

New "Split-Pair" Quadrax Contacts* for MIL-DTL-38999, Series III Cylindricals

for use with CAT6A Type Cable

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

FEATURES & BENEFITS:

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

APPLICATIONS:

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

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

SPLIT-PAIR QUADRAX CONTACT PART NUMBERS:

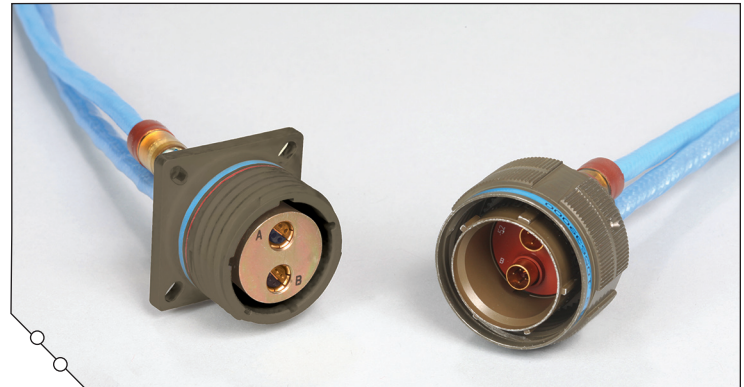
Crimp Style Part Number	Cable	AWG
PIN 21-033470-001	Thermax 1536-224	24
SOCKET 21-033471-001		
PIN 21-033470-021	Thermax 1536-195	26
SOCKET 21-033471-021		

CRIMP TOOLS:

Outer Contact	Inner Contact
DANIELS M22520/5-01 with die set Y1999 or M22520/5-45	DANIELS M22520/2-01 with positioner K1777

Daniels crimping tools are available from Daniels Mfg. Corp.
6103 Anno Ave., Orlando, FL 32809

REMOVAL TOOL: **M81969/14-12**

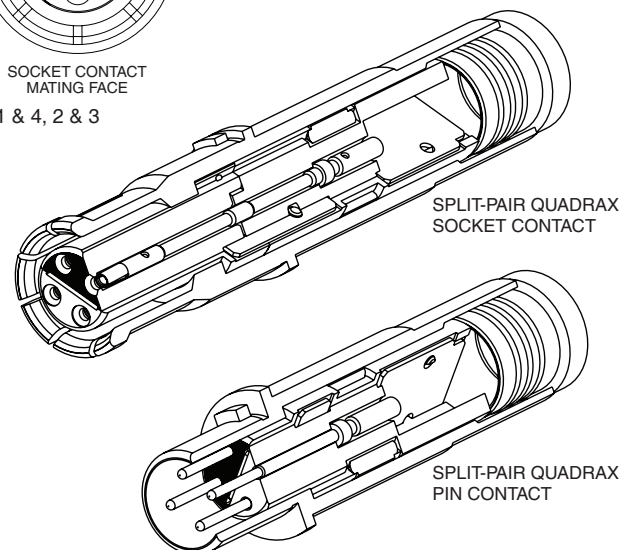
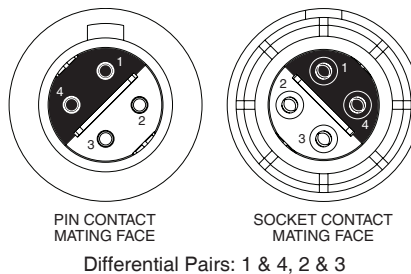


MIL-DTL-38999 Series III Connectors with "Split-Pair" Quadrax Contacts for use with CAT6A Type Cable



"Split-Pair" Quadrax Contacts for use with CAT6A Type Cable

Suggested Numbering for Quadrax Contacts



* Patent pending.

** See Amphenol® Quadrax Contacts in the High Speed Section of the combined circular interconnect product catalog from Amphenol, 12-C3, online at www.amphenol-aerospace.com.

New "Split-Pair" PCB Quadrax Contacts for MIL-DTL-38999, Series III Cylindricals

PCB QUADRAX PIN

PCB Pin Part Numbers	Impedance	Length \pm .015
21-033466-011	100 Ohm	1.035
21-033466-021		.815
21-033466-031*		.815
21-033466-041		.866
21-033466-051		.494
21-033466-061		.582

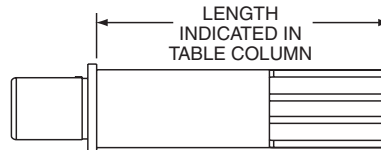
PCB QUADRAX SOCKET

PCB Socket Part Numbers	Impedance	Length \pm .015
21-033467-011	100 Ohm	1.035
21-033467-021		.815
21-033467-031*		.815
21-033467-041		.866
21-033467-051		.494
21-033467-061		.582

*Pretinned

Indicated length given in charts above is the distance from the rear of the contact retention shoulder to the tip of the PCB tails.

