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Switchcraft, Inc. was established in 1946 to manufacture jacks, plugs and switches, mainly for the communications industry. The original plant was located on West Diversey Street in Chicago. The company moved to a larger facility at 1328 North Halsted Street in 1948 and in 1958, the operation moved to a 185,000 square foot facility located at 5555 North Elston Avenue, which is still the headquarters and the largest of three manufacturing locations for the corporation today.

In 1977, Switchcraft was bought by the Raytheon Corporation and it operated as an independent subsidiary in its Commercial division for twenty years. During this time, Switchcraft expanded its production capability to include vertical integration, for cost effective manufacturing in the United States. They also expanded into harsh environment connector products, which expanded the market growth of the company.

In 1997 Raytheon made a strategic decision to focus solely on the defense industry. As a result, they divested their interests in all of their commercial holdings. At that time Switchcraft was sold to company management and a private equity firm.

In 1999, Switchcraft acquired Conxall, a manufacturer of circular connectors and cable assemblies, in order to expand their offering of harsh environment connectivity products. They are located in a 32,000 square foot facility in Villa Park, IL. This strategic acquisition helped to position Switchcraft for expanded growth in the Industrial Marketplace.

In 2011, Switchcraft was acquired by HEICO Corporation and became part of their Electronic Technologies Group.

Switchcraft is a major supplier of harsh environment connectivity products to the Industrial market and the premier connectivity provider to the Pro-Audio & Broadcast Industries.

Please check our website for the most up-to-date product specifications.
Can’t find exactly what you are looking for in our standard product offering? Contact us to start creating your custom solution! A strong group of engineers and a vertically integrated manufacturing facility make Switchcraft and Conxall your logical choice for custom products. We can transform your product ideas into reality.

**ENGINEERING CAPABILITIES**

- Full staff of design engineers in Chicago and Villa Park, IL locations
- Full use of modeling and simulation software, for electronic and mechanical design
- Ability to provide rapid prototypes quickly after initial design concepts are completed
- Test lab and model shop on site for product development

**ENGINEERING TEST CAPABILITIES**

Testing Capabilities for Electrical Properties
- Insulation resistance
- Breakdown voltage
- Contact resistance
- Return losses
- Frequency response measurement

Mechanical Properties
- Force testing
- Life cycle testing
- Low level vibration

Environmental Testing
- Thermal cycling
- Salt spray
- Humidity vs. temperature testing
- NEMA 250 (6P) - IP 66/ 67/ 68

We manufacture many customized products. Some examples are:
- Panel connectors with flex circuits
- Wave soldering to panel mount connectors
- Custom assembly and wiring
- Custom mounted and wired product assemblies
- Wide selection of mold compounds for molded color products
- Assembled ends for non-Switchcraft and Conxall products
- Fully molded units with connectors encapsulated into the assembly
HARSH ENVIRONMENT

EN2 | MICRO-CON-X® | EN3® | MINI-CON-X® | SHIELDED MINI-CON-X® | MULTI-CON-X®
EN2

0.53\" [13 mm] OD 2-7 CONTACTS

WINGED CABLE END - PIN
MATES WITH PANEL MOUNT

RIBBED CABLE END - PIN
MATES WITH PANEL MOUNT

WINGED CABLE END - SOCKET
MATES WITH PANEL MOUNT

RIBBED CABLE END - SOCKET
MATES WITH PANEL MOUNT

PANEL MOUNT - PIN
MATES WITH CABLE END

PANEL MOUNT - SOCKET
MATES WITH CABLE END

Please check our website for the most up-to-date product specifications.

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SPECIFICATIONS

**Mechanical Specifications**
- **Life:** 600 insertion/withdrawal cycles minimum
- **Vibration:** Mil-Std 202G Method 201A
- **Hex Nut Torque:** 5-6 in/lb
- **Operating Forces:** 8 lb maximum insertion
- **Back Shell Type:** Threaded Handle
- **Conductor Sizes:**
  - #20 contacts accepts 20 through 26 AWG
  - #22 contacts accepts 20 through 26 AWG
  - #26 contacts accepts 26 through 30 AWG

**Electrical Specifications**
- **Voltage Rating:** 250 V AC/DC for 2 contact arrangement
- **Current Rating:** 125 V AC/DC for 3-7 contact arrangements
- **Insulation Resistance:** 1000 MΩ minimum
- **Contact Resistance:** 10 mΩ maximum

**Environmental Specifications**
- **Operating Temperature Limits:** -40°C to +85°C (-40°F to +185°F)
- **Moisture Resistance:** Mil-Std 202G Method 106G
- **Insulation Resistance:** Mil-Std 202G Method 302 Condition B
- **Thermal Shock:** Mil-Std 202G Method 107G
- **Salt Atmosphere (Corrosion):** Mil-Std 202G Method 101E Condition B
- **Weathertight Ratings:** IP16, IP18, IP66, IP67, IP68 per IEC60529
  - NEMA 250 (6P), CFR 46 Part 110.20

**Material Specifications**
- **Connector Housing:** Thermoplastic, Black
- **Hex Nut:** Thermoplastic, Black
- **Coupling Ring:** Thermoplastic, Black
- **Cable Clamp:** Thermoplastic, Black
- **Handle (Back-Shell):** Thermoplastic, Black
- **Insulator:** Elastomer, Black
- **Seal Grommet:** Elastomer, Black
- **Contacts:** Copper Alloy, Plated

Consult factory for optional colors and materials

NOTE: Seal grommet provides an integrated O-ring seal for the connector assembly instead of a separate O-ring.
All dimensions are for reference only. Units shown: in[mm].
Consult factory for Cable to Cable (Inline) type connectors.
MOLDED CABLE END ASSEMBLY
CABLE END - SOCKET
MATES WITH PANEL MOUNT AND CABLE TO CABLE
CABLE END - PIN
MATES WITH PANEL MOUNT AND CABLE TO CABLE
CABLE TO CABLE / INLINE - SOCKET
MATES WITH CABLE END
PANEL MOUNT - PIN
MATES WITH CABLE END
PANEL MOUNT - SOCKET
MATES WITH CABLE END
DUST CAP
P/N - 16295
IP RATED LOCKING CAP
P/N-16295P (2-3 Contacts)
MOLDED CABLE TO CABLE ASSEMBLY
MOLDED RIGHT ANGLE CABLE ASSEMBLY

MICRO-CON-X®
0.53" [13mm] OD 2-7 CONTACTS

Please check our website for the most up-to-date product specifications.
**SPECIFICATIONS**

**Mechanical Specifications**
- **Life:** 300 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 9 in-lb max tightening torque.
- **Coupling Locking Style:** Bayonet with ribbed coupling nut (winged coupling nut available) P/N 16482
- **Backshell Style:** Non-removable snap lock
- **Conductor Sizes:**
  - #20 accepts 20 through 24 AWG
  - #22 contacts accepts 22 through 24 AWG
  - #26 contacts accepts 24 through 26 AWG

**Electrical Specifications**
- **Voltage Rating:** 600V AC/DC
- **Current Rating:** 7.5 A – max (See page 107 for Electrical Current Rating Chart)

**Environmental Specifications**
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 300 Hr salt spray when mated
- **Weathertight:** IP67 at the face, when mated

**Material Specifications**
- **Backshell:** Thermoplastic, UL 94HB, Black
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Thermoplastic, UL 94HB, Black
- **Gasket:** Elastomer, Black
- **Grommet / Strain Relief:** Thermoplastic, UL 94HB, Black
- **Hex Nut:** Elastomer, Black
- **O-Ring:** Thermoplastic, UL 94HB, Black
- **Shell:** Elastomer, Black
- **Optional Dust Cap:** Elastomer, Black

**Molded Cable Assemblies**
- **Weathertight:** NEMA 6P, 13: IEC IP67

**Certifications**
- UL File E150822
- CSA File 181200
- Not for current interruption
- RoHS compliant
- REACH compliant

**Options**
- **UV Rating:** F1 available
- **Flame Rating:** UL 94-HB; UL 94V-0 available

Consult factory for optional colors and materials.
**FIELD INSTALLABLE KITS**

16XXX-XXG-3XX
FIELD INSTALLABLE
CABLE CONNECTOR
BACKSHELL TYPE 3-SHORT
*2 & 3 POSITION ONLY*

18XXX-XXG-3XX
FIELD INSTALLABLE
CABLE TO CABLE CONNECTOR
BACKSHELL TYPE 3-SHORT
*2 & 3 POSITION ONLY*

16XXX-XXG-5XX
FIELD INSTALLABLE
CABLE CONNECTOR
BACKSHELL TYPE 5-LONG

18XXX-XXG-5XX
FIELD INSTALLABLE
CABLE TO CABLE CONNECTOR
BACKSHELL TYPE 5-LONG

**PANEL MOUNT ASSEMBLY KITS**

17X80-XXG-3XX
PANEL MOUNT CONNECTOR
CRIMP

17X82-XXG-3XX
PANEL MOUNT CONNECTOR
SOLDER CUP

17X8X-XXG-3XX
PANEL MOUNT CONNECTOR
PC TAIL

*X, Y, Z - Consult Factory. All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
Please check our website for the most up-to-date product specifications.

All dimensions are for reference only. Units shown: in[mm].
CUSTOM MOLDED CABLE ASSEMBLIES

16XXX-XXG
CABLE CONNECTOR
STRAIGHT OVERMOLDED

16XXX-XXG
CABLE CONNECTOR
RIGHT ANGLE OVERMOLDED

18XXX-XXG
CABLE TO CABLE CONNECTOR
STRAIGHT OVERMOLDED

All dimensions are for reference only. Units shown: in[mm].
Please check our website for the most up-to-date product specifications. *Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.*
EN3®

0.71" (18mm) OD 2-18 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE END - PIN
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE TO CABLE / INLINE - PIN
MATES WITH CABLE END

PANEL MOUNT - PIN
MATES WITH CABLE END

PANEL MOUNT - SOCKET RIGHT ANGLE
MATES WITH CABLE END

PANEL MOUNT - RIGHT ANGLE PCB
MATES WITH CABLE END

QUICK DISCONNECT CABLE END

MOLDED CABLE END ASSEMBLY

MOLDED RIGHT ANGLE ASSEMBLY

DUST CAP FOR CABLE END
P/N - EN3CAPC

EN3 CAP
P/N - EN3CAP

IP RATED LOCKING CAP
P/N - EN3IPCAPX

Please check our website for the most up-to-date product specifications.
**SPECIFICATIONS**

**Mechanical Specifications**
- **Life:** 600 insertion / withdrawal cycles minimum
- **Vibration:** Mil-Std 202 Method 201
- **Shock:** Mil-Std 202 Method 213B, condition K
- **Hex Nut Torque:** All series hex nut to withstand 8-10 in-lb tightening torque.
- **Coupling Locking Style:** Bayonet with ribbed coupling nut (winged coupling nut available)
- **Back Shell Style:** Boot
- **Conductor Sizes:**
  - #16 contacts accepts 16 through 18 AWG
  - #20 contacts accepts 20 through 22 AWG
  - #26 contacts accepts 26 through 28 AWG

**Electrical Specifications**
- **Voltage Rating:** 250 V AC/DC
- **Current Rating:** See current rating table on page 109
- **Insulation Resistance:** 100 MΩ min
- **Contact Resistance:** 20 mΩ max

**Environmental Specifications**
- **Operating Temperature Rating:** -40°C to +65°C (-40°F to +149°F)
- **Moisture Resistance:** Mil-Std 202 Method 106F
- **Insulation Resistance:** Mil-Std 202 Method 302 condition B
- **Thermal Shock:** Mil-Std 202 Method 107G
- **Salt Atmosphere (Corrosion):** Mil-Std 202 Method 101D condition B
- **Weathertight:** IEC 60529 IP16/IP18
  - IEC 60529 IP66/IP68
  - IEC 60529 IP68
  - NEMA 250 (6P)
  - CFR 46 Part 110.20

**Material Specifications**
- **Panel connector shells & locking disk:** Thermoplastic UL94V-0
- **Connector shell interior:** Elastomeric, Black UL 94HB
- **Contacts:** Copper Alloy, Gold over Nickel Plate

**Molded Cable Assemblies**
- **Weathertight:** IEC 60529 IP66/IP68
  - IEC 60529 IP68
  - NEMA 250 (6P)
  - CFR 46 Part 110.20

**Certifications:**
- UL File E319753; 2-8 pin cord, in-line and panel only

**Consult factory for optional colors and materials**

**NOTE:** Seal grommet provides an integrated O-ring seal for the connector assembly instead of a separate O-ring.
Please check our website for the most up-to-date product specifications.

