

MDM connectors are used in applications requiring highly reliable, extremely small, lightweight connectors with higher density contact configurations than available in traditional rectangular connectors. They are available in 8 shell sizes accommodating from 9 to 100 contacts, and special arrangements of power and coaxial contacts.

These connectors are designed to meet the rapidly increasing demands for an environmental, high performance, rugged, moisture-sealed microminiature connector. This connector employs size 24 MICRO- $PIN^{TM}/MICROSOCKET^{TM}$ contacts on .050(1.27) centers in a contact density identical to the standard MICRO-D connector series, but with these additional features:

- Aluminum shells to provide greater strength, prevent chipping, cracking or breaking, offer electromagnetic (EMI) and RFI shielding.
- Silicone elastomer compression interfacial seal to provide a moisture and humidity seal between each contact and between contacts and shell.

How to Order

L-C-83513 ordering information – pages 240 and 241	MDM		<u></u>	<u> </u>	H	001	<u>r</u> ·	XXX
	SERIES							
RIES MDM: Diallyl Phthalate Insulator Material MDMV: Polyester Insulator Material DNTACT ARRANGEMENTS 3-15-21-25-31-37-51-100 (standard) 7C2, 24C4, (coaxial) Or combination of 7P2, 24P4 (power) Coax and power DNTACT TYPE P P P P P P S S ocket ERMINATION TYPE H H Harness-insulated wire. S S olid-uninsulated wire. S S olider pot to accept #26 AWG MAX. harness wire. (Not available with power contact arrangements.)	 TERMINATION CODE* (H) 001 - 18", 7/34 strand, #26 AWG, MIL-W-16878/4, Type E Teflon, yellow. (H) 003 - 18", 7/34 strand, #26 AWG, MIL-W-16878/4, Type E Teflon, color coded to MIL-STD-681 System I. (L) 1 - 1/2" uninsulated solid #25 AWG gold plated copper. (L) 2 - 1" uninsulated solid #25 AWG gold plated copper. HARDWARE M - Military specification hardware, see page 237. P - Jackpost K - Jacksrew-standard 	F B A B1 SHELL No Numbe A17 A17 A14 A30	- FINIS 7 4 2 1	.091 (.120 (.125 (.125 (.166 (.1475 (Per M 	dware 2.31) d 3.05) d 3.18) d s 9-51, 4.22) d (3.75) IIL-C-83 CODES** dard Ca troless over n ite / aloo	lia. hole dia. hole 3513) admium/y nickel ickel dine	for size ting ho for size for siz	100. les for 100. e 100

Performance and Material Specifications

STANDARD MAT	ERIALS AND FINISHES
Shell	 Aluminum alloy per QQ-A-200/8 (6061-T6), yellow chromate/cadmium per QQ-P-416, Type II, class 3.
insulator	 Glass-filled diallyl phthalate per MIL-M-14, Type SDGF, or polyester pe MIL-M-24519, Type GPT-30F
Contacts	– Copper alloy, gold plate
Mounting Hardware	- 300 Series stainless steel, passivate
Kit, Jackpost (3) Items	- 300 Series stainless steel, passivate
Washer	- 400 Series stainless steel, passivate
Standard Epoxy	 Hysol EE4198 with HD3561 hardene color green or EE4215 with HD3561 color black

ELECTRICAL DATA - page 231

Cannon

Coupling Friction/jackscrews Polarization Keystone-shaped shells Contact Spacing .050 (1.27) Centers Plug and receptacle No. of Contacts 9 thru 100 standard; 5 signal/2 coaxial; 5 signal/2 power; 20 signal/4 power

- RG-178/U

MECHANICAL FEATURES

Coaxial Cable

Contact Termination

Wire Size

- #24 thru #32 AWG

- Multiple indent crimp

Standard Wire Termination Codes

Cannon Modification Code (Not MS)

The following termination codes are listed for your information. For lengths not shown, consult factory for proper modification code. All wire lengths are minimum.

