

# Quadrax Contacts, MIL-DTL-38999, Series III

## General Description

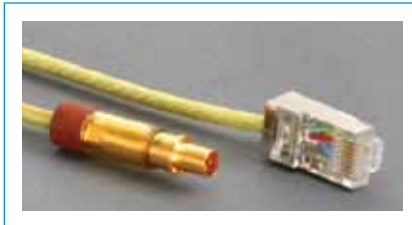
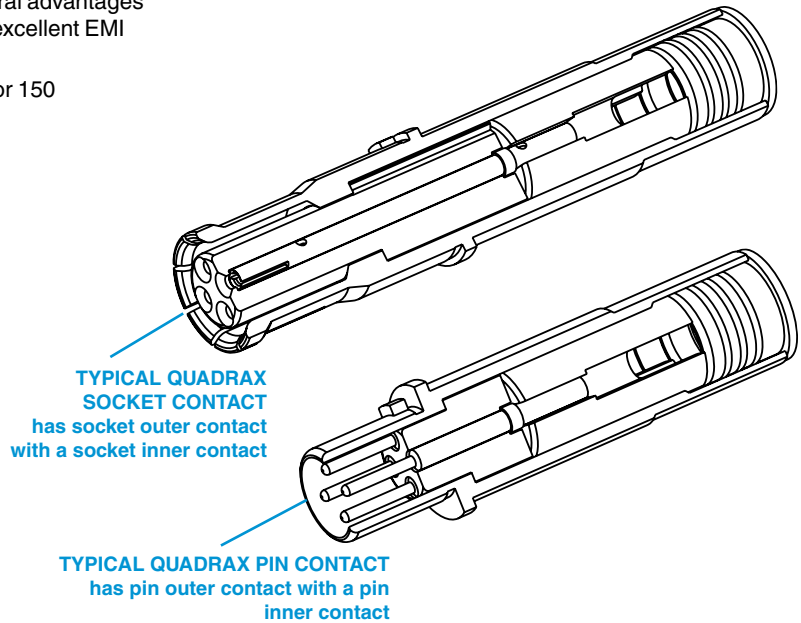


**Amphenol® Quadrax Contacts** -offer several advantages for high data transfer rates, low power consumption and excellent EMI compatibility:

- Four strategically spaced inner contacts form two 100 or 150 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 with PC tails (see page 379)
- Requires modification of MIL-DTL-38999 connector to accommodate keyed contacts



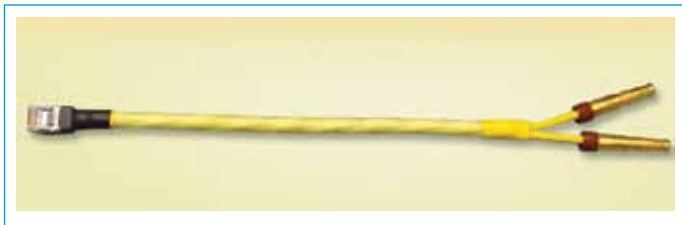
Cable Illustration - Quadrax Contact



Quadrax Pin with 8P8C "RJ45" Jack



Quadrax Pin Size 8 and MIL-DTL-38999 Series III Connector

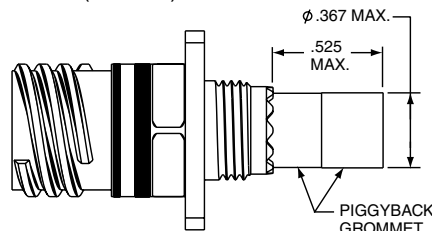


Quadrax in an Eight Wire Gigabit Ethernet Assembly

### Suggested Strain Relief - Insert Arrangements 9-5 or 19-18 with Quadrax Contacts

Due to the piggyback grommet interference with normal strain reliefs on the shell size 9 only, the recommended strain relief for the connector is: Amphenol part number TGW-R-5309-10 (OD Cad) or TGF-R-5309-10 (Electroless nickel)

- shell size 9 only. For 19-18 insert pattern, recommended backshell: Glenair 367-221-NF. This is recommended due to the proximity of the size 8 contacts in relation to the shell.



Also see Quadrax contacts for ARINC 600 and R27 Rack and Panel Connectors on page 411 and 412.

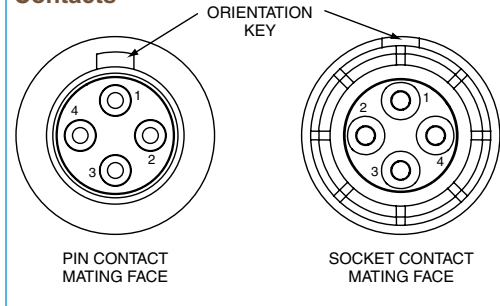
### Quadrax Contacts are gold plated, crimp termination

Finish of mating contacts parts: supplied with 0.000050 min. gold over nickel on mating parts. Consult Amphenol for availability of other finishes.

