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# ABOUT US



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.

# CUSTOM PRODUCTS

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

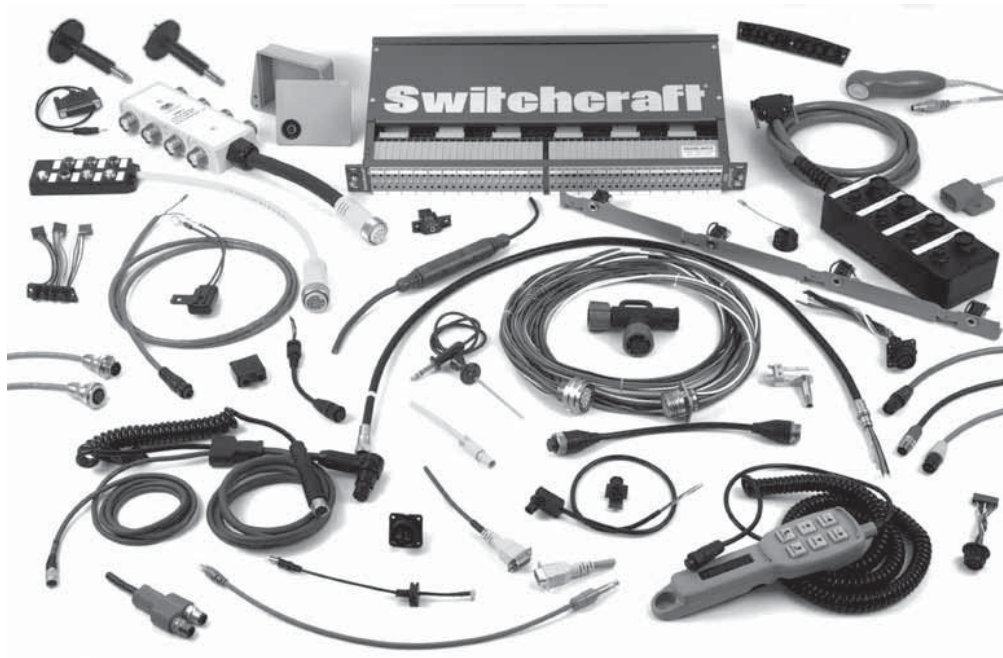
- Insulation resistance
- Breakdown voltage
- Contact resistance
- Return losses
- Frequency response measurement

### 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

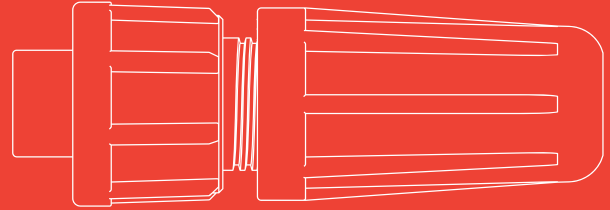
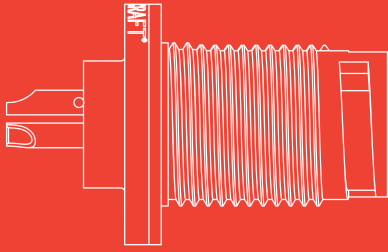


EN2 | MICRO-CON-X® | EN3® | MINI-CON-X® | SHIELDED MINI-CON-X® | MULTI-CON-X®

# CONNECTIVITY SOLUTIONS



SHIELDED MULTI-CON-X® | MAXI-CON-X® | MEGA-CON-X® | MIL-E-QUAL®



**EN2**

0.53" [13MM] 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

## **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 0.25 lb minimum withdrawal
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 125 V AC/DC for 3-7 contact arrangements
Current Rating:	See current rating table on page 109
Insulation Resistance:	1000 M $\Omega$ minimum
Contact Resistance:	10 m $\Omega$ 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
Weatheright Ratings:	IP16, IP18, IP66, IP67, IP68 per IEC60529 NEMA 250 (6P), CFR 46 Part 110.20

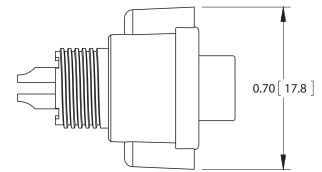
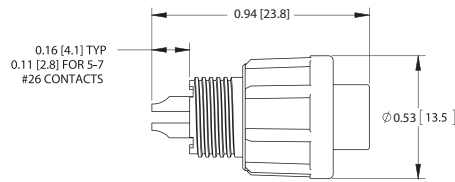
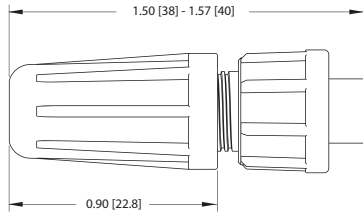
### **Material Specifications**

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.

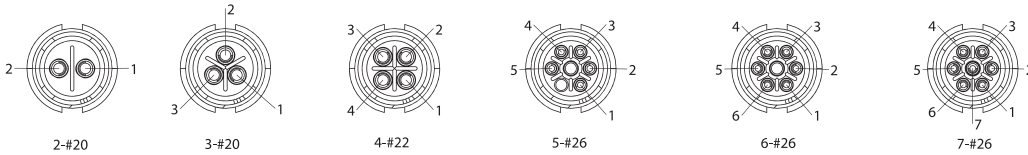
## CORD



TYPICAL CORD CONNECTOR WITH RIBBED COUPLING RING

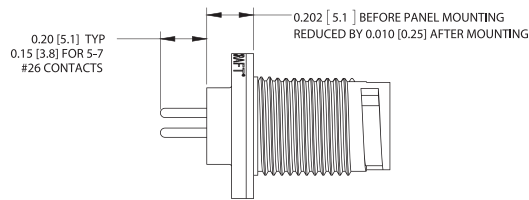
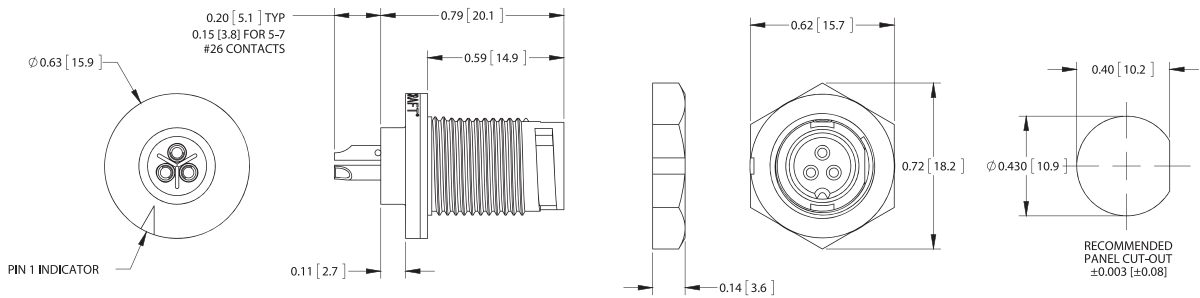
TYPICAL CORD CONNECTOR WITH WINGED COUPLING RING

ALL DIMENSIONS FOR REFERENCE ONLY



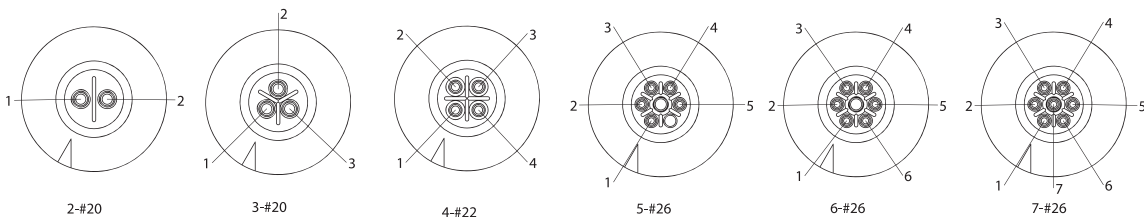
CONTACT ARRANGEMENTS CORD CONNECTOR REAR (WIRING SIDE) VIEW

## PANEL MOUNT



PC TAIL TYPE CONTACTS

ALL DIMENSIONS FOR REFERENCE ONLY

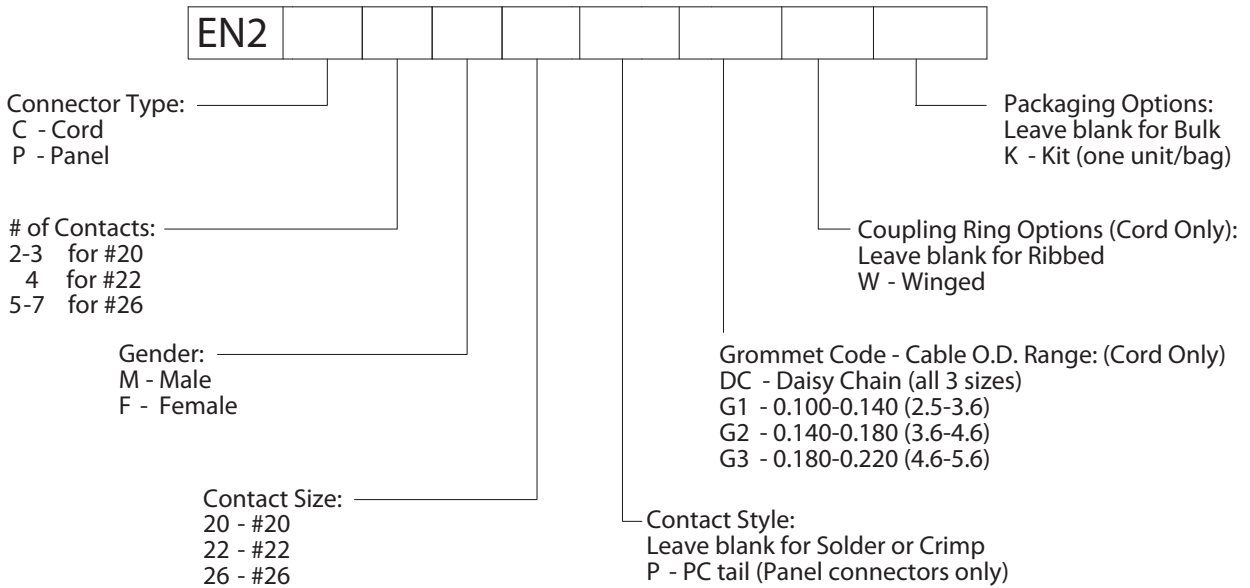


CONTACT ARRANGEMENTS PANEL CONNECTOR REAR (WIRING SIDE) VIEW

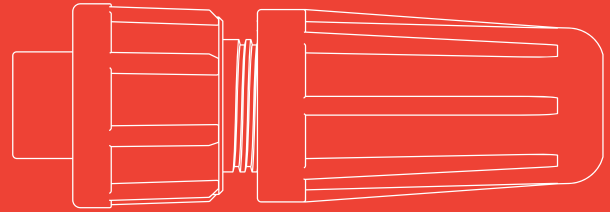
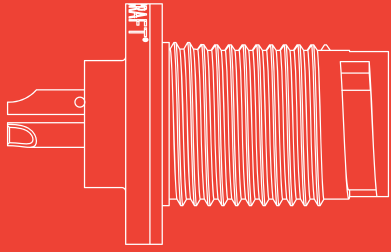
All dimensions are for reference only. Units shown: in[mm].



### PART NUMBER TO ORDER



Consult factory for Cable to Cable (Inline) type connectors.



# MICRO-CON-X<sup>®</sup>

0.53" [13MM] OD 2-7 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 - 16295



**IP RATED LOCKING CAP**  
P/N-16295P (2-3 Contacts)



**MOLDED CABLE END ASSEMBLY**



**MOLDED CABLE TO CABLE ASSEMBLY**



**MOLDED RIGHT ANGLE CABLE ASSEMBLY**

## 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:	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
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### **Certifications**

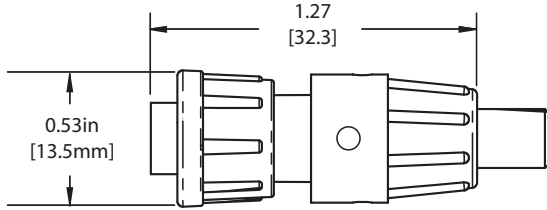
UL File E150822  
CSA File 181200  
Not for current interruption  
RoHS compliant  
REACH compliant

### **Options**

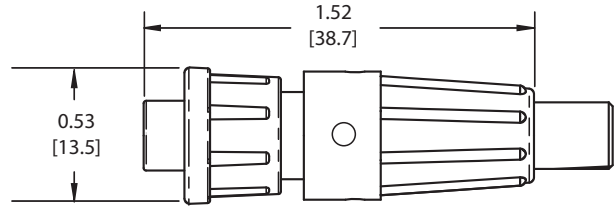
UV Rating:	F1 available
Flame Rating:	UL 94-HB; UL 94V-0 available

**Consult factory for optional colors and materials**

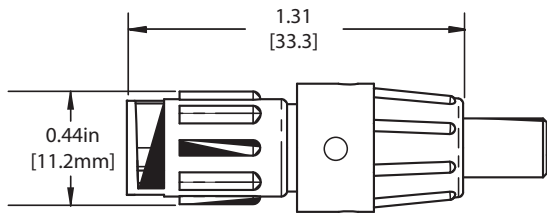
## FIELD INSTALLABLE KITS



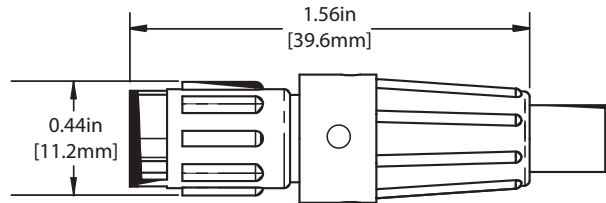
**16XXX-XXG-3XX**  
FIELD INSTALLABLE  
CABLE CONNECTOR  
BACKSHELL TYPE 3-SHORT  
\*2 & 3 POSITION ONLY\*



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

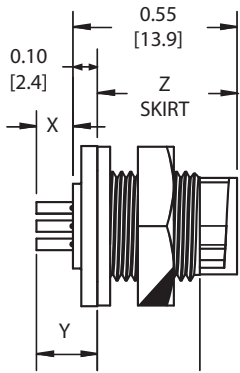


**18XXX-XXG-3XX**  
FIELD INSTALLABLE  
CABLE TO CABLE CONNECTOR  
BACKSHELL TYPE 3-SHORT  
\*2 & 3 POSITION ONLY\*

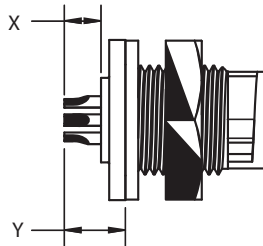


**18XXX-XXG-5XX**  
FIELD INSTALLABLE  
CABLE TO CABLE CONNECTOR  
BACKSHELL TYPE 5-LONG

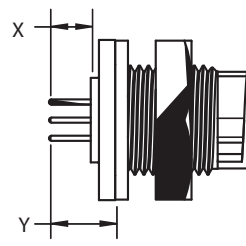
## PANEL MOUNT ASSEMBLY KITS



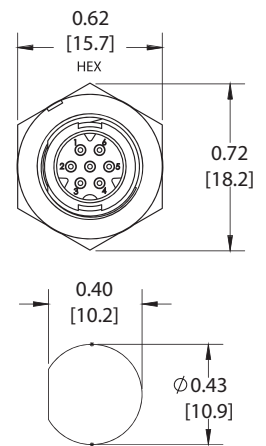
**17X80-XXG-3XX**  
PANEL MOUNT CONNECTOR  
CRIMP



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



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

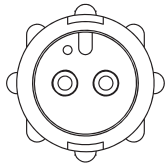


**RECOMMENDED  
PANEL CUT-OUT**  
TOLERANCE: ±.003

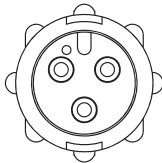
\*X, Y, Z - Consult Factory. All dimensions are for reference only. Units shown: in[mm].

## PANEL MOUNT / CABLE TO CABLE CONNECTORS

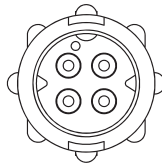
Front View | Wire View



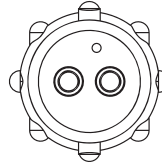
2 POSITION  
#20 PIN & SOCKET  
CONTACT



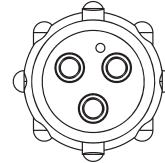
3 POSITION  
#20 PIN & SOCKET  
CONTACT



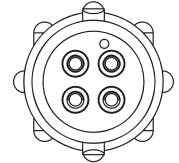
4 POSITION  
#22 PIN & SOCKET  
CONTACT



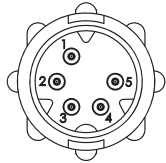
2 POSITION  
#20 PIN & SOCKET  
CONTACT



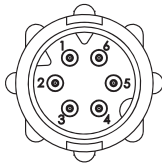
3 POSITION  
#20 PIN & SOCKET  
CONTACT



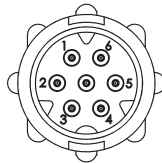
4 POSITION  
#22 PIN & SOCKET  
CONTACT



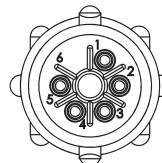
5 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



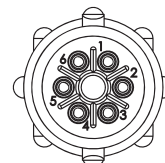
6 POSITION A-KEY  
#26 PIN & SOCKET  
CONTACT



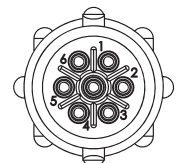
7 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



5 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



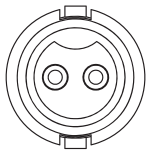
6 POSITION A-KEY  
#26 PIN & SOCKET  
CONTACT



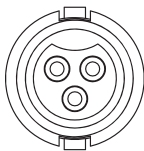
7 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT

## CABLE CONNECTORS

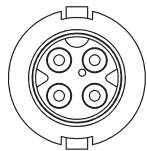
Front View | Wire View



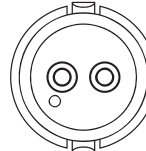
2 POSITION  
#20 PIN & SOCKET  
CONTACT



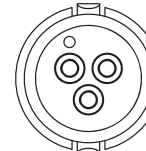
3 POSITION  
#20 PIN & SOCKET  
CONTACT



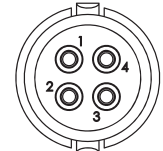
4 POSITION  
#22 PIN & SOCKET  
CONTACT



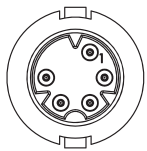
2 POSITION  
#20 PIN & SOCKET  
CONTACT



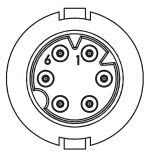
3 POSITION  
#20 PIN & SOCKET  
CONTACT



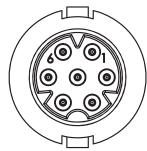
4 POSITION  
#22 PIN & SOCKET  
CONTACT



5 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



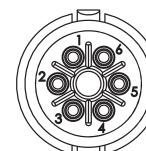
6 POSITION A-KEY  
#26 PIN & SOCKET  
CONTACT



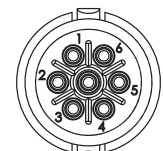
7 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



5 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT



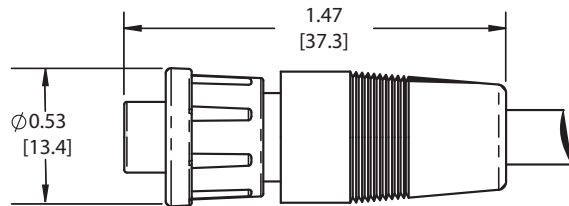
6 POSITION A-KEY  
#26 PIN & SOCKET  
CONTACT



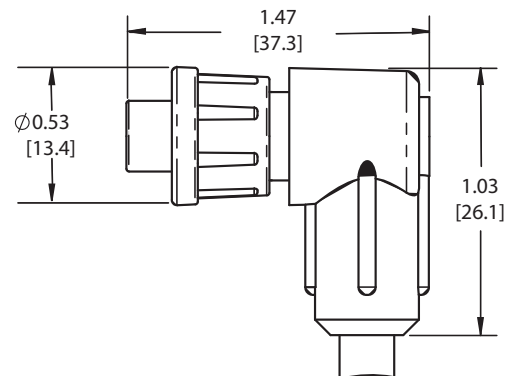
7 POSITION B-KEY  
#26 PIN & SOCKET  
CONTACT

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

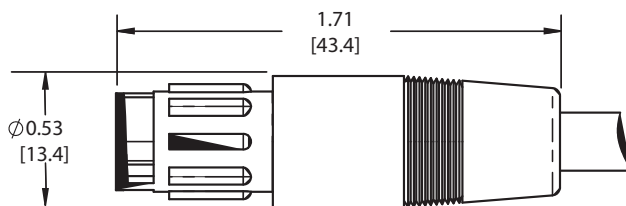
## CUSTOM MOLDED CABLE ASSEMBLIES



**16XXX-XXG**  
CABLE CONNECTOR  
STRAIGHT OVERMOLDED



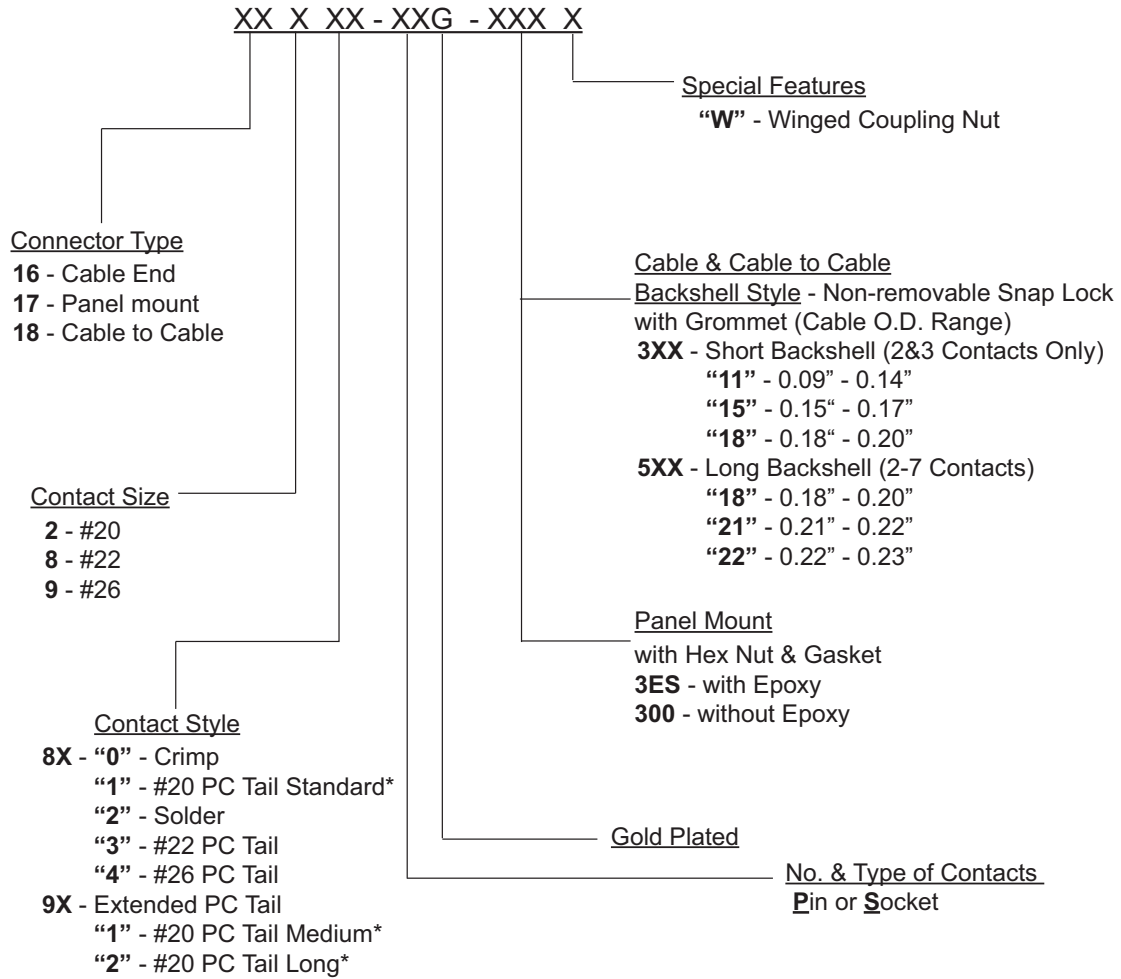
**16XXX-XXG**  
CABLE CONNECTOR  
RIGHT ANGLE OVERMOLDED



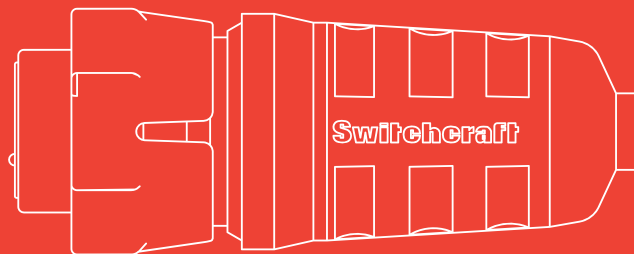
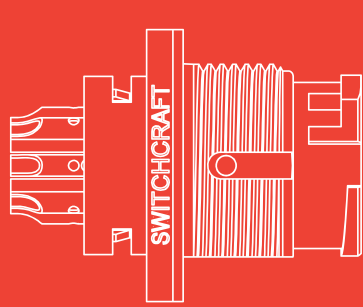
**18XXX-XXG**  
CABLE TO CABLE CONNECTOR  
STRAIGHT OVERMOLDED

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

## PART NUMBER TO ORDER



\*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.



**EN3<sup>®</sup>**

0.71" [18MM] OD 2-18 CONTACTS



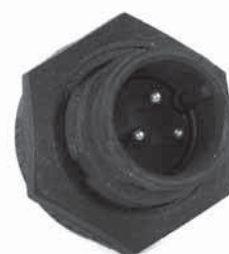
**CABLE END - SOCKET**  
MATES WITH PANEL MOUNT AND  
CABLE TO CABLE



**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



**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
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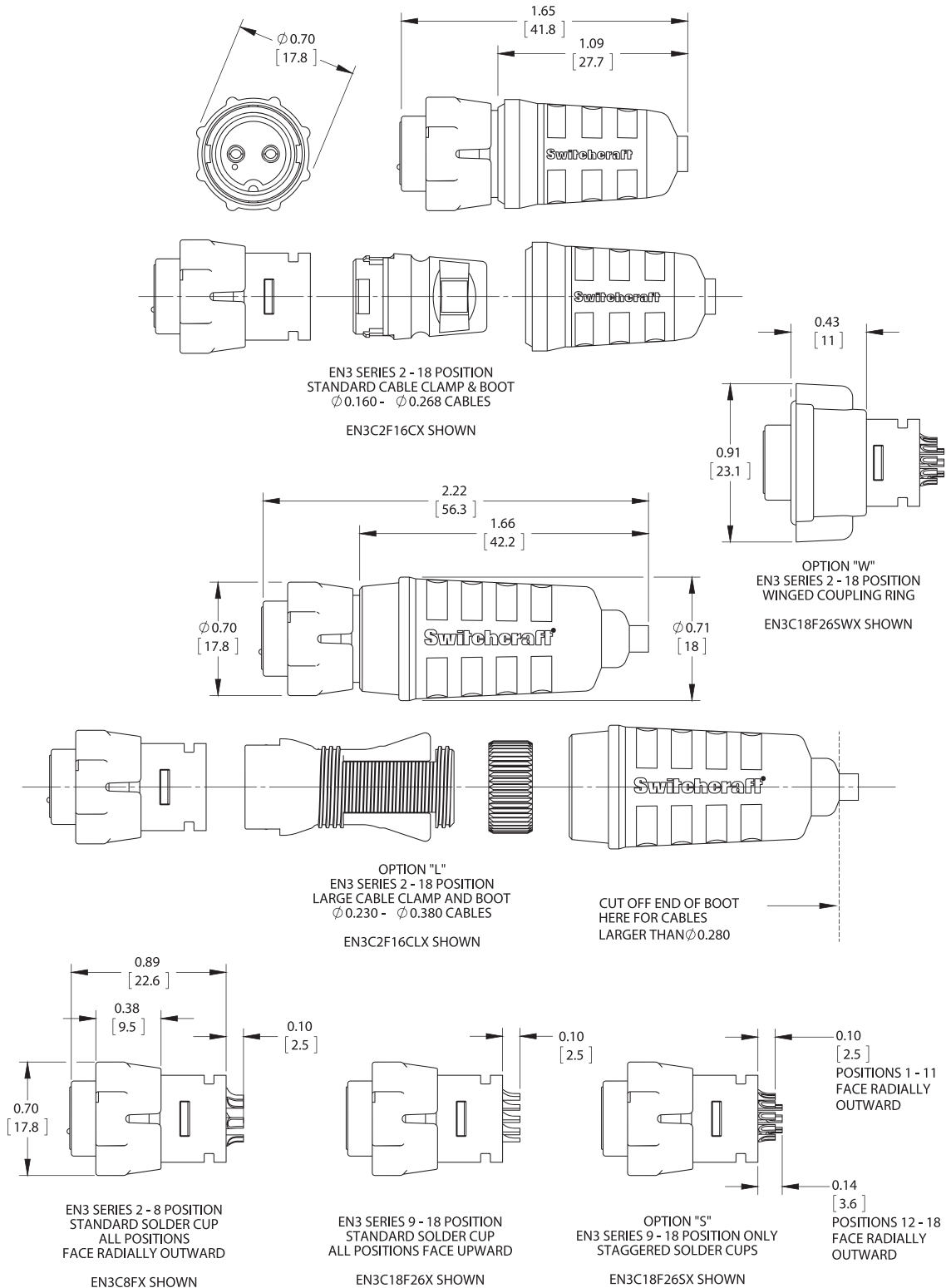
**Certifications:**

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.

## CORD CONNECTORS

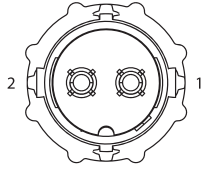


All dimensions are for reference only. Units shown: in[mm].

