ideally suited for installation where condensation, vibration and rapid changes in pressure or temperature are considerations.
- Class R, Lightweight Environmental Resisting - shorter in length and lighter in weight than Class E designs, yet offers reliable service under difficult conditions.

Catalog 12-020

MATRIX MIL-C-5015 CRIMP REAR RELEASE

2. Matrix® Series. Military numbers MS3450 through MS3459. Available in stainless steel and aluminum, with threaded coupling or self-locking threaded coupling, shell sizes 8-40. Incorporates crimped rear release contacts, sizes 0-16. Qualified for firewall applications. Complete environmental sealing includes individual contact seals, interfacial seals between contacts, a peripheral gasket shell-to-shell seal, redundant wire seals, and insert-to-shell seals.

Class descriptions:

- Class L - aluminum shell, electroless nickel finish, fluid resistant insert
- Class W - aluminum shell, cadmium olive drab finish, fluid resistant insert
- Class LS - stainless steel shell, passivated, fluid resistant insert
- Class KT - firewall, steel shell, cadmium olive drab finish, non-flammable hard dielectric and fluid resistant insert
- Class KS - firewall, stainless steel shell, passivated, non-flammable hard dielectric and fluid resistant insert

Catalog 12-026

AMPHENOL MIL-C-5015 MODIFICATIONS

3. The 10-214 Series is one of a variety of connectors for special applications, including flange mounted plugs, thru bulkhead receptacles, jam nut mounting receptacles, connectors for potting and connectors designed specifically to terminate jacketed cable.

Catalog 12-021

* For more information on zinc alloy plating ask for Product Data Sheet #172.

Reverse Bayonet Coupling GT Series, AC Threaded or AC-B Bayonet Coupling Series

1

GT SERIES

1. Quick-mating bayonet coupling connector with an audible full mating feature. Designed originally for use by the military, the heavy-duty "GT" connector has wide-spread usage in the commercial, geophysical, aerospace, ground support and mass transportation markets. Also available in a variety of platings: zinc cobalt, in black or green, which offers ecological advantages over cadmium (see Product Data Sheet #172), and non-conductive colorized anodic plating to service the HMI lighting industry (see Product Data Sheet #174).
Utilizing standard MIL-C-5015 insert patterns, the GT offers both crimp and solder terminations. Rugged construction, waterproof, and available with a resilient over-molded coupling nut for added damage protection and increased gripping surface. Intermateable with VG95234 connectors.

Catalog 12-024
Product Data Sheets 172 and 174

2

GT-PC SERIES

2. Developed for use in the High Voltage Power Distribution industry. Incorporating all the standard features of the popular GT series, these connectors will prevent accidental electrical shocks to the technicians. "Dead Front" pin contacts in size 0 are recessed into a socket insert, preventing inadvertent contact with a live circuit. "First Mate - Last Break" features on one or more of the pins provide an additional measure of operator safety. Quick positive coupling, full range of shell styles, five insert patterns available.

Catalog 12-024

GTC-M SERIES

3. Amphenol adds the GTC-M connector to its broad family of industrial connectors. It is a combination of the best features and benefits of two established connectors - the GT reverse bayonet connector and the rear release metal clip contact retention system which is used in the Amphenol®/Matrix® MIL-C-5015 connector line. Another benefit is the captivated coupling nut assembly which allows unmating without the rear accessories attached.

Product Data Sheet 181

3

4

AC THREADED SERIES

4. Designed especially for industrial applications, this nickel plated connector represents the latest development in the MIL-C-5015 connector family. Basic dimensions, styles and performance equate to the Mil-spec and the well known 97 series. Other features are: PG adapter or cable clamp, 500 mating cycles minimum, 5 shell styles, 9 shell sizes, rugged design. Black/green zinc alloy, cadmimum-free, plating is available.

Catalog 12-025

5

AC-B BAYONET SERIES

5. This quick coupling/uncoupling connector design meets the same standards as its threaded cousin. It offers an audible and tactile indication of full coupling, and has also been designed especially for industrial applications. Basic dimensions, styles and performance relate to MIL-C-5015. Other features are: PG adapters, cable clamps (straight or 90°), 500 mating cycles minimum, 5 shell styles, 9 shell sizes, rugged design and nickel plated. Black/green zinc alloy plating available.

Catalog 12-025

MS/Standard Cylindrical (hard dielectric inserts, threaded coupling)

MIL-C-5015/97 Series, Pre-Earth FMLB, 97 Series modifications

1

97 SERIES A&B TYPES

1. Low cost general duty, non-environmental MIL-C-5015 connectors featuring hard dielectric inserts. Available in either MS-A solid or MS-B split shell styles with MS solder or commercial crimp (rear release) terminations. The 97 Series is used extensively in the machine tool industry, welding industry and numerous other commercial applications. Underwriters Laboratories Recognized and Canadian Standards Association Certification.

Catalog 12-022

97 ENVIRONMENTAL CONNECTORS

2. Amphenol, continuing to meet the needs of today's interconnection products marketplace, now offers the 97E (Environmental) Series. This series incorporates a sealing gasket in the plug and standard use of environmental backshell accessories to provide a mated low cost, general duty, and environmentally sealed connector. The Amphenol® 97E Series connector can be used in a variety of industrial applications where environmental sealing is required, such as automotive, robotics, machine tool and welding equipment.

Catalog 12-022

2

PRE-EARTH FMLB CONNECTORS

3. These pre-earth (earth contact bonded to the shell), first mate/last break connectors are in conformity with European safety standards according to DIN VDE 0627 as certified by TUV Product Service GMBH. Available in several MIL-C-5015 insert patterns. Interchangeable with MS3102, MS3106, and MS3108 shell styles. When mated, these connectors meet Class IP67 protection against water and dust. Standard plating is black zinc alloy. FMLB pre-earth connectors are used in factory automation applications (e.g. machine tools) where safety is a requirement.

Product Data Sheet No. 187

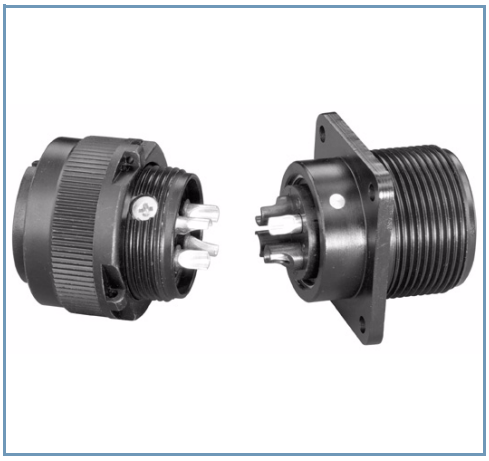
ECG CONNECTORS

4. Top These connectors were developed in association with A.A.M.I. (Association for the Advancement of Medical Instrumentation) for use on ECG monitoring equipment. This standard establishes a preferred connector for monitoring ECG apparatus and is specially keyed to prevent cross-mating with other similar connectors. Standard number in A.A.M.I. ECGC-D 10/75

NOTE:
This connector is to be used only for apparatus as described in the A.A.M.I. Standard "A.A.M.I. ECG Connector Standard." Other uses may result in a possible hazardous connection.

Catalog 12-022

3



4

CONVENIENCE OUTLETS

4. Bottom This convenience outlet is used on power circuits in aircraft, trucks, trailers, ships, etc. It consists of a 61-F receptacle in a standard aluminum shell, finished with olive drab cadmium plate. Cap and chain is provided with 7-8649, and is optional on 7-8648, to form a waterproof seal. Rated for duty at 15 amps. Provide 1000 VRMS dielectric withstanding voltage and 100 megohms insulation resistance. Will withstand 1000 cycles of use.

Catalog 12-022

Commercial Aircraft Cylindrical
high temperature, fluid resistant

1

DESIGN CHARACTERISTICS
- **Engineered for Aircraft usage,** especially selected materials and configurations
- **Operating voltage to 3000 VAC (RMS)** at sea level
- **Environmental resistant**

CUSTOMER OPTIONS
- **Four mounting styles** compatible with airframe wiring
- **Eleven shell sizes -** 8S through 32
- **Multiple contact arrangements -** accommodating from 1 through 55 circuits
- **Sizes 16 to 4 crimp contacts** in materials suitable for high temperature ratings
- **Stainless steel and aluminum shells -** to provide protection in hostile environments
- **Alternate positioning**

BT-M
1. Firewall connector for service where high temperature performance and direct exposure to flame are prevalent. Supplied with cable clamp for open wire bundle cabling. Continuous duty rated at 450°F.

Catalog 12-101,
Consult Amphenol Aerospace for further information

2

BT-RA
2. Firewall connector suitable for applications requiring continuous temperature operation to 1000°F. Components used also provide resistance to radiation and oxidation.

Catalog 12-101,
Consult Amphenol Aerospace for further information

DC
3. Approved for DC-8, DC-9 and DC-10 aircraft applications. Connectors resist corona, ozone, skydrol, synthetic oils, hydrazine, and oxidizing acids. MIL-C-26482 performance with a temperature range capability of –65° to +300°F.

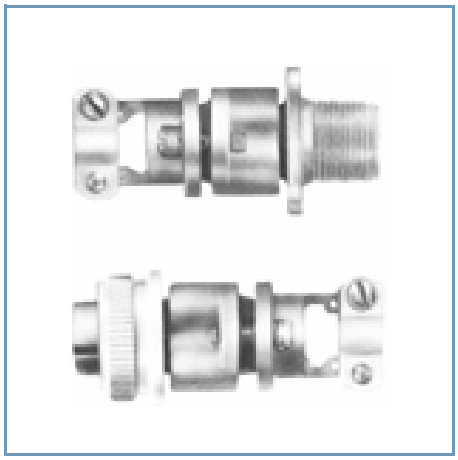
Catalog 12-101

10-244XXX SERIES
4. Designed specifically for aircraft engine compartment applications. Operating temperature rated to 400°F, with fluid resisting components.