### Quadrax Size 8 Contact Performance:

- Bandwidth: Up to 3 Gigahertz
- Data Rate: Exceeding 3 Gbits/sec.
- Voltage Rating: 500 Vrms max. @ sea level
- Dielectric Withstanding Voltage: 1000 VAC rms between all inner contacts @ sea level, 500 VAC rms between inner and outer contacts @ sea level

### Suggested Numbering for Quadrax Contacts



Differential Pairs, contacts 1-3, 2-4.

See page 389 for part number ordering of popularly used 38999 Series III connectors with 100 ohm quadrax contacts.

Quadrax differential pairs are 1 and 3, 2 and 4.

III  
II  
I  
SJT  
38999

Matrix 2  
26482

Matrix Pyle  
83723 III

Crimp Rear Release Matrix  
5015

26500 Pyle

Printed Circuit Board

EMI Filter Transient

Fiber Optics

High Speed Contacts

Options Others

### TV-R Series, MIL-DTL-38999 Series III\* Connectors

#### QUADRAX CONTACTS FOR USE IN TV-R CONNECTORS

Cable	Contact Part Number (Termination Instruction Sheet)**		Impedance (Ohms)	Inner Conductor (AWG)	Contact Size	Electrical Protocol††	Crimping Tools	
	Pin	Socket					Inner Contact	Outer Contact
Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236, Filotex ET2PF870, PIC Wire E50424 ABS0972, Tensolite 23450/04090X-4(LD)	21-33384-21 (L-2119-A)	21-33385-21 (L-2119-A)	100	24	8	Ethernet, 1000 Base-T Gigabit Ethernet	M22520/2-01 with Positioner M22520/2-37 or with Daniels Positioner K709	M22520/5-01 with Die Set M22520/5-45 (Location A)
Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CEC-RWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD), Thermax T956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C (Space)	21-33384-51 (L-2119-D)	21-33385-51 (L-2119-D)		24		Ethernet, 1000 Base-T Gigabit Ethernet		
Tensolite NF22Q100, NF22Q100-01, Thermax 956-5, GORE RCN 7688 Draka Fileca F-4704-5, ABS1503 KD 24	21-33384-61 (L-2119-H)	21-33385-61 (L-2119-H)		22		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Tensolite NF26Q100, NF26Q100-01, NF26-2Q100, PIC E51426	21-33384-71 (L-2119-AB)	21-33385-71 (L-2119-AB)		26		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Draka Fileca F-4704-6, Gore RCN 8672	21-33384-151 (L-2119-AW)	21-33385-151 (L-2119-AW)		26		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Tensolite NF24Q100-01 (same as 21-3338( ) -51, uses EMI Piggyback)	21-33384-161 (L-2119-BE)	21-33385-161 (L-2119-BE)		24		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Gore RCN8513, JSFY18-3	21-33384-171 (L-2119-BN)	21-33385-171 (L-2119-BN)		22		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Tensolite NF22Q100 Special Box pattern, only mates with 21-333( ) -181	21-33384-181 (L-2119-BP)	21-33384-181 (L-2119-BP)		22		Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)		
Tensolite NF24Q100, NF24Q100-01 for 2.5 Gbps applications	21-33384-191 (L-2119-BS)	21-33385-191 (L-2119-BS)		24		Serial FPD Applications (2.5 Gbps)		
USB2 (28433/02171LX-4)	21-33384-101†	21-33385-101†		90		USB2.0 (480 Mbps)		
Tensolite 24450/03089X-4(LD)	21-33384-211	21-33385-211	110	24	IEEE 1394B Firewire			
JSFY02-1, JSFY18	21-33384-221	21-33385-221		24	IEEE 1394B Firewire			
Gore RCN8487, JSFY18	21-33384-231	21-33385-231		24	IEEE 1394B Firewire			
Tensolite 24450/03089X-4(LD) Same as 21-3338( )-211 but Box pattern, mates with 21-3338( )-241 only	21-33384-241†	21-33385-241†		24	IEEE 1394B Firewire			
Tensolite 26473/02006X-4(LD)/Gore RCN8328 (not for new designs, use 21-33450/1 series)	21-33384-31 (L-2119-B)	21-33385-31 (L-2119-B)		150	26			

CHART CONTINUES ON NEXT PAGE

#### QUADRAX CONTACT DATA

Contacts are inserted by hand. Refer to termination instructions listed. Contacts are removed with a removal tool. Recommended tool is MIL-I-81969/14-06, Daniels DRK-264-8. Refer to termination instructions listed.

