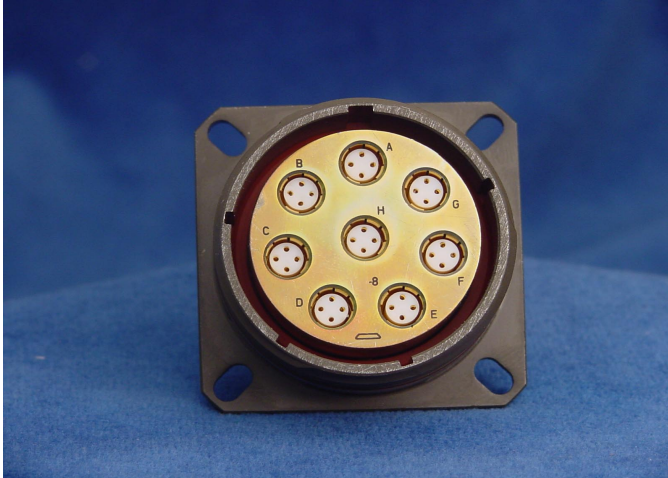
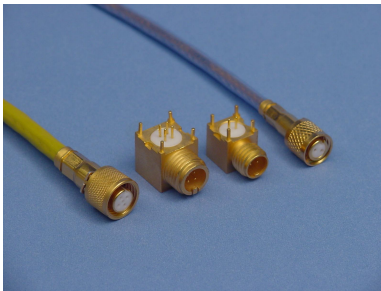


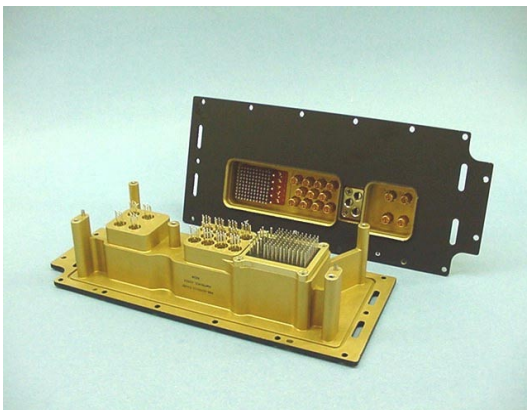
Size 8 High Speed Quadrax and Differential Twinax Contacts For use in MIL-DTL-38999 Subminiature Cylindrical and Arinc 600 Rectangular Connectors.



D38999 Series III Groundplane
Connector with Quadrax PCB
Sockets Installed



Quadrax and Twinax
Transition plugs and
receptacle adapters



Quadrax PCB installed in an ARINC 600

- Quadrax contacts consist of an outer contact with four strategically spaced inner contacts forming two 100 or 150 Ohm matched impedance differential pairs.
- Differential Twinax consist of an outer contact with two inner contacts spaced to form one 100 or 150 Ohm matched impedance differential pair.

Both contacts can be used in connectors for Ethernet 100 Base-T- 100 Ohm, Fibre-Channel -150 Ohm and IEEE 1394B FireWire- 110 Ohm applications.

Typical Electrical Performance:

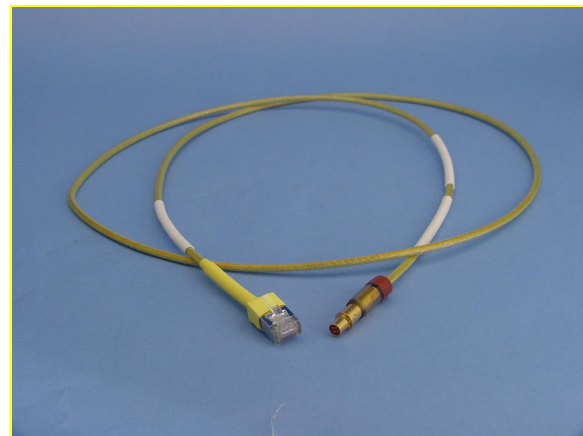
Bandwidth: Up to 3 Gigahertz.

Data Rate: Exceeding 2 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.



Size 8 Quadrax assembly with RJ45

Below is a list of contact part numbers available but not limited to the cables listed. All contacts are available kitted with or installed into ARINC 600 and specially modified MIL-DTL-38999 connectors. Consult factory for cables not listed.