All dimensions are for reference only. Units shown: in [mm].
2-18 POSITION CORD CONNECTORS

Rear View (Wiring Side)

9-18 Position identification numbers denote position used in 18 position layout

2 POSITION
#16 PIN & SOCKET CONTACT

3 POSITION
#16 PIN & SOCKET CONTACT

4 POSITION
#20 PIN & SOCKET CONTACT

5 POSITION
#20 PIN & SOCKET CONTACT

6 POSITION
#20 PIN & SOCKET CONTACT

7 POSITION
#20 SOCKET CONTACT

8 POSITION
#20 SOCKET CONTACT

9 POSITION
#26 PIN & SOCKET CONTACT

10 POSITION
#26 PIN & SOCKET CONTACT

11 POSITION
#26 PIN & SOCKET CONTACT

12 POSITION
#26 PIN & SOCKET CONTACT

13 POSITION
#26 PIN & SOCKET CONTACT

14 POSITION
#26 PIN & SOCKET CONTACT

15 POSITION
#26 PIN & SOCKET CONTACT

16 POSITION
#26 PIN & SOCKET CONTACT

17 POSITION
#26 PIN & SOCKET CONTACT

18 POSITION
#26 PIN & SOCKET CONTACT

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
EN3® PANEL CONNECTORS

EN3 SERIES 2 - 8 POSITION
STANDARD SOLDER CUP
ALL POSITIONS FACE RADially OUTWARD
EN3P/M2XK SHOWN

EN3 SERIES 9 - 18 POSITION
STANDARD SOLDER CUP
ALL POSITIONS FACE UPWARD
EN3P/M26XK SHOWN

OPTION “C”
EN3 SERIES 2 - 8 POSITION
CRIMP TERMINALS
EN3P2MKX SHOWN

OPTION “C”
EN3 SERIES 9 - 18 POSITION
CRIMP TERMINALS
EN3P/M26CKX SHOWN

OPTION “P”
EN3 SERIES 2 - 8 POSITION
PC TERMINALS
EN3P2MPX SHOWN

OPTION “P”
EN3 SERIES 9 - 18 POSITION
PC TERMINALS
EN3P/M26PX SHOWN

All dimensions are for reference only. Units shown: in[mm].

RECOMMENDED PANEL CUT-OUT
0.188 MAX PANEL THICKNESS ±0.0.003"[0.08mm]

MOUNTING NUT
8 - 10 INCH-LBS MAX TORQUE
EN3® PANEL CONNECTORS PCB LAYOUT COMPONENT SIDE

All dimensions are for reference only. Units shown: in[mm].
2-18 PIN PANEL CONNECTORS
Front View (Mating End)

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
2-18 PANEL CONNECTORS
Rear View (Wiring Side)
9-18 position identification numbers
denote position used in 18 position layout

All dimensions are for reference only. Units shown: in[mm].
Please check our website for the most up-to-date product specifications.
2-18 POSITION INLINE CONNECTORS

Rear View (Wiring Side)

9-18 Position identification numbers denote position used in 18 position layout

2 POSITION #16 PIN & SOCKET CONTACT

3 POSITION #16 PIN & SOCKET CONTACT

4 POSITION #20 PIN & SOCKET CONTACT

5 POSITION #20 PIN & SOCKET CONTACT

6 POSITION #20 PIN & SOCKET CONTACT

7 POSITION #20 PIN CONTACT

8 POSITION #20 PIN CONTACT

9 POSITION #26 PIN & SOCKET CONTACT

10 POSITION #26 PIN & SOCKET CONTACT

11 POSITION #26 PIN & SOCKET CONTACT

12 POSITION #26 PIN & SOCKET CONTACT

13 POSITION #26 PIN & SOCKET CONTACT

14 POSITION #26 PIN & SOCKET CONTACT

15 POSITION #26 PIN & SOCKET CONTACT

16 POSITION #26 PIN & SOCKET CONTACT

17 POSITION #26 PIN & SOCKET CONTACT

18 POSITION #26 PIN & SOCKET CONTACT

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
PART NUMBER TO ORDER - EN3®

EN3

CONNECTOR TYPE:
C - Cord
P - Panel
L - In-Line

# OF CONTACTS:
2-3 for #16
2-8 for #20
9-18 for #26

GENDER:
M - Male
F - Female

CONTACT SIZE:
16 - 16 AWG
Leave blank for 20 AWG
26 - 26 AWG

CABLE CLAMP OPTION:
L - for 0.230” to 0.380”
cable nom. O.D. and
0.750” long stripping.
Leave blank for 0.160” to 0.265”
cable nom. O.D. and
0.380” long stripping.

COUPLING NUT OPTION:
W - Winged Coupling Nut
Cord Connector Only
Leave blank for standard nut

PACKAGING OPTIONS:
K - Kit (one unit per bag)
Leave blank for Bulk

CONTACT STYLE:
C - Crimp
P - PC tail (Panel connectors only)
S - Staggered Solder Cup*
Leave blank for Straight Solder Cup

X - RoHS Compliant

Notes:
7 and 8 pin not available in male Cord connector
7 and 8 pin not available in female Panel or In-Line connector

*Available only for products with 9-18 contacts

Please check our website for the most up-to-date product specifications.
EN3® RIGHT ANGLE 2-8 POSITION MOLDED CONNECTORS

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.

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Please check our website for the most up-to-date product specifications.
EN3® RIGHT ANGLE 2-8 POSITION CONNECTORS

All dimensions are for reference only. Units shown: in[mm].
EN3® RIGHT ANGLE PC BOARD CONNECTORS

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
All dimensions are for reference only. Units shown: in[mm].
PART NUMBER TO ORDER - RIGHT ANGLE EN3® PANEL MOUNTS

EN3® P RAPC

Connector Type: [ ]
P - Panel

# of Contacts:
2 - 8 #20
9 - 18 #26

Gender: [ ]
M - Male
F - Female

PCB Style:
BN - Narrow PCB
BW - Wide PCB
BLANK - Molded

EN3 Style:
RAPC - Right Angle PC

Notes:
7 and 8 pin not available in female Panel connector
CUSTOM MOLDED CABLE ASSEMBLIES

EN3 SERIES COMPACT OVERMOLD CORD CONNECTOR

EN3 SERIES COMPACT OVERMOLD INLINE CONNECTOR

EN3 SERIES STRAIGHT OVERMOLD CORD CONNECTOR WITH FLEX RELIEF

EN3 SERIES STRAIGHT OVERMOLD INLINE CONNECTOR WITH FLEX RELIEF

EN3 SERIES STRAIGHT OVERMOLD CORD CONNECTOR WITHOUT FLEX RELIEF

EN3 SERIES STRAIGHT OVERMOLD INLINE CONNECTOR WITHOUT FLEX RELIEF

EN3 SERIES QUICK CONNECT OVERMOLD CORD CONNECTOR WITH FLEX RELIEF

EN3 SERIES QUICK CONNECT OVERMOLD INLINE CONNECTOR WITH FLEX RELIEF

EN3 SERIES QUICK CONNECT OVERMOLD CORD CONNECTOR WITHOUT FLEX RELIEF

EN3 SERIES QUICK CONNECT OVERMOLD INLINE CONNECTOR WITHOUT FLEX RELIEF

All dimensions are for reference only. Units shown: in[mm].

0.71” [18MM] OD 2–18 CONTACTS
CUSTOM MOLDED CABLE ASSEMBLIES

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
## SPECIFICATIONS

### Mechanical Specifications
- **Life:** 300 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 10 in-lb max tightening torque.
- **Coupling Locking Style:** Bayonet with ribbed coupling nut (winged coupling nut available) P/N 6482
- **Backshell Style:** Removable twist lock
- **Conductor Size:**
  - #16 contacts accepts 16 through 18 AWG
  - #20 contacts accepts 20 through 24 AWG

### Electrical Specifications
- **Voltage Rating:** 600 V AC/DC
- **Current Rating:** 13.0 A – max (See page 107 for Electrical Current Rating Chart)

### Environmental Specifications
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 300 Hr salt spray when mated
- **Weathertight:** IP67 when mated

### Material Specifications
- **Backshell:** Thermoplastic, UL 94HB, Black
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Thermoplastic, UL 94HB, Black
- **Gasket:** Elastomer, Black
- **Grommet / Strain Relief:** Thermoplastic, UL 94HB, Black
- **Hex Nut:** Elastomer, Black
- **O-Ring:** Thermoplastic, UL 94HB, Black
- **Shell:** Thermoplastic, UL 94HB, Black
- **Optional Dust Cap:** Elastomer, Black

### Molded Cable Assemblies
- **Weathertight:** NEMA 6P, 13: IEC IP67

### Certifications
- UL File E150822
- CSA File 181200
- Not for current interruption
- RoHS compliant
- REACH compliant

### Options
- **UV Rating:** F1 available
- **Flame Rating:** UL 94V-0 available

Consult factory for optional colors and materials.

---

Please check our website for the most up-to-date product specifications.
**MINI-CON-X®**

**0.71” [18mm] OD 2-8 CONTACTS**

**FIELD INSTALLABLE KITS**

![Image of field installable kits with dimensions and product descriptions](image)

6XXX-XXG-3XX
FIELD INSTALLABLE CABLE CONNECTOR
TWIST LOCK BACKSHELL
TYPE 3-SHORT

8XXX-XXG-3XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR
TWIST LOCK BACKSHELL
TYPE 3-SHORT

8XXX-XXG-5XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR
TWIST LOCK BACKSHELL
TYPE 5-LONG

**PANEL MOUNT ASSEMBLY KITS**

![Image of panel mount assembly kits with dimensions and product descriptions](image)

7X80-XXG-3XX
PANEL MOUNT CONNECTOR
CRIMP

7X82-XXG-3XX
PANEL MOUNT CONNECTOR
SOLDER CUP

7XXX-XXG-3XX
PANEL MOUNT CONNECTOR
PC TAIL

*X, Y, Z - Consult Factory. All dimensions are for reference only. Units shown: in[mm].
MINI-CON-X®

0.71” [18MM] OD  2-8 CONTACTS

PANEL MOUNT / CABLE TO CABLE CONNECTORS
Front View | Wire View

CABLE CONNECTORS
Front View | Wire View

All dimensions are for reference only. Units shown: in[mm].
CUSTOM MOLDED CABLE ASSEMBLIES

6XXX-XXG
CUSTOM CABLE CONNECTOR
STRAIGHT OVERMOLDED

8XXX-XXG
CUSTOM CABLE TO CABLE CONNECTOR
STRAIGHT OVERMOLDED

6XXX-XXG
CUSTOM CABLE CONNECTOR
RIGHT ANGLE OVERMOLDED

Note: Mini-Con-X® can be overmolded onto an extended well panel mount. Straight version only.
- Available in: 2#20, 4#20 and 6#20 female
- Available in: 4#20, 6#20 and 7#20 male

All dimensions are for reference only. Units shown: in[mm].
PART NUMBER TO ORDER

**Connector Type**
- 6 - Cable End
- 7 - Panel mount
- 8 - Cable to Cable

**Contact Size**
- 2 - #20
- 3 - #16

**Contact Style**
- **8X** - “0” - Crimp
  - “1” - #20 PC Tail Short*
  - “2” - Solder
- **9X** - Extended PC Tail
  - “1” - #20 PC Tail Medium*
  - “2” - #20 PC Tail Long*

**Special Features**
- “W” - Winged Coupling Nut

**Backshell Style** - Snap Lock
with Grommet (Cable O.D. Range)
- **3XX** - Short Backshell (2&3 Contacts Only)
  - “11” - 0.09” - 0.14”
  - “15” - 0.15” - 0.17”
  - “18” - 0.18” - 0.20”
  - “21” - 0.21” - 0.23”
- **5XX** - Long Backshell (2-7 Contacts)
  - “13” - 0.13” - 0.15”
  - “16” - 0.16” - 0.18”
  - “19” - 0.19” - 0.21”
  - “22” - 0.22” - 0.25”

