

MIL-DTL-38999 Series III Type Environmental Connectors

233-228 Sav-Con® Connector Saver

HIGH-SPEED CONNECTORS

Part Number Development										
Sample Part Number	233-228 -NF 17 E - 2 P N S N									
Series / Basic Part No.	SuperNine® High-Speed Sav-Con® Connector Saver									
Material/Finish	-NF = Cadmium Olive Drab -ME = Electroless Nickel		-MT = Nickel PTFE -ZR = Black Zinc Nickel							
Shell Size	9, 11, 13, 17, 19, 21, 23, 25									
Contact Type (Table I)	C = Coax, 50 ohm D = Differential Twinax E = El Ochito ⁵ Q = Quadrax (100 ohm)		C1 = Coax, 75 ohm P = Power T = Triax/Concentric Twinax (per /90 and /91) Omit = Contact interface IAW MIL-STD-1560							
Ground Option	G = Common Ground		- = None							
Insert Arrangement	Per MIL-STD-1560, see page C-5 and C-6									
Contact Style (Plug Side)	P = Pin, Gold, 500 Cycles		S = Socket, Gold, 500 Cycles							
Alternate Polarization* (Plug Side)	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)									
Contact Style (Receptacle Side)	P = Pin, Gold, 500 Cycles		S = Socket, Gold, 500 Cycles							
Alternate Polarization* (Flange Side)	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)									

*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 80 and 81. Modification codes may be added directly to the end of any valid part number

Table I: Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, differential twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

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El Ochito Protocols		
WHITE	BLUE	RED
10GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort

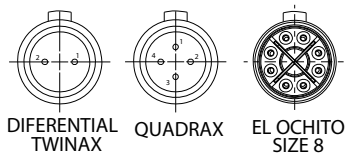


Example Code E7



Example Code E5

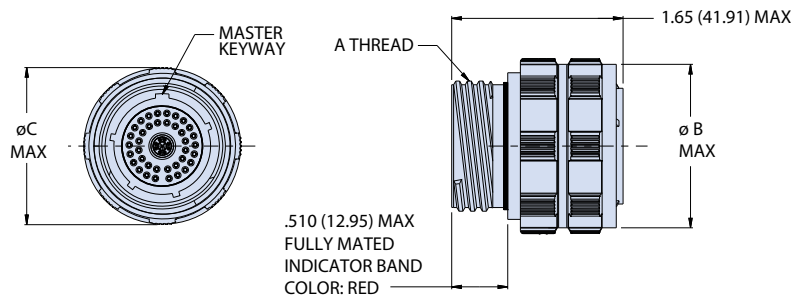
FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY



El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

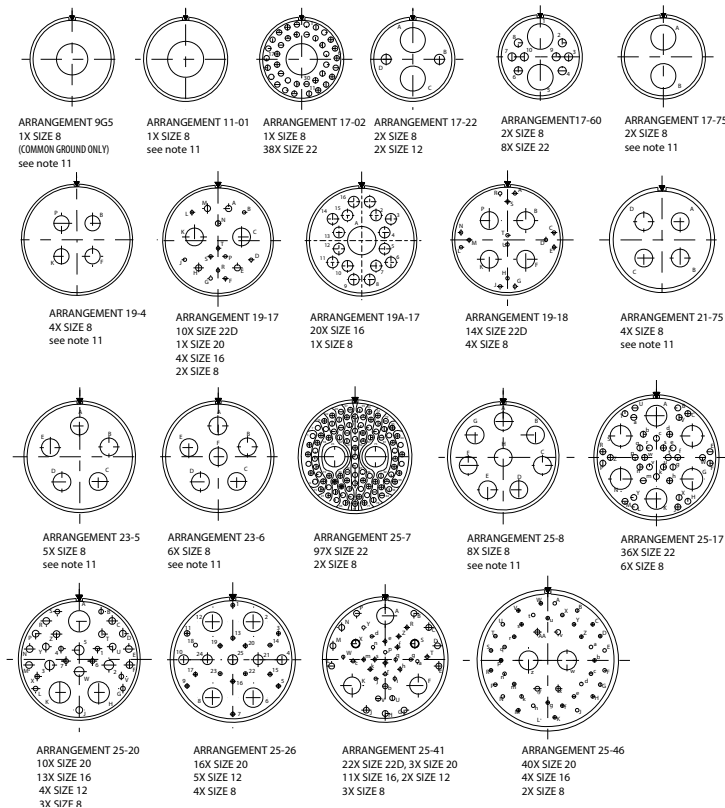
*Refer to Table II, el Ochito contact positions table for orientation.

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Dimensions				
Shell Size Code	Shell Size	A Thread	ØB Max	ØC Max
A	9	.6250 -0.1P-0.3L-TS-2A	.811 (20.60)	.858 (21.79)
B	11	.7500 -0.1P-0.3L-TS-2A	.929 (23.60)	.984 (24.99)
C	13	.8750 -0.1P-0.3L-TS-2A	1.008 (25.60)	1.157 (29.39)
D	15	1.0000 -0.1P-0.3L-TS-2A	1.232 (31.29)	1.280 (32.51)
E	17	1.1875 -0.1P-0.3L-TS-2A	1.358 (34.49)	1.406 (35.71)
F	19	1.2500 -0.1P-0.3L-TS-2A	1.469 (37.31)	1.516 (38.51)
G	21	1.3750 -0.1P-0.3L-TS-2A	1.594 (40.49)	1.642 (41.71)
H	23	1.5000 -0.1P-0.3L-TS-2A	1.720 (43.69)	1.768 (44.91)
J	25	1.6250 -0.1P-0.3L-TS-2A	1.843 (46.81)	1.890 (48.01)

FIGURE 1: INSERT ARRANGEMENTS



NOTES

- Coax contact mating interfaces shall be in accordance with the following:
 - size #16 per M39029/76 & /77
 - size #12 per M39029/102 & 103
 - size #8 per M39029/59 & 60
- See page C-4, figure 2 for reference orientation of the inner pins relative to connector main keyway.
- Insert arrangement is in accordance with MIL-STD-1560 and figure 1. Contact manufacturer for additional arrangement options
- Glenair 233-228 connector savers are designed to meet or exceed the applicable mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, D38999/26, and MIL-STD-1560 except as shown and/or noted. Feedthru mates with any QPL manufacturer's MIL-DTL-38999, Series III plugs and receptacles, having the same shell size, insert arrangement, polarization, and mating contact.
- EI Ochito mating contact shall be in accordance with EI Ochito contact configuration table on C-12. For optimal EI Ochito performance, see Glenair application note AN0002.
- Front panel mount only.
- For pin/pin and socket/socket, symmetrical layout only
- Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter
- Electrical safety limits must be established by the user. Peak voltage, switching surge, transient, etc. should be used to determine the safety application.
- Alternate polarization U (universal) is a non-standard/non-mil-spec option which allows for mating to any QPL mfg's MIL-DTL-38999 Sr. III connector with the same size, insert arrangement, and mating contact size. Intended for use in testing facilities only.
- Ground plane options available only for shielded contacts.
- Material/finish:
 - Barrel, Coupling Nut: see part number development
 - Detent Spring: stainless steel, passivated
 - Insulator: high grade rigid dielectric / N.A.
 - Seals: fluorosilicone blend / N.A.
 - Contacts: copper alloy / gold plated

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