Harness Type (H)

Length	All Yellow	Color Coded*
3 (76.2)	H020	H027
6 (152.4)	H019	H016
8 (203.2)	H026	H034
10 (254.0)	H029	H025
12 (304.8)	H028	H002
18 (457.2)	H001	H003
20 (508.0)	H038	H023
24 (609.6)	H009	H004
30 (762.0)	H010	H005
36 (914.4)	H011	H006
48 (1219.2)	H013	H048
72 (1828.8)	H017	H046
120 (3048.0)	H042	H041

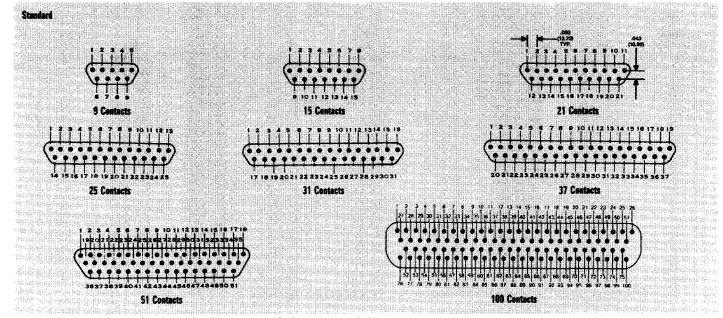
Solid Uninsulated Type (L)

Termination Code	Length
L61	.125 (3.18)
L56	.150 (3.81)
L57	.190 (4.83)
L39	.250 (6.35)
L58	.375 (9.52)
L1	.500 (12.70)
L14	.750 (19.05)
L2	1.000 (25.40)
L7	1.500 (38.10)
L6	2.000 (50.80)
L16	2.500 (63.50)
L10	3.000 (76.20)

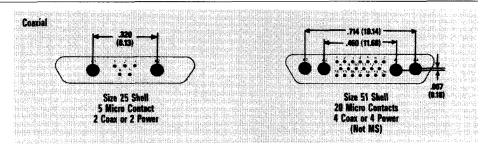
*Cavity #1 black

Contact Arrangements

(Face View of Pin Insert - Use Reverse Order for Socket Side)



Contact identification numbers are for reference only and do not appear on insulator or connector body.

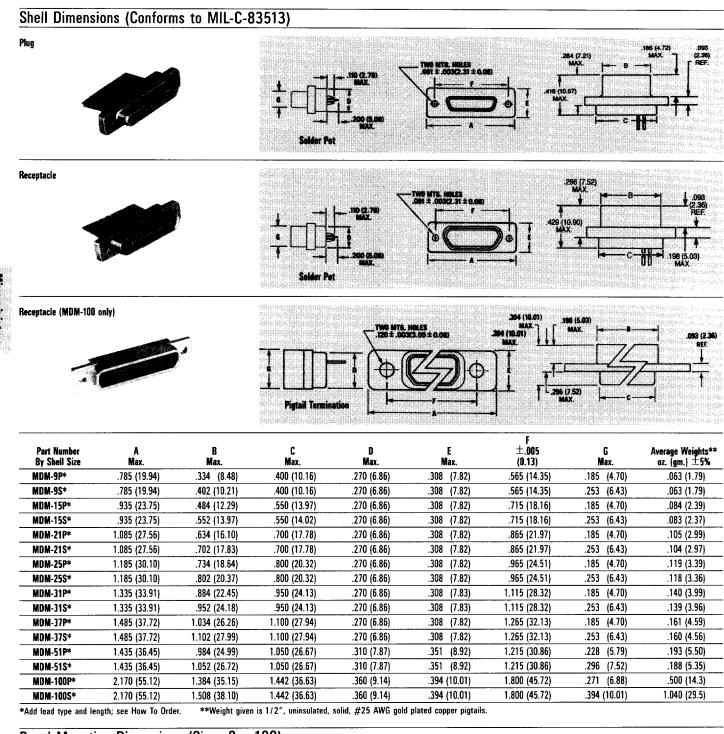




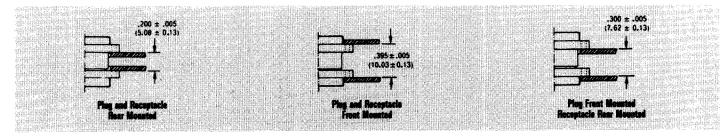
MDM

For technical assistance, price or delivery information, call your local technical sales office or distributor.

