



Board (Narrow Footprint) to Cable

.050"

9 thru 100 Contacts

Rugged Board Mount

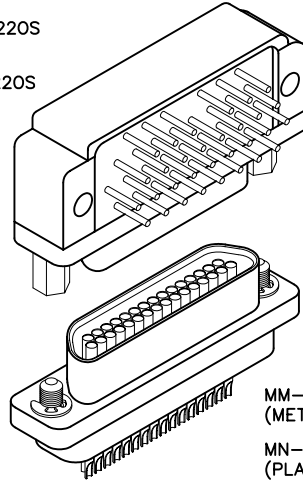
MK, ML

Rugged Cable

MM, MN

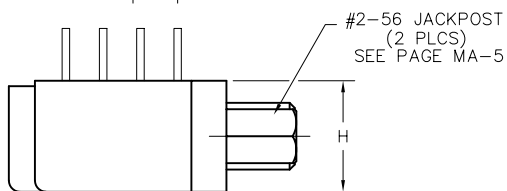
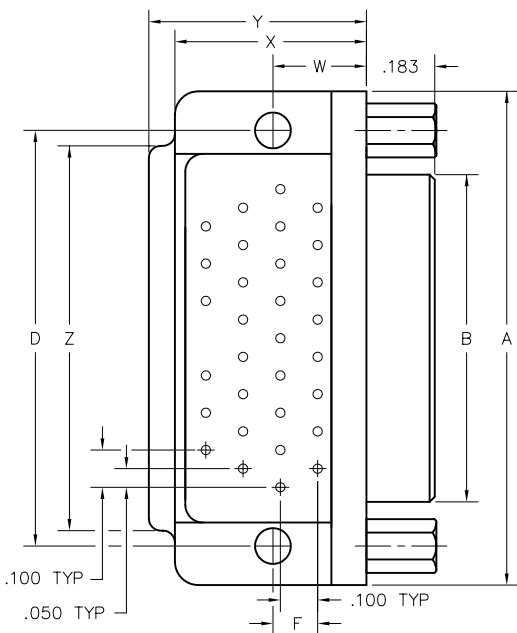
MK-253-031-335-220S
(METAL)

ML-251-031-335-220S
(PLASTIC)

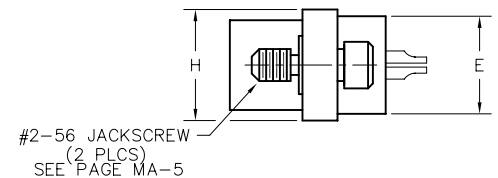
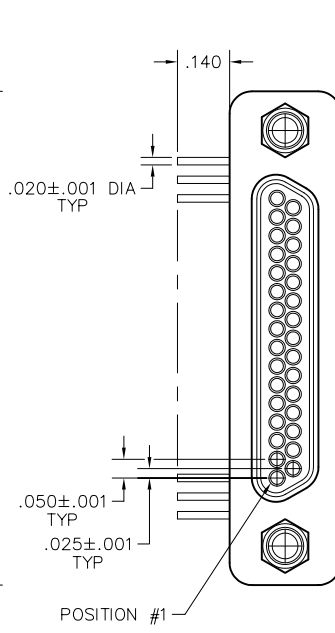


MM-223-031-213-4100
(METAL)

MN-221-031-213-4100
(PLASTIC)



PLUG



RECEPTACLE

DIMENSIONS																			
SIZE	CONTACT ROWS	A	B		C	D	E	F	H	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE				
			PLUG MAX	RCPT MAX			POTTING WELL MAX												
9	2	.775	.334	.400	.390	.565	.270	.020	.298	.250	.420	.420	.775	#2-56 UNC THD (.092 DIA THRU)	.096 DIA OR #2-56 UNC THREADED INSERT				
15		.925	.484	.550	.540	.715		.120					.298			.250	.420	.420	.925
21		1.075	.634	.700	.690	.865													1.075
25		1.175	.734	.800	.790	.965													1.175
31		1.325	.884	.950	.940	1.115													1.080
37		1.475	1.034	1.100	1.090	1.265													1.180
51	3	1.425	.984	1.050	1.040	1.215	.310	.150	.341	.300	.430	.650	1.220	#4-40 UNC THD (.147 DIA THRU)	.125 DIA OR #2-56 UNC THREADED INSERT				
69*		1.725	1.284	1.350	1.340	1.515						.755	1.450						
100	4	2.160	1.384	1.508	1.432	1.800	.360	.200	.384	.400	.590	1.000	1.810						
* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.																			

* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.

PLUG: MK-253-031-335-220S

RECEPTACLE: MM-223-031-213-4100

PLUG: ML-251-031-335-220S

RECEPTACLE: MN-221-031-213-4100

XX-XXX-XXX-XXX-XXXX-XXX

PLUG

RECEPTACLE

SERIES	
MK .050" Rugged Metal PC Board Mount Connector	MM .050" Rugged Metal I/O Connector
ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN receptacles)	MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)

BODY	
2 2-Row (Sizes 9 thru 37)	2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69***)	3 3-Row (Size 51 & 69***)
4 4-Row (Size 100)	4 4-Row (Size 100)
BODY STYLE:	BODY STYLE:
5 Plug, right angle, narrow footprint, w/ mtg holes	2 Receptacle, straight, with ears
BODY MATERIAL:	BODY MATERIAL:
1 Polyphenylene Sulfide (ML only)	1 Polyphenylene Sulfide (MN only)
2 Polyphenylene Sulfide with electroless nickel shell	2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell	4 Polyphenylene Sulfide with hard anodized black shell
5 Polyphenylene Sulfide with stainless steel shell	5 Polyphenylene Sulfide with stainless steel shell

SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100

CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"	21 Socket, straight, solder cup
33 Pin, right angle, PCB leads, .140"	24 Socket, straight, .500" pigtails (.018 dia)
34 Pin, right angle, PCB leads, .172"	25 Socket, straight, 1.000" pigtails (.018 dia)
	26 Socket, straight, crimped wire
PLATING OPTIONS:	PLATING OPTIONS:
3 50 µ" Au contacts; 10 µ" Au terminations	1 50 µ" Au contacts (crimp wire)
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒	3 50 µ" Au contacts; 10 µ" Au terminations (solder cup, pigtail)
7 50 µ" Au contacts; SAC305 terminations	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
	7 50 µ" Au contacts; SAC305 terminations (pigtail)

HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
00 None	00 None
22 Two fixed jacknut assemblies (62*)	22 Two fixed jacknut assemblies (62*)
41 Two turning jackscrews, allen head, retaining ring**** (81*)	41 Two turning jackscrews, allen head, retaining ring (81*)
99 Keying hardware, see options below (Body material 2, 3 and 4 only)	42 Two long turning jackscrews, allen head, retaining ring (82*)
	43 Two turning jackscrews, slot head, retaining ring (83*)
	44 Two long turning jackscrews, slot head, retaining ring (84*)
	45 Two turning jackscrews, allen head, captivated** (85*)
	99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING:	POLARIZATION / WIRING
0R Reversed body polarization	00 None
0S Standard body polarization	XX For wiring codes, see page MA-3 & MA-4

OPTIONS	
KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*)	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*)
94P Mil-Spec footprint (size 100 only), standard body polarization	900 Interfacial sealing gasket
0B7 Threaded inserts, standard body polarization	
0BJ Mil-Spec footprint (size 100 only) with threaded inserts, standard body polarization	

* = Use numbers or letters in parenthesis when ordering size 100.

** = Captive hardware is factory installed and non-removable.

*** = 69 position connectors are available in metal only.

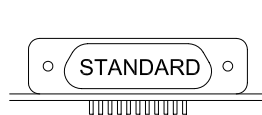
**** = Connector body has no mounting holes.

