

## 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.

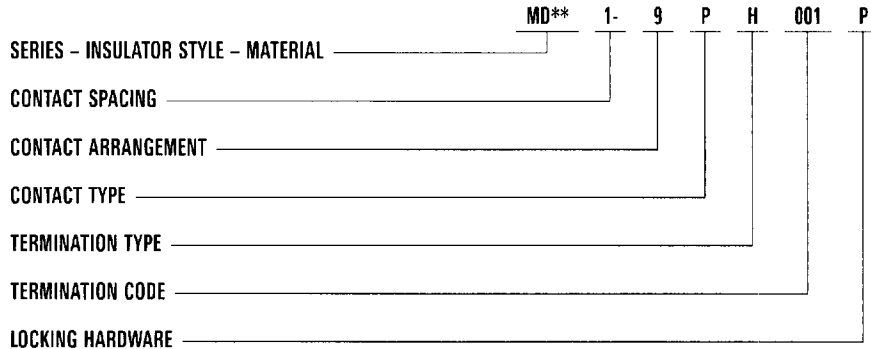
ITT Cannon can also terminate a wide variety of stranded or solid wire directly to MICRO-D contacts, which is often desirable in high density arrangements.

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 the factory for any routine or complex harnessing of MICRO-D connectors.

- Glass-filled diallyl phthalate—a 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—a 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).

## How to Order

PCB ordering information – page 242



### SERIES-INSULATOR STYLE-MATERIAL

- MD – Clip mounting–Diallyl phthalate
- MDB – Screw mounting–Diallyl phthalate
- MDV – Clip mounting–Polyester
- MDVB – Screw mounting–Polyester

### CONTACT SPACING

- 1 – .050 (1.27) centers

### CONTACT ARRANGEMENT

- 9-15-21-25-31\*-37-51. See page 233.

### 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.

### LOCKING HARDWARE (SCREW MOUNTING ONLY)

- P – Jackpost
- K – Jackscrew-standard
- L – Jackscrew-low profile
- F – Float mount
- M – Military specification hardware, see page 237.

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

\*Not available in clip mounting.  
\*\*See table below for additional codes.

## Standard Wire Termination Codes

For lengths not shown, consult factory for proper modification code. 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

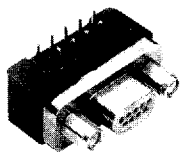
# ITT Cannon

### 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)

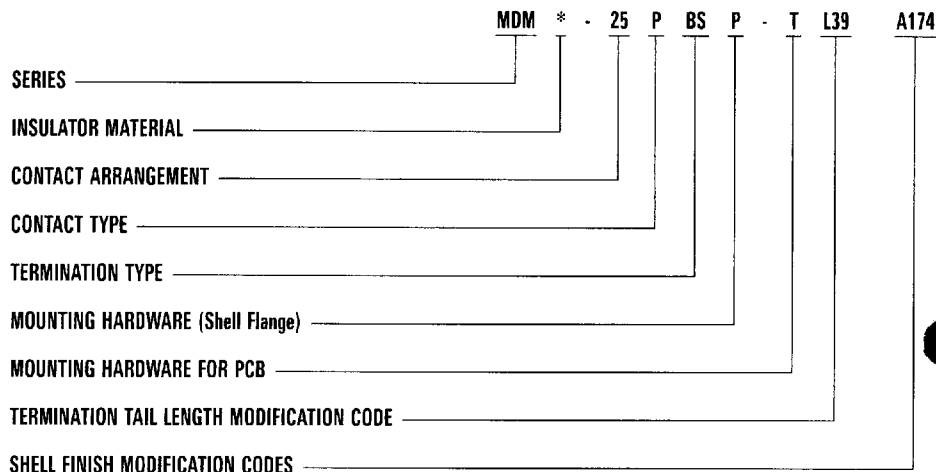
Dimensions are shown in inches (millimeters).  
Dimensions subject to change.



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° (BR, CBR) board thickness. Jackpost mounting for use with locking hardware is also available.