**Panel Mount**
with Hex Nut & Gasket
- **3ES** - with Epoxy
- **300** - without Epoxy

**Gold Plated**

**No. & Type of Contacts**
- Pin or Socket

---

*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.*
SHIELDED MINI-CON-X®

0.760" [19 mm] OD  2–8 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT

CABLE END - PIN
MATES WITH PANEL MOUNT

PANEL MOUNT - PIN
MATES WITH CABLE END

PANEL MOUNT - SOCKET
MATES WITH CABLE END

MOLDED CABLE END ASSEMBLY

MOLDED RIGHT ANGLE CABLE ASSEMBLY

Please check our website for the most up-to-date product specifications.
**SPECIFICATIONS**

**Mechanical Specifications**
- **Life:** 400 insertion / withdrawal cycles minimum
- **Vibration:** MIL-STD 202G Method 201A
- **Hex Nut Torque:** 10-12 in-lb max tightening torque.
- **Coupling Locking Style:** Threaded Coupling Ring
- **Backshell Style:** Threaded

**Electrical Specifications**
- **Voltage Rating:** 600 VAC/DC
- **Current Rating:** 13.0 A – max (See page 107 for Electrical Current Rating Chart)
  - 2 through 6 #16 contacts accepts 16 AWG
  - 2 through 8 #20 contacts accepts 20 AWG

**Environmental Specifications**
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** Method 106F, Mil-Std 202
- **Weathertight:** IP66 / IP68 NEMA 250 (6P) (when mated)

**Material Specifications**
- **Backshell & Strap:** Thermoplastic
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Nickel Plated Copper Alloy
- **Inserts:** Thermoplastic
- **Grommet / Strain Relief:** Elastomer
- **O-Ring:** Elastomer
- **Shell:** Nickel Plated Copper Alloy
- **Cable Housing:** Nickel Plated Copper Alloy
- **Screws:** Stainless Steel

**Molded Cable Assemblies**
- **Weathertight:** IP66 / IP68 NEMA 250 (6P) (when mated)

**Certifications**
- Not for current interruption
- RoHS compliant

**Options**
- Flame Rating: UL 94HB
SHIELDED MINI-CON-X® 0.760”[19MM] OD 2–8 CONTACTS

PANEL MOUNT ASSEMBLY KITS

FIELD INSTALLABLE KITS

CUSTOM MOLDED CABLE ASSEMBLIES

All dimensions are for reference only. Units shown: in[mm].
PANEL MOUNT CONNECTOR
Front View

PANEL MOUNT CONNECTOR
Wire View

All dimensions are for reference only. Units shown: in[mm].
CABLE CONNECTORS

Front View

- 2 POSITION
  - #16 PIN & SOCKET CONTACT
- 3 POSITION
  - #16 PIN & SOCKET CONTACT
- 4 POSITION
  - #16 PIN & SOCKET CONTACT
- 5 POSITION
  - #16 PIN & SOCKET CONTACT
- 6 POSITION
  - #16 PIN & SOCKET CONTACT
- 2 POSITION
  - #20 PIN & SOCKET CONTACT
- 3 POSITION
  - #20 PIN & SOCKET CONTACT
- 4 POSITION
  - #20 PIN & SOCKET CONTACT
- 5 POSITION
  - #20 PIN & SOCKET CONTACT
- 6 POSITION
  - #20 PIN & SOCKET CONTACT
- 6 POSITION
  - #20 PIN & SOCKET CONTACT
- 7 POSITION
  - #20 PIN & SOCKET CONTACT
- 8 POSITION
  - #20 PIN & SOCKET CONTACT
- 5 POSITION
  - #20 PIN & SOCKET CONTACT ALTERNATE
- 6 POSITION
  - #20 PIN & SOCKET CONTACT ALTERNATE

CABLE CONNECTORS

Wire View

- 2 POSITION
  - #16 PIN & SOCKET CONTACT
- 3 POSITION
  - #16 PIN & SOCKET CONTACT
- 4 POSITION
  - #16 PIN & SOCKET CONTACT
- 5 POSITION
  - #16 PIN & SOCKET CONTACT
- 6 POSITION
  - #16 PIN & SOCKET CONTACT
- 2 POSITION
  - #20 PIN & SOCKET CONTACT
- 3 POSITION
  - #20 PIN & SOCKET CONTACT
- 4 POSITION
  - #20 PIN & SOCKET CONTACT
- 5 POSITION
  - #20 PIN & SOCKET CONTACT
- 6 POSITION
  - #20 PIN & SOCKET CONTACT
- 6 POSITION
  - #20 PIN & SOCKET CONTACT
- 7 POSITION
  - #20 PIN & SOCKET CONTACT
- 8 POSITION
  - #20 PIN & SOCKET CONTACT
- 5 POSITION
  - #20 PIN & SOCKET CONTACT ALTERNATE
- 6 POSITION
  - #20 PIN & SOCKET CONTACT ALTERNATE

All dimensions are for reference only. Units shown: in[mm].
咨询工厂获取带有不同5-20 AWG和6-20 AWG接触安排的连接器。
MULTI-CON-X®

0.875”[22mm] OD  2-12 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE END - PIN
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE TO CABLE / INLINE - SOCKET
MATES WITH CABLE END

PANEL MOUNT - PIN
MATES WITH CABLE END

PANEL MOUNT - SOCKET
MATES WITH CABLE END

DUST CAP
P/N - 4295

MOLDED CABLE END ASSEMBLY

MOLDED CABLE TO CABLE ASSEMBLY

MOLDED RIGHT ANGLE CABLE ASSEMBLY

Please check our website for the most up-to-date product specifications.
**SPECIFICATIONS**

**Mechanical Specifications**
- **Life:** 300 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 10 in-lb tightening torque.
- **Coupling Locking Style:** Bayonet with ribbed coupling nut (winged coupling nut available) P/N 4482
- **Backshell Style:** Threaded
- **Conductor Size:**
  - #12 contacts accepts 12 through 14 AWG
  - #16 contacts accepts 16 through 18 AWG
  - #20 contacts accepts 20 through 24 AWG

**Electrical Specifications**
- **Voltage Rating:** 600 VAC/DC
- **Current Rating:** 17.0 A – max (See page 107 for Electrical Current Rating Chart)

**Environmental Specifications**
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 300 Hr salt spray when mated
- **Weathertight:** IP67 when mated

**Material Specifications**
- **Backshell:** Thermoplastic, UL 94HB, Black
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Thermoplastic, UL 94HB, Black
- **Gasket:** Elastomer, Black
- **Grommet / Strain Relief:** Thermoplastic, UL 94HB, Black
- **Hex Nut:** Elastomer, Black
- **O-Ring:** Thermoplastic, UL 94HB, Black
- **Shell:** Thermoplastic, UL 94HB, Black
- **Optional Dust Cap:** Elastomer, Black

**Molded Cable Assemblies**
- **Weathertight:** NEMA 6P, 13: IEC IP67

**Certifications**
- UL File E150822
- CSA File 181200
- Not for current interruption
- RoHS compliant
- REACH compliant

**Options**
- **UV Rating:** F1 available
- **Flame Rating:** UL 94V-0 available

*Consult factory for optional colors and materials*
MULTI-CON-X®
0.875"[22mm] OD  2-12 CONTACTS

FIELD INSTALLABLE KITS

SX80-XXG-3XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR THREADED BACKSHELL TYPE 3-SHORT (CRIMP TYPE CONTACT ONLY)

SX82-XXG-3XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR THREADED BACKSHELL TYPE 3-LONG (SOLDER TYPE CONTACT ONLY)

SX80-XXG-3XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR THREADED BACKSHELL TYPE 3-SHORT (CRIMP TYPE CONTACT ONLY)

SX82-XXG-3XX
FIELD INSTALLABLE CABLE TO CABLE CONNECTOR THREADED BACKSHELL TYPE 3-LONG (SOLDER TYPE CONTACT ONLY)

PANEL MOUNT ASSEMBLY KITS

4X80-XXG-3XX
PANEL MOUNT CONNECTOR CRIMP

4X82-XXG-3XX
PANEL MOUNT CONNECTOR SOLDER CUP

4XXX-XXG-3XX
PANEL MOUNT CONNECTOR PC TAIL

*X, Y, Z - Consult Factory. All dimensions are for reference only. Units shown: in[mm].
Panel Mount / Cable to Cable Connectors

Front View | Wire View

Cable Connectors

Front View | Wire View

Panel Mount / Cable to Cable Connectors

Front View | Wire View

Cable Connectors

Front View | Wire View

All dimensions are for reference only. Units shown: in[mm].

*Available in pin only

*Available in socket only

0.875” [22mm] OD 2-12 Contacts

Please check our website for the most up-to-date product specifications.
CUSTOM MOLDED CABLE ASSEMBLIES

Note: Multi-Con-X® can be overmolded onto an extended well panel mount. Straight version only.
- Available in: 5#20, 6#20 and 9#20 male
- Available in: 4#20 and 9#20 female

All dimensions are for reference only. Units shown: in[mm].
PART NUMBER TO ORDER

**Connector Type**
- 3 - Cable End
- 4 - Panel mount
- 5 - Cable to Cable

**Contact Size**
- 1 - #12
- 2 - #20
- 3 - #16

**Contact Style**
- 8X - “0” - Crimp
  - “1” - #20 PC Tail Short*
  - “2” - Solder Cup
- 9X - Extended PC Tail
  - “1” - #20 PC Tail Medium*
  - “2” - #20 PC Tail Long*

**Special Features**
- “W” - Winged Coupling Nut

**Backshell Style** - Threaded with Grommet
(Cable O.D. Range)
- 3XX - Weather tight Grommet Grip Seal
- 5XX - Mechanical Screw-Down Cable
  Clamp with Grommet Seal
  - “15” - 0.15” - 0.17”
  - “18” - 0.18” - 0.20”
  - “21” - 0.21” - 0.23”
  - “24” - 0.24” - 0.27”
  - “28” - 0.28” - 0.29”
  - “30” - 0.30” - 0.32”
- 3DC - Daisy Chian Grommet w/ 3 IDs
  (0.125”, 0.188”, 0.250”)

**Panel Mount**
with Hex Nut & Gasket
- 3ES - with Epoxy
- 300 - without Epoxy

**No. & Type of Contacts**
Pin or Socket

**Gold Plated**

*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.
SHIELDED MULTI-CON-X® 0.995" [25mm] OD 2-12 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT AND CABLE TO CABLE

PANEL MOUNT - PIN
MATES WITH CABLE END

MOLDED CABLE END ASSEMBLY

Please check our website for the most up-to-date product specifications.
## SHIELDED MULTI-CON-X® 0.995”[25MM] OD 2-12 CONTACTS

### SPECIFICATIONS

#### Mechanical Specifications
- **Life:** 400 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 10-12 in-lb tightening torque.
- **Coupling Locking Style:** Threaded Coupling Ring
- **Backshell Style:** Threaded

#### Electrical Specifications
- **Voltage Rating:** 600V AC
- **Current Rating:** 13.0 A – max (See page 107 for Electrical Current Rating Chart)
- **Conductor Size:** 2 through 4 #16 contacts accepts 16 AWG
  - 2 through 12 #20 contacts accepts 20 AWG

#### Environmental Specifications
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 48 Hr salt spray when mated
- **Weathertight:** IP66 / IP68 NEMA 250 (6P) (when mated)

#### Material Specifications

**Cable Ends**
- **Coupling Nut & Housing:** Nickel Plated Copper Alloy
- **Contacts:** Copper Alloy, Gold over Nickel Plating
- **Insert:** Thermoplastic
- **Backshell & Strap:** Thermoplastic
- **Screws:** Stainless Steel
- **O-Rings:** Elastomer

**Metal Panel Mounts**
- **Shell:** Nickel Plated Copper Alloy
- **Nut:** Nickel Plated Copper Alloy
- **Contacts:** Copper Alloy, Gold over Nickel Plating
- **Insert:** Thermoplastic

**Plastic Panel Mounts**
- **Housing:** Thermoplastic
- **Shielding Nut:** Nickel Plated Aluminum
- **Contacts:** Copper Alloy, Gold over Nickel Plating

**Molded Cable Assemblies**
- **Weathertight:** IP66 / IP68 NEMA 250 (6P) (when mated)

#### Certifications
- **Not for current interruption**
- **RoHS compliant**
SHIELDED MULTI-CON-X® 0.995” [25mm] OD 2-12 CONTACTS

PANEL MOUNT ASSEMBLY KITS - PIN ONLY - METAL

SF4281-XXPG-3XX PANEL MOUNT CONNECTOR #20 PC TAIL

SF4282-XXPG-3XX PANEL MOUNT CONNECTOR #20 SOLDER CUP

SF4381-XXPG-3XX PANEL MOUNT CONNECTOR #16 PC TAIL

SF4382-XXPG-3XX PANEL MOUNT CONNECTOR #16 SOLDER CUP

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
SHIELDED MULTI-CON-X® 0.995"[25mm] OD 2-12 CONTACTS

PANEL MOUNT ASSEMBLY KITS - PIN ONLY - PLASTIC

CUSTOM MOLED CABLE ASSEMBLIES

FIELD INSTALLABLE KITS - SOCKET ONLY

Please check our website for the most up-to-date product specifications.