Note: it does not indicate stickout length when installed in D38999 connector.



TRANSITION ADAPTERS FOR LAUNCHING SIGNALS TO PC BOARDS

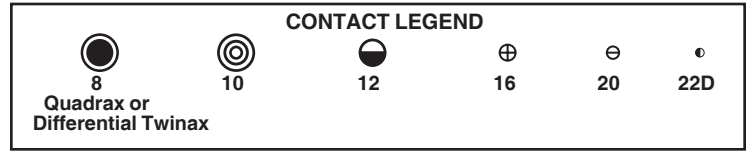
100 OHM QUADRAX TRANSITION ADAPTERS FOR LAUNCHING CONTROLLED IMPEDANCE SIGNALS TO PC BOARDS					
Quadrax Type Adapter/ Cable or PCB Tail Length	Illustration of Adapter	Part Number		Impedance (Ohms)	Mating Thread Size
		Plug	Receptacle		
Quadrax Plug Adapter/ Thermax 1536-224		21-033468-011		100	.375
PCB Quadrax Receptacle 90 Degree Adapter/ Tail Length .110			21-033469-001		
PCB Quadrax Receptacle Straight Adapter/ Tail Length .110			21-033469-011		
Quadrax Receptacle 90 degree Adapter with cable to board/ Thermax 1536-224			21-033469-021		
Quadrax Receptacle Straight Adapter with cable to board/ .195 tail length Thermax 1536-224			21-033469-031		

Insert Patterns - for MIL-DTL-38999, Series III Cylindricals

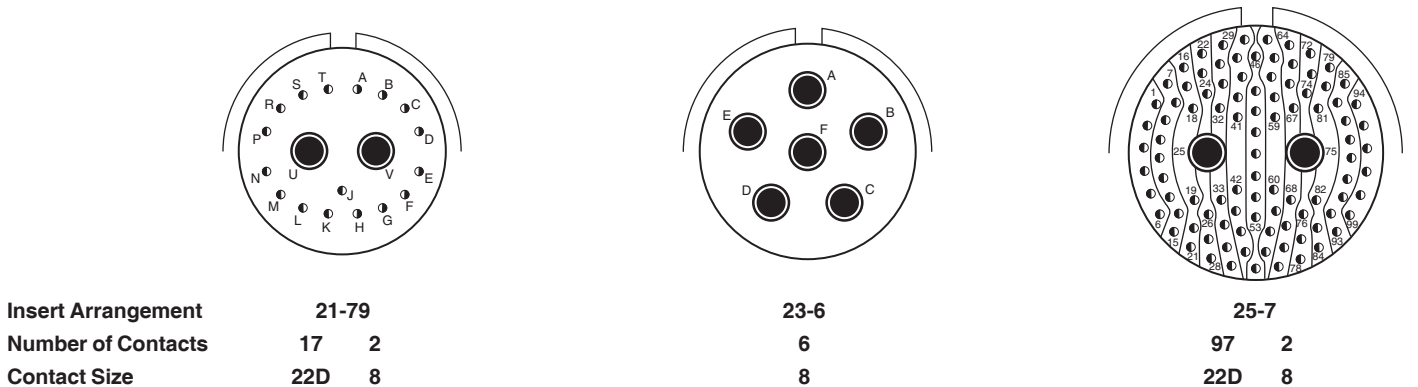
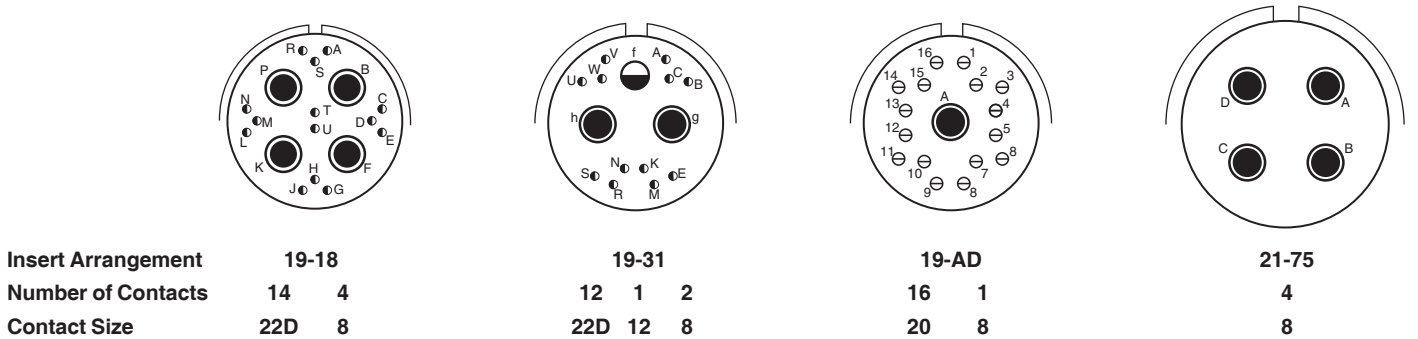
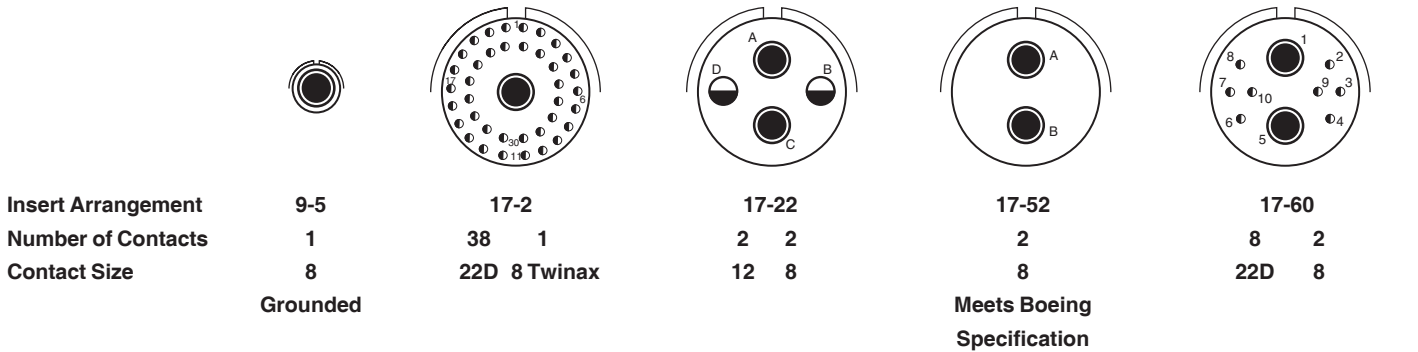
Incorporating "Split-Pair" Quadrax Contacts