Catalog 12-101

3

4

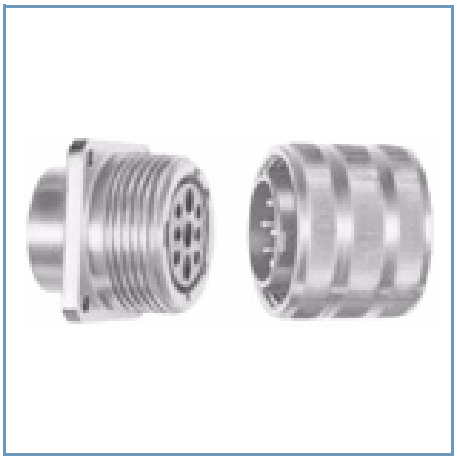


OTHER COMMERCIAL AIRCRAFT CYLINDRICALS
See Miniature Cylindrical, MIL-C-26500 section of this brochure for Pyle-National® FPK and FYL Series. Also see Miniature Cylindricals, MIL-C-83723 and ESC-11 Pyle-National® firewall connectors.

Heavy Duty Cylindrical
MIL-C-22992

1

2



3

DESIGN CHARACTERISTICS

- **Heavy duty, largest size** cylindrical
- **Current ratings to 200 amps**
- **Environmental resistant**
- **Quick mating, vibration resistant** threaded coupling
- **Easily maintainable** double stub thread

CUSTOMER OPTIONS

- **Nine mounting styles** to accommodate power and control circuitry
- **Eighteen shell sizes** from 10 through 52
- **Wide assortment of contact arrangements -** accommodating from 1 through a maximum of 104 circuits
- **Solder or crimp contacts**
- **Sizes 20 to 4/0 contacts** accepting wire sizes 20 through 4/0 AWG
- **Designed for use with jacketed cable**
- **Alternate positioning**

CLASS "L"

1. Highly suitable for industrial or military applications and is designed to meet demands of heavy power interconnections in current ranges of 40 to 200 amps. As safety is an all important factor, the connectors are designed with a programmed coupling sequence to provide making of grounded or neutral circuits prior to mating of power circuits. At unmating, the power circuits are broken before the ground or neutral. A unique arc quencing capability also provides a positive safety feature if the connectors are inadvertently disconnected under load. A 5 key polarizing system is used to assure that circuits with incompatible power characteristics (voltage, phase and frequency) cannot be mated. Cable lay patterns have been taken into account in the design of contact arrangements to facilitate termination of large conductors. Qualified to MIL-C-22992, Class L.

Catalog 12-052

QWLD

2. Heavy duty waterproof series with 5 key polarization for power and control circuits. Qualified to MIL-C-22992.

Catalog 12-052

QWL

3. An additional waterproof series, but with single key polarization. A more compact heavy duty connector, meeting the performance requirements of MIL-C-22992.

Catalog 12-053

QDP

Featuring miniature crimp (PT-SE) inserts in QWLD type shells. Designed for applications which require heavy duty shells and finish, and higher contact density insert arrangements.

Consult Amphenol, Sidney NY for further information

Special Purpose Cylindricals

quick disconnect/“breakaway” lanyard release, rail launch MIL-STD-1760, gatelink breakaway

1

“BREAKAWAY” FAIL-SAFE (SUBMINIATURE MIL-DTL-38999)

1. Designed to provide quick disconnect of a connector plug and receptacle with axial pull, the MIL-DTL-38999 Fail Safe is an industry standard electrical interface device between an aircraft and its “stores”, as covered by MIL-STD-1760. Incorporates MIL-DTL-38999 receptacles and specially designed plugs. Available in MIL-DTL-38999 Series III (Tri-Start), Series I (LJT), and Series II (JT), and in MIL-STD-1760 arrangements which are compatible with MIL-STD-1553B Aircraft Multiplex Data Bus systems. Connector mating is accomplished in normal fashion while disconnect is by axial pull on the coupling nut via the swivel lanyard. The Fail Safe will disconnect even when not fully mated. Intermateable with standard receptacles, and has all the advantages of the 38999 connector including EMI/EMP shielding effectiveness, high temperature capability and “scoop-proof” contact protection design.

Catalog 12-160

2

“BREAKAWAY” TWIST PULL (MINIATURE MIL-C-26482)

Designed to give instant disconnect of plug and receptacle with an axial pull on the lanyard when they are fully mated. Incorporates MIL-C-26482 receptacles and specially designed plugs with the lanyard release mechanism that disconnects with a manual rotational pull. Offered in three different bayonet coupling styles; PT solder contact version, PT-SE crimp contact version which incorporates a clip retention system, and PT-CE crimp version which incorporates a dielectric retention system. Environmentally resistant and intermateable with standard receptacles.

Catalog 12-160

QUICK DISCONNECT MINIATURE PUSH PULL (MATRIX® MIL-C-83723)

Within the Matrix® MIL-C-83723, Series III family. Straight plug, push-pull quick disconnect, offered with and without lanyard. Available in black anodize, electroless nickel, cadmium olive drab aluminum and passivated stainless steel shell, sizes 8 to 24 per MIL-C-83723/66-69.

Catalog 12-073

QUICK DISCONNECT MS STANDARD PUSH PULL (MATRIX® MIL-C-5015)

Within the Matrix® MIL-C-5015 family. Straight plug, push-pull quick disconnect, with lanyard. MIL-C-5015 interface. Available in black anodize, electroless nickel, cadmium olive drab aluminum and passivated stainless steel, shell sizes 8 to 40.

Catalog 12-026

3

STORES MANAGEMENT TYPE II, RAIL LAUNCH CONNECTORS

2. MIL-STD-1760 Stores Management Connector System is designed for use on aircraft that carry rail launch missiles such as AMRAAM. The insert has a hybrid arrangement used in systems on the F-18, B-52, B-2 and SRAM II programs. The type II launcher plug, buffer plug and missile receptacle are designed for blindmating of stores on rail launch applications. The buffer provides protection for the launcher plug during launching of the missile and is replaceable as necessary. Military designation Air Force 9011811-X

Pyle Bulletin RL-100

GATELINK BREAKAWAY

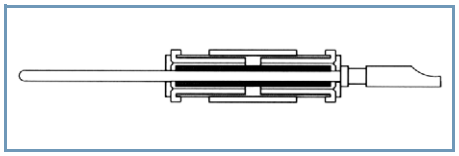
3. ARINC 644 type, designed for commercial aircraft applications, with self-contained environmental closures for hook-up to the gateway. Ideal for usage where the receptacle will be unmated and exposed to the environment. Lanyard release mechanism on the plug allows automatic separation. Environmentally sealed spring loaded contacts, ref. MIL-C-55116B.

Product Data Sheet 170

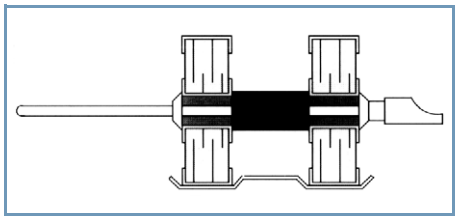
Filter/Transient Protection
state of the art protection from effects of EMI/EMP

1

Pi Type Tubular Contact Assembly



Pi Type Planar Array Assembly



2

Select the option for the interference threat; couple with a standard connector package to protect your sensitive circuits.

CONTACT OPTIONS

- **Filter -** EMI in MF, HF, VHF and UHF ranges
- **MOV (Metal Oxide Varistor) -** EMP
- **Diode -** EMP
- **Filter with diode or MOV on same contact -** EMI and EMP within the same connector package

DESIGN CHARACTERISTICS

- **Internally housed devices** eliminate costly and bulky exterior network filters
- **Nanosecond response time** for MOV and diode
- **High energy absorption**
- **Individual protection for each circuit**
- **Temperature rating –55° to +125°C**
- **Connector sealed to 3 foot water immersion**
- **PCB style connector designed for wave soldering**
- **Composite material available**
- **Single piece shell**
- **One piece contact**

CUSTOMER OPTIONS

- **Contact sizes 16, 20 and 22**
- **Voltage ranges from 5.8 to 57.8 VDC for diodes and 47 to 240 VAC for MOVs**
- **Termination options** include solder, UTS® crimp, PCB and wire wrap
- **Intermateable and intermountable** with MIL-DTL-38999, 26482, 5015, 27599, 83723
- **Combinations of contact options** in the same connector
- **Thermocouple availability**
- **Hermetic filters availability**

EMI FILTER

1. Filter connectors contain a passive filter network comprised of a ferrite inductor and ceramic capacitors. Standard filter connectors will withstand a 600 V spike with optional protection to 2000 V available. Offered in tubular or planar configurations, filters can be provided in singular capacitor or pi filter arrangements. Special variations are available to meet your requirements when one of our frequency ranges is not suitable.

Catalog 12-120

DIODE

Utilizing silicon chip technology to shunt energy before reaching sensitive circuits, diode contacts protect sensitive components on 5.8 to 57.8 VAC or VDC circuits. Either bipolar or unipolar, diode contacts may be packaged singularly or in combinations with filter or MOV contacts in the same connector. With a clamping ratio of 1.2 to 1, contact mounted diodes are well suited for your demanding applications.

Catalog 12-120

MOV

2. Metal oxide varistors act as a variable resistor to efficiently dissipate energy. With a clamping ratio of 2 to 1, MOVs have a high energy potential and are impervious to radiation. Devices may be mounted in series, two devices on the same contact, or in parallel, side by side in the same pattern. MOV lines, in either tubular or planar styles, are available in the 47-240 VDC or VAC range.

Catalog 12-120

3

FRONT-REPAIRABLE TRANSIENT PROTECTION CONNECTORS

3. Amphenol has developed a field serviceable transient protection connector. Either a diode, MOV or EMI filter contact can be removed and replaced from the front of the connector. The front serviceable feature allows repair or modification without disturbing the integrity of a sealed unit.

Consult Amphenol Aerospace for further information

PROGRAMMABLE EMI FILTER

4. Rear removable, rear insertable EMI contacts combine the versatility of crimp contacts with EMI/RFI protection for sensitive circuits. Repair and modification of existing circuits is simplified.

Catalog 12-120

ESD PROTECTION

5. Amphenol® Filter connectors are available with ESD (Electrostatic Discharge) protection. These connectors utilize the Faraday cage principle to shunt electrical discharges.