☒ = Option not RoHS compliant

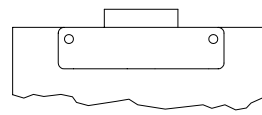


Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization

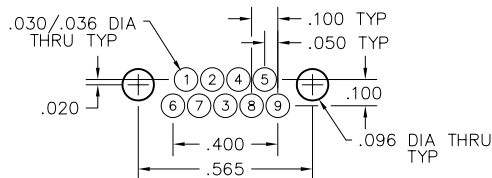


CONNECTOR MATING FACE

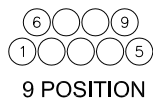


PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

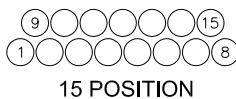
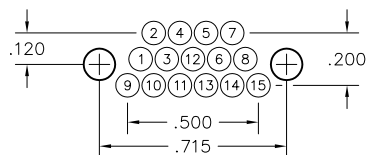
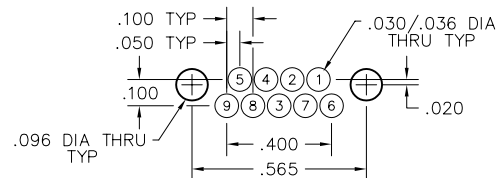


CONNECTOR
MATING FACE*
(RECEPTACLE)

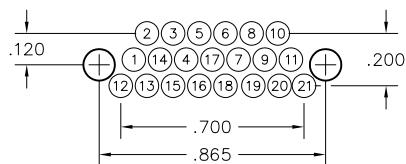
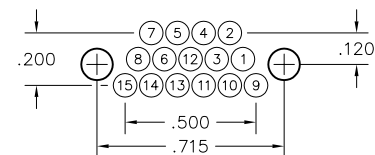


9 POSITION

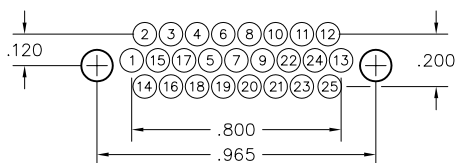
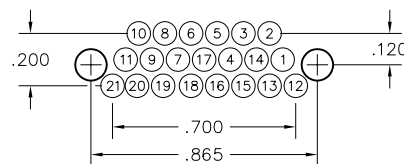
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



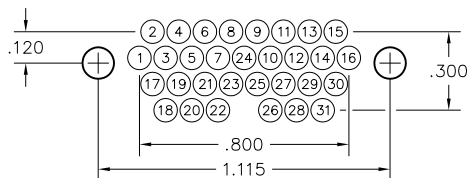
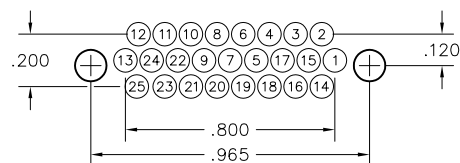
15 POSITION



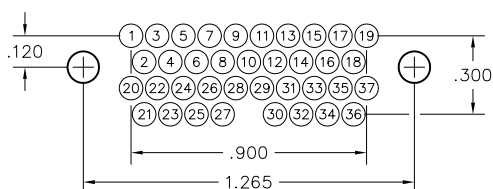
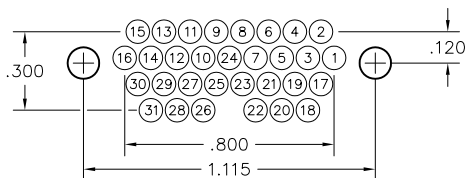
21 POSITION



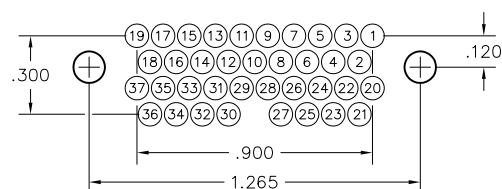
25 POSITION

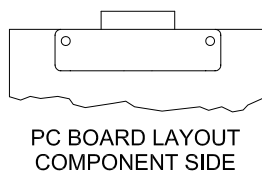
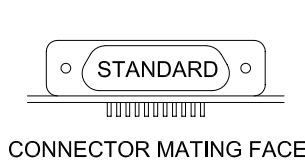


