



# Cable to Cable

.050"

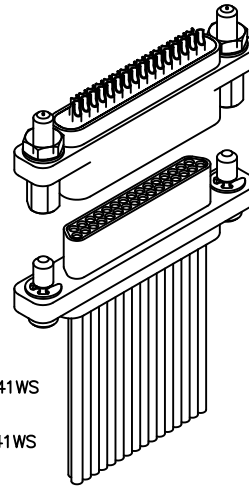
9 thru 51 Contacts

Low Profile Metal

**MQ**

Low Profile Plastic

**MP**



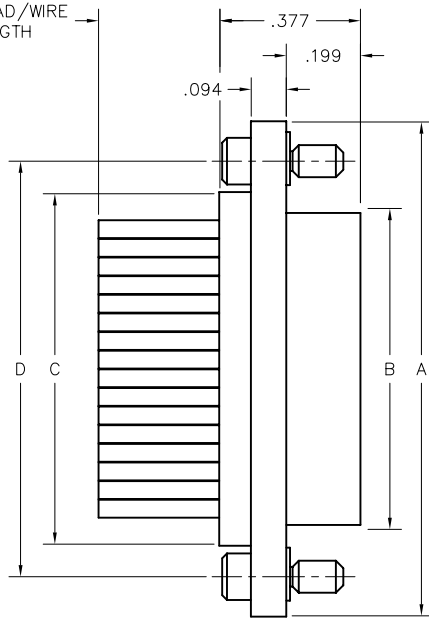
MQ-222-031-2A3-2200  
(METAL)

MP-221-031-2A3-2200  
(PLASTIC)

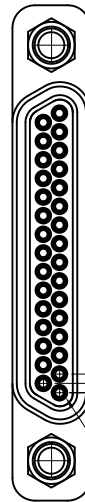
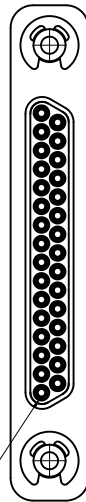
MQ-212-031-161-41WS  
(METAL)

MP-211-031-161-41WS  
(PLASTIC)

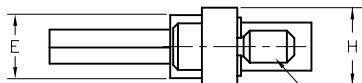
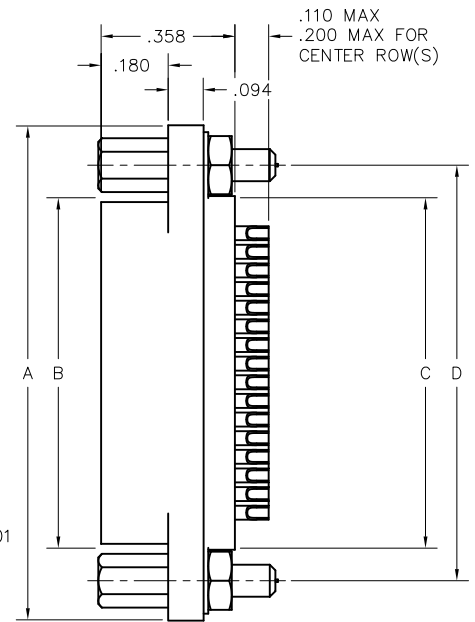
SEE LEAD/WIRE  
LENGTH