Product Data Sheet 171

4

EMI/EMP ADAPTERS

6. EMI/EMP adapters provide cost effective solutions to problems on existing applications. These adapters are designed to be installed between the existing cable plug and unit receptacle. Circuit protection at MF, HF, VHF and UHF levels is available in contact sizes 22 to 12 with all the popular MIL-specs.

Catalog 12-120

HEADER ASSEMBLIES

7. For time and cost savings, a header assembly can be vapor phase or wave soldered to flex or printed circuit boards prior to the receipt of an EMI/EMP connector. Headers can be installed to standard connectors, allowing for electrical testing that would adversely affect the sensitive diodes, MOV's or capacitors in the EMI/EMP connectors. Expensive connector assemblies can be easily removed from and reattached to the header assembly as the manufacturing process dictates. This header assembly is available to fit all major cylindrical Mil-Spec and ARINC connectors.

Catalog 12-120

5

6

7

Fiber Optic Products

multi-channel fiber to fiber system, termini, optical backplane interconnect systems

1

2

3

The emergence of highly reliable fiber optic transmission systems that provide high speed and secure communication has led to the development of precision fiber optic multi-channel termination systems. The Amphenol® MIL-T-29504/4 & 5 fiber to fiber termination system, when combined with the proven MIL-DTL-38999 Series III connector, provides utilization of multi-channel connectors in applications requiring a high degree of protection, performance and reliability.

MULTI-CHANNEL CONNECTORS

1. Amphenol® multi-channel fiber optic connectors offer a precision optic interconnect system within the high performance MIL-DTL-38999 Series III connector. The metal to metal mating feature of the Tri-Start™ connector provides protection from damage in severe physical and environmental conditions. Mismating conditions are eliminated with the 5 key/keyway polarization feature of the connector.

Catalog 12-352

FIBER OPTIC TERMINI

2. Amphenol® MIL-T-29504/4 & 5 Qualified fiber optic termination types offer low loss characteristics, with high reliability and repeatability. Optical performance is maximized utilizing the unique alignment methods employed in these termination systems. Insertion losses range from .3dB to 1.0dB depending upon launch conditions, fiber NA, fiber size and the type of termination. Amphenol® fiber optic termini have been designed to operate in the size 16 contact cavities of MIL-DTL-38999 Series III connectors, and are available from 2 (11-2) through 29 (25-29) channels. Fiber optic/electrical hybrid combinations are also easily accommodated using MIL-DTL-38999 connector arrangements. Size 16 termini are available in singlemode and multimode styles. Size 20 termini currently are available in multi-mode style only. Termini are available in either straight or 90° options. Specialty termini for modules and PC board applications are also available.

Catalog 12-352

OPTICAL BACKPLANE INTERCONNECT SYSTEMS

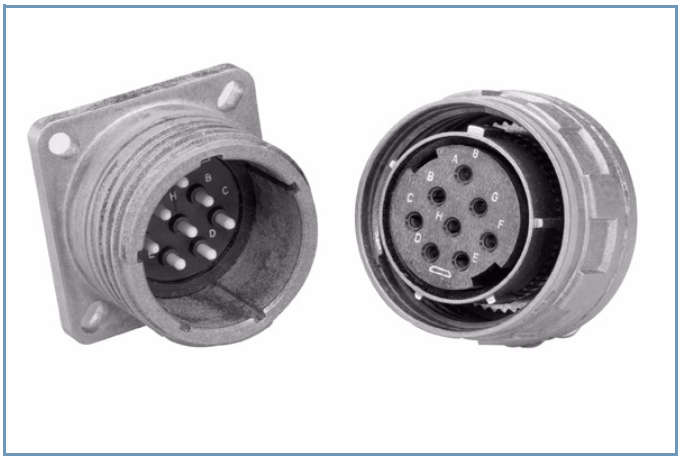
3. Fiber optic termini are available in rectangular LRM (Line Replaceable Module) connectors. Amphenol offers electro-optical backplane interconnect systems for advanced avionics systems high speed optical/digital signal processing. Available in SEM-E or custom form factors, these systems integrate the total electrical and optical rack interconnect needs into one discreet package. Amphenol's ruggedized LRM and MIL-DTL-38999 connectors provide the interconnect housings for both the electrical and optical contacts. (See pages 23 and 24 for more description on LRM connectors). The fiber terminations are 12 channel Multi-Terminal (MT) optical ferrules. Ribbon cable routing allows programming flexibility; thus rendering the entire system easily upgradeable.

L-2104 LRM Surface Mount Reference Guide,
L-2081 LRM Surface Mount Designer's Guide,
Catalog 12-352

Fiber Optic Products

advanced fiber optic connectors, cable assemblies, termination tool kits

1



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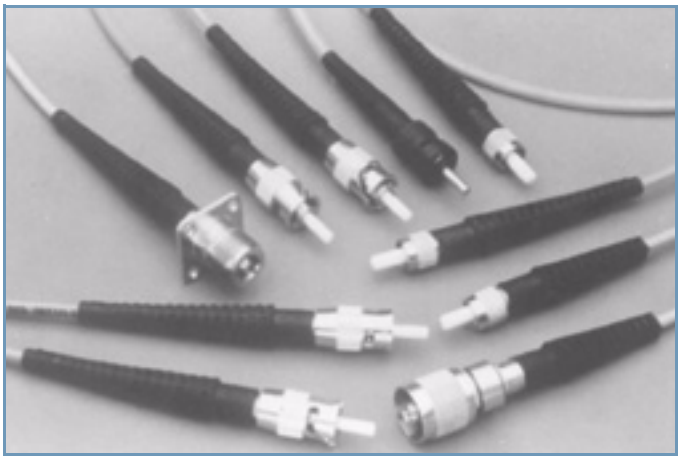

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ADVANCED FIBER OPTIC CONNECTORS

1. Amphenol offers an advanced fiber optic connector with captivated alignment sleeves which facilitates cleaning of socket termini - no special cleaning tools required. Designed to meet or exceed the requirements of MIL-DTL-38999 Series III connectors, this advanced fiber optic connector insert can be incorporated in either the plug or the receptacle. It is a dedicated fiber optic connector and will not accept copper contacts. Shell materials available in the advanced fiber optic connector include aluminum, stainless steel and composite. The advanced fiber optic connector is intermateable and intermountable with Amphenol® MIL-DTL-38999 fiber optic connectors.

Catalog 12-352

FIBER OPTIC CABLE ASSEMBLIES

2. Amphenol manufactures custom fiber optic cable assemblies terminated with MIL-T-29504 termini, MIL-DTL-38999 III, ST, SMA, FC and MFM connectors. Amphenol® fiber optic cable assemblies are currently in use on space, military and commercial avionics, and land based applications. Amphenol has extensive experience in designing and manufacturing fiber optic cable assemblies for both harsh and benign environments. Amphenol has on-site testing capabilities which include optical and environmental performance testing, as well as qualification testing.

Consult Amphenol Aerospace
for further information

FIBER OPTIC TERMINATION TOOLS

3. Termination kits are available for each Amphenol connector family. The kit includes the carrying case, heat gun, crimping and stripping tools, and microscope with adapters. The polishing plate has been enhanced to include a 70 durometer pad on one side to accommodate a physical contact (PC) polish, as well as an air gap (AG) polish. Curing ovens for each connector family are also available.

Catalog 12-352

Fiber Optic Products

space application fiber optics, MT Series, hybrid configurations - fiber optics and brush contacts

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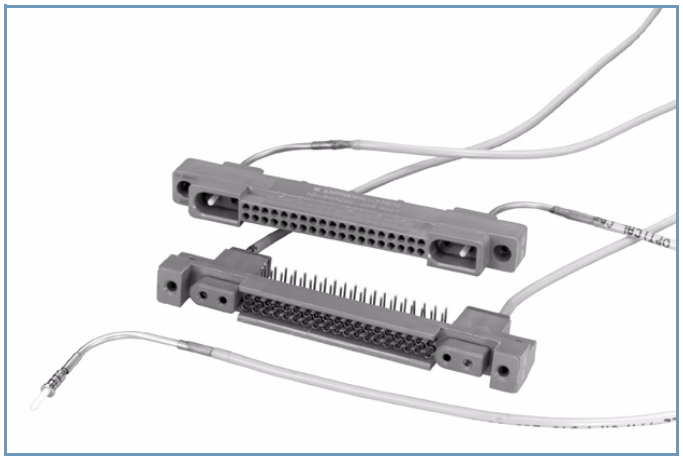


SPACE APPLICATION FIBER OPTIC CONNECTORS

1. Amphenol manufactures fiber optic connectors for space applications, including MIL-STD-1773 databus. These connectors are available in hermetic and non-hermetic versions and they meet the requirements of NASA specification SSQ-21635. The hermetic versions are rated to 5 X 10^{-9} cc/sec helium leakage at a 15 PSI pressure differential. Amphenol's space application fiber optic connectors are currently in use on the Space Station Freedom and Space Shuttle programs.

Consult Amphenol Aerospace
for further information

CYLINDRICAL MT SERIES

2. The Amphenol D38999 connector can be supplied with MT optical ferrules. This offers a high fiber density in a relatively small cylindrical connector package, with all the advantages of the Series III, MIL-DTL-38999 proven connector. High performance in tough environments and high speed signal processing can be accomplished in this connector series.

Consult Amphenol Aerospace
for further information

HYBRID CONFIGURATIONS - FIBER OPTICS AND BRUSH CONTACTS IN THE SAME CONNECTOR

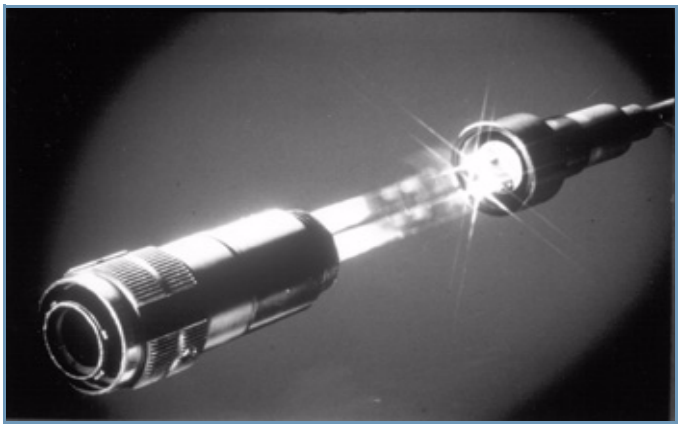
3. Amphenol's superiority and breadth of product offering is demonstrated in its capability for packaging both fiber termini and the popular Brush contact in a printed circuit board rectangular connector. High performance polyester dielectric moldings are the rectangular housings for these connectors, and high circuit count interconnections are possible with two, three and four row patterns. See the low mating force advantages of bristle brush contacts, shown on page 20 of this catalog.

