Micro-D Metal Shell - .050" Contact Spacing MDM

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 MICROPIN™/MICROSOCKET™ 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.

Specifications

STANDARD MATERIALS AND FINISHES	
Shell	- 6061-T6 Aluminum alloy per QQ-A-200/8, yellow chromate/ cadmium, Type II, Class 3 over electroless nickel per SAE AMS-C-26074, Class 4.
Insulator	- Liquid Crystal Polymer per MIL-M-24519, Type GLCP-30F (9-100) - Glass filled diallyl phthalate per MIL-M-14, Type SDGF (7*2 and 24*4) - Polyphenylene sulfide per MIL-M-24519, Type GST-40F (16*5) - Polyester per MIL-M-24519, Type GPT-30F (10*10)
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 stell, passivate
Standard Epoxy	- Hysol EE4215/HD3561, color black or Hysol EE4198/HD3561, color green

MECHANICAL FEATURES	
Coupling	- Friction/jackscrews
Polarization	- Keystone-shaped shells
Contact Spacing Centers	- .050 (1.27)
Shell Styles	- Plug and receptacle
No. of Contacts	- 9 thru 100 signal; 5 signal/2 coaxial; 5 signal/2 power; 11 signal/5 coaxial; 11 signal/5 power; 0 signal/10 coaxial; 0 signal/10 power; 20 signal/4 coaxial; 20 signal/4 power
Coaxial Cable	- RG - 178/U
Wire Size	- #24 thru #32 AWG
Contact Termination	- Multiple indent crimp

Performance Data

The table below summarizes the results of key tests performed in accordance with MIL-STD-1344, where applicable. Data is applicable to standard connectors with standard termination. Variations may affect this data, so please consult customer service for further information on your requirements.

Test	Method	Criteria of Acceptance
Dielectric Withstanding Voltage	Method 3001: 600 VAC at sea level 150 VAC at 70,00' altitude	 No breakdown No breakdown
Insulation Resistance	Method 3003	5,000 megohms minimum
Thermal Shock	Method 1003. Condition A: - 55°C to +125°C	No physical damage
Physical Shock	Method 2004, Condition E: 50 G's, 3 axes, 6 millisecond duration sawtooth pulse	No physical damage No loss of continuity > 1 µsec
Vibration	Method 2005, Condition IV: 20 G's, 10-2,000 Hz. 12 hrs	No physical damage No loss of continuity > 1 µsec
Durability	500 cycles of mating and unmating, 500 CPH max.	No mechanical or electrical defects
Moisture Resistance	Method 1002, Type II, omit steps 7a & 7b	Insulation resistance > 100 megohms
Salt Spray	Method 1001, Condition B: 48 hours	Shall be capable of mating and unmating, and meet contact resistance requirements
Contact Resistance (MIL-STD-202)	Method 1001, Condition B: At 3 amps At 1 milliamp	 8 milliohms maximum 10 milliohms maximum
Contact Retention	Per MIL-DTL-83513	5 lb. minimum axial load

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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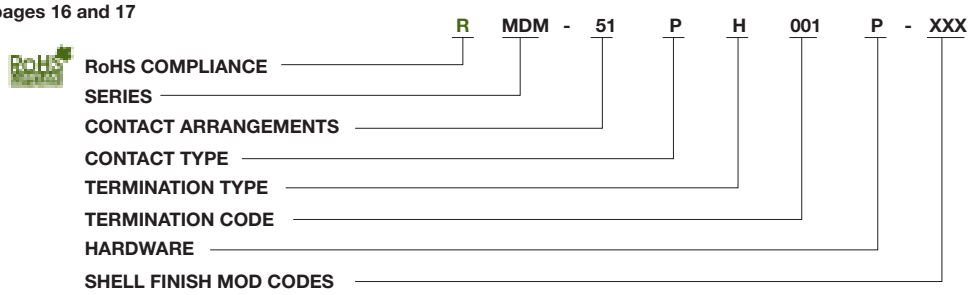
How to Order

For MIL-DTL-83513 ordering information see pages 16 and 17



SERIES
MDM: (Size 9-100) Liquid Crystal Polymer (LCP)
MDM: (Combo Layout) Diallyl Phthalate (DAP)

CONTACT ARRANGEMENTS
9-15-21-25-31-37-51-100 (standard)
16C5, 10C10, 7C2, 24C4 (coaxial) } or combination of
16P5, 10P10, 7P2, 24P4 (power) } coax and power

CONTACT TYPE
P - Pin S - Socket

TERMINATION TYPE
H - Harness-insulated wire.
L - Solid-uninsulated wire.
S - Solder pot to accept #26 AWG MAX. harness wire. (Not available with power contact arrangements.)

HARDWARE
M - Military specification hardware, see page 11 for military hardware codes.
P - Jackpost
K - Jackscrew-standard profile
L - Jackscrew-low profile
F - Float mount
B - No hardware standard
.091 (2.31) dia. hole for sizes 9-51;
.120 (3.05) dia. hole for size 100.
A - .125 (3.18) dia. mounting holes for sizes 9-51;
.166 (4.22) dia. hole for size 100.
B1 - .1475 (3.75) dia. hole for size 100
(Per MIL-DTL-83513)

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.

SHELL FINISH MOD CODES
No Number - (Standard cadmium/yellow chromate over nickel
A174 - Electroless nickel
A172 - Gold over nickel
A141 - Irridite/alodine
A30 - Black anodize

*See page 79 and 81 for additional Termination codes.

COTS or Non Mil-Spec or Commercial or Industrial Standard Wire Termination Codes

Cannon Modification Code (Not MS)

The following termination codes are listed for your information. For additional codes please refer to Appendix on page 79 and 81. **All wire lengths are minimum.**

Harness Type (H)
#26 AWG per MIL-W-16878/4, 7/34 strand, type E Teflon, stranded.

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

* Cavity #1 black

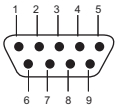
Solid Uninsulated Type (L)
#25 AWG gold plated copper

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)

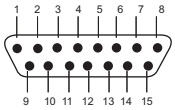
Contact Arrangements

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

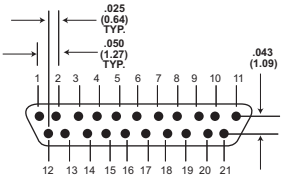
Standard



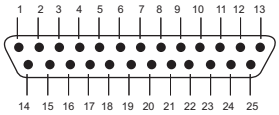
9 Contacts



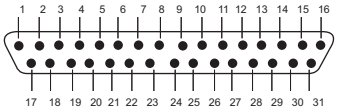
15 Contacts



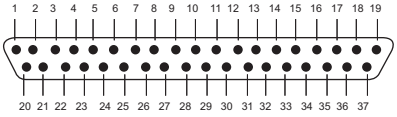
21 Contacts



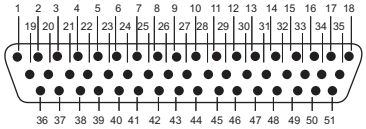
25 Contacts



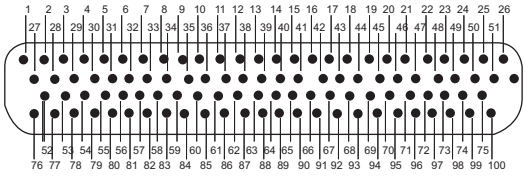
31 Contacts



37 Contacts

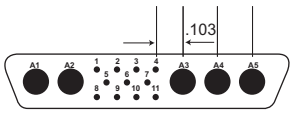


51 Contacts



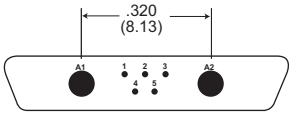
100 Contacts

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

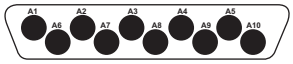


Size 51 Shell
11 Micro contact
5 Coax or 5 Power

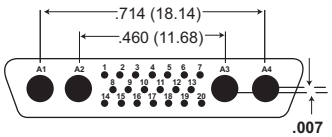
Coaxial



Size 25 Shell
5 Micro contact
2 Coax or 2 Power



Size 100 Shell
0 Micro contact
10 Coax or 10 Power



Size 51 Shell
20 Micro contacts
4 Coax or 4 Power
(Not MS)

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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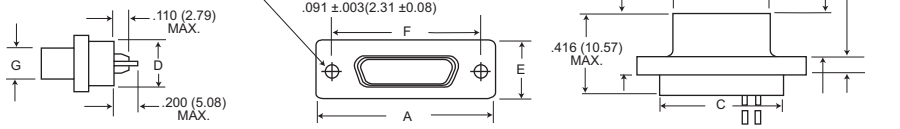
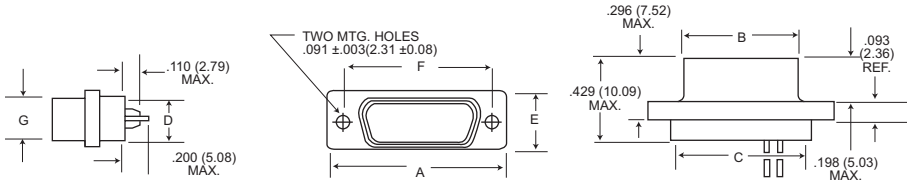
COTS or Non Mil-Spec or Commercial or Industrial Shell Dimensions (Conforms to MIL-DTL-83513)

Plug



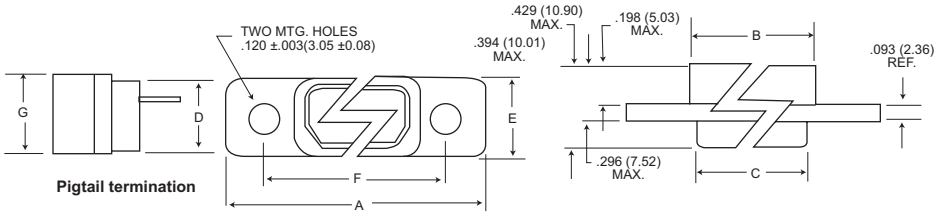
Solder Pot

Receptacle



Solder Pot

Receptacle (MDM-100 only)

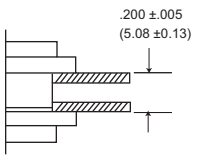


Pigtail termination

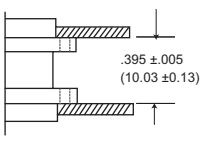
Part Number By Shell Size	A Max.	B Max.	C Max.	D Max.	E Max.	F +_.005 (0.13)	G Max.	Average Weights** oz. (gm.) ±5%
MDM-9P*	.785 (19.94)	.334 (8.48)	.400 (10.16)	.270 (6.86)	.308 (7.82)	.565 (14.35)	.185 (4.70)	.063 (1.79)
MDM-9S*	.785 (19.94)	.402 (10.21)	.400 (10.16)	.270 (6.86)	.308 (7.82)	.565 (14.35)	.253 (6.43)	.063 (1.79)
MDM-15P*	.935 (23.75)	.484 (12.29)	.550 (13.97)	.270 (6.86)	.308 (7.82)	.715 (18.16)	.185 (4.70)	.084 (2.39)
MDM-15S*	.935 (23.75)	.552 (13.97)	.550 (13.97)	.270 (6.86)	.308 (7.82)	.715 (18.16)	.253 (6.43)	.083 (2.37)
MDM-21P*	1.085 (27.56)	.634 (16.10)	.700 (17.78)	.270 (6.86)	.308 (7.82)	.865 (21.97)	.185 (4.70)	.105 (2.99)
MDM-21P*	1.085 (27.56)	.702 (17.83)	.700 (17.78)	.270 (6.86)	.308 (7.82)	.865 (21.97)	.253 (6.43)	.104 (2.97)
MDM-25P*	1.185 (30.10)	.734 (18.64)	.800 (20.32)	.270 (6.86)	.308 (7.82)	.965 (24.51)	.185 (4.70)	.119 (3.39)
MDM-25S*	1.185 (30.10)	.802 (20.37)	.800 (20.32)	.270 (6.86)	.308 (7.82)	.965 (24.51)	.253 (6.43)	.118 (3.36)
MDM-31P*	1.335 (33.91)	.884 (22.45)	.950 (24.13)	.270 (6.86)	.308 (7.82)	1.115 (28.32)	.185 (4.70)	.140 (3.99)
MDM-31S*	1.335 (33.91)	.952 (24.18)	.950 (24.13)	.270 (6.86)	.308 (7.82)	1.115 (28.32)	.253 (6.43)	.139 (3.96)
MDM-37P*	1.485 (37.72)	1.034 (26.26)	1.100 (27.94)	.270 (6.86)	.308 (7.82)	1.265 (32.13)	.185 (4.70)	.161 (4.59)
MDM-37S*	1.485 (37.72)	1.102 (27.99)	1.100 (27.94)	.270 (6.86)	.308 (7.82)	1.265 (32.13)	.253 (6.43)	.160 (4.56)
MDM-51P*	1.435 (36.45)	.984 (24.99)	1.050 (26.67)	.310 (7.87)	.351 (8.92)	1.215 (30.86)	.228 (5.79)	.193 (5.50)
MDM-51S*	1.435 (36.45)	1.052 (26.72)	1.050 (26.67)	.310 (7.87)	.351 (8.92)	1.215 (30.86)	.296 (7.52)	.188 (5.35)
MDM-100P*	2.170 (55.12)	1.384 (35.15)	1.442 (36.63)	.360 (9.14)	.394 (10.01)	1.800 (45.72)	.271 (6.88)	.500 (14.3)
MDM-100S*	2.170 (55.12)	1.508 (38.10)	1.442 (36.63)	.360 (9.14)	.394 (10.01)	1.800 (45.72)	.394 (10.01)	1.040 (29.5)

*Add lead type and length; see How To Order. ***Weight given is 1/2", uninsulated, solid, #25 AWG gold plated copper pigtails.

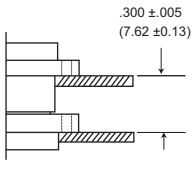
Panel Mounting Dimensions (Sizes 9 - 100)



Plug and Receptacle Rear Mounted



Plug and Receptacle Front Mounted



Plug Front Mounted Receptacle Rear Mounted

ITT

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Panel Cutouts

NOTE: See page 13 for rear panel mounting configuration.

Shell Sizes 9 thru 51

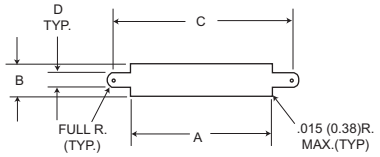


Figure 1
Front Mounting

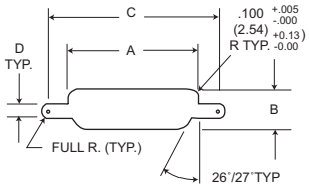


Figure 2
Rear Mounting

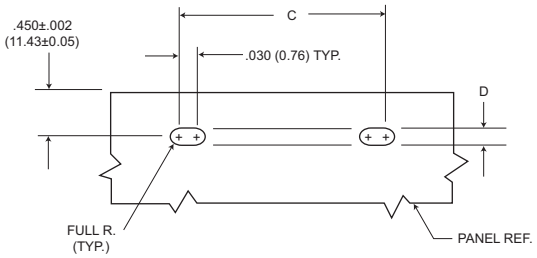


Figure 3
Edgeboard Mounting

Shell Size 100

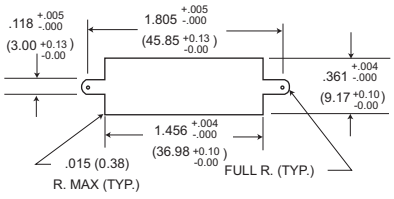


Figure 1
Front Mounting

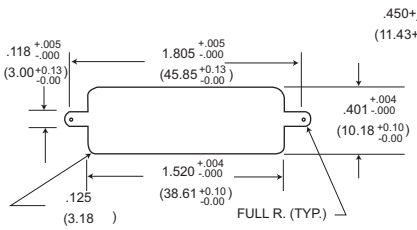


Figure 2
Rear Mounting

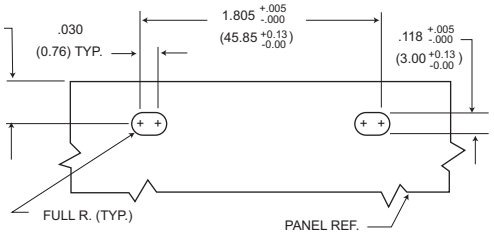


Figure 3
Edgeboard Mounting

For 9-51 Shell Sizes

NOTES:

1. Front panel mounting is the preferred mounting method. Front panel mounting dimensions (figure 1) will accommodate either #2-56 screws or jackpost hardware.
2. Rear panel mount dimensions (figure 2) will accommodate #2-56 screw hardware only. When mounting the connector with rear panel mount jackpost see the panel cut-out dimensions.
3. Edgeboard mounting bracket (figure 3) uses #2-56 screws. Dimension .450+/-.002 (11.43+/-0.05) locates the MDM receptacle flush with the end of the board.

For 100 Shell Size

NOTES:

1. Front mounting is the preferred mounting method. Front panel mounting dimensions (figure 1) will accommodate either #4-40 screws or jackpost hardware.
2. Rear panel mount dimensions (figure 2) will accommodate #4-40 screw hardware only see the panel cut-out dimensions.
3. Edgeboard mounting bracket (figure 3) uses #4-40 screws. Dimension .450+/-.002 (11.43+/-0.05) locates the MDM receptacle flush with the end of the board.

Shell Size	Cutout Figure	A +.004 -.000	B +.004 -.000	C +.005 -.000	D +.005 -.000
9	1	.408	.271	.570	.089
	2	.401	.252	.570	.089
	3	-	-	.570	.089
15	1	.558	.271	.720	.089
	2	.551	.252	.720	.089
	3	-	-	.720	.089
21	1	.708	.271	.870	.089
	2	.701	.252	.870	.089
	3	-	-	.870	.089
25	1	.808	.271	.970	.089
	2	.801	.252	.970	.089
	3	-	-	.970	.089
31	1	.958	.271	1.120	.089
	2	.951	.252	1.120	.089
	3	-	-	1.120	.089
37	1	1.108	.271	1.270	.089
	2	1.101	.252	1.270	.089
	3	-	-	1.270	.089
51	1	1.058	.315	1.220	.089
	2	1.051	.295	1.220	.089
	3	-		1.220	.089

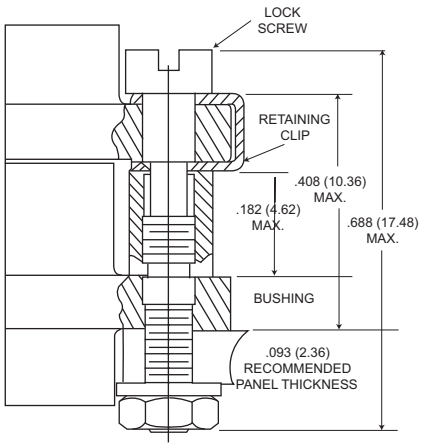
Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Mounting Hardware Views (for sizes 9-51)

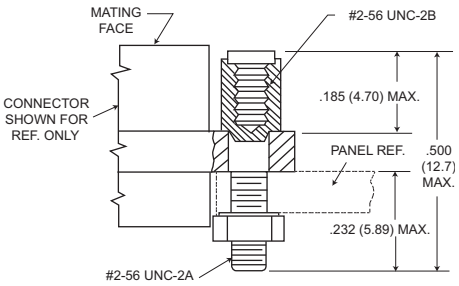
This hardware supplied unassembled.

Screw Lock Assembly

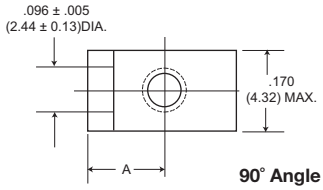
90˚ Angle Mounting Bracket

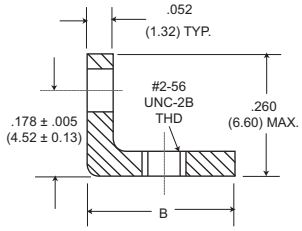


Screw Lock Assembly*
*NOTE Torque value is 2.5 in/lbs max.



Jackpost - (P)



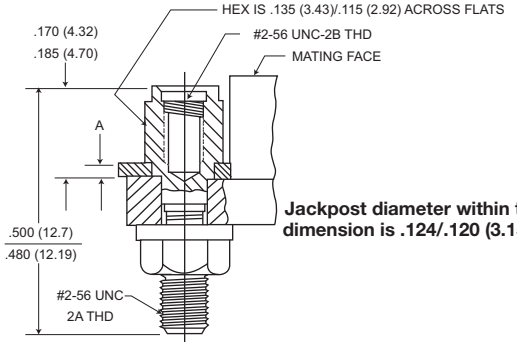


90˚ Angle Mounting Bracket

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 assmblies, shipped unassmbled.

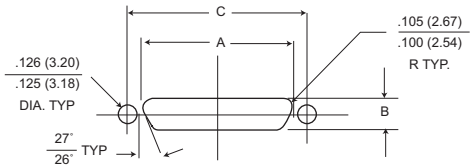
Jackpost Bushing (for rear panel mounting-for sizes 9-51)



Jackpost diameter within the "A" dimension is .124/.120 (3.15/3.05).

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

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



Plug and Receptacle Dimensions

Shell Size	A +.004 (0.10) -.000 (0.00)	B +.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)

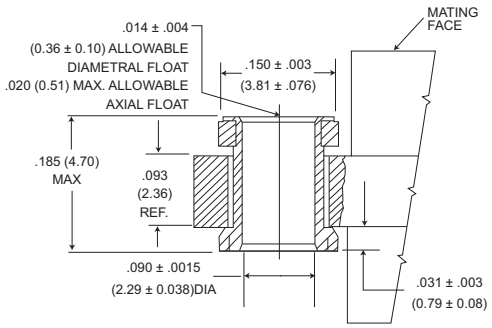
ITT

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

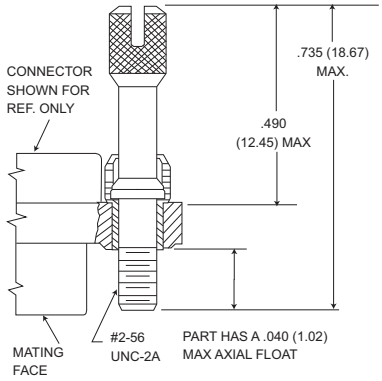
www.ittcannon.com

Mounting Hardware Views (sizes 9-51)

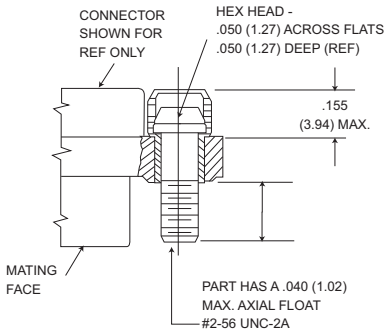
This hardware is factory installed.