POSITION #1

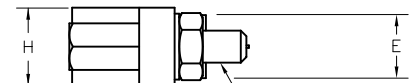


POSITION #1



PLUG

#2-56 JACKSCREW  
(2 PLCS)  
SEE PAGE MA-5



RECEPTACLE

#2-56 JACKPOST  
(2 PLCS)  
SEE PAGE MA-5

| DIMENSIONS |              |       |          |          |       |       |                  |      |                                  |
|------------|--------------|-------|----------|----------|-------|-------|------------------|------|----------------------------------|
| SIZE       | CONTACT ROWS | A     | B        |          | C     | D     | E                | H    | HARDWARE                         |
|            |              |       | PLUG MAX | RCPT MAX |       |       | POTTING WELL MAX |      |                                  |
| 9          | 2            | .778  | .292     | .378     | .398  | .565  | .173             | .208 | #2-56 UNC THD<br>(.092 DIA THRU) |
| 15         |              | .928  | .442     | .528     | .548  | .715  |                  |      |                                  |
| 21         |              | 1.078 | .592     | .678     | .698  | .865  |                  |      |                                  |
| 25         |              | 1.178 | .692     | .778     | .798  | .965  |                  |      |                                  |
| 31         |              | 1.328 | .842     | .928     | .948  | 1.115 |                  |      |                                  |
| 37         |              | 1.478 | .992     | 1.078    | 1.098 | 1.265 |                  |      |                                  |
| 51         | 3            | 1.428 | .942     | 1.028    | 1.048 | 1.215 | .220             | .250 |                                  |

**PLUG:** MQ- 212-031 - 161-41WS  
**RECEPTACLE:** MQ- 222-031 - 2G3-4500  
**PLUG:** MP- 211-031 - 161-41WS  
**RECEPTACLE:** MP- 221-031 - 2G3-4500  
 XX-XXX-XXX-XXX-XXXX-XXX

## PLUG

## RECEPTACLE

| SERIES                                         |                                            |
|------------------------------------------------|--------------------------------------------|
| MQ .050" Low Profile Metal I/O Connector       | MQ .050" Low Profile Metal I/O Connector   |
| MP .050" Low Profile Plastic I/O Connector     | MP .050" Low Profile Plastic I/O Connector |
| (MQ & MP mate with MP, MQ, MR, MS receptacles) |                                            |

| BODY                                                                                            |                                                                                                 |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 2 2-Row (Sizes 9 thru 37)                                                                       | 2 2-Row (Sizes 9 thru 37)                                                                       |
| 3 3-Row (Size 51)                                                                               | 3 3-Row (Size 51)                                                                               |
| BODY STYLE:                                                                                     | BODY STYLE:                                                                                     |
| 1 Plug, straight, with ears                                                                     | 2 Receptacle, straight, with ears                                                               |
| BODY MATERIAL:                                                                                  | BODY MATERIAL:                                                                                  |
| 1 Polyphenylene Sulfide (MN 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 <input checked="" type="checkbox"/> | 3 Polyphenylene Sulfide with electrodeposited cadmium shell <input checked="" type="checkbox"/> |
| 4 Polyphenylene Sulfide with hard anodized black shell                                          | 4 Polyphenylene Sulfide with hard anodized black shell                                          |

| SIZE                                  |                                       |
|---------------------------------------|---------------------------------------|
| XXX 009, 015, 021, 025, 031, 037, 051 | XXX 009, 015, 021, 025, 031, 037, 051 |

| CONTACTS                                                                          |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| TYPE CONTACTS/TERMINATIONS:                                                       | TYPE CONTACTS/TERMINATIONS:                                                       |
| 11 Pin, straight, 26 awg solder cup                                               | 21 Socket, straight, 26 awg solder cup                                            |
| 1A Pin, straight, 24 awg solder cup                                               | 2A Socket, straight, 24 awg solder cup                                            |
| 1D Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1                         | 2D Socket, straight, .109" Lead Length (.018 dia)                                 |
| 1E Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1                         | 2E Socket, straight, .125" Lead Length (.018 dia)                                 |
| 1F Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1                         | 2F Socket, straight, .140" Lead Length (.018 dia)                                 |
| 1G Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1                         | 2G Socket, straight, .150" Lead Length (.018 dia)                                 |
| 1H Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1                         | 2H Socket, straight, .156" Lead Length (.018 dia)                                 |
| 1J Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1                         | 2J Socket, straight, .172" Lead Length (.018 dia)                                 |
| 1K Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1                         | 2K Socket, straight, .187" Lead Length (.018 dia)                                 |
| 1L Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1                         | 2L Socket, straight, .250" Lead Length (.018 dia)                                 |
| 1M Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1                         | 2M Socket, straight, .375" Lead Length (.018 dia)                                 |
| 1N Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1                         | 2N Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1                      |
| 1P Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1                        | 2P Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1                      |
| 16 Pin, straight, crimped wire                                                    | 26 Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1                     |
| PLATING OPTIONS:                                                                  | PLATING OPTIONS:                                                                  |
| 1 50 μ" Au contacts (crimp wire)                                                  | 1 50 μ" Au contacts (crimp wire)                                                  |
| 3 50 μ" Au contacts (solder cup, pigtail)                                         | 3 50 μ" Au contacts (solder cup, pigtail)                                         |
| 5 50 μ" Au contacts; Sn/Pb alloy terminations <input checked="" type="checkbox"/> | 5 50 μ" Au contacts; Sn/Pb alloy terminations <input checked="" type="checkbox"/> |
| 7 50 μ" Au contacts; SAC305 terminations                                          | 7 50 μ" Au contacts; SAC305 terminations                                          |