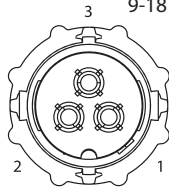
## 2-18 POSITION CORD CONNECTORS

Rear View (Wiring Side)

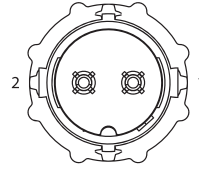
9-18 Position identification numbers denote position used in 18 position layout



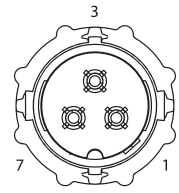
2 POSITION  
#16 PIN & SOCKET CONTACT



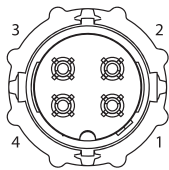
3 POSITION  
#16 PIN & SOCKET CONTACT



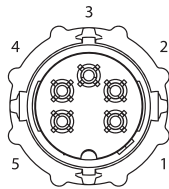
2 POSITION  
#20 PIN & SOCKET CONTACT



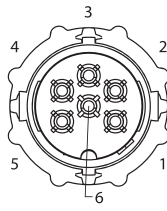
3 POSITION  
#20 PIN & SOCKET CONTACT



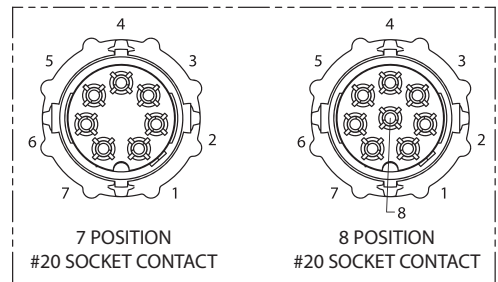
4 POSITION  
#20 PIN & SOCKET CONTACT



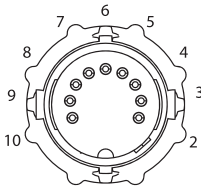
5 POSITION  
#20 PIN & SOCKET CONTACT



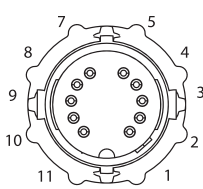
6 POSITION  
#20 PIN & SOCKET CONTACT



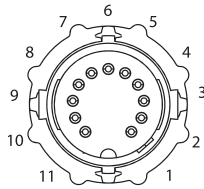
**7 & 8 POSITION NOT AVAILABLE IN MALE CORD CONNECTORS**



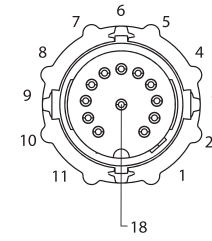
9 POSITION  
#26 PIN & SOCKET CONTACT



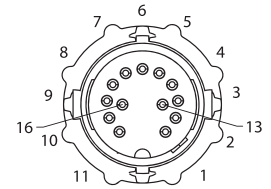
10 POSITION  
#26 PIN & SOCKET CONTACT



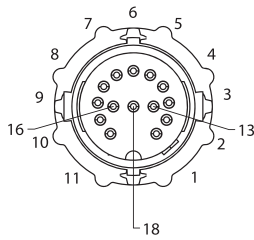
11 POSITION  
#26 PIN & SOCKET CONTACT



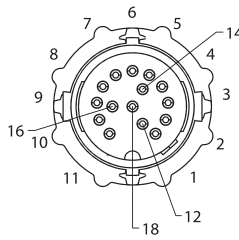
12 POSITION  
#26 PIN & SOCKET CONTACT



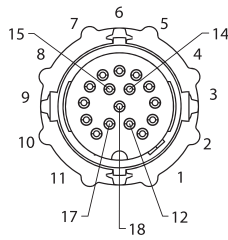
13 POSITION  
#26 PIN & SOCKET CONTACT



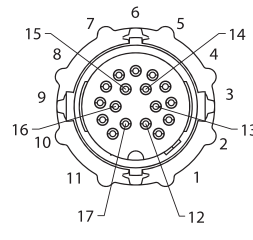
14 POSITION  
#26 PIN & SOCKET CONTACT



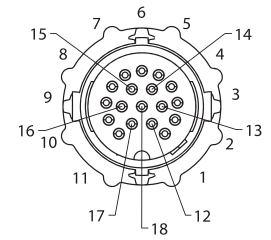
15 POSITION  
#26 PIN & SOCKET CONTACT



16 POSITION  
#26 PIN & SOCKET CONTACT



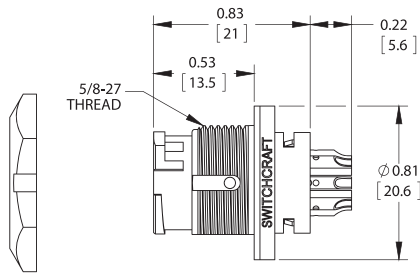
17 POSITION  
#26 PIN & SOCKET CONTACT



18 POSITION  
#26 PIN & SOCKET CONTACT

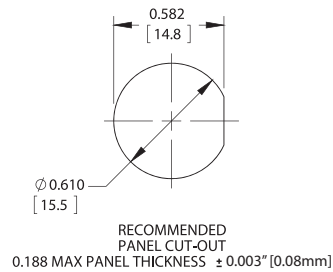
All dimensions are for reference only. Units shown: in[mm].

## EN3® PANEL CONNECTORS

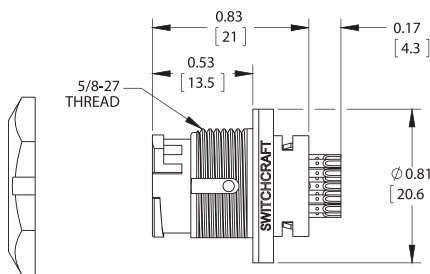


EN3 SERIES 2 - 8 POSITION  
STANDARD SOLDER CUP  
ALL POSITIONS FACE RADIALLY OUTWARD

EN3P8MX SHOWN

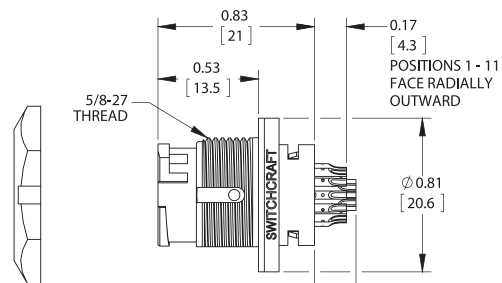


MOUNTING NUT  
8 - 10 INCH-LBS MAX TORQUE



EN3 SERIES 9 - 18 POSITION  
STANDARD SOLDER CUP  
ALL POSITIONS FACE UPWARD

EN3P18M26X SHOWN

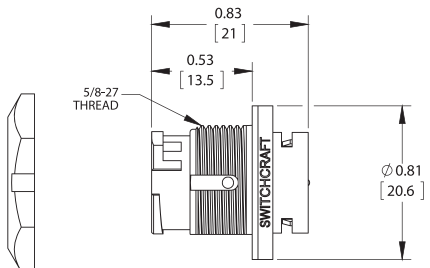


OPTIONS "S"  
EN3 SERIES 9 - 18 POSITION ONLY  
STAGGERED SOLDER CUP

EN3P18M26SX SHOWN

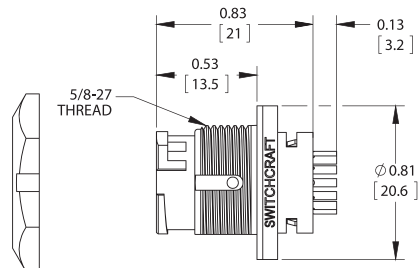
POSITIONS 1 - 11  
FACE RADIALLY  
OUTWARD

POSITIONS 12 - 18  
FACE RADIALLY  
OUTWARD



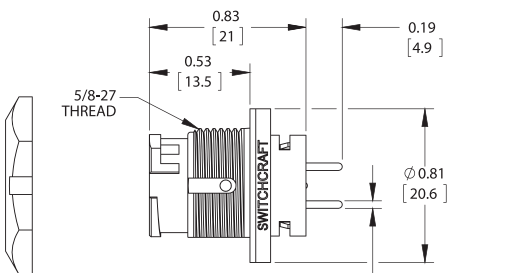
OPTION "C"  
EN3 SERIES 2 - 8 POSITION  
CRIMP TERMINALS

EN3P2MCX SHOWN



OPTION "C"  
EN3 SERIES 9 - 18 POSITION  
CRIMP TERMINALS

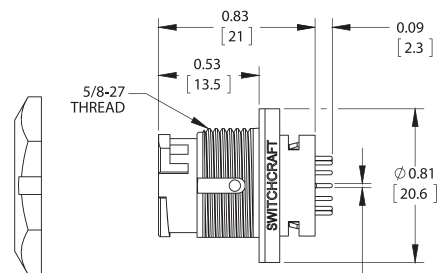
EN3P9M26CX SHOWN



OPTION "P"  
EN3 SERIES 2 - 8 POSITION  
PC TERMINALS

EN3P2MPX SHOWN

Ø 0.039 [1.0]  
FOR #20 CONTACT  
Ø 0.047 [1.2]  
FOR #16 CONTACT



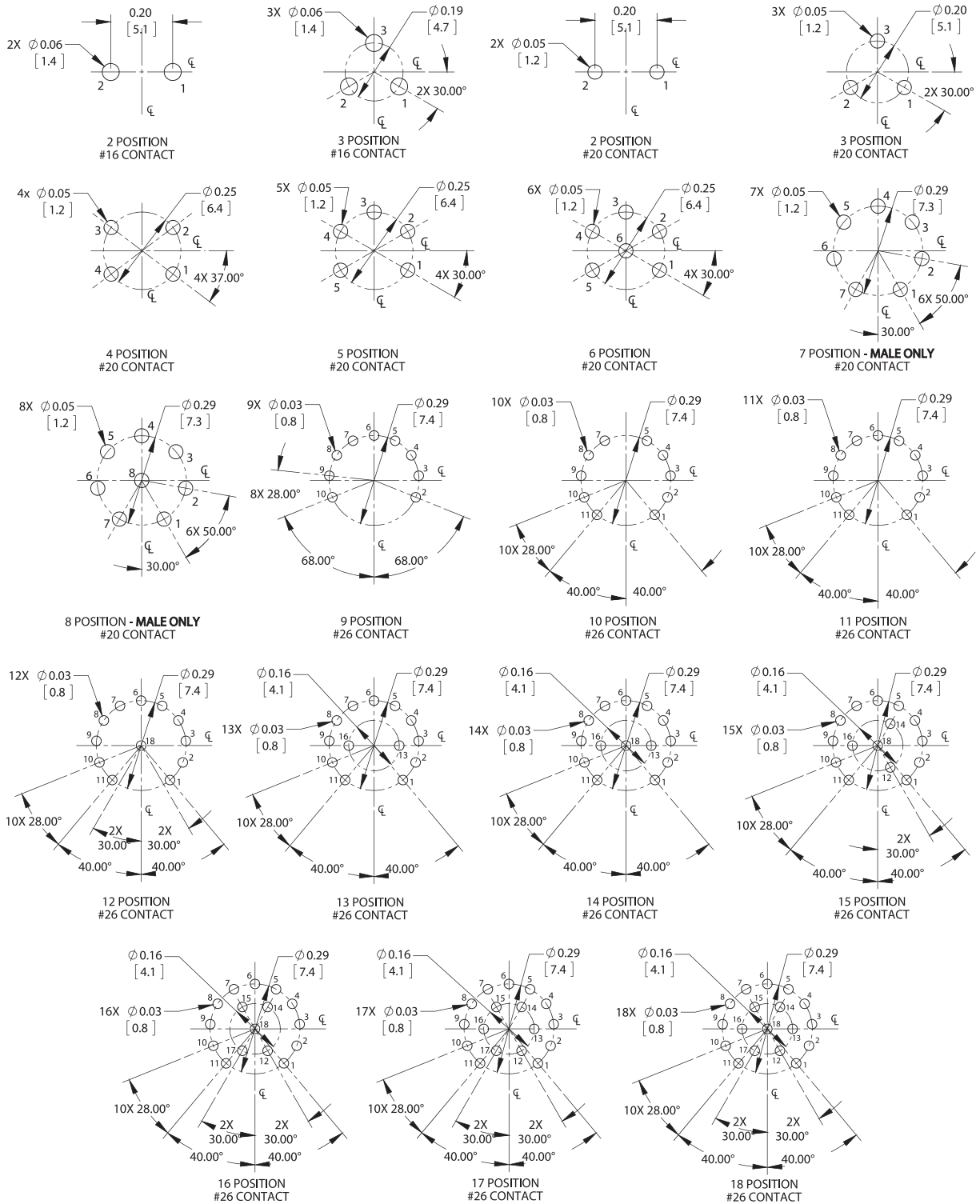
OPTION "P"  
EN3 SERIES 9 - 18 POSITION  
PC TERMINALS

EN3P9M26PX SHOWN

Ø 0.022  
[0.6]

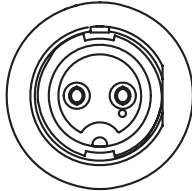
All dimensions are for reference only. Units shown: in[mm].

## EN3<sup>®</sup> PANEL CONNECTORS PCB LAYOUT COMPONENT SIDE

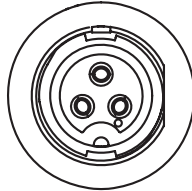


All dimensions are for reference only. Units shown: in[mm].

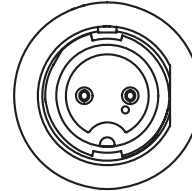
**2-18 PIN PANEL CONNECTORS**  
Front View (Mating End)



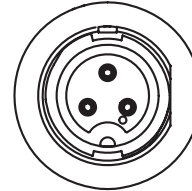
2 POSITION  
#16 PIN & SOCKET  
CONTACT



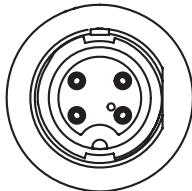
3 POSITION  
#16 PIN & SOCKET  
CONTACT



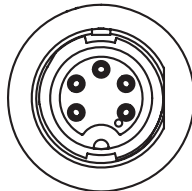
2 POSITION  
#20 PIN & SOCKET  
CONTACT



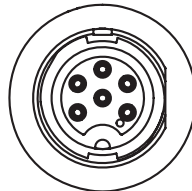
3 POSITION  
#20 PIN & SOCKET  
CONTACT



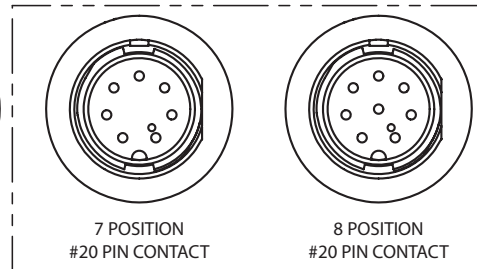
4 POSITION  
#20 PIN & SOCKET  
CONTACT



5 POSITION  
#20 PIN & SOCKET  
CONTACT



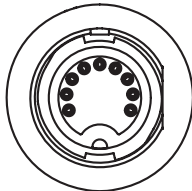
6 POSITION  
#20 PIN & SOCKET  
CONTACT



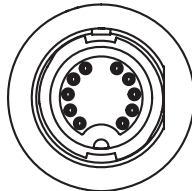
7 POSITION  
#20 PIN CONTACT

8 POSITION  
#20 PIN CONTACT

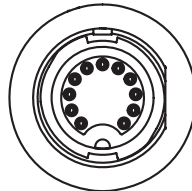
**7 & 8 PIN ONLY CONNECTORS**



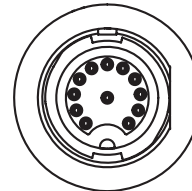
9 POSITION  
#26 PIN & SOCKET  
CONTACT



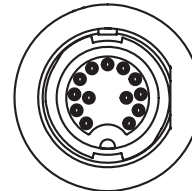
10 POSITION  
#26 PIN & SOCKET  
CONTACT



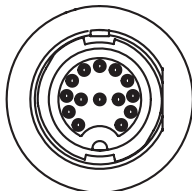
11 POSITION  
#26 PIN & SOCKET  
CONTACT



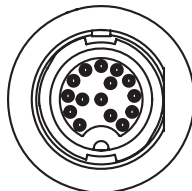
12 POSITION  
#26 PIN & SOCKET  
CONTACT



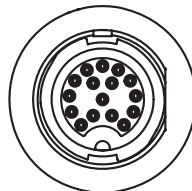
13 POSITION  
#26 PIN & SOCKET  
CONTACT



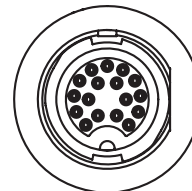
14 POSITION  
#26 PIN & SOCKET  
CONTACT



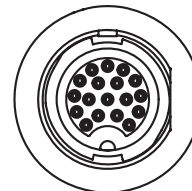
15 POSITION  
#26 PIN & SOCKET  
CONTACT



16 POSITION  
#26 PIN & SOCKET  
CONTACT



17 POSITION  
#26 PIN & SOCKET  
CONTACT



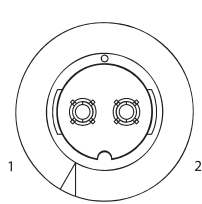
18 POSITION  
#26 PIN & SOCKET  
CONTACT

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

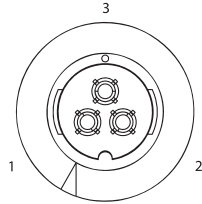
## 2-18 PANEL CONNECTORS

### Rear View (Wiring Side)

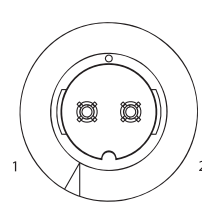
9-18 position identification numbers denote position used in 18 position layout



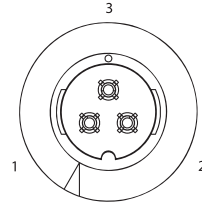
2 POSITION  
#16 PIN & SOCKET  
CONTACT



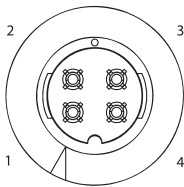
3 POSITION  
#16 PIN & SOCKET  
CONTACT



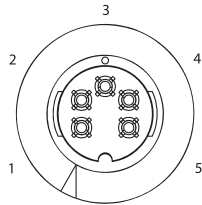
2 POSITION  
#16 PIN & SOCKET  
CONTACT



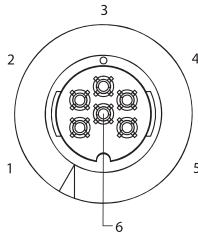
3 POSITION  
#20 PIN & SOCKET  
CONTACT



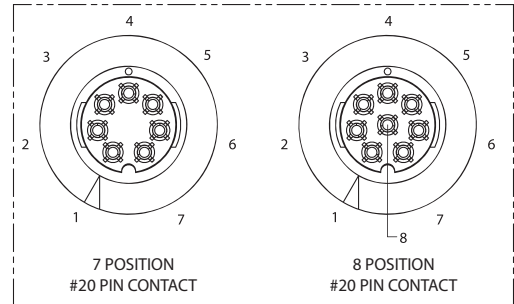
4 POSITION  
#20 PIN & SOCKET  
CONTACT



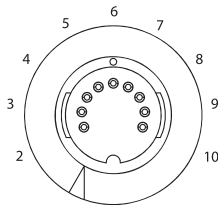
5 POSITION  
#20 PIN & SOCKET  
CONTACT



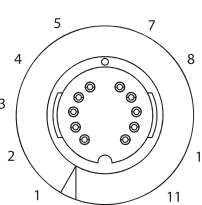
6 POSITION  
#20 PIN & SOCKET  
CONTACT



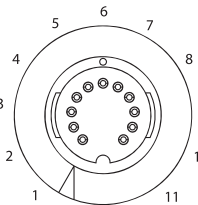
7 & 8 POSITION NOT AVAILABLE IN  
FEMALE PANEL CONNECTORS



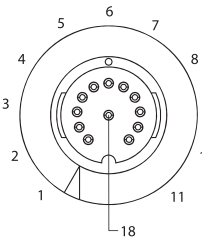
9 POSITION  
#26 PIN & SOCKET  
CONTACT



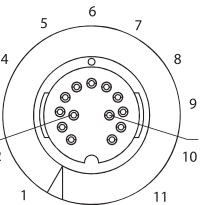
10 POSITION  
#26 PIN & SOCKET  
CONTACT



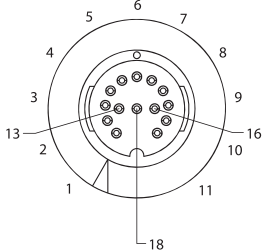
11 POSITION  
#26 PIN & SOCKET  
CONTACT



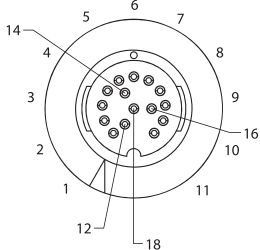
12 POSITION  
#26 PIN & SOCKET  
CONTACT



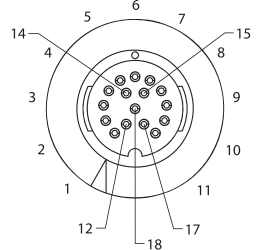
13 POSITION  
#26 PIN & SOCKET  
CONTACT



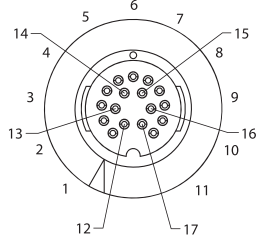
14 POSITION  
#26 PIN & SOCKET  
CONTACT



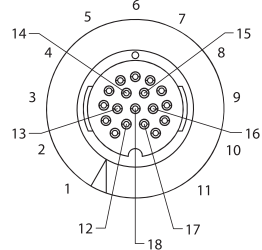
15 POSITION  
#26 PIN & SOCKET  
CONTACT



16 POSITION  
#26 PIN & SOCKET  
CONTACT



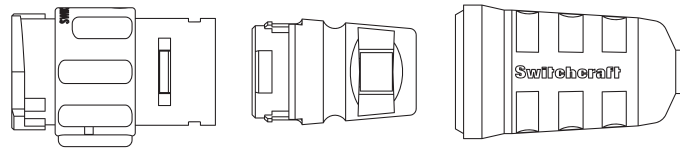
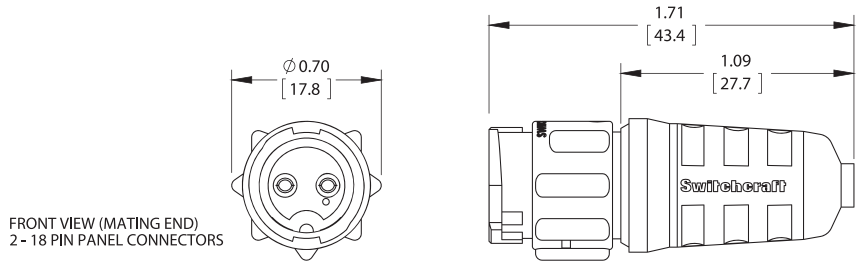
17 POSITION  
#26 PIN & SOCKET  
CONTACT



18 POSITION  
#26 PIN & SOCKET  
CONTACT

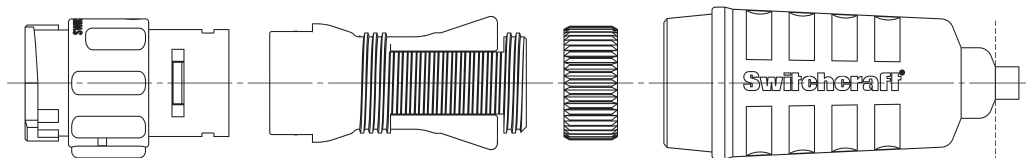
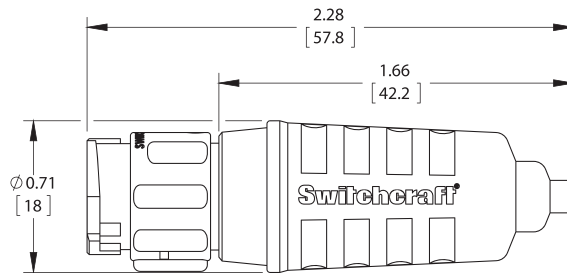
All dimensions are for reference only. Units shown: in/[mm].

## INLINE CONNECTORS



EN3 SERIES 2 - 18 POSITION  
STANDARD CABLE CLAMP & BOOT  
Ø 0.160 - Ø 0.268 CABLES

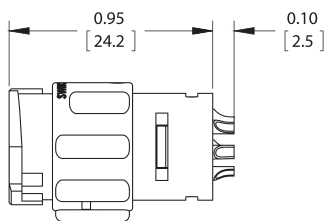
EN3L2F16CX SHOWN



OPTION "L"  
EN3 SERIES 2 - 18 POSITION  
LARGE CABLE CLAMP & BOOT  
Ø 0.230 - Ø 0.380 CABLES

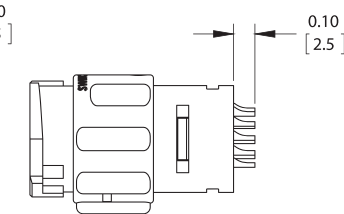
EN3L2F16CLX SHOWN

CUT OFF END OF BOOT  
HERE FOR CABLES  
LARGER THAN Ø 0.280



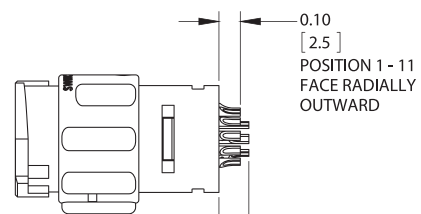
EN3 SERIES 2 - 8 POSITION  
STANDARD SOLDER CUP  
ALL POSITIONS  
FACE RADIALLY OUTWARD

EN3L8MX SHOWN



EN3 SERIES 9 - 18 POSITION  
STANDARD SOLDER CUP  
ALL POSITIONS FACE UPWARD

EN3L18F26X SHOWN



OPTION "S"  
EN3 SERIES 9 - 18 POSITION ONLY  
STAGGERED SOLDER CUPS

EN3L18F26SX SHOWN

0.10 [2.5]  
POSITION 1 - 11  
FACE RADIALLY  
OUTWARD

0.14 [3.6]  
POSITION 12 - 18  
FACE RADIALLY  
OUTWARD

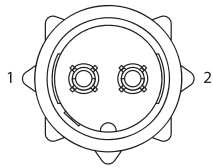
All dimensions are for reference only. Units shown: in[mm].