This illustrated listing represents the most readily available patterns incorporating Amphenol's new split-pair quadrax contacts as well as standard quadrax and differential twinax contacts within D38999, Series III cylindrical connectors.*

If you require other arrangements than what are shown here, consult Amphenol for further availability. In most cases, unless otherwise stated, size 8 cavities can be filled with quadrax or differential twinax contacts. Arrangements can be mixed with any size 8 coax, and/or concentric twinax or triax contacts.

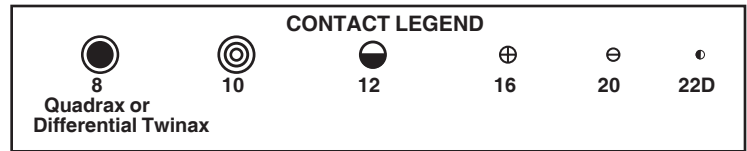


front face of pin inserts illustrated

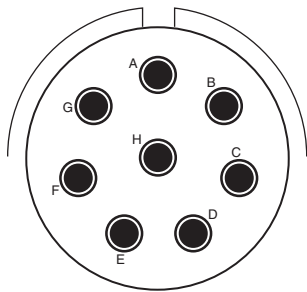


* Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts.

Insert Patterns - for MIL-DTL-38999, Series III Cylindricals Incorporating "Split-Pair" Quadrax Contacts



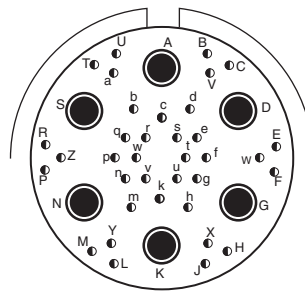
front face of pin inserts illustrated



25-8

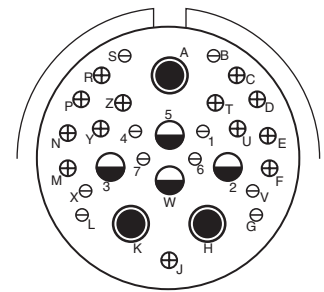
Insert Arrangement
Number of Contacts
Contact Size