D38999				
Description	Part Number	Cable Part Number	Impedance	
Quadrax Socket	21-33385-21	Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236	100 Ohm	
	21-33385-31	Tensolite 26473/02006X-4(LD)/ Gore RCN8328	150 Ohm	
	21-33385-51	Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), Thermax 956-4TN, Tensolite 24450/01201X-4(LD)	100 Ohm	
	21-33385-61	Tensolite NF22Q100, NF22Q100-01, Thermax 956-5	100 Ohm	
	21-33385-61	Tensolite 24450/03089X-4(LD)	110 Ohm	
	21-33385-71	Tensolite NF26Q100, NF26Q100-01	100 Ohm	
	21-33385-91	JSFY02-1	110 Ohm	
	21-33385-111	Gore RCN8487, JSFY18	110 Ohm	
	PCB Socket	21-33397-21	PCB (1.035 Length)	100 Ohm
		21-33397-31	PCB (.866 Length)	100 Ohm
21-33397-61		PCB (1.035 Length)	150 Ohm	
Quadrax Pin	21-33384-21	Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236	100 Ohm	
	21-33384-31	Tensolite 26473/02006X-4(LD)/ Gore RCN8328	150 Ohm	
	21-33384-51	Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), Thermax 956-4TN, Tensolite 24450/01201X-4(LD)	100 Ohm	
	21-33384-61	Tensolite NF22Q100 , NF22Q100-01, Thermax 956-5	100 Ohm	
	21-33384-61	Tensolite 24450/03089X-4(LD)	110 Ohm	
	21-33384-71	Tensolite NF26Q100, NF26Q100-01	100 Ohm	
	21-33384-91	JSFY02-1	110 Ohm	
	21-33384-111	Gore RCN8487, JSFY18	110 Ohm	
	PCB Pin	21-33398-21	PCB (1.035 Length)	100 Ohm
		21-33398-31	PCB (.866 Length)	100 Ohm
21-33398-61		PCB (1.035 Length)	150 Ohm	
21-33425-1		Right Angle Special PCB	100 Ohm	
Quadrax Transition Adapters	21-33836-21	Plug contact, Tensolite 26473/02006X-4(LD)/ Gore RCN8328	150 Ohm	
	21-33837-31	PCB Receptacle Straight	150 Ohm	
	21-33837-21	PCB receptacle 90 degree	150 Ohm	
	21-33836-31	Plug contact, Tensolite NF24Q100, NF24Q100-01, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), Thermax 956-4TN	100 Ohm	
	21-33836-41	Plug contact ,Tensolite NF22Q100, NF22Q100-01, Thermax 956-5	100 Ohm	
	21-33836-51	Plug contact Draka Fileca F-4703-3, F-4704-4	100 Ohm	
	21-33837-41	PCB receptacle 90 degree	100 Ohm	
	21-33837-51	PCB receptacle straight	100 Ohm	
	21-33837-61	PCB receptacle straight , special tail length (.200)	100 Ohm	