Float Mount - (F)



Jackscrew - (K) Standard Profile



Jackscrew - (L) Low Profile

Shown here is a cutaway view of the float mount for the MDM 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

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

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

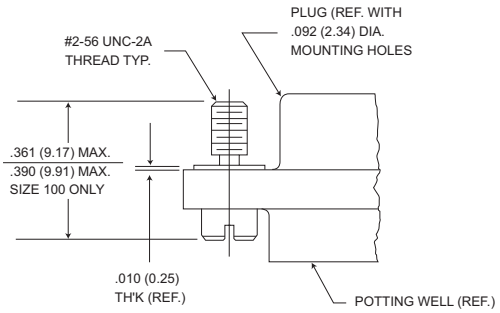
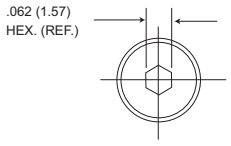


Figure 1. Jackscrew - Low profile
Slotted Head
Size 9-51
Size 100*



Allen head
Optional Head Configuration
Plug and Receptacle
Low and High Profile
Size 9-51
Size 100* (same dimensions)

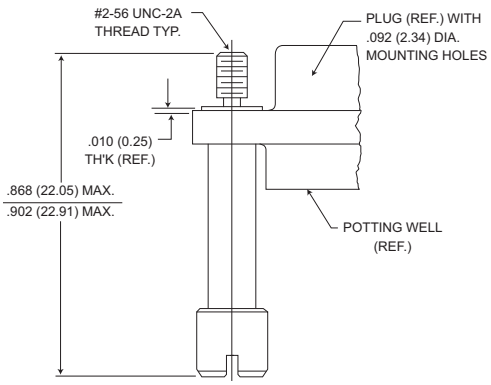


Figure 2. Jackscrew - High Profile
Slotted Head
Size 9-51
Size 100*

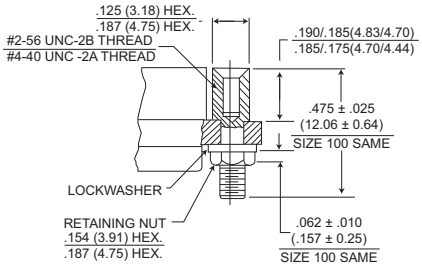


Figure 3. Jackpost Assembly
Size 9-51
Size 100*

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 Low 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 for Mil-Spec hardware

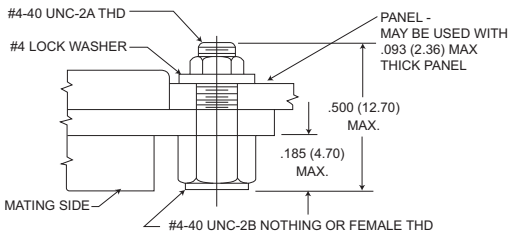
Note: Torque values as follows:
Size 9-51 4.0 in-lbs
Size 100 6.0 in-lbs

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

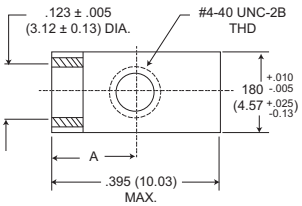
Mounting Hardware Views (for size 100)

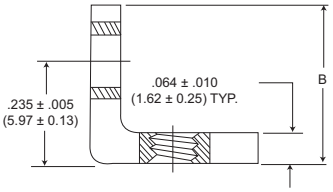
This hardware supplied unassembled.

90˚Angle Mounting Bracket



Jackpost - (P)



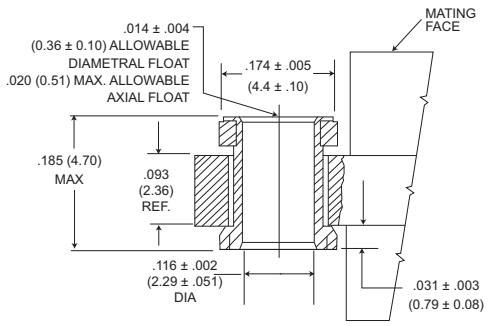


90° Angle Mounting Bracket

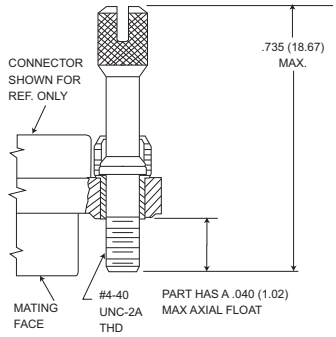
Note: Size 100 requires .120 dia (B) mounting hole when using Commercial (P) jackpost kits.

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)

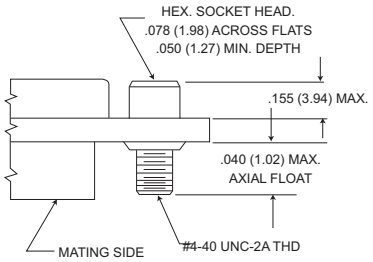
This hardware is factory installed.



Float Mount - (F) Std.



Jackscrew - (K) Standard



Jackscrew - (L) (Low Profile)

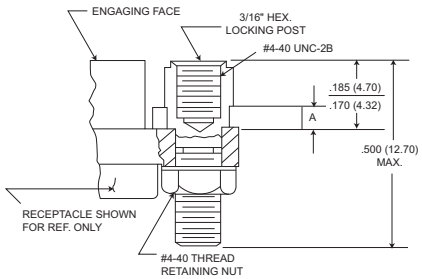
*NOTE: Torque values are as follows:
Low Profile Jackscrew (L)-4.0 in-lbs
Standard Profile Jackscrew (K)-4.0 in-lbs

Jackpost Bushing (for Rear Panel Mounting)

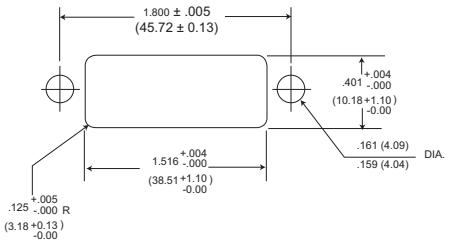
Panel Thickness	A +.005 (0.13) -.000 (0.00)	Jackpost Kit Number*
3/32 (2.4)	.087 (2.21)	320-9505-013
1/16 (1.6)	.058 (1.42)	320-9505-012
1/32 (0.8)	.025 (0.64)	320-9505-010
3/64 (1.2)	.042 (1.07)	320-9505-011

*2 jackposts, 2 nuts, 2 washers

Torque value for size 100
Note: Size 100 requires B mounting hole shell size when using rear panel mount jackposts

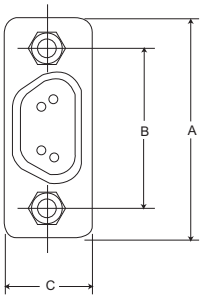


Dimensions for Rear Panel Mounting



Dimensions shown in inch (mm)
Specifications and dimensions subject to change

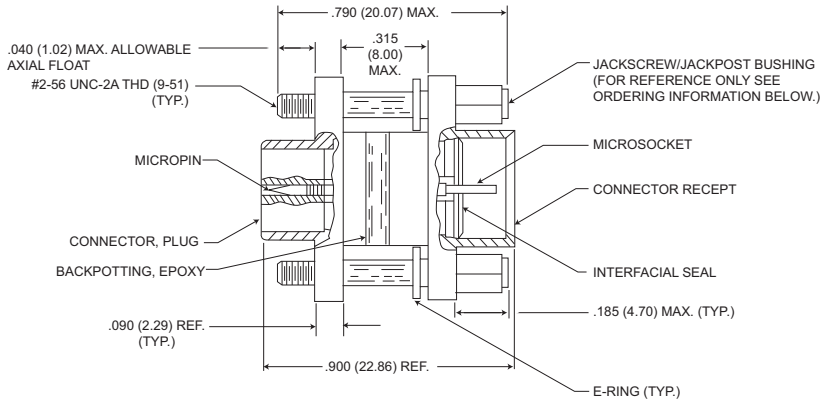
Connector Saver



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 "Connectors 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 eight standard MDM layouts. Mating hardware is available and can be ordered either separately or included with the connector saver.



MDM Size 9 Shown

Size	Electroless Nickel (A174) Plated With Hardware	Electroless Nickel (A174) Plated W/O Hardware	Cadmium over Nickel (A101) Plated With Hardware	Cadmium over Nickel (A101) Plated W/O Hardware	*Hardware Kits	A Max.	B ± .005 (0.13)	C Max.
9	**MDM98479-86**	**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**	**MDM98479-20**	**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 jackpost/jackscrew bushings and 2 E-Rings.
** Size 9-51-#2-56 UNC-2B Thread
*** Size 100-#4-40 UNC-2B Thread

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

How to Order - MIL-DTL-83513 Part Number Nomenclature – **Slash Sheets 1-9**

M83513/ 01 - H100 - ** **

SERIES

MDM - Metal Shell, Liquid Crystal Polymer (LCP)
MDB - Diallyl Phthalate Insulator
MDVB - Polyester Insulator
-

MIL-C-83513 SLASH SHEET

01	-	Plug, Connector, Solderpot	Metal Shell
02	-	Receptacle, Connector, Solderpot	
03	-	Plug, Connector, Crimp Type	
04	-	Receptacle, Connector, Crimp Type	
05	-	Hardware Only △7	
06	-	Plug, Connector, Solderpot	Plastic △5
07	-	Receptacle, Connector, Solderpot	
08	-	Plug, Connector, Crimp Type	
09	-	Receptacle, Connector, Crimp Type	

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	31 Contact
F	-	37 Contact	37 Contact
G	-	51 Contact	51 Contact
H	-	100 Contact	——— △5

WIRE TYPE

No Number - For Solderpot

01	- 18"	long, #26 AWG per MIL-W-22759/11-26-9 (all white)	
02	- 36"	long, #26 AWG per MIL-W-22759/11-26-9 (all white)	
03	- 18"	long, #26 AWG per MIL-W-22759/11-26 Color Coded per MIL-STD-681, System 1, 10 colors repeating	△6
04	- 36"	long, #26 AWG per MIL-W-22759/11-26- Color Coded per MIL-STD-681, System 1, 10 colors repeating	△6
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-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 (all white)	△3
10	- 36"	long, #26 AWG per MIL-W-22759/33-26-9 (all white)	△3
11	- 18"	long, #26 AWG per MIL-W-22759/33-26 Color Coded per MIL-STD-681, System 1, 10 colors repeating	△3 △6
12	- 36"	long, #26 AWG per MIL-W-22759/33-26 Color Coded per MIL-STD-681, System 1, 10 colors repeating	△3 △6
13	- 72"	long, #26 AWG per MIL-W-22759/11-26-9 (all white)	
14	- 72"	long, #26 AWG per MIL-W-22759/11-26 Color Coded per MIL-STD-681, System 1, 10 colors repeating	△6
15	- 72"	long, #26 AWG per MIL-W-22759/33-26-9 (all white)	△3
16	- 72"	long, #26 AWG per MIL-W-22759/33-26 Color Coded per MIL-STD-681, System 1, 10 colors repeating	△3 △6

SHELL FINISH

No number - for plastic type connector
C – for Cadmium/Yellow chromate over nickel
N – A174 - Electroless Nickel A174 △3

NOTES:

1 - For every Mil Spec Part Number, ITT has one corresponding part number shown an example
△2 - Tolerance on wire lengths: 18", 36" and 72" long — +1.00"/-0.00" .5" and 1.00" — + .200"/-.000"
△3 - **For space application, connector shell finish must be "A174" and wire must be 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.
△5 - Size 100 not available in / 06 through / 09. (Plastic shell)
△6 - Color coding in accordance with MIL-STD-681, System 1, no parenthesis. See page 83 for color code chart.
△7 - For mounting hardware to Military Specification (sizes 9 to 100) see page 13.

How to Order - MIL-DTL-83513 Part Number Nomenclature – **Slash Sheets 10-27**

M83513/ 10 - A ** C *

SERIES

Connector, Electrical, Rectangular
Microminiature, Polarized Shell
PC Board Mounting

MIL-C-83513 SLASH SHEET

10 – Connector, Plug, Condensed Board Right Angle (CBR), Sizes 9 – 37
11 – Connector, Plug, CBR, Size 51
12 – Connector, Plug, CBR, Size 100
13 – Connector, Receptacle, CBR, Sizes 9 – 37
14 – Connector, Receptacle, CBR Size 51
15 – Connector, Receptacle, CBR, Size 100
16 – Connector, Plug, Board Right Angle (BR), Sizes 9 – 37
17 – Connector, Plug, BR, Size 51
18 – Connector, Plug, BR, Size 100
19 – Connector, Receptacle, BR, Sizes 9 – 37
20 – Connector, Receptacle, BR Size 51
21 – Connector, Receptacle, BR Size 100
22 – Connector, Plug, Board Straight (BS), Sizes 9 – 37
23 – Connector, Plug, BS, Size 51
24 – Connector, Plug, BS, Size 100
25 – Connector, Receptacle, BS, Sizes 9 – 37
26 – Connector, Receptacle, BS, Size 51
27 – Connector, Receptacle, BS Size 100

INSERT ARRANGEMENT

METAL SHELL

A - 9 Contact
B - 15 Contact
C - 21 Contact
D - 25 Contact
E - 31 Contact
F - 37 Contact
G - 51 Contact
H - 100 Contact

WIRE TYPE

No Number - For Solderpot
01 - .109" long, #24 AWG solid copper wire per QQ-W-343, Type “S”, solder dipped
02 - .140" long, #24 AWG solid copper wire per QQ-W-343, Type “S”, solder dipped △2
03 - .172" long, #24 AWG solid copper wire per QQ-W-343, Type “S”, solder dipped

SHELL FINISH

No letter - for plastic type connector
C - Cadmium / Yellow chromate over nickel
N - Electroless Nickel △3 △3

HARDWARE

N - No jackpost
P - Jackpost (permanently attached)
T - Threaded insert

NOTES:

1 - For every Mil Spec Part Number, ITT has one corresponding part number
△2 - Tolerance on wire lengths ±.015
△3 - For space application, connector shell finish must be "N".
4 - Any deviations to these P/N's will result in assignment of a special P/N, consult customer service.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

MDM-PCB connectors are designed for use with flex circuitry, flat cable and printed circuit boards or multi-layer boards. They use the standard MDM metal shell and provide high density and high reliability in board-to-board, board-to-cable and cable-to-cable applications.

MDM-PCB connectors are available in 8 shell sizes with 9 to 100 contacts. Terminations may be straight (BS) or at 90˚ right angle (BR, CBR) board thickness. Jackpost mounting for use with locking hardware is also available.

How to Order - MDM-PCB Series

R MDM * - 25 P BS P - T L39 A174

- R — RoHS COMPLIANCE
- MDM — SERIES
- * — INSULATOR MATERIAL
- 25 — CONTACT ARRANGEMENT
- P — CONTACT TYPE
- BS — TERMINATION TYPE
- P — MOUNTING HARDWARE (Shell Flange)
- T — MOUNTING HARDWARE FOR PCB
- L39 — TERMINATION TAIL LENGTH MODIFICATION CODE
- A174 — SHELL FINISH MODIFICATION CODES

SERIES
MDM - Micro "D" Metal Shell

INSULATOR MATERIAL
Liquid Crystal Polymer (LCP)

CONTACT ARRANGEMENT
9, 15, 21, 25, 31, 37, 51, and 100

CONTACT TYPE
P - Pin (Plug)
S - Socket (Receptacle)

NOTE: Back molding material – Epoxy Hysol #MG40FS

TERMINATION TYPE
BS - Straight PCB Termination
BR - Right Angle PCB Termination
CBR - Right Angle Narrow Profile PCB Terminations

MOUNTING HARDWARE (Shell Flange)
P - Jackposts
M7 - Jackposts
M83513/5-07 (Sizes 9-51)
M17 - Jackposts
M83513/5-17 (Size 100)
No letter - none

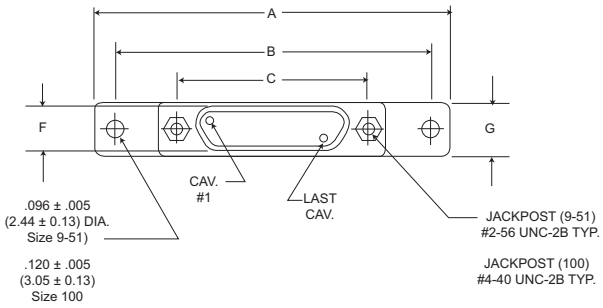
MOUNTING HARDWARE FOR PCB
T - Threaded Insert
#2-56 Thd for Shell Sizes 9 thru 51
#4-40 Thd for Shell Size 100
No letter - none

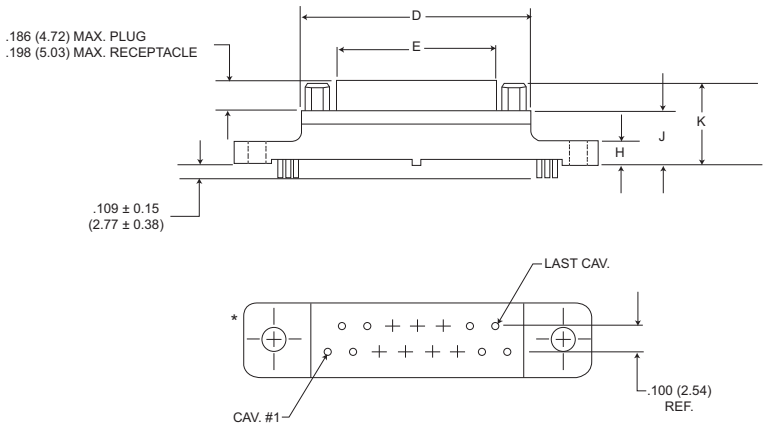
TERMINATION TAIL LENGTH MODIFICATION CODE
None - .109 (2.77) ±.015 (0.38) Standard
L61 - .125 (3.18)
L56 - .150 (3.81)
L57 - .190 (4.83)
L39 - .250 (6.35)
L58 - .375 (9.52)

SHELL FINISH MODIFICATION CODES
None - Yellow Chromate/Cadmium over Nickel
A174 - Electroless Nickel
A172 - Gold over Nickel
A141 - Irridite/Alodine
A30 - Black Anodize

(For special modification codes, consult customer service.)

BS (Board Straight) Series

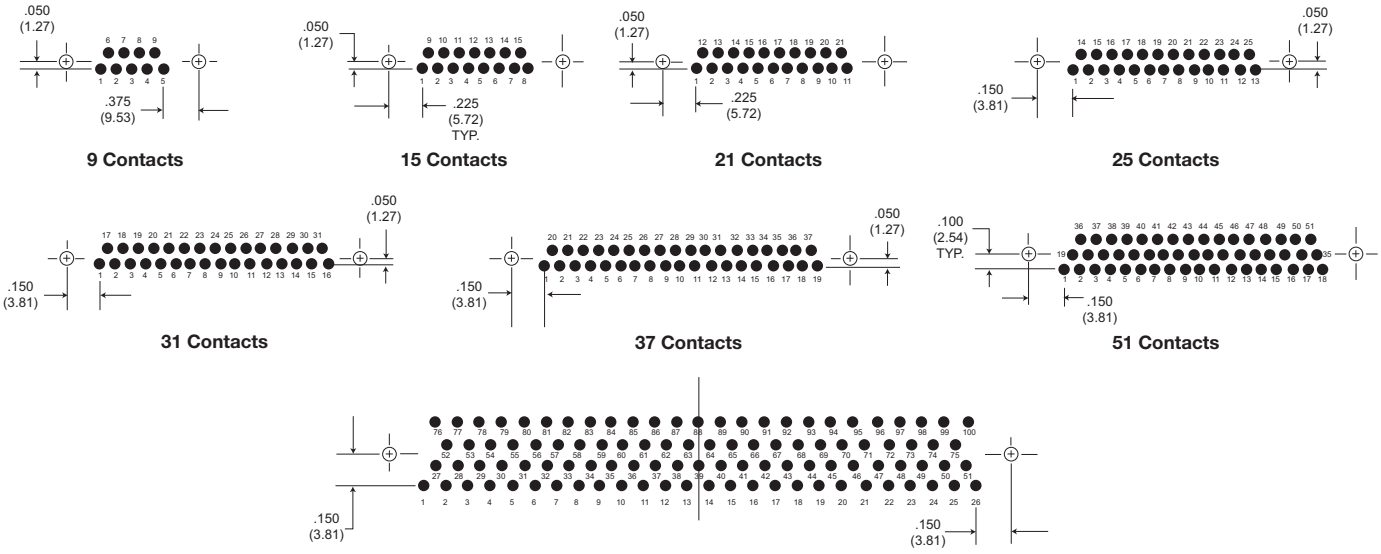




PCB Termination Arrangements* (Viewed from PCB solder side)

Identification number shown for plug connector, use reverse order for socket connector.

NOTE: Dimensions shown are for reference only-consult factory for final design dimensions.



9 Contacts **15 Contacts** **21 Contacts** **25 Contacts**

31 Contacts **37 Contacts** **51 Contacts**

100 Contacts

NOTE: Standard lead termination is #24 AWG, solid copper, solder or tin dipped

All Termination Configurations .100 (2.54) x .100 (2.54) Grid Pattern, Offset .050 (1.27)

Part Number By Shell Size	A Max.	B ±.007 (.18)	C ±.005 (.13)	D Max.	E Max.	F Max.	G Max.	H Max.	J Max.	K Max.
MDM-9PBS*	1.390 (35.31)	1.150 (29.21)	.565 (14.35)	.785 (19.94)	.334 (8.48)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-9SBS*	1.390 (35.31)	1.150 (29.21)	.565 (14.35)	.785 (19.94)	.402 (10.21)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-15PBS*	1.390 (35.31)	1.150 (29.21)	.715 (18.16)	.935 (23.75)	.484 (12.29)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-15SBS*	1.390 (35.31)	1.150 (29.21)	.715 (18.16)	.935 (23.75)	.552 (13.97)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-21PBS*	1.690 (43.93)	1.450 (36.83)	.865 (21.97)	1.085 (27.56)	.634 (16.10)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-21SBS*	1.690 (43.93)	1.450 (36.83)	.865 (21.97)	1.085 (27.56)	.702 (17.83)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-25PBS	1.740 (44.20)	1.500 (38.10)	.965 (24.51)	1.185 (30.10)	.734 (18.64)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-25SBS*	1.740 (44.20)	1.500 (38.10)	.965 (24.51)	1.185 (30.10)	.802 (20.37)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-31PBS*	2.040 (51.82)	1.800 (45.72)	1.115 (28.32)	1.335 (33.91)	.884 (22.45)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-31SBS*	2.040 (51.82)	1.800 (45.72)	1.115 (28.32)	1.335 (33.91)	.952 (24.18)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-37PBS*	2.340 (59.44)	2.100 (53.34)	1.265 (32.13)	1.485 (37.72)	1.034 (26.26)	.185 (4.70)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-37SBS*	2.340 (59.44)	2.100 (53.34)	1.265 (32.13)	1.485 (37.72)	1.102 (27.99)	.253 (6.43)	.308 (7.82)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-51PBS*	2.270 (67.66)	2.000 (50.80)	1.215 (30.86)	1.435 (36.45)	.984 (24.99)	.228 (5.79)	.351 (8.92)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-51SBS*	2.270 (67.66)	2.000 (50.80)	1.215 (30.86)	1.435 (36.45)	1.052 (26.72)	.296 (7.52)	.351 (8.92)	.165 (4.19)	.355 (9.02)	.555 (14.10)
MDM-100PBS*	3.070 (77.98)	2.800 (71.12)	1.800 (45.72)	2.175 (55.24)	1.384 (35.15)	.271 (6.88)	.460 (11.68)	.303 (7.70)	.550 (12.70)	.686 (17.42)
MDM-100SBS*	3.070 (77.98)	2.800 (71.12)	1.800 (45.72)	2.175 (55.24)	1.508 (38.30)	.394 (10.01)	.460 (11.68)	.303 (7.70)	.550 (12.70)	.686 (17.75)

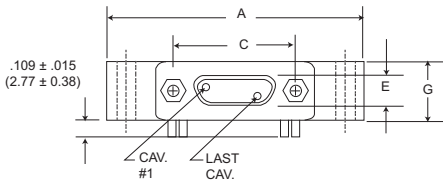
*For jackpost, add letter "P" or "M7" for sizes 9-51, "M17" for size 100.

