

Amphenol® Concentric Twinax Contacts

SL-388



Amphenol

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The emergence of digital high speed data transmission systems which provide high reliability has led to the adoption of a Data bus system whose parameters are defined by MIL-STD-1553B. The "Data Bus" consists of a shielded twisted pair of conductors commonly known as twinax cable.

Amphenol offers a concentric twinax contact for use with twinax cable which provides protection from magnetic and electrostatic interference including nuclear electromagnetic pulse.

The Concentric Twinax Contact is engineered to maintain shield integrity through a multi-pin cylindrical connector and does not require contact polarization within the insert.

Supporting application tools are available for crimping as well as installation and removal of contacts from connectors. Consult Amphenol, Sidney, NY for tooling information.



Lanyard Release Connector with Insert Arrangement 25-20
Qualified to D38999/31 for MIL-STD-1760

SIZE 12 CONCENTRIC TWINAX CONTACTS

The size 12 concentric twinax contact interface was developed for JN1104 Euro-Fighter contacts, and can be used in any size 12 cavity M38999 I, II or III or SJT connector.

Features:

- Operating temperature -55°C to 175°C
- Pins are scoop-proof
- Meets performance levels of M38999 connector
- 4 components, gold plated crimp termination
- For use with a variety of cables (See chart opposite)

TYPICAL ELECTRICAL PERFORMANCE

Size 12 Concentric Twinax Contacts

Voltage Rating:

500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp, 55 millivolts max.
voltage drop @ 25°C

Intermediate @ 1 Amp, 55 millivolts
max. voltage drop @ 25°C

Outer @ 12 Amps, 85 millivolts max.
voltage drop @ 25°C

Operating Frequency: 0-30 MHz

Dielectric Withstanding Voltage:

Center to Intermediate 800 VAC Rms

@ Sea Level

Intermediate to Outer 500 VAC Rms

@ Sea Level



Concentric Twinax Contacts Size 12



Unassembled Components of Size 12 Concentric Twinax Contact

SIZE 12 CONCENTRIC TWINAX CONTACTS				
For use with Cable	Size 12 Concentric Twinaxial Contact Part Number		Comments	Connector Series
	Pin	Socket		
EPD32263A, GSC-12-2548-00	21-33909-22	21-33908-22	JN1104 Interface	D38999 Series I, III
M17/176-00002	21-33909-25	21-33908-25	JN1104 Interface	D38999 Series I, III
GSC-12-81095-00	21-33909-26	21-33908-26	JN1104 Interface	D38999 Series I, III
GSC-12-81095-00		21-33640-26	JN1104 Interface	D38999 Series II
M17/176-00002	21-33632-1	21-33631-1		ARINC M83527

NOTE: Contacts can be ordered by part numbers given in chart.

SIZE 8 CONCENTRIC TWINAX CONTACTS

The size 8 concentric twinax contact was developed for use in MIL-STD-1553 Airborne multiplex data bus applications which require high performance interconnect characteristics in multi-pin connectors. Ideal for this application need is the high performance Tri-Start connector with its fully scoop-proof feature of recessed pins. The concentric twinax contact is crimp terminable to twisted-shielded cable.



Concentric Twinax Contacts Size 8

Features:

- 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
- Gold plated full crimp termination contacts qualified to M39029/90 & /91
- Integral part of the MIL-STD-1760 interconnection system
- Also available in modified but intermateable versions for termination to a host of cables (See chart below)

TYPICAL ELECTRICAL PERFORMANCE

Size 8 Concentric Twinax Contacts

Voltage Rating: 500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp,
55 millivolts max. voltage drop
@ 25°C

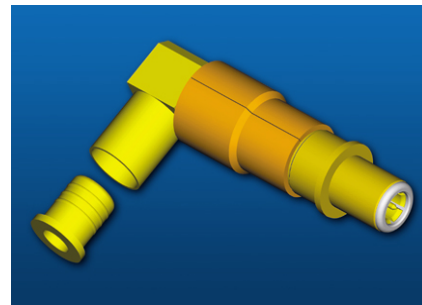
Intermediate @ 1 Amp,
55 millivolts max. voltage drop
@ 25°C

Outer @ 12 Amps,
75 millivolts max. voltage drop
@ 25°C

Operating Frequency: 0–20 MHz

Dielectric Withstanding Voltage:

Center to Intermediate:
1000 VAC Rms @ Sea Level
Intermediate to Outer:
500 VAC Rms @ Sea Level