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All dimensions are for reference only. Units shown: in[mm].
**SHIELDED MULTI-CON-X®**

0.995” [25mm] OD 2-12 CONTACTS

---

**PANEL MOUNT CONNECTORS**

Front View | Wire View

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**CABLE CONNECTORS**

Front View | Wire View

All dimensions are for reference only. Units shown: in[mm].
PART NUMBER TO ORDER

SF X X XX X - XX X XG - XXX

Shielded Field Installable

Connector Type
3 - Cable End
4 - Panel mount

Contact Size
2 - #20 AWG
3 - #16 AWG

Contact Style
8X - “1” - #20 PC Tail (Panel Only)
“2” - Solder Cup

Insert & Shell Material Only
Blank - Thermoplastic Insert (Cable End Only)
Blank - Nickel Plated Copper Alloy Panel Mount
Shell with an Engineered Polyester Resin Insert (Panel Only)
V - One Piece Thermoplastic Panel Mount Shell

No. of Contacts
2-12

Backshell & Panels
3ES - Panel w/ Epoxy
520 - Backshell w/ 0.200” Grommet ID
540 - Backshell w/ 0.400” Grommet ID

Contact Plating
G - Gold

Contact Type
P - Pin (Panel Mount)
S - Socket (Cable End)

Keying
A-D - (2 -9 #20 Contacts)
E - (2 -12 #20 Contacts)
F - (2 -4 #16 Contacts)
MAXI-CON-X®

1.17" [29mm] OD 7, 10, 18 & 20 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE END - PIN
MATES WITH PANEL MOUNT AND CABLE TO CABLE

CABLE TO CABLE / INLINE - PIN
MATES WITH CABLE END

PANEL MOUNT - PIN
MATES WITH CABLE END

PANEL MOUNT - SOCKET
MATES WITH CABLE END

DUST CAP
P/N - 14295

MOLDED CABLE END ASSEMBLY

MOLDED CABLE TO CABLE ASSEMBLY

MOLDED RIGHT ANGLE CABLE ASSEMBLY

Please check our website for the most up-to-date product specifications.
## SPECIFICATIONS

### Mechanical Specifications

- **Life:** 300 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 10 in-lb max tightening torque.
- **Coupling Locking Style:** Bayonet with ribbed coupling nut (winged coupling nut available) P/N 14482
- **Backshell Style:** Threaded
- **Conductor Size:** #12 contacts accepts 12 through 14 AWG
- **#16 contacts accepts 16 through 18 AWG**
- **#20 contacts accepts 20 through 24 AWG**

### Electrical Specifications

- **Voltage Rating:** 600V DC / 480V AC
- **Current Rating:** 23.0 A – max (See page 107 for Electrical Current Rating Chart)

### Environmental Specifications

- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 300 Hr salt spray when mated
- **Weathertight:** IP67 when mated

### Material Specifications

- **Backshell:** Thermoplastic, UL 94HB, Black
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Thermoplastic, UL 94HB, Black
- **Gasket:** Elastomer, Black
- **Grommet / Strain Relief:** Thermoplastic, UL 94HB, Black
- **Hex Nut:** Elastomer, Black
- **O-Ring:** Thermoplastic, UL 94HB, Black
- **Shell:** Thermoplastic, UL 94HB, Black
- **Optional Dust Cap:** Elastomer, Black

### Molded Cable Assemblies

- **Weathertight:** NEMA 6P, 13: IEC IP67

### Certifications

- UL File E150822
- CSA File 181200
- Not for current interruption
- RoHs compliant
- REACH compliant

### Options

- **UV Rating:** F1 available
- **Flame Rating:** UL 94V-0 available

**Consult factory for optional colors and materials**

---

### Additional Information

Please check our website for the most up-to-date product specifications.
PANEL MOUNT ASSEMBLY KITS

14X80-XXG-3XX
PANEL MOUNT CONNECTOR
CRIMP

14X82-XXG-3XX
PANEL MOUNT CONNECTOR
SOLDER CUP

14XXX-XXG-3XX
PANEL MOUNT CONNECTOR
PC TAIL

* X, Y, Z - CONSULT FACTORY

All dimensions are for reference only. Units shown: in[mm].
FIELD INSTALLABLE KITS

15XXX-XXG-3XX
Field Installable Cable to Cable Connector
Threaded Backshell - Type 3

13XXX-XXG-3XX
Field Installable Cable Connector
Threaded Backshell - Type 3

CUSTOM MOLDED CABLE ASSEMBLIES

13XXX-XXG
CUSTOM CABLE CONNECTOR
STRAIGHT OVERMOLDED

15XXX-XXG
CUSTOM CABLE TO CABLE CONNECTOR
STRAIGHT OVERMOLDED

13XXX-XXG
CABLE CONNECTOR
RIGHT ANGLE OVERMOLDED

All dimensions are for reference only. Units shown: in[mm].
All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.
SPECIFICATIONS

**Mechanical Specifications**
- **Life:** 300 insertion / withdrawal cycles minimum
- **Vibration:** Coupling rings have overriding locking feature to prevent loosening or separation of connector
- **Hex Nut Torque:** 10 in-lb max tightening torque.
- **Coupling Style:** Bayonet with ribbed coupling nut (winged coupling nut available)
- **Backshell Style:** Threaded
- **Conductor Size:** #20 contacts accepts 20 through 24 AWG

**Electrical Specifications**
- **Voltage Rating:** 600V AC
- **Current Rating:** 2.3 A – max (See page 107 for Electrical Current Rating Chart)

**Environmental Specifications**
- **Operating Temperature Rating:** -40°C to +85°C (-40°F to +185°F)
- **Salt Atmosphere (Corrosion):** 300 Hr salt spray when mated
- **Weathertight:** IP67 when mated

**Material Specifications**
- **Backshell:** Thermoplastic, UL 94HB, Black
- **Contacts:** Copper Alloy, Gold over Nickel Plate
- **Coupling Ring:** Thermoplastic, UL 94HB, Black
- **Gasket:** Elastomer, Black
- **Grommet / Strain Relief:** Elastomer, Black
- **Hex Nut:** Thermoplastic, UL 94HB, Black
- **O-Ring:** Elastomer, Black
- **Shell:** Thermoplastic, UL 94HB, Black
- **Optional Dust Cap:** Elastomer, Black

**Molded Cable Assemblies**
- **Weathertight:** NEMA 6P, 13: IEC IP67

**Certifications**
- UL File E150822
- CSA File 181200
- Not for current interruption
- RoHS compliant
- REACH compliant

**Options**
- **UV Rating:** F1 available
- **Flame Rating:** UL 94V-0 available

Consult factory for optional colors and materials

Please check our website for the most up-to-date product specifications.
Please check our website for the most up-to-date product specifications.

All dimensions are for reference only. Units shown: in[mm].
FIELD INSTALLABLE KITS

232XX-31XG-3XX
FIELD INSTALLABLE QUICK CONNECT TYPE CABLE CONNECTOR - BACKSHELL TYPE 3

232XX-31XG-T3XX
FIELD INSTALLABLE THREADED TYPE CABLE CONNECTOR - BACKSHELL TYPE 3

CUSTOM MOLDED CABLE ASSEMBLIES

232XX-31XG
CUSTOM CABLE CONNECTOR STRAIGHT OVERMOLDED QUICK CONNECT TYPE

232XX-31XG
CUSTOM CABLE CONNECTOR STRAIGHT OVERMOLDED THREAD CONNECT TYPE

232XX-31XG
CUSTOM CABLE CONNECTOR RIGHT ANGLE OVERMOLDED QUICK CONNECT TYPE

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
PANEL MOUNT CONNECTORS
Front View | Wire View

QUICK CONNECT TYPE
SINGLE KEY
31-POSITION
#20 PIN CONTACT

THREADED TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

QUICK CONNECT TYPE
SINGLE KEY
31-POSITION
#20 PIN CONTACT

THREADED TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

CABLE CONNECTORS
Front View | Wire View

QUICK CONNECT TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

THREADED TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

QUICK CONNECT TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

THREADED TYPE
5 KEY
31-POSITION
#20 PIN CONTACT

All dimensions are for reference only. Units shown: in[mm].
**MEGA-CON-X®**

**1.27" [32mm] OD 31 CONTACTS**

**PART NUMBER TO ORDER**

```
XX X XX - XX X G - T 3 XXX
```

- **Connector Type**
  - 23 - Cable End
  - 24 - Panel Mount

- **Contact Size**
  - 2 - #20

- **Contact Style**
  - 8X - "0" - Crimp
  - "1" - #20 PC Tail Short*
  - "2" - Solder Cup
  - 9X - Extended PC Tail
  - "1" - #20 PC Tail Medium*
  - "2" - #20 PC Tail Long*

- **Special Features**
  - "W" - Winged Coupling Nut

- **Backshell Style**
  - Thread with Grommet (Cable O.D. Range)
    - 350 - 0.51 - 0.56 (12.9 - 14.2)

- **Panel Mount**
  - with Hex Nut & Gasket
    - 3ES - with Epoxy
    - 300 - without Epoxy

- **Coupling Type**
  - "T" - Threaded
  - Blank - Standard Twist lock

- **Type of Contact**
  - Pin or Socket

- **Number of Contacts**
  - 31

*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.*
MIL-E-QUAL®
(MIL-C-5015 EQUIVALENT)

2-37 CONTACTS

CABLE END - SOCKET
MATES WITH PANEL MOUNT

CABLE END - PIN
MATES WITH PANEL MOUNT

PANEL MOUNT - SOCKET
MATES WITH CABLE END

PANEL MOUNT - PIN
MATES WITH CABLE END

CABLE CAP

RECEPTACLE CAP
OVERMOLDED ONLY

MOLDED CABLE END ASSEMBLY

Please check our website for the most up-to-date product specifications.
SPECIFICATIONS

Mechanical Specifications
Life: 300 insertion / withdrawal cycles minimum
Coupling Locking Style: Threaded
Backshell Style: Threaded
Conductor Size: #12 contacts accepts 12 through 16 AWG
#16 contacts accepts 16 through 20 AWG

Electrical Specifications
Voltage Rating: 600 VAC for shell types 3101A and 3102A
500 VAC for shell type 3106A up to 28 positions
277 VAC for shell type 3106A from 29 or greater positions
Current Rating: 23.0 A – max (See page 108 for Electrical Current Rating Chart)

Environmental Specifications
Operating Temperature Rating: -40°C to +75°C (-40°F to +167°F)
Salt Atmosphere (Corrosion): 48Hr salt spray contacts when mated
Weathertight: Consult factory with specific application

Material Specifications
Cable Pin / Socket
Mechanical Backshell (Threaded): Thermoplastic, Black with UV Inhibitor UL94HB
Strap: Thermoplastic, Black with UV Inhibitor UL94HB
Screws: Stainless Steel
Grommet: Elastomer
Coupling Ring: Thermoplastic, Black with UV Inhibitor UL94HB
Contacts: Copper Alloy, Silver Plated, Gold Optional
Connector Body: Thermoplastic
Connector Cap (Optional): Thermoplastic
O-Ring (Optional): Elastomer
Alternate Keys/Different Keyways Available W, X, Y or Z Consult factory

Box Receptacle, In-Line receptacle, Pin/Socket
Contacts: Copper Alloy, Silver Plated, Gold Optional
Receptacle Body: Thermoplastic, Black with UV Inhibitor UL94HB
Receptacle Cap (Optional): Thermoplastic, Black with UV Inhibitor UL94HB
Gasket (Optional): Elastomer
Alternate Keys/Different Keyways Available W, X, Y or Z Consult factory

Molded Cable Assemblies
Weather tight: NEMA 6P, 13: IEC IP67 when mated

Certifications
UL File #E150822
CSA File #181200 Patterns: 18-11, 18-1, 18-19, 20-27
U.L. Temperature 75°C (167°F) max.
Not for current interruption

Options
UV Rating: F1 available
Flame Rating: UL94V-0 available

Consult factory for optional colors and materials
# MIL-E-QUAL®

(MIL-C-5015 Equivalent)

## 2-37 Contacts

### Custom Overmolded Assemblies

![Custom Overmolded Assemblies Diagram]

### Field Installable Kits

![Field Installable Kits Diagram]

### Box Receptacle Kits

![Box Receptacle Kits Diagram]

All dimensions are for reference only. Units shown: in [mm].