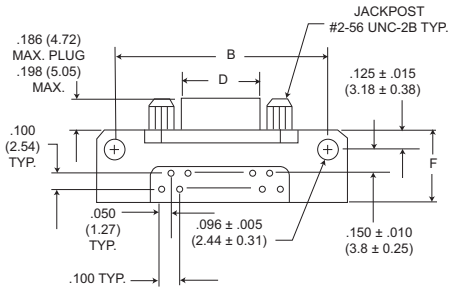
Dimensions shown in inch (mm)

Specifications and dimensions subject to change

www.ittcannon.com

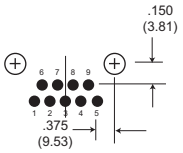
BR (Board Right Angle) Series



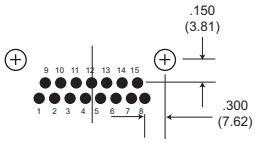


PCB Termination Arrangements (Viewed from bottom of connector, PCB solder side.)

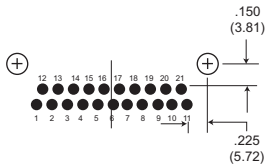
Identification number shown for plug connector, use reverse order for socket connector.



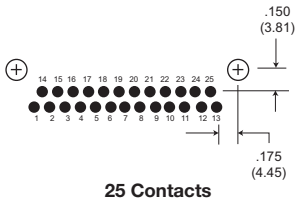
9 Contacts



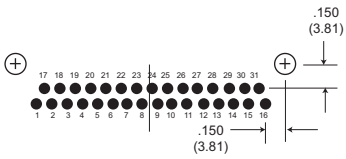
15 Contacts



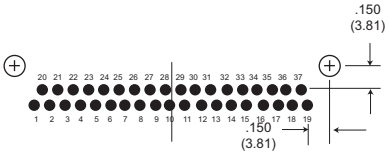
21 Contacts



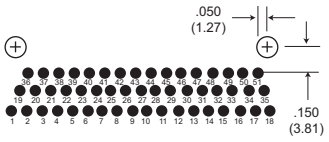
25 Contacts



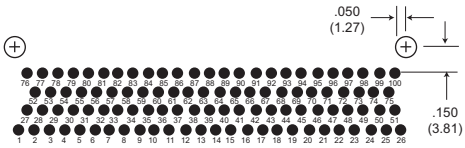
31 Contacts



37 Contacts



51 Contacts

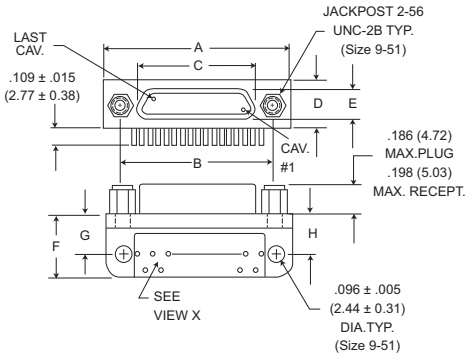


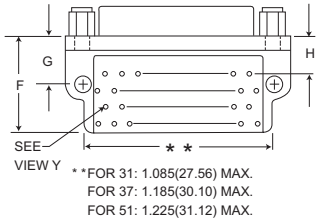
100 Contacts

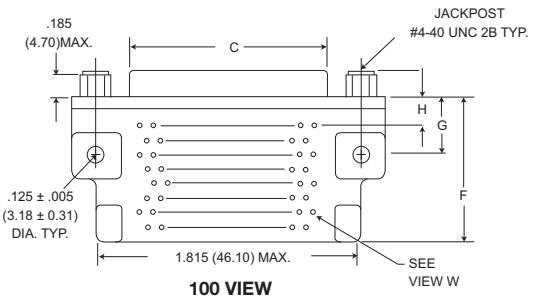
NOTE: Standard lead termination is #24 AWG, gold plated, solid copper, solder or tin dripped. All Termination Configurations .100 (2.54) x .100 (2.54) Grid Pattern, Offset .050 (1.27).

Part Number By Shell Size	A Max.	B ± .007 (.18)	C ± .005 (.13)	D Max.	E Max.	F Max.	G Max.
MDM-9PBR*	1.390 (35.31)	1.150 (29.21)	.565 (14.35)	.334 (8.48)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-9SBR*	1.390 (35.31)	1.150 (29.21)	.565 (14.35)	.402 (10.21)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-15PBR*	1.540 (39.12)	1.300 (33.02)	.715 (18.16)	.484 (12.29)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-15SBR*	1.540 (39.12)	1.300 (33.02)	.715 (18.16)	.552 (13.97)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-21PBR*	1.690 (42.93)	1.450 (36.83)	.865 (21.97)	.634 (16.10)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-21SBR*	1.690 (42.93)	1.450 (36.83)	.865 (21.97)	.702 (17.83)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-25PBR*	1.790 (45.47)	1.550 (39.37)	.965 (24.51)	.734 (18.64)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-25SBR*	1.790 (45.47)	1.550 (39.37)	.965 (24.51)	.802 (20.37)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-31PBR*	2.040 (51.82)	1.800 (45.72)	1.115 (28.32)	.884 (22.45)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-31SBR*	2.040 (51.52)	1.800 (45.72)	1.115 (28.32)	.952 (24.18)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-37PBR*	2.340 (59.44)	2.100 (53.34)	1.265 (32.13)	1.034 (26.26)	.185 (4.70)	.455 (11.56)	.308 (7.82)
MDM-37SBR*	2.340 (59.44)	2.100 (53.34)	1.265 (32.13)	1.102 (27.99)	.253 (6.43)	.455 (11.56)	.308 (7.82)
MDM-51PBR*	1.875 (47.63)	1.600 (40.64)	1.215 (30.86)	.984 (24.99)	.228 (5.79)	.565 (14.35)	.351 (8.92)
MDM-51SBR*	1.875 (47.63)	1.600 (40.64)	1.215 (30.86)	1.052 (26.72)	.296 (7.52)	.565 (14.35)	.351 (8.92)
MDM-100PBR*	2.74 (69.72)	2.500 (63.50)	1.800 (45.72)	1.384 (35.15)	.271 (6.88)	.755 (19.18)	.394 (10.01)
MDM-100SBR*	2.74 (69.72)	2.500 (63.50)	1.800 (45.72)	1.508 (38.10)	.394 (10.01)	.755 (19.18)	.394 (10.01)

*For jackpost, add letter "P" or "M7" for sizes 9-51, "M17" for size 100.



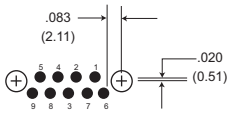




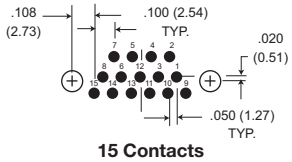
100 VIEW

PCB Termination Arrangements (Viewed from bottom of connector, PCB solder side.)

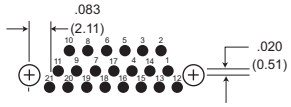
Identification number shown for plug connector, use reverse order for socket connector.



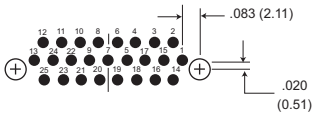
9 Contacts View X



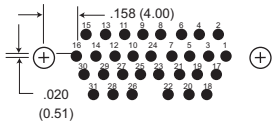
15 Contacts View X



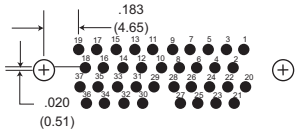
21 Contacts View X



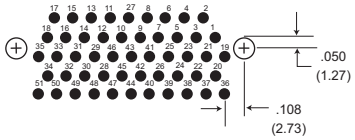
25 Contacts View X



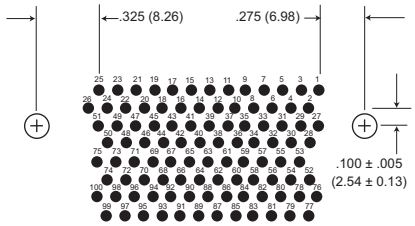
31 Contacts View Y



37 Contacts View Y



51 Contacts View Y



100 Contacts View W

All Termination Configurations .100 (2.54) x .100 (2.54) Grid Pattern, Offset .050 (1.27).

NOTE: Standard lead termination is #24 AWG, solid copper, solder or tin dripped.

Part Number By Shell Size	A Max.	B ± .005 (.13)	C Max.	D Max.	E Max.	F Max.	G ± .010 (.25)	H ± .010 (.25)
MDM-9PCBR*	.785 (19.94)	.565 (14.35)	.334 (8.48)	.308 (7.82)	.185 (4.70)	.420 (10.67)	.250 (6.35)	.230 (5.81)
MDM-9SCBR*	.785 (19.94)	.565 (14.35)	.402 (10.21)	.308 (7.82)	.253 (6.43)	.420 (10.67)	.250 (6.35)	.230 (5.81)
MDM-15PCBR*	.935 (23.75)	.715 (18.16)	.484 (12.29)	.308 (7.82)	.185 (4.70)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-15SCBR*	.935 (23.75)	.715 (18.16)	.552 (13.97)	.308 (7.82)	.253 (6.43)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-21PCBR*	1.085 (27.56)	.865 (21.97)	.634 (16.10)	.308 (7.82)	.185 (4.70)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-21SCBR*	1.085 (27.56)	.865 (21.97)	.702 (17.83)	.308 (7.82)	.253 (6.43)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-25PCBR*	1.185 (30.10)	.965 (24.51)	.734 (18.64)	.308 (7.82)	.184 (4.70)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-25SCBR*	1.185 (30.10)	.965 (24.51)	.802 (20.37)	.308 (7.82)	.253 (6.43)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MDM-31PCBR*	1.335 (33.91)	1.115 (28.32)	.884 (22.45)	.308 (7.82)	.185 (4.70)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MDM-31SCBR*	1.335 (33.91)	1.115 (28.32)	.952 (24.18)	.308 (7.82)	.253 (6.43)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MDM-37PCBR*	1.485 (37.72)	1.265 (32.13)	1.034 (26.26)	.308 (7.82)	.185 (4.70)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MDM-37SCBR*	1.485 (37.72)	1.265 (32.13)	1.102 (27.99)	.308 (7.82)	.253 (6.43)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MDM-51PCBR*	1.435 (36.45)	1.215 (30.86)	.984 (24.99)	.351 (8.92)	.228 (5.79)	.650 (16.15)	.300 (7.62)	.150 (3.81)
MDM-51SCBR*	1.435 (36.45)	1.215 (30.86)	1.052 (26.72)	.351 (8.92)	.296 (7.52)	.650 (16.15)	.300 (7.62)	.150 (3.81)
MDM-100PCBR*	2.170 (55.12)	1.800 (45.72)	1.384 (35.15)	.394 (10.01)	.271 (6.88)	1.000 (25.40)	.400 (10.16)	.200 (5.08)
MDM-100SCBR*	2.170 (55.12)	1.800 (45.72)	1.508 (38.10)	.394 (10.01)	.394 (10.01)	1.000 (25.40)	.400 (10.16)	.200 (5.08)

*For jackpost, add letter "P" or "M7" for sizes 9-51, "M17" for size 100.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Micro-D Coaxial/Power - .050" Contact Spacing MDM C/P

MDM Coaxial
The MDM Metal Shell Connectors have been tooled in several coaxial layouts and offer the versatility of combining coaxial and signal lines in the same connector. Any modifications to these layouts or new requirements, please consult the factory. Standard coax is RG178 white.

MDM Power
The same insulator that is used with coaxial contacts is available with power contacts. This offers the versatility of combining power and signal lines in the same connector.

MDM Coaxial/Power
Power and coaxial contacts can be interchanged as desired. Power contacts are rated at 13 amps, 24V rms, AWG #16 stranded.

How to Order

For MIL-DTL-83513 ordering information see pages 16 and 17

R MDM - 51 P H 001 P - XXX

RoHS COMPLIANCE
SERIES
CONTACT ARRANGEMENTS
CONTACT TYPE
TERMINATION TYPE
TERMINATION CODE
HARDWARE
SHELL FINISH MOD CODES

SERIES
MDM: (Size 9-100) Liquid Crystal Polymer (LCP)
MDM: (Combo Layout) Diallyl Phthalate (DAP)

CONTACT ARRANGEMENTS
9-15-21-25-31-37-51-100 (standard)
16C5, 10C10, 7C2, 24C4 (coaxial)
16P5, 10P10, 7P2, 24P4 (power) } or combination of coax and power

CONTACT TYPE
P - Pin S - Socket

TERMINATION TYPE
H - Harness-insulated wire.
L - Solid-uninsulated wire.
S - Solder pot to accept #26 AWG MAX. harness wire. (Not available with power contact arrangements.)

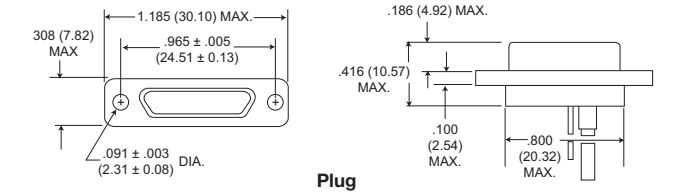
HARDWARE
M - Military specification hardware, see page 11 for military hardware codes.
P - Jackpost
K - Jackscrew-standard profile
L - Jackscrew-low profile
F - Float mount
B - No hardware standard
.091 (2.31) dia. hole for sizes 9-51;
.120 (3.05) dia. hole for size 100.
A - .125 (3.18) dia. mounting holes for sizes 9-51;
.166 (4.22) dia. hole for size 100.
B1 - .1475 (3.75) dia. hole for size 100
(Per MIL-DTL-83513)

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.

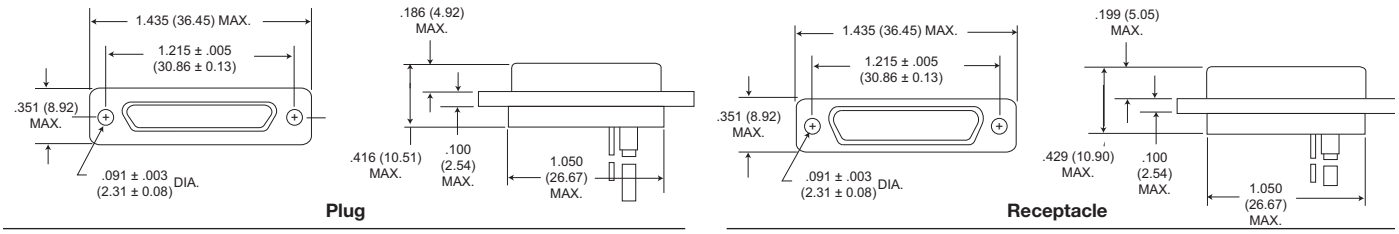
SHELL FINISH MOD CODES
No Number - (Standard cadmium/yellow chromate over nickel
A174 - Electroless nickel
A172 - Gold over nickel
A141 - Irridite/alodine
A30 - Black anodize

*See page 79 and 81 for additional Termination codes.

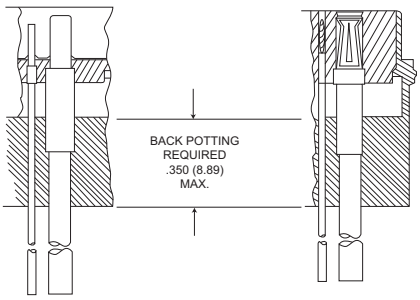
7C2/7P2



24C4/24P4



Power Contacts



Receptacle Plug

Coaxial Contacts

Plug Receptacle

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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MDMH connectors are ideal for applications requiring a better seal than can be achieved with epoxy resins.

The connector utilizes size 24 AWG contacts that are compression glass sealed through a steel shell and into a diallyl pthalate front end insulator. An interfacial seal provides environmental protection when mated. We recommend MDMH receptacles be soldered to the chassis or container for a completely leak-proof joint.

MDMH receptacles mate with standard MDM plugs.

Features

- Hermetically sealed connector designed for those applications where a vacuum, inert gas or a constant controlled pressure are required to eliminate adverse effects created by atmospheric changes.
- Steel shells to provide greater strength, prevent chipping, cracking or breaking, offer electro-magnetic (EMI) and RFI shielding.
- Silicone elastomer compression interfacial seal to provide a moisture and humidity seal between each contact and between contacts and shell.

Specifications

Standard materials & finishes

Shell	Mild steel, tin-lead plated
Insulator	Glass filled diallyl phthalate per MIL-M-14. Type SDGF
Contacts	Copper alloy, gold plated sockets on mild steel gold plated pins. Solder pots - mild steel gold plated
Hermetic seal	Compression glass
Leak rate	1 micron cubic ft/hr max (1.04 x 10-5 cc/sec at 1 ATM pressure differential)
ELECTRICAL DATA	
No. of contacts	9 to 100
Dielectric withstanding voltage	150 VAC
Insulation resistance	5000 Mohm minimum
Wire size	#26 through #30 AWG
Contact termination	Solder pot
MECHANICAL FEATURES	
Size or length	8 sizes
Service class	Hermetically sealed
Coupling	Friction/jacks
Polarization	Keystone shaped shells
Contact spacing	.050 (1,27) centers
Shell style	Receptacle, solder mount

How to Order

MDMH – 51 S S

Hermetic Micro D Receptacle Series

Contact layout
9, 15, 21, 25, 31, 37, 51, 100

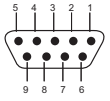
Socket Contacts (only)

Termination type

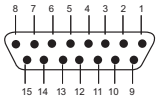
Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Contact Arrangements

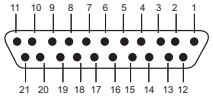
Face vew of socket insert - use reverse order for wiring side.



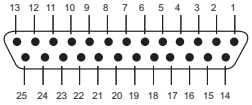
9 Contacts



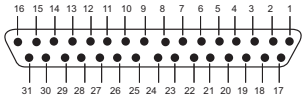
15 Contacts



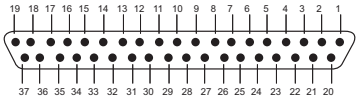
21 Contacts



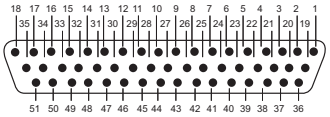
25 Contacts



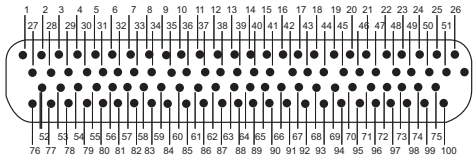
31 Contacts



37 Contacts



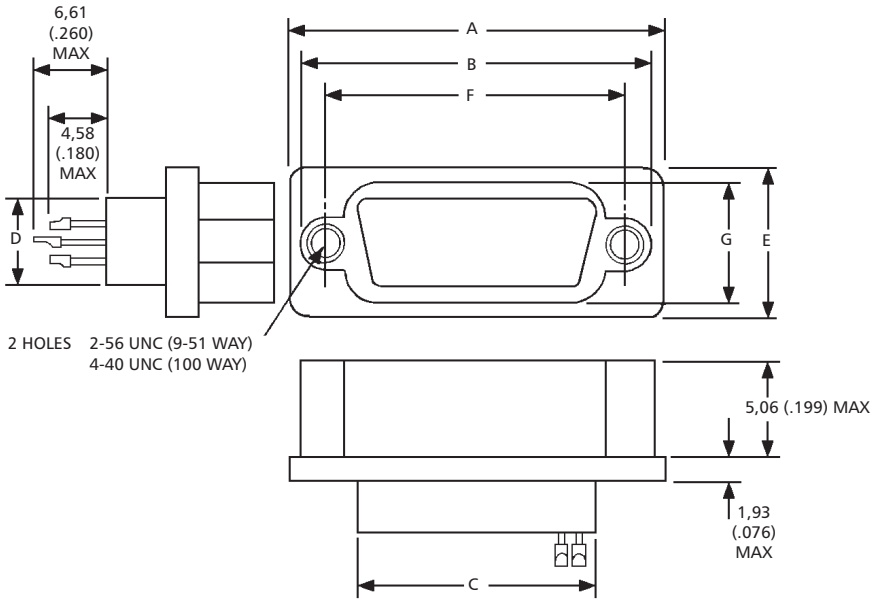
51 Contacts



100 Contacts

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

Shell Dimensions



Part Number by shell size	A max	B max	C max	D max	E max	F ±.005 (0,13)	G max
MDMH-9S	.885 (22,48)	.738 (18,74)	.400 (10,16)	.270 (6,86)	.430 (10,92)	.565 (14,35)	.261 (6,63)
MDMH-15S	1.035 (26,29)	.888 (22,55)	.550 (13,97)	.270 (6,86)	.430 (10,92)	.715 (18,16)	.261 (6,63)
MDMH-21S	1.185 (30,10)	1.038 (26,36)	.770 (17,78)	.270 (6,86)	.430 (10,92)	.865 (21,97)	.261 (6,63)
MDMH-25S	1.285 (32,64)	1.137 (28,87)	.800 (20,32)	.270 (6,86)	.430 (10,92)	.965 (24,51)	.261 (6,63)
MDMH-31S	1.435 (36,45)	1.288 (32,72)	.950 (24,13)	.270 (6,86	.430 (10,92)	1.115 (28,32)	.261 (6,63)
MDMH-37S	1.585 (40,26)	1.438 (36,53)	1.100 (27,94)	.270 (6,86)	.430 (10,92)	1.265 (32,13)	.261 (6,63)
MDMH-51S	1.535 (38,99)	1.388 (35,26)	1.050 (26,67)	.310 (8,00)	.473 (12,01)	1.215 (30,86)	.315 (8,00)
MDMH-100S	2.275 (57,78)	2.078 (52,78)	1.455 (36,97)	.365 (9,27)	.522 (13,26)	1.800 (45,72)	.410 (10,41)

With an increasing number of MDM connectors being used in avionics and military equipment and with increasing emphasis being put on EMI, RFI and EMP shielding, Cannon have developed a range of filter connectors to suit most applications.