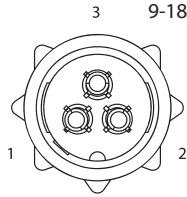
## 2-18 POSITION INLINE CONNECTORS

Rear View (Wiring Side)

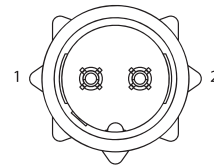
9-18 Position identification numbers denote position used in 18 position layout



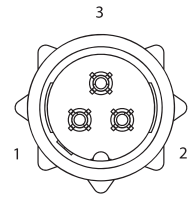
2 POSITION  
#16 PIN & SOCKET  
CONTACT



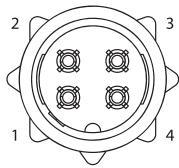
3 POSITION  
#16 PIN & SOCKET  
CONTACT



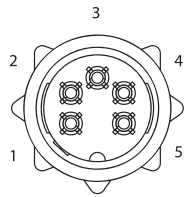
2 POSITION  
#20 PIN & SOCKET  
CONTACT



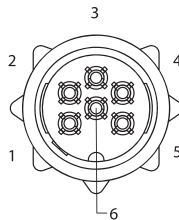
3 POSITION  
#20 PIN & SOCKET  
CONTACT



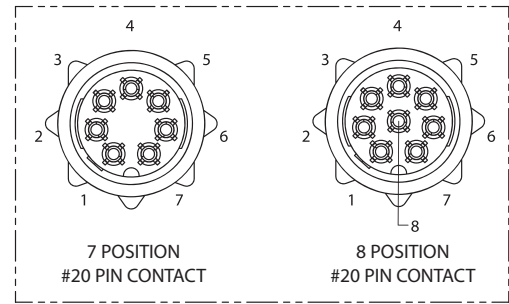
4 POSITION  
#20 PIN & SOCKET  
CONTACT



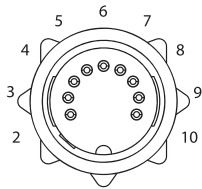
5 POSITION  
#20 PIN & SOCKET  
CONTACT



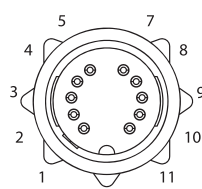
6 POSITION  
#20 PIN & SOCKET  
CONTACT



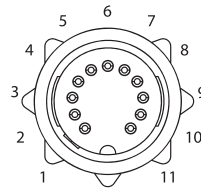
**7 & 8 POSITION NOT AVAILABLE IN  
FEMALE INLINE CONNECTORS**



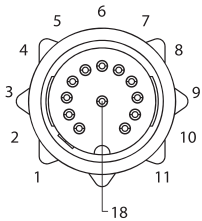
9 POSITION  
#26 PIN & SOCKET  
CONTACT



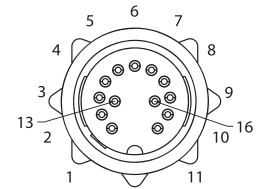
10 POSITION  
#26 PIN & SOCKET  
CONTACT



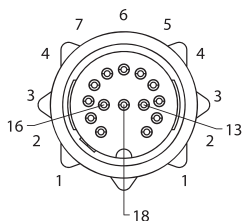
11 POSITION  
#26 PIN & SOCKET  
CONTACT



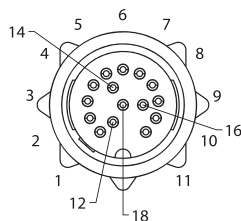
12 POSITION  
#26 PIN & SOCKET  
CONTACT



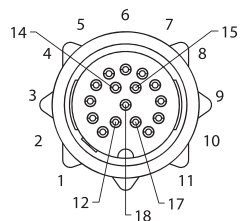
13 POSITION  
#26 PIN & SOCKET  
CONTACT



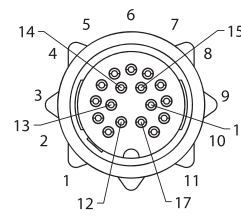
14 POSITION  
#26 PIN & SOCKET  
CONTACT



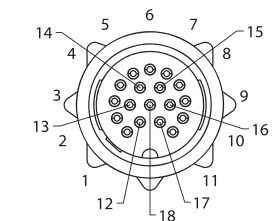
15 POSITION  
#26 PIN & SOCKET  
CONTACT



16 POSITION  
#26 PIN & SOCKET  
CONTACT



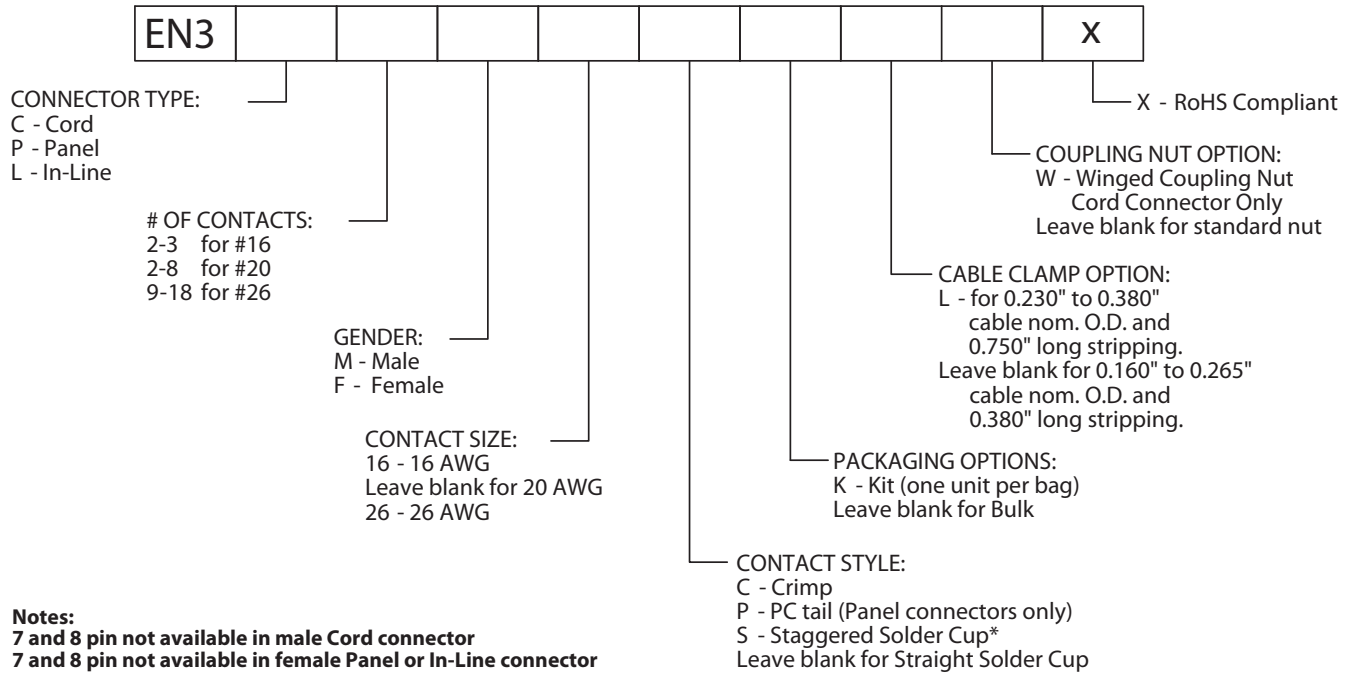
17 POSITION  
#26 PIN & SOCKET  
CONTACT



18 POSITION  
#26 PIN & SOCKET  
CONTACT

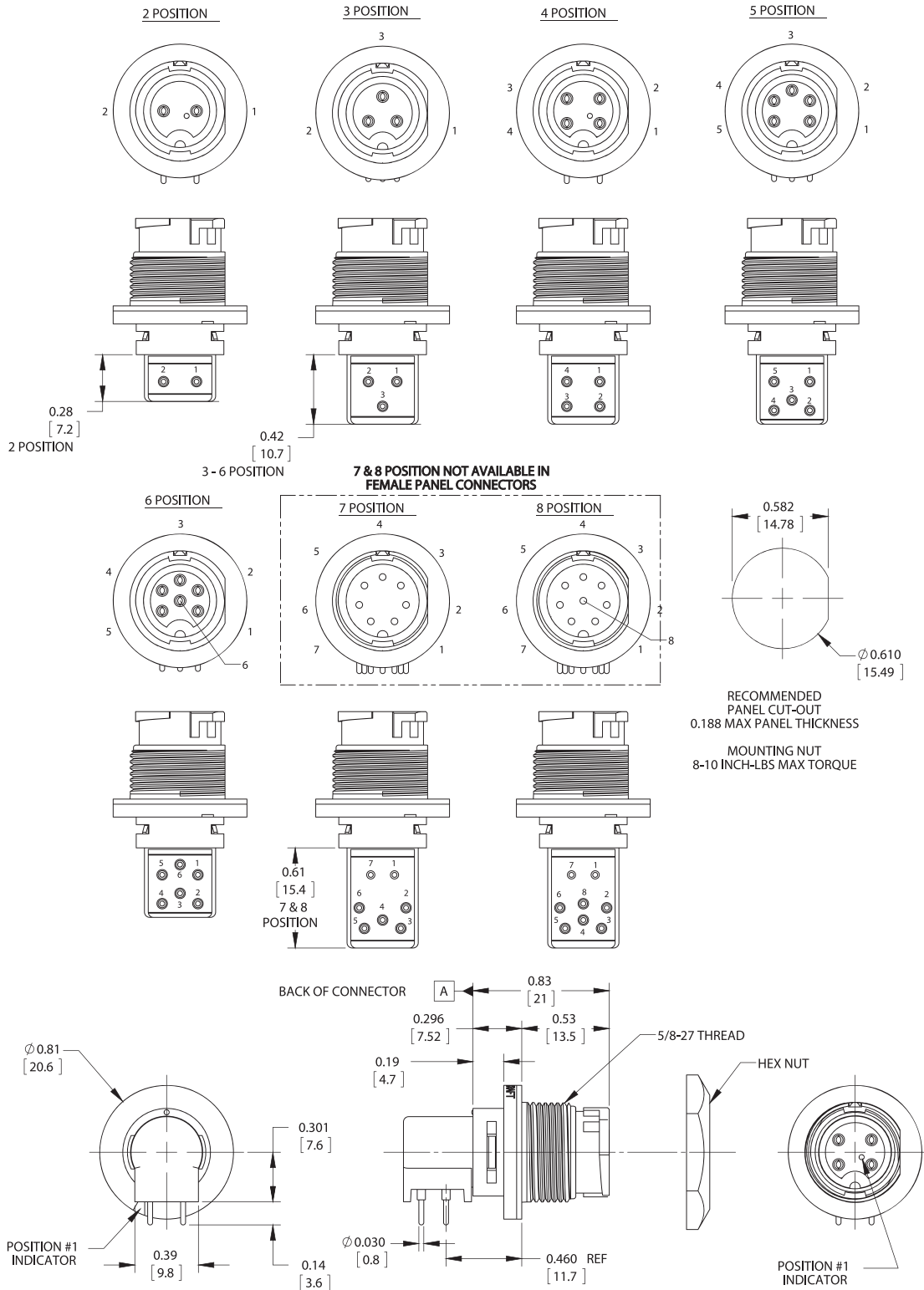
All dimensions are for reference only. Units shown: in[mm].

## PART NUMBER TO ORDER - EN3®



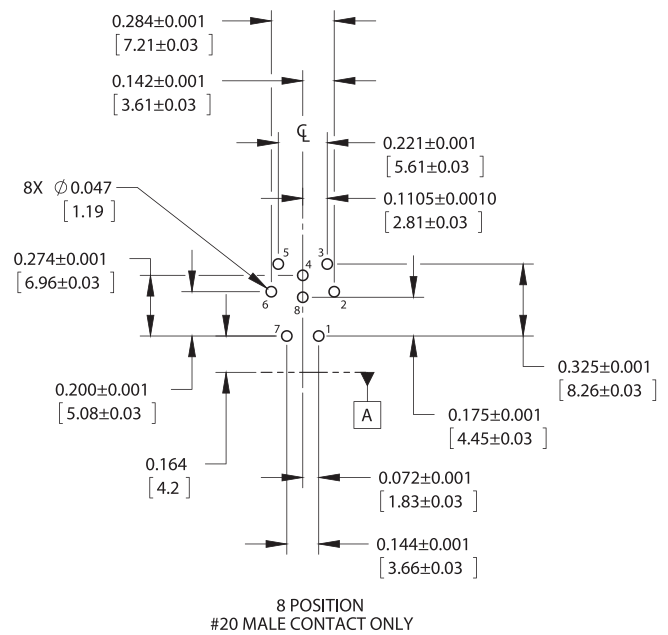
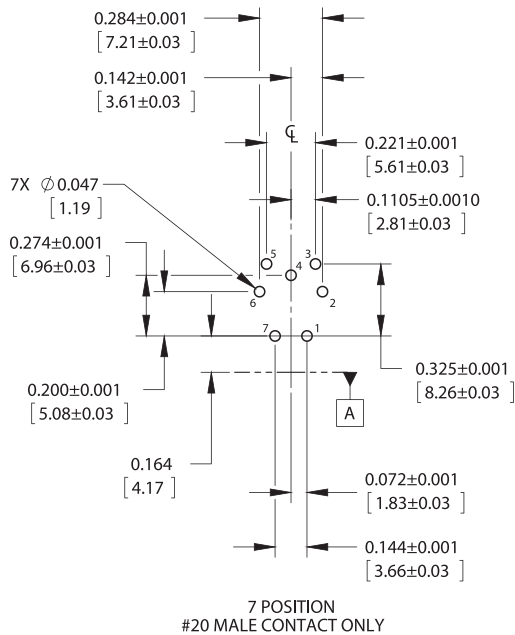
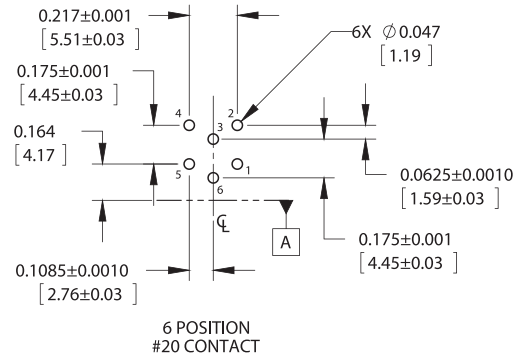
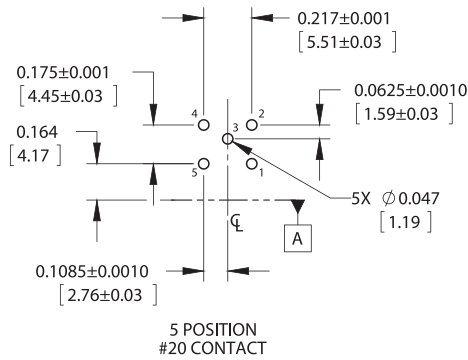
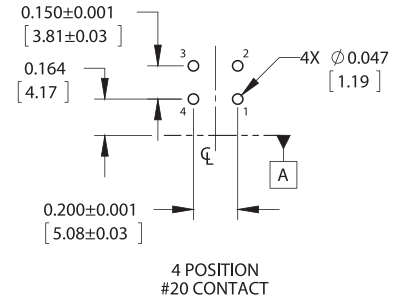
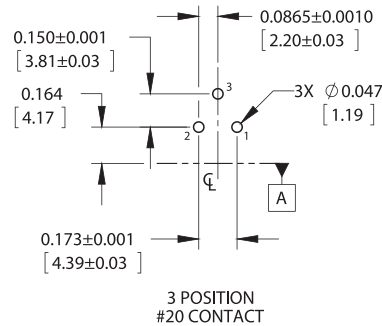
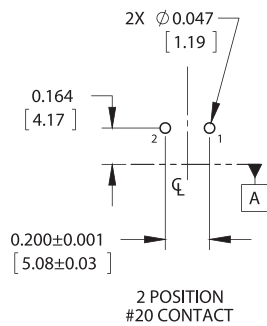
\*Available only for products with 9-18 contacts

## EN3<sup>®</sup> RIGHT ANGLE 2-8 POSITION MOLDED CONNECTORS



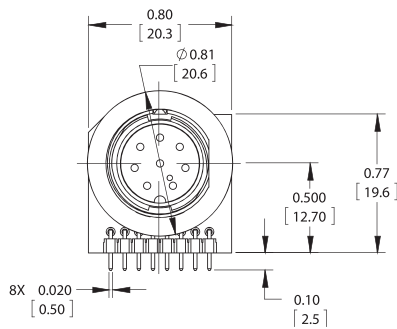
All dimensions are for reference only. Units shown: in[mm].

## EN3® RIGHT ANGLE 2-8 POSITION CONNECTORS

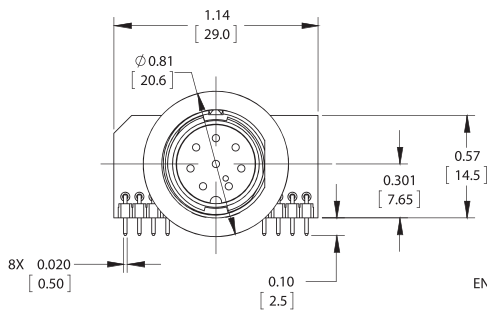
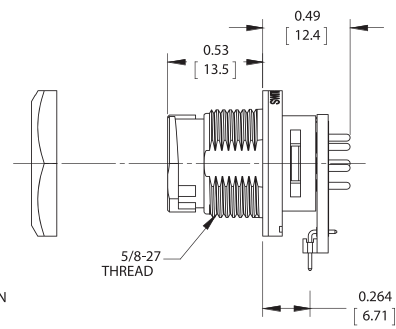


All dimensions are for reference only. Units shown: in[mm].

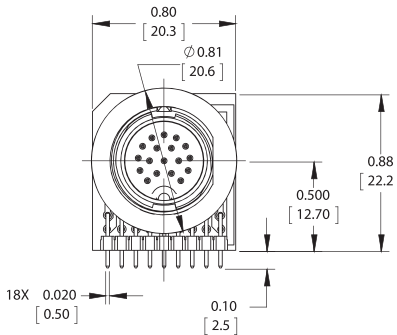
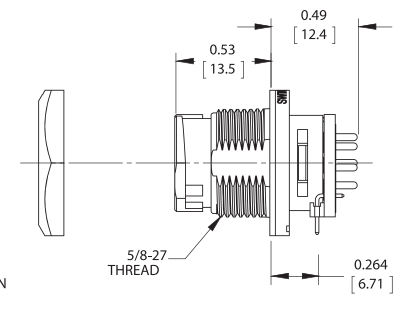
## EN3<sup>®</sup> RIGHT ANGLE PC BOARD CONNECTORS



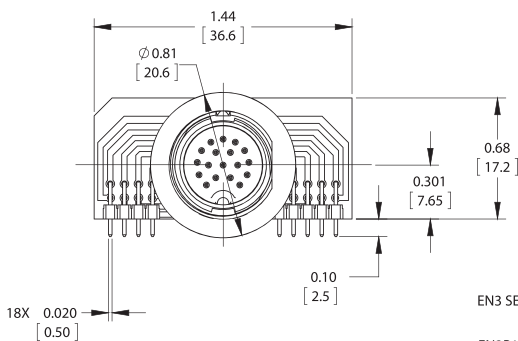
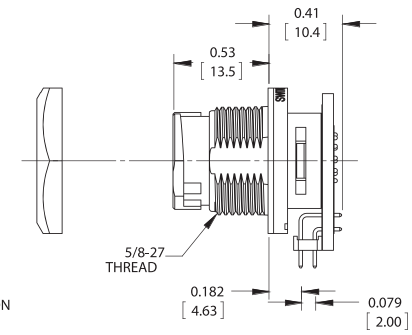
OPTION "N"  
EN3 SERIES 2 - 8 POSITION  
NARROW PCB  
EN3P8MRAPCBN SHOWN  
(NOT AVAILABLE IN FEMALE 7 & 8 POSITION)



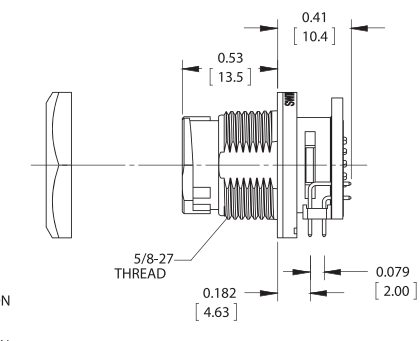
OPTION "W"  
EN3 SERIES 2 - 8 POSITION  
WIDE PCB  
EN3P8MRAPCBW SHOWN  
(NOT AVAILABLE IN FEMALE 7 & 8 POSITION)



OPTION "N"  
EN3 SERIES 9 - 18 POSITION  
NARROW PCB  
EN3P18MRAPCBN SHOWN

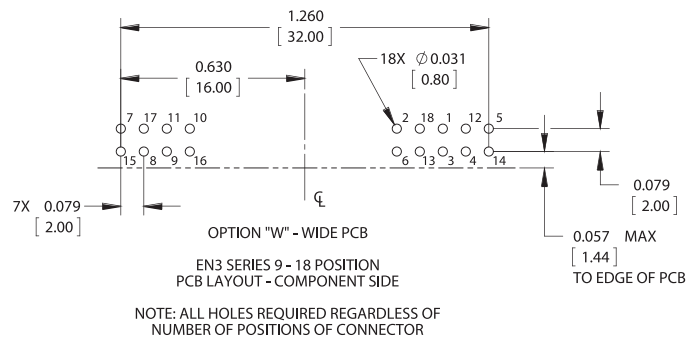
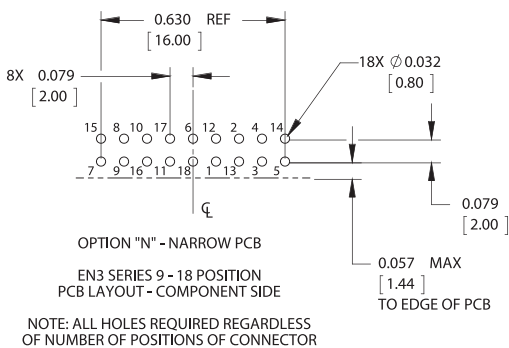
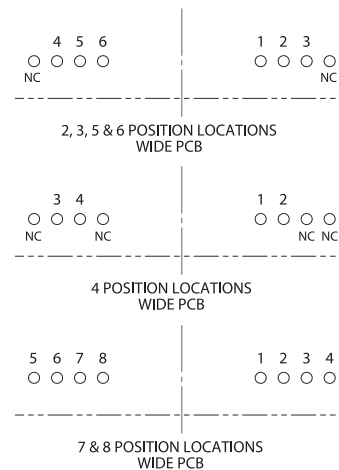
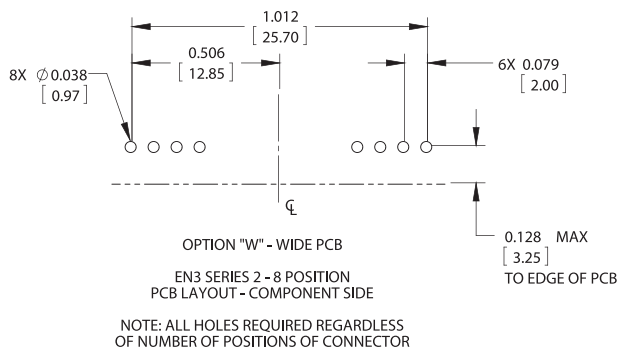
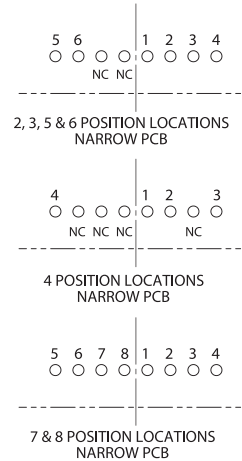
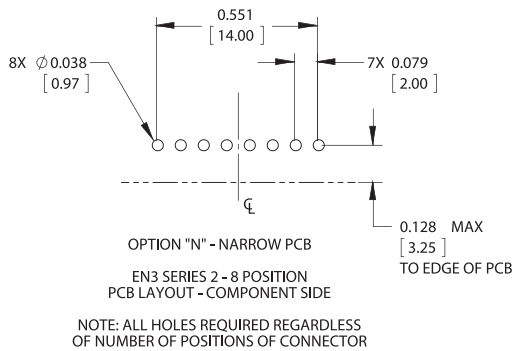


OPTION "W"  
EN3 SERIES 9 - 18 POSITION  
WIDE PCB  
EN3P18MRAPCBW SHOWN



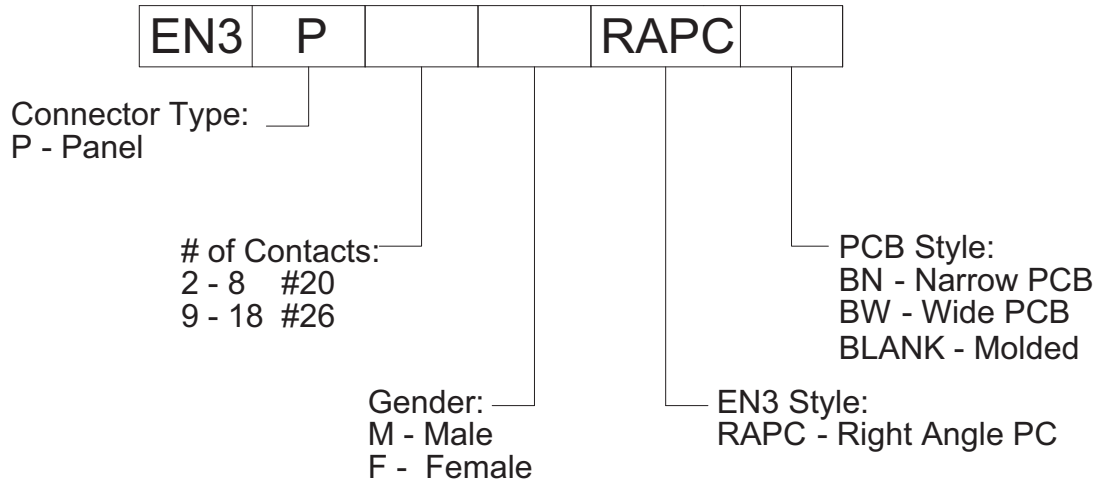
All dimensions are for reference only. Units shown: in[mm].

## EN3<sup>®</sup> RIGHT ANGLE PC BOARD CONNECTORS



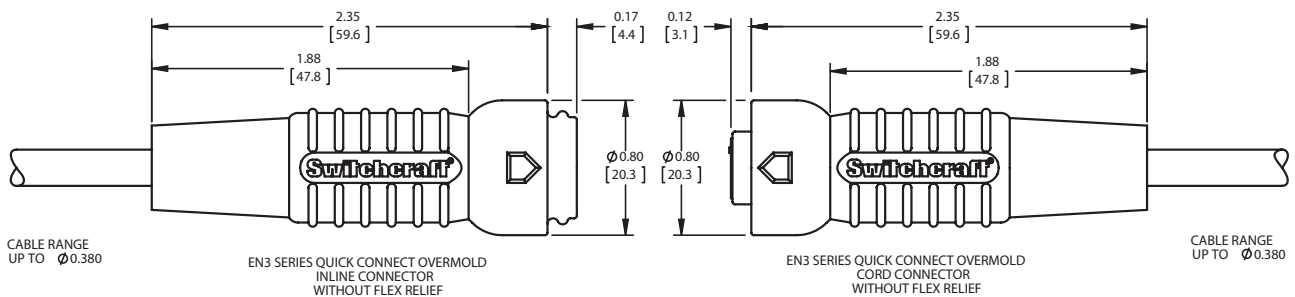
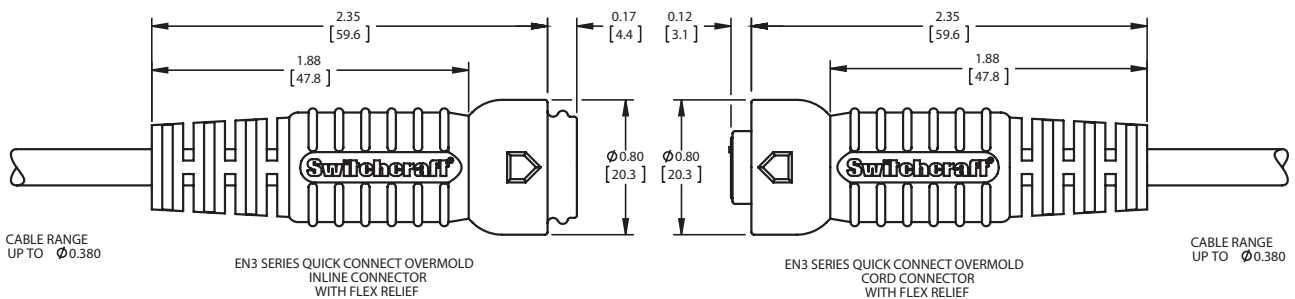
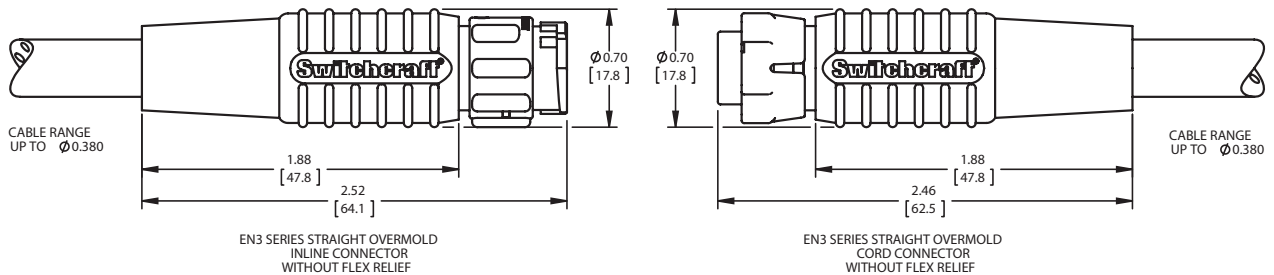
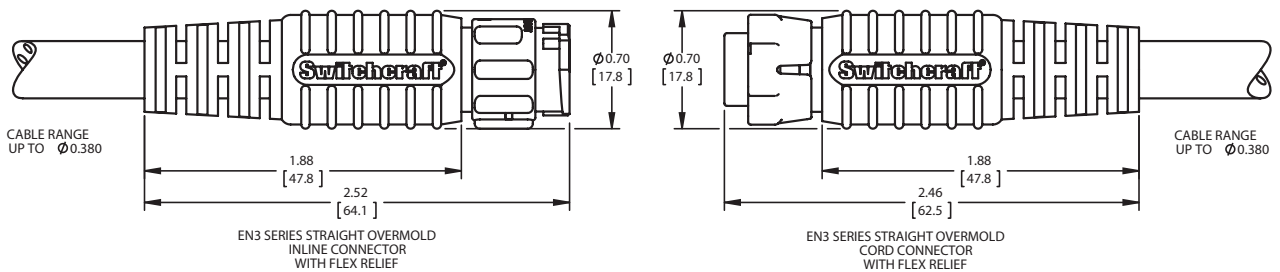
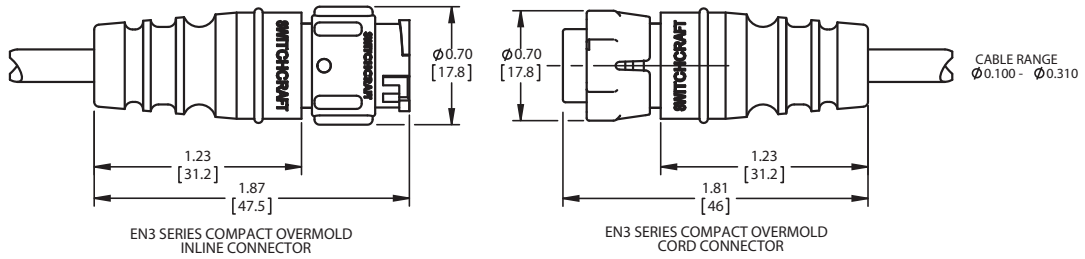
All dimensions are for reference only. Units shown: in[mm].

## PART NUMBER TO ORDER - RIGHT ANGLE EN3® PANEL MOUNTS



**Notes:**  
7 and 8 pin not available in female Panel connector

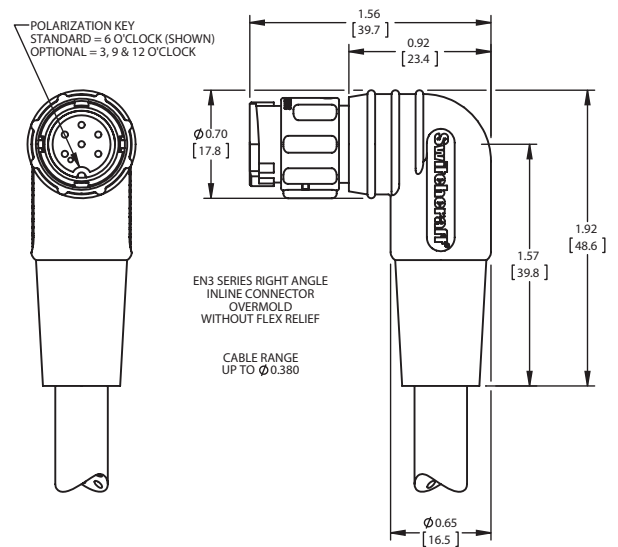
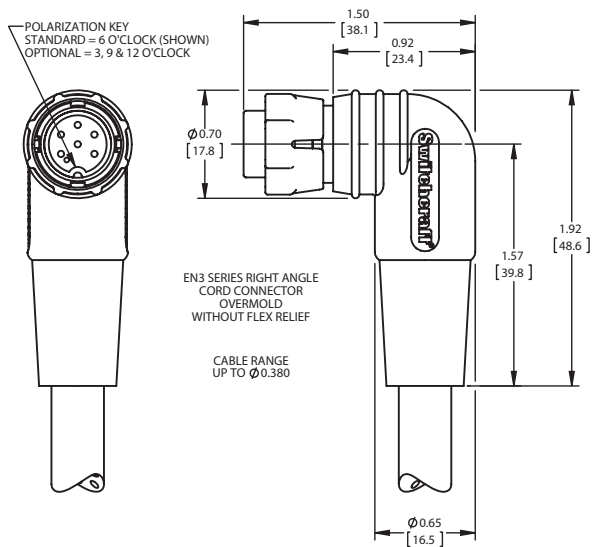
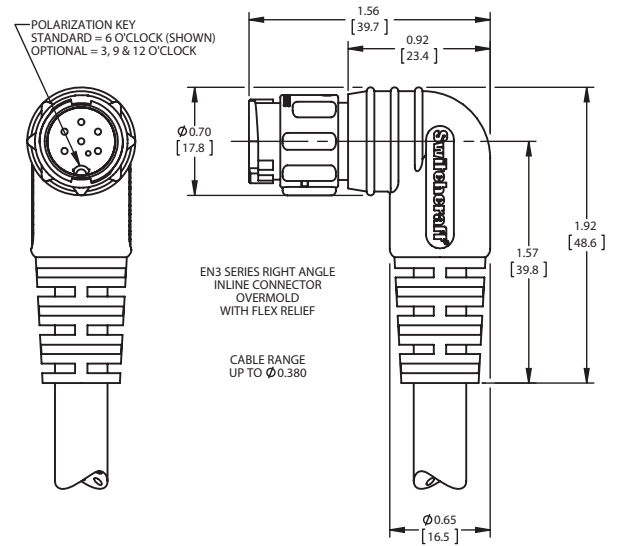
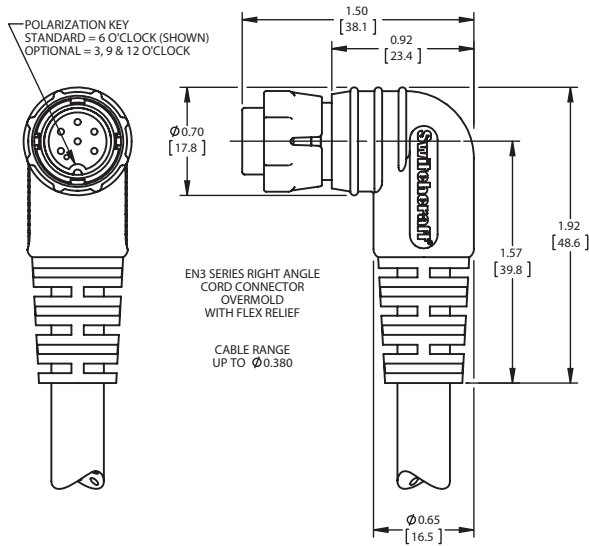
## CUSTOM MOLDED CABLE ASSEMBLIES



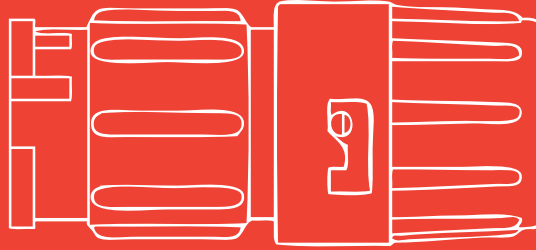
All dimensions are for reference only. Units shown: in[mm].