Finish of mating contact parts: Contact part numbers shown in the chart above are supplied gold plated per ASTM B488 Type II, Code C, .000050 min. thick over nickel plate per AMS-QQ-N-290, Class 2, .000030/.000150 thick.

CONTACT ORDERING: Example number given in chart 21-33384-21 should be ordered as 21-033384-021; example number 21-33384-151 should be ordered as 21-033384-151. Adding Zeros is necessary for Amphenol ordering process on all contact numbers  
Daniels crimping tools are available from Daniels Mfg. Corp. 6103 Anno Ave., Orlando, FL 32809

\* Requires modified connector to accommodate keyed contacts.  
\*\*Termination instructions are packaged with each contact and can be found on-line at: [www.amphenol-aerospace.com/serviceinstructions.asp](http://www.amphenol-aerospace.com/serviceinstructions.asp)  
† Consult Amphenol Aerospace for current release of this contact or instruction sheet if applicable.  
†† Test reports available for indicated protocols. Consult Amphenol Aerospace.

### TV-R Series, MIL-DTL-38999 Series III\* Connectors

QUADRAX CONTACTS FOR USE IN TV-R CONNECTORS								
Cable	Contact Part Number (Termination Instruction Sheet)**		Impedance (Ohms)	Inner Conductor (AWG)	Contact Size	Electrical Protocol††	Crimping Tools	
	Pin	Socket					Inner Contact	Outer Contact
Tensolite 26473/02006X-4(LD) Same as 21-33384/5-31 but box pattern (not for new designs, use 21-33450/1 series)	21-33384-201†	21-33385-201†	150	26	8	Fibre-Channel (1 GBPS, 2 GBPS, 1G/2G), 1000 Base-CX (1.25 GBPS), SCSI-2 (3.2 GBPS)	M22520/2-01 with Positioner M22520/2-37 or with Daniels Positioner K709	M22520/5-01 with Die Set M22520/5-45 (Location A)
Tensolite 26473/02006X-4(LD), Gore RCN8328	21-33450-001 (L-2119-BW)	21-33451-001 (L-2119-BW)		26				
Tensolite 26473/02006X-4(LD), Gore RCN8328 (same as 21-33450/1-1 except box pattern. Mates with 21-33450/1-11 only.	21-33450-011†	21-33451-011†		26				

PCB QUADRAX CONTACTS FOR USE IN TV-R CONNECTORS				
PCB Quadrax Contacts	Contact Part Number		Impedance (Ohms)	Contact Size
	Pin	Socket		
PCB (.866 Length) Pre-tinned tails	21-33398-21	21-33397-21	100	8
PCB (.866 Length)	21-33398-31	21-33397-31	100	
PCB Right Angle, inner contacts box pattern	21-33425-1		100	
PCB (.494 Length) Pre-tinned tails	21-33398-71		150	
PCB (1.194 Length) Pre-tinned tails	21-33398-101		100	
PCB (.859 Length)	21-33398-121		100	
PCB (.741 Length)	21-33398-271†		100	
PCB (1.035 Length)	21-33398-291	21-33397-291	100	
PCB (.836 Length)		21-33397-301	150	
PCB (1.035 Length) Pre-tinned tails	21-33398-61	21-33397-61	150	
PCB (1.035 Length) mates to 21-33451 series	21-33452-11†		150	
PCB (1.035 Length) mates to 21-33450 series		21-33453-11†	150	
PCB (.815 Length) mates to 21-33451 series	21-33452-21†		150	
PCB (.815 Length) mates to 21-33450 series		21-33453-21†	150	
PCB (.815 Length) Pre-tinned tails, mates to 21-33451 series	21-33452-31†		150	
PCB (.815 Length) Pre-tinned tails, mates to 21-33450 series		21-33453-31†	150	
PCB (.866 Length) mates to 21-33451 series	21-33452-41†		150	
PCB (.866 Length) mates to 21-33450 series		21-33453-41†	150	
PCB (.494 Length) mates to 21-33451 series	21-33452-51†		150	
PCB (.494 Length) mates to 21-33450 series		21-33453-51†	150	
PCB (.840 Length) Pre-tinned tails	21-33398-81		150	
PCB (.780 Length) Pre-tinned tails	21-33398-131		150	
PCB (.840 Length) Pre-tinned tails	21-33398-91		100	
PCB (.708 Length)	21-33398-111		100	
PCB (.605 Length)	21-33398-191		100	
PCB (.494 Length)	21-33398-231		100	
PCB (.741 Length)	21-33398-241	21-33397-241	100	
PCB (.806 Length)	21-33398-281		100	
PCB (.940 Length)	21-33398-311		100	
PCB (.939 Length)	21-33398-361		100	
PCB (.672 Length)	21-33398-371		100	
PCB (.914 Length)	21-33398-381		100	
PCB (.866 Length)	21-33398-411		100	
PCB (.901 Length)		21-33397-341	100	
PCB (.871 Length)		21-33397-351	100	
PCB (1.169 Length)		21-33397-421	100	