D38999 (cont'd)			
Description	Part Number	Cable Part Number	Impedance
Differential Twinax Socket	21-33388-21	Tensolite 24463/9P025X-2(LD), Thermax 12814, ST5M1284-003 (98 Ohm), 26463/70460X-2 (98 Ohm)	100 Ohm
	21-33388-31	Tensolite 26483/03071X-2(LD)	150 Ohm
	21-33388-41	Tensolite 26453/03184X-2(LD), Thermax 956-626Z	100 Ohm
Twinax Socket PCB	21-33835-1	PCB (1.035 Length)	100 Ohm
	21-33835-21	PCB (1.035 Length)	150 Ohm
Differential Twinax Pin	21-33387-21	Tensolite 24463/9P025X-2(LD), Thermax 12814, ST5M1284-003 (98 Ohm), 26463/70460X-2 (98 Ohm)	100 Ohm
	21-33387-31	Tensolite 26483/03071X-2(LD)	150 Ohm
	21-33387-41	Tensolite 26453/03184X-2(LD), Thermax 956-626Z	100 Ohm
Twinax Pin PCB	21-33834-1	PCB (1.035 Length)	100 Ohm
	21-33834-21	PCB (1.035 Length)	150 Ohm
Transition Adapters	21-33833-31	Straight receptacle	100 Ohm
	21-33833-21	90 degree Receptacle	100 Ohm
	21-33833-91	90 degree Receptacle (smaller profile)	100 Ohm
	21-33833-51	90 degree PCB cable to board, cable 24463/9P025X-2	100 Ohm
	21-33832-21	Plug for 24463/9P025X-2(LD)	100 Ohm
	21-33832-81	Plug for M17/176-00002	78 Ohm
	21-33833-101	90 degree PCB cable to board , cable 26483/03071X-2	150 Ohm
	21-33832-91	Plug for 26483/03071X-2	150 Ohm
	21-33833-111	90 degree Receptacle	150 Ohm
ARINC 600			
Quadrax Socket	21-33383-21	Tensolite NF24Q100, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD)	100 Ohm
	21-33383-31	Draka Fileca F-4703-3	100 Ohm
	21-33383-61	Tensolite 26473/02006X-4(LD), Gore RCN8328	150 Ohm
	21-33383-71	JSFY02-1	110 Ohm
	21-33397-1	PCB (1.037 Length)	100 Ohm
Quadrax Pin	21-33382-21	Tensolite NF24Q100, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD)	100 Ohm
	21-33382-31	Draka Fileca F-4703-3	100 Ohm
	21-33382-61	Tensolite 26473/02006X-4(LD), Gore RCN8328	150 Ohm
	21-33382-71	JSFY02-1	
	21-33398-41	PCB (.296 Length)	100 Ohm
	21-33398-1	PCB (1.037 Length)	100 Ohm
	21-33398-51	PCB (.296 Length)	100 Ohm
Differential Twinax Socket	21-33379-21	ABS0386WF24	100 Ohm
	21-33378-31	ASNE0272TK22	100 Ohm
	21-33379-41	ASNE0272TK24	100 Ohm
	21-33379-51	Tensolite 24463/9P025X-2(LD)	100 Ohm
Differential Twinax Pin	21-33378-21	ABS0386WF24	100 Ohm
	21-33378-31	ASNE0272TK22	100 Ohm
	21-33378-41	ASNE0272TK24	100 Ohm
	21-33378-51	Tensolite 24463/9P025X-2(LD)	100 Ohm

Amphenol Quadrax Connectors can be ordered by coded part number. The below connectors are kitted with the 100 Ohm Quadrax 21-033385-051 Socket and 21-033384-051 Pin contacts only. For contacts other than the above please consult factory for part numbers.

Example **TVP00RQW21-75P**

Connector Type

- TV designates Tri-Start Series Connector
- TVP designates back panel mounted receptacle

Shell Style

- 00 designates wall mount receptacle
- 02 designates box mount receptacle
- 06 designates straight plug
- 07 designates jam nut receptacle

Service Class

- RQF electroless nickel plated aluminum
- RGQF electroless nickel plated ground plane aluminum
- RQW olive drab cadmium plate
- RGQW olive drab cadmium plated ground plane aluminum
- RQB NiAlBronze
- RGQB NiAlBronze ground plane
- RQK corrosion resistance stainless steel
- RGQK stainless steel ground plane

Shell Size / Insert arrangement available

MIL-DTL-38999, Sizes 9-25 (see attached page 4 with specific inserts available)

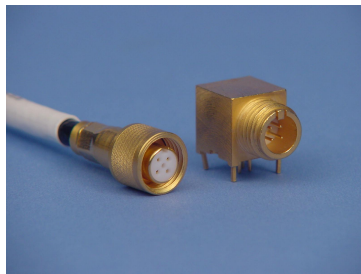
Contact Type

- P designates pin contacts
- S designates socket contacts

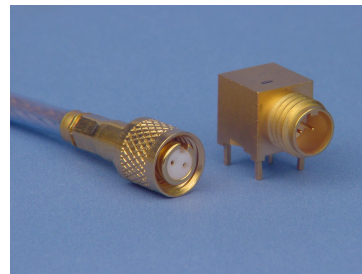
Also available are matched impedance Quadrax and Twinax Transition Adapters, which provide a method of launching from the High Speed connectors to the PCB boards. Non-threaded adapters for launching direct from the cable end to the board are also available. Part numbers vary depending on cable. Consult factory for more information.