8
8



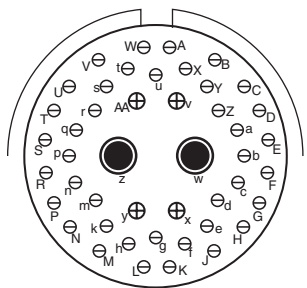
25-17

36 6
22D 8



25-20

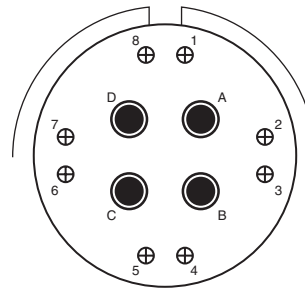
10	13	3	4
20	16	8	12



25-46

Insert Arrangement
Number of Contacts
Contact Size

40	4	2
20	16	8



25-62

8	4
16	8

New "Split-Pair" Quadrax Contacts for MIL-DTL-38999, Series III Cylindricals

Frequencies & Performance Data

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

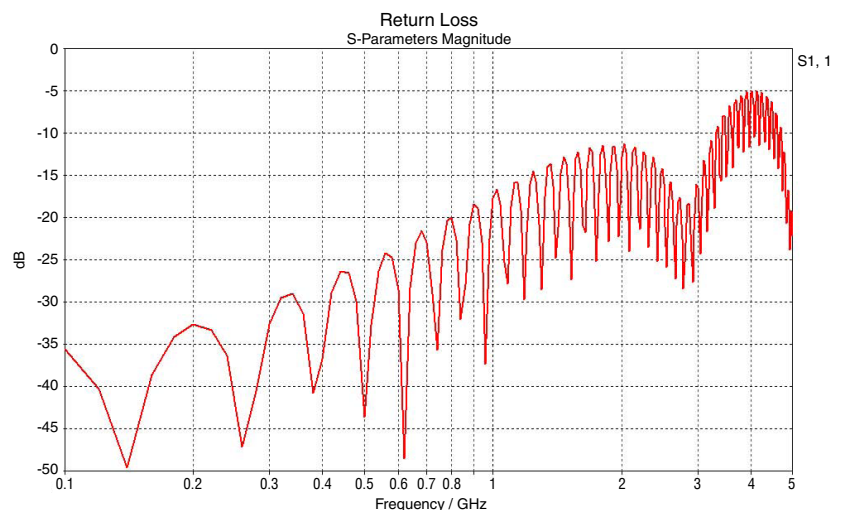
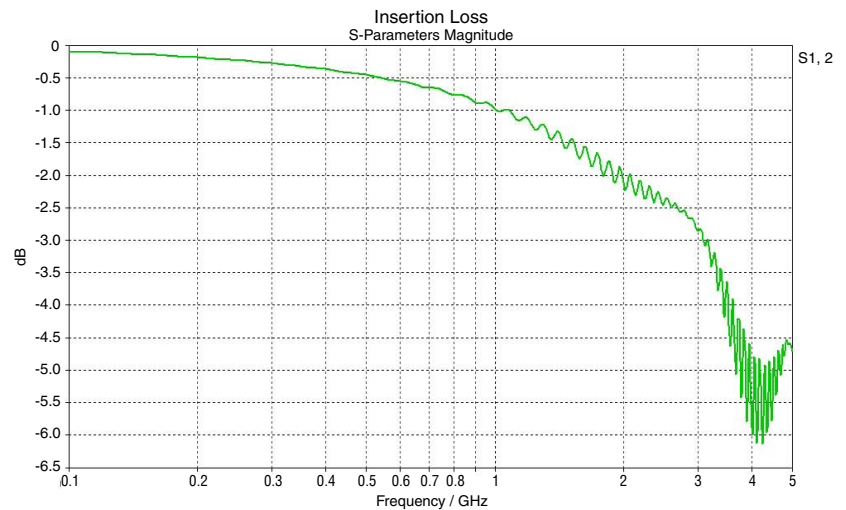
- 10/100/1000/10GBASE-T Ethernet
- DVI
- USB 2.0
- Serial RapidIO (up to 3.125 Gbps)
- PCI-Express 2.0
- HDMI 1.3a
- SATA 2.0 (up to 3 GHz)