How to Order – MDM-PCB Series



Microminiature Connectors

**SERIES**  
MDM – Micro "D" Metal Shell

**INSULATOR MATERIAL**  
No Letter – Dialyl Phthalate  
V – Polyester (Valox)

**CONTACT ARRANGEMENT**  
9, 15, 21, 25, 31, 37, 51 and 100  
Size 100 not available in "BR"

**CONTACT TYPE**  
P – Pin (Plug)  
S – Socket (Receptacle)

**TERMINATION TYPE**  
BS – Straight PCB Termination  
BR – 90° PCB Termination  
CBR – 90° 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 factory.)

NOTE: Back molding material – Epoxy Hysol #MG8F-0134

## Standard Wire Termination Codes

### Cannon Modification Code (Not MS)

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

### Harness Type (H)

#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)

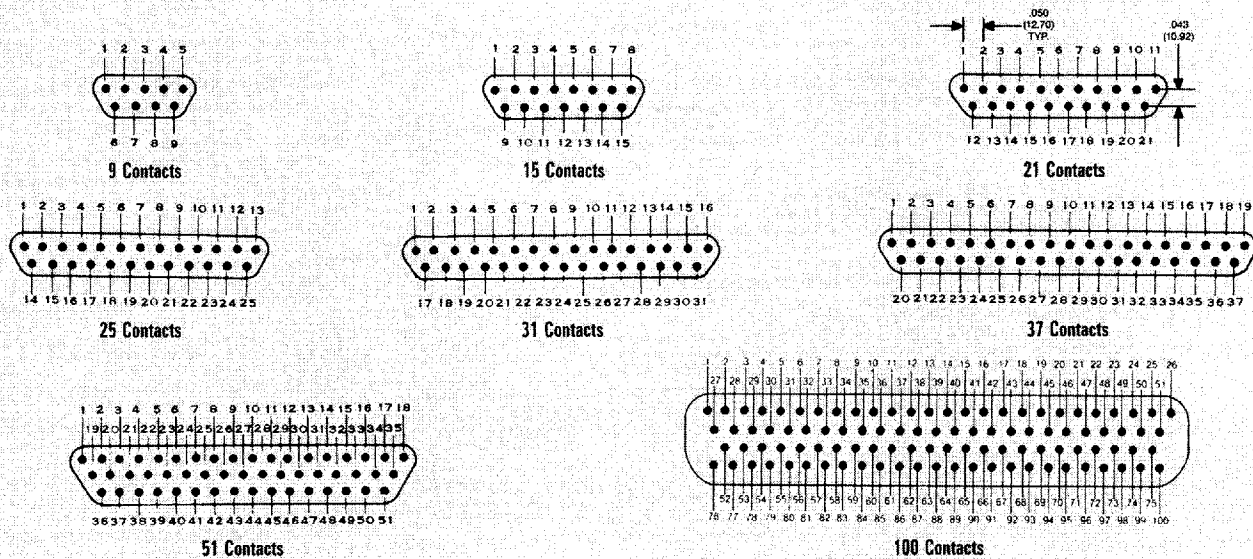
Millimeters are in parentheses.

Microminiature Connectors

## Contact Arrangements

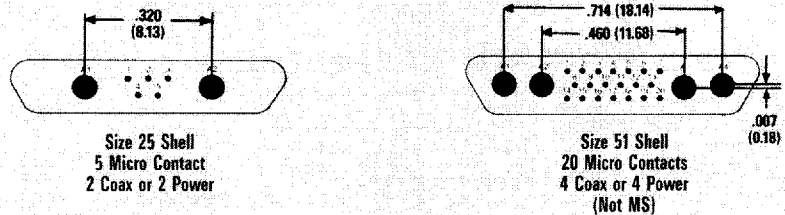
(Face View of Pin Insert – Use Reverse Order for Socket Side)