<table>
<thead>
<tr>
<th>Connector Size</th>
<th>LC</th>
<th>N</th>
<th>Q</th>
<th>V</th>
<th>Fitting Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>10SL</td>
<td>1.800</td>
<td>0.535</td>
<td>0.825</td>
<td>20.9</td>
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<tr>
<td>12S</td>
<td>1.900</td>
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<td>2.000</td>
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<td>16S</td>
<td>2.200</td>
<td>1.425</td>
<td>1.250</td>
<td>31.8</td>
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<tr>
<td>16</td>
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<td>1.425</td>
<td>1.320</td>
<td>35.5</td>
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<tr>
<td>18</td>
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<td>1.425</td>
<td>1.435</td>
<td>36.4</td>
<td>1-20</td>
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<tr>
<td>20</td>
<td>2.866</td>
<td>1.445</td>
<td>1.440</td>
<td>36.6</td>
<td>1-1/8-18</td>
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<tr>
<td>22</td>
<td>2.892</td>
<td>1.445</td>
<td>1.765</td>
<td>44.8</td>
<td>1-1/4-18</td>
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<tr>
<td>24</td>
<td>2.892</td>
<td>1.445</td>
<td>1.765</td>
<td>44.8</td>
<td>1-3/8-18</td>
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<tr>
<td>28</td>
<td>2.972</td>
<td>1.440</td>
<td>2.099</td>
<td>53.3</td>
<td>1-5/8-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connector Size</th>
<th>A Coupling Threads</th>
<th>C</th>
<th>K</th>
<th>LR</th>
<th>M</th>
<th>R</th>
<th>S</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>10SL</td>
<td>5/8-24</td>
<td>3.5</td>
<td>0.080</td>
<td>0.940</td>
<td>9/16</td>
<td>19.6</td>
<td>25.3</td>
<td>0.635</td>
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<tr>
<td>12S</td>
<td>3/4-20</td>
<td>3.5</td>
<td>0.085</td>
<td>0.957</td>
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<td>19.6</td>
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<tr>
<td>14S</td>
<td>7/8-20</td>
<td>3.5</td>
<td>0.090</td>
<td>1.130</td>
<td>9/16</td>
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<tr>
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<td>1-20</td>
<td>3.5</td>
<td>0.140</td>
<td>1.170</td>
<td>19/32</td>
<td>31.3</td>
<td>24.6</td>
<td>1-9/32</td>
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<tr>
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<td>1-20</td>
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<td>0.140</td>
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<td>3/4</td>
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<td>24.6</td>
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<td>18</td>
<td>1-1/8-18</td>
<td>5.0</td>
<td>0.140</td>
<td>1.330</td>
<td>21/32</td>
<td>27</td>
<td>1-1/16</td>
<td>1-1/8-18</td>
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<tr>
<td>20</td>
<td>1-1/4-18</td>
<td>5.0</td>
<td>0.142</td>
<td>1.330</td>
<td>33.8</td>
<td>19.0</td>
<td>1-1/2</td>
<td>1-1/4-18</td>
</tr>
<tr>
<td>22</td>
<td>1-3/8-18</td>
<td>5.0</td>
<td>0.145</td>
<td>1.210</td>
<td>3/4</td>
<td>3/4</td>
<td>1-1/4</td>
<td>1-3/8-18</td>
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<tr>
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<td>1-1/2-18</td>
<td>6.0</td>
<td>0.145</td>
<td>1.220</td>
<td>31.0</td>
<td>10.6</td>
<td>1-3/8</td>
<td>1-1/2-18</td>
</tr>
<tr>
<td>28</td>
<td>1-3/4-18</td>
<td>6.0</td>
<td>0.145</td>
<td>1.220</td>
<td>31.0</td>
<td>20.6</td>
<td>1-9/16</td>
<td>1-3/4-18</td>
</tr>
</tbody>
</table>

Please check our website for the most up-to-date product specifications.

---

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*Recommended Panel Cut-Out: Tolerance: ±0.003*
NOTE: Mating face of pin insert shown (socket opposite). Unless otherwise specified, arrangements are per MIL-STD 165L. For alternate key positions, consult factory.

NOTE: *9 contacts: 7-#16/2-#12 cable end, socket only. Panel: pin only.

NOTE: 10SL-4 available in cable end socket and panel mount pin styles only.

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
NOTE: Rear face of pin insert shown (socket opposite). Unless otherwise specified, arrangements are per MIL-STD 165L. For alternate key positions, consult factory.

*9 contacts: 7-#16/2-#12 cable end, socket only. Panel: pin only.

All dimensions are for reference only. Units shown: in[mm].
## MIL-E-QUAL®
(MIL-C-5015 EQUIVALENT)

### 2-37 Contacts

### PART NUMBER TO ORDER

<table>
<thead>
<tr>
<th>Shell Type</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3101A</td>
<td>Cable Receptacle</td>
<td>(See note 1) In-Line with or without Accessory Thread</td>
</tr>
<tr>
<td>3102A</td>
<td>Box Receptacle</td>
<td>without Accessory Thread</td>
</tr>
<tr>
<td>3106A</td>
<td>Straight Plug</td>
<td>(See note 2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Style</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S - Solder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C - Crimp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. &amp; Type of Contacts</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P - Pin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S - Socket</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Weathertight Option adds O-Ring for plug (3106A) Elastomer Panel Gasket for Receptacle.</td>
</tr>
<tr>
<td>010</td>
<td>Receptacle with (4) mounting hole reinforcements. Consult factory.</td>
</tr>
<tr>
<td>310</td>
<td>Same as -010 except with Elastomer Panel Gasket. Plug (3106A)</td>
</tr>
<tr>
<td>320</td>
<td>Gold plated contacts. (gold is optional/silver standard)</td>
</tr>
<tr>
<td>30GX</td>
<td>Pin Insert Receptacle with ground pin. “X” is the letter position of the extended pin. Letter is left “Blank” for crimp contacts. Standard plating, silver plated contacts.</td>
</tr>
<tr>
<td>32GX</td>
<td>Pin Insert Receptacle with ground pin. “X” is the letter position of the extended pin. Letter is left “Blank” for crimp contacts. Optional plating, gold plated contacts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insert Number / Arrangement per 5015</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10SL-4</td>
<td>16S-1 18-19</td>
</tr>
<tr>
<td>10SL-3</td>
<td>16S-8 20-7</td>
</tr>
<tr>
<td>12S-3</td>
<td>16-10 20-16</td>
</tr>
<tr>
<td>14S-1</td>
<td>18-1 20-27</td>
</tr>
<tr>
<td>14S-2</td>
<td>18-4 20-29</td>
</tr>
<tr>
<td>14S-5</td>
<td>18-8 22-14</td>
</tr>
<tr>
<td>14S-6</td>
<td>18-10 24-2</td>
</tr>
<tr>
<td>14S-7</td>
<td>18-11 24-28</td>
</tr>
<tr>
<td>14S-9</td>
<td>18-12 28-2</td>
</tr>
<tr>
<td></td>
<td>28-12 28-21</td>
</tr>
</tbody>
</table>

**Complete P/N contains no spaces or dashes.**

Consult factory for optional colors and materials

**Note 1:** All Plugs, Box Mount Receptacles and In-Line Receptacles include Crimp or Solder Contacts specified.

**Note 2:** Straight Plugs include Backshell Assembly with Cable Clamp and Bushing.

**Note 3:** In-Line Receptacles can be with or without Accessory Thread. Consult factory for availability. In-Line Receptacles without Accessory Thread can be overmolded.
SEALEDC DC POWER JACKS & PLUGS

SOLDER LUG JACK
MATES WITH SEALED POWER PLUGS

STRAIGHT PC TERMINAL JACK
MATES WITH SEALED POWER PLUGS

RIGHT ANGLE PC TERMINAL JACK
MATES WITH SEALED POWER PLUGS

PLUG
MATES WITH SEALED POWER JACKS

J CAP

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SPECIFICATIONS

Mechanical Specifications
Life: 5000 insertion / withdrawal cycles minimum
Vibration: MIL-STD 202G Method 201A
Hex Nut Torque: 8-12 in-lb
Coupling Locking Style: Threaded Coupling Ring
Backshell Style: Threaded Handle

Electrical Specifications
Voltage Rating: 500V AC max
Current Rating: 5A up to 30V DC at 65 °C (149°F) (current carrying only)
Contact Resistance: 0.01 Ω max (Initial)
0.02 Ω (After humidity, durability exposure)
0.10 Ω max (after salt spray)
Insulation Resistance: 10,000 MΩ Min (Initial)
1,000 MΩ (After humidity, durability exposure)

Environmental Specifications
Operating Temperature Rating: -20 °C to +65 °C (-4°F to +149°F)
Salt Atmosphere (Corrosion): MIL-STD 202G Method 101E
Thermal Shock: MIL-STD 202G Method 107G
Weathertight: IP66, IP67 & IP68 / NEMA 250 (6P) (when mated)

Material Specifications
Jack
Housing: Thermoplastic
Bushing: Plated Copper Alloy
Terminals: Plated Copper Alloy
Insulators: Thermoplastic
Hardware: Supplied with one nickel plated copper alloy hex nut (P1489), one nickel plated steel flat washer (P3031) and one o-ring for sealing jack to panel

Plug
Plug Sleeve and Pin: Plated Copper Alloy
Lock Ring: Plated Copper Alloy
Finger Insulator: Thermoplastic
Insulating Washer: Thermoplastic
Sleeve Terminal: Tin Plated Copper Alloy
Handle: Thermoplastic Over molded with Elastomer

Cap
Body: Elastomer

Molded Cable Assemblies
Consult factory for molded options

Accessories
Isolated Mount - P3818: Includes insulating shoulder washer/seal and insulating flat washer.
SEALDC POWER JACKS & PLUGS 0.62" [15MM] OD

SOLDER LUG

STRAIGHT PC

RIGHT ANGLE PC

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
SEALDC POWER JACKS & PLUGS 0.62” [15MM] OD

**JACK SCHEMATIC**

**RECOMMENDED PANEL MOUNTING HOLE**

**STRAIGHT PC JACK**
RECOMMENDED PCB LAYOUT (COMPONENT SIDE)

**RIGHT ANGLE PC Jack**
RECOMMENDED PCB LAYOUT (COMPONENT SIDE)

NOTE: 0.130 [3.30] FOR HAND INSERTION
0.135 [3.43] FOR AUTOMATED INSERTION

All dimensions are for reference only. Units shown: in[mm].
SEALED DC POWER JACKS & PLUGS

0.62" [15MM] OD

SEALED POWER PLUGS
ASSEMBLED HANDLE

CABLE CLAMP
SLEEVE TERMINAL

SEALEO POWER PLUGS
MOLDED CABLE ASSEMBLY

HANDLE I.D.
CABLE O.D.
(SEE TABLE)

All dimensions are for reference only. Units shown: in[mm].
SEALED POWER JACK MOLDED CABLE ASSEMBLY