Size 8, 90 Degree Twinax Pin Contact
for use in Series I, II and III D38999
Connectors

SIZE 8 CONCENTRIC TWINAX CONTACTS

For use with Cable	Size 8 Concentric Twinaxial Contact Part Number		Comments	Connector Series
	Pin	Socket		
M17/176-00002	21-33190-529	21-33191-530	M39029/90/91 (Amphenol) Supplied with heat shrink seal	D38999 Series I, III
M17/176-00002	T3-46T08-LD	T3-47T08-LD	M39029/90/91 (Pyle) Supplied with heat shrink seal	D38999 Series I, III
M17/176-00002	21-33190-000	21-33191-000	Supplied without seal	D38999 Series I, III
M17/176-00002	21-33190-001	21-33191-001	Supplied with piggyback grommet seal	D38999 Series I, III
Raychem 10612	21-33190-26	21-33191-26		D38999 Series I, III
Raychem 10614, EPD22189B, 7724C8664, 05A0771, GC875TM24H, T10971	21-33190-22	21-33191-22		D38999 Series I, III
Raychem 10613, PAN711-6421, 23089/RC	21-33190-27	21-33191-27	Supplied with piggyback grommet seal	D38999 Series I, III
Raychem 10613, PAN711-6421, 23089/RC	21-33190-30	21-33191-30		D38999 Series I, III
GSC-12-2548-00, 7726D0664	21-33190-40	21-33191-40	Supplied with piggyback grommet seal	D38999 Series I, III
Raychem 10614, 7724C8664	T3-46TB08-LD	T3-47TB08-LD		D38999 Series I, III
5M2022-003, HS5930, 0024G0024, Raychem 10602	P-209527	P-209528		D38999 Series I, III
782OD0111 (20 AWG)	T3-467C08-LD	T3-47TC08-LD		D38999 Series I, III
S280W502-1		21-33646-1		ARINC 600
PAN6421	BA-46T08-LD	BA-47T08-LD		26482 II (PT-DR)
M17/176-00002	21-33625-1		90 Degree	D38999 Series I, III

Amphenol® RCT Contacts

Amphenol® RCT (Reduced Component Twinax) Contacts - contact assembly and termination for MIL-STD-1760 and MIL-STD-1553 Data Bus requirements.

- 3 user-assembled components
- Available in size 8 or size 10 contact sizes
- MIL-C-17/176-00002 and other various cable termination
- Termination completed in only two crimping operations
- Inner conductors stripped to common length

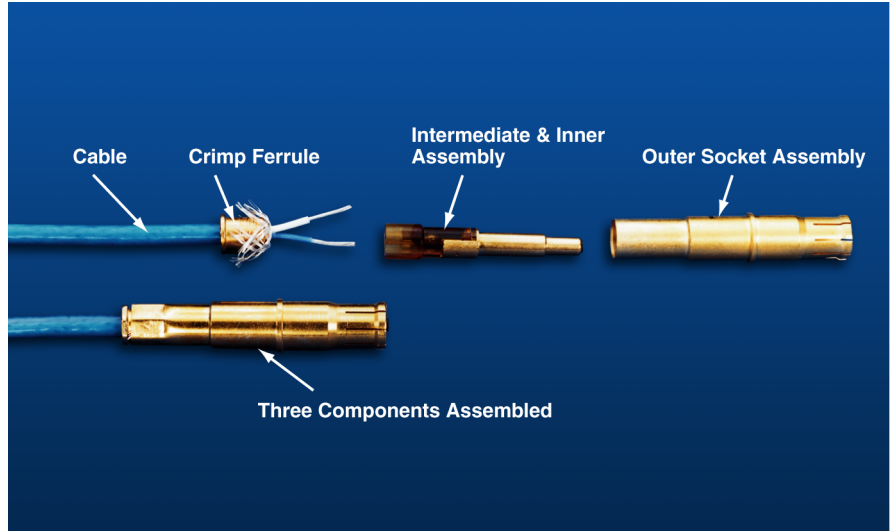
The size 8 reduced component twinax contact meets MIL-C-39029/90 and /91 requirements for interchangeability and performance, while reducing the number of user-assembled components from seven to three.