### Standard



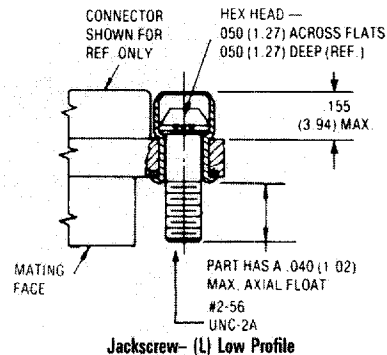
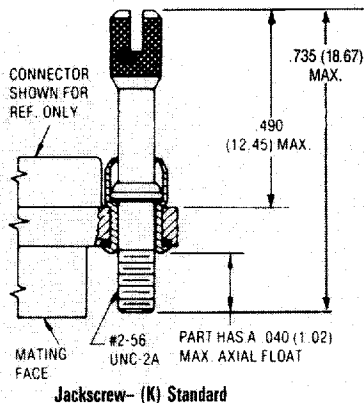
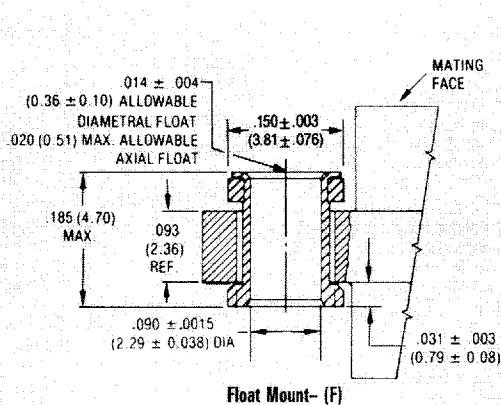
Contact identification numbers are for reference only and do not appear on insulator or connector body.

### Coaxial



## Mounting Hardware Views (sizes 9 – 51)

This hardware is factory installed.



Shown here is a cutaway view of the float mount for the MD connector. The basic shell dimensions are the same for the float mount and the screw mounting hole configurations. View shown is for standard float mount front panel mounting. Reverse mounting is available on request.

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

Repair kit available—consult factory.

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

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

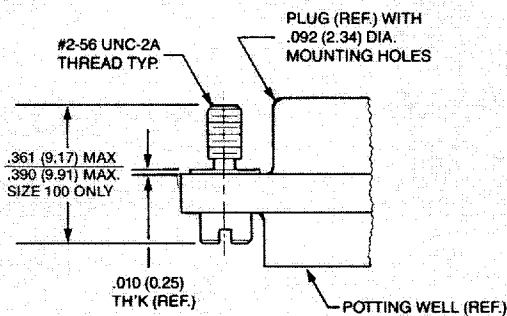
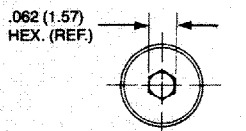


Figure 1. Jackscrew - Low profile Slotted Head  
Size 9-51  
Size 100\*



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

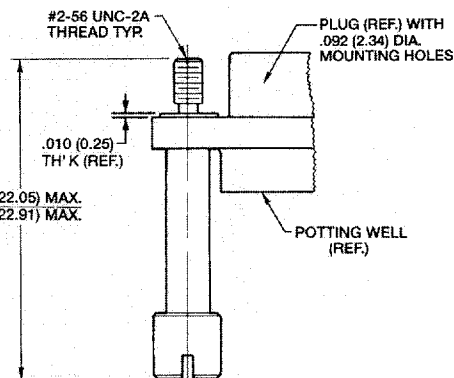


Figure 2. Jackscrew - High Profile Slotted Head  
Size 9-51  
Size 100\*

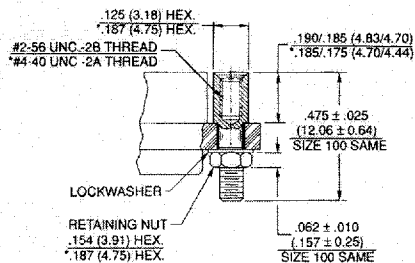


Figure 3. Jackpost Assembly  
Size 9-51  
Size 100\*

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

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

\*Size 100 requires B1 size mounting holes.