**CONTACT ORDERING:** Example number given in chart above 21-33384-201 should be ordered as 21-033384-201; example number given in chart at left 21-33398-21 should be ordered as 21-033398-021. Adding Zeros is necessary for Amphenol ordering process on all contact numbers

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

\* Requires modified connector to accommodate keyed contacts.

\*\*Termination instructions are packaged with each contact and can be found on-line at: [www.amphenol-aerospace.com/serviceinstructions.asp](http://www.amphenol-aerospace.com/serviceinstructions.asp)

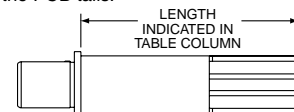
† Consult Amphenol Aerospace for current release of this contact or instruction sheet if applicable.

†† Test reports available for indicated protocols. Consult Amphenol Aerospace.

SEALING PLUGS	
Sealing Plugs for use with D38999 Connectors using Quadrax Contacts - Size 8 Cavities	Part Number
Standard Plastic	T3-4008-59P
Standard Plastic to be used with PCB tails (shorter tail length)	T3-4008-59P1
Metal sealing plug - can be used when mating with contacts on mating half	21-33899-8Q1
Metal sealing plug used with PCB's and mating contact on mating half	21-33899-8Q2

PIGGYBACK GROMMET	
Grommet for use with D38999 Connectors using Quadrax Contacts	Part Number
Metallized piggyback grommet	21-33321-23

Indicated length given in chart at left 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.

III  
II  
I  
SJT  
38999

Matrix 2  
26482

Matrix  
Pyle  
83723 III

Release Matrix  
Crimp Rear  
5015

Pyle  
26500

Printed  
Circuit Board  
EMI Filter

Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

38999  
SJT I II III

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

**Amphenol® Quadrax Contacts for Printed Circuit Board Attachment**

Available for MIL-DTL-38999 Series III Circular connectors with straight PC tail termination and with compliant pin termination. These provide the ideal solution for bringing high speed data transmission to the board.



Compliant Pin Quadrax and PC Tail Quadrax Contacts



MIL-DTL-38999, SERIES III CONNECTOR WITH PC TAIL CONTACTS. This arrangement has 33 size 22D and 2 Quadrax PC tail contacts.

MIL-DTL-38999, SERIES III CONNECTOR WITH PC TAIL CONTACTS. This arrangement has 8 Quadrax PC tail contacts.

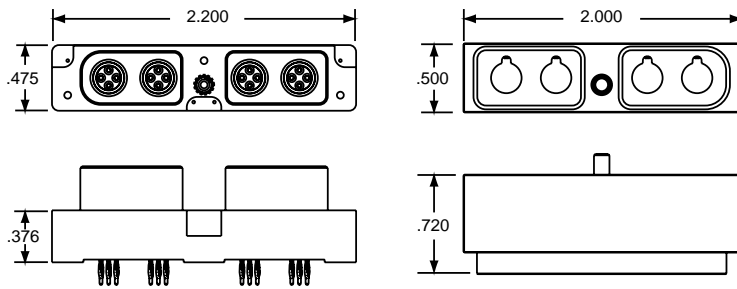


**Amphenol® Quadrax Contacts for Rectangular Board Level Connectors**

Incorporate the same size 8 Quadrax PCB contacts as used in circular 38999 connectors.

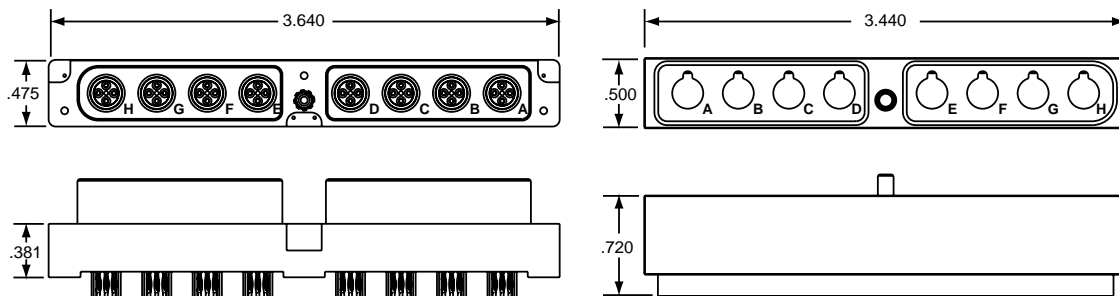
- Size 8 Quadrax Compliant contacts with hole diameters:  
 .025 ±.002 PTH Quadrax contact  
 .040 ±.003 PTH shell grounding  
 Accommodates backplane .125 inch min. thickness
- Consult Amphenol Aerospace for availability of additional connector configurations