The reduced component twinax can be installed in MIL-DTL-38999* Series I or III connectors, and can be terminated to MIL-C-17/176-00002 cable, with other cable versions available with minor modifications. (see chart below)

The inner conductors and outer barrel are each terminated to the cable by a crimp joint, so no costly assembly soldering operation is required.

As the inner conductors are stripped to a common length, multiple measurements are eliminated. Assembly instructions are included in the packaging of the contacts.

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



RCT (Reduced Component Twinax) Contact

TYPICAL ELECTRICAL PERFORMANCE Size 8 & 10 Reduced Component Contacts

Voltage Rating: 500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp, 55 millivolts max. voltage drop @ 25°C

Intermediate @ 1 Amp, 55 millivolts max. voltage drop @ 25°C

Outer @ 12 Amps, 75 millivolts max. voltage drop @ 25°C

Operating Frequency: 0–20 MHz

Dielectric Withstanding Voltage:

Center to Intermediate 1000 VAC Rms @ Sea Level

Intermediate to Outer 500 VAC Rms @ Sea Level

SIZE 8 & 10 REDUCED COMPONENT CONTACTS					
For use with Cable	Size	Size 8 & 10 Reduced Component Contact Part Number		Comments	Connector Series
		Pin	Socket		
M17-176-00002	8	21-33876-3	21-33875-3	Supplied with Heat Shrink Seals	D38999 Series I, III
M17-176-00002	8	21-33876-1	21-33875-1	Without Seals	
M17-176-00002	8	21-33876-2	21-33875-2	With Piggyback Seal	
Raychem 10612	8	21-33190-25	21-33191-25		
CXN2268	8	21-33876-65	21-33875-65		
5M2022-003 HS5930 0024G0024 Raychem 10602	8	21-33190-6	21-33191-6		
5M2022-003	10	21-33844-1	21-33843-1		
Raychem 10606	8	21-33190-34	21-33191-34		

NOTE: Contacts can be ordered by part numbers given in chart.

Amphenol® PC Tail Twinax Contacts

Amphenol's printed circuit tail twinax contacts are 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. High reliability is assured with factory pre-assembled contacts and standardized termination to the board. Consult Amphenol, Sidney, NY for further information on the wide variety of PC Tail Twinax contacts and for applicable tooling for these contacts.

TYPICAL ELECTRICAL PERFORMANCE Size 8, 10 & 12 PC Tail Twinax Contacts

Voltage Rating: 500 Vrms max. @ sea level

Contact Resistance:

Center @ 1 Amp, 55 millivolts max.
voltage drop @ 25°C

Intermediate @ 1 Amp, 55 millivolts
max. voltage drop @ 25°C

Outer @ 1 Amp, 55 millivolts max.
voltage drop @ 25°C

Operating Frequency: 0–20 MHz

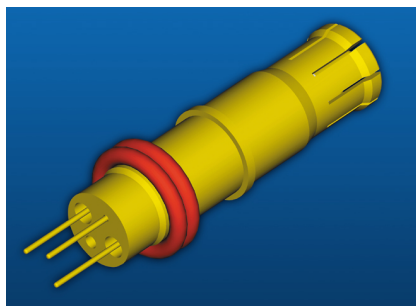
Dielectric Withstanding Voltage:

Center to Intermediate 800 VAC Rms
@ Sea Level

Intermediate to Outer 500 VAC Rms
@ Sea Level



Amphenol offers a wide variety of
PC Tail Twinax Contacts.



**Size 8, PC Tail
Twinax Socket Contact
for use in Series I and III D38999
Connectors**

SIZE 8, 10 & 12 PC TAIL TWINAX CONTACTS				
Size	PC Tail Twinax Contact Part Number	Tails*	Comments	Connector Series
8 Pin	21-33967-15	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	21-33967-45	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	21-33967-55	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	21-33967-65	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	21-33921-15	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	21-33921-35	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	P-209550	PCB 3 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	P-209532-1	PCB 9 tails	M39029/90/91 Interface	D38999 Series I, III
8 Pin	P-209532-2	PCB 9 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	DB-109002	PCB 2 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	21-33919-15	PCB 2 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	21-33919-25	PCB 2 tails	M39029/90/91 Interface	D38999 Series I, III
8 Socket	21-33693-2	PCB 3 tails		ARINC 404
8 Pin	21-33914-25	PCB 3 tails		ARINC 600 FR
10 Pin	21-33844-2	PCB 2 tails		D38999 Series I, III
12 Pin	21-33633-1	PCB 4 tails	JN1104 Interface	D38999 Series I, III
12 Pin	21-33633-2	PCB 4 tails	JN1104 Interface	D38999 Series I, III
12 Pin	21-33633-3	PCB 4 tails	JN1104 Interface	D38999 Series I, III
12 Pin	21-33633-4	PCB 4 tails	JN1104 Interface	D38999 Series I, III

* Contact Amphenol, Sidney, NY for tail configurations and tail diameters.