## Performance and Material 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	– Crimp stationary

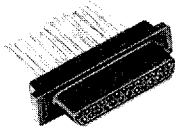
### MECHANICAL FEATURES

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 availability.

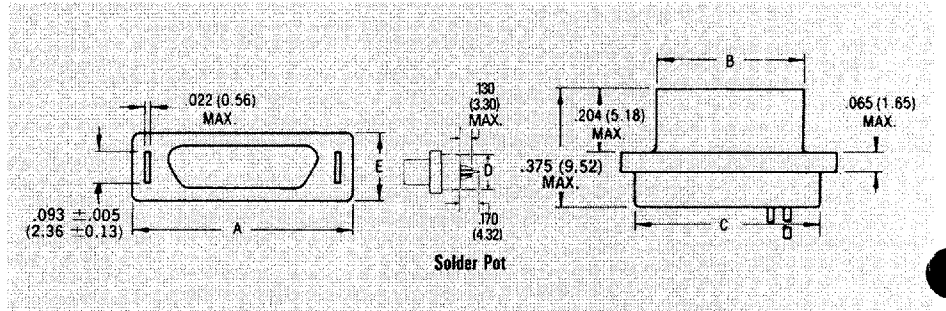
## With Clip Mounting Slots

Plug

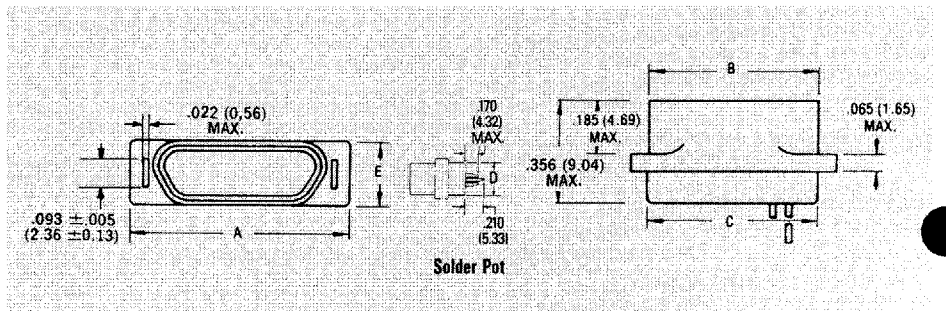
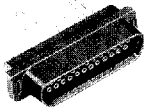


MD Glass-filled Diallyl Phthalate Plastic Insulator

MDV Glass-filled Polyester Plastic Insulator



Receptacle



Part Number by Shell Size		A Max.	B Max.	C Max.	D Max.	E Max.	Avg. Weight*** ±5% (oz.) / ±5% (gm.)
MD1-9P**	MDV1-9P**	.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.

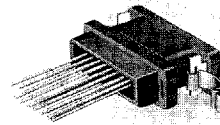
\*\*\*Weight given is with 1/2", uninsulated solid #25 AWG gold plated copper pigtailed.

## Panel Mounting Hardware

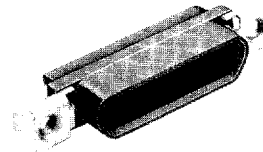
### Clip Mounting

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

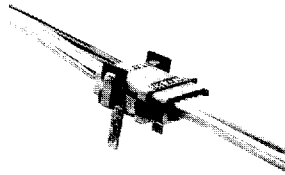
For front mounting, place the rear of the connector thru the panel cutout. With the mounting flange against the panel, fully insert the panel mounting keys thru the slots in the flange and thru the panel cutout. Retaining the keys in this position, bend them outward against the rear of the panel. When 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.