PART NUMBER TO ORDER

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Center Pin/ Jack Size</th>
<th>Terminal Type</th>
<th>Mating Power Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>L712AS</td>
<td>0.10 [2.5]</td>
<td>Solder Lugs</td>
<td>761KS12, 761KS15, 761KS17</td>
</tr>
<tr>
<td>PCL712AS</td>
<td></td>
<td>Straight PC</td>
<td></td>
</tr>
<tr>
<td>L712RAS</td>
<td></td>
<td>Right Angle PC</td>
<td></td>
</tr>
<tr>
<td>L722AS</td>
<td>0.08 [2.0]</td>
<td>Solder Lugs</td>
<td>S761KS12, S761KS15, S761KS17</td>
</tr>
<tr>
<td>PCL722AS</td>
<td></td>
<td>Straight PC</td>
<td></td>
</tr>
<tr>
<td>L722RAS</td>
<td></td>
<td>Right Angle PC</td>
<td></td>
</tr>
<tr>
<td>JCAP</td>
<td>Power Jack Seal Cap</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Center Pin ID/ Jack Size</th>
<th>Tip Insulator Color</th>
<th>Cable Nominal O.D. Range</th>
<th>Mating Power Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>761KS12</td>
<td>0.10 [2.5]</td>
<td>Black</td>
<td>0.125-0.150 [3.2-3.8mm]</td>
<td>L712AS, L712RAS, PCL712AS</td>
</tr>
<tr>
<td>761KS15</td>
<td></td>
<td>Black</td>
<td>0.150-0.175 [3.8-4.4mm]</td>
<td></td>
</tr>
<tr>
<td>761KS17</td>
<td></td>
<td>Black</td>
<td>0.175-0.200 [4.4-5.1mm]</td>
<td></td>
</tr>
<tr>
<td>S761KS12</td>
<td>0.08 [2.0]</td>
<td>White</td>
<td>0.125-0.150 [3.2-3.8mm]</td>
<td>L722AS, L722RAS, PCL722AS</td>
</tr>
<tr>
<td>S761KS15</td>
<td></td>
<td>White</td>
<td>0.150-0.175 [3.8-4.4mm]</td>
<td></td>
</tr>
<tr>
<td>S761KS17</td>
<td></td>
<td>White</td>
<td>0.175-0.200 [4.4-5.1mm]</td>
<td></td>
</tr>
</tbody>
</table>

All dimensions are for reference only. Units shown: in[mm].
HIGH AMPERAGE DC POWER JACKS & PLUGS

RIGHT ANGLE HIGH AMPERAGE POWER JACK - PC MOUNT
RIGHT ANGLE HIGH AMPERAGE POWER JACK - SMT MOUNT
RIGHT ANGLE HIGH AMPERAGE POWER JACK - HYBRID MOUNT

HIGH AMPERAGE POWER PLUG - SEALED LOCKING
HIGH AMPERAGE POWER PLUG - NON SEALED LOCKING
HIGH AMPERAGE POWER PLUG - NON SEALED NON LOCKING

Please check our website for the most up-to-date product specifications.
SPECIFICATIONS

Mechanical Specifications
Life: 5000 insertion/withdrawal cycles minimum
Vibration: Mil-Std 202G Method 201A (Locking Only)
Operating Forces: 5 lb maximum insertion. 0.5 lb minimum withdrawal
Panel Mounting Torque: 8-10 in-lb

Electrical Specifications
Voltage Rating: 24 V AC/DC
Current Rating: See page 88 for Electrical Current Rating Chart
Insulation Resistance: 1000MΩ min
Contact Resistance (initial): 15 mΩ max

Environmental Specifications
Operating Temperature Rating: -40 °C to +105 °C (-40°F to +221°F)
Moisture Resistance: MIL-STD 202G Method 106G (Sealed Only)
Insulation Resistance: MIL-STD 202G Method 302 Condition B
Salt Atmosphere (Corrosion): MIL-STD 202G Method 107G
Thermal Shock: MIL-STD 202G Method 101E Condition B (Sealed Only)
Weathertight Ratings: IP66, IP67, IP68, NEMA 250 (6p) when mated (Sealed Only)

Material Specifications - Jacks
Housing, Cover (insulators): Thermoplastic, Black
Mounting Bushing, Hex Nut: Copper Alloy, Nickel Plated
Flat Washer:
O-Ring: Elastomer, Black
Center Pin: Copper Alloy, Nickel Plated
Center Pin Terminal & Shunt Terminals: Copper Alloy, Silver or Matte Tin Plated
Sleeve Spring Terminal: Spring Copper Alloy, Silver or Matte Tin Plated

Material Specifications - Plugs
Plug Barrel (Sleeve): Copper Alloy, Nickel Plated
Coupling Ring: Copper Alloy, Nickel Plated
Metal Handle: Copper Alloy, Nickel Plated
Rubber Seal Handle: Black Elastomer over Metal Handle
O-Ring:
Center Contact (Tip): Copper Alloy, Silver Plated
Tip & Sleeve Terminals: Copper Alloy, Tin Plated
Tip Insulator:
Terminal Insulator:
Tubular Insulator: Epoxy Glass FR4
Mylar
All dimensions are for reference only. Units shown: in[mm].
SMT-MOUNT HIGH AMPERAGE POWER JACKS

All dimensions are for reference only. Units shown: in[mm].

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Please check our website for the most up-to-date product specifications.
HIGH AMPERAGE DC POWER JACKS & PLUGS .43” [11MM] OD

HYBRID-MOUNT HIGH AMPERAGE POWER JACKS

All dimensions are for reference only. Units shown: in[mm].
LOCKING AND SEALING PLUGS S10KS12, S10KS15, S10KS17

LOCKING, NON-SEALING PLUG S10K

NON-LOCKING, NON-SEALING PLUGS S1012, S1015, S1017

NON-LOCKING, NON-SEALING PLUG S10

All dimensions are for reference only. Units shown: in[mm].

Please check our website for the most up-to-date product specifications.
Please check our website for the most up-to-date product specifications.

### CURRENT RATING TABLE

<table>
<thead>
<tr>
<th>Jack Terminal Plating</th>
<th>Wire (awg)</th>
<th>55°C max</th>
<th>65°C max</th>
<th>75°C max</th>
<th>85°C max</th>
<th>95°C max</th>
<th>105°C max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver</td>
<td>16</td>
<td>11</td>
<td>10</td>
<td>9.5</td>
<td>9</td>
<td>7.5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>9.5</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>5.5</td>
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<tr>
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<td>20</td>
<td>9</td>
<td>8</td>
<td>6.5</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Tin</td>
<td>16</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>5.5</td>
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<tr>
<td></td>
<td>18</td>
<td>9.5</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>5.5</td>
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</tr>
<tr>
<td></td>
<td>20</td>
<td>8.5</td>
<td>8</td>
<td>6.5</td>
<td>5.5</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: DC Power Plugs & Jacks are for current carry only. Switching Power Jack on-off under resistive load is not recommended. The circuitry on-off switch should be off before connecting or disconnecting the Power Plug to Jack. For electrical life limitations under resistive load, consult factory.
HIGH AMPERAGE POWER PLUG ORDERING CODE:

S 1 0

S10 Series

Locking option:
K - Locking
blank - non-locking

Seal option:
S - Sealed (Requires Locking Option)
blank - non-sealed

Handle options:
12 - rubber over metal sealing handle for cable O.D. 0.125 - 0.150” [3.2 - 3.8mm]
15 - rubber over metal sealing handle for cable O.D. 0.150 - 0.175” [3.8 - 4.4mm]
17 - rubber over metal sealing handle for cable O.D. 0.175 - 0.210” [4.4 - 5.3mm]
blank - metal, non-sealing handle for cable O.D. up to 0.218” [5.5mm]

HIGH AMPERAGE POWER JACK ORDERING CODE:

R A            10

Terminal Plating:
S - Tin
blank - Silver

Termination Type:
PC - Through Hole
SM - Surface Mount
SH - Hybrid

Seal option:
S - Sealed
blank - non-sealed

Locating Post option:
P - with Post
blank - without Post

Notes:
1. Standard packaging is bulk. Contact factory for tube or tape & reel packaging options.
2. Tin plating currently not available for the hybrid (SH) termination option.
Please check our website for the most up-to-date product specifications.
### Specifications

#### Manufacturers Identifications
- **Life:** 750 insertion / withdrawal cycles minimum
- **Vibration:** Mil-Std 202G Method 201A
- **Hex Nut Torque:** 10-12 in-lb
- **Coupling Locking Style:** Quick Connect (Bayonet) Threaded
- **Backshell Style:** Threaded

#### Electrical Specifications
- **Voltage Rating:** 1000V DC
- **Current Rating:** 1.5 A
- **Contact Resistance:** 20 mΩ max
- **Insulation Resistance:** 500 MΩ min

#### Environmental Specifications
- **Operating Temperature Rating:** -10 °C to +60 °C (+14°F to +140°F)
- **Insulation Resistance:** Mil-Std 202G Method 302G
- **Thermal Shock:** Mil-Std 202G Method 107G
- **Weathertight:** IP67 & IP68, NEMA 250 (6P) (when mated)

#### Product Ratings:
- RJ45 Cable Plug (Category 6): TIA/EIA 568 C.2
- RJ45 Panel Jack (Category 5e & 6): TIA/EIA 568 B.2

#### Material Specifications

##### Field Installable Plug Assembly:
- **Sealing Nut, Coupling Ring:** Thermoplastic
- **Plug Housing, Insert:** Thermoplastic
- **Sealing Ring:** Elastomer
- **O-Ring:** Elastomer

##### RJ45 Plug:
- **Insulator:** Thermoplastic
- **Contacts:** Copper Alloy, Gold Plated
- **Shield (Shielded Option Only):** Copper Alloy, Tin Plated

##### Panel Housing Jack Assembly:
- **Panel Housing, Hex Nut:** Thermoplastic
- **Gasket:** Elastomer

##### RJ45 Jack:
- **Housing:** Thermoplastic
- **Contacts:** Copper Alloy, Gold Plated
- **Printed Circuit Board (PCB):** FR-4
- **IDC Contacts:** Copper Alloy, Tin Plated

#### Molded Cable Assemblies:
Consult factory for molded options

#### Other
- **Flame Rating:** UL 94V-0
- **Recommended Panel Thickness:**
  - 1/32" to 3/16" [0.8mm to 4.8mm] - Quick Connect Coupling
  - 1/32" to 5/32" [0.8mm to 3.9mm] - Threaded Coupling

#### Recommended Cable Type
- **Conductor Type:** Solid or Stranded Conductors
- **Outer Cable O.D. Range:** Ø0.190" - Ø0.250" [4.83mm to 6.35mm]
- **Conductor Insulator O.D. Range:** Ø0.037" - Ø0.042" [0.94mm to 1.06mm]
DATA-CON-X®: RJ45 WEATHERTIGHT CONNECTORS

FIELD INSTALLABLE KITS

PANEL MOUNT ASSEMBLY KITS

All dimensions are for reference only. Units shown: in[mm].
# RJ45 WeatherTight Connectors

## 1.44" [37mm] OD

### Custom Molded Cable Assemblies

![Diagram of RJ45 WeatherTight Connectors]

### Part Number to Order

<table>
<thead>
<tr>
<th>DCC</th>
<th>RJ6</th>
<th>X</th>
<th>X</th>
<th>310</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCC</td>
<td>RJ6 = RJ45 CAT 6</td>
<td>BLANK = UNSHIELDED</td>
<td>S = SHIELDED</td>
<td>B = QUICK CONNECT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DCP</th>
<th>XXX</th>
<th>X</th>
<th>X</th>
<th>-</th>
<th>XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCP</td>
<td>RJ5 = RJ45 CAT 5e</td>
<td>BLANK = UNSHIELDED</td>
<td>S = SHIELDED</td>
<td>B = QUICK CONNECT</td>
<td>T = THREADED</td>
</tr>
</tbody>
</table>

**JACK TYPES**
- DCC: RJ45 FIELD INSTALLABLE
- DCP: RJ45 FIELD INSTALLABLE PANEL HOUSING ASSEMBLY

**SHIELDING**
- BLANK = UNSHIELDED
- S = SHIELDED

**COUPLING TYPE**
- B = QUICK CONNECT
- T = THREADED

**SERIES**
- 310

All dimensions are for reference only. Units shown: in[mm].