Cannon



Panel Mounting Dimensions (Sizes 9 - 100)

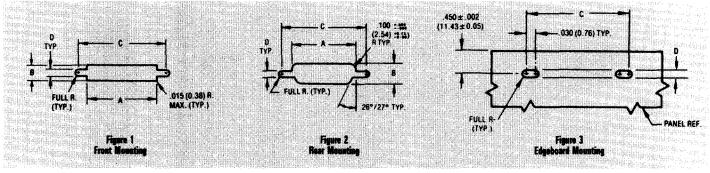


ITTCannon

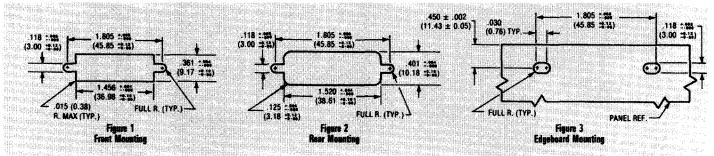
Panel Cutouts

NOTE: See page 237 for rear panel mounting configuration.

Shell Sizes 9 thru 51



Shell Size 100



For 9-51 Shell Sizes

NOTES:

- 1. Front mounting (figure 1) and rear mounting (figure 2) accommodates #2-56 screws.
- Front mounting is preferred. However, when rear mounting is necessary, use figure 2 dimensions when jackscrews are used. See detail on page 24 when jackposts are used.
- 3. Edgeboard mounting bracket (figure 3) uses #2-56 screws. Dimension .450 \pm .002 (11.43 \pm 0.05) locates the MDM receptacle flush with the end of the board.

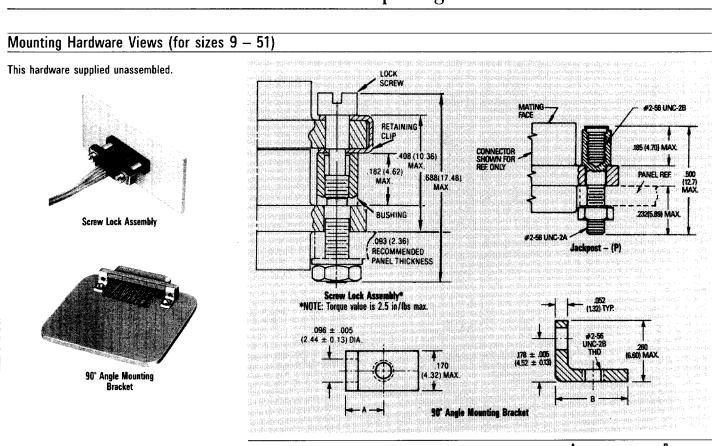
For 100 Shell Size

NOTES:

- 1. Front mounting (figure 1) and rear mounting (figure 2) accommodates #4-40 screws.
- 2. Edgeboard mounting bracket (figure 3) uses #4-40 screws. Dimension .450 \pm .002 (11.43 \pm 0.05) locates the MDM receptacle flush with the end of the board.
- 3. Front mounting is preferred. However, when rear mounting is necessary, use figure 2 dimensions.