Consult Amphenol Aerospace
for further information

Fiber Optic Products

fiber optic active plugs, MFM family, CTOS field deployable lens connector, multi-way backplanes

1



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FIBER OPTIC ACTIVE PLUGS

1. Amphenol offers an electrical connector (MIL-DTL-38999, Series III) which accepts DC inputs, converts to optical and couples to an optical connector/cable interface. An SMA fiber optic plug is attached to the accessory section of the electrical connector. The user sees an electrical interface, not an optical. One interface transmits; a second receives. Duplex single mode operation using WDM is available.

MFM FAMILY OF CONNECTORS

2. Specifically designed for use in the aerospace & military and in other harsh environmental condition applications, the MFM family of connectors facilitate the interconnection of fiber optic cable assemblies and have low insertion loss due to butt joint ceramic ferrule technology with a ceramic alignment sleeve. This family includes the following:

Hermaphroditic MFM Connectors - Fully hermaphroditic product with an active receptacle. Eliminates the need for polarizing the assemblies. Eliminates the use of in-line adapters.

Duplex MFM Connectors - High performance, lightweight MFM connectors developed specifically for external applications.

Simplex MFM Connectors - Small, lightweight, capable of withstanding the most stringent environments, these MFM connectors interface with a wide range of rugged fiber optic cables.

CTOS FIELD DEPLOYABLE LENS CONNECTOR

3. Amphenol Optical Tactical Connectors have been developed for battlefield conditions and quick deployable large capacity links. Incorporating expanded beam technology, the connector interface can easily be cleaned and will perform in harsh environmental conditions with insertion losses below 2dB and also will provide EMI insensitivity. The entire connector family is equipped with the same hermaphroditic interface in order to extend the optical links by adding identical cable sections. The CTOS connector, measuring 38mm in diameter, is available in 2 and 4 channel configurations and will accommodate both single mode (9/125) and multi-mode (50/125 to 200/140) fiber. Bodies of the connectors are made of stainless steel for longevity and resistance to corrosion. Ergonomic and ribbed synthetic rubber shells improve handling and ensure mechanical protection.

3

4

MULTI-WAY BACKPLANE CONNECTOR

4. The MBP utilizes proven PC technology in a high density fiber optic connector. The connector design is motherboard, daughterboard and chassis mountable and is available in a 4 channel or an 8 channel variation. For positive alignment and improved performance, the MBP series connector features a keyed ferrule assembly and free floating optical termini. The robust one-piece construction enhances the connector's reliability and, at the same time, reduces the costs of assembling the connector.

Consult Amphenol, Sidney, NY
for further information.

Printed Circuit Board

low mating force, B^3 (bristle brush bunch) MIL-C-55302

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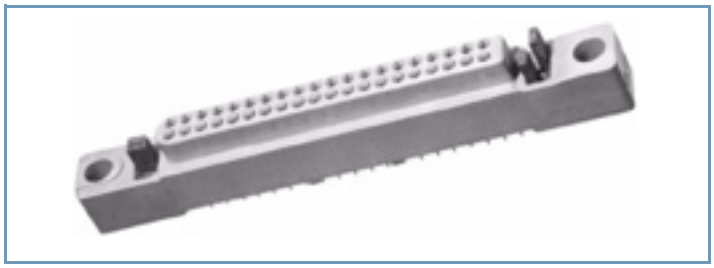

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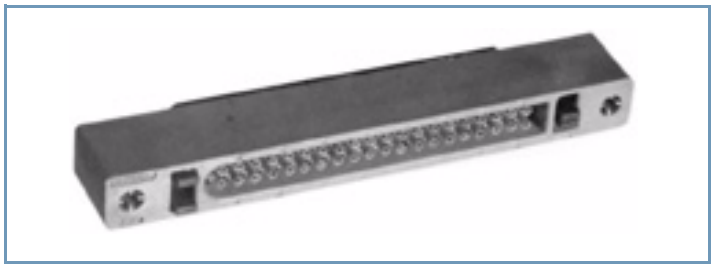

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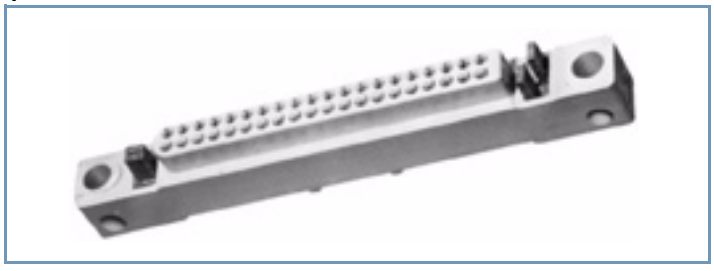

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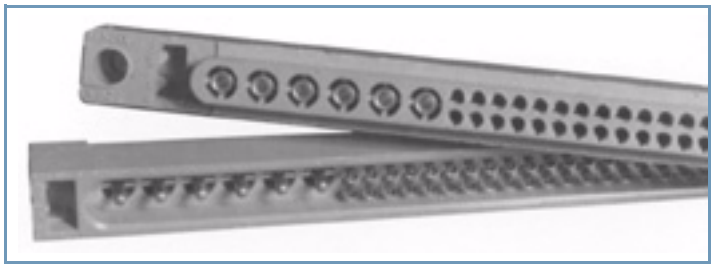

LOW MATING FORCE RECTANGULAR CONNECTORS

Used in medical equipment, IC chip testers, telecommunications, military and commercial aviation, military ground vehicles, GPS systems, space, and industrial applications.

The Brush Contact Innovation provides:

Low Mating Forces

- Smooth, low friction interfaces
- 1.5 oz. max. forces per contact pair
- Proven durability and long contact life - over 20,000 cycles of mating and unmating without performance degradation (tested to 100,000 cycles)
- Easy mating/unmating with high contact count (25 lbs. for 400 Brush contacts vs. 56 lbs. for blade and fork)
- Mechanical mating aids not required
- Overall cost effectiveness (reduced life cycle costs)

Multiple Points of Contact

- 14-70 points of contact per mated contact
- Documented intermittency-free performance - no 10 nano second discontinuities during 50m cycles of 0.010 displacement
- Stable, low resistance - 20 milliohms max.
- Redundant current paths
- Proven gas tight contact sites

KEY CONNECTOR FEATURES

- Utilizes Amphenol's Brush contact
- 0.100 inch center to center, square grid contact spacing
- Four body styles - Mother Board, Daughter Board, PC (right angle MB) and Input/Output - allows 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
- Polarization keys available (up to 256 possible keying positions)
- Hybrids available - mix signal with power, RF or fiber optics

M55302/166 or 167 MOTHER BOARD, M55302/170 DAUGHTER BOARD

1., 2. Two piece PCB connector featuring PCB stud or solderless wrap contacts in the MB Series and field repairable 90° PCB stud contacts in the DB Series.

M55302/169 INPUT/OUTPUT

3. Rear release, rear removable crimp contacts for discrete wire cabling. I/O connector series mates with standard MB and PC receptacle series to provide external inputs/outputs.

M55302/168 PC

4. 90° PCB stud contacts for side mounting on board. Mates with DB and I/O series.

Catalog 12-035

POWER/COAX/BRUSH CONTACT COMBINATIONS

5. Standard MIL-DTL-38999 Series II power and coax contacts are available in combination with B^3 signal contacts in one high density connector. As many as 12 size 16 contacts can be combined with up to 100 brush contacts in a 2 row connector; as many as 12 size 12 contacts can be combined with up to 180 brush signal contacts in a 3 row connector.

Catalog 12-035

Printed Circuit Board
MIL-C-55302

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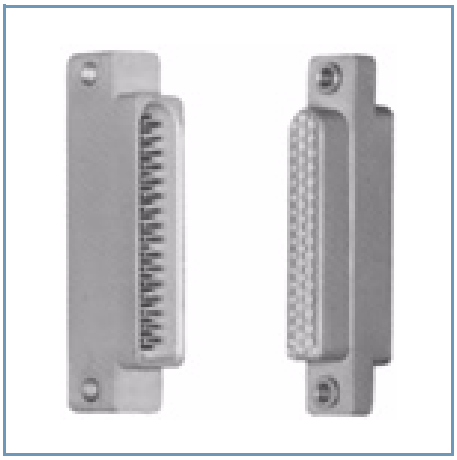

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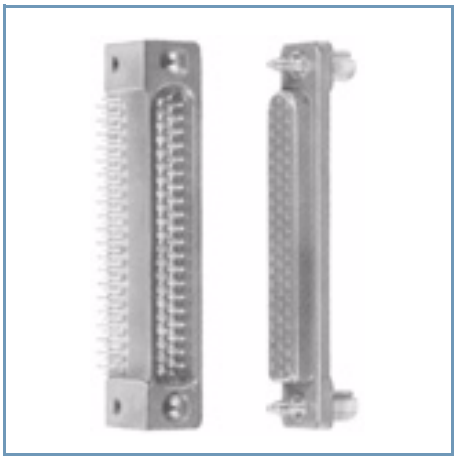

Designed to provide reliable interconnection means with printed circuit boards. Available with a variety of contact spacings with crimp, solder or printed circuit contacts. Qualified to MIL-C-55302.

PCB90A, M55302/67-69

1. 0.090” center to center contact spacing, with printed circuit or crimp insertable terminations in the receptacle and crimp insertable contacts in the plug.

PCB100A, M55302/70-71

2. 0.100” center to center contact spacing, with 90° printed circuit contacts in the board side and PCB studs, solder cups or crimp contacts in the plug.