---

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Please check our website for the most up-to-date product specifications.
Please check our website for the most up-to-date product specifications.
SPECIFICATIONS

Mechanical Specifications
Life: 350 insertion/withdrawal cycles minimum
Hex Nut Torque: 10-12 in-lb max
Coupling Locking Style: Quick Connect (Bayonet) or Threaded
Backshell Style: Threaded Nut-Squeezed Grommet

Electrical Specifications
Current Rating: 1.5 A
Voltage Rating: Per USB 2.0 standard
Contact Resistance: 30 mΩ max
Insulation Resistance: 1000 MΩ min
Dielectric Withstanding Voltage: 500 V AC/one minute

Environmental Specifications
Operating Temperature Rating: 0 °C to +50 °C (+32°F to +122°F)
Storage Temperature: -20 °C to +60 °C (-4°F to +140°F)
Moisture Resistance: Mil-Std 202G Method 106G
Insulation Resistance: Mil-Std 202G Method 302
Vibration: Mil-Std 202G Method 201A
Thermal Shock: Mil-Std 202G Method 107G
Weathertight: IP67 & IP68, NEMA 250 (6P) (when mated)
Salt Spray: Mil-Std 202G Method 101E
Product Ratings: Tested per USB 2.0

Material Specifications
Plug Nut, Coupling Ring: Thermoplastic
Plug Housing, Insert: Thermoplastic
Sealing Ring, O-Ring: Elastomer
Panel Housing, Hex Nut: Thermoplastic
Retaining Nut: Copper Alloy, Nickel Plated
Gasket: Elastomer
USB A or B Plug:
Shell: Steel, Nickel Plated
Contacts: Copper Alloy, Gold Plated
Insulator: Thermoplastic UL94V-0, White
USB A Receptacle:
Shell: Steel, Nickel Plated
Contacts: Copper Alloy, Gold Plated
Insulator: Thermoplastic UL94V-0, White
USB B Receptacle:
Shell: Copper Alloy, Nickel Plated
Contacts: Copper Alloy, Gold Plated
Insulator: Thermoplastic UL94V-0, White

Molded Cable Assemblies
Consult factory for molded options

Other
Flame Rating: UL 94V-0
Recommended Panel Thickness:
- Quick Connect Coupling: 1/32" - 3/16" [0.8mm to 4.8mm]
- Threaded Coupling: 1/32" - 5/32" [0.8mm to 3.9mm]

Recommended Cable Type
Conductor Type: Solid or Stranded Conductors
Outer Cable O.D. Range:
- Product 150 Series: 0.134" - 0.170" [3.40mm - 4.33mm]
- Product 180 Series: 0.171" - 0.208" [4.34mm - 5.28mm]

Please check our website for the most up-to-date product specifications.
USB A & B WEATHERTIGHT CONNECTORS

DATA-CON-X®: USB A & B WEATHERTIGHT CONNECTORS

All dimensions are for reference only. Units shown: in[mm].
### USB Field Installable Cable Plug Part Number Chart

<table>
<thead>
<tr>
<th>USB Field Installable Cable Plug Assembly</th>
<th>Plug Type</th>
<th>Coupling Type</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCC</td>
<td>USBA = USB &quot;A&quot; 2.0</td>
<td>B = QUICK CONNECT</td>
<td>150 = ø0.134&quot; - 0.170&quot; [3.40 - 4.33mm]</td>
</tr>
<tr>
<td></td>
<td>USBB = USB &quot;B&quot; 2.0</td>
<td>T = THREADED</td>
<td>180 = ø0.171&quot; - 0.208&quot; [4.34 - 5.28mm]</td>
</tr>
</tbody>
</table>

### USB Panel Mount Feed-Thru Connectors Part Number Chart

<table>
<thead>
<tr>
<th>USB Field Installable Panel Housing Assembly</th>
<th>Receptacle Type (Sealed End)</th>
<th>Coupling Type</th>
<th>Receptacle Type (Non-Sealed End)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCP</td>
<td>USBA = USB &quot;A&quot; 2.0</td>
<td>B = QUICK CONNECT</td>
<td>USBA = USB &quot;A&quot; 2.0 *</td>
</tr>
<tr>
<td></td>
<td>USBB = USB &quot;B&quot; 2.0</td>
<td>T = THREADED</td>
<td>USBB = USB &quot;B&quot; 2.0 **</td>
</tr>
</tbody>
</table>

* (NOT AVAILABLE WITH USBA ON SEALED END)  
** (NOT AVAILABLE WITH USBB ON SEALED END)
SEAL MINI USB CONNECTORS

0.71” [18mm] OD

Quick Connect Cable End
Mates with Panel Mount

Panel Mount
Mates with Cable End

Rear View - PC Tail

Rear View - Feed-Thru Termination

Rear View - Solder Holes

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Please check our website for the most up-to-date product specifications.
**SPECIFICATIONS**

### Mechanical Specifications
- **Life:** 500 insertion / withdrawal cycles minimum
- **Vibration:** Mil-Std 202G Method 201A
- **Hex Nut Torque:** 10-12 in-lb
- **Coupling Locking Style:** Quick Connect (Bayonet)
- **Backshell Style:** Threaded

### Electrical Specifications
- Tested Per USB 2.0 Specifications

### Environmental Specifications
- **Operating Temperature Rating:** -20 °C to +75 °C (-4°F to +167°F)
- **Moisture Resistance:** Mil-Std 202G method 106G
- **Insulation Resistance:** Mil-Std 202G Method 302G
- **Thermal Shock:** Mil-Std 202G Method 107G
- **Weathertight:** IP67 & IP68, NEMA 250 (6P) (when mated)

### Material Specifications
- **Plug Nut, Coupling Nut:** Thermoplastic
- **Plug Housing, Insert:** Thermoplastic
- **Sealing Ring, O-Ring:** Elastomer
- **Panel Housing, Hex Nut:** Thermoplastic
- **Gasket:** Elastomer
- **Printed Circuit Board (PCB):** FR-4

### Header:
- **Insulator:** Thermoplastic UL94V-0, Black
- **Contacts:** Copper Alloy, Gold Plated

### USB Mini-B Plug:
- **Insulator:** Thermoplastic UL94V-0, Black
- **Contacts:** Copper Alloy, Gold Plated (Contact Area)
- **Metal Shield:** Steel, Tin Plated

### USB Mini-B Receptacle:
- **Insulator:** Thermoplastic UL94V-0, Black
- **Contacts:** Copper Alloy, Gold Plated (Contact Area)
- **Metal Shield:** Copper Alloy, Nickel Plated

### Molded Cable Assemblies
- Consult factory for molded options

### Other
- **Recommended Cable O.D. Range:** Ø0.161”-Ø0.181” (4.1mm-4.6mm)
- **Recommended Panel Thickness:** Ø0.031”-Ø0.187” [0.8mm-4.8mm]
DATA-CON-X®: SEALED MINI USB CONNECTORS

PART NUMBER TO ORDER

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCC-USBNB-160</td>
<td>Plug</td>
<td>Field Installable Cable Plug</td>
</tr>
<tr>
<td>DCP-USBNB-MNHD</td>
<td>Receptacle</td>
<td>Panel Mount: USB Mini-B to PC Tails</td>
</tr>
<tr>
<td>DCP-USBNB-MNSC</td>
<td>Receptacle</td>
<td>Panel Mount: USB Mini-B to Solder Holes</td>
</tr>
<tr>
<td>DCP-USBNB-USBN</td>
<td>Receptacle</td>
<td>Panel Mount: USB Mini-B Feed-thru</td>
</tr>
</tbody>
</table>

All dimensions are for reference only. Units shown: in[mm].
SEALED MINI USB CONNECTORS

0.71” [18mm] OD

PANEL MOUNT ASSEMBLY KITS

DCP-USBNB-USBN
USB MINI-B FEED-THRU

DCP-USBNB-MNNSC
USB MINI-B TO SOLDER HOLES

DCP-USBNB-MNHD
USB MINI-B TO PC TAILS

PCB HOLE LAYOUT FOR DCP-USBNB-MNHD

The diagrams show the dimensions and assembly details for the sealed mini USB connectors. Each connector type is labeled and described in detail, including the pin configurations and soldering hole layout.

All dimensions are for reference only. Units shown: in[mm].

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Please check our website for the most up-to-date product specifications.
Please check our website for the most up-to-date product specifications.
## SPECIFICATIONS

### Mechanical Specifications
- **Life:** 500 insertion / withdrawal cycles minimum
- **Coupling Locking Style:** Standard Jackscrew
- **Backshell Style:** Threaded

### Electrical Specifications
- **Voltage Rating:** 1000V AC for 1 Minute
- **Current Rating:**
  - 5.0A - Standard D-Sub (9 Contacts)
  - 2.0A - High Density D-Sub (15 Contacts)
- **Contact Resistance:** 25 mΩ max
- **Insulation Resistance:** 500MΩ at

### Environmental Specifications
- **Operating Temperature Rating:** -55 °C to +85 °C (-67°F to +185°F)
- **Thermal Shock:** MIL-STD 202G Method 107G, Condition A
- **Weathertight:** IP67 (when mated)

### Material Specifications

#### D-Sub Backshell Kit
- **Housing, Clamp, & Nut:** Thermoplastic, Black
- **Insulator:** Thermoplastic (UL94V-0)
- **Gasket & Seal:** Elastomer, Black
- **Shell:** Steel, Tin Plated
- **Screw:** Copper Alloy, Nickel Plated
- **Contact Pins:** Copper Alloy, Gold Plated

#### D-Sub Panel Mount Connector
- **Flange & Insulator:** Thermoplastic (UL94V-0)
- **Shell:** Steel, Tin Plated
- **Epoxy:** Epoxy, Black
- **O-Ring:** Elastomer, Light Blue
- **Screw:** Copper Alloy, Nickel Plated
- **Contact Pin:** Copper Alloy, Gold Plated

#### D-Sub Connector Cap
- **Body:** Thermoplastic, Black
- **Gasket & O-ring:** Elastomer, Black
- **Screw:** Copper Alloy, Nickel Plated
- **Chain:** Stainless Steel

### Other
- **Flame Rating:** UL 94V-0
- **Recommended Panel Thickness:** 0.048” - 0.078” [1.22mm to 1.98mm]

### Recommended Cable Type
- **Conductor Type:** Solid or Stranded Conductors, 22-26 AWG
- **Outer Cable O.D. Range:** Ø0.138” - Ø0.276” [3.51mm to 7.01mm]

Please check our website for the most up-to-date product specifications.
SEAL D-SUB CONNECTORS 9 OR 15 CONTACTS

Please check our website for the most up-to-date product specifications.

All dimensions are for reference only. Units shown: in[mm].
# SEALED D-SUB CONNECTORS

9 OR 15 CONTACTS

## PART NUMBER TO ORDER

<table>
<thead>
<tr>
<th>D-Sub Panel Mount Series</th>
<th>D-Sub</th>
<th>Gender</th>
<th>Termination Style</th>
<th>Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCP</td>
<td>DB09</td>
<td>M</td>
<td>SC = Solder Cup</td>
<td>1 = 0.48-0.78 in [1.22-1.98 mm]</td>
</tr>
<tr>
<td></td>
<td>HD15</td>
<td>F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D-Sub Backshell Kit Series</th>
<th>D-Sub</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCC</td>
<td>DB09</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>HD15</td>
<td>F</td>
</tr>
</tbody>
</table>

Please check our website for the most up-to-date product specifications.
# Molded Cable Assembly Checklist

## CUSTOMER INFORMATION

Company: ___________________________ Date: ______________
Contact Name: _____________________ Email: __________________ Phone: ____________
Address: ____________________________
City, State, Zip, Country: ________________

## PROJECT INFORMATION

Project Name: _________________________ Quantity requested to quote: ____________
Application / Description: ________________________________

## CONNECTOR REQUIREMENTS

End “A” Part Number: ______________________ Is right angle required? (Y/N): __________
End “B” Part Number: ______________________ Is right angle required? (Y/N): __________
If single ended cable, how should “B” side be terminated? ____________________________
Yes  No

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strip &amp; Tin (S&amp;T)</td>
<td>Standard 1/4” outer jacket, 1/8” inner jacket</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please note some insulation may be removed for quality control.