		A	8	C	D
Shell	Cutout	+.004 (0.10)	+.004(0.10)	+.005 (0.13)	+.005 (0.13)
Size	Figure	(0.00)	000 (0.00)	000 (0.00)	<u> </u>
	1	.408 (10.36)	.271 (6.88)	.570 (14.48)	.089 (2.26)
9	2	.401 (10.19)	.252 (6.40)	.570 (14.48)	.089 (2.26)
	3	-	-	.570 (14.48)	.089 (2.26)
	1	.558 (14.17)	.271 (6.88)	.720 (18.29)	.089 (2.26)
15	2	.551 (14.00)	.252 (6.40)	.670 (18.29)	.089 (2.26)
	3	÷	-	.720 (18.29)	.089 (2.26)
	1	.708 (17.98)	.271 (6.88)	.870 (22.10)	.089 (2.26)
21	2	.701 (17.81)	.252 (6.40)	.870 (22.10)	.089 (2.26)
	3	-	-	.870 (22.10)	.089 (2.26)
	1	.808 (20.52)	.271 (6.88)	.970 (24.64)	.089 (2.26)
25	2	.801 (20.34)	.252 (6.40)	.970 (24.64)	.089 (2.26)
	3	-		.970 (24.64)	.089 (2.26)
	1	.958 (24.33)	.271 (6.88)	1.120 (28.45)	.089 (2.26)
31	2	.951 (24.16)	.252 (6.40)	1.120 (28.45)	.089 (2.26)
	3	-	_	1.120 (28.45)	.089 (2.26)
	1	1.108 (28.14)	.271 (6.88)	1.270 (32.26)	.089 (2.26)
37	2	1.101 (27.97)	.252 (6.40)	1.270 (32.26)	.089 (2.26)
	3	_		1.270 (32.26)	.089 (2.26)
	1	1.058 (26.87)	.315 (8.00)	1.220 (30.99)	.089 (2.26)
51	2	1.051 (26.70)	.295 (7.49)	1.220 (30.99)	.089 (2.26)
	3	-	_	1.220 (30.99)	.089 (2.26)

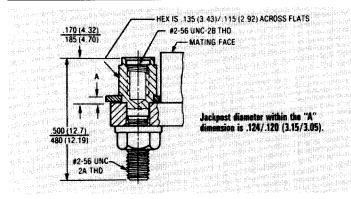




Description	Part Number	A ±.005 (±0.13)	B Max.
Screw Lock Assembly	322-9500-000	N,	A
Jackpost Kit	320-9505-000	N	A
Mounting Bracket 90° MDM for 9 thru 37 Shell Sizes	015-9516-002	.147 (3.73)	.308 (7.82)
Mounting Bracket 90° MDM for 51 Shell Size	015-9516-003	.169 (4.29)	.350 (8.89)

NOTES: Screw lock assembly (322-9500-000) can be used for front mounting only. Jackpost kit (320-9505-000) consists of two assemblies, shipped unassembled.

Jackpost Bushing (for rear panel mounting-for sizes 9 – 51)



Panel A Thickness	A +.005 (0.13) 000 (0.00)	Jackpost Kit Number*
3/32 (2.4)	.087 (2.21)	320-9505-007
1/16 (1.6)	.056 (1.42)	320-9505-006
3/64 (1.2)	.042 (1.07)	320-9505-005
1/32 (0.8)	.025 (0.64)	320-9505-004

126 (3:20) 126 (3:20) 125 (3:18) Dia Typ 276 276 179 266 179 105 (2:67) 100 (2:54) B Typ

Plug and Receptacle Dimensions

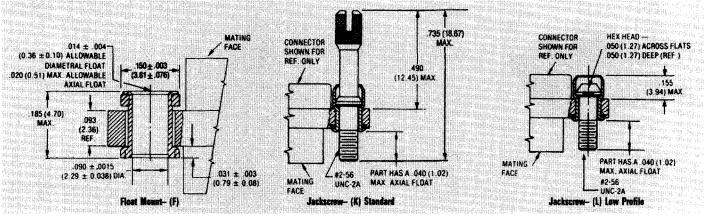
	Α	B	
Shell Size	+.004 (0.10) 000 (0.00)	+.004 (0.10) 000 (0.00)	C ±.005 (0.13)
9	.401 (10.19)	.252 (6.40)	.565 (14.35)
15	.551 (14.00)	.252 (6.40)	.715 (18.16)
21	.701 (17.81)	.252 (6.40)	.865 (21.97)
25	.801 (20.34)	.252 (6.40)	.965 (24.51)
31	.951 (24.16)	.252 (6.40)	1.115 (28.34)
37	1.101 (27.97)	.252 (6.40)	1.265 (32.13)
51	1.051 (26.70)	.295 (7.49)	1.215 (30.86)

*A kit consists of 2 jackposts, 2 nuts, 2 washers.

ETT Cannon

Mounting Hardware Views (sizes 9 - 51)

This hardware is factory installed.