## CUSTOM MOLDED CABLE ASSEMBLIES



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



# MINI-CON-X<sup>®</sup>

0.71" [18MM] OD 2-8 CONTACTS



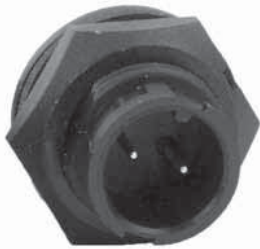
**CABLE END - SOCKET**  
MATES WITH PANEL MOUNT AND  
CABLE TO CABLE



**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 - 6295



**IP RATED LOCKING CAP**  
P/N - 6295P-W



**MOLDED CABLE END ASSEMBLY**



**MOLDED CABLE TO CABLE ASSEMBLY**



**MOLDED RIGHT ANGLE CABLE ASSEMBLY**

## **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:	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**

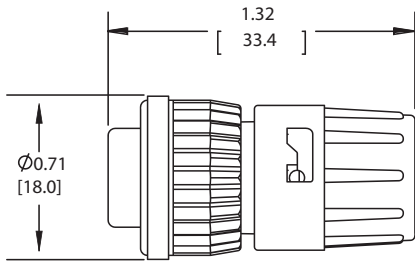
UL File E150822  
CSA File 181200  
Not for current interruption  
RoHS compliant  
REACH compliant

### **Options**

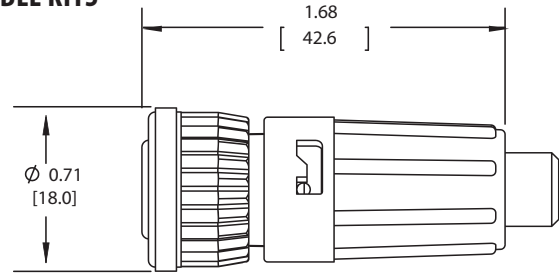
UV Rating:	F1 available
Flame Rating:	UL 94V-0 available

**Consult factory for optional colors and materials**

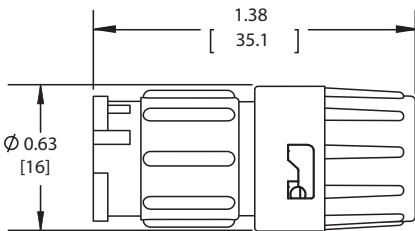
## FIELD INSTALLABLE KITS



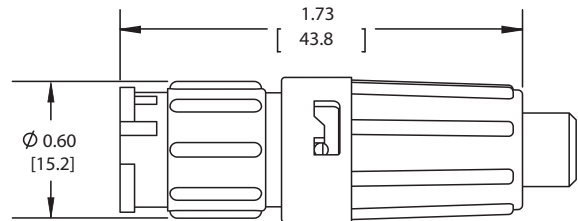
**6XXX-XXG-3XX**  
FIELD INSTALLABLE  
CABLE CONNECTOR  
TWIST LOCK BACKSHELL  
TYPE 3-SHORT



**6XXX-XXG-5XX**  
FIELD INSTALLABLE  
CABLE CONNECTOR  
TWIST LOCK BACKSHELL  
TYPE 5-LONG

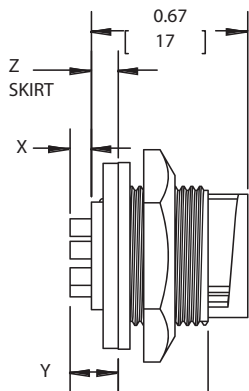


**8XXX-XXG-3XX**  
FIELD INSTALLABLE  
CABLE TO CABLE CONNECTOR  
TWIST LOCK BACKSHELL  
TYPE 3-SHORT

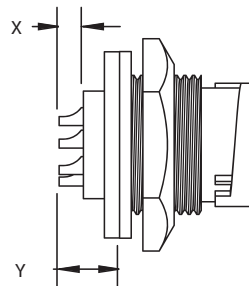


**8XXX-XXG-5XX**  
FIELD INSTALLABLE  
CABLE TO CABLE CONNECTOR  
TWIST LOCK BACKSHELL  
TYPE 5-LONG

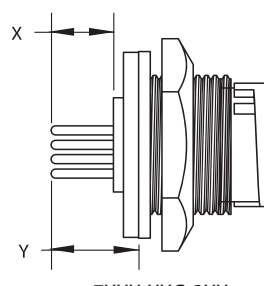
## PANEL MOUNT ASSEMBLY KITS



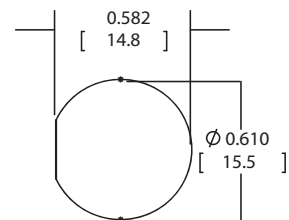
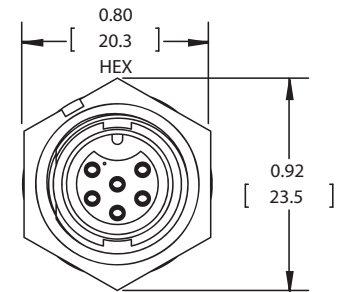
**7X80-XXG-3XX**  
PANEL MOUNT CONNECTOR  
CRIMP



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



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

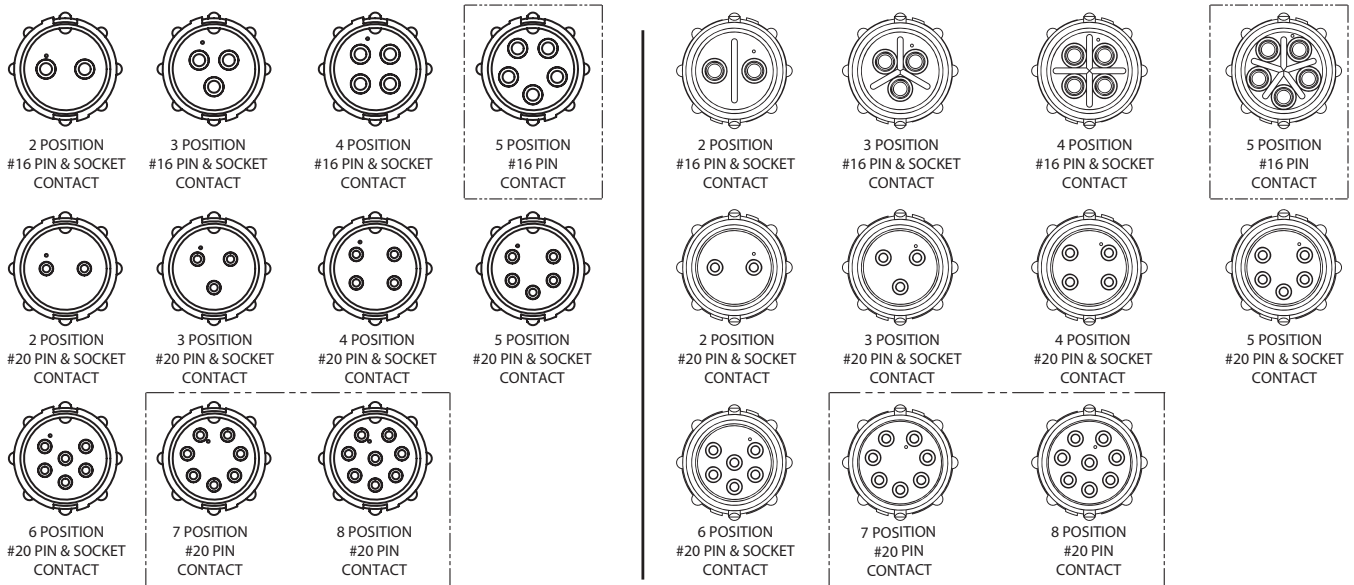


RECOMMENDED  
PANEL CUT-OUT  
TOLERANCE:  $\pm 0.003$  [0.08]

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

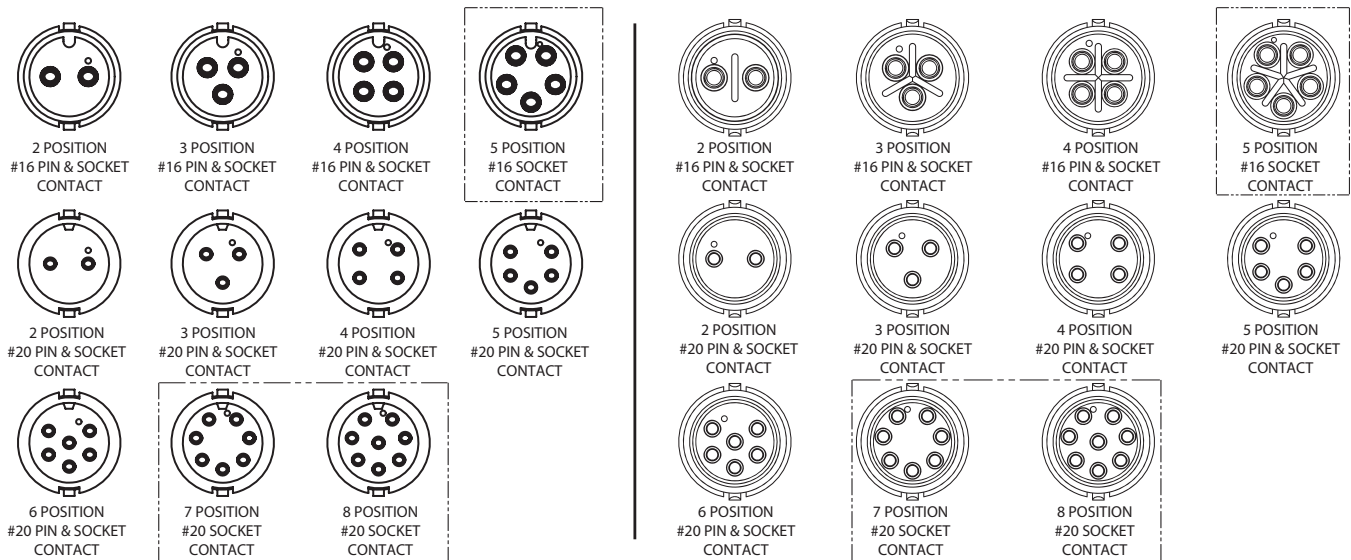
## PANEL MOUNT / CABLE TO CABLE CONNECTORS

Front View | Wire View



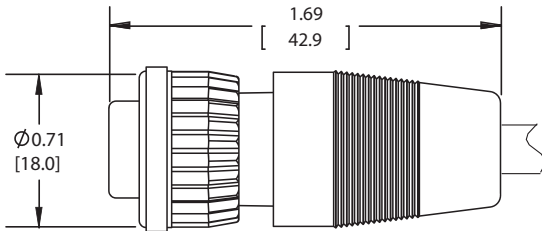
## CABLE CONNECTORS

Front View | Wire View

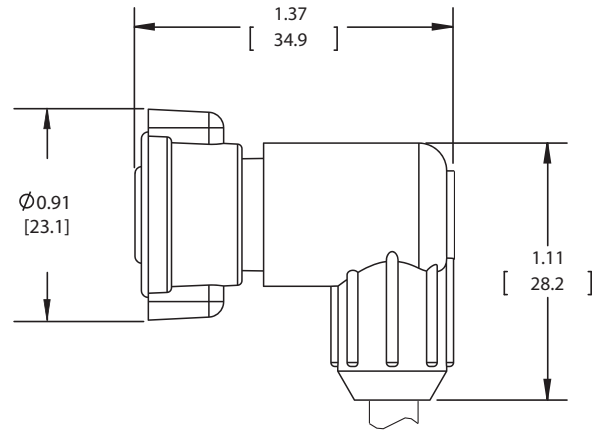


All dimensions are for reference only. Units shown: in[mm].

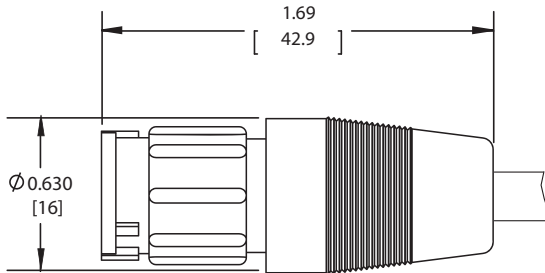
## CUSTOM MOLDED CABLE ASSEMBLIES



6XXX-XXG  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLDED



6XXX-XXG  
CUSTOM CABLE CONNECTOR  
RIGHT ANGLE OVERMOLDED



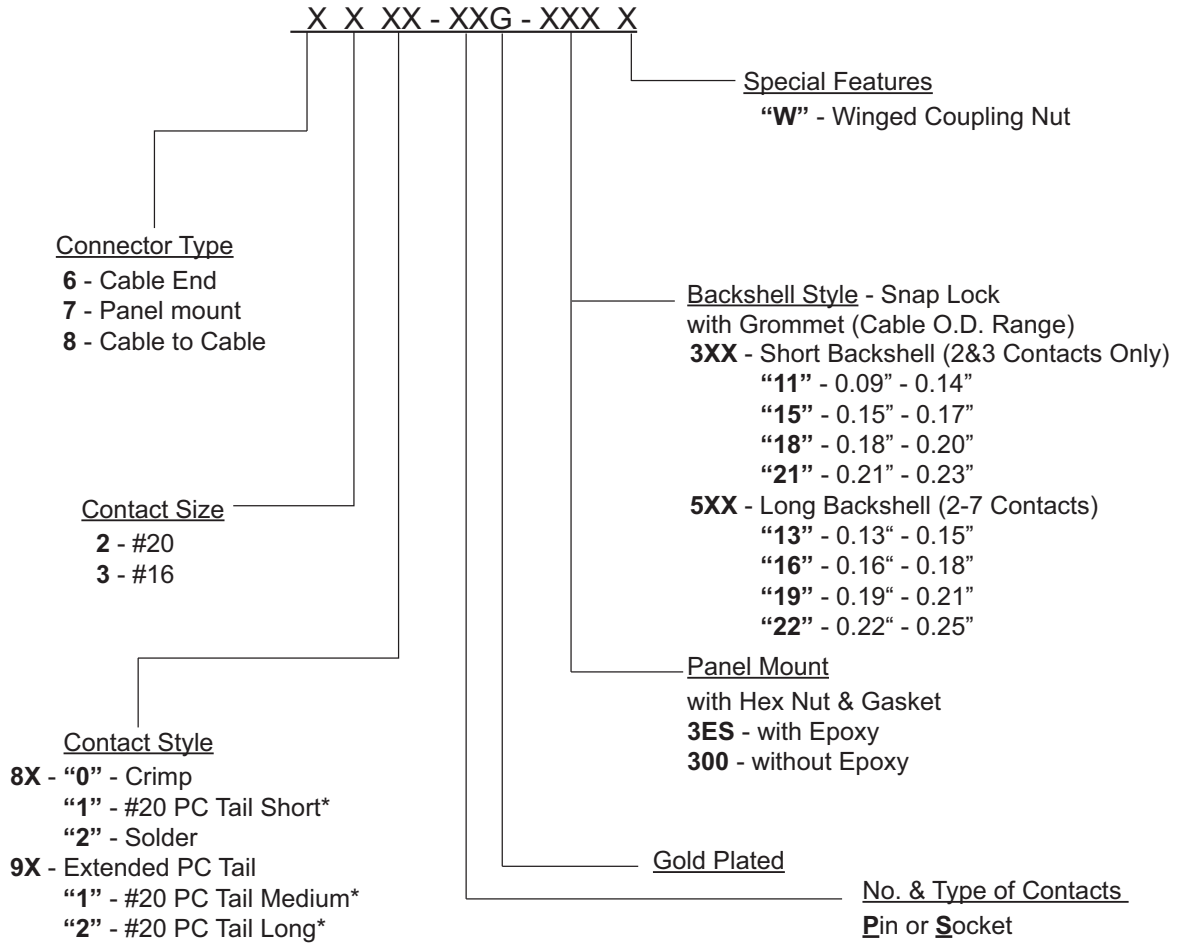
8XXX-XXG  
CUSTOM CABLE TO CABLE CONNECTOR  
STRAIGHT OVERMOLDED

Note: Mini-Con-X® can be overmolded onto an extended well panel mount. Straight version only.

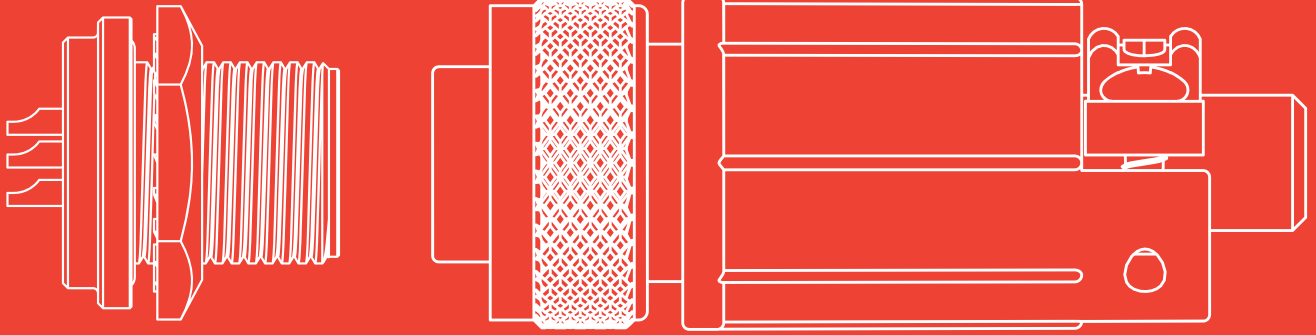
- Available in: 2#20, 4#20 and 6#20 female
- Available in: 4#20, 6#20 and 7#20 male

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

## PART NUMBER TO ORDER



\*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.



# SHIELDED MINI-CON-X<sup>®</sup>

0.760" [19MM] 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**



## **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)
Conductor Size:	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)
---------------	----------------------------------------

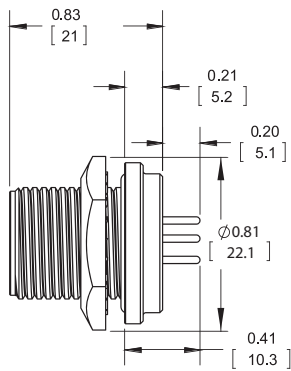
### **Certifications**

Not for current interruption  
RoHS compliant

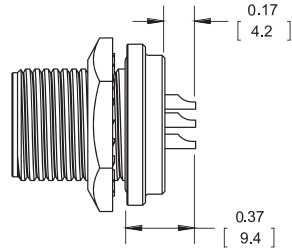
### **Options**

Flame Rating:	UL 94HB
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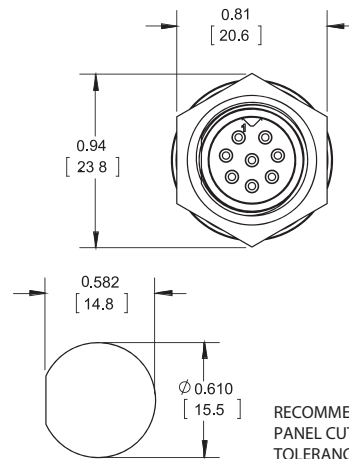
## PANEL MOUNT ASSEMBLY KITS



SF7X81-XXG-3XX  
PANEL MOUNT CONNECTOR  
PC TAIL

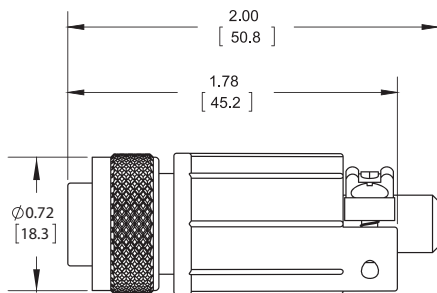


SF7X82-XXG-3XX  
PANEL MOUNT CONNECTOR  
SOLDER CUP

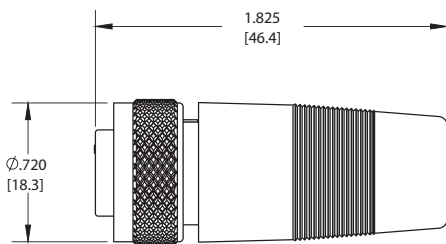


RECOMMENDED  
PANEL CUT-OUT  
TOLERANCE: ±0.003 [0.08]

## FIELD INSTALLABLE KITS

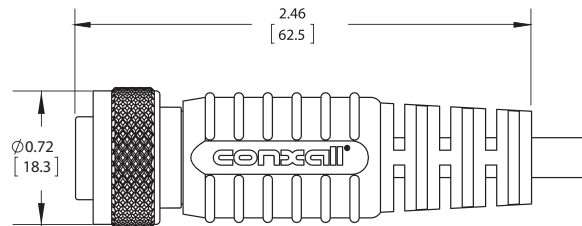


SF6X82-XXG-5XX  
CABLE CONNECTOR  
SOLDER CUP

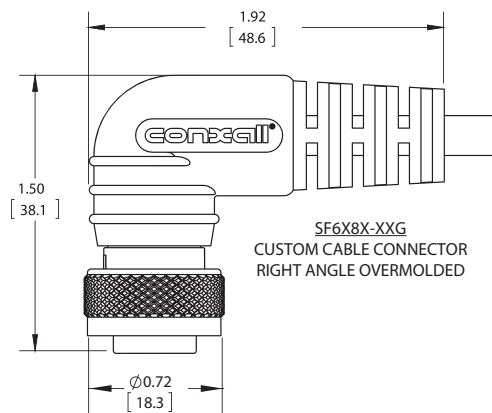


SF6X8X-XXG  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLDED (Alternative)