31 POSITION



37 POSITION

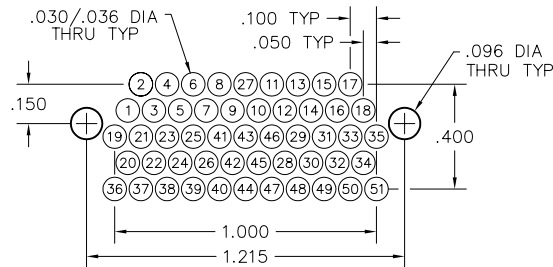




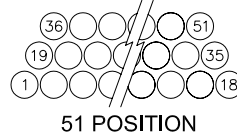
Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization

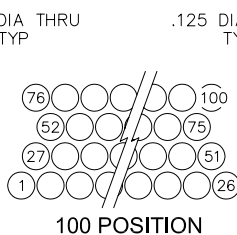
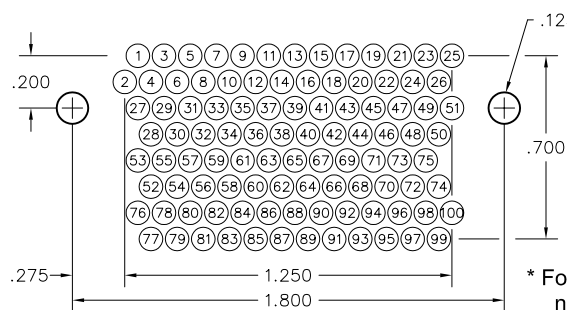
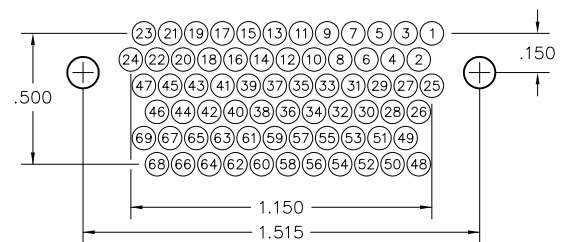
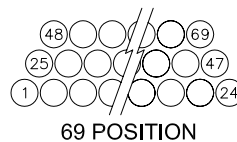
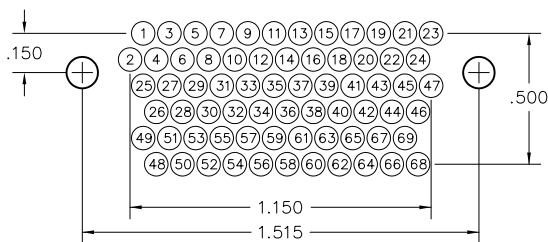
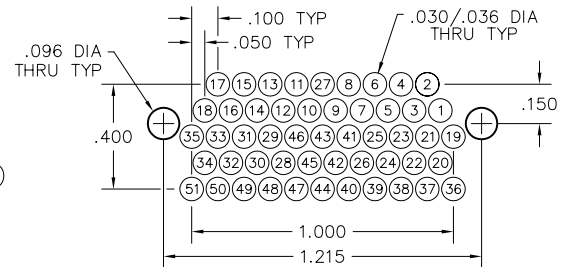
PLUG
PC BOARD LAYOUT
COMPONENT SIDE



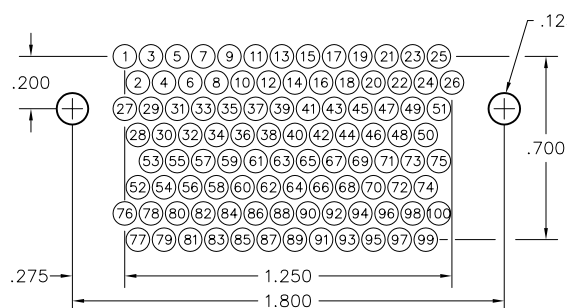
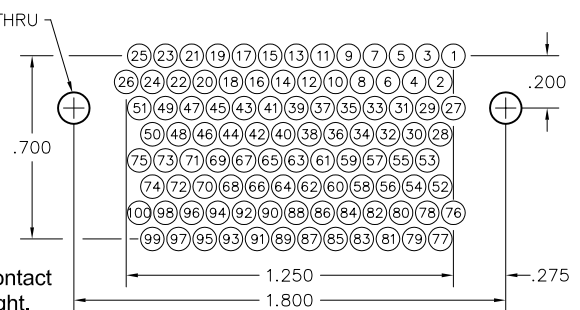
**CONNECTOR
MATING FACE*
(RECEPTACLE)**



RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



* For pin (plug) connectors, the contact numbers are reversed left to right.