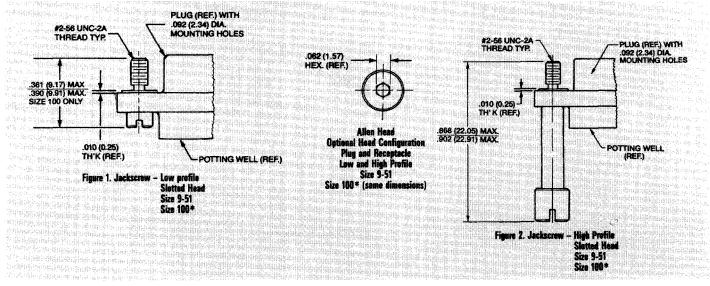
Shown here is a cutaway view of the float mount for the MD connector. The basic shell dimensions are the same for the float mount and the screw mounting hole configurations. View shown is for standard float mount front panel mounting. Reverse mounting is available on request. *NOTE: Torque values are as follows: Low Profile Jackscrew (L)–2.5 in/lbs Standard Jackscrew (K)–2.5 in/lbs

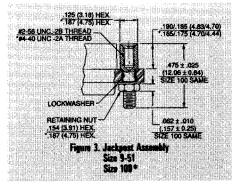
Connectors

Repair kit available-consult factory.

Mounting Hardware to Military Specification (for sizes 9 – 100) per MIL-C-83513/5

This hardware supplied in kits unassembled (2 pieces of each item).





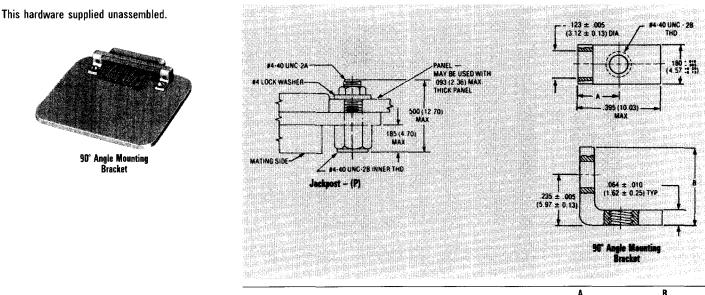
To order hardware kits separately, order either by M83513/5-** or by 320-950X-XXX.

Description	Size 9-51 Mod Code Part Number	**	Size 100* Mod Code Part Number	**
Slotted Head Jackscrew Assy Low Profile (Figure 1)	M5 320-9508-025	05	M15 320-9508-021	15
Slotted Head Jackscrew Assy High Profile (Figure 2)	M6 320-9508-027	06	M16 320-9508-023	16
Allen Head Jackscrew Assy Low Profile (Figure 1)	M2 320-9508-026	02	M12 320-9508-022	12
Allen Head Jackscrew Assy High Profile (Figure 2)	M3 320-9508-028	03	M13 320-9508-024	13
Jackpost Assy (Figure 3)	M7 320-9505-033	07	M17 320-9505-030	17

*Size 100 requires B1 size mounting holes.

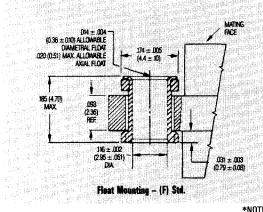


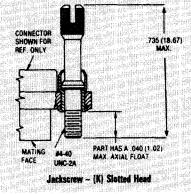
Mounting Hardware Views (for size 100)

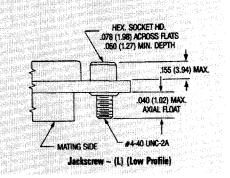


Description	Part Number	A ±.005 (0.13)	B Max.
Jackpost Kit	320-9505-015	N/	A
Mounting Bracket 90° MDM	015-9528-000	.191 (4.85)	.370 (9.40)

This hardware is factory installed.