| 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*)            |
| 42 Two long turning jackscrews, allen head, retaining ring (82*)       | 42 Two long turning jackscrews, allen head, retaining ring (82*)       |
| 43 Two turning jackscrews, slot head, retaining ring (83*)             | 43 Two turning jackscrews, slot head, retaining ring (83*)             |
| 44 Two long turning jackscrews, slot head, retaining ring (84*)        | 44 Two long turning jackscrews, slot head, retaining ring (84*)        |
| 45 Two turning jackscrews, allen head, captivated** (85*)              | 45 Two turning jackscrews, allen head, captivated** (85*)              |
| 99 Keying hardware, see options below. (Body material 2, 3 and 4 only) | 99 Keying hardware, see options below. (Body material 2, 3 and 4 only) |
| POLARIZATION / WIRING                                                  | POLARIZATION / WIRING                                                  |
| 00 None                                                                | 00 None                                                                |
| XX For wiring codes, see page MA-3 & MA-4                              | XX For wiring codes, see page MA-3 & MA-4                              |

| OPTIONS                                                       |                                                                                              |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| KSXX Two turning jackscrews. See page MA-6 for keying options | KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options |
| KPXX Two fixed jacknuts. See page MA-6 for keying options     | KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options     |

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

☒ = Option not RoHS compliant

NOTE 1 = The leads on these contacts are soft copper suitable for forming.



## Wire Codes

### NEMA HP3-EXBEB (Formerly M16878/4-24 TFE 7 strand)

|              | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| MIL-STD-681* | WA | WB  | WC  | UD  | UE  | WD  | UG  | UH  | UJ  | UK  | UL  | UM  | UN  | UP  | UQ   | UR   |
| WHITE        | WE | WF  | WG  | VD  | VE  | WH  | VG  | VH  | VJ  | VK  | VL  | VM  | VN  | VP  | VQ   | VR   |
| YELLOW       | WJ | WK  | WL  |     |     | WM  |     |     |     |     |     |     |     |     |      |      |

### NEMA HP3-EXBDB (Formerly M16878/4-26 TFE 7 strand)

|              | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| MIL-STD-681* | WN | WP  | WQ  | YD  | YE  | WR  | YG  | YH  | YJ  | YK  | YL  | YM  | YN  | YP  | YQ   | YR   |
| WHITE        | WS | WT  | WU  | ZD  | ZE  | WV  | ZG  | ZH  | ZJ  | ZK  | ZL  | ZM  | ZN  | ZP  | ZQ   | ZR   |
| YELLOW       | WW | WX  | WY  |     |     | WZ  |     |     |     |     |     |     |     |     |      |      |

### NEMA HP3-EXBCB (Formerly M16878/4-28 TFE 7 strand)

|              | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| MIL-STD-681* | XA | XB  | XC  | 1D  | 1E  | XD  | 1G  | 1H  | 1J  | 1K  | 1L  | 1M  | 1N  | 1P  | 1Q   | 1R   |
| WHITE        | XE | XF  | XG  | 2D  | 2E  | XH  | 2G  | 2H  | 2J  | 2K  | 2L  | 2M  | 2N  | 2P  | 2Q   | 2R   |
| YELLOW       | XJ | XK  | XL  |     |     | XM  |     |     |     |     |     |     |     |     |      |      |