## CABLE REQUIREMENTS

Cable vendor & P/N: ____________________________
If cable vendor is known, is equivalent cable acceptable? (Y/N): __________
UL # of cable (if applicable): ____________________________
Outer cable jacket material (PUR, PVC, Other): ________________
Outer cable jacket color (Black, Grey, Other): ________________
Number of conductors: ___________ Conductor AWG: ___________
Is cable shielded? If yes, what type of shield (foil, braided, etc.): ________________
Is there a drain wire (Y/N): ___________ If yes, where terminated?: ________________
Overall length of assembly. Determined by connector ends. Please specify units: ________________
Does cable have any environment requirements? (Temperature, UV, other): ________________
Is an adhesive moisture bond to the outer jacket of the cable required? (Y/N): ________________
Comments / Special Notes: ________________

**NOTE:** Please submit completed form and drawing (if available) by fax to 630-834-8540 or email: sales@switchcraft.com. If a single ended assembly is requested, a diagram of the wire color code illustrating the conductors and the corresponding contact position is required. Also show drain wire and shield terminators if applicable. We thank you for giving us the opportunity to quote your cable assembly requirements. MADE IN USA.
## CON-X® Electrical Current Rating Chart

<table>
<thead>
<tr>
<th>CONTACT SIZE</th>
<th>CONDUCTOR SIZE - AWG</th>
<th>NUMBER OF CONDUCTORS</th>
<th>CURRENT RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12</td>
<td>#12</td>
<td>1 through 7</td>
<td>23.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 through 3</td>
<td>17.0A</td>
</tr>
<tr>
<td>#14</td>
<td></td>
<td>4 through 6</td>
<td>12.75A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 through 9</td>
<td>11.0A</td>
</tr>
<tr>
<td>#16</td>
<td></td>
<td>1 through 3</td>
<td>13.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 through 6</td>
<td>9.75A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>8.45A</td>
</tr>
<tr>
<td>#16</td>
<td>#16</td>
<td>1 through 10</td>
<td>13.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 and 12</td>
<td>7.5A</td>
</tr>
<tr>
<td>#18</td>
<td></td>
<td>1 through 3</td>
<td>10.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 through 12</td>
<td>7.5A</td>
</tr>
<tr>
<td>#18</td>
<td>#18</td>
<td>1 through 3</td>
<td>7.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 through 20</td>
<td>5.6A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 through 31</td>
<td>2.3A</td>
</tr>
<tr>
<td>#20</td>
<td>#20</td>
<td>1 through 3</td>
<td>7.5A</td>
</tr>
<tr>
<td></td>
<td>#20 Multi-Con-X</td>
<td>10 through 12</td>
<td>5.0A</td>
</tr>
<tr>
<td></td>
<td>#22</td>
<td>1 through 3</td>
<td>6.0A</td>
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<tr>
<td></td>
<td>#22</td>
<td>4 through 20</td>
<td>2.5A</td>
</tr>
<tr>
<td></td>
<td>#22</td>
<td>21 through 31</td>
<td>2.5A</td>
</tr>
<tr>
<td></td>
<td>#24</td>
<td>1 through 3</td>
<td>4.5A</td>
</tr>
<tr>
<td>#24</td>
<td>#24</td>
<td>4 through 20</td>
<td>2.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 through 31</td>
<td>1.5A</td>
</tr>
<tr>
<td>#22</td>
<td>#22</td>
<td>4</td>
<td>5.5A</td>
</tr>
<tr>
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<td>#24</td>
<td>4</td>
<td>5.0A</td>
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<tr>
<td>#26</td>
<td>#24</td>
<td>5 to 6</td>
<td>4.0A</td>
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<td>2.5A</td>
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<tr>
<td></td>
<td>#28*</td>
<td>5 to 6</td>
<td>2.0A</td>
</tr>
<tr>
<td></td>
<td>#28*</td>
<td>7</td>
<td>2.0A</td>
</tr>
</tbody>
</table>

*Not UL tested for this wire conductor size

**Max. Number and Size of Contacts per Series:**

- 4 - #12 Multi-Con-X
- 6 - #16 Multi-Con-X
- 8 - #20 Mini-Con-X
- 31 - #20 Mega-Con-X
- 7 - #12 Maxi-Con-X
- 12 - #16 Maxi-Con-X
- 9 - #20 Multi-Con-X
- 4 - #22 Micro-Con-X
- 5 - #16 Mini-Con-X
- 3 - #20 Micro-Con-X
- 20 - #20 Maxi-Con-X
- 7 - #26 Micro-Con-X

Please check our website for the most up-to-date product specifications.
<table>
<thead>
<tr>
<th>CONTACT SIZE</th>
<th>CONDUCTOR SIZE - AWG</th>
<th>NUMBER OF CONDUCTORS</th>
<th>CURRENT RATING</th>
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<tbody>
<tr>
<td>#12</td>
<td>#12</td>
<td>1 through 3</td>
<td>23.0A</td>
</tr>
<tr>
<td></td>
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<td>4 through 6</td>
<td>17.0A</td>
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<td>7 through 9</td>
<td>13.0A</td>
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<tr>
<td>#14</td>
<td>#14</td>
<td>1 through 3</td>
<td>17.0A</td>
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<td>4 through 6</td>
<td>12.75A</td>
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<td>7 through 9</td>
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<td>4 through 6</td>
<td>9.75A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 through 9</td>
<td>8.45A</td>
</tr>
<tr>
<td>#16</td>
<td>#16</td>
<td>1 through 3</td>
<td>13.0A</td>
</tr>
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<td></td>
<td></td>
<td>4 through 6</td>
<td>9.75A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 through 10</td>
<td>8.45A</td>
</tr>
<tr>
<td></td>
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<td>10 through 20</td>
<td>5.85A</td>
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<td>21 through 30</td>
<td>4.55A</td>
</tr>
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<td></td>
<td>31 and up</td>
<td>3.9A</td>
</tr>
<tr>
<td>#18</td>
<td>#18</td>
<td>1 through 3</td>
<td>10.0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 through 6</td>
<td>7.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 through 9</td>
<td>6.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 through 20</td>
<td>4.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 through 30</td>
<td>3.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 and up</td>
<td>3.0A</td>
</tr>
<tr>
<td>#20</td>
<td>#20</td>
<td>1 through 3</td>
<td>7.5A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 through 6</td>
<td>5.6A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 through 9</td>
<td>4.8A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 through 20</td>
<td>3.4A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 through 30</td>
<td>2.62A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 and up</td>
<td>2.3A</td>
</tr>
</tbody>
</table>
### EN2 SERIES CURRENT RATING TABLE

<table>
<thead>
<tr>
<th>CONTACTS</th>
<th>WIRE (AWG)</th>
<th>CURRENT RATING (A) AT OPERATING TEMPERATURE (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>45°C MAX</td>
</tr>
<tr>
<td>2 #20</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>3 #20</td>
<td>20</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>4 #22</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>5-7 #26</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>2.5</td>
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<tr>
<td></td>
<td>30</td>
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</tbody>
</table>

### EN3® SERIES CURRENT RATING TABLE

<table>
<thead>
<tr>
<th>CONTACT SIZE</th>
<th>CONDUCTOR SIZE - AWG</th>
<th>NUMBER OF CONDUCTORS</th>
<th>CURRENT RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>#16</td>
<td>16</td>
<td>2 through 3</td>
<td>13.0A</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#20</td>
<td>20</td>
<td>2 through 6</td>
<td>7.5A</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>7 through 8</td>
<td>6.5A</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#26</td>
<td>26</td>
<td>9 through 18</td>
<td>3A</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CON-X® MANUAL CONTACT CRIMPING TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Positioner</th>
<th>Contact Sizes</th>
<th>Wire Sizes</th>
<th>Conductor Strip Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>359-24</td>
<td>Multi Contact Turret Crimp Tool</td>
<td>357-124</td>
<td>#12</td>
<td>12-14 AWG</td>
<td>7/32 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>#16</td>
<td>16-18-20 AWG</td>
<td>7/32 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>#20</td>
<td>20-22-24 AWG</td>
<td>3/16 in</td>
</tr>
<tr>
<td>359-21</td>
<td>Single Contact Crimp Tool</td>
<td>357-122</td>
<td>#20</td>
<td>20-22-24 AWG</td>
<td>3/16 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>357-125</td>
<td>#22</td>
<td>22-24 AWG</td>
<td>5/32 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>357-126</td>
<td>#26(Cable Pin Only)</td>
<td>24-26-28 AWG</td>
<td>3/16 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>357-127</td>
<td>#26(Panel Pin, Cable &amp; Panel Socket)</td>
<td>24-26-28 AWG</td>
<td>3/16 in</td>
</tr>
</tbody>
</table>

## CON-X® MANUAL CONTACT INSERTION TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Insertion Bits</th>
<th>Contact Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>356-1</td>
<td>Single Contact Hand Tool</td>
<td>356-12</td>
<td>#12</td>
</tr>
<tr>
<td></td>
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<td>356-16</td>
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<td>356-20</td>
<td>#20</td>
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<tr>
<td></td>
<td></td>
<td>356-22</td>
<td>#22 (20 AWG Crimp Barrel)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>356-22-1-K</td>
<td>#22 (22 AWG Crimp Barrel)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>356-26-K</td>
<td>#26</td>
</tr>
</tbody>
</table>

## MIL-E-QUAL® MANUAL CONTACT CRIMPING TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Positioner</th>
<th>Contact Sizes</th>
<th>Wire Sizes</th>
<th>Conductor Strip Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>359-24</td>
<td>Hand Crimp Tool</td>
<td>358-112</td>
<td>#12</td>
<td>12-14 AWG</td>
<td>7/32 in</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>#16</td>
<td>16-18-20 AWG</td>
<td>9/32 in</td>
</tr>
</tbody>
</table>

## MIL-E-QUAL® MANUAL CONTACT INSERTION TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Insertion Bits</th>
<th>Contact Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>356-1</td>
<td>Single Contact Hand Tool</td>
<td>356-12</td>
<td>#12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>356-16</td>
<td>#16</td>
</tr>
</tbody>
</table>
## EN2 & EN3® CONTACT CRIMPING TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Positioner</th>
<th>Contact Sizes</th>
<th>Wire Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN3CR</td>
<td>Crimp Hand Tool</td>
<td>EN3POS16</td>
<td>#16</td>
<td>16 AWG</td>
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<tr>
<td></td>
<td></td>
<td>EN3POS20</td>
<td>#20</td>
<td>20 &amp; 22 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN3POS26</td>
<td>#26</td>
<td>26, 28 &amp; 30 AWG</td>
</tr>
<tr>
<td>EN3CRAUTO</td>
<td>Pneumatic Crimp Tool</td>
<td>EN3POS16</td>
<td>#16</td>
<td>16 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN3POS20</td>
<td>#20</td>
<td>20 &amp; 22 AWG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EN3POS26</td>
<td>#26</td>
<td>26, 28 &amp; 30 AWG</td>
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## EN2 & EN3® INSERTION / EXTRACTION TOOLS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Contact Sizes</th>
<th>Description</th>
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<tbody>
<tr>
<td>EN3INS16</td>
<td>#16</td>
<td>Insertion / Extraction Tool for 16 AWG</td>
</tr>
<tr>
<td>EN3INS20</td>
<td>#20, #22</td>
<td>Insertion / Extraction Tool for 20 &amp; 22 AWG</td>
</tr>
<tr>
<td>EN3INS26</td>
<td>#26</td>
<td>Insertion / Extraction Tool for 26, 28 &amp; 30 AWG</td>
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## EN2 & EN3® ALTERNATE LARGER FRAME TOOL

<table>
<thead>
<tr>
<th>Handle</th>
<th>Description</th>
<th>Positioner</th>
<th>Contact Sizes</th>
<th>Wire Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN2CRL</td>
<td>Hand Tool</td>
<td>EN2POS20L</td>
<td>#20, #22</td>
<td>20-22-24-26 AWG</td>
</tr>
<tr>
<td>EN2CRAUTOL</td>
<td>Pneumatic Tool</td>
<td>EN2POS20L</td>
<td>#20, #22</td>
<td>20-22-24-26 AWG</td>
</tr>
</tbody>
</table>

Please check our website for the most up-to-date product specifications.