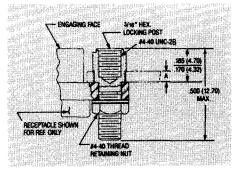


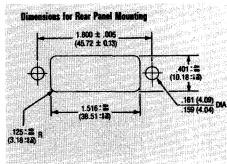
*NOTE: Torque values are as follows: Low Profile Jackscrew (L)-4.0 in/lbs Standard Jackscrew (K)-4.0 in/lbs

Jackpost Bushing (for Rear Panel Mounting)

Panel Thickness	A +.005 (0.13) 000 (0.00)	Jackpost Kit Number*
3/32 (2.4)	.087 (2.21)	320-9505-013
1/16 (1.6)	.058 (1.42)	320-9505-012
1/32 (0.8)	.025 (0.64)	320-9505-010
3/64 (1.2)	.042 (1.07)	320-9505-011

*2 jackposts, 2 nuts, 2 washers





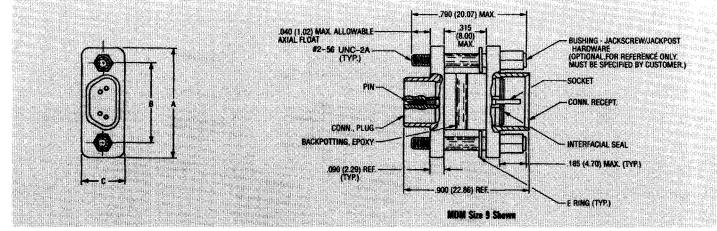


Connector Saver

Save wear and tear on your equipment and systems connectors by using the "Connector Saver."

The multi-matings and unmatings experienced by most connectors during testing and final check out can be eliminated.

Simply mate the "Connector Saver" to your unit and use the opposite side for your testing interface . . . less wear, less tear, less chance of damage. It is available in all seven standard MDM layouts. Mating hardware is available and can be ordered either separately or included with the connector saver.



	A174 Electroless Nickel		Cadmium Plated			A	B	C
Size	With Hardware	W/O Hardware	With Hardware	W/O Hardware	*Hardware Kits	Max.	±.005 (0.13)	Max.
9	MBM98479-86	MDM98479-18	MDM98479-78	MDM-97294-371	320-9505-014**	.785 (19.94)	.565 (14.35)	.308 (7.82)
15	MDM98479-87	MDM98479-19	MDM98479-79	MDM-97294-372	320-9505-014**	.935 (23.75)	.715 (18.16)	.308 (7.82)
21	MDM98479-88	MDN98479-20	MDM98479-80	MDM-97294-373	320-9505-014**	1.085 (27.56)	.865 (21.97)	.308 (7.82)
25	MDM98479-89	MDM98479-21	MDM98479-81	MDM-97294-374	320-9505-014**	1.185 (30.10)	.965 (24.51)	.308 (7.82)
31	MDM98479-90	MDM98479-14	MDM98479-82	MDM-97294-375	320-9505-014**	1.335 (33.91)	1.115 (28.32)	.308 (7.82)
37	MDM98479-91	MDM98479-15	MDM98479-83	MDM-97294-376	320-9505-014**	1.485 (37.72)	1.265 (32.13)	.308 (7.82)
51	MDM98479-92	MDM98479-16	MDM98479-84	MDM-97294-377	320-9505-014**	1.435 (36.45)	1.215 (30.86)	.351 (8.91)
100	MDM98479-93	MDM98479-17	MDM98479-85	MDM-97294-717	320-9508-014***	2.170 (55.12)	1.800 (45.72)	.394 (10.01)

* Kit contains 2 bushings-jackpost/jackscrew and 2 E rings.
 ** Size 9-51-#2-56 UNC2B Thread