PCB100B, M55302/76-77

3. 0.100” center to center contact spacing, with 90° printed circuit contacts in the daughter board side and straight closed entry sockets with optional tail lengths in the mother board. Also available with tuning fork contacts with solderless wrap terminations in mother board. Floating contacts in both plug and receptacle allow up to 0.010” misalignment at mating. Accessory polarization provides up to 64 possible positions.

PCB100C, M55302/74-75

4. 0.100” center to center contact spacing, with 90° or straight molded-in pin contacts in the receptacle, and JT/MIL-DTL-38999 crimp sockets in the plug. Receptacle is designed to facilitate wave soldering to the printed circuit board. Polarization devices located in each assembly provide 256 possible keying combinations.

PCB150A, M55302/72-73

5. 0.150” center to center contact spacing, with 90° pins in the receptacle and JT/MIL-DTL-38999 crimp sockets in the plug. Receptacle is designed for wave soldering to the printed circuit board. Featuring an environmentally sealed plug and receptacle with 36 polarizing positions. Also available with size 22D contacts on 0.100” centers.

Catalog 12-033

3

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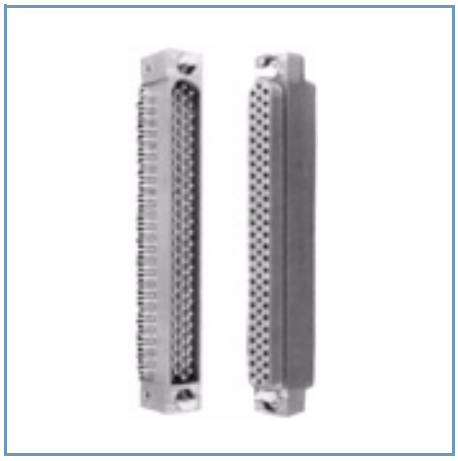
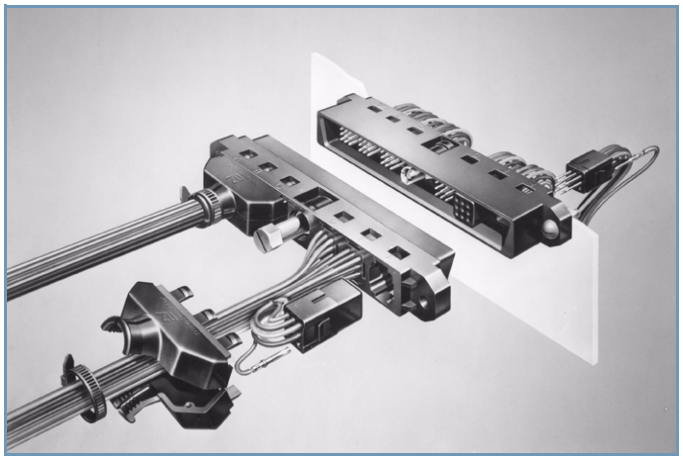


Printed Circuit Board

LMD and LMS linear modules, flex termination, cylindrical connectors for PCB board application

1



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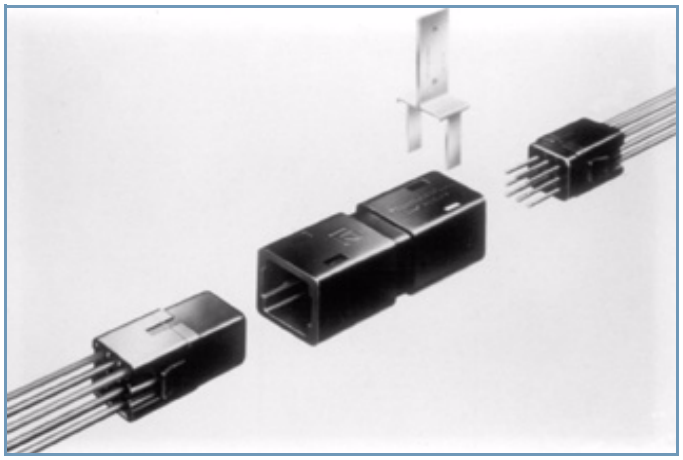

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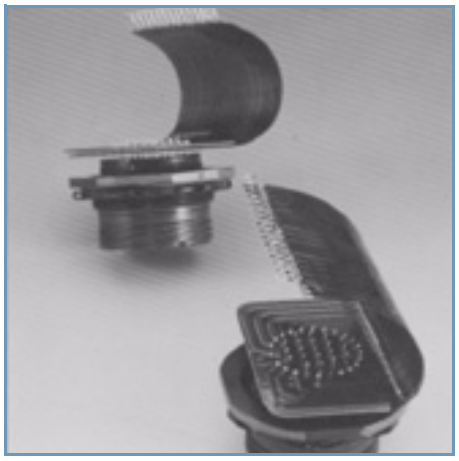


LMD, LINEAR MODULAR CONNECTORS

1. Designed for instrumentation and avionic control environments, the LMD Pyle National® connectors are lightweight, molded thermoplastic modules which may be wired at the harness assembly level. Four standard 6 bay modules are available with the following contact arrangements: 1 #8, 4 #16, 9 #20 and 16 #22. The linear LMD may be used for rack and panel or cable to cable applications.

Pyle Bulletin LM-300

LMS, LINEAR MODULAR CONNECTORS

2. Supplementing the LMD connector family, Amphenol®/Pyle-National® offers two styles of the LMS in-line splice connector, incorporating the LMD modules and contacts.

Pyle Bulletin LM-300

FLEX TERMINATION ASSEMBLIES FOR PRINTED CIRCUIT BOARD APPLICATION

3., 4. Amphenol provides flex termination assemblies for printed circuit board attachment through its division of ACT, Advanced Circuit Technology. Flex circuits are available for MIL-DTL-38999, MIL-C-5015 and MIL-C-26482 cylindrical connectors, as well as for special products such as EMI/EMP filter connectors. Also available are Sculptured® Flexible Circuits with built-in terminations which eliminate the failures associated with crimped or solder-on contacts, and geometrically fit the tight space requirements within a unit. They plug into a printed circuit board and create a self locking terminal pad which eliminates the need for an additional interconnect to the PCB.

ACT-Flex Circuit Products Folder

CYLINDRICAL CONNECTORS FOR PRINTED CIRCUIT BOARD APPLICATION

3., 4. The following series of cylindrical connectors are available with PCB contacts*:

- MIL-DTL-38999, Series I, II and III
- MIL-C-26482, Series 1 and 2
- MIL-C-5015

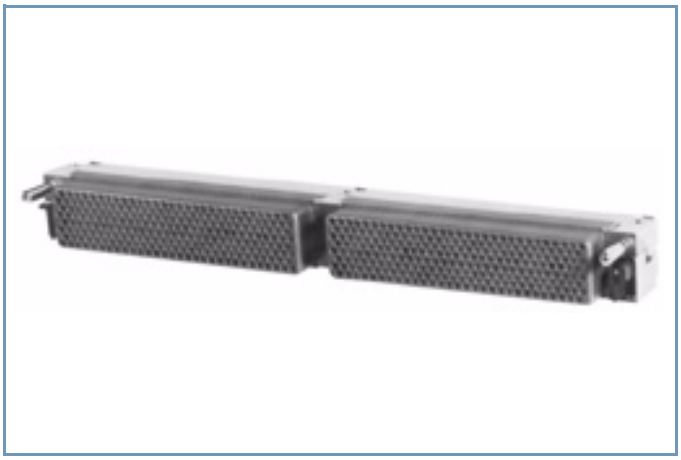
Several commonly used insert patterns within these cylindrical connectors have been tooled with PCB contacts for the purpose of attachment to printed circuit boards Other insert patterns can be made available. Amphenol provides the catalog listed below which shows pin-out location illustrations of the most asked for, most readily available insert patterns for printed circuit board applications. This will aid designers in determining the selection of the best cylindrical connector for their particular application need.

Catalog 12-170

* Note: For availability of other cylindrical connector series with PCB contacts, consult Amphenol, Sidney, NY

Printed Circuit Board
LRM surface mount

1



LRM SURFACE MOUNT CONNECTORS

1. The introduction of high speed integrated circuitry such as VHSIC and MMIC has enabled the Design Engineer to accomplish far more on his printed circuit board than ever before. This, coupled with the emergence of a revolutionary change in avionics packaging - modular avionic architectures - has created the need for a high performance, low insertion force PCB connector with significantly increased contact density.

Designed to meet the high density needs of today's integrated electronic modules, this Straddle Mount connector uses the Amphenol® Bristle Brush Contact which has been proven in military avionics packages and meets the requirements of MIL-C-55302. The low mating force, extended service life and stable electrical performance of the B^{3}* contact allows this product to provide the high level of performance demanded by today's Line Replaceable Module (LRM) applications.

L-2104 LRM Surface Mount Reference Guide,
L-2081 LRM Surface Mount Designer's Guide

Amphenol® LRM Surface Connector Features:

- **Contact to Board Attachment:**
  - **Module:** Surface mount - Straddle mount with .0375 spacing between leads, with rows of leads on each side of the module
  - **Backplane:** Available with through-hole solder posts or with compliant pins for solderless applications
- **Connector Configurations:** (See illustrations on page 24).
  - **Chevron Grid:** Six contact rows with 0.075 inch center-to-center contact spacing in each row, 0.075 inch row-to-row spacing with 0.025 inch offset
  - **Staggered Grid:** Eight contact rows with 0.100 inch center-to-center contact spacing in each row, 0.050 inch row-to-row spacing with 0.050 inch offset
  - **GEN-X Grid:** Eight contact rows with 0.075 inch center-to-center contact spacing in each row, 0.060 inch row-to-row spacing with 0.0375 inch offset
- **Polarization:**
  - Insert arrangement controls mating orientation
  - Up to 4096 keying combinations
- **PCB/Heat Sink Accommodations:**
  - A wide range of combinations available
- **Serviceability:** Backplane contacts are front replaceable
- **Low Mating and Unmating Forces**
  - 1.5 oz. per contact (typical)
  - 70% to 90% lower than with conventional pin and socket contacts
- **Temperature Range:**
  - Suitable for vapor phase soldering
  - Normal operating temperature –65°C to +125°C
- **Current Rating:** Consult Amphenol, Sidney, N.Y.
- **Dielectric Withstanding Voltage:**
  - Chevron Grid = 1000 volts at sea level
  - Staggered Grid = 100 volts at sea level (due to incorporation of ESD shield)
  - GEN-X Grid = 100 volts at sea level (due to incorporation of ESD shield)
- **Vibration:** Superior performance under vibration
- **Brush Contact Durability:**
  - 20,000 cycles of mating and unmating
- **Superior Electrical Characteristics:**
  - Redundant current paths
  - Minimized constrictive resistance
  - Uniform current densities
  - Stable time/life contact resistance
  - Gas tight and electrical contact site integrity

ESD PROTECTION

2. Staggered style and the GEN-X style connectors are standard with ESD** protection. These connectors utilize the Faraday Cage principal to shunt electrostatic discharge events to the conductive enclosure on which the connector is mounted, thus never allowing the high voltage, high current discharge event to reside on any contacts.