**4 POSITION BOARD LEVEL CONNECTOR WITH QUADRAX**



Compliant Pin Quadrax Board Level Connector

**8 POSITION BOARD LEVEL CONNECTOR WITH QUADRAX**





# Quadrax Transition Adapters and Differential Twinax Transition Adapters

## General Description

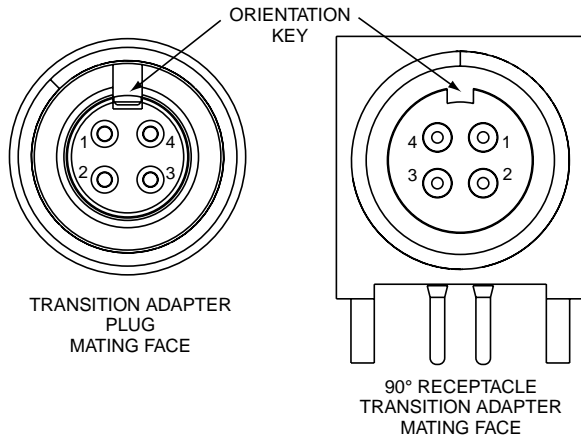
**Amphenol® Transition Adapters** - Are used to facilitate launching of controlled impedance signals to printed circuit boards. Amphenol provides transition adapters in both contact types:

- Quadrax transition adapters, 90° or straight receptacles threaded or cable to board style
- Differential twinax transition adapters, 90° or straight receptacles, threaded or cable to board style



90° Quadrax Receptacle and Plug Transition Adapter

### Suggested Numbering for Transition Adapters with Quadrax Contacts



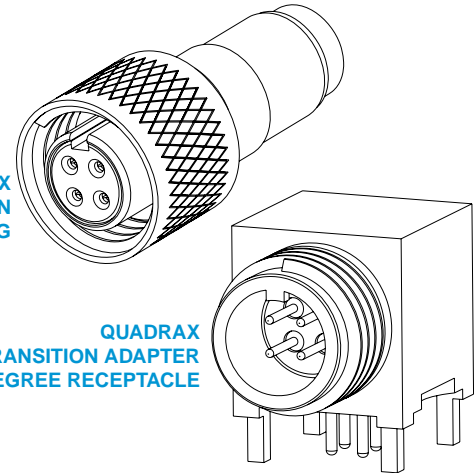
90° Differential Twinax Receptacle and Plug Transition Adapter

### TRANSITION ADAPTER DATA

Finish of mating contact parts: Contacts are supplied gold plated per ASTM B488 Type II, Code C, .000050 min. thick over nickel plate per AMS-QQ-N-290, Class 2, .000030/.000150 thick.

QUADRA  
X  
TRANSITION  
ADAPTER  
PLUG

QUADRA  
X  
TRANSITION  
ADAPTER  
90 DEGREE  
RECEPTACLE



ELECTRICAL PROTOCOLS FOR QUADRA X TRANSITION ADAPTERS			
Part Number		Impedance (Ohms)	Electrical Protocol††
Plug	Receptacle		
21-33836-31		100	Ethernet, gigabit Ether
21-33836-41			Ethernet, gigabit Ether
21-33836-51			Ethernet, gigabit Ether
21-33836-61			Ethernet, gigabit Ether
	21-33837-81 (90 degree)		
	21-33837-91 (90 degree)		
	21-33837-41 (90 degree)		
	21-33837-51 (straight)		Ethernet, gigabit Ether
	21-33837-61 (90 degree)		
	21-33837-141 (90 degree)		
21-33837-101		150	
21-33836-21			1000 Base CX, Fibre channel
	21-33837-21 (90 degree)		1000 Base CX, Fibre channel
	21-33837-211 (jam nut)		
	21-33837-31 (straight)		
	21-33837-71 (90 degree)		
21-33837-111			