Mil-Spec Footprint
For Mil-Spec footprint, use "Option" -94P



Recommended PC Board Layout

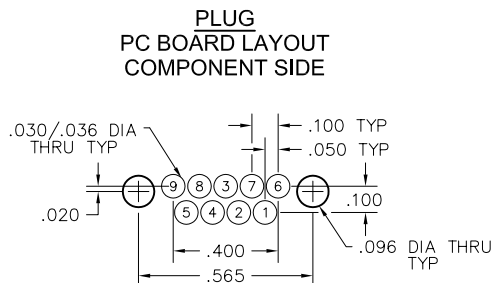
Right Angle, Narrow Footprint
Reverse Polarization



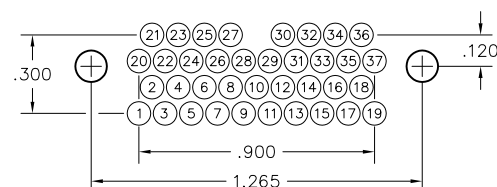
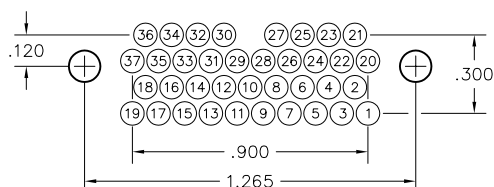
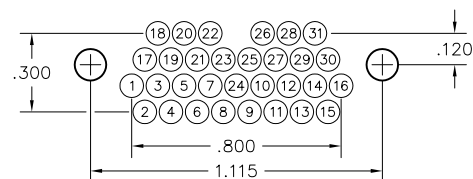
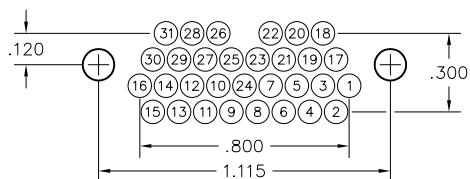
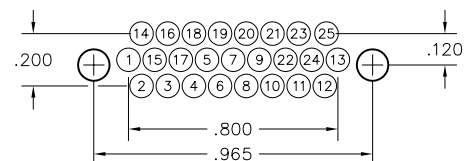
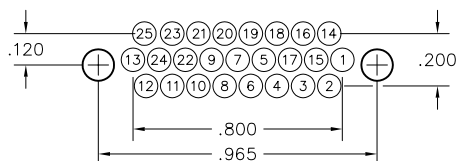
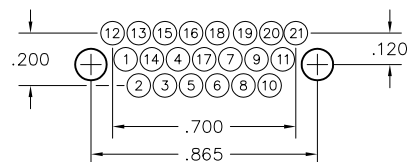
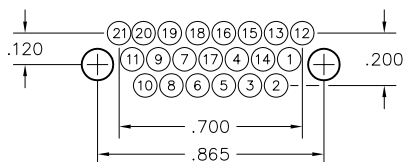
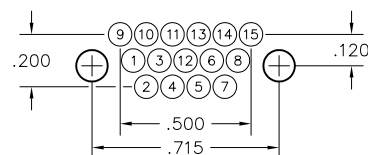
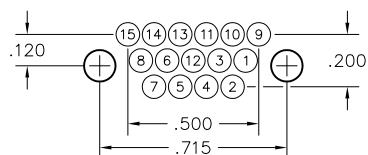
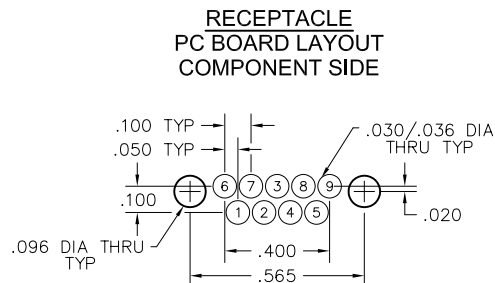
CONNECTOR MATING FACE