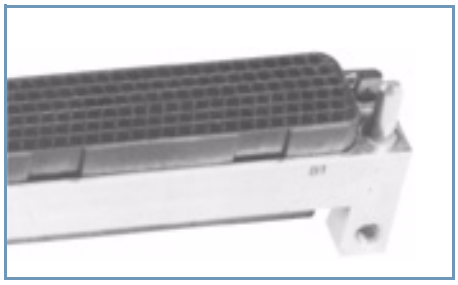
L-2104 LRM Surface Mount Ref. Guide,
Product Data Sheet 171

2

* B^{3} = Bristle Brush Bunch
** ESD = Electrostatic Discharge

Printed Circuit Board
LRM surface mount, cont.

1



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LRM CONNECTORS WITH CHEVRON GRID

1. The chevron grid Line Replaceable Module (LRM) was developed to meet the avionics packaging requirements for a surface mount, high contact density PCB connector in a SEM-E form factor

- 300 contact pattern grid in 6 rows: 0.075 inch spacing along the row with 0.075 inch between rows, offset 0.025 inch (mating face)

LRM CONNECTORS WITH STAGGERED GRID

2. The staggered grid LRM is the advanced design to provide higher contact density for high speed integrated circuitry such as VHSIC and MMIC, SEM-E and custom form factors.

- 360 contact pattern grid in 8 rows: 0.100 inch spacing along the row with 0.050 inch between rows, offset 0.050 inch (mating face)
- Options include polarized shells, accommodation of a wide range of PC board/heat sink combinations and mother board compliant contacts
- ESD protection and EMI shielding available
- Connector the choice for F-22 Avionics systems

LRM CONNECTORS WITH GEN-X GRID

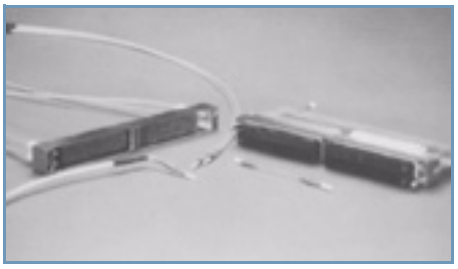
3. The new GEN-X grid LRM offers even higher contact density and improved electrical performance, SEM-E and custom form factors.

- 472 contact pattern grid in 8 rows: 0.075 inch spacing along the row with 0.060 inch between rows, offset 0.0375 inch (mating face)
- All options and features of 360 pin available including ESD protection

THE FUTURE

- 696 contact LRM
- VME and 2mm pitch solutions

4



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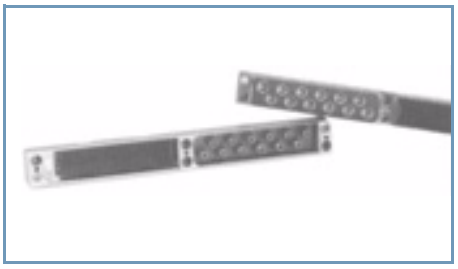

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Amphenol's LRM Connectors are modular by design, which facilitates custom combinations of digital, fiber optic, RF and power to meet individual customer requirements.

FIBER OPTIC LRM CONNECTORS

4. Fiber optic termini are available packaged in the LRM rectangular connector in the following configurations:

- MIL-T-29504/4, /5, /14 & /15 termini
- Lucent ROC (Robust Optical Connector)
- MT ferrule (2-24 fiber lines per ferrule)

In addition, Amphenol has designed optical backplane interconnect systems capable of providing up to 192 fiber optic lines and 80 digital contacts per LRM (SEM-E format). (See page 16).

RF MODULES

5. LRM inserts have been designed to accommodate the following RF contacts:

- Size 16 M39029/79 & /80 shielded contacts
- Size 12 coax for DC-2 GHz
- Size 8 coax for DC-32 GHz

POWER SUPPLY MODULES

6. Amphenol has designed several custom 270VDC sections which are capable of providing corona-free operation at 100,000 feet. They utilize size 22D contacts and are available in both crimp and compliant pin terminations.

L-2104 LRM Surface Mount Reference Guide
L-2081 LRM Surface Mount Designer's Guide

Rack and Panel

SE, LE, and 217 Series rectangulars, RFM modular, RNJ cylindrical

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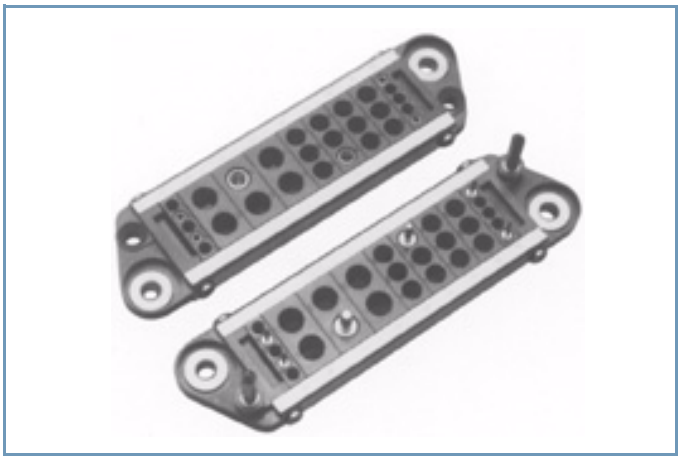

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SR SERIES RECTANGULAR RACK & PANEL

1. Intended for sliding rack applications, the SR connector incorporates resilient insert material per MIL-STD-417 which grips contacts firmly, withstanding severe vibration and physical shock. The insert may be readily pressurized and offers a good barrier to moisture, gasses, dirt, etc. Sold die cast aluminum shells are cadmium plated with a chromate after-treatment. Contacts are closed entry sockets in sizes 16 and 20, or coaxial and power contacts in sizes 4 and 8. The SR series is available with either pin or socket contacts in the plug or receptacle in general duty, general duty potted, or pressurized classes up to temperature range of –55°C to +125°C.

Catalog 12-034

LE SERIES RECTANGULAR RACK & PANEL

The LE rack and panel connector is a MIL-C-26518 type with neoprene resilient inserts and cast shells. It is designed to terminate with either standard crimp removable size 20 contacts or coaxial size 8, PT-SE type contacts. Performance is in the –55°C to +125°C range.

Catalog 12-034

217 SERIES RECTANGULAR RACK & PANEL

Amphenol® 217 Series miniature rectangular connector offers superior environmental protection, high performance and minimum weight and bulk. The 217 is available in two versions; both mating faces in silicone rubber, conforming to MIL-C-26518 or the plug (with socket contacts) incorporating a hard dielectric. Contacts are crimp rear insertable front release.

Consult Amphenol Aerospace
for further information

RFM SERIES MODULAR RACK & PANEL

2. Amphenol Socapex has developed the RFM Series of modular floating rack and panel connectors in accordance with the NF F61-032 Railway standard. The RFM series is designed for use in mass transit systems and incorporates inserts with low smoke properties. There is a choice of 3 modules with five 8 AMP, three 15 AMP, or two 25 AMP contacts. The contact design incorporated in the RFM guarantees high performance levels such as 5000 cycles durability, as well as high vibration properties and low insertion forces.

Consult Amphenol Aerospace
for further information

RNJ CYLINDRICAL RACK AND PANEL

3. Also available from the Amphenol Socapex division in France is the RNJ environmental rack and panel cylindrical connector. This connector series is used to connect electrical and optical devices between a moving unit (rack) and a fixed unit (panel) without any coupling/uncoupling device. Design features and benefits include:

- EMI shielding
- connector shells which are grounded prior to contact engagement
- 500 cycles durability
- moisture and corrosion resistant
- eight shell sizes: 9 to 25
- 1 to 128 crimp contacts per MIL-C-39029
- insert arrangements per MIL-STD-1560 (MIL-DTL-38999 Series I)
- temperature range –65°C to +175°C

Publication E115,RNJ

Special Purpose
PMAT (ARINC 644), aquacon, astronaut zero-G, geophysical

1

PMAT (ARINC 644)

1. ARINC 644 PMAT (Portable Maintenance Access Terminal) connectors were originally developed for use in commercial aircraft, however they can be used in military, geophysical, ground support and shipboard applications. Due to its self-contained environmental closure, this high performance connector is ideal for usage where the receptacle will be unmated and exposed to the environment. Ease of mating with four large flange grips and push/turn detent locking makes this connector operable even with a gloved hand. Environmentally sealed spring loaded contacts, ref. MIL-C-55116B. Utilizes MIL-C-83723 Series III socket contacts and accepts MIL-C-83723 accessories.

Product Data Sheet 157

AQUACON (IMMERSIBLE)

2. Designed for oceanic (underwater) or fluid immersion applications, offering 1500 psi capability, metal to metal coupling, “O” ring sealing, visual mating indicator, and design flexibility, at a low cost. Available with hard dielectric inserts to MIL-DTL-38999 as the AJ Series. Threaded coupling.

Catalog 12-140

2

ASTRONAUT ZERO-G CONNECTORS

3. The Zero-G is a handle operated connector designed for use in space by suited astronauts. The Zero-G has been successfully used on the Apollo, Lunar Rover and Skylab programs. An upgraded version, robot compatible, has been selected for use on the Space Station program. MIL-DTL-38999 performance, crimp contacts.
Other features of this connector include:

- Low out-gassing
- Explosion proof
- Astronaut EVA compatible
- Qualified/listed on both the Marshall Space Flight Center drawing 40M39580 and McDonnell Douglas drawing 1B69950
- Upgraded versions manufactured to NASA drawings/specification SSQ-21635

Product Data Sheet 147

See other connectors for use in space: the STV connector, a MIL-DTL-38999 Series III type (page 3), and Amphenol’s space application fiber optic connector (page 17). Both of these specials were designed to meet NASA specifications for space applications.