## CUSTOM MOLDED CABLE ASSEMBLIES



SF6X8X-XXG  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLDED

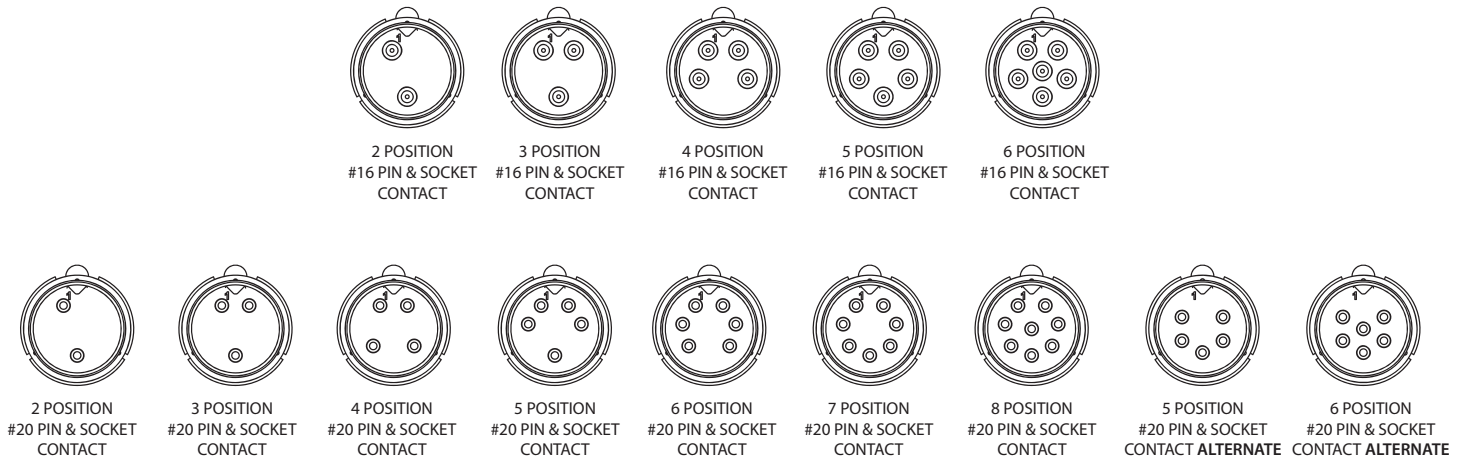


SF6X8X-XXG  
CUSTOM CABLE CONNECTOR  
RIGHT ANGLE OVERMOLDED

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

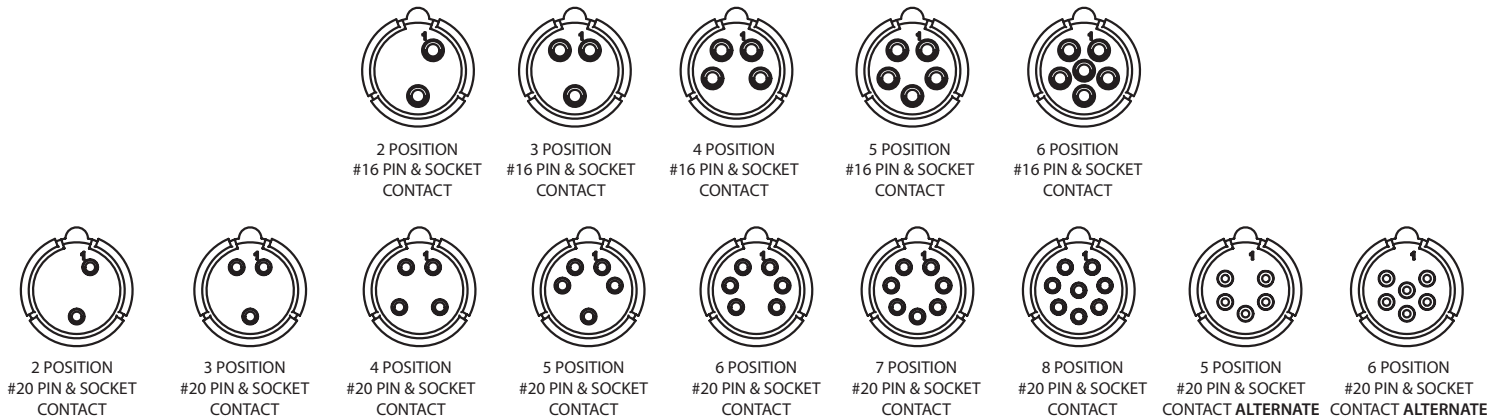
## PANEL MOUNT CONNECTOR

### Front View



## PANEL MOUNT CONNECTOR

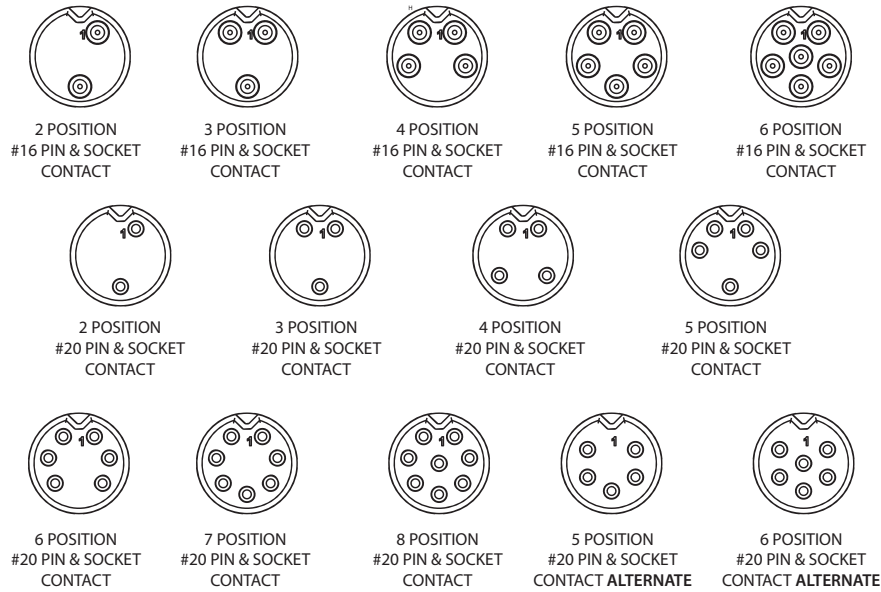
### Wire View



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

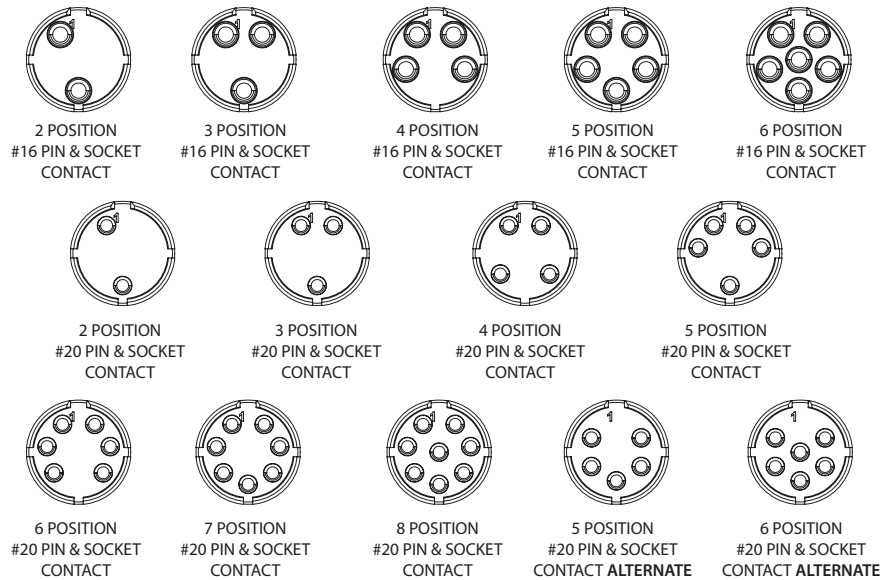
## CABLE CONNECTORS

### Front View



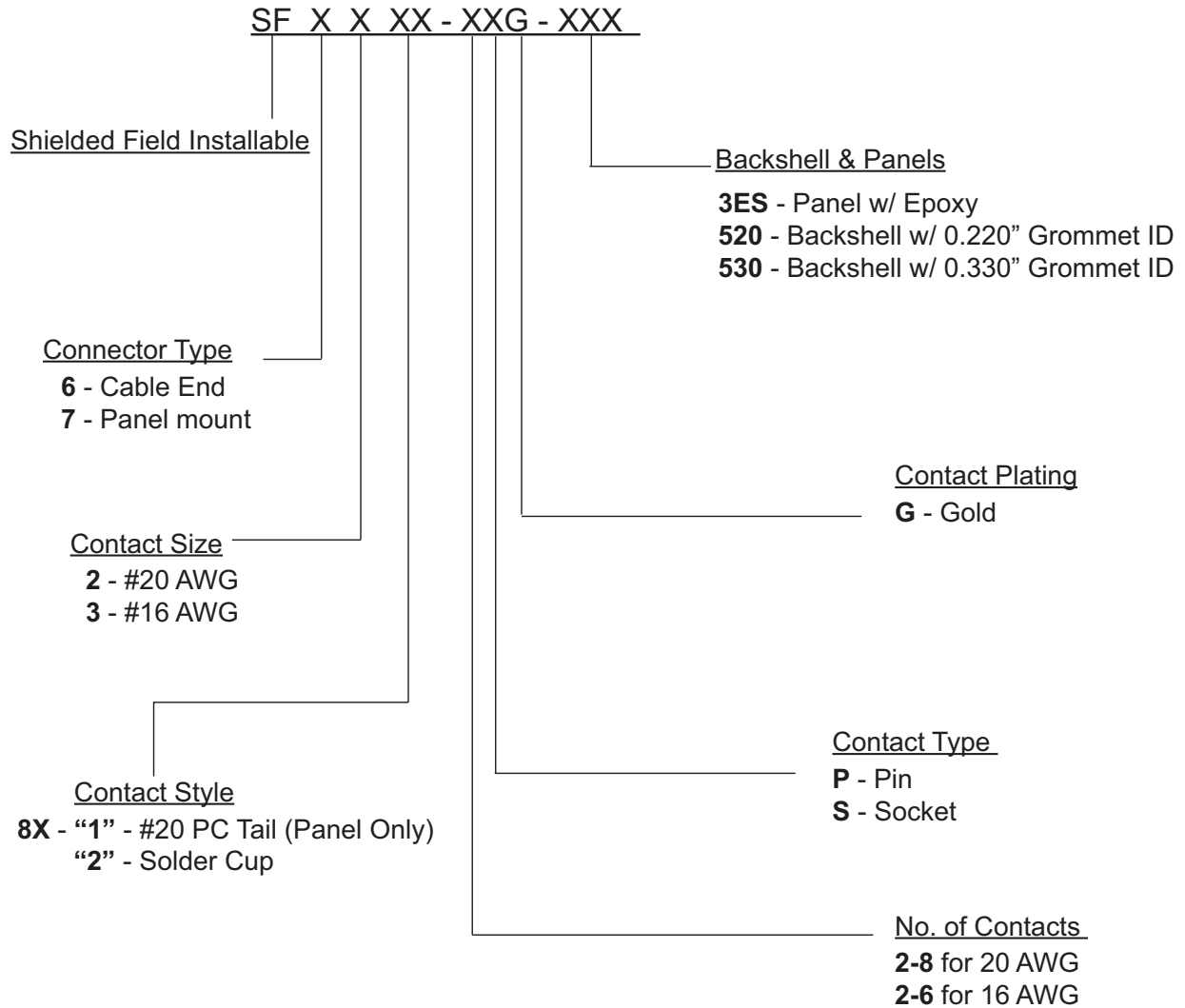
## CABLE CONNECTORS

### Wire View

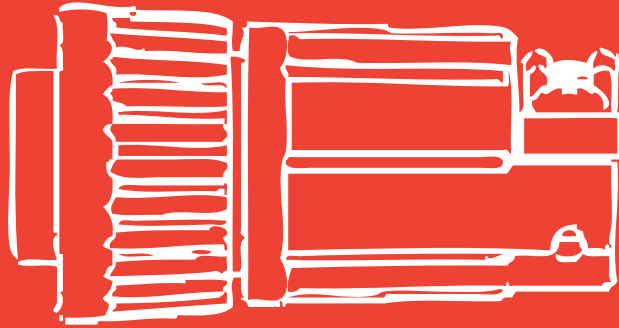


All dimensions are for reference only. Units shown: in[mm].

## PART NUMBER TO ORDER



Consult factory for connectors with alternate 5-20AWG and 6-20AWG contact arrangements.



# 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**

## **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:	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
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### **Certifications**

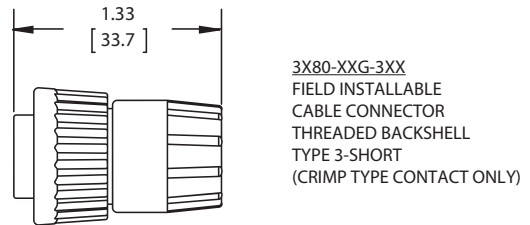
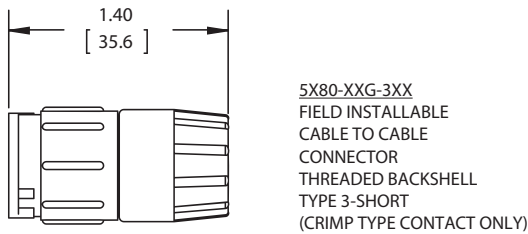
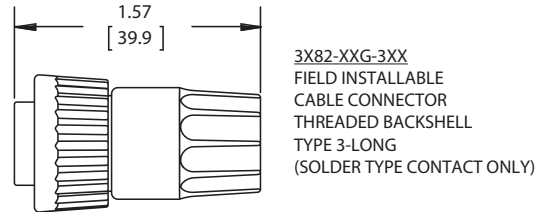
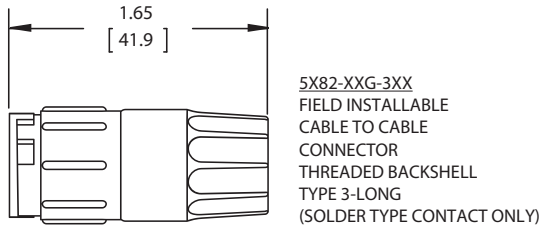
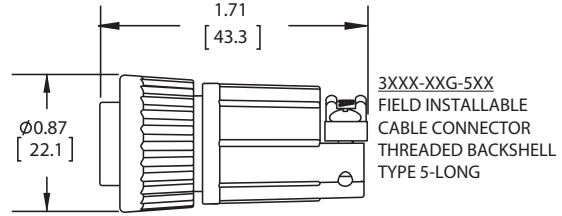
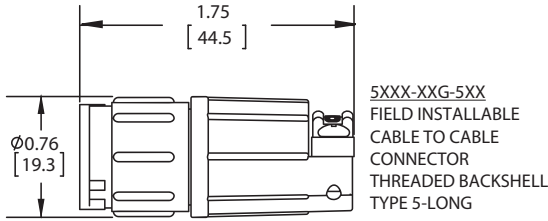
UL File E150822  
CSA File 181200  
Not for current interruption  
RoHS compliant  
REACH compliant

### **Options**

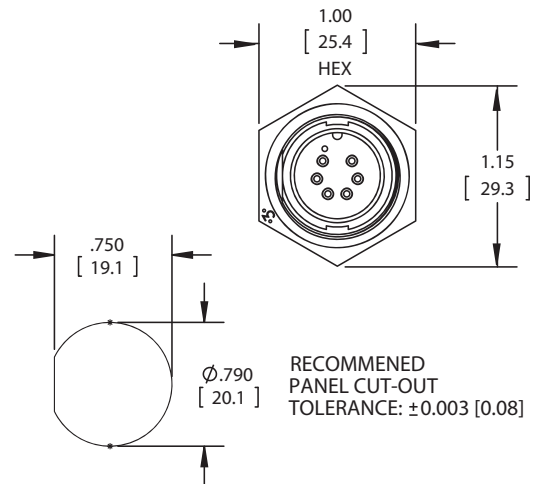
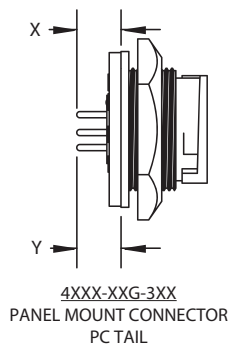
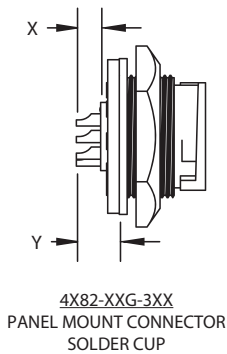
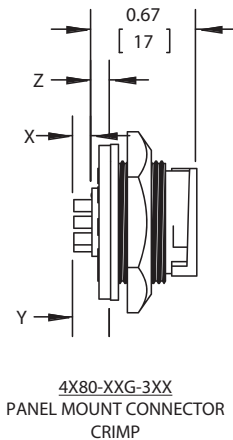
UV Rating:	F1 available
Flame Rating:	UL 94V-0 available

**Consult factory for optional colors and materials**

## FIELD INSTALLABLE KITS



## PANEL MOUNT ASSEMBLY KITS

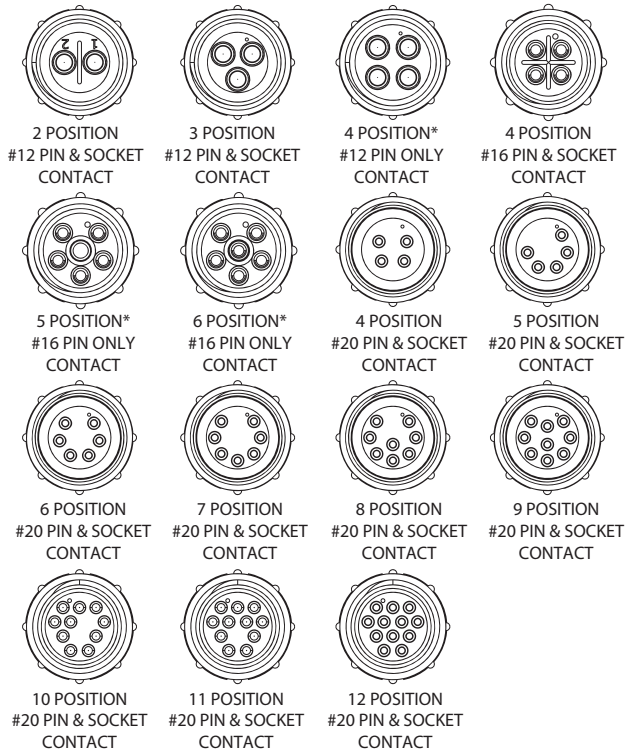
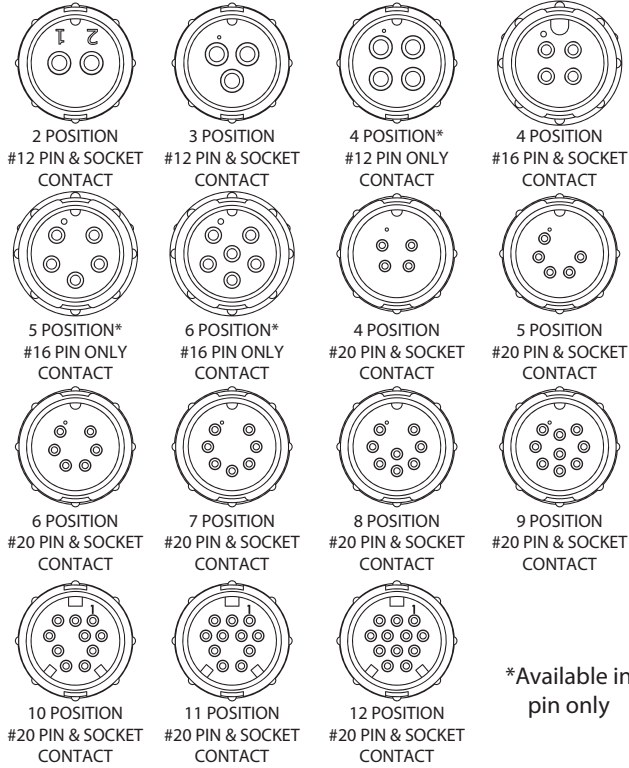


\*X, Y, Z - Consult Factory. All dimensions are for reference only. Units shown: in[mm].



## PANEL MOUNT / CABLE TO CABLE CONNECTORS

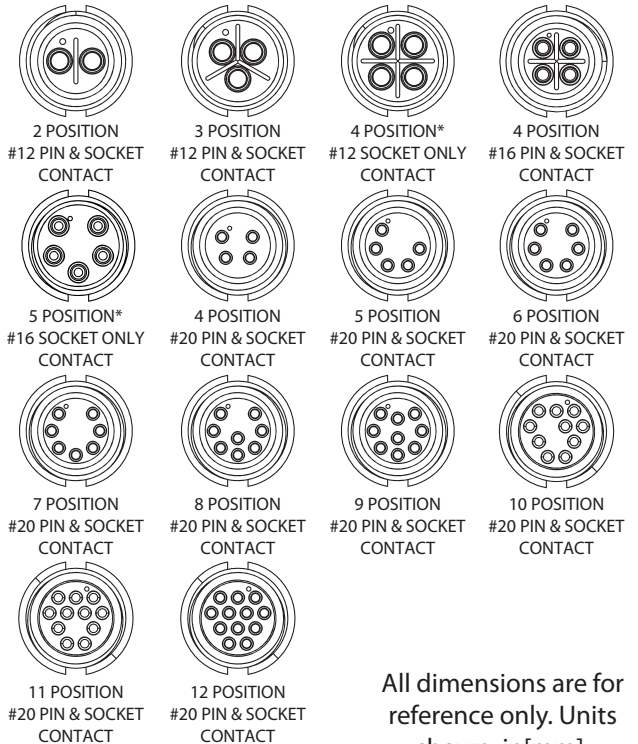
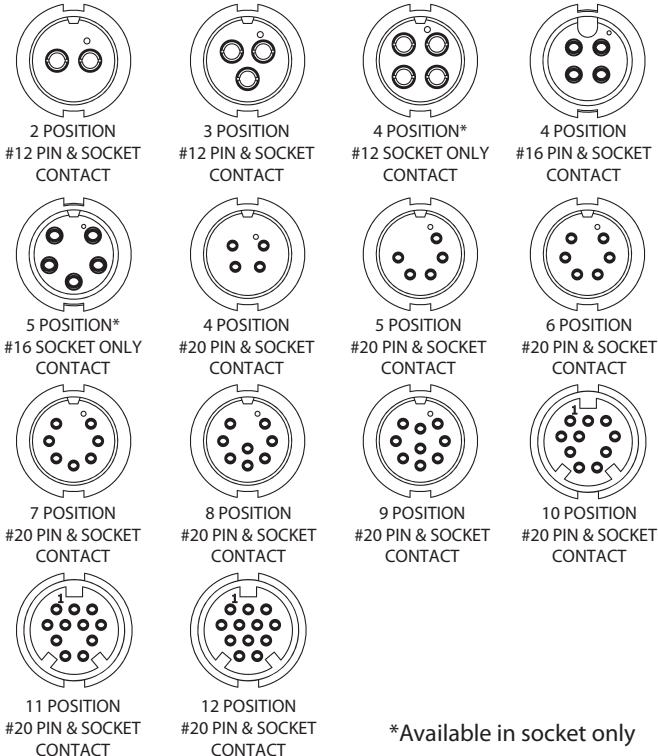
Front View | Wire View



\*Available in pin only

## CABLE CONNECTORS

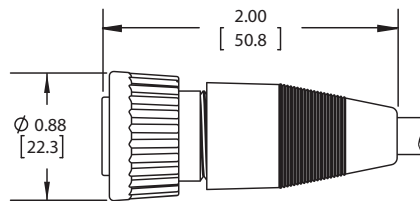
Front View | Wire View



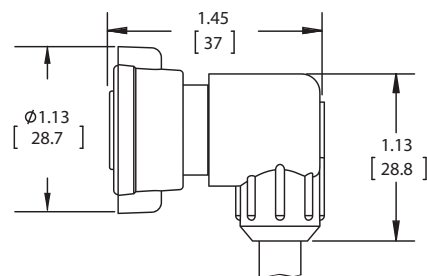
\*Available in socket only

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

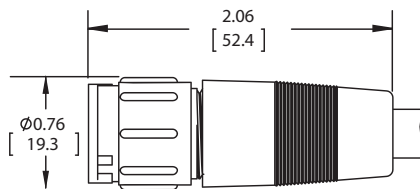
## CUSTOM MOLDED CABLE ASSEMBLIES



4XXX-XXG  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLDED



4XXX-XXG  
CUSTOM CABLE CONNECTOR  
RIGHT ANGLE OVERMOLDED



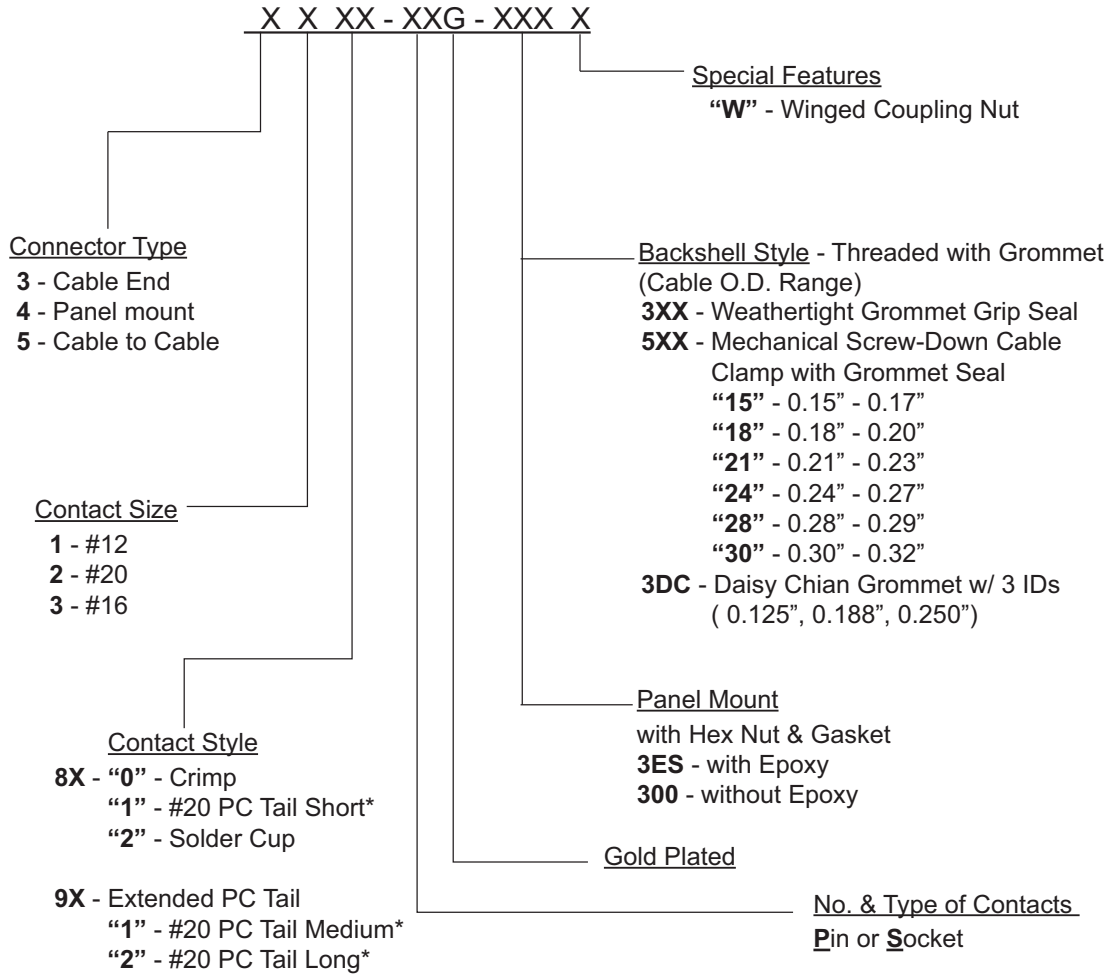
5XXX-XXG  
CUSTOM CABLE TO CABLE CONNECTOR  
STRAIGHT OVERMOLDED

Note: Multi-Con-X® can be overmolded onto an extended well panel mount. Straight version only.

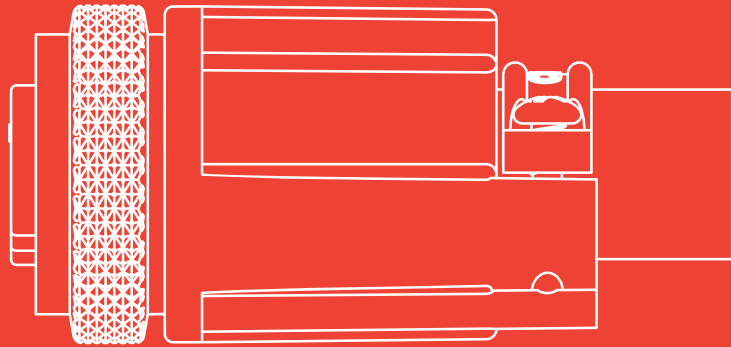
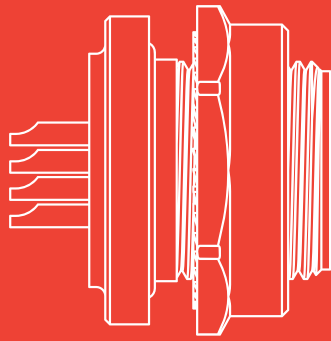
- Available in: 5#20, 6#20 and 9#20 male
- Available in: 4#20 and 9#20 female

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

## PART NUMBER TO ORDER



\*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.



# SHIELDED MULTI-CON-X<sup>®</sup> 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**

# SHIELDED MULTI-CON-X<sup>®</sup> 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**

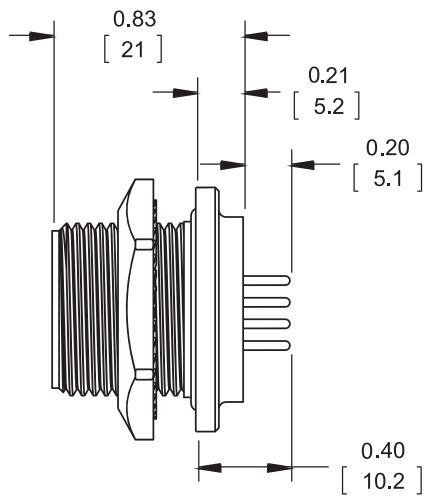
Weathertight:	IP66 / IP68 NEMA 250 (6P) (when mated)
---------------	----------------------------------------

#### **Certifications**

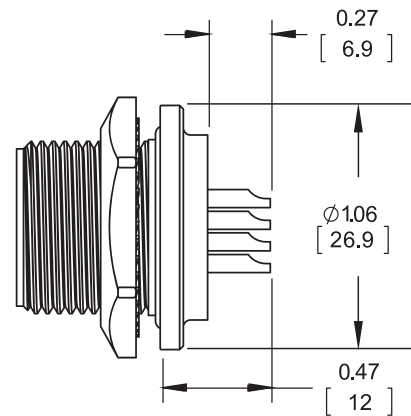
Not for current interruption  
RoHS compliant

# SHIELDED MULTI-CON-X<sup>®</sup> 0.995" [25MM]OD 2-12 CONTACTS

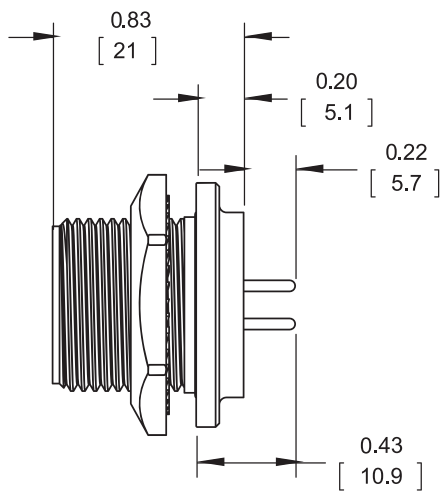
## PANEL MOUNT ASSEMBLY KITS - PIN ONLY - METAL



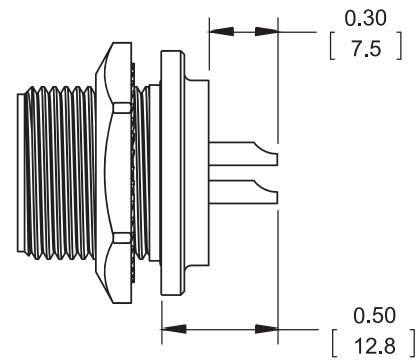
SF4281-XXPG-3XX  
PANEL MOUNT CONNECTOR  
#20 PC TAIL



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



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

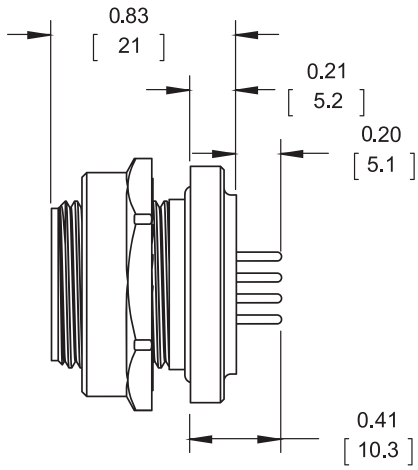


SF4382-XXPG-3XX  
PANEL MOUNT CONNECTOR  
#16 SOLDER CUP

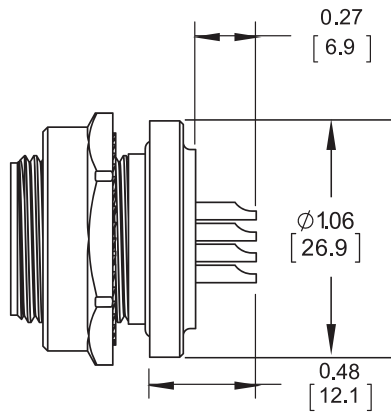
All dimensions are for reference only. Units shown: in[mm].