The TMDM receptacle accommodates from 8 to 37 sizes, 24 AWG socket contacts on 1,27 (.050) centres and mates with the standard MDM plugs.

Features

- Transverse monolith filter for EMI and RFI shielding.
- Rugged aluminum one piece shell.
- Silicone interfacial environmental seal.
- Glass filled diallyl phthalate insulator.
- A variety of filter types for each pin.

Specifications

Standard materials & finishes

Shell	Aluminum alloy per QQ-A-200/8 with electroless nickel finish per QQ-N-290
Insulator	Glass filled diallyl phthalate per MIL-M-14. Type SDGF
Contact, socket	Copper alloy, 50 microinch gold per MIL-G-45204, Type II, Class I
Interfacial seal	Silicone base rubber
ELECTRICAL DATA	
No. of contacts	9 to 37
Dielectric withstanding voltage	300 VAC
Insulation resistance	5000 Mohm at 100 VDC
Voltage rating (working)	100 VDC
Current rating	3 amps max.
Maximum capacitance	250, 500, 1000, 2000 picofarads
Filter type	C
MECHANICAL FEATURES	
Size or length	6 sizes
Coupling	Friction/jackscrews
Polarization	Keystone shaped shell
Contact spacing	.050 (1,27) centers
Shell style	Single piece receptacle

How to Order

TMDM – C1 15 S H 001 B- *

Series
Filter type
Number of contacts
Contact style
Termination type
Termination/modifier code
Mounting code
Modification code

Series:
Filter TMDM - Micro "D" - Metal housing

Filter type:
"C" capacitor type
C1 150 - 250 pF capacitance
C2 300 - 500 pF capacitance
C3 700 - 1000 pF capacitance
C4 1300 - 2000 pF capacitance

Number of contacts:
9, 15, 21, 25, 31, 37 only

Contact style:
S - socket (receptacle)
P - Pin (plug)

Termination type:
H - harness, insulated solid or stranded wire
L - lead, solid uninsulated wire

Termination:
Consult standard wire termination code for lead material and lead length

Mounting code:
A - Flange mounting, Ø.125 (3,18) mounting holes
B - Flange mounting, Ø.092 (2,34) mounting holes
L - Low profile (slotted head)
M2 - Allen head jackscrew assembly, low profile
M3 - Allen head jackscrew assembly, high profile
M5 - Slot head jackscrew assembly, low profile
M6- Slot head jackscrew assembly, high profile
M7 - Jacknut assembly
P - Jackpost

Modification code:
Shell finish MOD. Codes. *
To be assigned as required

* No number = Standard tin/lead finish

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Guaranteed Minimum Attenuation

Filter designation	Capacitance range (pF)	Minimum Insertion Loss-decibels 10 MHz	15 MHz	30 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
C1	150 - 250				4	6	15	20	35
C2	300 - 500			3	6	12	18	25	40
C3	700 - 1000		3	7	13	17	25	38	48
C4	1300 - 2000	5	8	13	18	23	30	40	50

Standard Wire Termination Codes

Cannon Modification Codes – (Not Mil Spec)

The following termination codes are listed for your information. For additional codes please refer to Appendix on page 79 and 81. **All wire lengths are minimum.**

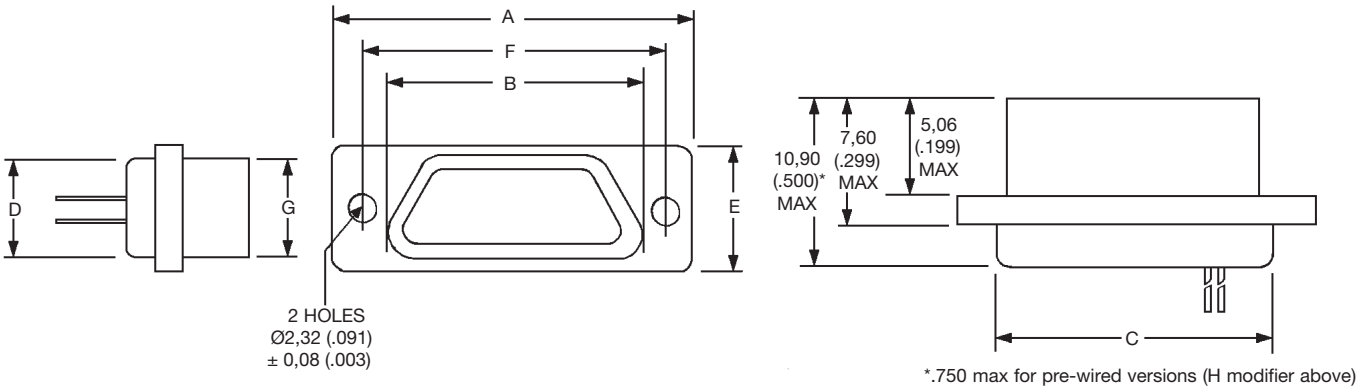
Harness Type (H) #26 AWG per
MIL-W-16878/4 Type E Teflon, stranded

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 (509.6)	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)
#25 AWG gold plated copper.

Code	Length
L61	.125 (.18)
L56	.150 (3.81)
L57	.190 (4.83)
L39	.250 (5.35)
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)
L6	2.500 (63.50)
L10	3.000 (76.20)

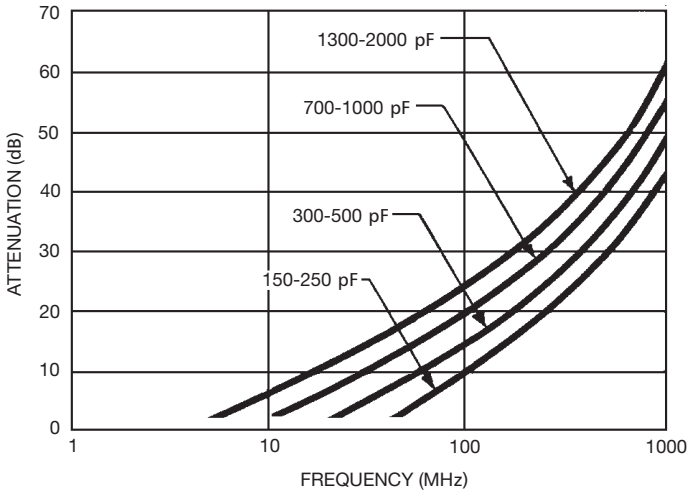
Shell Dimensions



*.750 max for pre-wired versions (H modifier above)

Part Number by shell size	A max	B max	C max	D max	E max	F max ±0,13 (.005)	G max
MDMT-9S*	.785 (19,94)	.400 (10,16)	.400 (10,16)	.270 (6,86)	.308 (7,83)	.565 (14,36)	.251 (6,38)
MDMT-15S*	.935 (23,75)	.550 (13,97)	.550 (13,97)	.270 (6,86)	.308 (7,83)	.715 (18,17)	.251 (6,38)
MDMT-21S*	1.085 (27,60)	.700 (17,78)	.700 (17,78)	.270 (6,86)	.308 (7,83)	.865 (21,98)	.251 (6,38)
MDMT-25S*	1.185 (30,10)	.800 (20,32)	.800 (20,32)	.270 (6,86)	.308 (7,83)	.965 (24,52)	.251 (6,38)
MDMT-31S*	1.335 (33,90)	.950 (24,13)	.950 (24,13)	.270 (6,86)	.308 (7,83)	1.115 (28,30)	.251 (6,38)
MDMT-37S*	1.485 (37,70)	1.100 (28,00)	1.100 (28,00)	.270 (6,86)	.308 (7,83)	1.265 (32,20)	.251 (6,38)

Typical Filter Performance



Micro-D Plastic Shell - .050" Contact Spacing MD**

Microminiature Rectangular Connectors with MICRO-Pin Contacts on .050 (1.27) centers.

MICRO-D microminiature rack/panel connectors are used in applications requiring highly reliable, extremely small, lightweight connectors. These connectors are available in 2 insulator materials, 2 mounting variations, 7 shell sizes accommodating from 9 to 51 contacts and a special arrangement of 5 micro contacts and 2 coaxials. The insulator materials listed give the MICRO-D connector wide versatility in most applications required by industry.

ITT can also terminate a wide variety of stranded or solid wire directly to MICRO-D contacts, which is often desirable in high density arrangements.

MICRO-D connectors can also be custom harnessed to meet any customer requirement of single or multiple connectors. Pigtail lead and harness description must be given by the customer. A typical description would be: .5" #25 AWG, gold plated copper leads or 18" of #26 yellow, Teflon-insulated, Type E wire. Shown below are various methods of termination. Consult customer service for any routine or complex harnessing of MICRO-D connectors.

- Glass-filled diallyl phthalate thermoset material used in high temperature applications that is immune to cleaning solvents. It also has excellent dielectric properties. Temperature range: -65˚F to +300˚F (-55˚C to +149˚C).
- Glass-filled polyester thermoplastic that is not affected by cleaning solvents and exhibits excellent dielectric properties. Temperature range: -55˚F to +257˚F (-65˚C to +125˚C).

Specifications

MATERIALS AND FINISHES	
Shell/Insulator (One Piece)	MD/MDB: Glass-filled thermoset plastic MDV/MDVB: Thermoplastic
Contacts	- Copper alloy, gold plate

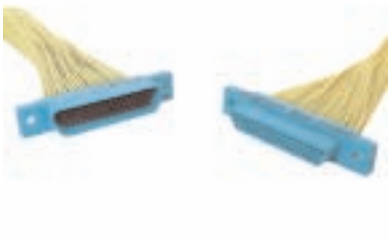
ELECTRICAL DATA	
No of Contacts	- 9 to 51: (1 arrangement of 5 contacts and 2 coaxials - for screw mount only)
Coaxial Cable	- RG-178/U (Not available for MD clip mount)
Wire Size	- #24 thru #32 AWG
Contact Termination	- Multi-indent crimp

MECHANICAL FEATURES	
Size or Length	- 7 sizes
Coupling	- Friction/jackscrews
Polarization	- Keystone-shaped shells
Contact Spacing Centers	-.050 (1.27mm)
Shell Styles	- Plug and receptacle

Consult factory for availabilty.

How to Order

PCB ordering information - page 30



R MD** 1- 9 P H 001 P

- RoHS COMPLIANCE
- SERIES-INSULATOR STYLE-MATERIAL
- CONTACT SPACING
- CONTACT ARRANGEMENT
- CONTACT TYPE
- TERMINATION TYPE
- TERMINATION CODE
- LOCKING HARDWARE

SERIES-INSULATOR STYLE-MATERIAL
MDB - Screw mounting-Diallyl phthalate
MDVB - Screw mounting-Polyester

CONTACT SPACING
1 - .050 (1.27) centers

CONTACT ARRANGEMENT
9-15-21-25-31-37-51. See page 9

CONTACT TYPE
P - Pin S - Socket

TERMINATION TYPE
H - Insulated solid or stranded wire
L - Uninsulated solid wire
S - Solder pot to accept #26 AWG max. harness wire.

TERMINATION CODE
See page 79 and 81 for additional codes
(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.

LOCKING HARDWARE (SCREW MOUNTING ONLY)
P - Jackpost
K - Jackscrew-standard
L - Jackscrew-low profile
F - Float mount
M - Military specification hardware, see page 13.

No designator - No hardware - standard mounting
.091 (2.31) hole diameter

ITT

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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Standard Wire Termination Codes

The following termination codes are listed for your information. For additional codes please refer to Appendix on page 79 and 81. **All wire lengths are minimum.**

Harness Type (H)
#26 AWG per MIL-W-16878 Type E Teflon, stranded.

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

*Cavity #1 black

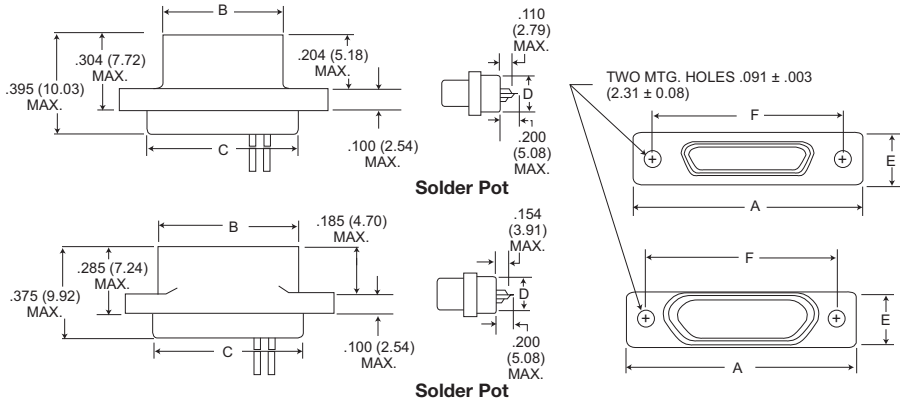
Solid Uninsulated Type (L)
#25 AWG Gold Plated Copper

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)

With Screw Mounting Holes (Conforms to MIL-DTL-83513)

MDB Glass-filled Diallyl Phthalate Plastic Insulator

MDVB Glass-filled Polyester Plastic Insulator



Part Number by Shell Size		A Max.	B Max.	C Max.	D Max.	E Max.	F ±.005	Avg. Weight*** ±5% (oz.) ±5% (gm.)
MDB1-9P**	**MDVB1-9P****	.788 (20.02)	.292 (7.42)	.408 (10.36)	.173 (4.39)	.218 (5.54)	.565 (14.35)	.026 (0.73)
MDB1-9S**	**MDVB1-9S****	.788 (20.02)	.380 (9.65)	.408 (10.36)	.173 (4.39)	.218 (5.54)	.565 (14.35)	.025 (0.70)
MDB1-15P**	**MDVB1-15p****	.938 (23.82)	.442 (11.23)	.588 (14.17)	.173 (4.39)	.218 (5.54)	.715 (18.16)	.038 (1.10)
MDB1-15S**	**MDVB1-15S****	.938 (23.82)	.530 (13.46)	.588 (14.17)	.173 (4.39)	.218 (5.54)	.715 (18.16)	.035 (1.00)
MDB1-21P**	**MDVB1-21P****	1.088 (27.64)	.592 (15.04)	.708 (17.98)	.173 (4.39)	.218 (5.54)	.865 (21.97)	.053 (1.50)
MDB1-21S**	**MDVB1-21S****	1.088 (27.64)	.680 (17.27)	.708 (17.98)	.173 (4.39)	.218 (5.54)	.865 (21.97)	.050 (1.40)
MDB1-25P**	**MDVB1-25P****	1.188 (30.18)	.692 (17.58)	.808 (20.56)	.173 (4.39)	.218 (5.54)	.965 (24.51)	.063 (1.80)
MDB1-25S**	**MDVB1-25S****	1.188 (30.18)	.780 (19.81)	.808 (20.56)	.173 (4.39)	.218 (5.54)	.965 (24.51)	.056 (1.60)
MDB1-31P**	**MDVB1-31P****	1.338 (33.98)	.842 (21.39)	.958 (24.33)	.173 (4.39)	.218 (5.54)	1.115 (28.32)	.080 (2.30)
MDB1-31S**	**MDVB1-31S****	1.338 (33.98)	.930 (23.62)	.958 (24.33)	.173 (4.39)	.218 (5.54)	1.115 (38.32)	.073 (2.10)
MDB1-37P**	**MDVB1-37P****	1.488 (37.80)	.992 (25.20)	1.108 (28.14)	.173 (4.39)	.218 (5.54)	1.265 (32.13)	.086 (2.45)
MDB1-37S**	**MDVB1-37S****	1.488 (37.80)	1.080 (27.43)	1.108 (28.14)	.173 (4.39)	.218 (5.54)	1.265 (32.13)	.076 (2.15)
MDB1-51P**	**MDVB1-51P****	1.438 (36.52)	.942 (23.93)	1.058 (26.87)	.220 (5.59)	.260 (6.60)	1.215 (30.86)	.109 (3.10)
MDB1-51S**	**MDVB1-51S****	1.438 (36.52)	1.030 (26.16)	1.058 (26.87)	.220 (5.59)	.260 (6.60)	1.215 (30.86)	.093 (2.64)

** Add lead type and length, see Part Number Explanation.
*** Weight given is with 1/2", uninsulated solid #25 AWG gold plated copper pigtails.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

MD*B-PCB connectors use standard MD*B all plastic shells and are designed for use with flex circuitry, printed circuit and multi-layer boards. They are easily mounted and soldered and provide high density/high reliability in board-to-board and board-to-cable applications. While being similar to the MDM-PCB connectors, the MD*B-PCB connectors are all plastic, extremely small, and lightweight yet rugged enough for use in the most demanding applications.

MD*B-PCB connectors are available in seven shell sizes with 9 to 51 contacts in the popular 90° narrow profile PCB termination, with a variety of tail lengths for varying board thickness.

Jackpost mounting for use with locking hardware is also available.

If the connectors shown in the catalog do not meet the requirements of your applications, a special shape, size or layout using the basic all plastic shell can be made available. For further technical and applications information, contact customer service.

How to Order

R MD*B - 37 S CBR * L39 - ***

- **RoHS COMPLIANCE**
- **SERIES**
- **CONTACT ARRANGEMENT**
- **CONTACT TYPE**
- **TERMINATION TYPE**
- **HARDWARE**
- **TERMINATION TAIL LENGTH**
- **MODIFICATION CODES (Consult Factory)**

CONNECTOR SERIES
MDVB, MDB

CONNECTOR ARRANGEMENT
9, 15, 21, 25, 31, 51

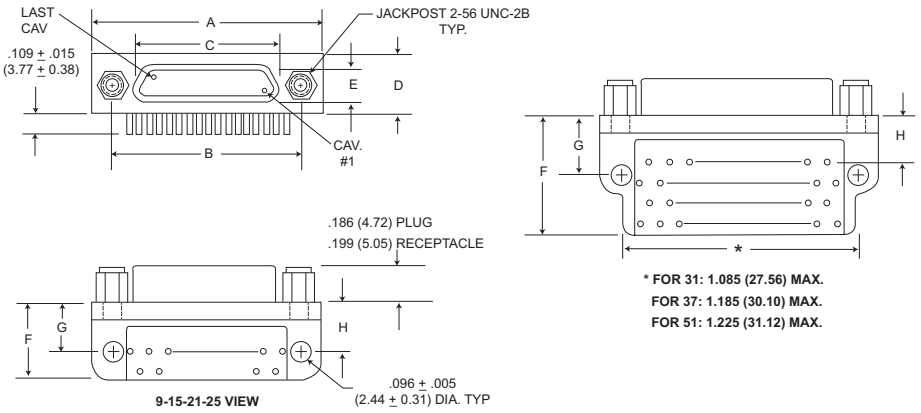
CONTACT TYPE
S = Socket
P = Pin

TERMINATION TYPE
CBR = 90° Narrow Profile PCB Terminations

HARDWARE
P = Jackpost
M7 = Jackposts, M635135-07
No Letter = Less Hardware

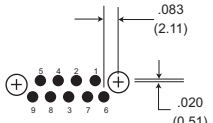
TERMINATION TAIL LENGTH CODES
NONE – .109 (2.77) ± 0.15 (0.38) Standard
L61 – .125 (3.18)
L66 – .150 (3.81)
L57 – .190 (4.83)
L39 – .250 (6.35)
L58 – .375 (9.52)

CBR Series (90° Mounting Narrow Profile)

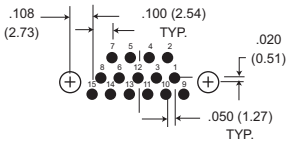


PCB Termination Arrangements (Viewed from bottom of connector, on PCB solder side.)

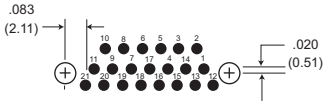
Indentification number shown for plug connector, use reverse order for socket connector.



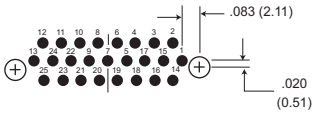
9 Contacts



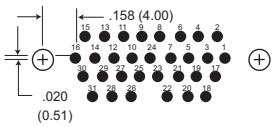
15 Contacts



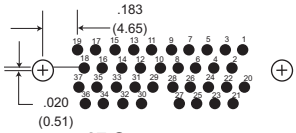
21 Contacts



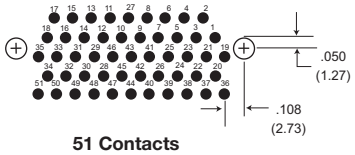
25 Contacts



31 Contacts



37 Contacts



51 Contacts

All Termination Configurations .100 (2.54) x .100 (2.54) Grid Pattern, Offset .050 (1.27)

Part Number By Shell Size	A Max.	B ± .005 (0.13)	C Max.	D Max.	E Max.	F Max.	G ± .010 (0.25)	H ± .010 (0.25)
MD*B-9PCBR*	.788 (20.01)	.565 (14.35)	.292 (7.42)	.218 (5.54)	.134 (3.40)	.420 (10.67)	.250 (6.35)	.230 (5.84)
MD*B-9SCBR*	.788 (20.01)	.565 (14.35)	.375 (9.52)	.218 (5.54)	.218 (5.54)	.420 (10.67)	.250 (6.35)	.230 (5.84)
MD*B-15PCBR*	.938 (23.82)	.715 (18.16)	.442 (11.23)	.218 (5.54)	.134 (3.40)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-15SCBR*	.938 (23.82)	.715 (18.16)	.525 (13.34)	.218 (5.54)	.218 (5.54)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-21PCBR*	1.088 (27.63)	.865 (21.97)	.592 (15.04)	.218 (5.54)	.134 (3.40)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-21SCBR*	1.088 (27.63)	.865 (21.97)	.675 (17.14)	.218 (5.54)	.218 (5.54)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-25PCBR*	1.188 (30.17)	.965 (24.51)	.692 (17.58)	.218 (5.54)	.134 (3.40)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-25SCBR*	1.188 (30.17)	.965 (24.51)	.775 (19.68)	.218 (5.54)	.218 (5.54)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-31PCBR*	1.338 (33.98)	1.115 (28.32)	.842 (21.39)	.218 (5.54)	.134 (3.40)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-31SCBR*	1.338 (33.98)	1.115 (28.32)	.925 (23.50)	.218 (5.54)	.218 (5.54)	.420 (10.67)	.250 (6.35)	.130 (3.30)
MD*B-37PCBR*	1.488 (37.79)	1.265 (32.13)	.994 (25.25)	.218 (5.54)	.134 (3.40)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MD*B-37SCBR	1.488 (37.79)	1.265 (32.13)	1.075 (27.30)	.218 (5.54)	.218 (5.54)	.520 (13.21)	.250 (6.35)	.130 (3.30)
MD*B-51PCBR*	1.438 (36.52)	1.215 (30.86)	.942 (23.93)	.258 (6.55)	.177 (4.50)	.550 (13.97)	.300 (7.62)	.150 (3.81)
MD*B-51SCBR	1.438 (36.52)	1.215 (30.86)	1.026 (26.06)	.258 (6.55)	.258 (6.55)	.550 (13.97)	.300 (7.62)	.150 (3.81)

* For jackpost locking add letter "P" or "M7".