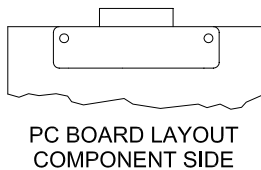
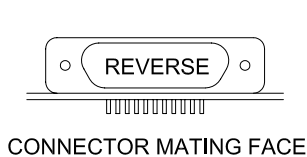


PC BOARD LAYOUT
COMPONENT SIDE



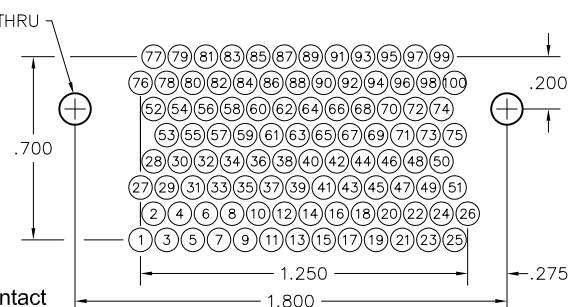
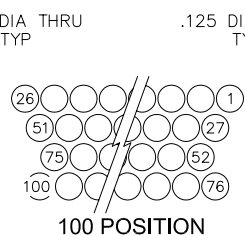
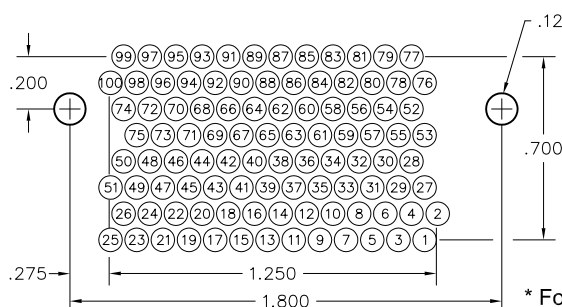
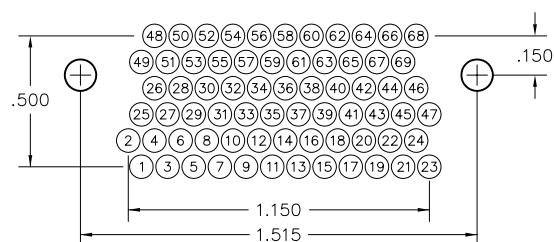
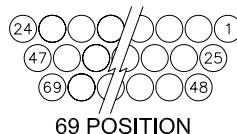
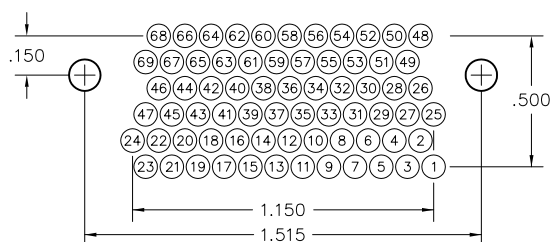
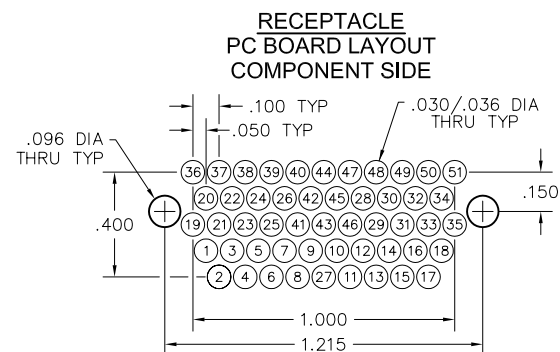
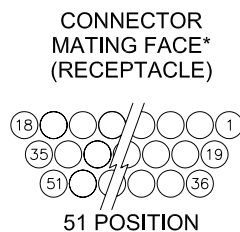
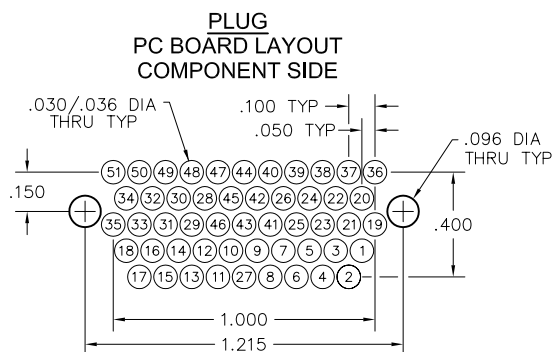
CONNECTOR
MATING FACE*
(RECEPTACLE)