*** Size 100-#4-40 UNC2B Thread





	ber Nomenclature to MIL-C-83513 A	
	<u>MD** 01 - H100 - </u>	** **
	ITT CANNON SERIES	
	MDM – Metal Shell, Diallyl Phthalate Insulator	
	MDMV – Metal Shell, Polyester Insulator MDB – Diallyl Phthalate Insulator	
	MDVB – Polyester Insulator	
	MIL-C-83513 SLASH SHEET	
	01 – Plug, Connector, Solderpot	
	02 – Receptacle, Connector, Solderpot 03 – Plug Connector Crimp Type } Metal Shell	
	03 — Plug, Connector, Crimp Type 04 — Receptacle, Connector, Crimp Type	
	04 - Hardware Only A	
	06 – Plug, Connector, Solderpot	
	07 – Receptacle, Connector, Solderpot Plastic 🔥]
	08 – Plug, Connector, Crimp Type	
2	09 — Receptacle, Connector, Crimp Type	
icominiaturo	INSERT ARRANGEMENT	
	<u>METAL SHELL</u> <u>PLASTIC</u> A9 – 9 Contact 9 Contact	
8	B15 - 15 Contact 15 Contact	
	C21 – 21 Contact 21 Contact	
	D25 – 25 Contact 25 Contact	1
	E31 – 31 Contact 31 Contact	
	F37 – 37 Contact 37 Contact G51 – 51 Contact 51 Contact	
	G51 51 Contact 51 Contact H100 100 Contact <u>A</u>	
	WIRE TYPE	
	No Number For Solderpot	
	01 – 18" long, #26 AWG per MIL-W-22759/11-26-9	
	02 - 36" long, #26 AWG per MIL-W-22759/11-26-9	
	03 – 18" long, #26 AWG per MIL-W-22759/11-26	
	Color Coded per MIL-STD-681, System 1 🔥 04 – 36″ long, #26 AWG per MIL-W-22759/11-26	
	Color Coded per MIL-STD-681, System 1	
	05 – .5″ long, #25 AWG, type S per QQ-W-343,	
	Gold Plated	
	06 – 1.0" long, #25 AWG, type S per QQ-W-343, Gold Plated	
	07 – .5" long, #25 AWG, type S per QQ-W-343,	
	Tin Plated	
	08 – 1.0" long, #25 AWG, type S per QQ-W-343, Tin Plated	
	09 – 18″ long, #26 AWG per MIL-W-22759/33-26-9 🔥	
	10 – 36″ long, #26 AWG per MIL-W-22759/33-26-9 🔬	
NOTES:	11 - 18" long, #26 AWG per MIL-W-22759/33-26	
(Specify when ordering, if necessary.)	Color Coded per MIL-STD-681, System 1 🛕 🛕	
 For every Mil-Spec P/N, ITT has two corresponding part numbers. Example: ITT P/N's MDM01-A9 (Diallyl Phthalate Insulator) 	12 — 36″ long, #26 AWG per MIL-W-22759/33-26 Color Coded per MIL-STD-681, System 1 <u> </u>	
MDMV01-A9 (Polyester Insulator)	13 – 72" long, #26 AWG per MIL-W-22759/11-26-9	
2 - Tolerance on wire lengths $-18"$, $36"$ and $72"$ long, + 1.000"/ $-0.000"$	14 – 72" long, #26 AWG per MIL-W-22759/11-26	
.5" and 1.00" + .200"/— .000" Substrate Application, connector shell finish must be "A174"	Color Coded per MIL-STD-681, System 1 <u>&</u> 15 – 72" long, #26 AWG per MIL-W-22759/33-26-9 <u>A</u>	
and wire must be per MIL-W-22759/33-26.	15 – 72″ long, #26 AWG per MIL-W-22759/33-26-9 🗥 16 – 72″ long, #26 AWG per MIL-W-22759/33-26	
4 - Any deviations to these P/N's will result in assignment of a special P/N, consult factory.	Color Coded per MIL-STD-681, System 1 🛕 🛕	
🛧 - No size 100 in plastic type connector.		
A - Color coding in accordance with MIL-STD-681. System 1 except the	SHELL FINISH	
 No size 100 in plastic type connector. Color coding in accordance with MIL-STD-681, System 1 except the appropriate color code is the individual contact cavity number minus 1 for contact positions. 	No number – for Plastic type connector	

hardware to Military Specification (sizes 9 to 100) see A174 - Electroless Nickel 🖄 page 238.

Qualification to slash sheets 10 thru 27 for the PCB connectors will be announced when completed.