NOTE: Standard lead termination is #24 AWG, solid copper, solder or tin dipped.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

MDB Coaxial Series with Screw Mounting Holes

MDB connectors with two coaxial and five MICRO-PIN™/MICROSOCKET™ contacts. Crimp-type coaxial contacts accommodate RG-178/U cables. A plastic insertion/extraction tool is supplied with each connector assembly having removable coaxial assembly.

How to Order - MDB Coaxial

R	MDB	1	-7	C2	*	S	H	**	*	K

RoHS COMPLIANCE
SERIES
SIGNAL CONTACT SPACING
TOTAL CONTACT CAVITIES
NUMBER OF COAXIALS
COAXIAL TYPE
SIGNAL CONTACT TYPE
SIGNAL CONTACT LEAD TYPE
SIGNAL CONTACT LEAD LENGTH
MODIFICATION
HARDWARE

SERIES
Micro-D Coaxial

SIGNAL CONTACT SPACING
1 - .050 (1.27) centers

TOTAL CONTACT CAVITIES 7

NUMBER OF COAXIALS 2

COAXIAL TYPE
No Letter - Coaxial assembly installed and nonremovable
RO - coaxial assembly ordered serparately
RA - Coaxial shipped assembled but uninstalled

SIGNAL CONTACT TYPE
P - Pin
S - Socket

SIGNAL CONTACT LEAD TYPE
L - Uninsulated, solid wire
H - Insulated, solid or stranded
S -Solder pot*

SIGNAL CONTACT LEAD LENGTH
See Standard Wire Termination Code on page 29. Coaxial cable will be RG-178U unless otherwise specified; length will be same as wire modification.

MODIFICATION
Consult customer service

HARDWARE
No letter - No hardware
standard mounting. 091 (2.31) hole diameter
F - Float
K - Jackscrew (standard)
L - Jackscrew (low profile)
P - Jackpost
* Not available with removalbe coax cable type connectors RO and RA.

How to Order - Coaxial Cable Assemblies

R	MD	CC	S	*	***

RoHS COMPLIANCE
SERIES
COAXIAL CABLE
CONTACT TYPE
COAXIAL CABLE TYPE
COAXIAL CABLE LENGTH

SERIES
MD

COAXIAL CABLE
CC

CONTACT TYPE
P - Pin
(used with socket side connection)
S - Socket
(used with pin type connection)

COAXIAL CABLE TYPE
1 - RG178/U

COAXIAL CABLE LENGTH
See Standard Wire Termination Codes on page 29. Coaxial cable will be RG-178U unless otherwise specified; length will be the same as wire modfication.

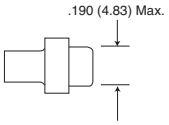
ITT

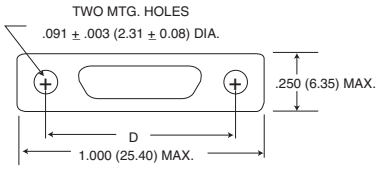
Dimensions shown in inch (mm)

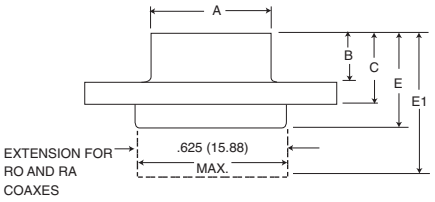
Dimension - MDB Coaxial Series

(See page 9 for layouts)

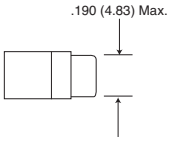
Plug

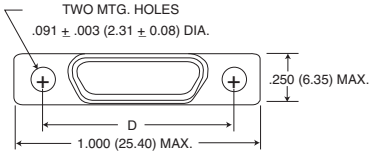


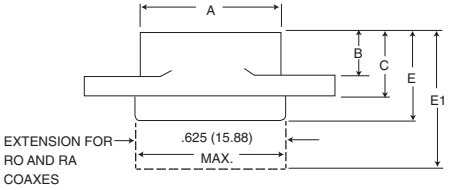




Receptacle







Part Number by Shell Size	A Max.	B Max.	C Max.	D ± .005 (0.13)	E Max.	E1 Max.	Avg. Weight** (oz) ± 5% (gm.) ± 5%
MDB1-7C2P*	.510 (12.95)	.204 (5.18)	.298 (7.57)	.782 (19.86)	.395 (10.03)	.510 (12.95)	.290 (8.30)
MDB1-7C2S*	.602 (15.29)	.185 (4.70)	.279 (7.09)	.782 (19.86)	.375 (9.52)	.540 (13.72)	.273 (7.80)

* Add lead type and length, see Part Number Explanation.
** Weight given is with 7 inch (177.80) insulated leads, #26 AWG silver plated copper pigtails and RG178/U coaxials.

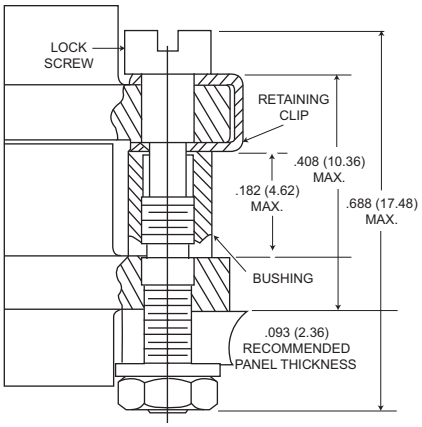
Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Mounting Hardware Views (Sizes 9-51)

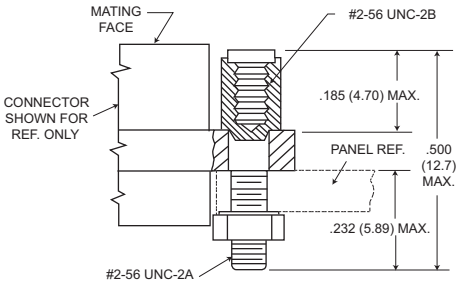
This hardware supplied unassembled.

Screw Lock Assembly

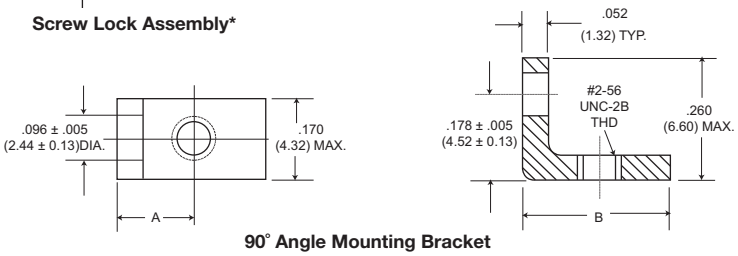
90° Angle Mounting Bracket



Screw Lock Assembly*



Jackpost - (P)



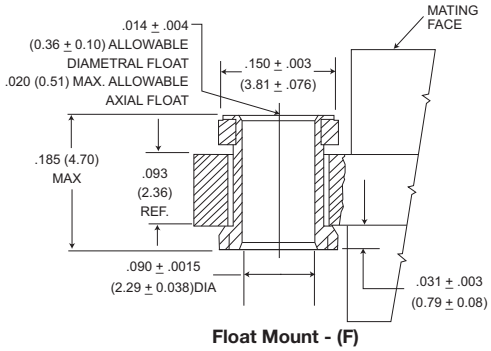
90° Angle Mounting Bracket

*NOTE: Torque value is 4.0 in/lbs max.

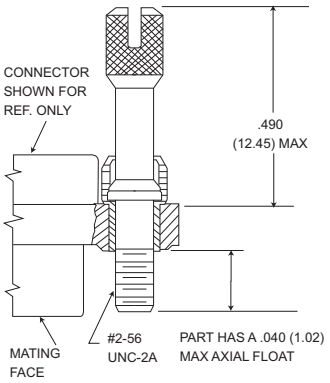
Description	Part Number	A ± .005 (0.13)	B Max.
Screw Lock Assembly Jackpost Kit	322-9500-000 320-9505-000		
Mounting Bracket, 90° Angle- MD*1 for 9 thru 37 Shell Sizes	015-9516-000	.100 (2.54)	.215 (5.46)
MD*1 for 51 Shell Size	015-9516-000	.122 (3.10)	.257 (6.53)

NOTES: Screw lock assembly (322-9500-000) can be used for front front mounting. Jackpost kit (320-9505-000) consists of 2 assemblies, shipped unassembled.

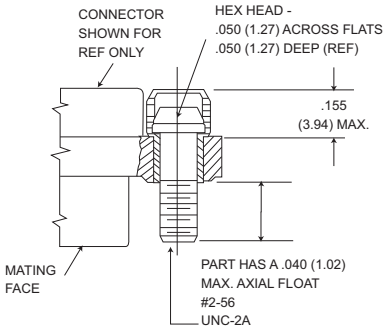
This hardware is factory installed.



Float Mount - (F)



Jackscrew - (K) Standard



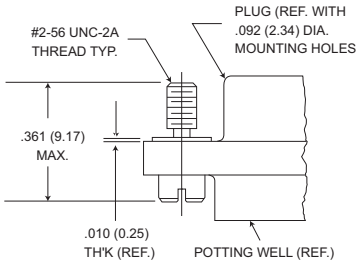
Jackscrew - (L) Low Profile

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.

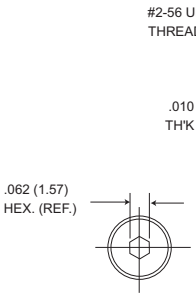
* NOTE: Torque values are as follows:
Low Profile Jackscrew (L)-2.5 in/lbs
Standard Jackscrew (K)-2.5 in/lbs

Mounting Hardware to Military Specification (Sizes 9 - 51) PER MIL-DTL-83513/5

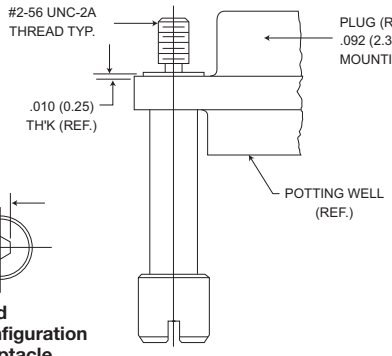
This hardware supplied unassembled.



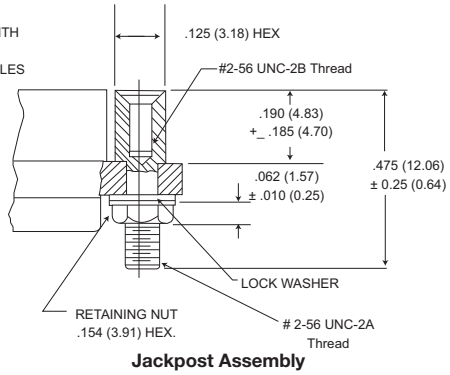
Jackscrew - (L) Low profile *



Allen head
Optional Head Configuration
Plug and Receptacle
Low and High Profile



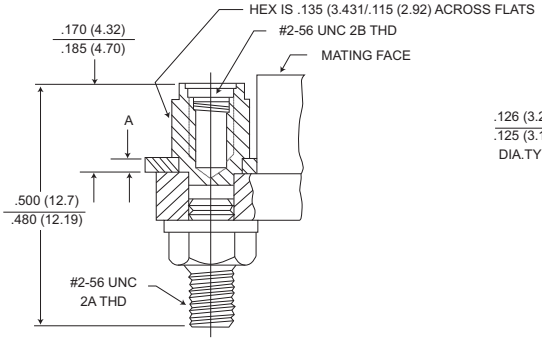
Jackscrew - (K) High Profile
Slotted Head

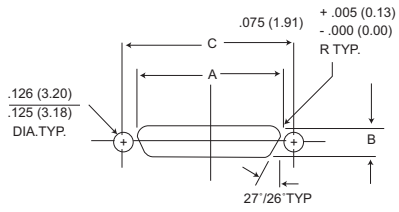


Jackpost Assembly

Description	M83513/5	Mode Code	Part Number
Slotted Head Jackscrew Assy Low Profile	-05	M5	320-9508-025
Slotted Head Jackscrew Assy High Profile	-06	M6	320-9508-027
Allen Head Jackscrew Assy Low Profile	-02	M2	320-9508-026
Allen Head Jackscrew Assy High Profile	-03	M3	320-9508-028
Jackpost Assy	-07	M7	320-9505-033

Jackpost Bushing (For Rear Panel Mounting)





Panel Thickness	A Dim.	Jackpost Kit Number*
3/32 (2.4)	.092/.087 (2.34/2.21)	320-9505-007
1/16 (1.6)	.061/.056 (2.34/1.42)	320-9505-006
3/64 (1.2)	.047/.042 (1.19/1.07)	320-9505-005
1/32 (0.8)	.030/.025 (0.76/0.64)	320-9505-004

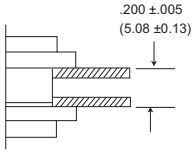
*2 Jackposts, 2 nuts, 2 washers.

NOTE: Torque value for jackpost 2.5 in/lbs

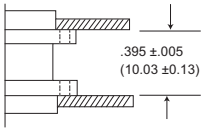
Plug and Receptacle Dimensions

Shell Size	A +.004 (0.10) -.000 (0.00)	B +.004 (0.10) -.000 (0.00)	C ±.005 (0.13)
9	.379 (9.63)	.219 (5.56)	.565 (14.35)
15	.529 (13.44)	.219 (5.56)	.715 (18.16)
21	.679 (17.25)	.219 (5.56)	.865 (21.97)
25	.779 (19.79)	.219 (5.56)	.965 (24.51)
31	.929 (23.60)	.219 (5.56)	1.115 (28.32)
37	1.079 (27.41)	.219 (5.56)	1.265 (32.13)
51	1.029 (26.14)	.261 (6.63)	1.215 (30.86)

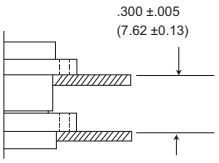
Panel Mounting Dimensions



Plug and Receptacle
Rear Mounted



Plug and Receptacle
Front Mounted



Plug Front Mounted
Receptacle Rear Mounted

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

www.ittcannon.com

Panel Cutouts

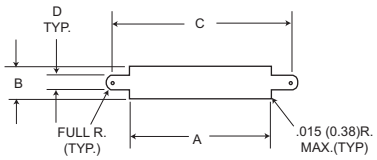


Figure 1
Front Mounting

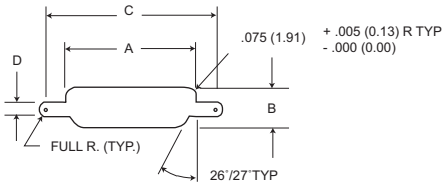


Figure 2
Rear Mounting

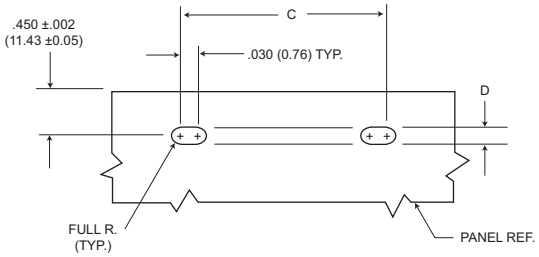


Figure 3
Edgeboard Mounting

Size	Cutout Figure	A + .004 (0.10) - .000 (0.00)	B + .004 (0.10) - .000 (0.00)	C + .005 (0.13) - .000 (0.00)	D + .005 (0.13) - .000 (0.00)
9	1	.409 (10.39)	.172 (4.37)	.570 (14.48)	.089 (2.26)
	2	.379 (9.63)	.219 (5.56)	.570 (14.48)	.089 (2.26)
	3	-	-	.570 (14.48)	.089 (2.26)
15	1	.559 (14.20)	.172 (4.37)	.720 (18.29)	.089 (2.26)
	2	.529 (13.44)	.219 (5.56)	.720 (18.29)	.089 (2.26)
	3	-	-	.720 (18.29)	.089 (2.26)
21	1	.709 (18.00)	.172 (4.37)	.870 (22.10)	.089 (2.26)
	2	.679 (17.25)	.219 (5.56)	.870 (22.10)	.089 (2.26)
	3	-	-	.870 (22.10)	.089 (2.26)
25	1	.809 (20.55)	.172 (4.37)	.970 (24.64)	.089 (2.26)
	2	.779 (19.79)	.219 (5.56)	.970 (24.64)	.089 (2.26)
	3	-	-	.970 (24.64)	.089 (2.26)
31	1	.959 (24.36)	.172 (4.37)	1.120 (28.45)	.089 (2.26)
	2	.929 (23.60)	.219 (5.56)	1.120 (28.45)	.089 (2.26)
	3	-	-	1.120 (28.45)	.089 (2.26)
37	1	1.109 (28.17)	.172 (4.37)	1.270 (32.26)	.089 (2.26)
	2	1.079 (27.41)	.219 (5.56)	1.270 (32.26)	.089 (2.26)
	3	-	-	1.270 (32.26)	.089 (2.26)
51	1	1.059 (26.90)	.215 (5.46)	1.220 (30.99)	.089 (2.26)
	2	1.029 (26.14)	.261 (6.63)	1.220 (30.99)	.089 (2.26)
	3	-	-	1.220 (30.99)	.089 (2.26)

NOTES:
1. Front mounting (figure 1) and rear mounting (figure 2) accommodates #2-56 screws.
2. Front mounting is preferred. However, when rear mounting is necessary. use detail on previous page.
3. Edgeboard mounting bracket (figure3) uses #2-56 screws. Dimension .450 ± .002 (11.43 ± 0.05) locates the MD receptacle flush with the end of the board.

How to Order

PCB ordering information - page 30

R	MD	1-	9	P	H	001	P

- **RoHS COMPLIANCE**
- **SERIES-INSULATOR STYLE-MATERIAL**
- **CONTACT SPACING**
- **CONTACT ARRANGEMENT**
- **CONTACT TYPE**
- **TERMINATION TYPE**
- **TERMINATION CODE**
- **LOCKING HARDWARE**

SERIES-INSULATOR STYLE-MATERIAL
MD - Clip mounting -Diallyl phthalate
MDV - Clip mounting-Polyester

CONTACT SPACING
1 - .050 (1.27) centers

CONTACT ARRANGEMENT
9-15-21-25-31*-37-51. See page 7

CONTACT TYPE
P - Pin S - Socket

TERMINATION TYPE
H - Insulated solid or stranded wire
L - Uninsulated solid wire
S - Solder pot to accept #26 AWG max. harness wire.

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.
No designator - No hardware - standard mounting
.091 (2.31) hole diameter

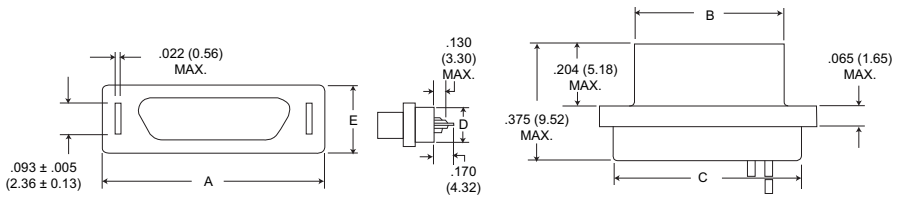
* Not available in clip mounting.
** See page 79 and 81for additional codes.

With Clip Mounting Slots

Plug

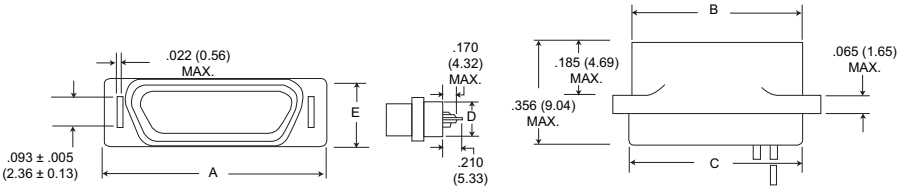
MD Glass-filled Diallyl Phthalate Plastic Insulator

MDV Glass-filled Polyester Plastic Insulator



Solder Pot

Receptacle



Solder Pot

Part Number by Shell Size		A Max.	B Max.	C Max.	D Max.	E Max.	Avg. Weight*** ±5% (oz.)/±5% (gm.)
MD1-9P**	**MDV1-9-P****	.512 (13.00)	.292 (7.42)	.405 (10.29)	.170 (4.32)	.215 (5.46)	.026 (0.73)
MD1-9S**	**MDV1-9S****	.512 (13.00)	.376 (9.55)	.405 (10.29)	.170 (4.32)	.215 (5.46)	.026 (0.73)
MD1-15P**	**MDV1-15P****	.662 (16.81)	.442 (11.23)	.555 (14.10)	.170 (4.32)	.215 (5.46)	.038 (1.10)
MD1-15S**	**MDV1-15S****	.662 (16.81)	.526 (13.36)	.555 (14.10)	.170 (4.32)	.215 (5.46)	.035 (1.00)
MD1-21P**	**MDV1-21P****	.812 (20.62)	.592 (15.04)	.705 (17.91)	.170 (4.32)	.215 (5.46)	.053 (1.50)
MD1-21S**	**MDV1-21S****	.812 (20.62)	.676 (17.17)	.705 (17.91)	.170 (4.32)	.215 (5.46)	.050 (1.40)
MD1-25P**	**MDV1-25P****	.912 (23.16)	.692 (17.58)	.805 (20.45)	.170 (4.32)	.215 (5.46)	.063 (1.80)
MD1-25S**	**MDV1-25S****	.912 (23.16)	.776 (19.71)	.805 (20.45)	.170 (4.32)	.215 (5.46)	.056 (1.60)
MD1-37P**	**MDV1-37P****	1.212 (30.78)	.992 (25.20)	1.105 (28.07)	.170 (4.32)	.215 (5.46)	.086 (2.45)
MD1-37S**	**MDV1-37S****	1.212 (30.78)	1.076 (27.33)	1.105 (28.07)	.170 (4.32)	.215 (5.46)	.076 (2.15)
MD1-51P**	**MDV1-51P****	1.162 (29.51)	.942 (23.93)	1.055 (26.80)	.213 (5.41)	.258 (6.55)	.109 (3.10)
MD1-51S**	**MDV1-51S****	1.162 (29.51)	1.026 (26.06)	1.055 (26.80)	.213 (5.41)	.258 (6.55)	.093 (2.65)

** Add lead type and length, see Part Number Explanation. *** Weight given is with 1/2", uninsulated solid #25 AWG gold plated copper pigtails.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Panel Mounting Hardware

Clip Mounting

Illustrated is the recommended method of front mounting with metal panel mounting keys. Panel mounting keys are available with or without coupling retention clips.