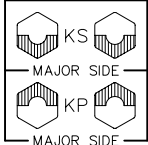
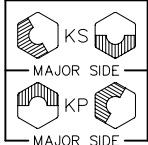
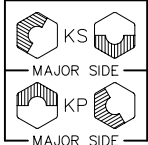
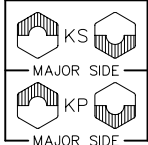
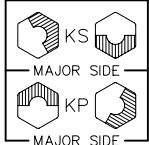
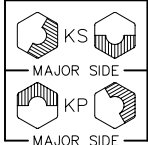
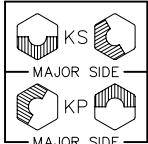
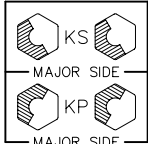
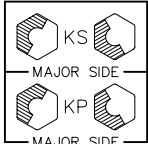
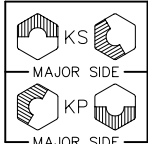
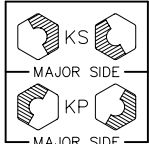
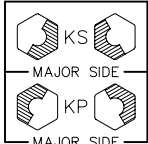
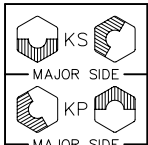
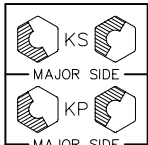
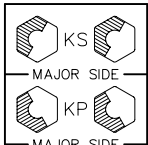
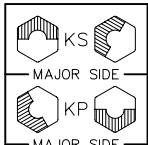
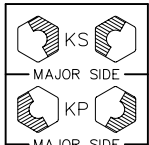
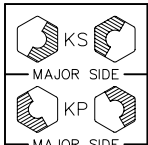
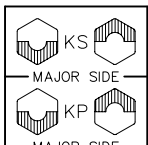
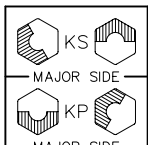
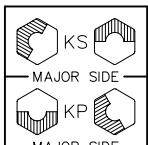
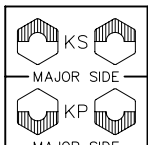
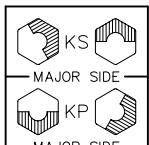
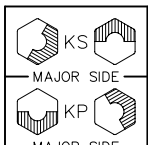
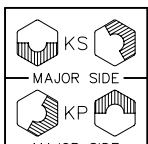
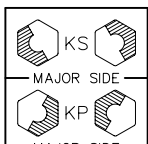
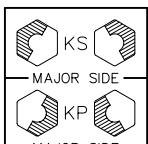
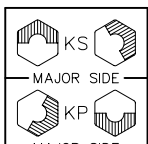
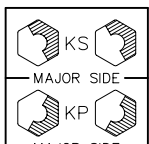
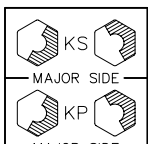
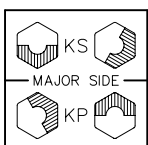
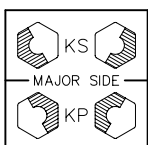
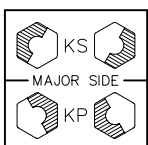
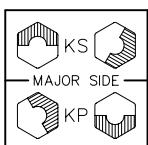
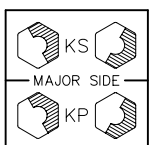
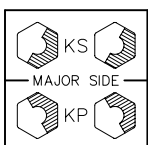
Recommended PC Board Layout

Right Angle, Narrow Footprint
Reverse Polarization



* For pin (plug) connectors, the contact numbers are reversed left to right.