Straight Quadrax Receptacle Contact



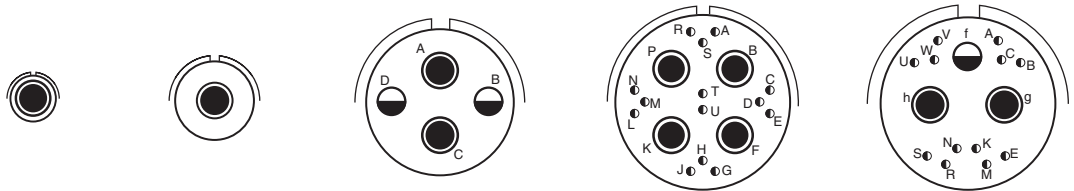
90 Degree Quadrax receptacle contact and transition plug



90 Degree Twinax receptacle contact and transition plug

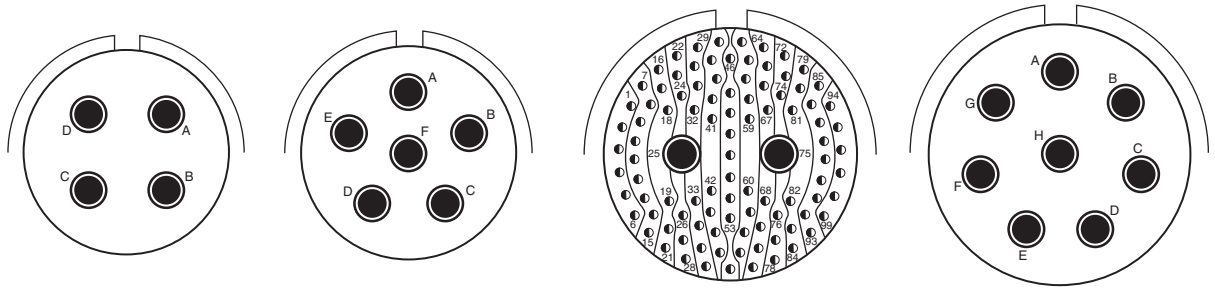
Quadrax & Differential Twinax Contact insert arrangements for MIL-DTL-38999

front face of pin inserts illustrated

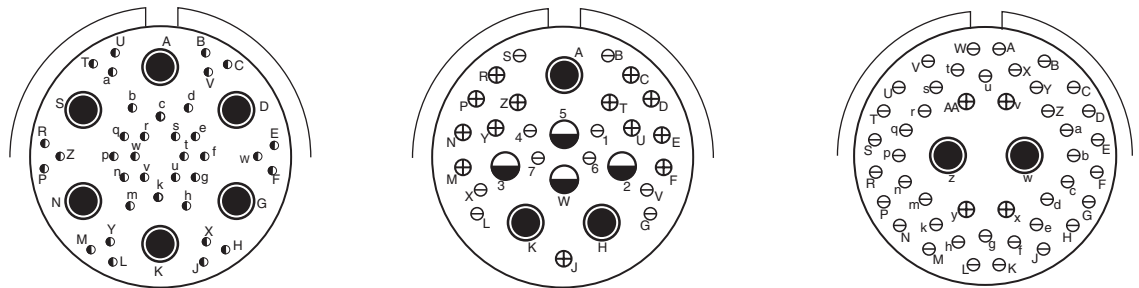


Insert Arrangement	9-5	11-1	17-22		19-18		19-31		
Number of Contacts	1	1	2	2	14	4	2	1	12
Contact Size	8	8	12	8	22D	8	8	12	22D

Grounded



Insert Arrangement	21-75	23-6	25-7		25-8
Number of Contacts	4	6	97	2	8
Contact Size	8	8	22D	8	8



Insert Arrangement	25-17		2 5-20				25-46		
Number of Contacts	36	6	10	13	3	4	40	4	2
Contact Size	22D	8	20	16	8	12	20	16	8