For front mounting, place the rear of the connector thru the panel cutout. With the mounting flange against the panel, fully insert the panel mounting keys thru the slots in the flange and thru the panel cutout. Retaining the keys in this position, bend them outward against the rear of the panel. When mating a front mounted connector with an unmounted connector, a coupling retention clip assembly may be used to securely lock the two together. Mounting screw brackets are available and may be used instead of the panel mounting keys.

Description	Part Number
Panel Mounting Key	201-9100-000
Mounting Key and Coupling Clip Assembly	294-9100-000
Mounting Screw Bracket	015-9100-000
* Edgeboard Mounting Bracket	015-5009-000
** Edgeboard Mounting Bracket and Coupling Clip Assembly	MD51428-1

* Must be ordered separately; specify left and right hand for complete assembly.

** Must be ordered separately; assembly contains set of left and right hand types.

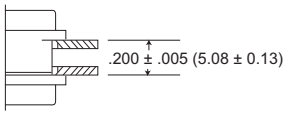
Coupling Retention Clip (see Figure 2)

Mounting Screw Brackets (see Figures 1 and 3)

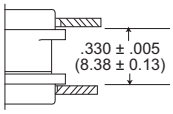
Edgeboard Mounted (see Figure 4)

Panel Mounting Key

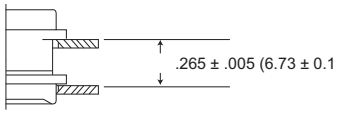
Dimensions (Clip Mounting Only)



Plug and Receptacle Rear Mounted



Plug and Receptacle Front Mounted



Plug Front Mounted Receptacle Rear Mounted

Panel Cutouts

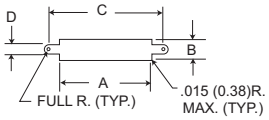


Figure 1

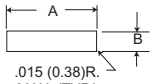


Figure 2

Front Mounting

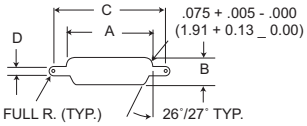


Figure 3
Rear Mounting

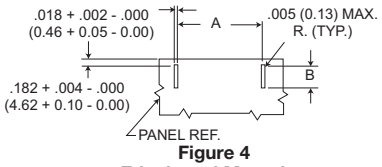


Figure 4
Edgeboard Mounting

1. A panel thickness of 1/8" (3.17mm) maximum is recommended for ease of tab bending when a panel mounting key & clip assembly or edgeboard mounting brackets are used.
2. Front mounting is preferred. However, when rear mounting is necessary, use figure 3 for dimensions.
3. Figure 4 is for edge board mounting bracket or edgeboard clip assembly. The .184 +_ .002 (2.67 +_ 0.05) dimension locates the MD socket insulator flush with the end of the board.
4. Screw brackets (015-9100-000) will accommodate #2-56 screws.
5. Front mounting (Figure 1) and rear mounting (Figure 3) accommodate #2-56 screws.

Shell Size	Cutout Figure	A + .004 (0.10) - .000 (0.00)	B + .004 (0.10) - .000 (0.00)	C + .004 (0.10) - .000 (0.00)	D + .005 (0.13) - .000 (0.00)
9	1	.408 (10.36)	.172 (4.37)	.650 (16.51)	.089 (2.26)
	2	.408 (10.36)	.172 (4.37)	-	-
	3	.378 (9.60)	.217 (5.51)	.650 (16.51)	.089 (2.26)
	4	.400 (10.16)	.091 (2.31)	-	-
15	1	.588 (14.94)	.172 (4.37)	.795 (20.19)	.089 (2.26)
	2	.588 (14.94)	.172 (4.37)	-	-
	3	.528 (13.28)	.217 (5.51)	.795 (20.19)	.089 (2.26)
	4	.550 (13.97)	.091 (2.31)	-	-
21	1	.738 (18.75)	.172 (4.37)	.945 (24.00)	.089 (2.26)
	2	.738 (18.75)	.172 (4.37)	-	-
	3	.678 (17.27)	.217 (5.51)	.945 (24.00)	.089 (2.26)
	4	.700 (17.78)	.091 (2.31)	-	-
25	1	.838 (21.29)	.172 (4.37)	1.045 (26.54)	.089 (2.26)
	2	.838 (21.29)	.172 (4.37)	-	-
	3	.778 (19.76)	.217 (5.51)	1.045 (26.54)	.089 (2.26)
	4	.800 (20.32)	.091 (2.31)	-	-
37	1	1.138 (28.91)	.172 (4.37)	1.345 (34.16)	.089 (2.26)
	2	1.138 (28.91)	.172 (4.37)	-	-
	3	1.078 (27.38)	.217 (5.51)	1.345 (34.16)	.089 (2.26)
	4	1.100 (27.94)	.091 (2.31)	-	-
51	1	1.088 (27.64)	.215 (5.46)	1.295 (32.89)	.089 (2.26)
	2	1.088 (27.64)	.215 (5.46)	-	-
	3	1.028 (26.11)	.260 (6.60)	1.295 (32.89)	.089 (2.26)
	4	1.050 (26.67)	.091 (2.31)	-	-

The Centi Line - .075" Contact Spacing

The Cannon Centi connectors are especially suitable for commercial applications such as computers, instrumentation, communications and audio equipment. They are available in D subminiature size metal shell rectangular, plastic shell rectangular and strip configurations.

All Centi connectors use the reliable twist pin contact design in a 5 amp version terminated on .075 (1.91) and .100 (2.54) centers. The Centi contact is crimp removable, connectors are available for customer assembly. Standard crimp and assembly tools are available.

The twist pin contact is recessed within the insulator housing while the rugged cylindrical socket is exposed. When the connector halves are mated, the chamfered sockets guide the pins into positive alignment. The Centipin™ contact, now under compression, forms a multi-point contact with the Centisocket™ to provide a high degree of reliability.

Standard Data

- Contact rating: 5 amps max, except BR Series (2 amps max.)
- Minimum contact centers: 0.075 (1.91).
- Wire sizes: #22 thru #26 AWG, stranded or solid.
- Contact termination: Multiple indent crimp.
- Contact retention: Crimp snap-in/removable.
- Contact materials and finish: Copper alloy, gold- plated per ASTM B488, Type II, Code C, Class 1.25.
- Mating/unmating force: 12 oz. per contact, max.

Performance Data

Test	Method	Criteria of Acceptance
Dielectric Withstanding Voltage	Method 301: 1,000 VAC at sea level 300 VAC at 70,000' altitude	 No breakdown No breakdown
Insulation Resistance	Method 302, Condition A	5,000 megohms minimum
Thermal Shock	Method 107, Condition A +55°C to +85°C	No physical damage
Physical Shock	Method 213, Condition I: 100 G's, 3 axes, 6 millisecond duration sawtooth pulse	No physical damage No loss of continutiy> 1/µsec
Vibration	Method 204, Condition B: 15 G's, 10-2,000 Hz, 12 hours	No physical damage No loss of continuity> 1µsec
Durability	500 cycles of mating and unmating, 500 CPH max.	No mechanical or electrical defects
Moisture Resistance	Method 106, Omit 7a and 7b	Insulation resistance > 100 megohms
Salt Spray	Method 101, Condition B: 48 hours	Shall be capable of mating and unmating and meet contact resistance requirements
Contact Resistance	Method 307: At 5 amps	 9 milliohms maximum
Contact Retention	-	4 lb. minimum axial load (after 10 insertion extraction cycles)

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

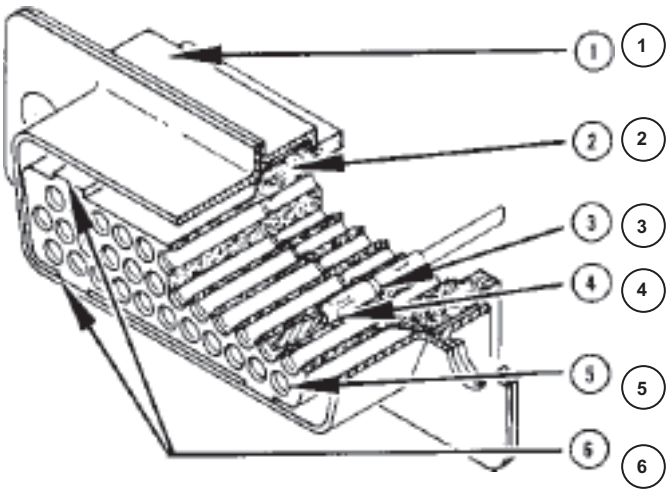
Double Density D - .075" Contact Spacing 2D

The Double Density D is a rectangular connector in the popular D Subminiature shell configuration featuring double the contact density in the same insert area. The Double Density D connector can thus accommodate up to 100 contacts instead of 50.

This double contact density is achieved by using field-proven, highly reliable Centipin™/Centisocket™ contacts on .075 (1.91) centers, in the positive contact alignment design. In this design contact positions are reversed; the flexible Centipin™ contacts are recessed in the insulator and the more rugged Centisocket™ contacts are exposed. This reversal of positions, and the chamfered-entry of the sockets, assures positive mating even under severe misalignment conditions. The contacts are retained in the monobloc insulator by a resilient internal shoulder that snaps into a locking groove in the contact. The chamfered front of the contact will not damage the internal shoulder in the insulator.

Contacts are crimp removable type.

The Double Density D connector is available in the five popular shell and insert sizes accommodating up to 100 contacts. These connectors mate exclusively with other Double Density D connectors. A wide range of accessories can be used, including junction shells, potting cups, switching shells, guide pin plates, and dust caps.



1. STANDARD D HARDWARE-
Including full range of D-Subminiature accessories

2. ONE PIECE MONOBLOCK INSULATOR-
glass-filled nylon material

3. CONTACT RETENTION-
thermoplastic internal shoulder snaps into a locking groove in the contact.
Retention Force: 8 lbs. min. initially, 4 lbs. min. after 10 cycles.

4. TWIST PIN CONTACTS-
seven outer wiping surfaces assure electrical continuity even under severe shock and vibration

5. POSTIVE CONTACT ALIGNMENT-
flexible pin is recessed in insulator cavity and rugged socket is exposed

6. GUIDE-IN KEYS AND KEYWAYS-
assure alignment during mating and prevent scooping

Specifications

WEIGHT

Part Number by shell size	Weight (in gr.) Less With Contacts		Weight (in oz.) Less With Contacts	
2DE19P	4.05	5.02	.142	.177
2DE19S	3.75	5.17	.133	.182
2DA31P	5.20	6.78	.183	.239
2DA31S	4.90	7.22	.173	.255
2DB52P	8.75	11.40	.308	.402
2DB52S	7.15	11.05	.252	.390
2DC79P	11.70	15.73	.413	.555
2DC79S	9.70	15.62	.342	.551
2DD100P	12.85	17.95	.453	.633
2DD100S	10.95	18.45	.386	.651

MATERIALS AND FINISHES

***Shell**	- Steel, cadmium plated with yellow chromate supplementary coating
Mounting Hardware and Float Mounts	- Stainless steel
Insulator	- Glass-filled nylon
Contacts	- Copper alloy, gold plate
Alternate finish, Modification Code	- A106 Gold over brass A156 Gold over brass A197 Tin/Lead over steel

*Brass non-magnetic also available

MECHANICAL FEATURES

Sizes	- Five shell sizes: E, A, B, C, and D
Coupling	- Friction or jackscrew
Polarization	- Keystone-shaped shells
Contact Spacing	- .075 (1.91)
Contact Termination	- Crimp snap-in

How to Order

	2D	E		19	S			
R	2D	A	F	31	P	BR	* * * *	

RoHS COMPLIANCE
SERIES
SHELL SIZE
FLOAT MOUNTS
CONTACT ARRANGEMENT
CONTACT TYPE
TERMINATION
MODIFICATION

NOTE: Connectors may be ordered less contacts by adding the mod callout "FO" at end of number. Contacts are then supplied in bulk form.

SERIES
2D - Double Density D

SHELL SIZE
E, A, B, C and D

FLOAT MOUNTS
Omit if not required

CONTACT ARRANGEMENT
19, 31, 52, 79 and 100

CONTACT TYPE*
P - Pin
S - Socket

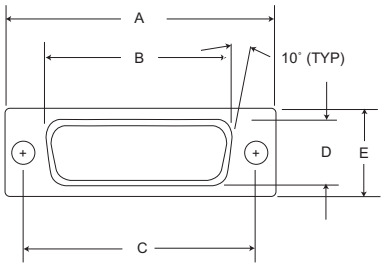
* Accommodates AWG #26 thru #22

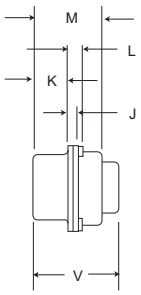
TERMINATION
BR - 90° right angle PCB mounting
(For BR Series use "P" to designate jackpost)

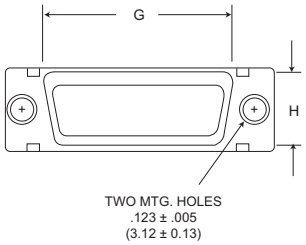
MODIFICATION
F171 - Jackpost assembly
F172 - Standard jackscrew
F173 - Low profile jackscrew
For other modifications consult factory

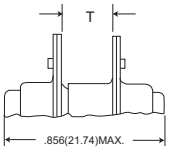
Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Standard Shell





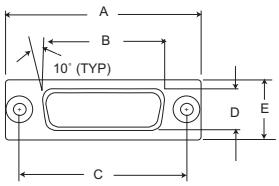


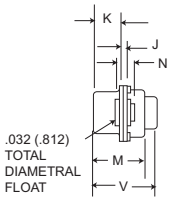


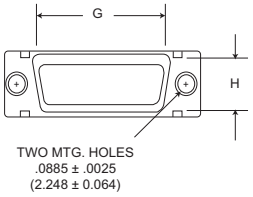
Part Number by Shell Size	T + .020 (0.51) - .000 (0.00)
2DE19P	.250 (6.35)
2DE19S	.250 (6.35)
2DA31P	.250 (6.35)
2DA31S	.250 (6.35)
2DB52P	.236 (5.99)

Part Number by Shell Size	T + .020 (0.51) - .000 (0.00)
2DB52S	.236 (5.99)
2DC79P	.236 (5.99)
2DC79S	.236 (5.99)
2DD100P	.236 (5.99)
2DD100S	.236 (5.99)

Float Mount



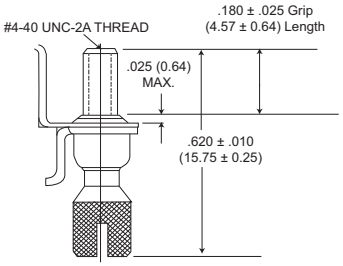




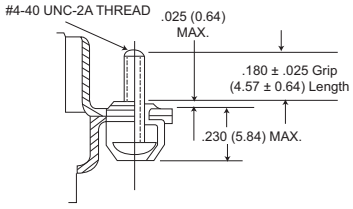
Part Number by Shell Size	A ± .015 (0.38)	B ± .010 (0.25)	C ± .010 (0.25)	D ± .010 (0.25)	E ±.015 (0.38)	G ± .010 (0.25)	H ± .010 (0.25)	J ± .010 (0.25)	K ± .010 (0.25)	L ± .010 (0.25)	M ± .010 (0.25)	N ± .010 (0.25)	V Max.
2DE19P	1.213 (30.81)	.697 (17.70)	.984 (24.99)	.360 (9.14)	.494 (12.55)	.759 (19.28)	.422 (10.72)	.036 (.914)	.236 (5.99)	.055 (1.40)	.422 (10.72)	.120 (3.05)	.555 (14.10)
2DE19S	1.213 (30.81)	.640 (16.26)	.984 (24.99)	.308 (7.82)	.494 (12.55)	.759 (19.28)	.422 (10.72)	.032 (213)	.243 (6.17)	.047 (1.19)	.429 (10.90)	.120 (3.05)	.555 (14.10)
2DA31P	1.541 (39.14)	1.025 (26.03)	1.312 (33.32)	.360 (9.14)	.494 (12.55)	1.083 (27.51)	.422 (10.72)	.036 (.914)	.236 (5.99)	.055 (1.40)	.422 (10.72)	.120 (3.05)	.555 (14.10)
2DA31S	1.541 (39.14)	.968 (24.58)	1.312 (33.32)	.308 (7.82)	.494 (12.55)	1.083 (27.51)	.422 (10.72)	.032 (213)	.243 (6.17)	.047 (1.19)	.429 (10.90)	.120 (3.05)	.555 (14.10)
2DB52P	2.088 (53.03)	1.583 (40.21)	1.852 (47.04)	.378 (9.60)	.494 (12.55)	1.625 (41.27)	.422 (10.72)	.036 (.914)	.231 (5.87)	.055 (1.40)	.426 (10.82)	.129 (3.28)	.555 (14.10)
2DB52S	2.088 (53.03)	1.508 (38.30)	1.852 (47.04)	.308 (7.82)	.494 (12.55)	1.625 (41.27)	.422 (10.72)	.032 (213)	.243 (6.17)	.047 (1.19)	.429 (10.90)	.120 (3.05)	.555 (14.10)
2DC79P	2.729 (69.31)	2.231 (56.67)	2.500 (63.50)	.378 (9.60)	.494 (12.55)	2.272 (57.71)	.422 (10.72)	.036 (.914)	.231 (5.87)	.055 (1.40)	.426 (10.82)	.129 (3.28)	.555 (14.10)
2DC79S	2.729 (69.31)	2.156 (54.76)	2.500 (63.50)	.308 (7.82)	.494 (12.55)	2.272 (57.71)	.422 (10.72)	.032 (213)	.243 (6.17)	.047 (1.19)	.429 (10.90)	.120 (3.05)	.555 (14.10)
2DD100P	2.635 (66.92)	2.127 (54.02)	2.406 (61.11)	.484 (12.29)	.605 (15.37)	2.178 (55.32)	.534 (13.56)	.036 (.914)	.231 (5.87)	.055 (1.40)	.426 (10.82)	.129 (3.28)	.555 (14.10)
2DD100S	2.635 (66.92)	2.062 (52.37)	2.406 (61.11)	.420 (10.67)	.605 (15.37)	2.178 (55.32)	.534 (13.56)	.032 (213)	.243 (6.17)	.047 (1.19)	.429 (10.90)	.120 (3.05)	.555 (14.10)

For shell with float mounts, add letter F after shell size, e.g., 2DEF19P.

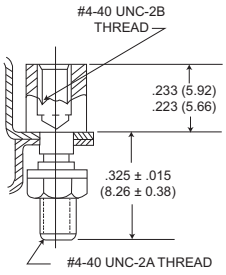
Jackscrew/Jackpost Assembly



Standard (F172) Jackscrew (factory installed)



Low Profile (F173) Jackscrew (factory installed)



Jackpost (F171) Front Panel Connector Mounting Only

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

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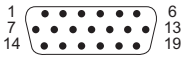
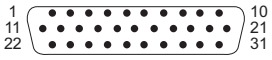
Contact Arrangements

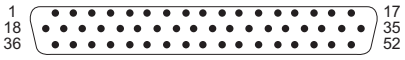
All views are pin front face. Use reverse order for socket side.



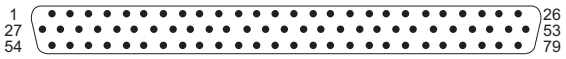
DE
19 Contacts



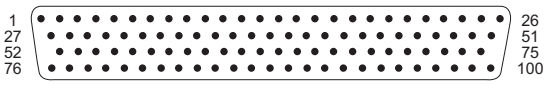
DA
31 Contacts



DB
52 Contacts



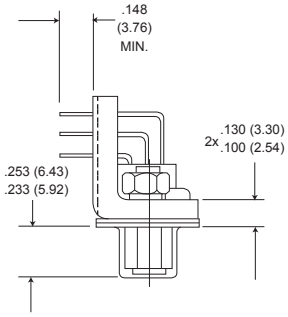
DC
79 Contacts

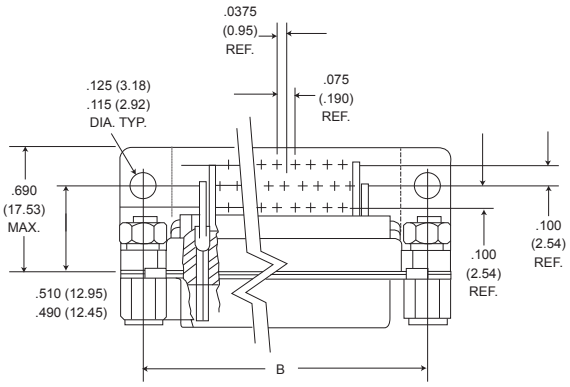


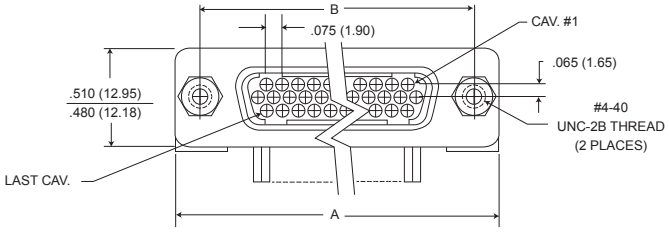
DD
100 Contacts

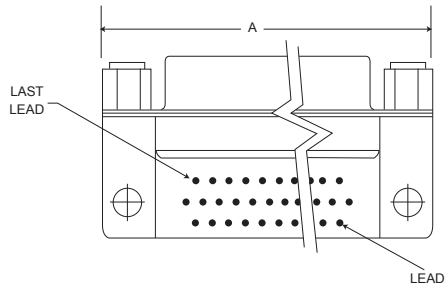
Cavity identification numbers are shown for reference only and do not appear on insulator front face. However they do appear on rear of insulator.