POLARIZED KEYING HARDWARE

11		21		31		41		51		61	
12		22		32		42		52		62	
13		23		33		43		53		63	
14		24		34		44		54		64	
15		25		35		45		55		65	
16		26		36		46		56		66	

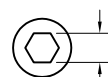
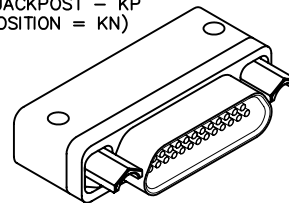
Select the appropriate two digit number above and include as the last two digits of the hardware code in the part number. (Keying hardware is factory installed and non-removable).

Example:

MM-213-025-161-99WA-KS11

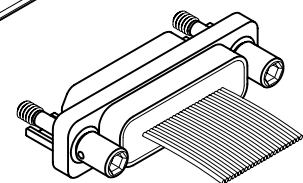
MK-263-025-435-990S-KP11

KEYING JACKPOST – KP
(100 POSITION = KN)



.079" HEX

HEX DETAIL - JACKSCREWS



KEYING JACKSCREW – KS
(100 POSITION = KJ)

-- Continued from previous page



REV B
CTMA029

"M" Series Connectors
MIL-10



Military Cross Reference Chart

-- Continued from previous page

M83513 / 13 (continued)

M83513 / 13-F02NT	MK-262-037-445-000S-0B7	M83513 / 13-F03CN	MK-263-037-455-000S-900	M83513 / 13-F03NT	MK-262-037-455-000S-0B7
M83513 / 13-F02NW	MK-262-037-445-220S-0B7	M83513 / 13-F03CP	MK-263-037-455-220S-900	M83513 / 13-F03NW	MK-262-037-455-220S-0B7
M83513 / 13-F02PN	MK-265-037-445-000S-900	M83513 / 13-F03CT	MK-263-037-455-000S-0B7	M83513 / 13-F03PN	MK-265-037-455-000S-900
M83513 / 13-F02PP	MK-265-037-445-220S-900	M83513 / 13-F03CW	MK-263-037-455-220S-0B7	M83513 / 13-F03PP	MK-265-037-455-220S-900
M83513 / 13-F02PT	MK-265-037-445-000S-0B7	M83513 / 13-F03NN	MK-262-037-455-000S-900	M83513 / 13-F03PT	MK-265-037-455-000S-0B7
M83513 / 13-F02PW	MK-265-037-445-220S-0B7	M83513 / 13-F03NP	MK-262-037-455-220S-900	M83513 / 13-F03PW	MK-265-037-455-220S-0B7

M83513 / 14

M83513 / 14-G01CN	MK-363-051-435-000S-900	M83513 / 14-G02CN	MK-363-051-445-000S-900	M83513 / 14-G03CN	MK-363-051-455-000S-900
M83513 / 14-G01CP	MK-363-051-435-220S-900	M83513 / 14-G02CP	MK-363-051-445-220S-900	M83513 / 14-G03CP	MK-363-051-455-220S-900
M83513 / 14-G01CT	MK-363-051-435-000S-0B7	M83513 / 14-G02CT	MK-363-051-445-000S-0B7	M83513 / 14-G03CT	MK-363-051-455-000S-0B7
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M83513 / 15

M83513 / 15-H01CN	MK-463-100-435-000S-900	M83513 / 15-H02CN	MK-463-100-445-000S-900	M83513 / 15-H03CN	MK-463-100-455-000S-900
M83513 / 15-H01CP	MK-463-100-435-620S-900	M83513 / 15-H02CP	MK-463-100-445-620S-900	M83513 / 15-H03CP	MK-463-100-455-620S-900
M83513 / 15-H01CT	MK-463-100-435-000S-0B7	M83513 / 15-H02CT	MK-463-100-445-000S-0B7	M83513 / 15-H03CT	MK-463-100-455-000S-0B7
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M83513 / 16

M83513 / 16-A01CN	MK-273-009-325-000R	M83513 / 16-A02NW	MK-272-009-335-220R-0B7	M83513 / 16-B01CN	MK-273-015-325-000R
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