3

4

GEOPHYSICAL

4. Geophysical miniature connectors are designed for the geophysical industry’s rugged environments of extreme temperature and moisture. The unique design provides stronger shells along with an anodized finish for greater salt, corrosion and abrasion resistance.

Product Data Sheet 146

Special Purpose
hermetics, can couplers, wire integrated connectors, shorting plugs, M^3 connectors

1

HERMETICS

1. Hermetic connectors are produced in all the “basic” connector family lines; standard, miniature and subminiature. Designed for use in the military and commercial market place, these connectors have been supplied for 50 years. Specials such as sockets in glass and .050 center versions are common production items. Contact counts from 2 to 128 are available. For description of hermetic styles offered, consult each of the following catalogs:

- Hermetics in the MS Standard, MIL-C-5015 family - Catalog 12-020
- Hermetics in the Miniature, MIL-C-26482 family - Catalog 12-070
- Hermetics in the Subminiature, MIL-DTL-38999, Series I, II family - Catalog 12-090
- Hermetics in the Subminiature, MIL-DTL-38999, Series III family - Catalog 12-092

Consult Amphenol Aerospace, Sidney, NY
for further information

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CAN COUPLERS

2. Designed to meet the requirements of MIL-STD-1553 data bus systems*, the can coupler is used where a high concentration of remote terminals exist. They incorporate Tri-Start MIL-DTL-38999 wall mount receptacles with size 8 twinax contacts, coupling transformers, isolation resistors and, if desired, terminating resistors.

Consult Amphenol Aerospace, Sidney, NY
for further information

WIRE INTEGRATED CONNECTORS (W.I.C.’S)

3. Designed to allow the user to combine or redistribute circuits within a data bus system*. This can be done in-line with a feed-thru type W.I.C., or by mating a plug to a can W.I.C.

Consult Amphenol Aerospace, Sidney, NY
for further information

SHORTING PLUGS

4. Designed to provide specific circuit functions such as safety shorting and electrical commoning. Available as modified plugs or receptacles in all standard lines. Specifically engineered to meet individual applications.

Consult Amphenol Aerospace, Sidney, NY
for further information

M^3 CONNECTORS

5. This micro-miniature connector has an aluminum shell with a metric thread, providing durable positive coupling. Currently available with three size 22D contacts in a straight plug and jam nut style receptacle, its features include:

- Environmental resistant main joint seal
- Conductive shell finish
- Positive keying
- EMI termination

Consult Amphenol Aerospace, Sidney, NY
for further information

* Note: See page 30 for other data bus system products.

Cable Assemblies, Battlefield Interconnects - Stinger Missile, EMC protected, audio connectors, Sincgars, low profile MIL-STD-1760

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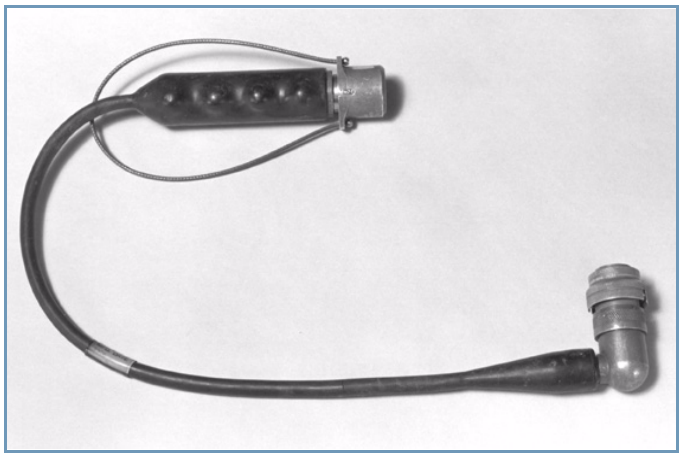

Amphenol Aerospace now provides cable systems, complete with high performance interconnects and cables designed specifically for user needs. Combining products from several Amphenol divisions for complete system sales provides users with simple solutions from one source. Amphenol Aerospace has the expertise to offer complete systems for battlefield, missile or industrial applications. The following products are currently being provided for this type of system interconnects.

STINGER MISSILE INTERCONNECTS

1. The Stinger Missile program utilizes unique Matrix products in the form of connectors, cable assemblies and caps which are now supplied by Amphenol Aerospace.

EMC PROTECTED AND OVERMOLDED CABLE ASSEMBLIES

2. Amphenol Aerospace offers a broad range of products for use in battlefield communication equipment. These specialized products include connectors, overmolded cable jumpers and EMC protected cable assemblies.

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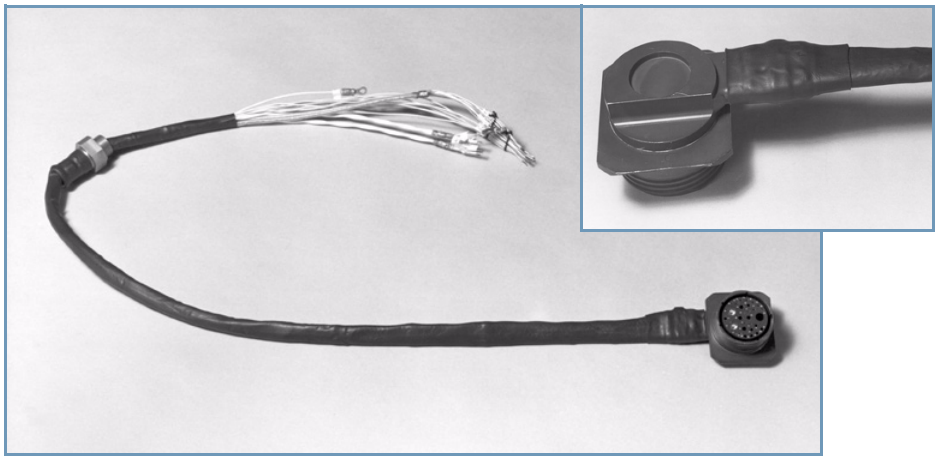

AUDIO CONNECTORS

3. Amphenol Aerospace offers a range of audio connectors including filtered and unfiltered connectors. Another popular product utilizing audio connectors is a version with customized flex-print attached. See page 22 for flex circuit products.

SINCGARS, BOWMAN PROGRAM CONNECTORS

4. Another type of battlefield/radio system interconnect system is the Sincgars Program for which Amphenol supplies special connectors.

WIND CORRECTED MUNITIONS DISPENSER SYSTEM (WCMD)

5. A low profile version MIL-STD-1760. Amphenol offers low profile connectors and cable assemblies for use in tight fitting applications, such as munitions upgrades and thin wing area stores locations.

Consult Amphenol Aerospace, Sidney, NY for further information

Cable Assemblies - Transportation & Industrial - Freight-Mate™, Sine® Systems

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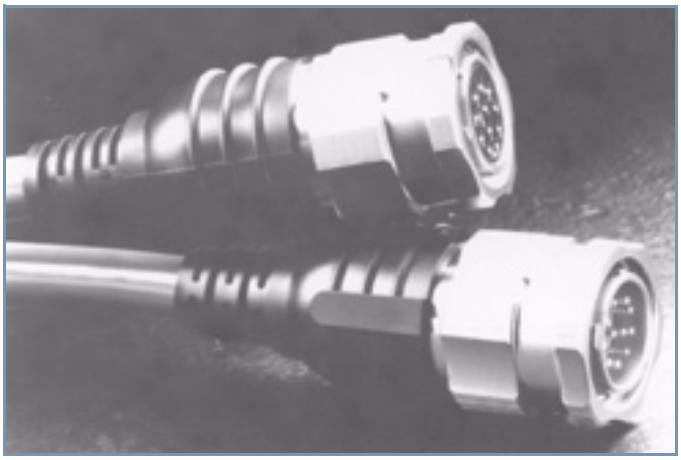


3

FREIGHT-MATE™ CABLE ASSEMBLIES

1. Amphenol introduces the advanced solution for ECP inter-car connections. The Freight-Mate cable assembly is the only AAR approved cable assembly for inter-car connection of electronically controlled pneumatic (ECP) braking systems. Amphenol supplies this product as well as other interconnects for the railway transportation industry.
Contact Amphenol, Sidney, NY for information on interconnection products for railway applications such as:

- communication and tracking equipment
- signaling equipment
- end of train units

V-LINE OVERMOLDED CABLE ASSEMBLIES

2. V-Line Industria-link multi-conductor cable assemblies are manufactured in standard insert configurations, from 11 to 31 contacts, and in lengths of 25 to 100 feet.
The V-line connector features a triple lead ratcheted, threaded coupling system that creates a metal-to-metal lock-up between the plug and receptacle. The V-line is resistant to vibration and it is environmentally sealed, making it ideal for many industrial applications. These connectors are manufactured from high strength aluminum with an electroless nickel plating for superior corrosion resistance and aesthetics. Eight different panel mount receptacle styles are available, along with mounting gaskets, contact tools and mounting hardware.
The V-line Industria-link cable assemblies are offered in 16 or 18 awg. Injection molded strain reliefs, while controlling bend radii and cable pull, provide environmental sealing for the rear of the connector.

STAR-LINE® CABLE ASSEMBLIES

3. Cable assemblies are available from Amphenol/Sine Systems/Pyle Connectors Corp. which incorporate Star-Line connectors. The Star-Line Series of connectors are heavy duty, environmentally sealed plugs and receptacles for industrial and aerospace use. They are available as power, control, or a combination of the two in eight shell sizes. Inserts are available in many patterns, ranging from one 500 MCM contact to 143 #16 contacts. The double-lead Acme thread coupling is a moderate quick-coupling thread which permits full mating in approximately one turn of the coupling nut. The thread contour makes the thread area self-cleaning. Other features and benefits of the Star-Line include: UL and CSA recognition, non-conductive shell finish with superior corrosion resistance and crimp contacts.