ELECTRICAL PROTOCOLS FOR DIFFERENTIAL TWINAX TRANSITION ADAPTERS			
Part Number		Impedance (Ohms)	Electrical Protocol††
Plug	Receptacle		
21-33832-81		100	
21-33832-21			Ethernet
	21-33833-21 (90 degree)		
	21-33833-31 (90 degree)		Ethernet
	21-33833-151 (90 degree)		
21-33832-111†			
	21-33833-161† (90 degree)		
	21-33833-171† (90 degree)		
	21-33833-91 (90 degree)		
	21-33833-51 (90 degree)		
	21-33833-141 (90 degree)		
21-33832-91		150	
	21-33833-111 (90 degree)		
	21-33833-181† (90 degree)		
	21-33833-101 (90 degree)		

† Consult Amphenol Aerospace for current release of this adapter.  
†† Test reports available for indicated protocols; consult Amphenol Aerospace.

III  
II  
I  
SJT  
38999

Matrix 2  
26482

Matrix Pyle  
83723 III

Release Matrix Crimp Rear  
5015

Pyle  
26500

Printed Circuit Board

EMI Filter Transient

Fiber Optics

High Speed Contacts

Options Others

### Application Data

#### 100 OHM QUADRIX TRANSITION ADAPTERS FOR LAUNCHING CONTROLLED IMPEDANCE SIGNALS TO PC BOARDS

Quadrax Type Adapter/ Cable or PCB Tail Length	Illustration of Adapter	Part Number (Termination Instruction Sheet)**		Impedance (Ohms)	Mating Thread Size	Crimping Tools	
		Plug	Receptacle			Inner Contact	Outer Contact
Quadrax Plug Adapter/ Tensolite NF24Q100		21-33836-31 (L-2119-U)		100	.375	M22520/2-01 with Positioner M22520/2-37 or with Daniels Positioner K709	M22520/5-01 with Die Set M22520/5-45 (Location A)
Quadrax Plug Adapter/ Tensolite NF22Q100, NF22Q100-01, Thermax 956-5		21-33836-41 (L-2119-W)†					
Quadrax Plug Adapter/ Draka Fileca F-4703-3, F-4704-4		21-33836-51 (L-2119-Y)					
Quadrax Plug Adapter/ NF26Q100		21-33836-61 (L-2119-AM)†					
Quadrax Plug Adapter/ Hexnut with Lock Wire Holes Tensolite NF24Q100		21-33836-81					
Quadrax Receptacle Straight Adapter in-line jam nut (threaded)/ GSC-10-8273900			21-33837-81 (L-2119-AR)†				
Quadrax Receptacle Straight Adapter in-line (threaded)/ NF24Q100			21-33837-91 (L-2119-BL)				
PCB Quadrax Receptacle 90 Degree Adapter/ Tail Length .110			21-33837-41				
PCB Quadrax Receptacle 90 Degree Adapter/ Tail Length .200			21-33837-201				
PCB Quadrax Receptacle Straight Adapter/ Tail Length .110			21-33837-51				
PCB Quadrax Receptacle Straight Adapter/ Special Tail Length (.200)			21-33837-61				
Quadrax Receptacle 90 degree Adapter with cable to board/ NF24Q100			21-33837-141 (L-2119-BB)†	100		M22520/2-01 with Positioner M22520/2-37 or with Daniels Positioner K709	M22520/5-01 with Die Set M22520/5-45 (Location A)
Quadrax Receptacle 90 degree Adapter with cable to board/ ABS1503KD24			21-33837-231				
Quadrax Receptacle Straight Adapter with cable to board/ NF24Q100							

CONTACT ORDERING: Example number given in chart 21-33837-81 should be ordered as 21-033837-081; example number 21-33837-101 should be ordered as 21-033837-101. Adding Zeros is necessary for Amphenol ordering process on all contact numbers. Daniels crimping tools are available from Daniels Mfg. Corp. 6103 Anno Ave., Orlando, FL 32809

\*\*Termination instructions are packaged with each contact and can be found on-line at: [www.amphenol-aerospace.com/serviceinstructions.asp](http://www.amphenol-aerospace.com/serviceinstructions.asp)  
† Consult Amphenol Aerospace for current release of this adapter and instruction sheet if applicable.  
See electrical protocols for transition adapters on page 383.