# SHIELDED MULTI-CON-X<sup>®</sup> 0.995" [25MM]OD 2-12 CONTACTS

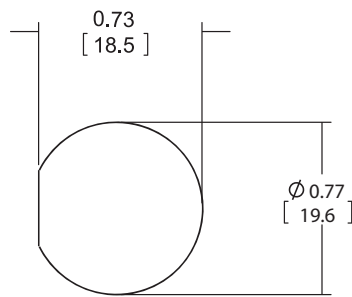
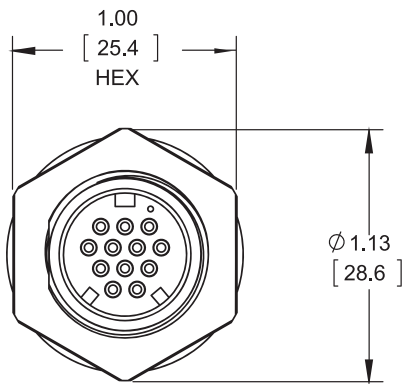
## PANEL MOUNT ASSEMBLY KITS - PIN ONLY - PLASTIC



**SF4X81V-XXEPG-3XX**  
PANEL MOUNT CONNECTOR  
PC TAIL

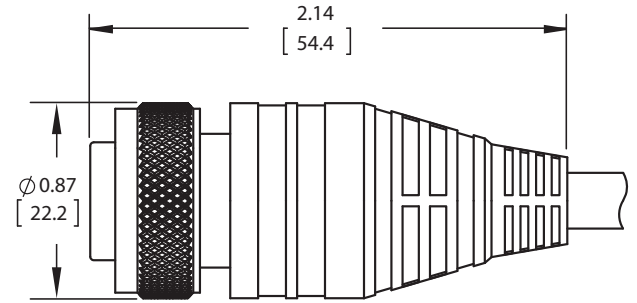


**SF4X82V-XXEPG-3XX**  
PANEL MOUNT CONNECTOR  
SOLDER CUP

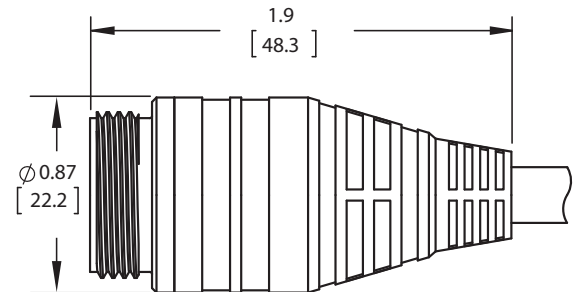


RECOMMENDED  
PANEL CUT-OUT  
TOLERANCE:  $\pm 0.003$  [0.08]

## CUSTOM MOLDED CABLE ASSEMBLIES

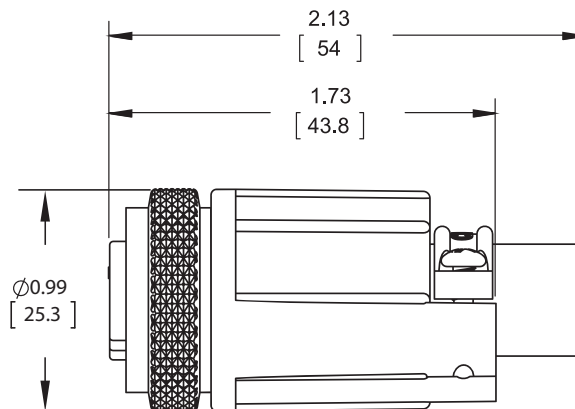


**SM3X8X-XXXG**  
CUSTOM CABLE CONNECTOR, FEMALE  
STRAIGHT OVERMOLDED



**SM5X8X-XXXG**  
CUSTOM CABLE TO CABLE CONNECTOR, MALE  
STRAIGHT OVERMOLDED

## FIELD INSTALLABLE KITS - SOCKET ONLY



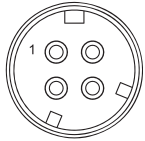
**SF3X8X-XXSG-5XX**  
FIELD INSTALLABLE CABLE CONNECTOR KIT

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

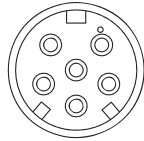
# SHIELDED MULTI-CON-X<sup>®</sup> 0.995" [25MM]OD 2-12 CONTACTS

## PANEL MOUNT CONNECTORS

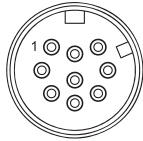
Front View | Wire View



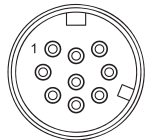
(2-4)-POSITION  
#16 PIN CONTACT  
"F" KEY



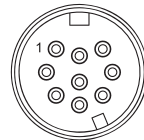
(6)-POSITION  
#16 PIN CONTACT  
"E" KEY



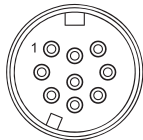
(2-9)-POSITION  
#20 PIN CONTACT  
"A" KEY



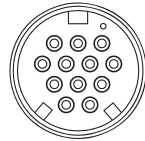
(2-9)-POSITION  
#20 PIN CONTACT  
"B" KEY



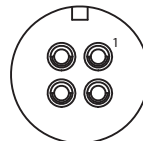
(2-9)-POSITION  
#20 PIN CONTACT  
"C" KEY



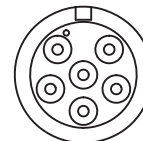
(2-9)-POSITION  
#20 PIN CONTACT  
"D" KEY



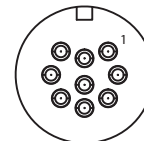
(2-12)-POSITION  
#20 PIN CONTACT  
"E" KEY



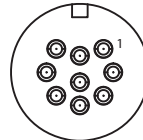
(2-4)-POSITION  
#16 PIN CONTACT  
"F" KEY



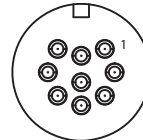
(6)-POSITION  
#16 PIN CONTACT  
"E" KEY



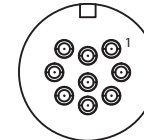
(2-9)-POSITION  
#20 PIN CONTACT  
"A" KEY



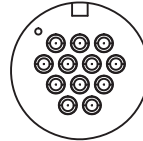
(2-9)-POSITION  
#20 PIN CONTACT  
"B" KEY



(2-9)-POSITION  
#20 PIN CONTACT  
"C" KEY



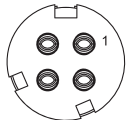
(2-9)-POSITION  
#20 PIN CONTACT  
"D" KEY



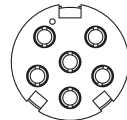
(2-12)-POSITION  
#20 PIN CONTACT  
"E" KEY

## CABLE CONNECTORS

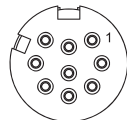
Front View | Wire View



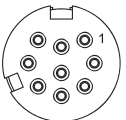
(2-4)-POSITION  
#16 PIN CONTACT  
"F" KEY



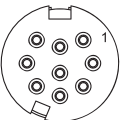
(6)-POSITION  
#16 PIN CONTACT  
"E" KEY



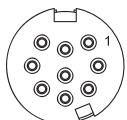
(2-9)-POSITION  
#20 PIN CONTACT  
"A" KEY



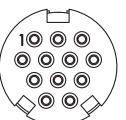
(2-9)-POSITION  
#20 PIN CONTACT  
"B" KEY



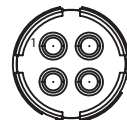
(2-9)-POSITION  
#20 PIN CONTACT  
"C" KEY



(2-9)-POSITION  
#20 PIN CONTACT  
"D" KEY



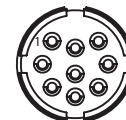
(4-12)-POSITION  
#20 PIN CONTACT  
"E" KEY



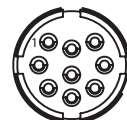
(2-4)-POSITION  
#16 PIN CONTACT  
"F" KEY



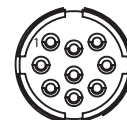
(6)-POSITION  
#16 PIN CONTACT  
"E" KEY



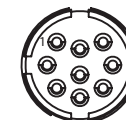
(2-9)-POSITION  
#20 PIN CONTACT  
"A" KEY



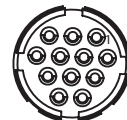
(2-9)-POSITION  
#20 PIN CONTACT  
"B" KEY



(2-9)-POSITION  
#20 PIN CONTACT  
"C" KEY



(2-9)-POSITION  
#20 PIN CONTACT  
"D" KEY



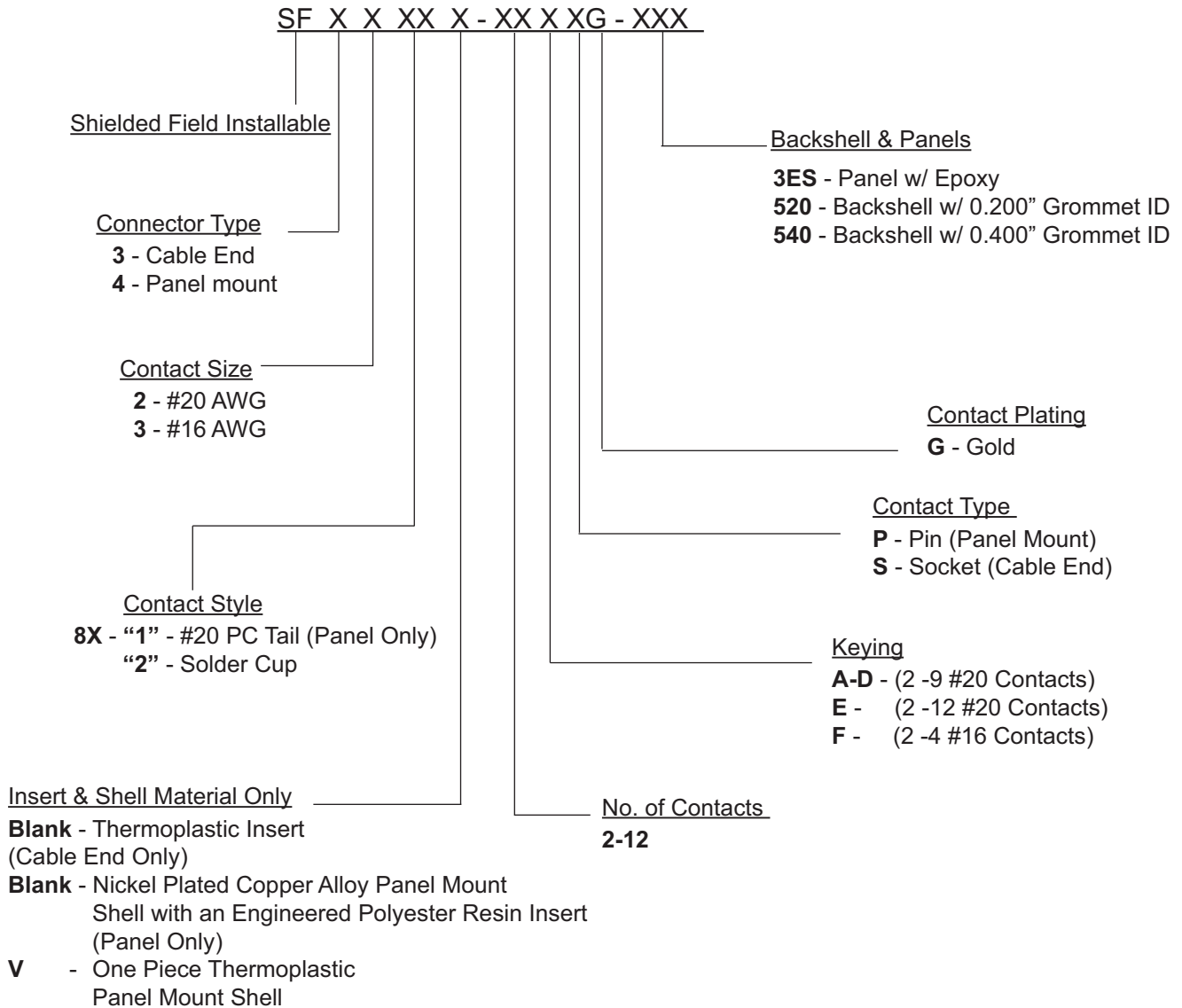
(4-12)-POSITION  
#20 PIN CONTACT  
"E" KEY

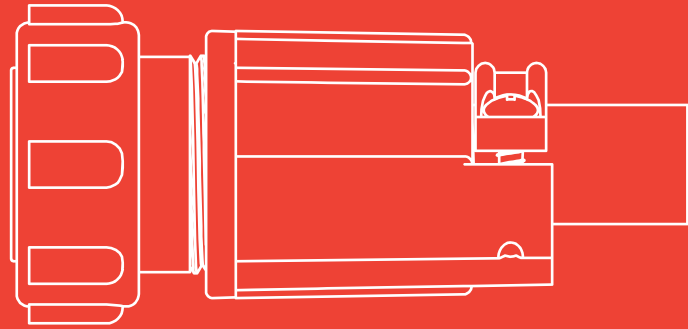
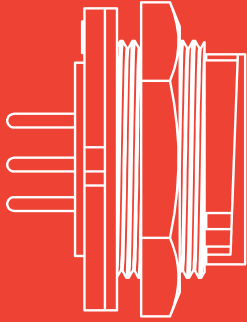
All dimensions are for reference only. Units shown: in[mm].



# SHIELDED MULTI-CON-X® 0.995" [25MM]OD 2-12 CONTACTS

## PART NUMBER TO ORDER





# MAXI-CON-X<sup>®</sup>

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**

## 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:	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**

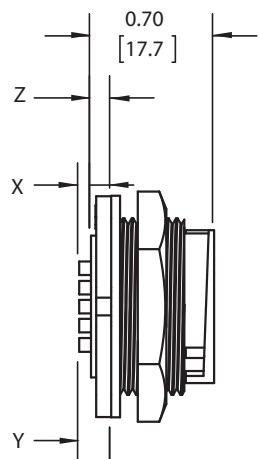
UL File E150822  
CSA File 181200  
Not for current interruption  
RoHs compliant  
REACH compliant

### **Options**

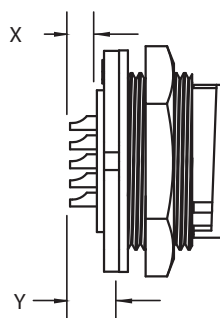
UV Rating:	F1 available
Flame Rating:	UL 94V-0 available

**Consult factory for optional colors and materials**

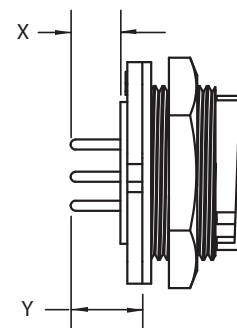
## PANEL MOUNT ASSEMBLY KITS



**14X80-XXG-3XX**  
PANEL MOUNT CONNECTOR  
CRIMP

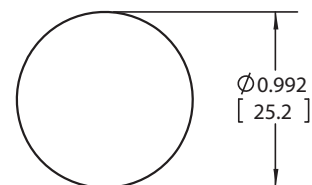
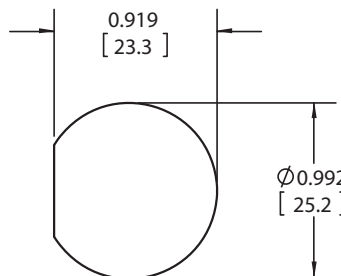
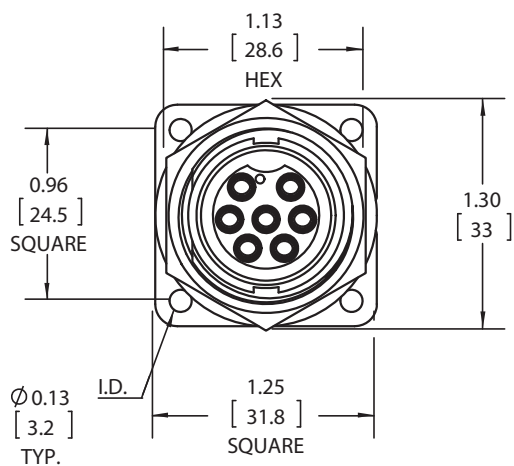


**14X82-XXG-3XX**  
PANEL MOUNT CONNECTOR  
SOLDER CUP



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

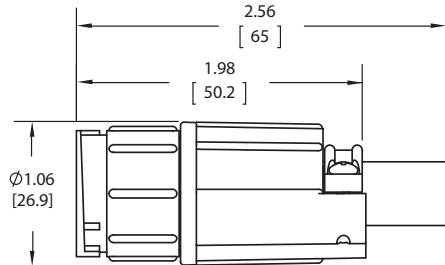
\* X, Y, Z - CONSULT FACTORY



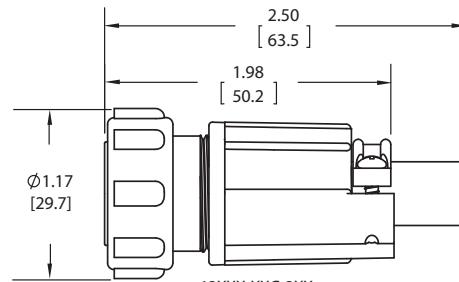
RECOMMENDED  
PANEL CUT-OUT  
TOLERANCE: ±0.003 [0.08]

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

## FIELD INSTALLABLE KITS

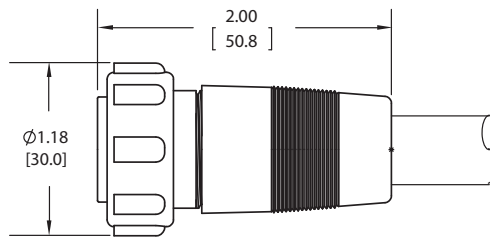


15XXX-XXG-3XX  
Field Installable Cable to Cable Connector  
Threaded Backshell - Type 3

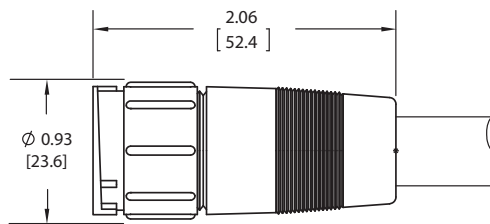


13XXX-XXG-3XX  
Field Installable Cable Connector  
Threaded Backshell - Type 3

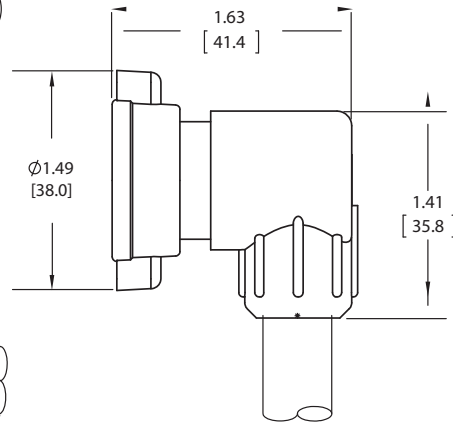
## CUSTOM MOLDED CABLE ASSEMBLIES



13XXX-XXG  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLDED



15XXX-XXG  
CUSTOM CABLE TO CABLE CONNECTOR  
STRAIGHT OVERMOLDED

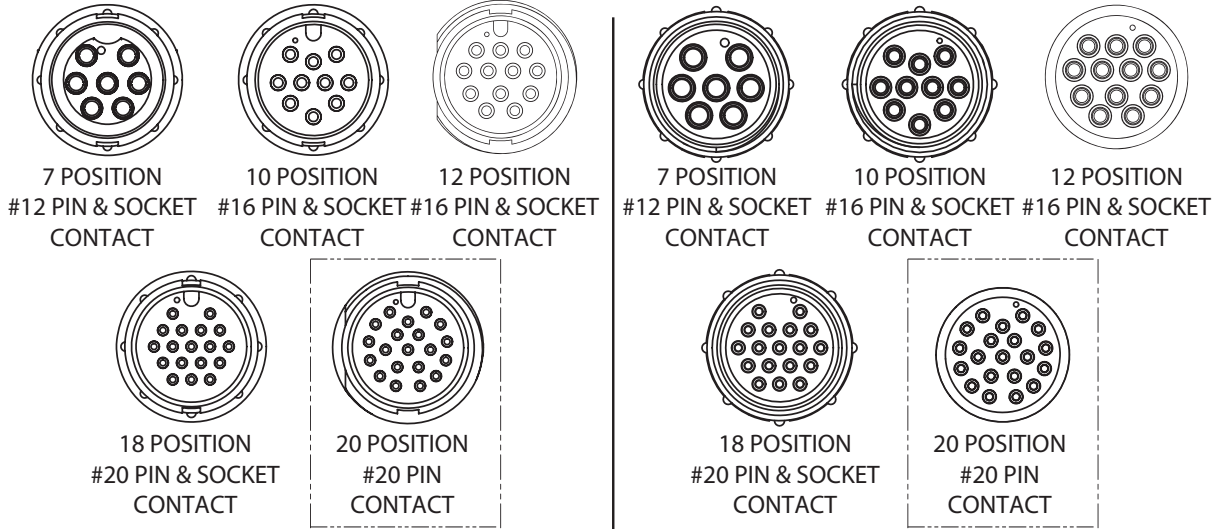


13XXX-XXG  
CABLE CONNECTOR  
RIGHT ANGLE OVERMOLDED

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

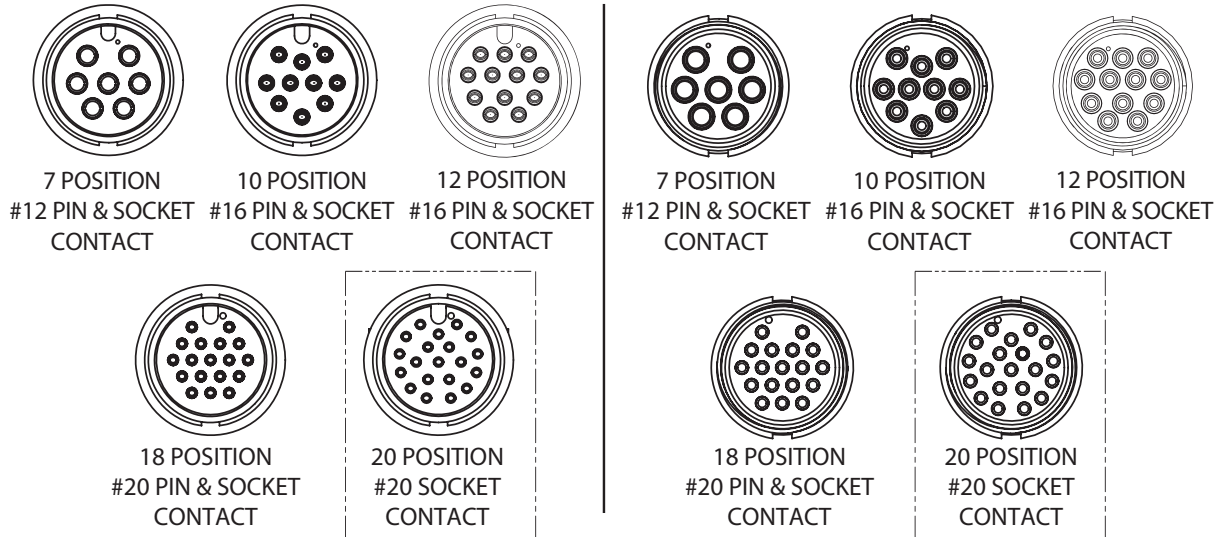
## PANEL MOUNT CONNECTORS

Front View | Wire View



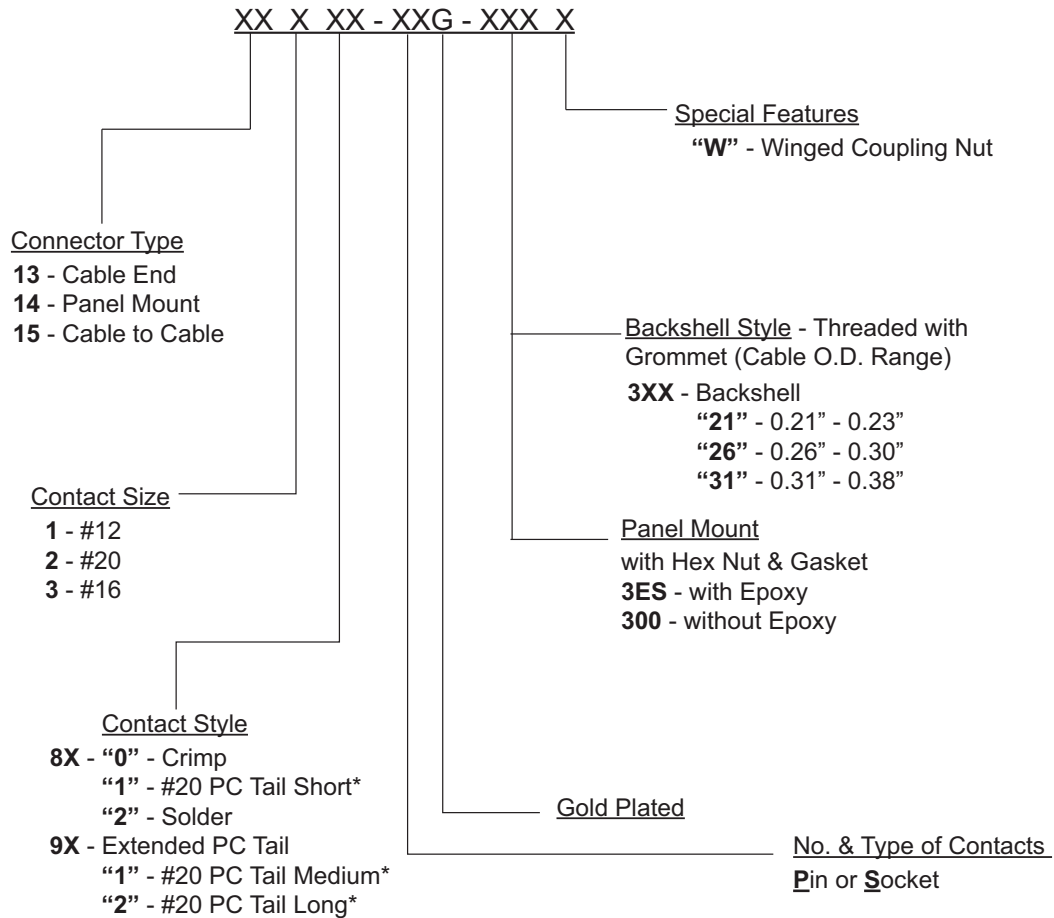
## CABLE CONNECTORS

Front View | Wire View

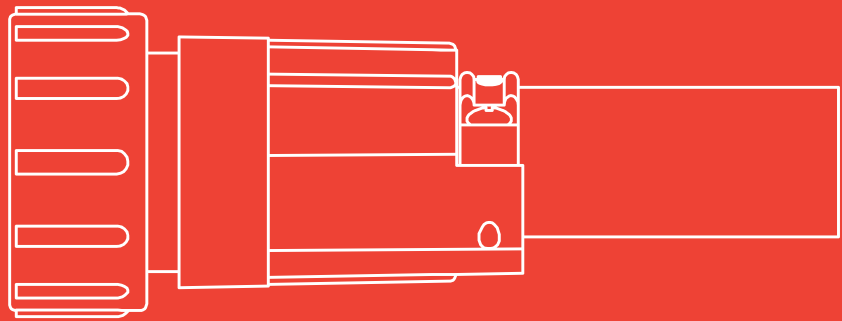


All dimensions are for reference only. Units shown: in[mm].

## PART NUMBER TO ORDER



\*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.



# MEGA-CON-X<sup>®</sup>

1.29" [32MM] OD 31 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



**DUST CAP**  
P/N - 24295



**MOLDED CABLE END ASSEMBLY**



**MOLDED RIGHT ANGLE CABLE ASSEMBLY**



## **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
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### **Certifications**

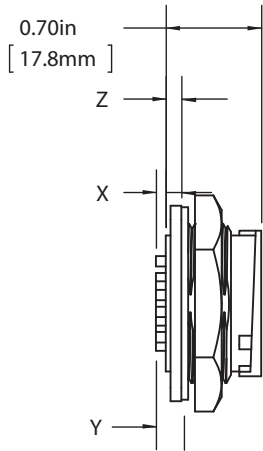
UL File E150822  
CSA File 181200  
Not for current interruption  
RoHS compliant  
REACH compliant

### **Options**

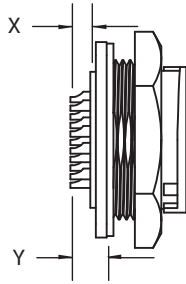
UV Rating:	F1 available
Flame Rating:	UL 94V-0 available

**Consult factory for optional colors and materials**

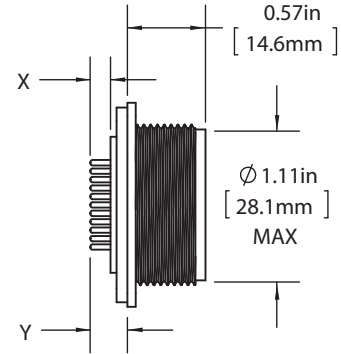
## PANEL MOUNT ASSEMBLY KITS



24280-31XG-3XX  
PANEL MOUNT CONNECTOR  
CRIMP

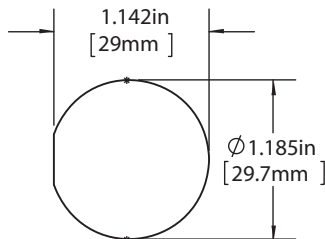
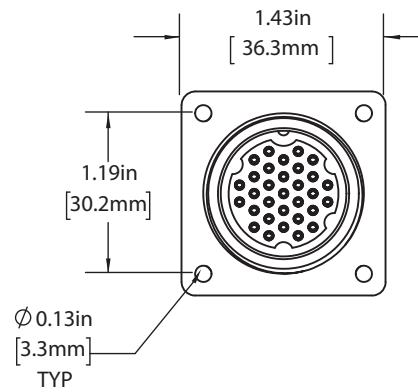
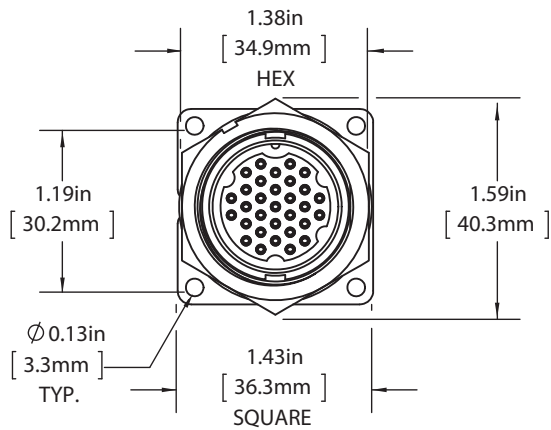


24282-31XG-3XX  
PANEL MOUNT CONNECTOR  
SOLDER CUP

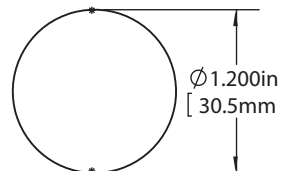


242XX-31XG-3XX  
PANEL MOUNT CONNECTOR  
PC TAIL

\*X, Y, Z - CONSULT FACTORY



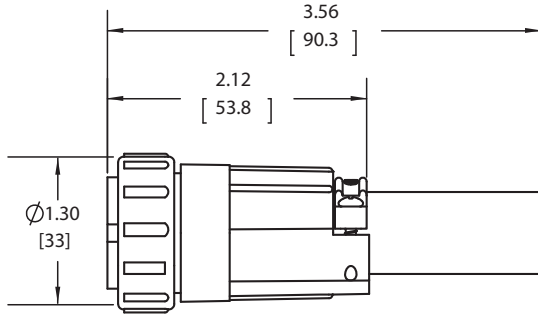
RECOMMENDED  
PANEL CUT-OUT  
QUICK CONNECT TYPE  
TOLERANCE:  $\pm 0.003$  [0.08mm]



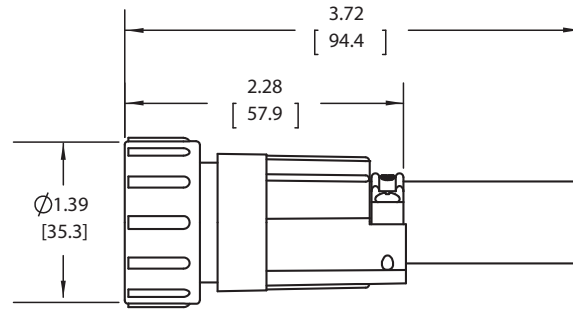
RECOMMENDED  
PANEL CUT-OUT  
THREADED TYPE  
TOLERANCE:  $\pm 0.003$  [0.08mm]

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

## FIELD INSTALLABLE KITS

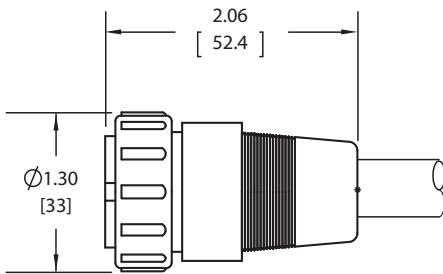


**232XX-31XG-3XX**  
FIELD INSTALLABLE QUICK CONNECT TYPE  
CABLE CONNECTOR - BACKSHELL TYPE 3

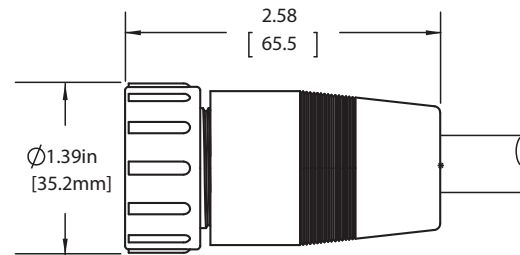


**232XX-31XG-T3XX**  
FIELD INSTALLABLE THREADED TYPE  
CABLE CONNECTOR - BACKSHELL TYPE 3

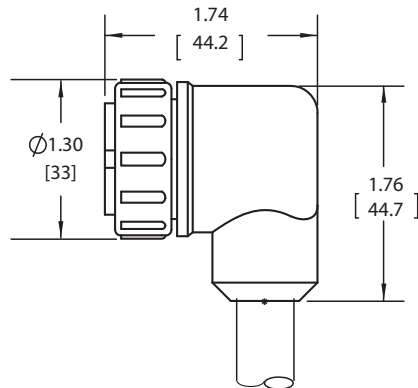
## CUSTOM MOLDED CABLE ASSEMBLIES



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



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

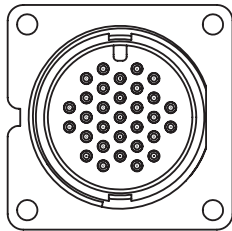


**232XX-31XG**  
CUSTOM CABLE CONNECTOR RIGHT ANGLE OVERMOLDED  
QUICK CONNECT TYPE

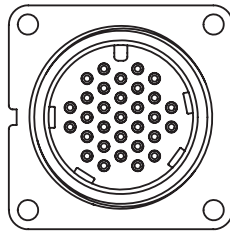
All dimensions are for reference only. Units shown: in[mm].