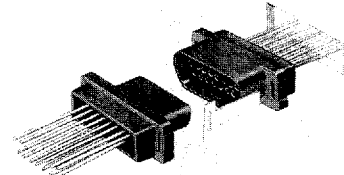
Coupling Retention Clip  
(see Figure 2)



Mounting Screw Brackets  
(see Figures 1 and 3)



Edgeboard Mounted  
(see Figure 4)



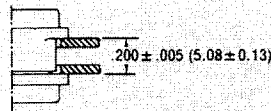
Panel Mounting Key

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

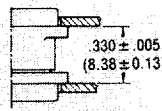
\*Must be ordered separately; specify left and right hand for complete assembly.

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

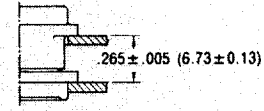
### Dimensions (Clip Mounting Only)



Plug and Receptacle  
Rear Mounted



Plug and Receptacle  
Front Mounted



Plug Front Mounted  
Receptacle Rear Mounted

## Panel Cutouts

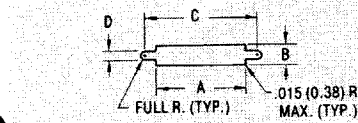


Figure 1

Front Mounting

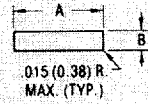


Figure 2

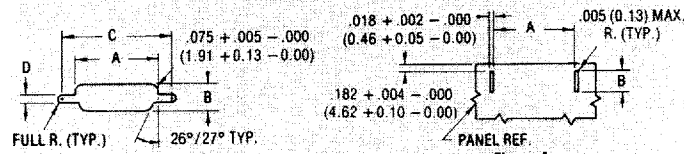


Figure 3  
Rear Mounting

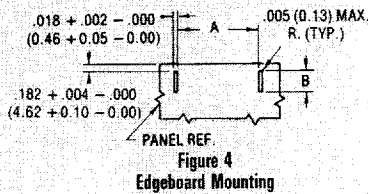


Figure 4  
Edgeboard Mounting

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 edgeboard 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 (Fig. 1) and rear mounting (Fig. 3) accommodate #2-56 screws when jackscrews are used. See detail on page 24 when jackposts are used.

Shell Size	Cutout Figure	A	B	C	D
		+ .004 (0.10) - .000 (0.00)	+ .004 (0.10) - .000 (0.00)	+ .004 (0.10) - .000 (0.00)	+ .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)	—	—

Dimensions are shown in inches (millimeters).  
Dimensions subject to change.

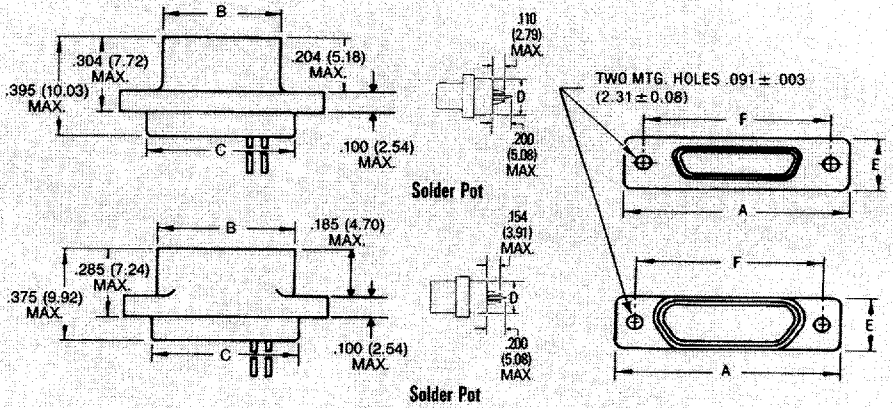
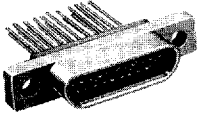
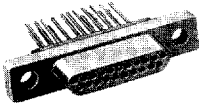
With Screw Mounting Holes (Conforms to MIL-C-83513)

Plug

MDB Glass-filled Diallyl Phthalate Plastic Insulator

MDVB Glass-filled Polyester Plastic Insulator

Receptacle



Micro-miniature Connectors

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 (28.32)	.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)	1.008 (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", un-insulated solid #25 AWG gold plated copper pigtailed.