38999  
SJT I II III

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

# Quadrax Transition Adapters

For Attachment to PC Boards



## Application Data

150 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 (Termination Instruction Sheet)**		Impedance (Ohms)	Mating Thread Size	Crimping Tools	
		Plug	Receptacle			Inner Contact	Outer Contact
Quadrax Plug Adapter/ Tensolite 26473/02006X-4(LD), Gore RCN8328		21-33836-21 (L-2119-S)		150	.375	M22520/2-01 with Positioner M22520/2-34	NA
PCB Quadrax Receptacle 90 Degree Adapter/ Tail Length .110			21-33837-21			NA	
PCB Quadrax Receptacle Straight Adapter/ Tail Length .110			21-33837-31			NA	
Quadrax Receptacle Straight Adapter in-line Jam Nut (threaded) Tensolite 26473/02006X-4 (LD), Gore RCN8328			21-33837-211 (L-2119-BY)	150			
Quadrax Receptacle 90 degree Adapter with cable to board/ Tensolite 26473/02006X-4			21-33837-71 (L-2119-A)†			M22520/2-01 with Positioner M22520/2-34	M22520/5-01 with Die Set M22520/5-45 (Location A)
Quadrax Receptacle Straight Adapter with cable to board/ Tensolite 26473/02006X-4 (LD)			21-33837- 111 (L-2119-AP)				

CONTACT ORDERING: Example number given in chart 21-33837-81 should be ordered as 21-033837-081; example number 21-33837-101 should be ordered as 21-033837-101. Adding Zeros is necessary for Amphenol ordering process on all contact numbers. Daniels crimping tools are available from Daniels Mfg. Corp. 6103 Anno Ave., Orlando, FL 32809

\*\*Termination instructions are packaged with each contact and can be found on-line at: [www.amphenol-aerospace.com/serviceinstructions.asp](http://www.amphenol-aerospace.com/serviceinstructions.asp)

† Consult Amphenol Aerospace for current release of this adapter and instruction sheet if applicable.

See electrical protocols for transition adapters on page 383.

38999  
III  
II  
I  
SJT

26482  
Matrix 2

83723 III  
Matrix  
Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

# Insert Arrangements - MIL-DTL-38999, Series III Incorporating Quadrax & Differential Twinax Contacts



This illustrated listing represents the most readily available patterns incorporating quadrax and differential twinax contacts within D38999, Series III 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



Insert Arrangement	9-5		17-2		17-22		17-52		17-60	
Number of Contacts	1		38	1	2	2	2	8	2	
Contact Size	8		22D	8 Twinax	12	8	8	22D	8	
	Grounded						Meets Boeing Specification			



Insert Arrangement	19-18		19-31			19-AD		21-75	
Number of Contacts	14	4	12	1	2	16	1	4	
Contact Size	22D	8	22D	12	8	20	8	8	



Insert Arrangement	21-79		23-6		25-7	
Number of Contacts	17	2	6		97	2
Contact Size	22D	8	8		22D	8

### CONTACT LEGEND

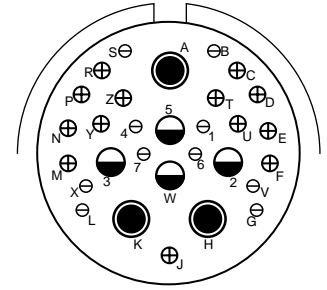
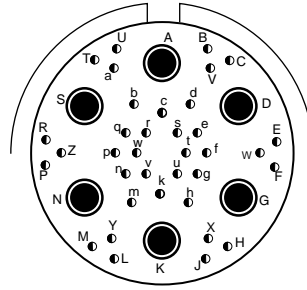
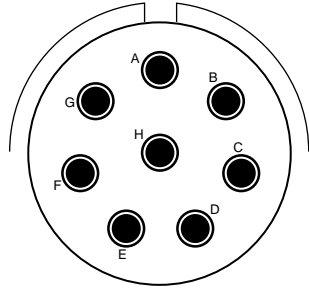


- III
- II
- I
- SJT
- 38999
- 26482
- Matrix 2
- 83723 III
- Matrix
- Pyle
- 5015
- Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EML Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

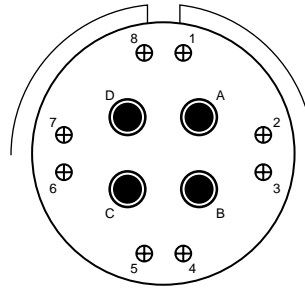
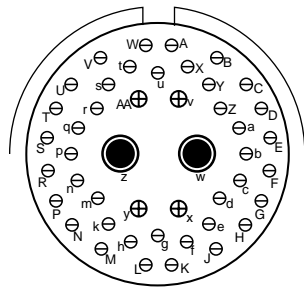


- 38999  
SJT I II III
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Matrix 2
- 83723 III  
Matrix Pyle
- 5015  
Crimp Rear Release Matrix
- 26500 Pyle
- Printed  
Circuit Board
- EMI Filter  
Transient
- Fiber Optics
- High Speed  
Contacts
- Options  
Others