### TWISTED PAIR per NEMA WC27500-XXRC2U00 (SAE AS22759/11)

|        | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 24 AWG | AA | AB  | AC  | AD  | AE  | AF  | AG  | AH  | AJ  | AK  | AL  | AM  | AN  | AP  | AQ   | AR   |
| 26 AWG | BA | BB  | BC  | BD  | BE  | BF  | BG  | BH  | BJ  | BK  | BL  | BM  | BN  | BP  | BQ   | BR   |

### TWISTED PAIR per NEMA WC27500-XXSC2U00 (SAE AS22759/33)\*\*\* ☒

|        | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| 24 AWG | JA | JB  | JC  | JD  | JE  | JF  | JG  | JH  | JJ  | JK  | JL  | JM  | JN  | JP  | JQ   | JR   |
| 26 AWG | KA | KB  | KC  | KD  | KE  | KF  | KG  | KH  | KJ  | KK  | KL  | KM  | KN  | KP  | KQ   | KR   |

For twisted pair wire connect charts, see page MA-9

Twisted pair wire not available on MA, MC or Hybrid connectors

\* = Connectors with more than 100 contacts will repeat color code after 100 colors.

\*\*\* = Per M83513, corrosion has been experienced on connectors that are pre-wired with 22759/33 and stored in sealed environments. Caution should be exercised when using this wire.

☒ = Option not RoHS compliant

## Wire Codes

### SAE AS22759/11-24

|              | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| M83513**     | 5A | 5B  | 5C  | 5D  | 5E  | 5F  | 5G  | 5H  | 5J  | 5K  | 5L  | 5M  | 5N  | 5P  | 5Q   | 5R   |
| MIL-STD-681* | CA | CB  | CC  | CD  | CE  | CF  | CG  | CH  | CJ  | CK  | CL  | CM  | CN  | CP  | CQ   | CR   |
| WHITE        | DA | DB  | DC  | DD  | DE  | DF  | DG  | DH  | DJ  | DK  | DL  | DM  | DN  | DP  | DQ   | DR   |

### SAE AS22759/11-26

|              | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|--------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| M83513**     | 6A | 6B  | V1  | 6D  | 6E  | V2  | 6G  | 6H  | 6J  | 6K  | 6L  | Y6  | 6N  | 6P  | 6Q   | 6R   |
| MIL-STD-681* | X3 | X4  | W3  | ED  | EE  | W4  | EG  | EH  | EJ  | EK  | EL  | EM  | EN  | EP  | EQ   | ER   |
| WHITE        | X1 | X2  | W1  | FD  | FE  | W2  | FG  | FH  | FJ  | FK  | FL  | Y5  | FN  | FP  | FQ   | FR   |

### SAE AS22759/33-24\*\*\* ☒

|          | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|----------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| M83513** | LA | LB  | LC  | LD  | LE  | LF  | LG  | LH  | LJ  | LK  | LL  | LM  | LN  | LP  | LQ   | LR   |
| WHITE    | MA | MB  | MC  | MD  | ME  | MF  | MG  | MH  | MJ  | MK  | ML  | MM  | MN  | MP  | MQ   | MR   |

### SAE AS22759/33-26\*\*\* ☒

|          | 6" | 12" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" | 84" | 96" | 108" | 120" |
|----------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| M83513** | NA | NB  | Y3  | ND  | NE  | Y4  | NG  | NH  | NJ  | NK  | NL  | Y8  | NN  | NP  | NQ   | NR   |
| WHITE    | PA | PB  | Y1  | PD  | PE  | Y2  | PG  | PH  | PJ  | PK  | PL  | Y7  | PN  | PP  | PQ   | PR   |

\* = Connectors with more than 100 contacts will repeat color code after 100 colors.

\*\* = Wire colors per M83513 are ten solid colors repeating.

\*\*\* = Per M83513, corrosion has been experienced on connectors that are pre-wired with 22759/33 and stored in sealed environments.

Caution should be exercised when using this wire.

☒ = Option not RoHS compliant

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