90˚ PCB Mounting - 3 Row







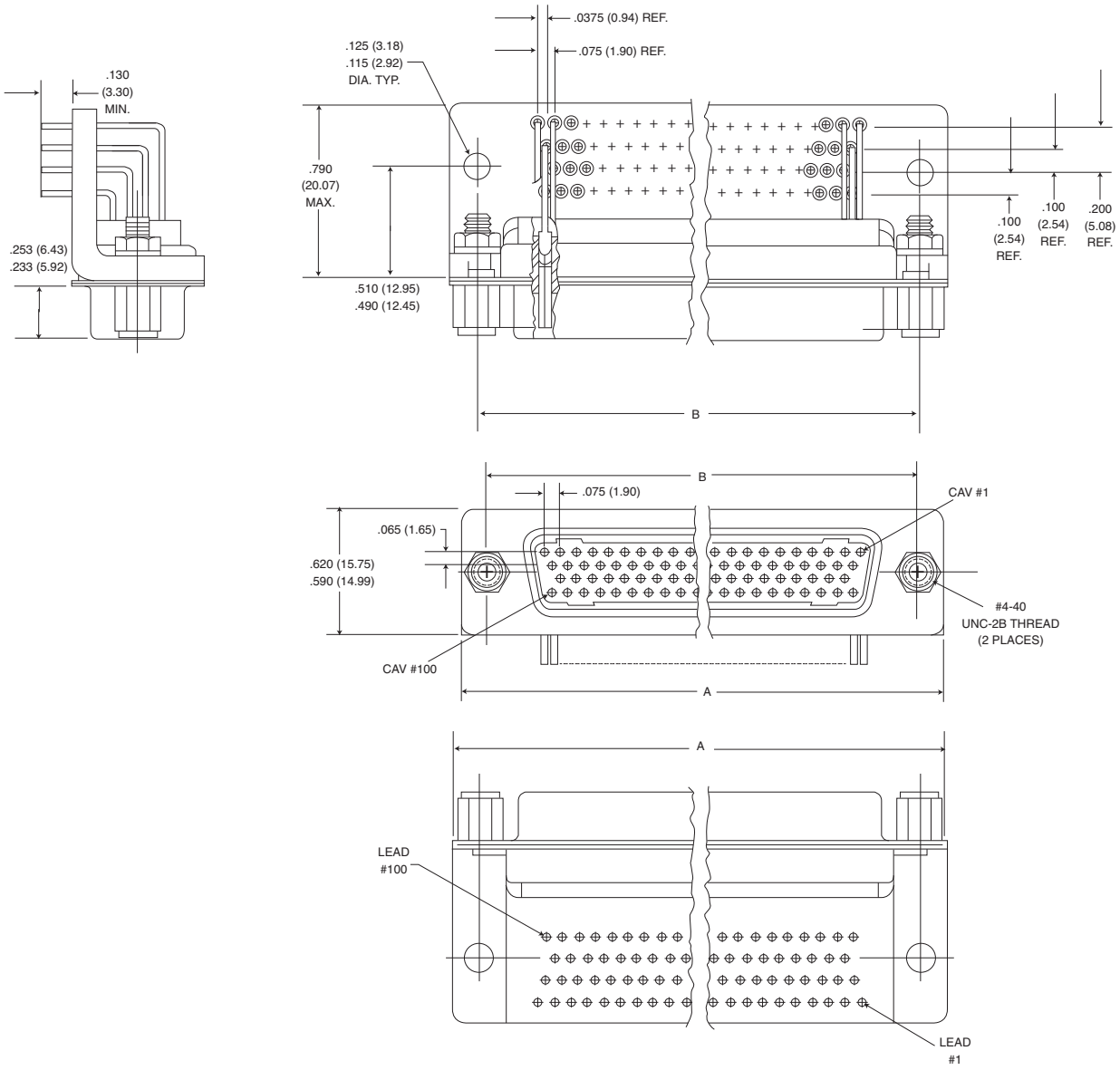


PCB Termination Leads
(all contact arrangements)
.024 (6.10) to .028 (7.11).

Suggested finished PC hole
Size .033 (8.38) +_ .003 (0.08)

Part Number by Shell Size	A ± .015 (0.38)	B ± .010 (0.25)	C Max.
2DE19SBRP	1.215 (30.86)	.984 (24.99)	.690 (17.53)
2DA31SBRP	1.540 (39.12)	1.312 (33.32)	.690 (17.53)
2DB52SBRP	2.090 (53.09)	1.852 (47.04)	.690 (17.53)
2DC79SBRP	2.730 (69.34)	2.500 (63.50)	.690 (17.53)

90° PCB Mounting - 4 Row

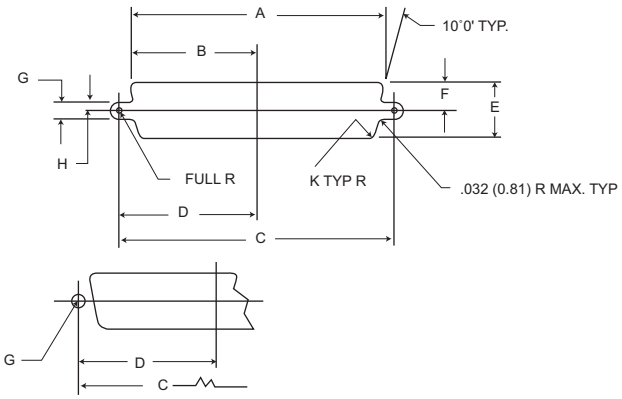


Part Number by Shell Size	A ± .015 (0.38)	B ± .010 (0.25)	C Max.
2DD100SBRP	2.635 (66.93)	2.406 (61.11)	.790 (20.07)

Contact Arrangements - Page 62

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

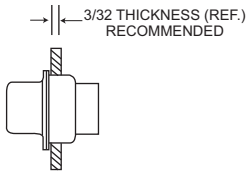
Panel Cutouts



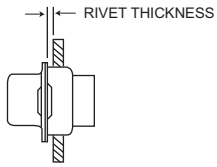
Conn.	Mtg. Method	A ± .005 (0.13)	B ± .005 (0.13)	C ± .005 (0.13)	D ± .005 (0.13)	E ± .005 (0.13)	F ± .005 (0.13)	G ± .002 (0.05)	H ± .002 (0.05)	K ± .002 (0.05)
2DE	Front	.874 (22.20)	.437 (11.10)	.984 (24.99)	.492 (12.50)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	.806 (20.47)	.403 (10.24)	.984 (24.99)	.492 (12.50)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DA	Front	1.202 (30.53)	.601 (15.26)	1.312 (33.32)	.656 (16.66)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	1.134 (28.80)	.567 (14.40)	1.312 (33.32)	.656 (16.66)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DB	Front	1.743 (44.27)	.872 (22.15)	1.852 (47.04)	.926 (23.52)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	1.674 (42.52)	.837 (21.26)	1.852 (47.04)	.926 (23.52)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DC	Front	2.391 (60.73)	1.196 (30.38)	2.500 (63.50)	1.250 (31.75)	.513 (13.03)	.257 (6.53)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	2.326 (59.08)	1.163 (29.54)	2.500 (63.50)	1.250 (31.75)	.449 (11.40)	.225 (5.71)	.120 (3.05)	.060 (1.52)	.132 (3.35)
2DD	Front	2.297 (58.34)	1.149 (29.18)	2.406 (61.11)	1.203 (30.56)	.623 (15.82)	.312 (7.92)	.120 (3.05)	.060 (1.52)	.083 (2.11)
	Rear	2.218 (56.34)	1.109 (28.17)	2.406 (61.11)	1.203 (30.56)	.555 (14.10)	.278 (7.06)	.120 (3.05)	.060 (1.52)	.132 (3.35)

For contact part numbers, termination tooling and assembly see pages 67-69.

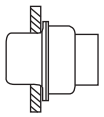
Panel Mounting



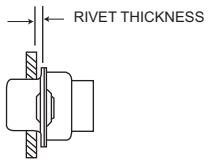
Front Mounting Standard



Front Mounting Float



Rear Mounting Standard



Rear Mounting Float

Centi-D Loc-.075" Contact Spacing

CDL

A subminiature all plastic high density "D" rectangular connector. The CDL is a general purpose connector with a peripheral o-ring and wire sealing gasket. Connector utilizes rear insertion, front release, crimp snap-in size 22, centi-loc contacts installable by the custormer or, if preferred, by the factory.

MATERIAL

Insulator:	Black Nylon
Dielectric Gasket:	Polychloroprene
Contact:	Copper Alloy, Gold Plated
Seal Ring	Silicone

How to Order

R CDL 2A - 139 P - * - F0

- RoHS COMPLIANCE
- SERIES
- TYPE
- CONTACT ARRANGEMENT
- CONTACT STYLE
- MODIFICATION CODES

SERIES

Centi-D Loc Series

TYPE

2 - No lock (mtg. holes)

2A - No lock type with rear gasket

CONTACT ARRANGEMENT

139

(Consult customer service for other sizes)

CONTACT STYLE

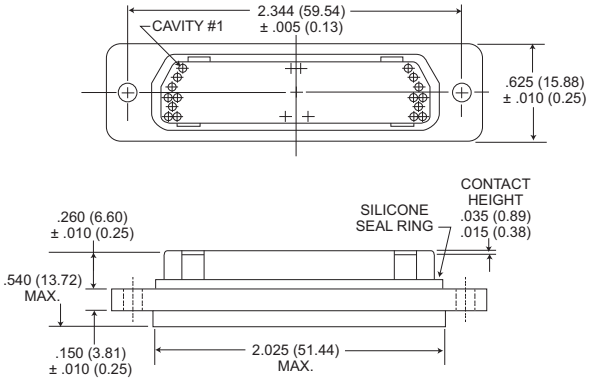
P - Centi-loc pin

S - Centi-loc socket

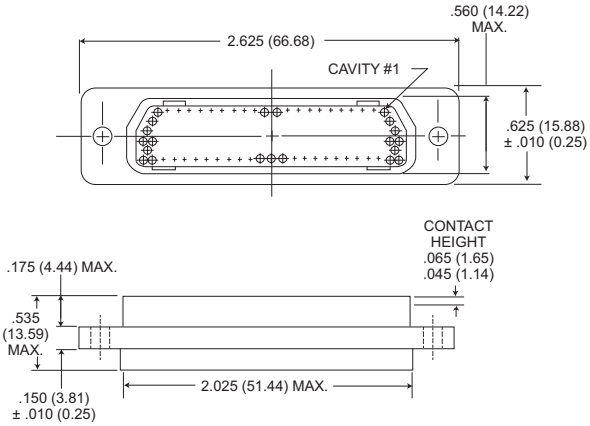
MODIFICATION CODES

F0 - Less contacts

Plug

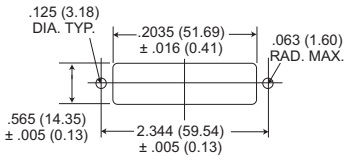


Plug



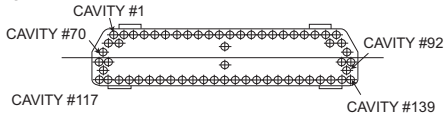
Receptacle

Recommended Panel Cutouts

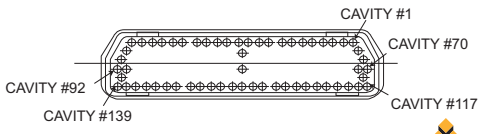


Contact Arrangements

Engaging Face View



Plug



Receptacle

Dimensions shown in inch (mm)

Specifications and dimensions subject to change

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Strip Connectors - .100"/.075" Contact Spacing CTA

CENTI-LOC connectors are low-cost nylon strip connectors designed for commercial applications such as instrumentation, communications, and medical equipment. They are available in continuous strip form up to a maximum length of 6 inches (152.40mm), accommodating from 1 to 60 rear insertion, front release, crimp snap-in size 22 CENTIPIN™/ CENTISOCKET™ contacts. These contacts utilize a proven positive contact alignment design, giving additional contact strength and positive contact alignment during mating.

These connectors can be ordered in kit or bulk form. The kit comprises all the parts necessary to assemble one complete 6-inch (152.40) strip connector with 60 contacts on .100 (2.54) centers or a 4-inch (101.60mm) strip with 53 contacts on .075 (1.91) centers. If more then one connector is required, the parts can be ordered in bulk and assembled as desired.

Components and Accessories

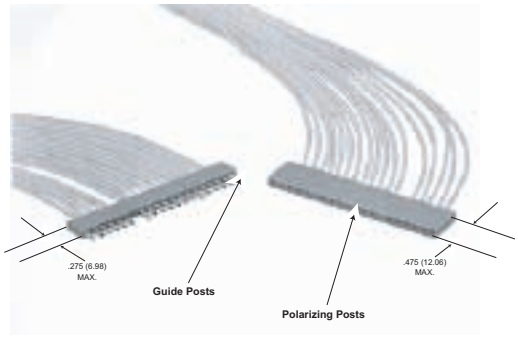
The CENTI-LOC strip connector can be ordered in kit or bulk form. The kit includes matin g insulators with a full compliment of contacts and two guide posts. If more than one connector is required, the parts can be ordered in bulk and assembled as desired.

Kit Form

Kits include mating insulators with full complement of contacts and two guide posts.

Part Number	Contact Center spacing
CTA3-KIT	.075 (1.91)
CTA4-KIT	.100 (2.54)
CTA3-CTA4-KIT	.075 (1.91) & .100 (2.54)

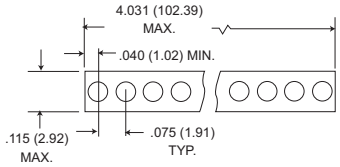
Insulator



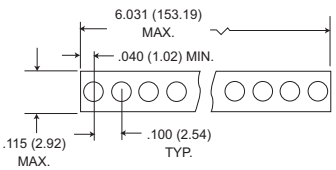
The guide posts and polarizing posts are inserted in the same manner as the contacts. The guide posts are inserted into the socket insulator and the polarizing posts are inserted into the pin insulator. The corresponding contact in the mating insulator must be removed for each. See assembly instructions.

	Part Number	Contact Center Spacing	Type	Material
Insulator	CTA3-IP-53	.075 (1.91)	Pin	Nylon
	CTA3-IS-53	.075 (1.91)	Socket	Nylon
	CTA4-IP-60	.100 (2.54)	Pin	Nylon
	CTA4-IS-60	.100 (2.54)	Socket	Nylon
Guide Post	CTA-GP	P/N 230-9507-000		Passivated Stainless Steel
Polarizing Post	CTA-PP	P/N 230-9506-000		Passivated Stainless Steel

Dimensional Data



CTA3-.075(1.91) Centers



CTA4-.100(2.54) Centers

Weights

Part Number	No. of Contacts	Contacts Type	Avy. Weight oz.	± 5% gm.
CTA3	53	pin	.185	5.25
		socket	.203	5.75
CTA4	60	pin	.230	6.30
		socket	.241	6.90

Contacts

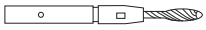
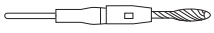
A resilient internal shoulder retains the contacts in the insulator housing. The front of the contact is chamfered to prevent damage to the internal shoulder as the contact is pushed into position.

P.C. Tail Contacts

Subtract .064 (1.63) ± .010 (.25) from pigtail length when used in 2D pin insulator for potting well of connector assembly.

Subtract .081 (2.08) ± .010 (.25) from pigtail length when used in 2D socket insulator for potting well of connector assembly.

Contact Part Number

Part Number Pin	Part Number Socket	Type	Pin	Socket
031-9540-000	030-9542-001	Standard 30µin. plating		
031-9540-004	030-9542-002	50µ in. plating		
031-9540-005	030-9542-004	With inspection hole; 50µ in. plating		
N/A	030-9542-011	P.C. tail .026 dia. x .083 lg. Soc.		
*031-9540-013	030-9542-012	P.C. tail .020 dia. x .183 lg. Soc. .183 lg. Pin		
031-9540-016	030-9542-014	Long crimp barrel **		
031-9540-022 ***	030-9556-000 ***	Small crimp bore For AWG #32 & 30		
031-9540-007	030-9542-022	Small crimp bore For AWG #28 & 30		
*031-9540-015	030-9542-015	P.C. tail .020 dia. x .232 lg. Soc. .255 lg. Pin		
*031-9540-019	030-9542-016	P.C. tail .018 dia. x .444 lg. Soc. .445 lg. Pin 50µ in. plating		

NOTE: Plating, except as noted, is 30 micro-inch gold.

* Consult factory for any tail size or plating requirements.
** Special crimp locator required. Part number: 995-0001-714. (L3198-CL-PSL)
*** Use special insertion tip (323-9510-016 &-017).

2D and Centi-Loc Crimp and Assembly Tools

M22520/2-01

CIET-CTA Handle

Insertion Tips

CTA-AB Assembly Holding Block Part Number: 328-9508-000

Socket Extraction Tip

Pin Extraction Tip

Tool		Locators	
		Pin	Socket
Description	M22520/2-01	L3198-CLP	L3198-CLS
Part Number	995-0001-584	995-0001-338	995-0001-353

Insertion Tools For Standard Contact

AWG Size*	Kit Part Number (handle and tip)	Tip Part Number**	Handle Part Number**
22	CIT-PS-CTA-22	323-9510-001	204-9500-000
24	CIT-PS-CTA-24	323-9510-002	204-9500-000
26	CIT-PS-CTA-26	323-9510-003	204-9500-000
28	CIT-PS-CTA-28	323-9510-004	204-9500-000
30/P.C. Tail	CIT-PS-CTA-30	323-9510-005	204-9500-000

* Based on wire size per MIL-W-16878 with Type E insulation, use smaller tool for wire with thin insulation, larger tool for wire having thick insulation.
** The 5 insertion tips (part numbers 323-9510-001 thru - 005). plus handle, and the pin and socket extaction tips maybe ordered as a SINGLE KIT by specifying the part number CIET-CTA-2. [Part number: 070143-0002].

Insertion Tools For Long Crimp barrel Contacts

AWG Size*	Tip Part Number *** Pin Contact	Tip Part Number *** Socket Contact	Handle Part Number***
22	323-9510-008	323-9510-012	204-9500-000
24	323-9510-009	323-9510-013	204-9500-000
26	323-9510-010	323-9510-014	204-9500-000

*** To order the SINGLE KIT for the long crimp barrel contact (tip part numbers 323-9510-008 thru -014, handle and pin and socket extraction tips) please specify CIET-CTA-3.

Extraction Tools

Contact	Description	Kit Part Number (handle and tip)	Tip Part Number	Handle Part Number
CENTIPIN	CET-P-CTA-2	070112-0002	324-9502-000	204-9500-000
CENTISOCKET	CET-S-CTA-1	070113-0001	324-9501-000	204-9500-000

Dimensions shown in inch (mm)
Specifications and dimensions subject to change
www.ittcannon.com

2D/CTA CENTI-LOC™ Connectors Assembly Instructions

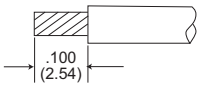
The Double Density D/CTA CENTI-LOC Connectors are highly reliable and simple connectors to use. There are a few helpful suggestions that will assure complete satisfaction when followed:

1. The following instructions should be followed.
2. The proper crimp tool and locator (if required) must be used. These tools have been designed for use with this product. Substitutions of crimping equipment may result in connector failure at the assembly operation.
3. After crimping a contact to a lead it is of vital importance that the proper tool be used to assure seating the contact in the insulator in the proper position. Any substitution of insertion tools may result in over or under insertion of the contact which may damage the retention system of the insulator.
4. The female (socket) side of the connector has been designed with a controlled float to allow for ease of mating. To avoid reducing this float or causing a splaying of the contacts, any unnecessary strain caused by clamping the leads too close to the rear of the connector should be avoided.

Use of recommended tooling together with proper assembly techniques will pay dividends in reliability and reduced costs.

2D Assembly Instructions

WIRE STRIPPING



Cut the wires to length required and strip .100" of insulation from the end to be crimped. Check for cut or broken wires and frayed insulation.

CONTACT CRIMPING

Using the proper crimp tool and locator, insert the contact into the locator. Insert the stripped end of the wire into the contact crimp pot, and crimp the contact to the wire. Squeeze the handles firmly to insure a proper crimp (tool will not release if crimping is incomplete). NOTE: Contact stop must be changed in tool locator when crimping pin and socket contacts.

CONTACT INSERTION

1. Place the proper insertion tip in the insertion/-extraction handle and put the tip over the wire as shown. The tool tip will butt up against the crimp pot. Connector must be firmly supported during both insertion and extraction operations.

2. Using a firm, steady pressure, push the contact into the cavity until the resilient internal shoulder in the insulator snaps into the locking groove in the contact. The shoulder of the tool tip bottoms against the rear of the insulator, preventing over-insertion. Repeat for balance of contacts.

CONTACT EXTRACTION

1. For contact extraction, remove the insertion tool tip and replace it with the proper extraction tool tip. (The socket tip will fit into the socket, and the pin tip will slide over the pin bundle). Insert the tool tip into the contact cavity: (the pin tip will butt up against the shoulder of the pin contact, and the socket tip will bottom out in the socket contact.)

2. Apply a firm, steady pressure until the contact is released from the internal shoulder in the insulator. The shoulder of the tool tip bottom against the insulator face to prevent damage to the internal shoulder. Remove the tool tip and pull the contact from the rear of the connector. Repeat for the balance of contacts to be removed.

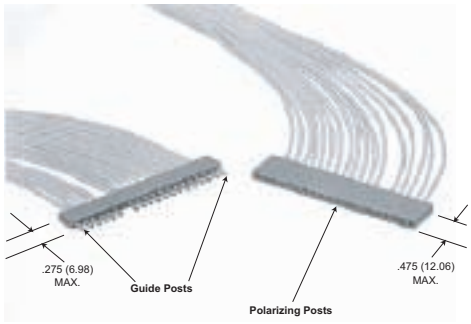
CTA Assembly Instructions

INSERTION

1. Place the connector into the slot in the assembly block with the arrows on the insulator pointing downward. The connector will bottom against the internal shoulder in the groove in the assembly block. Start contact insertion by placing the crimped contact in the cavity by hard.

2. Position the insertion tool tip on the rear of contact as shown. The insulation must be pulled back from the crimp pot approximately 1/32" to allow the tool tip to butt against the contact crimp pot.

3. With firm steady pressure, push the contact into the cavity until the resilient internal shoulder snaps into the locking groove in the contact. To prevent over insertion, the tool tip bottoms against the rear of the insulator.



4. The guide post and polarizing posts are inserted in teh same manner as the contacts. The guide posts are inserted into the socket insulator, and the polarizing posts are inserted into the pin insulartor. The corresponding contact in the mating insulator must be removed for each.

EXTRACTION

1. To extract the contacts, place the conector face up in the assembly block so that the contact to be extracted is in the end of the block that has a fully slotted opening.