Front face of pin inserts illustrated

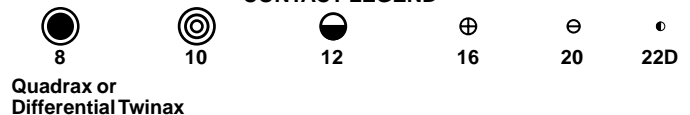


Insert Arrangement	25-8			25-17		25-20			
Number of Contacts	8			36	6	10	13	3	4
Contact Size	8			22D	8	20	16	8	12



Insert Arrangement	25-46			25-62	
Number of Contacts	40	4	2	8	4
Contact Size	20	16	8	16	8
	Ground plane only				

### CONTACT LEGEND



# How to Order 38999, Series III Circular With Quadrax 100 Ohm Contacts

Amphenol Tri-Start, 38999 Series III\* Connectors can be ordered with the following popularly used Quadrax contacts:  
 100 ohm quadrax 21-033385-051 socket contacts  
 100 ohm quadrax 21-033384-051 pin contacts  
 Use the following coded number ordering procedure :

1.	2.	3.	4.	5.	6.
Connector Type	Shell Type	Service Class	Shell Size – Insert Arrangement	Contact Type	Alternate Keying Position
<b>TVP</b>	<b>00</b>	<b>RQW</b>	<b>21-75</b>	<b>P</b>	<b>B</b>

For ordering of connectors with any other quadrax contacts or differential twinax contacts, please consult Amphenol Aerospace for part numbers.

## Step 1. Select a Connector Type

<b>TV</b>	Tri-Start Series Connector with metal shells
<b>TVP</b>	Back panel mounted receptacle with metal shells
<b>CTV</b>	Tri-Start Series Connector with composite shells
<b>CTVP</b>	Back panel mounted receptacle with composite shells

## Step 2. Select a Shell Style

<b>00</b>	Wall mount receptacle
<b>02</b>	Box mount receptacle available only with the PCB tails and epoxy backfilled (non-removable)
<b>06</b>	Straight plug
<b>07</b>	Jam nut receptacle

## Step 3. Select a Service Class with Quadrax

<b>RQF</b>	Electroless nickel plated aluminum
<b>RGQF</b>	Electroless nickel plated ground plane aluminum
<b>RQW</b>	Olive drab cadmium plate
<b>RGQW</b>	Olive drab cadmium plated ground plane aluminum
<b>RQB</b>	NiAlBronze
<b>RGQB</b>	NiAlBronze ground plane
<b>RQK</b>	Corrosion resistance stainless steel
<b>RGQK</b>	Stainless steel ground plane
<b>QDT</b>	Durmalon plated, Nickel-PTFE alternative to cadmium
<b>GQDT</b>	Groundplane Durmalon

## Step 4. Select a Shell Size and Insert Arrangement

See insert arrangements available with quadrax contacts on preceding pages. Shell Size and Insert Arrangements are together in one chart. First number represents Shell Size, second number is the Insert Arrangement

## Step 5. Select Contact Type

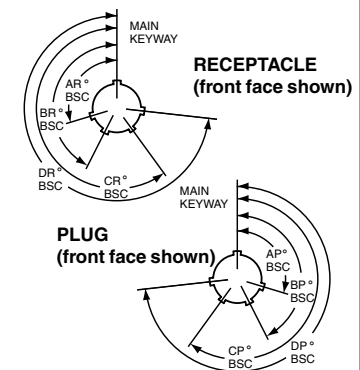
<b>P</b>	Pin contacts
<b>S</b>	Socket contacts

## Step 6. Select an Alternate Keying Position

Locksmith keying—rotation of minor keys. See Series III Alternate Positions below “N” not required for normal position

### Tri-Start Alternate Positions

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The angles for a given connector are the same whether it contains pins or sockets. Inserts are not rotated in conjunction with the master key/keyway.



Shell Size	Key & Keyway Arrangement Identification Letter	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11, 13, and 15	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
17 and 19	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
21, 23, and 25	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
25L, 33, and 37	N	80	142	188	293
	A	135	170	188	310
	B	49	169	188	244
	C	66	140	188	257
	D	62	145	188	280
	E	79	153	188	272

\* The incorporation of quadrax or differential twinax contacts requires a modified connector to accommodate keyed contacts.

For more information on Tri-Start, MIL-DTL-38999 Series III connectors see the section in this catalog.

III  
II  
I  
SJT  
38999

Matrix 2  
26482

Matrix Pyle  
83723 III

Release Matrix  
5015  
Crimp Rear

26500 Pyle

Circuit Board  
Printed

Transient  
EMI Filter

Fiber Optics

High Speed  
Contacts

Options  
Others