Data Bus Interconnecting Systems
ARINC 629, MIL-STD-1553

1

2

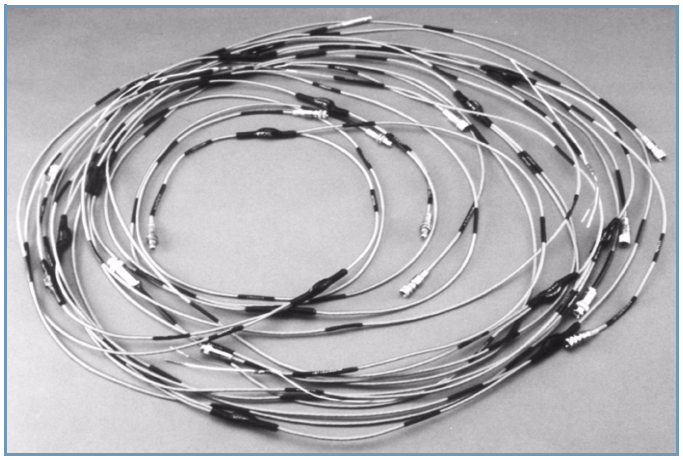
BUS CABLE ASSEMBLIES/ TERMINATORS

1. The ARINC 629 bus cable assemblies are twisted pair conductors with a terminating resistor on each end. The cable assemblies are designed for deferred maintenance and high reliability. The bus cable assemblies can be configured for the entire length of the plane. Multiple current mode couplers may be attached to each bus cable.

Amphenol's main bus cable assembly, complete with terminators, complies with the requirements of ARINC 629. It is manufactured to specific customer lengths and tested for compliance with ARINC 629 standards prior to shipment.

Consult Amphenol, Sidney, NY
for further information

3



CURRENT MODE COUPLERS

2. The ARINC 629 current mode coupler (CMC) is used as a communication interface link between the Serial Interface Module (SIM) and the bus cable assembly.

The current mode coupler provides a non-intrusive, inductive connection to the bus via magnetic cores located within the device. The magnetic E-cores in the base are spring loaded which allows the core to float in the vertical direction. When viewing the coupler from the side, this spring loading capability provides the assurance that the flat faces of the two E-core halves will be in intimate contact. The elimination of core bounce guarantees consistent coupler output.

The CMC's easy mount feature allows attachment to the mounting panels without the use of special tools. Amphenol's CMC unique design virtually eliminates the possibility of installation error.

Product Data Sheet 156

4

CABLES

3. Twisted and shielded transmission line consisting of a main bus and extended stub cables. Available as a single and double shielded or EMP hardened pair of conductors in sizes from 22 AWG to 26 AWG. The MIL-STD-1553 "B" version allows for low loss, lightweight, high performance cable to extend bus operation up to 2,000 feet. Can be supplied as a customized bus harness.

Consult Amphenol, Sidney, NY
for further information

BOX COUPLERS

4. Provide coupling between the main bus and remote terminals, and fault protection from the remote terminal or stub connection. Utilize a coupling transformer and two isolation resistors for each stub. Offered in three styles: standard, economical and lightweight; ruggedized, mid-size with the highest mean time between failure (MTBF) results; and armor, for the most severe environments such as ground/surface transportation.

Consult Amphenol, Sidney, NY
for further information

See page 27 for additional MIL-STD-1553 products.

Special Products
contacts, application tools

1

MIL-C-39029 CONTACTS

Amphenol Aerospace offers a wide variety of contacts for most Mil-spec and proprietary connectors. In addition to standard 500 cycle and 1500 cycle contacts, other special and custom design contacts are available, such as thermocouple, concentric twinax and RCT (Reduced Component Twinax) contacts for data bus applications, coax and triaxial types, and ARINC types.

COAXIAL CONTACTS

1. For shielded wire applications; designed in crimp or solder versions to fit various RG and special cables for almost all basic multi-contact connector styles. Coaxial contacts eliminate discontinuities or impedance variations due to movement of parts under axial load. Diameters are standardized in sizes 4, 8, 12 and 16 so that coaxial contacts may be interchanged with power contacts in connector insert arrangements which include those sizes.

Catalog 12-130

CONCENTRIC TWINAX CONTACTS

2. The size 8 concentric twinax contact, developed for use in MIL-STD-1553B Airborne multiplex data bus applications which require high performance interconnect characteristics in multi-pin connectors. The contact is crimp terminable to twisted-shielded cable and is fully scoop-proof (recessed pins) in MIL-DTL-38999 connectors. Other features include:

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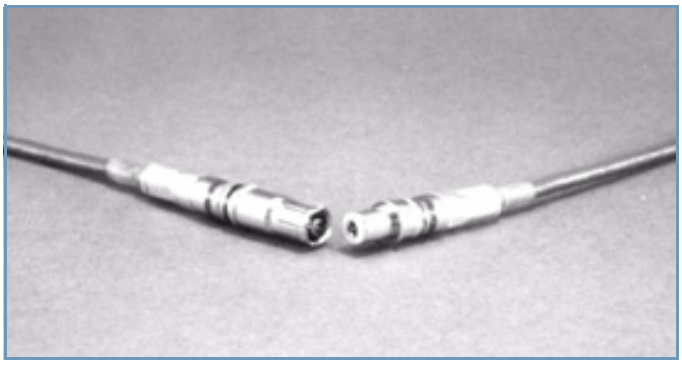
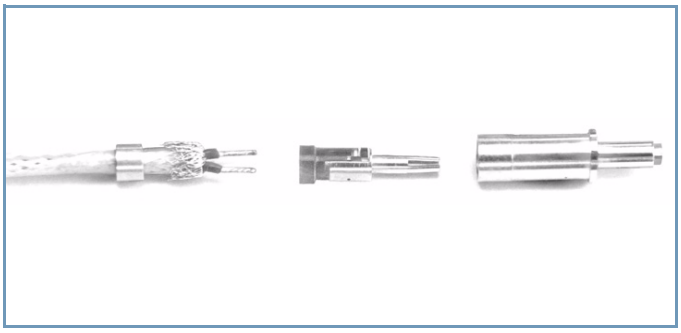


- Provides protection from magnetic and electrostatic interference including nuclear electromagnetic pulse
- Maintains shield integrity through a multi-pin cylindrical connector and does not require contact polarization within the insert
- 175°C rated and meets performance levels of MIL-DTL-38999 Series III connectors
- MIL-C-17/176-00002 cable termination
- Qualified to M39029/90 & /91
- Integral part of the MIL-STD-1760 interconnection system

Catalog SL-388

3



PC TAIL TWINAX CONTACTS

Also available from Amphenol are printed circuit tail twinax contacts, manufactured in sizes 8, 10 and 12. They provide a cost effective packaging solution for limited space applications where connectors are attached to printed circuit boards. They are available for MIL-DTL-38999 Series I and III cylindrical connectors and also for ARINC 404 and ARINC 600 rectangular connectors.

Catalog SL-388

REDUCED COMPONENT TWINAX CONTACTS

3. The RCT (Reduced Component Twinax) contact meets MIL-C-39029/90 and 91 requirements for intermateability and performance while reducing the number of user-assembled components from seven to three. The inner conductors and outer barrel of the RCT are each terminated to the cable by a crimp joint, so no costly assembly soldering operations are required. Features include:

- Three user assembled components
- MIL-C-17/176-00002 cable termination
- For installation in MIL-DTL-38999 Series III connectors
- Termination completed in only two crimping operations
- Inner conductors stripped to common length, eliminating multiple measurements

Catalog SL-388

APPLICATION TOOLING

Crimp, insertion and removal tools for all connector styles including coax connectors are available from Amphenol Aerospace. Consult appropriate catalog sections or Amphenol Aerospace, Sidney, NY.

Special Products

M85049 accessories, “ABK” heat shrinkable backshells, lightweight strain reliefs

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M85049 ACCESSORIES

1. Available from Amphenol Aerospace are a wide variety of connector accessory items which include:

M85049/6	M85049/31	For the following MIL-Spec Connectors: MIL-C-5015 Crimp MIL-C-26482 Series 2 MIL-C-81703 Series 3 MIL-C-83723 Series III
M85049/7	M85049/43	
M85049/8	M85049/51	
M85049/9	M85049/52	
M85049/10	M85049/53	
M85049/11	M85049/54	
M85049/23	M85049/55	
M85049/24	M85049/60-1	
M85049/25	M85049/60-2	
M85049/26-1		
M85049/17	M85049/47	For the following MIL-Spec Connectors: MIL-DTL-38999 Series I, II
M85049/27	M85049/49-2	
M85049/29	M85049/62	
M85049/33-2	M85049/57	
M85049/36	M85049/63	
M85049/37		
M85049/14	M85049/20	For the following MIL-Spec Connectors: MIL-DTL-38999 Series III, IV
M85049/15	M85049/21	
M85049/16	M85049/38	
M85049/18	M85049/39	
M85049/19	M85049/69	

MS/AN 3057 cable clamps
MS 3420 sleeves
AN 3055 adapters
AN 3064 conduit box connectors
AN 3054 conduit coupling nuts
AN 3066 conduit coupling locknuts
Special cable clamps, adapters, strain reliefs
Special thru bulkhead shell, dummy receptacles
Protection caps, sealing gaskets, sealing plugs

For further information, consult appropriate catalog sections or Amphenol Aerospace, Sidney, NY.

“ABK” HEAT SHRINKABLE BACKSHELLS

2. One part cable termination for MIL-DTL-38999 Series I, II, III, IV connectors to either shielded or unshielded cables. Also available for MIL-C-5015 and GT reverse bayonet connectors. Constructed using spin coupling adapters and heat-shrinkable molded parts, the backshell kit comprises components that are quick and easy to install. When used in conjunction with shielded cables, the assembly provides electrical continuity between the cable shield and the connector with Rayaten™ molded parts which provide screening levels better than 80 dB at 100 MHz.

Consult Amphenol, Sidney NY for further information

LIGHTWEIGHT STRAIN RELIEFS

3. Compatible with Amphenol® subminiature and miniature environmental connectors, these nylon strain reliefs are lightweight and low cost compared to metallic assemblies, yet offer similar performance.

Consult Amphenol, Sidney NY for further information