FREQUENCIES OF INTEREST

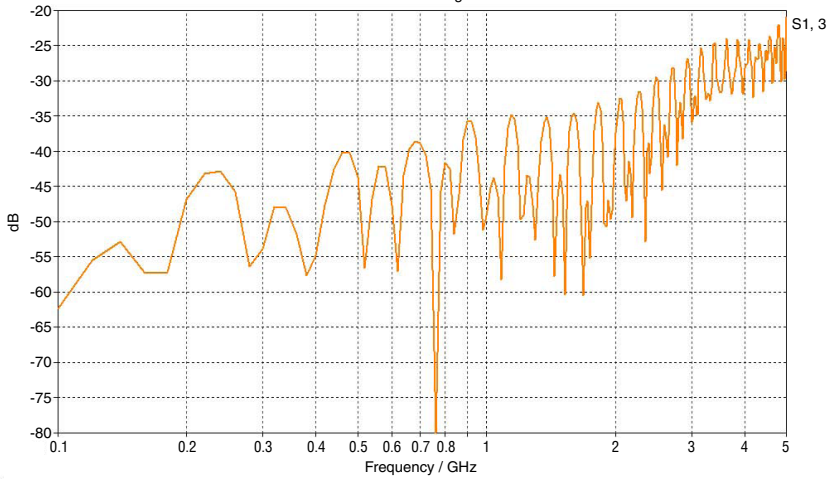
Frequency (GHz)	Insertion Loss (dB)	Return Loss (dB)	NEXT (dB)	FEXT (dB)
0.1	0.09	35.68	62.36	59.29
0.24	0.22	36.44	42.87	62.25
0.5	0.45	43.66	43.63	55.22
0.625	0.57	43.49	53.68	43.53
1	0.98	17.82	49.26	48.33
1.25	1.29	15.1	43.57	44.12
1.5	1.47	17.94	46.02	40.78
1.7	1.86	12.23	48.01	47.23
2	2.11	12.9	37.45	38.12
2.5	2.42	15.97	29.9	31.52
3	2.86	16.52	35.94	29.36

PERFORMANCE DATA

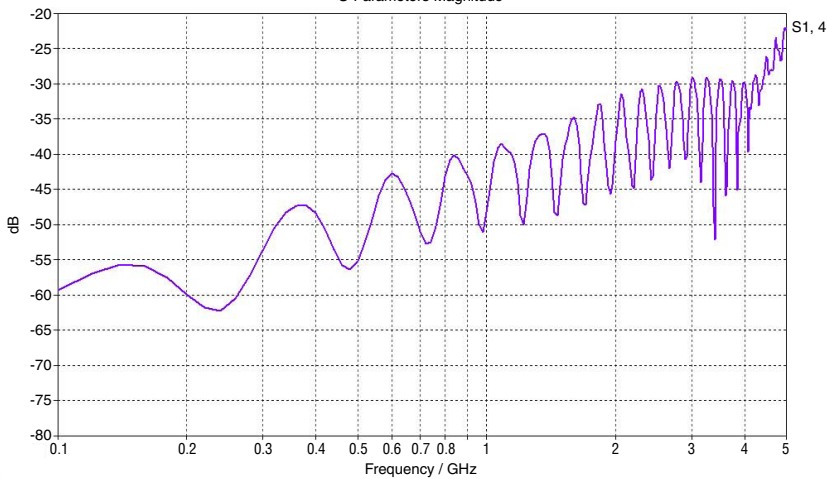
The following graphs on this page and the next page provide performance data on Amphenol® 10GBASE signal integrity (SI) quadrax contacts. Testing was done with 2 mated contacts terminated on both ends of 1 meter Thermax cable.



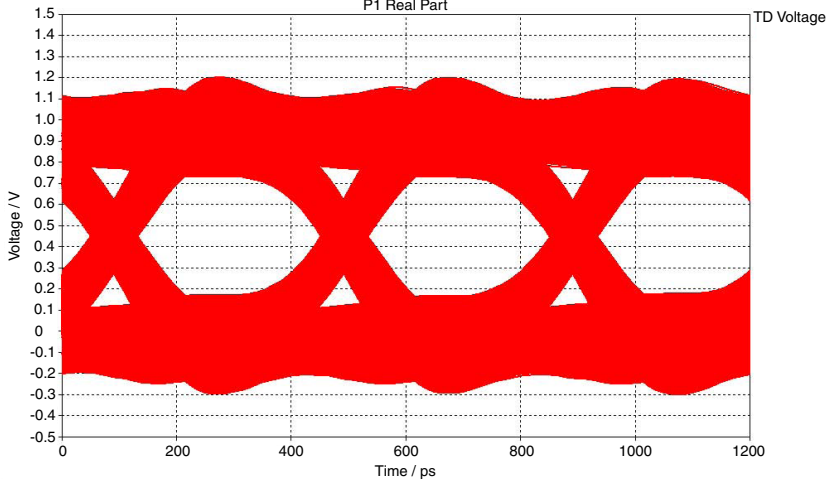
Near-end Crosstalk
S-Parameters Magnitude



Far-end Crosstalk
S-Parameters Magnitude



2.5 Gps Eye Pattern (PRBS n=15)
P1 Real Part



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