## PANEL MOUNT CONNECTORS

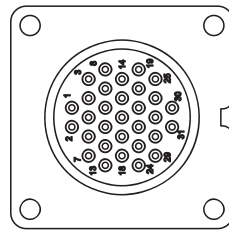
Front View | Wire View



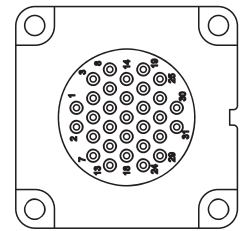
QUICK CONNECT TYPE  
SINGLE KEY  
31-POSITION  
#20 PIN CONTACT



THREADED TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT



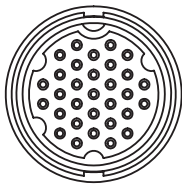
QUICK CONNECT TYPE  
SINGLE KEY  
31-POSITION  
#20 PIN CONTACT



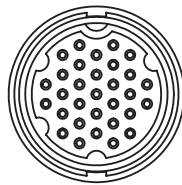
THREADED TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT

## CABLE CONNECTORS

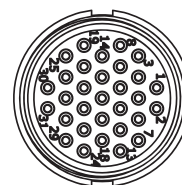
Front View | Wire View



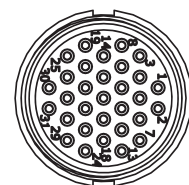
QUICK CONNECT TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT



THREADED TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT



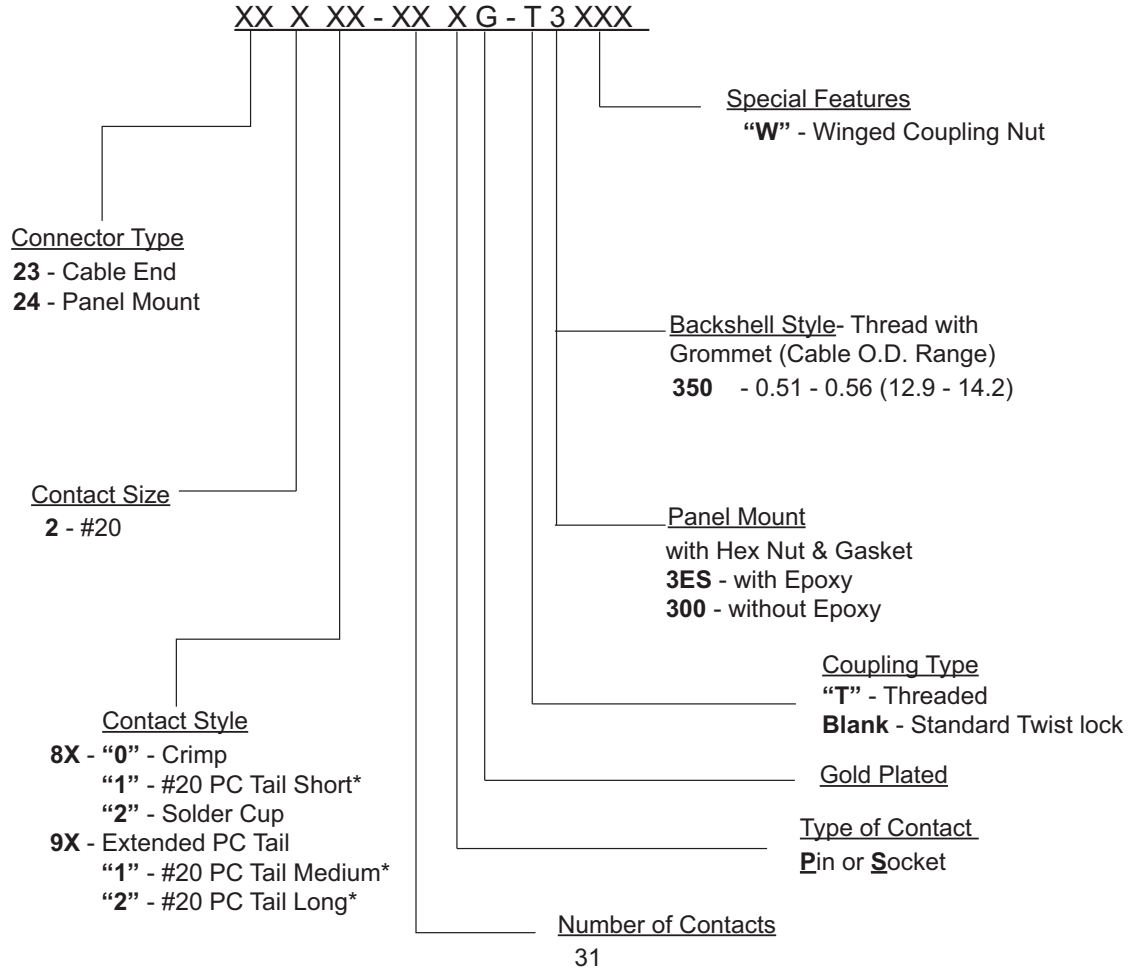
QUICK CONNECT TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT



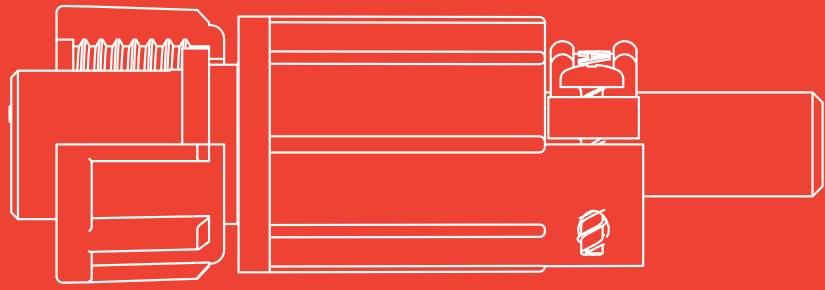
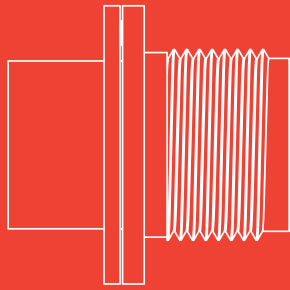
THREADED TYPE  
5 KEY  
31-POSITION  
#20 PIN CONTACT

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

## PART NUMBER TO ORDER



\*Consult factory for length and diameter of PC Tail. Additionally, alternative colors and materials are available.



**MIL-E-QUAL<sup>®</sup>** (MIL-C-5015 EQUIVALENT)

2-37 CONTACTS



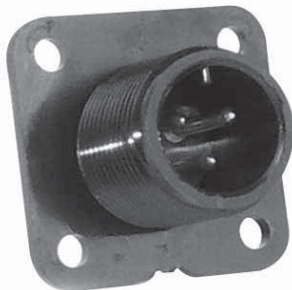
**CABLE END - SOCKET**  
MATES WITH PANEL MOUNT



**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**

## 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 23.0 A – max (See page 108 for Electrical Current Rating Chart)
Current Rating:	

### **Environmental Specifications**

Operating Temperature Rating:	-40°C to +75°C (-40°F to +167°F)
Salt Atmosphere (Corrosion):	48Hr salt spray contacts when mated
Weatheright:	<b>Consult factory with specific application</b>

### **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**

Weatheright:	NEMA 6P, 13: IEC IP67 when mated
--------------	----------------------------------

### **Certifications**

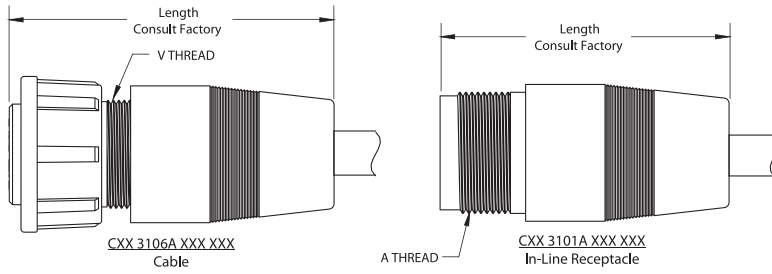
UL File #E150822  
CSA File #181200 Patterns: 18-11, 18-1, 18-19, 20-27  
U.L. Temperature 75°C (167°F) max.  
**Not for current interruption**

### **Options**

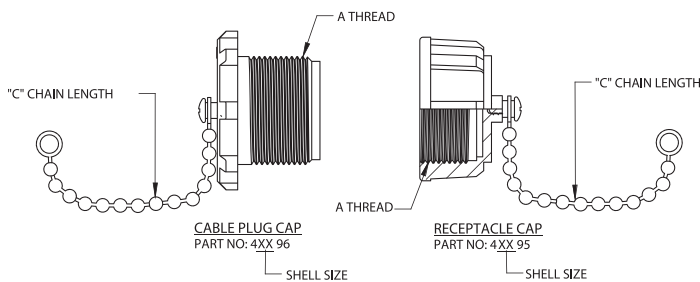
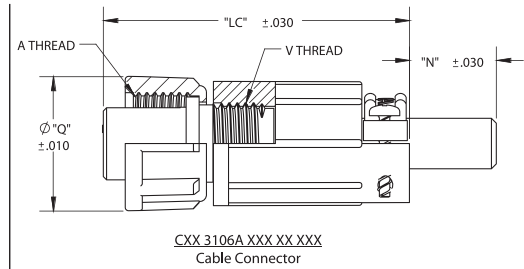
UV Rating:	F1 available
Flame Rating:	UL94V-0 available

**Consult factory for optional colors and materials**

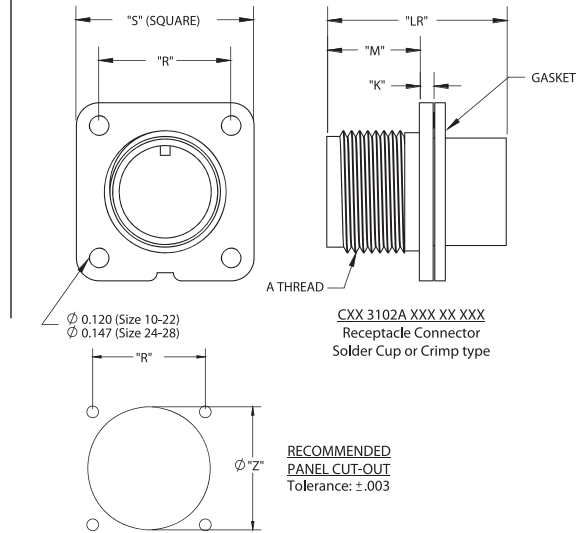
## CUSTOM OVERMOLDED ASSEMBLIES



## FIELD INSTALLABLE KITS



## BOX RECEPTACLE KITS



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

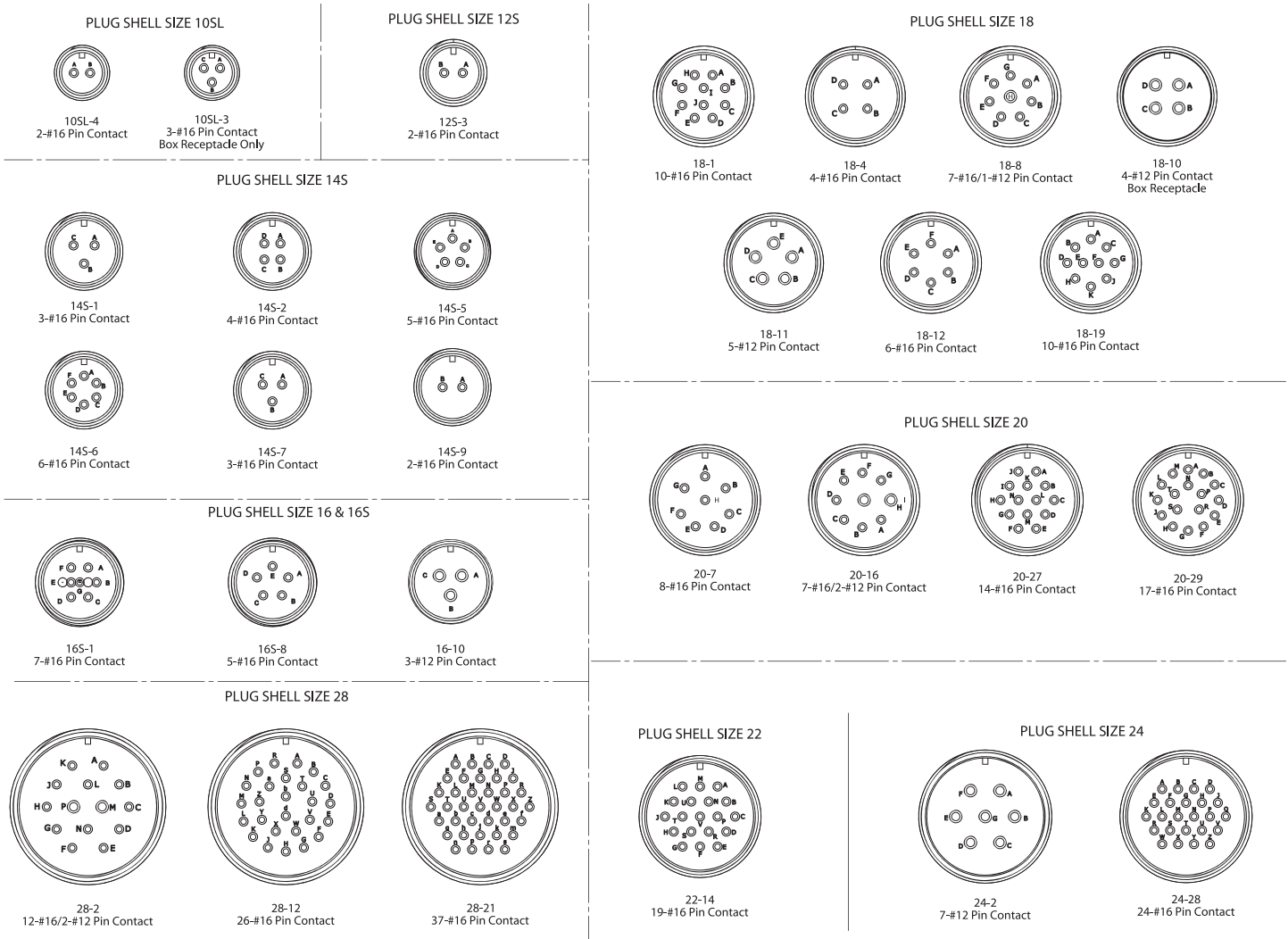
Connector Size	LC	N	Q	V Fitting Threads
	Inch mm	Inch mm	Inch mm	
10SL	1.800 47.7	0.535 13.6	0.825 20.9	1/2-20
12S	1.900 48.3	0.535 13.6	0.965 24.1	5/8-24
14S	2.000 50.8	0.553 14.0	1.160 29.5	3/4-20
16S	2.200 56.0	1.425 36.2	1.250 31.8	7/8-20
16	2.400 61.0	1.425 36.2	1.320 33.5	7/8-20
18	2.570 65.3	1.425 36.2	1.435 36.4	1-20
20	2.866 72.8	1.445 36.7	1.440 36.6	1-1/8-18
22	2.892 73.5	1.445 36.7	1.765 44.8	1-1/4-18
24	2.892 73.5	1.445 36.7	1.765 44.8	1-3/8-18
28	2.972 75.5	1.440 36.6	2.099 53.3	1-5/8-18

Connector Size	A Coupling Threads	C	K	LR	M	R	S	Z
		Inch mm	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm
10SL	5/8-24	3.5 88.9	0.080 2.0	0.940 23.9	9/16 14.3	25/32 19.8	1.0 25.4	0.635 16.1
12S	3/4-20	3.5 88.9	0.085 2.2	0.957 24.3	9/16 14.3	13/16 20.6	1-3/32 27.8	0.760 19.3
14S	7/8-20	3.5 88.9	0.090 2.3	1.130 28.7	9/16 14.3	29/32 23.0	1-11/64 29.8	0.885 22.5
16S	1-20	3.5 88.9	0.140 3.6	1.170 29.7	19/32 15.1	31/32 24.6	1-9/32 32.5	1.010 25.7
16	1-20	3.5 88.9	0.140 3.6	1.360 34.5	3/4 19.0	31/32 24.6	1-9/32 32.5	1.010 25.7
18	1-1/8-18	5.0 127.0	0.140 3.6	1.330 33.8	21/32 16.7	1-1/16 27	1-3/8 34.9	1.135 28.8
20	1-1/4-18	5.0 127.0	0.142 3.6	1.330 33.8	3/4 19.0	1-5/32 29.4	1-1/2 38.1	1.260 32.0
22	1-3/8-18	5.0 127.0	0.145 3.7	1.210 30.7	3/4 19.0	1-1/4 31.8	1-5/8 41.3	1.385 35.2
24	1-1/2-18	6.0 152.4	0.145 3.7	1.220 31.0	13/16 20.6	1-3/8 34.9	1-25/32 45.2	1.510 38.4
28	1-3/4-18	6.0 152.4	0.145 3.7	1.220 31.0	13/16 20.6	1-9/16 39.7	2.0 50.8	1.760 44.7



## BOX RECEPTACLE / CABLE PLUG / CABLE RECEPTACLE PIN

Face View



NOTE: Mating face of pin insert shown (socket opposite). Unless otherwise specified, arrangements are per MIL-STD 165L. For alternate key positions, consult factory.

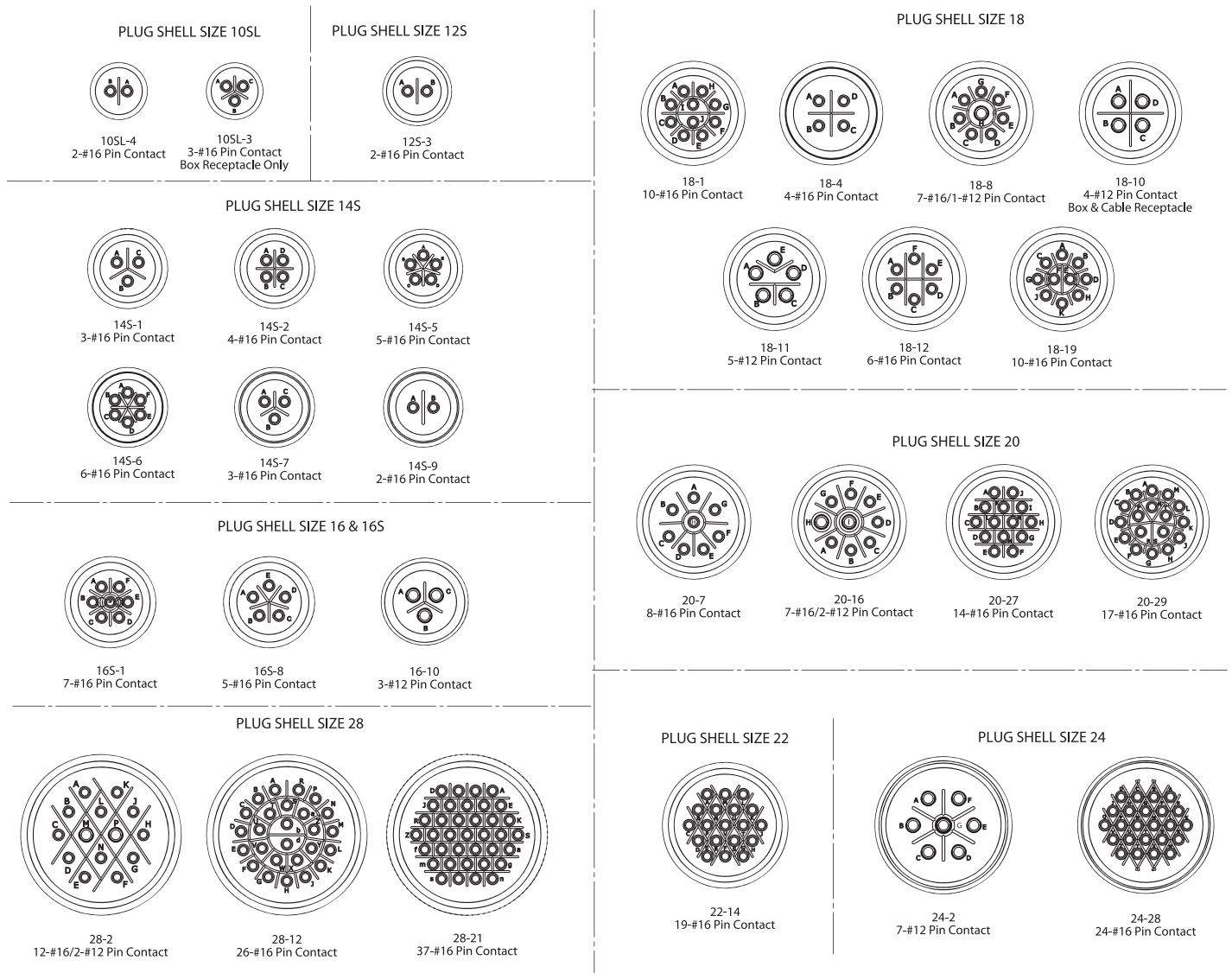
NOTE: \*9 contacts: 7-#16/2-#12 cable end, socket only. Panel: pin only.

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

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

## BOX RECEPTACLE / CABLE PLUG / CABLE RECEPTACLE PIN

Wire View

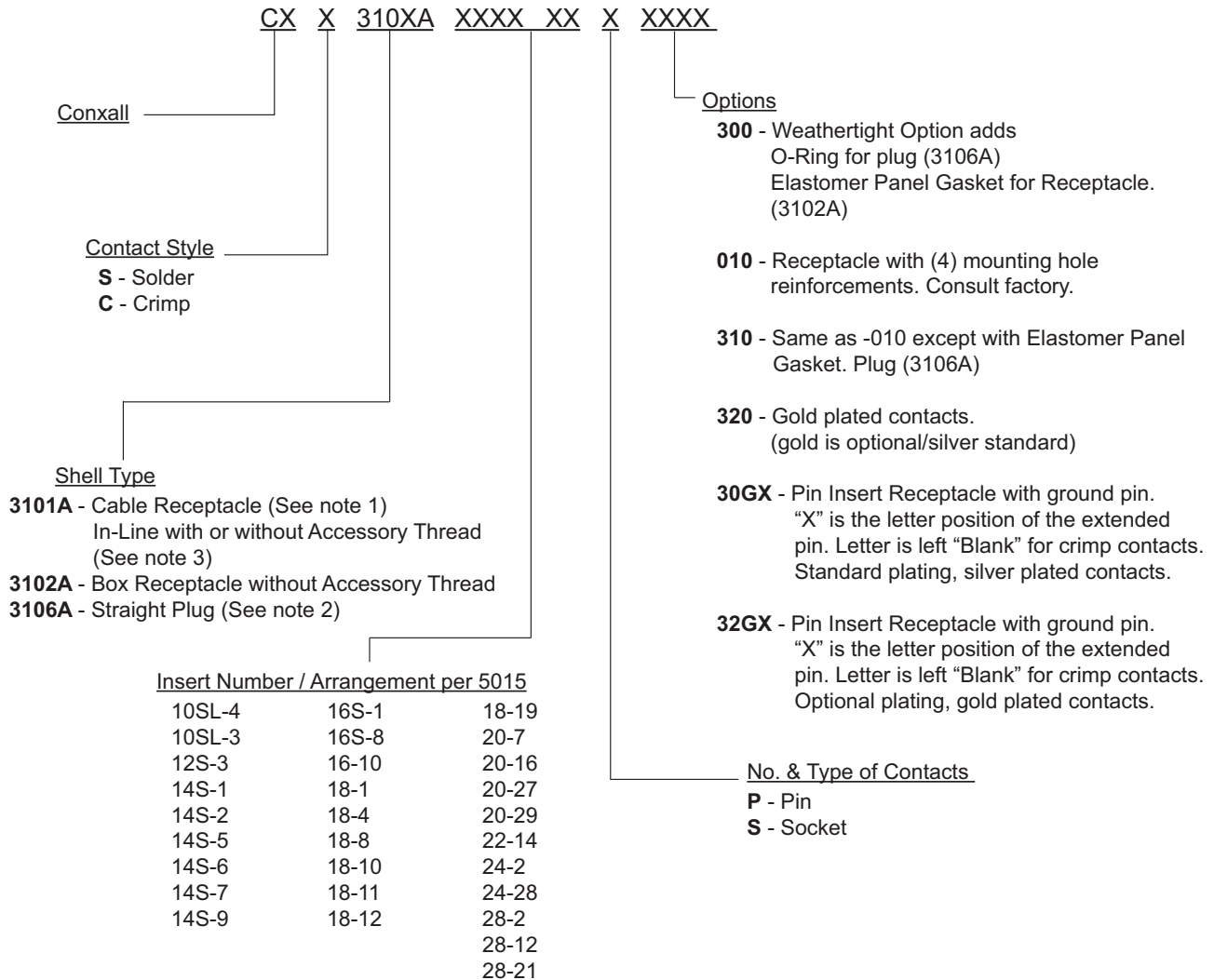


NOTE: Rear face of pin insert shown (socket opposite). Unless otherwise specified, arrangements are per MIL-STD 165L. For alternate key positions, consult factory.

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

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

## PART NUMBER TO ORDER

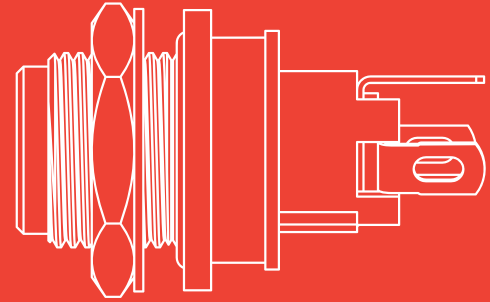
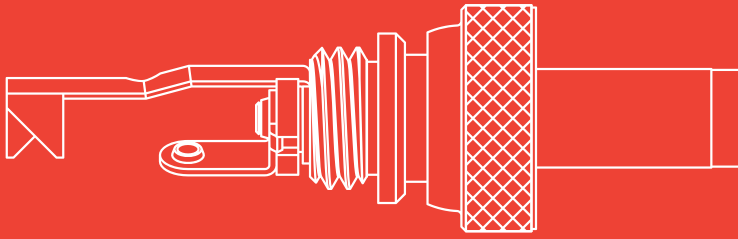


**Complete P/N contains no spaces or dashes.  
 Consult factory for optional colors and materials**

**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.**



# SEALED DC POWER JACKS & PLUGS

0.62" [15MM] OD



**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**

## 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
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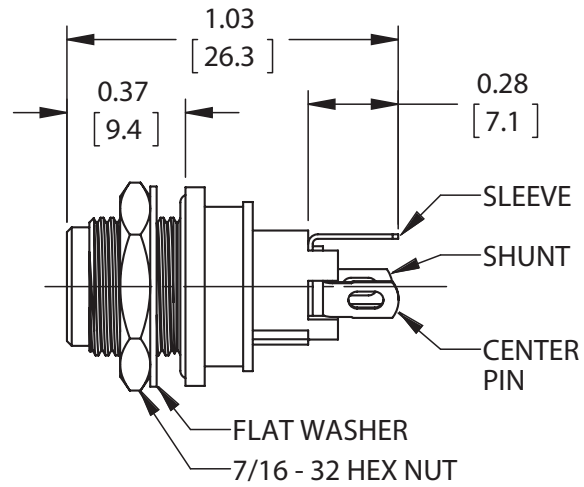
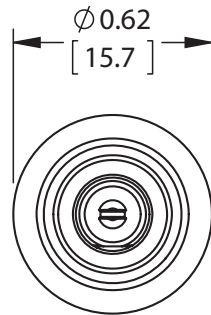
### **Molded Cable Assemblies**

Consult factory for molded options

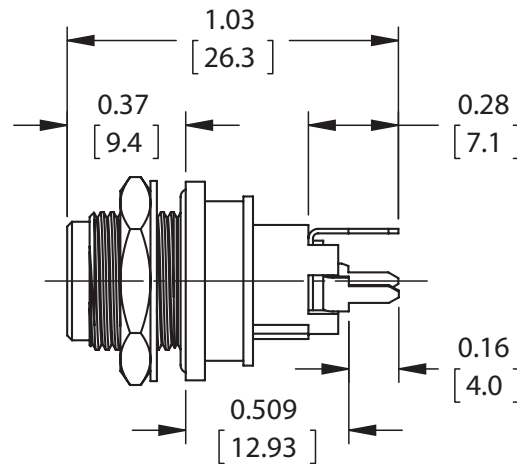
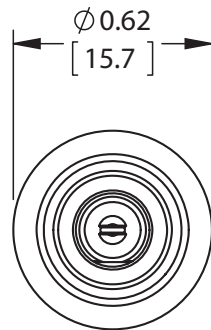
### **Accessories**

Isolated Mount - P3818: Includes insulating shoulder washer/seal and insulating flat washer.