NOTE: Contacts can be ordered by part numbers given in chart.

Concentric twinax contacts can be provided in several connector styles

Amphenol® D38999 Series I, II, III and SJT Connectors

High performance connectors within the D38999 families are the most commonly used connectors for incorporation of twinax contacts. These connectors offer wide versatility in insert arrangements for not only concentric twinax contacts, but also coax (shielded), triax, PCB, wire wrap, thermocouple and EMI filter contacts.

Amphenol® Ground Plane Connectors

Amphenol offers MIL-DTL-38999* Series III connectors for data bus, LAN and coax/triax/twinax transmission lines with conductive inserts that ground the outer conductor of the coax, triax or twinax contact to the shell. These connectors are sold "less contacts". They will accommodate size 8 coax, triax or twinax contacts or size 12 or 16 coax contacts.

Amphenol® MIL-DTL-38999 "Breakaway" Fail Safe Connectors

Concentric twinax contacts are available in the Breakaway connector which provides quick disconnect of a connector plug and receptacle with axial pull. Covered by MIL-STD-1760, and compatible with MIL-STD-1553B Aircraft Multiplex Data Bus systems, this is an interface device between an aircraft and its "stores".

Amphenol® MIL-STD-1760 Rail Launch Connectors

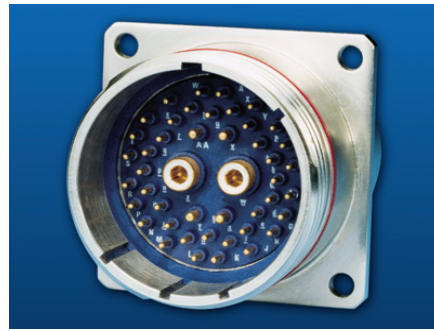
Amphenol supplies the MIL-STD-1760 Stores Management System for aircraft that carry rail launch missiles such as AMRAAM, F-18, B-52, B-2 and SRAM II programs. The insert has a hybrid arrangement which can incorporate concentric twinax contacts. The type II launcher plug, buffer plug and missile receptacle are designed for blindmating of stores on rail launch applications.



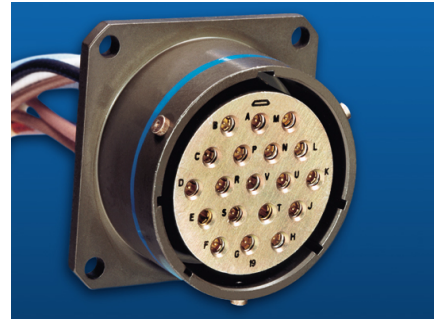
MIL-STD-1760 Rail Launch,
Stores Management Connector System

Other connectors available with concentric twinax contacts:

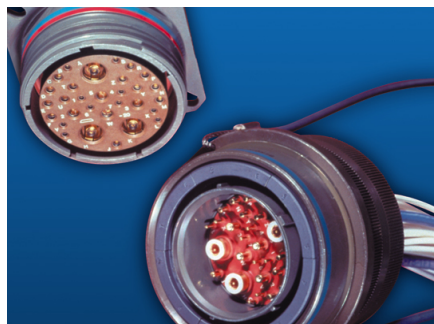
- Wire Integrated Connectors (WICS) for Data Bus Systems. Consult Amphenol Aerospace, Sidney NY.
- ARINC 404 and ARINC 606 rectangular connectors. Supplied by Amphenol Canada (See listing on next page).



Subminiature MIL-DTL-38999,
Series III Connector



Ground Plane Connector with Metallic Insert
and Concentric Twinax Contacts



"Breakaway" Fail Safe Subminiature
MIL-DTL-38999 Connector

Other Contact Types

Amphenol offers a wide variety of contacts in addition to concentric twinax types, including:

- Standard 500 cycle and 1500 cycle
- Thermocouple
- Coaxial for shielded wire applications
- Triaxial

Application tooling - crimp, insertion, removal tools - are available for all contact styles.



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