Suggested Numbering for Quadrax and Twinax Contacts

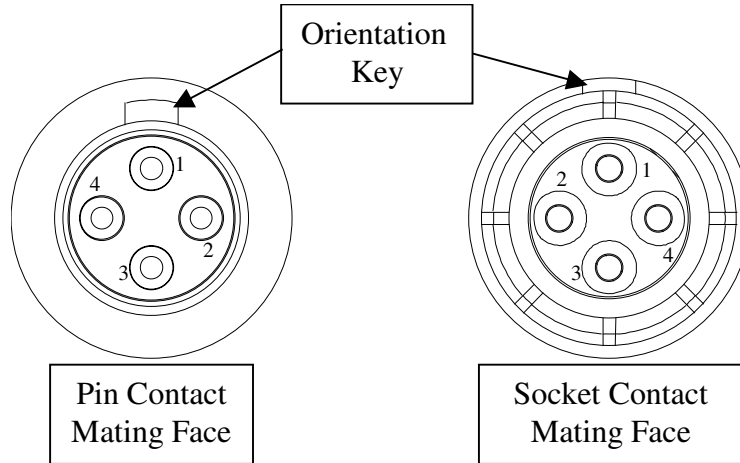


Figure 1 - Inner Contact Numbering, Quadrax

Differential pairs

1&3

2&4

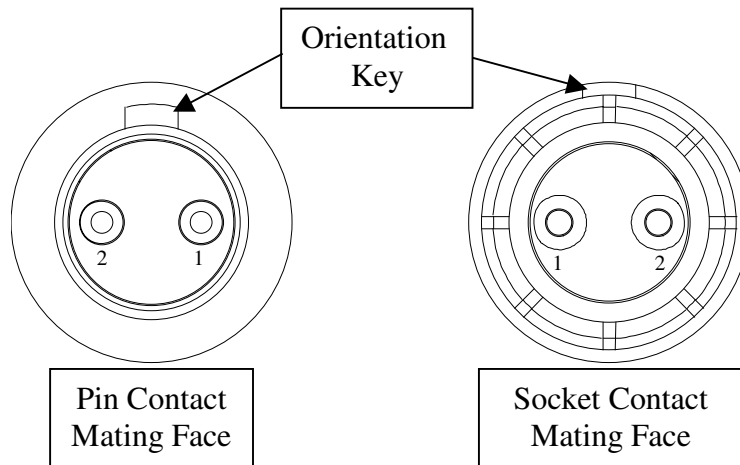


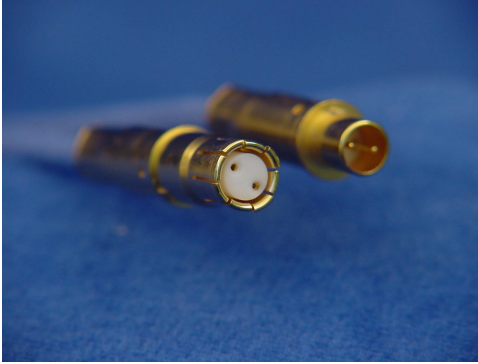
Figure 2 - Inner Contact Numbering, Twinax

Size 8 Quadrx mated pair terminated to Tensolite Cable NF24Q100

Differential Impedance:	100 Ohm +/-10	Ethernet 100 Base-T Cable IEEE1394 FireWire Cable
Attenuation on 22.5 Ft:	100 MHz : 1.78 dB 400 MHz : 3.94 dB 1.0 GHz : 7.55 dB 2.5 GHz : 15.8 dB 3.0 GHz : 19.1 dB	
Far End Cross Talk (FEXT) ²	> -30 dB up to 3.5 GHz	
Eye Pattern ¹	The minimum output eye opening with a 1-volt p-p input shall be 408 mV p-p measured at 50% of the period.	
¹ Differential mode, 22.5 feet test length, 100 ps rise time (20%-80%), 1.65 Gb/sec.		
² 22.5 feet test length, tested on HP8753ES Network Analyzer		

Size 8 Quadrx mated pair terminated to Tensolite Cable 26473/02006X-4(LD)

Differential Impedance:	150 Ohm +/-30	Fibre Channel Cable
Attenuation on 22.5 Ft:	512 MHz : 4.41 dB 1.06 GHz : 7.02 dB 1.65 GHz : 10.72 dB 2.00 GHz : 12.65 dB	
Far End Cross Talk (FEXT) ²	> -30 dB up to 3.5 GHz	
Eye Pattern ¹	The minimum output eye opening with a 1-volt p-p input shall be 438 mV p-p measured at 50% of the period.	
¹ Differential mode, 35 feet test length, 100 ps rise time (20%-80%), 1.65 Gb/sec.		
² 35 feet test length, tested on HP8753ES Network Analyzer		



Size 8 Differential Twinax mated pair terminated
Tensolite Cable 24463/9P025X-2(LD)

Ethernet 100 Base-T Cable
IEEE1394 FireWire Cable

Differential Impedance: 100 Ohm +/-10

Attenuation on 22.5 Ft:

608 MHz :	32.22 dB
1.85 GHz :	23.98 dB
2.31 GHz :	23.30 dB
3.31 GHz :	23.90 dB

Eye Pattern¹ The minimum output eye opening with a 1-volt p-p input shall be 434 mV p-p measured at 50% of the period.

¹ Differential mode, 22.5 feet test length, 100 ps rise time (20%-80%), 1.65 Gb/sec.