How to Order – MIL-C-83513 Part Number Nomenclature \land

	M83	513/ <u>01 - A ** C</u>
		- $+$ $+$ $+$ $+$ $+$ $+$
	SERIES	
	Connector, Electrical, Rectangular Microminiature, Polarized Shell	
	MIL-C-83513 SLASH SHEET	į į į
	01 – Plug, Connector, Solderpot 02 – Receptacle, Connector, Solderpot	
	03 – Plug, Connector, Crimp Type Metal Shell	
	04 – Receptacle, Connector, Crimp Type	
	05 – Hardware only 🏠	
	06 – Plug, Connector, Solderpot	
	07 – Receptacle, Connector, Solderpot Plastic 🔥	
	08 – Plug, Connector, Crimp Type	
	09 — Receptacle, Connector, Crimp Type	بالمناف المراجع
	INSERT ARRANGEMENT	
	METAL SHELL PLASTIC	
	A – 9 Contact 9 Contact	
	B – 15 Contact 15 Contact	
	C – 21 Contact 21 Contact D – 25 Contact 25 Contact	
	E = 31 Contact 25 Contact E = 31 Contact 31 Contact	in the second
	F – 37 Contact 37 Contact	
	G – 51 Contact 51 Contact	
	H – 100 Contact 🖄	
	WIRE TYPE	
	No Number – For Solderpot	
	01 - 18" long, #26 AWG per MIL-W-22759/11-26-9	
	02 — 36" long, #26 AWG per MIL-W-22759/11-26-9 03 — 18" long, #26 AWG per MIL-W-22759/11-26	
	Color Coded per MIL-STD-681, System 1	
	04 – 36" long, #26 AWG per MIL-W-22759/11-26	
	Color Coded per MIL-STD-681, System 1 🔥	
	05 – .5" long, #25 AWG, type S per QQ-W-343,	
	Gold Plated 06 – 1.0″ long, #25 AWG, type S per QQ-W-343,	
	Gold Plated	
	07 – .5″ long, #25 AWG, type S per QQ-W-343,	
	Tin Plated	
	08 — 1.0" long, #25 AWG, type S per QQ-W-343, Tin Plated	
	09 – 18″ long, #26 AWG per MIL-W-22759/33-26-9 🛕 10 – 36″ long, #26 AWG per MIL-W-22759/33-26-9 🛕	
NOTES:	11 – 18" long, #26 AWG per MIL-W-22759/33-26	
(Specify when ordering, if necessary.)	Color Coded per MIL-STD-681, System 1 A A	
 For every Mil-Spec P/N, ITT has two corresponding part numbers. Example: ITT P/N's MDM01-A9 (Dial/I Phthalate Insulator) 	12 — 36″ long, #26 AWG per MiL-W-22759/33-26 Color Coded per MIL-STD-681, System 1 A 余 余	
MDMV01-A9 (Polyester Insulator)	Color Coded per MIL-STD-681, System 1 🔥 🛕 13 – 72″ long, #26 AWG per MIL-W-22759/11-26-9	
2 - Tolerance on wire lengths – 18", 36" and 72" long, + 1.000" / - 0.000"	14 – 72" long, #26 AWG per MIL-W-22759/11-26	
.5" and 1.00" + .200"/000" A - For space application, connector shell finish must be "N" and	Color Coded per MIL-STD-681, System 1 🛕 15 – 72″ long, #26 AWG per MIL-W-22759/33-26-9 🛕	
wire must be per Mil-W-22759/33-26.	15 – 72" long, #26 AWG per MIL-W-22759/33-26-9 🛕	
4 - Any deviations to these P/N's will result in assignment of a special P/N, consult factory.	16 — 72″ long, #26 AWG per MIL-W-22759/33-26 Color Coded per MIL-STD-681, System 1 <u> </u>	
A - No size 100 in plastic type connector.		
Color coding in accordance with MIL-STD-681, System 1 except the appropriate color code is the individual contact cavity number minus	SHELL FINISH	
appropriate color code is the individual contact cavity number minus	No letter – for Plastic type connector	

- 2. Construction of the individual contact cavity number minus appropriate color code is the individual contact cavity number minus 1 for contact positions.
- For mounting hardware to Military Specification (sizes 9 to 100) see page 238.

No letter – for Plastic type connector

- C Cadmium
- N Electroless Nickel 🔬

Qualification to slash sheets 10 thru 27 for the PCB connectors will be announced when completed.



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