2. The pin extraction tool tip is tubular, slides over the pin bundle and butts against the front shoulder of the pin. The socket extraction tool is a solid rod that fits into the socket contact, the external shoulder butts against the contact socket shoulder.

3. Insert the extraction tool into the cavity and apply firm pressure until the contact is pushed thru the rear of the connector.

4. Lift the insulator from the groove and pull the contact out. Repeat for balance of contacts to be removed.

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Custom Back Shell Systems

ITT has designed numerous back shell solutions for micro miniature interconnects for many harsh environment applications. Although ITT does not offer a standard back shell portfolio today, we can design and manufacture a range of back fittings for our MDM connector products depending on the customer requirements. Utilizing one of our partnership relationships, one of our UK based micro product groups of ITT can provide can provide custom designs utilizing proven banded systems in which the braid is captivated over a chimney style outlet. These types of back shell systems are available in different material finishes and sizes and can be provided with special process termination methods. In addition, ITT has developed a method of riveting the back fitting to the shell within the jacking area. This option guarantees 360 degree shielding effectiveness even when jackscrews or jacking posts are not being used.

Where a conduit system is preferred such as for test box environments in field locations, back fittings and a fully screened weatherproof convoluted trunking can be provided

In addition to the above ITT can provide special back potting style termination systems for environmental protection and strain relief. These types of a back shell style system are typically filled with epoxy or other encapsulating materials to provide a robust and effective back shell system.

Sealing Gaskets

We have received requests for gasket materials to seal the MDM connectors into various enclosures. We recommend that you consider wider flanged connectors together with a low cost conductive gasket to provide an adequate surface area. This combination will give you IP-66 sealing with good EMC compliance. The following dimensions for gaskets and flange dimensions are regarded as the minimum that you should consider.

Conductive elastomers generally offer a superior shielding performance when compared with alternatives as in table below.

Gasket Type	Neoprene (wire impregnated)	Silicone (wire impregnated)	Silicone (oriented wire)	Neoprene (fabric wrap)	Metallic finger stock	Metallic fibres	Conductive silicone rubber
Shielding performance	S	S	G	G	G	G	G
Temperature range	S	G	G	S	G	G	G
IP sealing	P	P	S	S	P	P	G
Compression force	G	G	G	G	G	S	S
Compression range	S	S	S	G	G	P	S
Surface texture	P	P	G	P	G	P	S
Compression set	S	S	S	S	G	P	G
Re-usability	S	S	S	S	G	P	G

* Neoprene is a trademark of Dupont P = Poor S = Satisfactory G = Good

Conductive rubber gaskets can be loaded with many different metallic fillers but the choice of material is dependent upon a number of factors such as level of conductivity, shielding effectiveness, galvanic compatibility and cost.

Galvanic Corrosion can occur when two dissimilar metals are in contact with one another in the presence of an electrolyte. The type of gasket material has to be assessed because of the use of metallic fillers. Many applications are dry indoor environments where corrosion is not a major concern. However, for external use, particularly marine, it is recommended that consideration be given to compatibility. The table on the next page is a summary.

Enclosure Material	Silver/Nickel	Silver/Copper	Silver/aluminum	Inert aluminum	Silver/Glass	Silver	Nickel/Graphite	Nickel
aluminum alloys	X	X	□	▲	X	X	□	□
Magnesium alloys	X	X	□	□	X	X	□	□
Stainless steel	▲	▲	▲	▲	▲	▲	▲	▲
Copper alloys	▲	▲	▲	▲	▲	▲	▲	▲
Cadmium plating	X	X	□	□	X	X	□	□
Tin plating	□	X	□	▲	□	□	▲	▲
Nickel plating	▲	□	□	▲	▲	▲	▲	▲
Chromium plating	▲	▲	▲	▲	▲	▲	▲	▲
Silver plating	▲	▲	▲	▲	▲	▲	▲	▲
Zinc & galvanise plating	X	X	□	□	X	X	□	□
Titanium	▲	▲	▲	▲	▲	▲	▲	▲

▲ = good □ = Satisfactory X = Not recommended

ITT

Dimensions shown in inch (mm)
Specifications and dimensions subject to change

Appendix

"L" Code Chart

SORTED BY LENGTH		
Wire Length, IN.		
Decimal	Fraction	Code
0.080		L63
0.094	3/32	L62
0.110		L65
0.125	1/8	L61
0.140		L67
0.150		L56
0.171		L66
0.187	3/16	L17
0.190		L57
0.210		L59
0.250	1/4	L39
0.312	3/8	L60
0.375	3/8	L58
0.380		L64
0.500	1/2	L1
0.625	5/8	L12
0.750	3/4	L4
1.000		L2
1.500		L7
2.000		L6
2.250		L25
2.500		L16
3.000		L10
3.500		L15
4.000		L11
4.500		L28
5.000		L9
6.000		L3
7.000		L8
8.000		L18
9.000		L45
10.000		L13
11.500		L52
12.000		L4
15.000		L46
18.000		L55
20.000		L5

SORTED BY CODE		
Wire Length, IN.		
Code	Decimal	Fraction
L1	0.500	1/2
L2	1.000	
L3	6.000	
L4	12.000	
L5	20.000	
L6	2.000	
L7	1.500	
L8	7.000	
L9	5.000	
L10	3.000	
L11	4.000	
L12	0.625	5/8
L13	10.000	
L14	0.750	3/4
L15	3.500	
L16	2.500	
L17	0.187	3/16
L18	8.000	
L25	2.250	
L28	4.500	
L39	0.250	1/4
L45	9.000	
L46	15.000	
L52	11.500	
L55	18.000	
L56	0.150	
L57	0.190	
L58	0.375	3/8
L59	0.210	
L60	0.312	5/16
L61	.0125	1/8
L62	0.094	3/32
L63	0.080	
L64	0.380	
L65	0.110	
L66	0.171	
L67	0.140	

#25AWG, SOLID COPPER WIRE PER QQ-W-343, TYPE "S", GOLD PLATED PER MIL-G-45204, TYPE II GRADE C OR D, CLASS 1 (50 MICROINCHES MINIMUM)

Nano "L" Code Charts on page 80.

Appendix

"L" Code Chart (for Nano products only)

SORTED BY LENGTH

Wire Length, IN.		
Decimal	Fraction	Code
0.080		L63
0.094	3/32	L62
0.110		L65
0.125	1/8	L61
0.140		L67
0.150		L56
0.171		L66
0.187	3/16	L17
0.190		L57
0.210		L59
0.250	1/4	L39
0.312	3/8	L60
0.375	3/8	L58
0.380		L64
0.500	1/2	L1
0.625	5/8	L12
0.750	3/4	L4
1.000		L2
1.500		L7
2.000		L6
2.250		L25
2.500		L16
3.000		L10
3.500		L15
4.000		L11
4.500		L28
5.000		L9
6.000		L3
7.000		L8
8.000		L18
9.000		L45
10.000		L13
11.500		L52
12.000		L4
15.000		L46
18.000		L55
20.000		L5

SORTED BY CODE

Wire Length, IN.		
Code	Decimal	Fraction
L1	0.500	1/2
L2	1.000	
L3	6.000	
L4	12.000	
L5	20.000	
L6	2.000	
L7	1.500	
L8	7.000	
L9	5.000	
L10	3.000	
L11	4.000	
L12	0.625	5/8
L13	10.000	
L14	0.750	3/4
L15	3.500	
L16	2.500	
L17	0.187	3/16
L18	8.000	
L25	2.250	
L28	4.500	
L39	0.250	1/4
L45	9.000	
L46	15.000	
L52	11.500	
L55	18.000	
L56	0.150	
L57	0.190	
L58	0.375	3/8
L59	0.210	
L60	0.312	5/16
L61	.0125	1/8
L62	0.094	3/32
L63	0.080	
L64	0.380	
L65	0.110	
L66	0.171	
L67	0.140	

#30AWG, SOLID COPPER WIRE PER QQ-W-343, TYPE "S", GOLD PLATED PER MIL-G-45204, TYPE II GRADE C OR D, CLASS 1 (50 MICROINCHES MINIMUM)

Appendix

“H” Code Charts

16878/4

Wire, Electrical, Polyetrafluorethylene (PTFE) Insulated, 200 Degrees C, 600 Volts, Extruded Insulation

Length	Yellow	White	System 1
1	030	C30	A30
2	024	C24	A24
3	020	C20	027
4	–	C33	033
5	031	C31	A31
6	019	047	016
8	026	C26	034
9	015	C15	A15
10	029	C29	025
12	028	008	002
16	039	C39	A39
17	036	C36	A36
18	001	044	003
20	038	C38	023
21	055	C55	A55
24	009	045	004
30	010	C10	005
35	018	C18	A18
36	011	058	006
40	037	C37	A37
42	012	021	A12
48	013	C13	048
50	040	C40	A40
60	014	C14	056
72	017	059	046
80	032	C32	A32
92	022	C22	A22
96	035	C35	A35
120	042	C42	041
180	043	C43	A43

Nano “H” Code Charts on page 82.

22759/11-26

Wire, Electrical, Fluoropolymer-Insulated, Extruded TFE, Silver-Coated Copper Conductor, 600 Volt

Length	White	10 Color Repeat	System 1
1	G30	Y30	H30
2	G24	Y24	H24
3	G20	Y20	H20
4	G33	Y33	H33
5	G31	Y31	H31
6	065	Y19	072
8	G26	Y26	H26
9	G15	Y15	H15
10	G29	Y29	H29
12	066	Y28	073
16	G39	Y39	H39
17	G36	Y36	H36
18	067	Y01	074
20	G38	Y38	H38
21	G55	Y55	H55
24	068	Y09	075
30	G10	Y10	H10
35	G18	Y18	H18
36	069	Y11	076
40	G37	Y37	H37
42	G12	Y12	H12
48	070	Y13	077
50	G40	Y40	H40
60	G14	Y14	H14
72	071	Y17	078
80	G32	Y32	H32
92	G22	Y22	H22
96	G35	Y35	H35
120	G42	Y42	H42
180	G43	Y43	H43

22759/33-26

Wire, Electrical, Fluoropolymer-Insulated, Crosslinked Modified, ETFE, Lightweight, Silver-Coated, High-Strength Copper Alloy 200 Degrees C, 600 Volt

Length	White	10 Color Repeat	System 1
1	V30	W30	X30
2	V24	W24	X24
3	V20	W20	X20
4	V33	W33	X33
5	V31	W31	X31
6	V19	W19	X19
8	V26	W26	X26
9	V15	W15	X15
10	V29	W29	X29
12	V28	W28	X28
16	V39	W39	X39
17	V36	W36	X36
18	V01	W01	X01
20	V38	W38	X38
21	V55	W55	X55
24	V09	W09	X09
30	V10	W10	X10
35	V18	W18	X18
36	V11	W11	X11
40	V37	W37	X37
42	V12	W12	X12
48	V13	W13	X13
50	V40	W40	X40
60	V14	W14	X14
72	V17	W17	X17
80	V32	W32	X32
92	V22	W22	X22
96	V35	W35	X35
120	V42	W42	X42
180	V43	W43	X43

"H" Code Charts (for Nano products only)

MIL-W-16878/6

Wire, Electrical, Polyetrafluorethylene (PTFE) Insulated, 200 Degrees C, 250 Volts, Extruded Insulation

Length	Yellow	White	System 1
1	030	C30	A30
2	024	C24	A24
3	020	C20	027
4	–	C33	033
5	031	C31	A31
6	019	047	016
8	026	C26	034
9	015	C15	A15
10	029	C29	025
12	028	008	002
16	039	C39	A39
17	036	C36	A36
18	001	044	003
20	038	C38	023
21	055	C55	A55
24	009	045	004
30	010	C10	005
35	018	C18	A18
36	011	058	006
40	037	C37	A37
42	012	021	A12
48	013	C13	048
50	040	C40	A40
60	014	C14	056
72	017	059	046
80	032	C32	A32
92	022	C22	A22
96	035	C35	A35
120	042	C42	041
180	043	C43	A43

Appendix

MIL-STD-681 Wire Color Code

Reference Data

PIN No.	MIL-STD-681 No.	Base Color	First Stripe	Second Stripe	Third Stripe	PIN No.	MIL-STD-681 No.	Base Color	First Stripe	Second Stripe	Third Stripe
1*	0	BLK				51	957	WHT	GRN	VIO	
2*	1	BRN				52	958	WHT	GRN	GRY	
3*	2	RED				53	967	WHT	BLU	VIO	
4*	3	ORN				54	968	WHT	BLU	GRY	
5*	4	YEL				55	978	WHT	VIO	GRY	
6*	5	GRN				56	9012	WHT	BLK	BRN	RED
7*	6	BLU				57	9013	WHT	BLK	BRN	ORN
8*	7	VIO				58	9014	WHT	BLK	BRN	YEL
9*	8	GRY				59	9015	WHT	BLK	BRN	GRN
10*	9	WHT				60	9016	WHT	BLK	BRN	BLU
11	90	WHT	BLK			61	9017	WHT	BLK	BRN	VIO
12	91	WHT	BRN			62	9018	WHT	BLK	BRN	GRY
13	92	WHT	RED			63	9023	WHT	BLK	RED	ORN
14	93	WHT	ORN			64	9024	WHT	BLK	RED	YEL
15	94	WHT	YEL			65	9025	WHT	BLK	RED	GRN
16	95	WHT	GRN			66	9026	WHT	BLK	RED	BLU
17	96	WHT	BLU			67	9027	WHT	BLK	RED	VIO
18	97	WHT	VIO			68	9028	WHT	BLK	RED	GRY
19	98	WHT	GRY			69	9034	WHT	BLK	ORN	YEL
20	901	WHT	BLK	BRN		70	9035	WHT	BLK	ORN	GRN
21	902	WHT	BLK	RED		71	9036	WHT	BLK	ORN	BLU
22	903	WHT	BLK	ORN		72	9037	WHT	BLK	ORN	VIO
23	904	WHT	BLK	YEL		73	9038	WHT	BLK	ORN	GRY
24	905	WHT	BLK	GRN		74	9045	WHT	BLK	YEL	GRN
25	906	WHT	BLK	BLU		75	9046	WHT	BLK	YEL	BLU
26	907	WHT	BLK	VIO		76	9047	WHT	BLK	YEL	VIO
27	908	WHT	BLK	GRY		77	9048	WHT	BLK	YEL	GRY
28	912	WHT	BRN	RED		78	9056	WHT	BLK	GRN	BLU
29	913	WHT	BRN	ORN		79	9057	WHT	BLK	GRN	VIO
30	914	WHT	BRN	YEL		80	9058	WHT	BLK	GRN	GRY
31	915	WHT	BRN	GRN		81	9067	WHT	BLK	BLU	VIO
32	916	WHT	BRN	BLU		82	9068	WHT	BLK	BLU	GRY
33	917	WHT	BRN	VIO		83	9078	WHT	BLK	VIO	GRY
34	918	WHT	BRN	GRY		84	9123	WHT	BRN	RED	ORN
35	923	WHT	RED	ORN		85	9124	WHT	BRN	RED	YEL
36	924	WHT	RED	YEL		86	9125	WHT	BRN	RED	GRN
37	925	WHT	RED	GRN		87	9126	WHT	BRN	RED	BLU
38	926	WHT	RED	BLU		88	9127	WHT	BRN	RED	VIO
39	927	WHT	RED	VIO		89	9128	WHT	BRN	RED	GRY
40	928	WHT	RED	GRY		90	9134	WHT	BRN	ORN	YEL
41	934	WHT	ORN	YEL		91	9135	WHT	BRN	ORN	GRN
42	935	WHT	ORN	GRN		92	9136	WHT	BRN	ORN	BLU
43	936	WHT	ORN	BLU		93	9137	WHT	BRN	ORN	VIO
44	937	WHT	ORN	VIO		94	9138	WHT	BRN	ORN	GRY
45	938	WHT	ORN	GRY		95	9145	WHT	BRN	YEL	GRN
46	945	WHT	YEL	GRN		96	9146	WHT	BRN	YEL	BLU
47	946	WHT	YEL	BLU		97	9147	WHT	BRN	YEL	VIO
48	947	WHT	YEL	VIO		98	9148	WHT	BRN	YEL	GRY
49	948	WHT	YEL	GRY		99	9156	WHT	BRN	GRN	BLU
50	956	WHT	GRN	BLU		100	9157	WHT	BRN	GRN	VIO

* 10 colors repeat is the standard wire color code for MIL-DTL-83513 connectors.

Terminology

Adhesive dispensing: a computer-controlled machine automatically dispenses epoxy adhesive.

Backmolding: this term refers to the process of transfer-molding epoxy performs into a old. The epoxy is heated and pressurized, much like conventional plastic molding.

Backpotting: the application of epoxy to connector wire terminations for strain relief and sealing. Epoxy is dispensed with pneumatic syringes. Standard Micro products have built-in potting wells to contain the epoxy, but optional potting in custom configurations is accomplished with inexpensive molds.

Brady labels: wraparound adhesive labels for multi-conductor cable.

Breakout: the area where one or more cables are joined together. A breakout frequently requires splices and extra strain relief such as cable ties or tubing.

Electrical testing: Hi-pot, insulation resistance, and continuity testing are standard tests for cable assemblies.

Etching: etching is a chemical process to prepare certain types of Teflon insulated wire for potting. Without etching, the epoxy will not bond properly.

Expando: braided sleeving used to protect a wire bundle. The simplest and least expensive method of jacketing a cable, expando tubing is made of abrasion-resistant nylon or other materials. The ends of the tubing are usually encapsulated in epoxy.

Header: a general term for any printed circuit board mounted connector used as an I/O port.

Hot stamping: insulated wire is imprinted with identification numbers or text.

Hot-stamped heat shrink tubing: used for multi-conductor cables, heat shrink tubing is impression stamped, then installed on the cable and shrunk.

Ink-jet marking: dots of ink are sprayed through a stationary nozzle onto a part moving on a conveyer. Ink jet marking is now standard.

Ink-stamping: the traditional method of placing metal type in a marking machine which is inked with a roller. The metal type transfers the ink to a rubber pad, and the part is pressed onto the pad. Oven curing is required.

Jumper Cable: this term usually applies to a short cable assembly that plugs into a printed circuit board one one end, with the other end mounted in an I/O panel.

Lacing: the process of tying individual wires together into bundles. Special lacing tape is used.

Laser stripping: insulation is removed from the wire by using a special laser stripping machine. Typically used on flat cable.

Mass-termination: simultaneous termination of multiple contacts. Normally associated with IDC termination, mass termination is also used on micropins in a special multi-contact crimp tool.

Pigtail: a single-ended cable assembly having one connector on one end and unterminated wire on the other end.

Potting: the application of various adhesives to a connector. Potting encapsulates the wires or terminals, providing environmental sealing and strain relief.

Silkscreening: Ink is transferred through a screen.

Stripping: insulation is removed from wire ends on automatic cut and strip equipment.

Thermal Shock: a conditioning environmental test that cycles a part repeatedly through a specified temperature range. Thermal shock is frequently performed prior to pressure testing.

Tinning: the application of molten solder to connector terminals. Micro products are tinned on a fully automatic machine with cleaning, preheating and inert gas tinning. Pre-tinned leads ensure excellent solderabillity.

Wire marking: individual numbered adhesive tags are attached to each wire.

Wire striping: insulated wire from #24 thru #28 AWG is striped with colors for circuit identification.

Wiring fixtures: flat wiring boards or more complicated three-dimensional fixtures are required for many multi-branched cable harnesses. Mating connectors are fixtured in the exact position of the end use equipment, and the cable assembly is built on the fixture.

Product Safety Information

THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOG. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/ CATALOG COULD RESULT IN HAZARDOUS SITUATIONS.

1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning. Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.

For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

Product Warranty

ITT Electronic Components, a Division of ITT Corporation manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues. A limited warranty applies to Cannon products. Except for obligations assumed by Cannon under this warranty, Cannon shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence or strict liability arising in connection with the design, manufacture, sale, use or repair of the products. Product availability, prices and delivery dates are exclusively subject to our respective order confirmation form; the same applies to orders based on development samples delivered. This publication is not to be construed as an offer. It is intended merely as an invitation to make an offer. By this publication, Cannon does not assume responsibility or any liability for any patent infringements or other rights of third parties which may result from its use. Reprinting this publication is generally permitted, indicating the source. However, Cannon's prior consent must be obtained in all cases.

Rack & Panel Connectors

ITT is the world leader in rack and panel connectors, offering unmatched variety of shell configurations and insert arrangements, materials, plating and contact options. Many of our standard and custom designs meet the stringent requirements of ARINC 600, ARINC 404 (MIL-C-81659), and MIL-DTL-83733 standards.

www.ittcannon.com/rackandpanel

Circular/Filter/Hermetic Connectors

As a world leader in circular, filter and hermetic connectors, ITT can leverage its design and manufacturing expertise to fit virtually any application. Our expertise includes fast positive mating for a wide range of military applications, as well as numerous sizes and contact configuration for various harsh environments. ITT can also meet numerous specs, including NATO and MIL standards.

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D-Subminiature Connectors

Cannon invented D-sub connectors in 1952. Our family of D-Subs now includes combinations of signal, power and RF, as well as severe service sealed connectors. Cannon D-Subs are available with an extensive line of backshells and accessories and are one of the most economical shielded connector solutions available. Qualified to the MIL-DTL-24308 specification.

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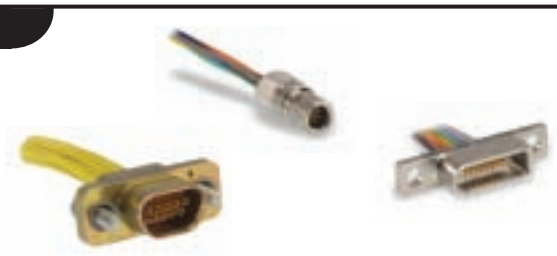
Fiber Optic Connectors and Cable Assemblies

Cannon fiber optic solutions provide an excellent performance/cost value. Performance can be tailored to the end system, and our use of superior materials and bonding agents provides highly effective solutions. Our wide variety of products includes fiber optic hybrid contacts, multi-channel, rack and panel, and hi-rel assemblies, including MIL and ARINC standard solutions.

www.ittcannon.com/fiberoptics

Microminiature Connectors

Cannon microminiature connectors offer high performance and reliability with exceptional versatility. Available in rectangular, circular and strip configurations for countless applications, many of our connectors meet or exceed applicable requirements of the MIL-DTL-83513 specification.



www.ittcannon.com/micro

ITT's Electronic Components business (**www.ittcannon.com**) is an international supplier of connectors, interconnects, cable assemblies, I/O card kits and smart card systems. As a worldwide leader in connector technology for nearly a century, ITT offers one of the industry's broadest product offerings, manufacturing capability worldwide, fast time to market, high volume/high yield capacity, robust design and Value-Based Product Development and an extensive sales and customer support network.

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