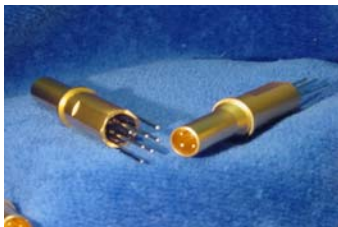


Size 8 High Speed Quadrax and Differential Twinax Contacts

For use in MIL-DTL-38999 Subminiature Cylindrical and Arinc 600 Rectangular Connectors.



D38999 Series III Groundplane Connector with Quadrax PCB Sockets Installed



PCB Versions Available Shown left- Arinc 600 PCB Quadrax Pin

- 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.

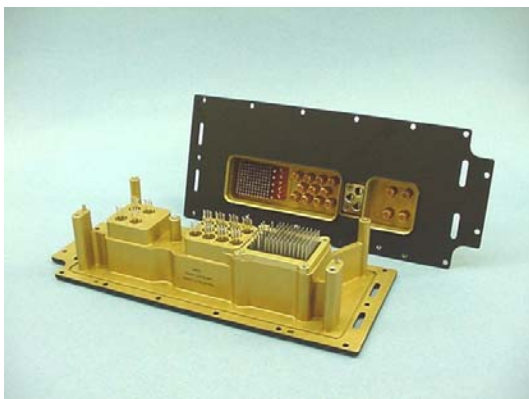
Data Rate: Exceeding 2 Gbits/sec

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.



Quadrax PCB installed in an ARINC 600



Size 8 Quadrax Pin and Socket D38999

Patent Pending

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	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	
	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	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	
	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	

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)	100 Ohm
	21-33388-31	Tensolite 26483/03071X-2(LD)	150 Ohm
	21-33388-41	Tensolite 26453/01384X-5(LD), Thermax 956-626Z	100 Ohm
	21-33835-1	PCB (1.035 Length)	100 Ohm
Differential Twinax Pin	21-33387-21	Tensolite 24463/9P025X-2(LD), Thermax 12814, ST5M1284-003 (98 Ohm)	100 Ohm
	21-33387-31	Tensolite 26483/03071X-2(LD)	150 Ohm
	21-33387-41	Tensolite 26453/01384X-5(LD), Thermax 956-626Z	100 Ohm
	21-33834-1	PCB (1.035 Length)	100 Ohm
Transition Adapters	21-33833-31	Straight receptacle	100 Ohm
	21-33833-21	90 degree Receptacle	100 Ohm
	21-33832-21	Plug for 24463/9P025X-2(LD)	100 Ohm
	21-33832-81	Plug for M17/176-00002	100 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

How to Order

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
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)

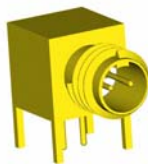
Contact Type

P designates pin contacts
S designates socket contacts

Also available are Quadrax and Twinax Transition Adapters, which provide a method of launching from the High Speed connectors to the PCB boards. Shown are threaded Twinax adapters. 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 Twinax
Receptacle Contact



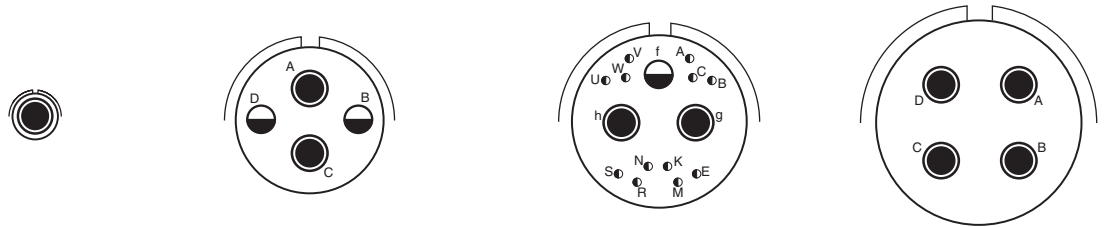
90 Degree Twinax
Receptacle Contact



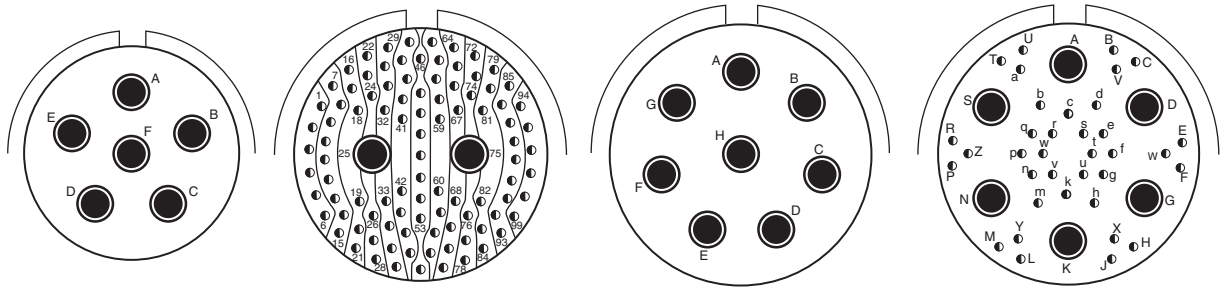
Twinax Plug
Contact

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

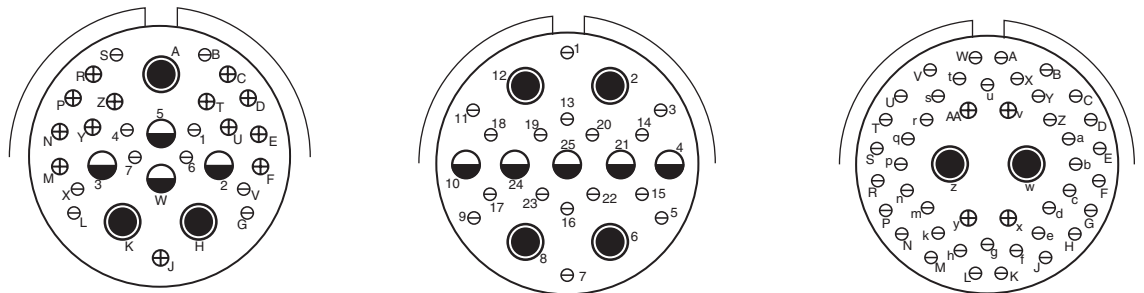
front face of pin inserts illustrated



Insert Arrangement	9-5	17-22	19-31	21-75
Number of Contacts	1	2 2	2 1 12	4
Contact Size	8	12 8	8 12 22D	8
	Grounded	Grounded		



Insert Arrangement	23-6	25-7	25-8	25-17
Number of Contacts	6	97 2	8	36 6
Contact Size	8	22D 8	8	22D 8



Insert Arrangement	25-20	25-26	25-46
Number of Contacts	10 13 3 4	16 5 4	40 4 2
Contact Size	20 16 8 12	20 12 8	20 16 8



Electrical Performance: Quadrax

Size 8 Quadrax 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 Quadrax 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.