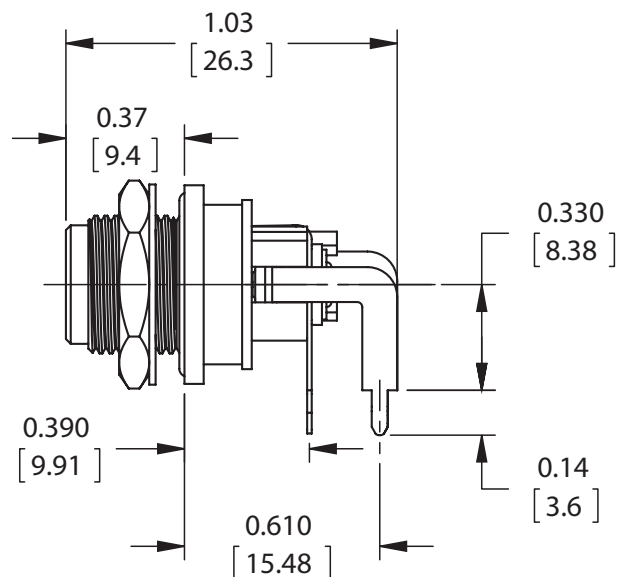
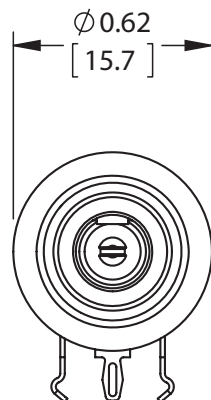
**SOLDER LUG**



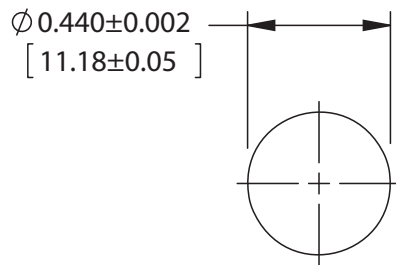
**STRAIGHT PC**



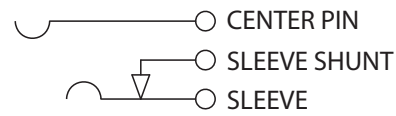
**RIGHT ANGLE PC**



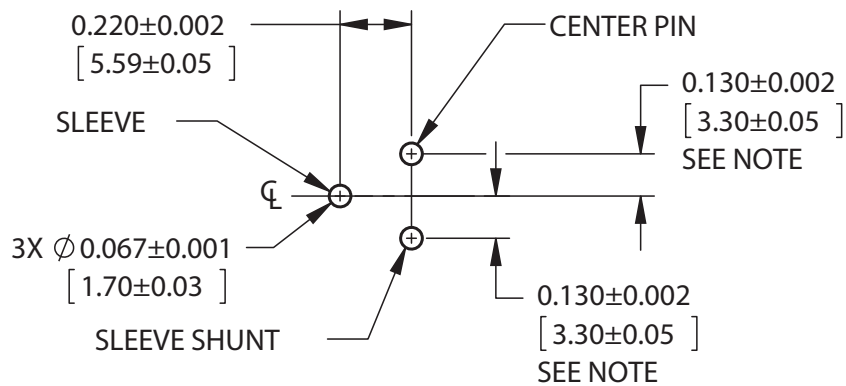
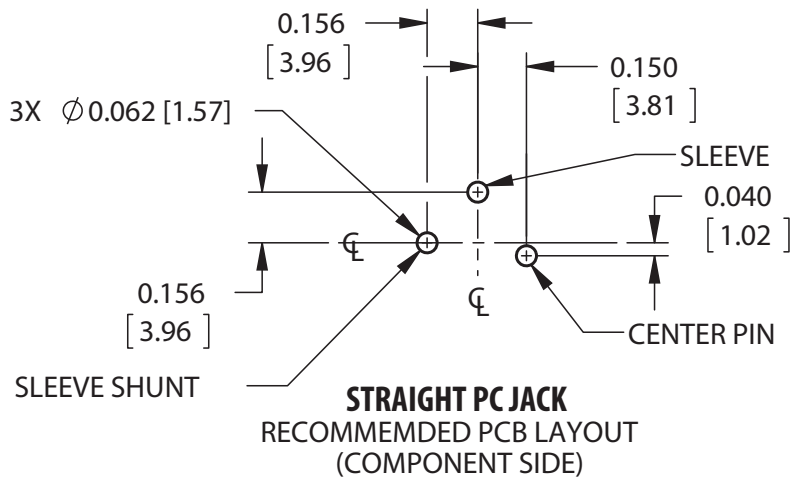
All dimensions are for reference only. Units shown: in[mm].



RECOMMENDED  
PANEL MOUNTING HOLE



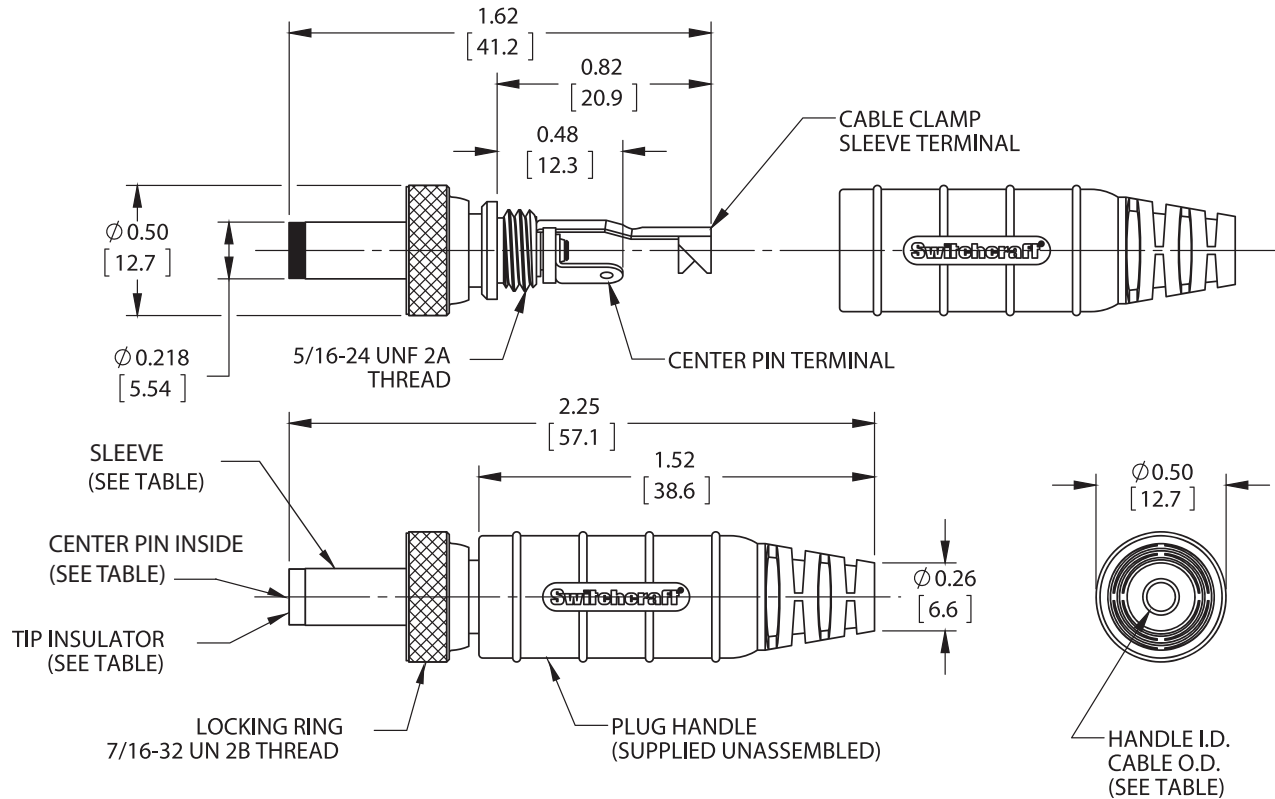
JACK SCHEMATIC



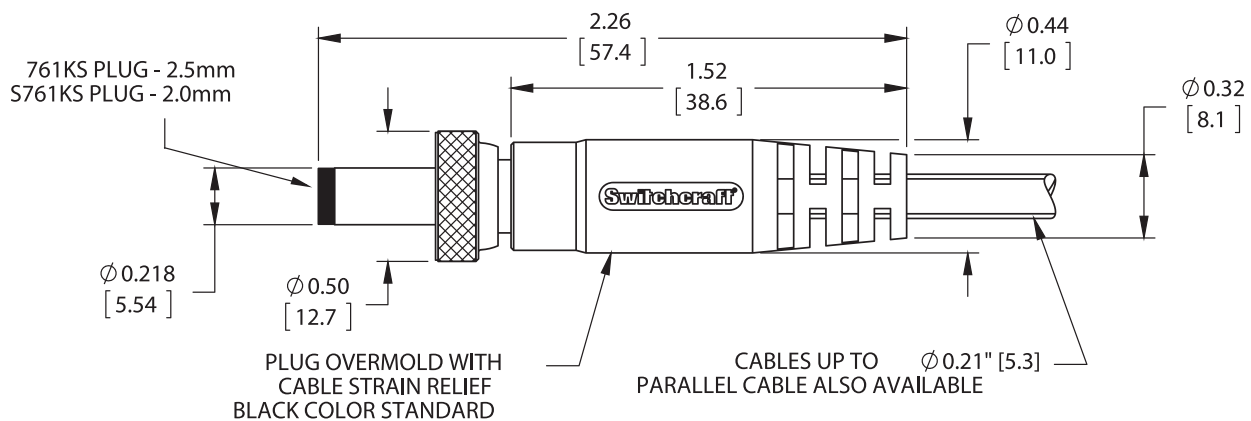
NOTE: 0.130 [3.30] FOR HAND INSERTION  
0.135 [3.43] FOR AUTOMATED INSERTION

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

## SEALED POWER PLUGS ASSEMBLED HANDLE



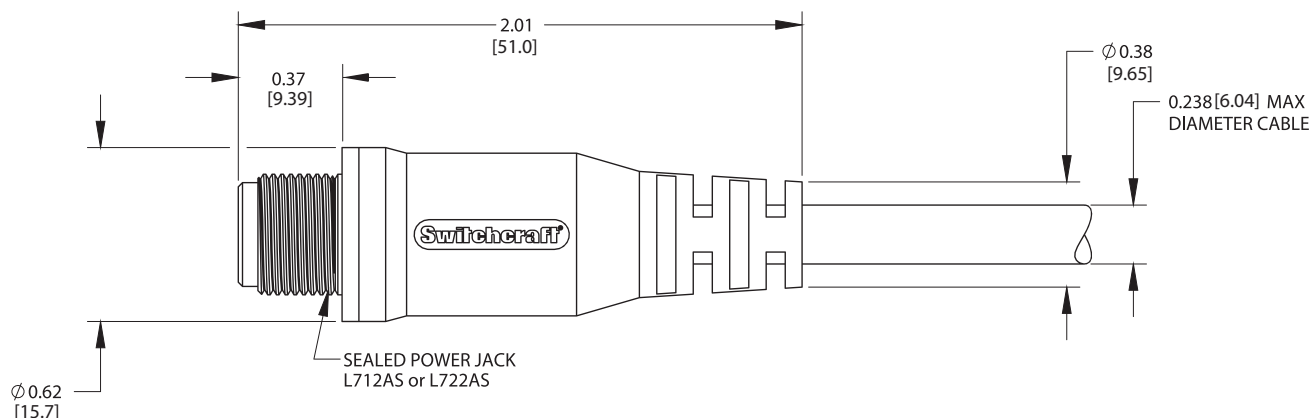
## SEALED POWER PLUGS MOLDED CABLE ASSEMBLY



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



## SEALED POWER JACK MOLDED CABLE ASSEMBLY

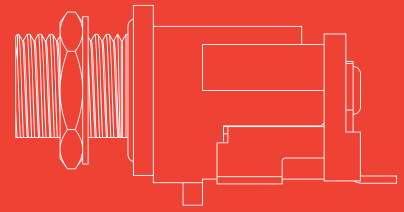
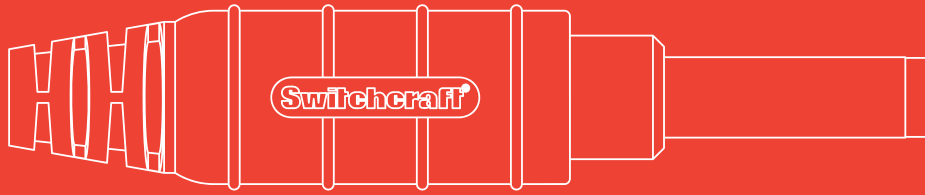


### PART NUMBER TO ORDER

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

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

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



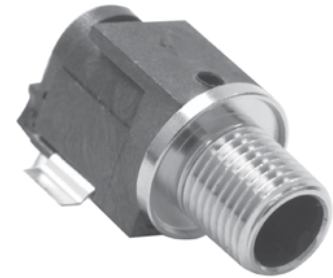
# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD



**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**

# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

## SPECIFICATIONS

### **Mechanical Specifications**

Life:	5000 insertion/withdrawal cycles minimum
Vibration:	Mil-Std 202G Method 201A ( <b>Locking Only</b> )
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:	1000M $\Omega$ min
Contact Resistance (initial):	15 m $\Omega$ max

### **Environmental Specifications**

Operating Temperature Rating:	-40 °C to +105 °C (-40°F to +221 °F)
Moisture Resistance:	MIL-STD 202G Method 106G ( <b>Sealed Only</b> )
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 ( <b>Sealed Only</b> )
Weathertight Ratings:	IP66, IP67, IP68, NEMA 250 (6p) when mated ( <b>Sealed Only</b> )

### **Material Specifications - Jacks**

Housing, Cover (insulators):	Thermoplastic, Black
Mounting Bushing, Hex Nut:	Copper Alloy, Nickel Plated
Flat Washer:	Steel, Nickel Plated
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

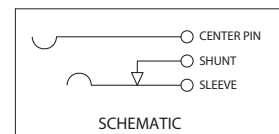
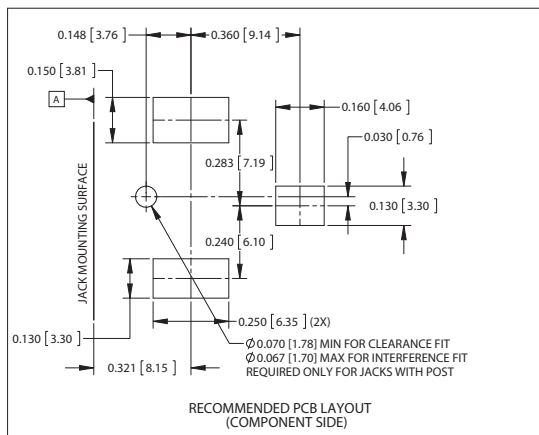
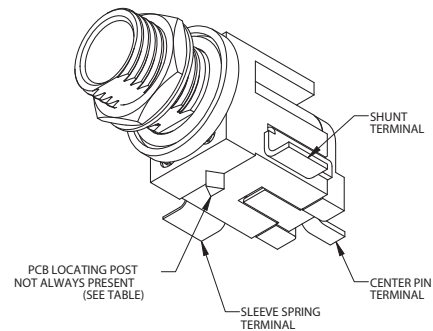
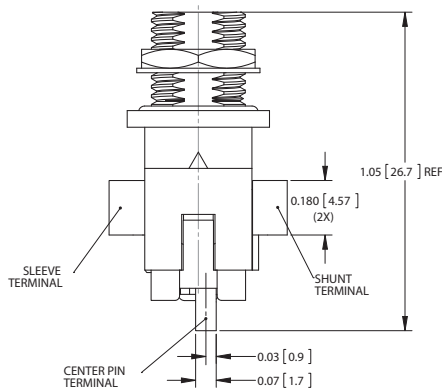
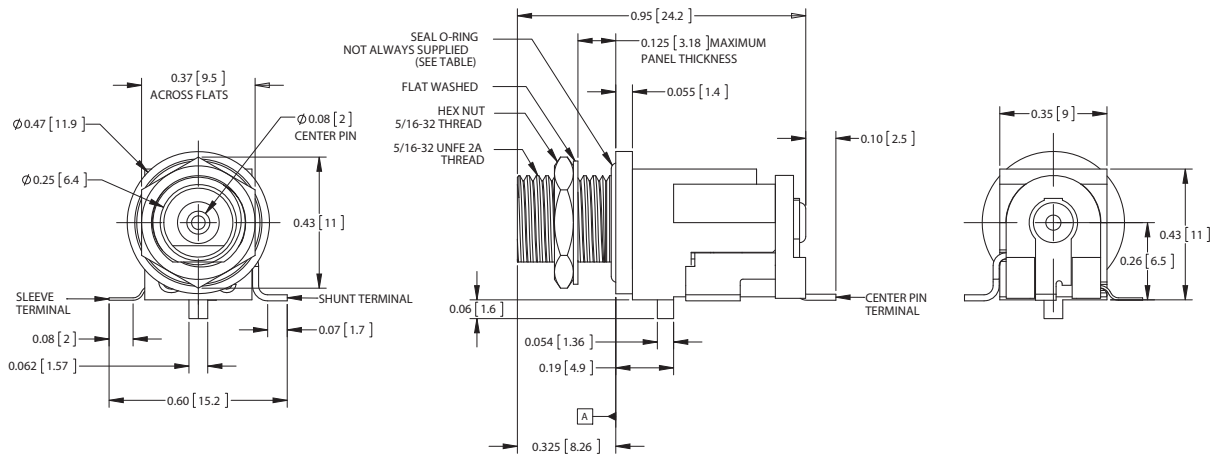
### **Material Specifications - Plugs**

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:	Elastomer, Black
Center Contact (Tip):	Copper Alloy, Silver Plated
Tip & Sleeve Terminals:	Copper Alloy, Tin Plated
Tip Insulator:	Thermoplastic, Blue
Terminal Insulator:	Epoxy Glass FR4
Tubular Insulator:	Mylar



# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

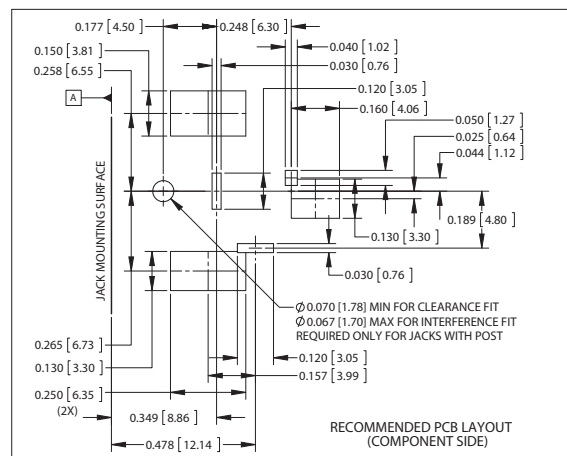
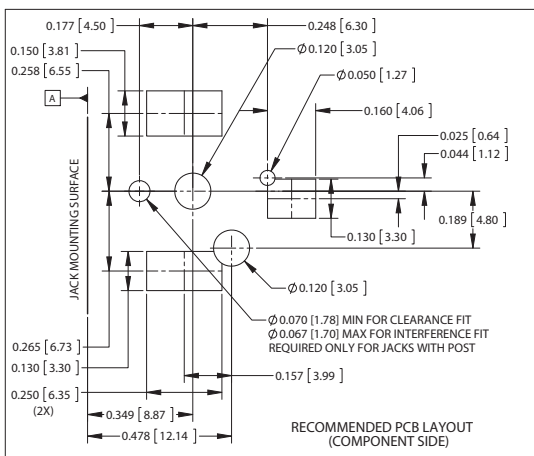
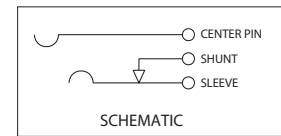
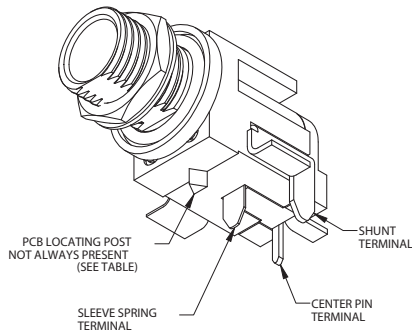
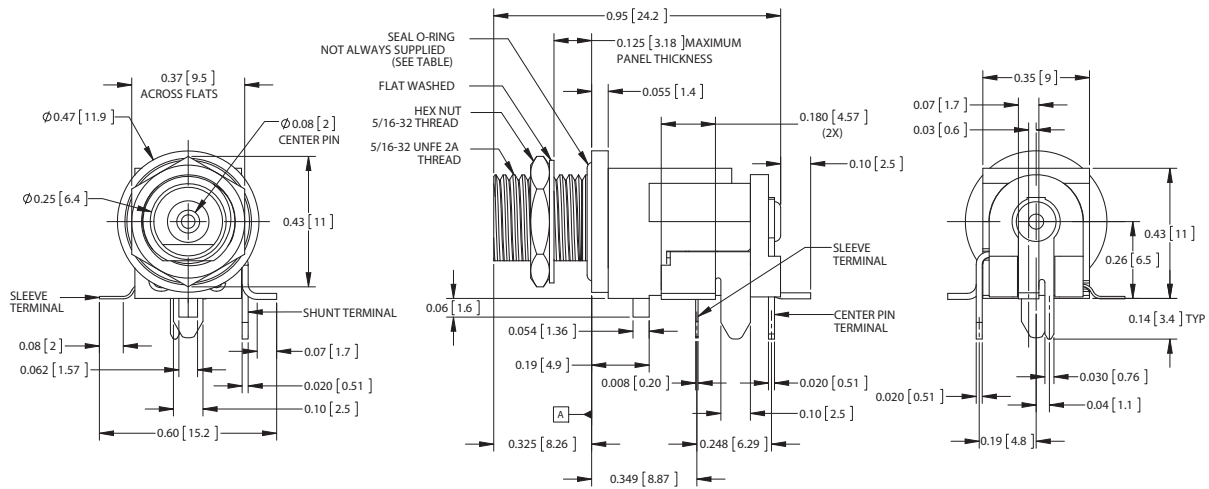
## SMT-MOUNT HIGH AMPERAGE POWER JACKS



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

# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

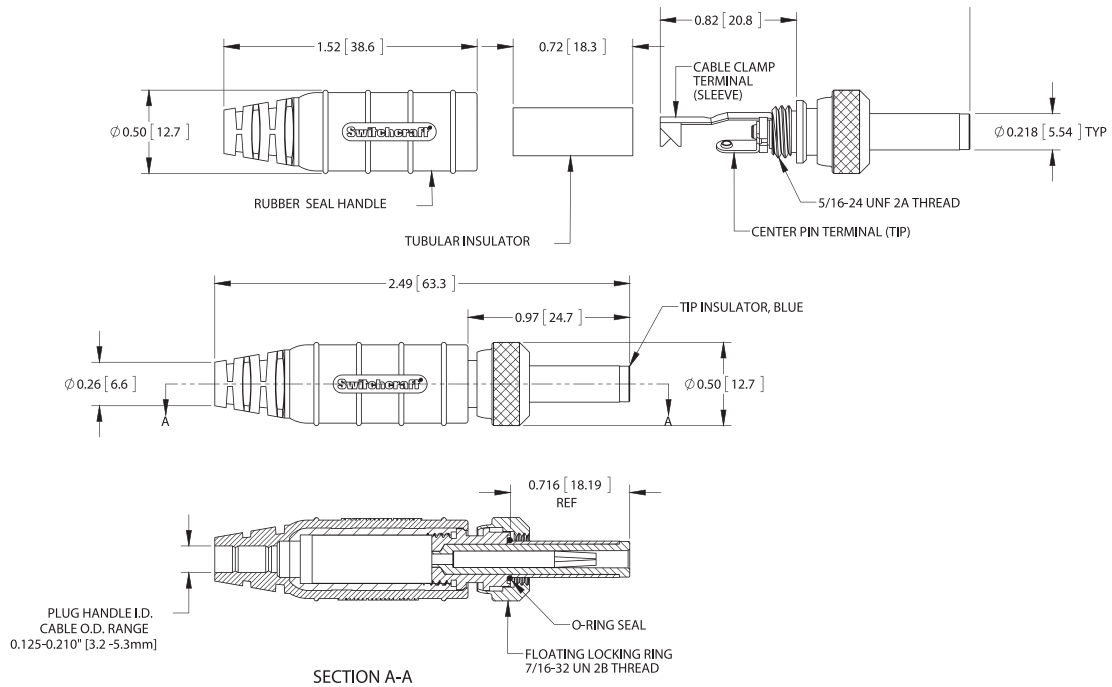
## HYBRID-MOUNT HIGH AMPERAGE POWER JACKS



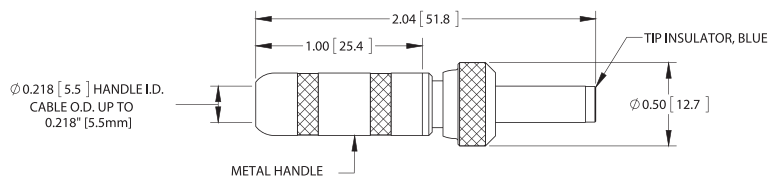
All dimensions are for reference only. Units shown: in[mm].

# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

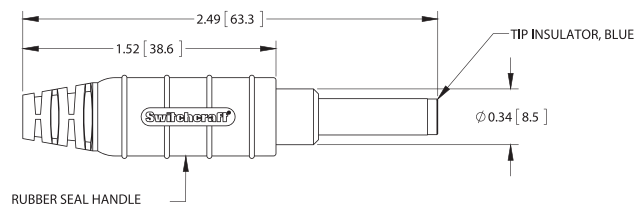
## LOCKING AND SEALED PLUGS S10KS12, S10KS15, S10KS17



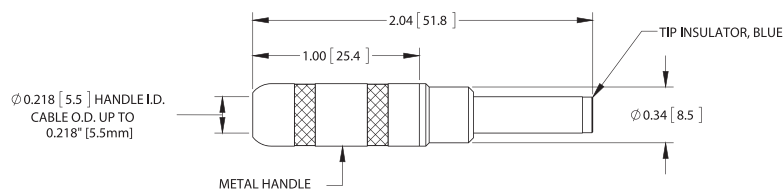
## LOCKING, NON-SEALING PLUG S10K



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



## NON-LOCKING, NON-SEALING PLUG S10



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

# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

CURRENT RATING TABLE

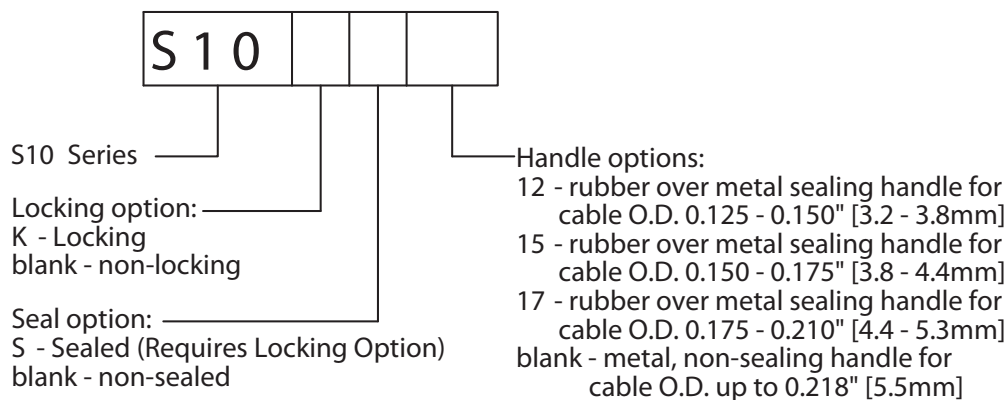
Jack Terminal Plating	Wire (awg)	Current Rating (A) at Operating Temperature (°C )					
		55°C max	65°C max	75°C max	85°C max	95°C max	105°C max
Silver	16	11	10	9.5	9	7.5	6
	18	9.5	9	8	7	5.5	5
	20	9	8	6.5	6	5	4
Tin	16	11	10	9	8	7	5.5
	18	9.5	9	8	7	5.5	5
	20	8.5	8	6.5	5.5	5	4

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.

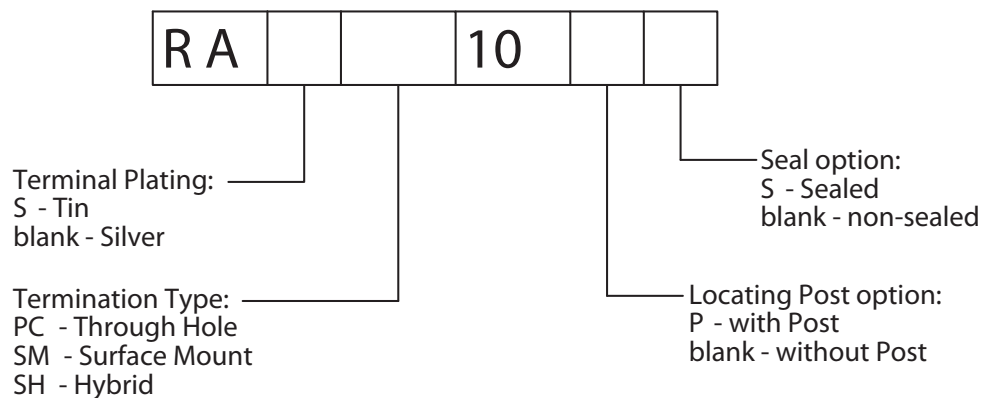


# HIGH AMPERAGE DC POWER JACKS & PLUGS .43" [11MM] OD

## HIGH AMPERAGE POWER PLUG ORDERING CODE:

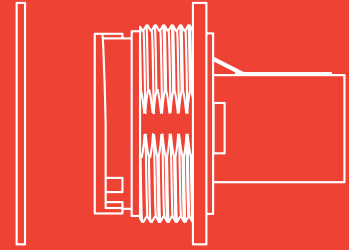
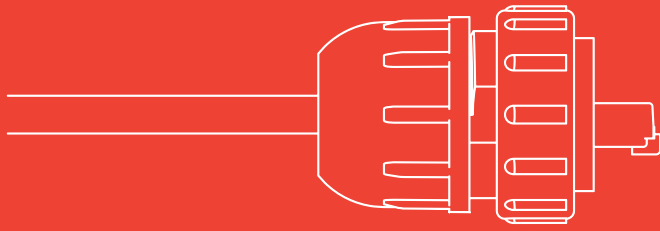


## HIGH AMPERAGE POWER JACK ORDERING CODE:



**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.



# RJ45 WEATHERTIGHT CONNECTORS

1.44" [37MM] OD



**QUICK CONNECT CABLE END**  
MATES WITH PANEL MOUNT



**THREADED CABLE END**  
MATES WITH PANEL MOUNT



**PANEL MOUNT**  
MATES WITH CABLE END



**SHIELDED PANEL MOUNT**  
MATES WITH CABLE END



**REAR VIEW**  
**FEED-THRU TERMINATION**



**REAR VIEW**  
**STRAIGHT IDC TERMINATION**



**REAR VIEW-RIGHT ANGLE IDC TERMINATION**



**MOLDED CABLE ASSEMBLY**

## 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

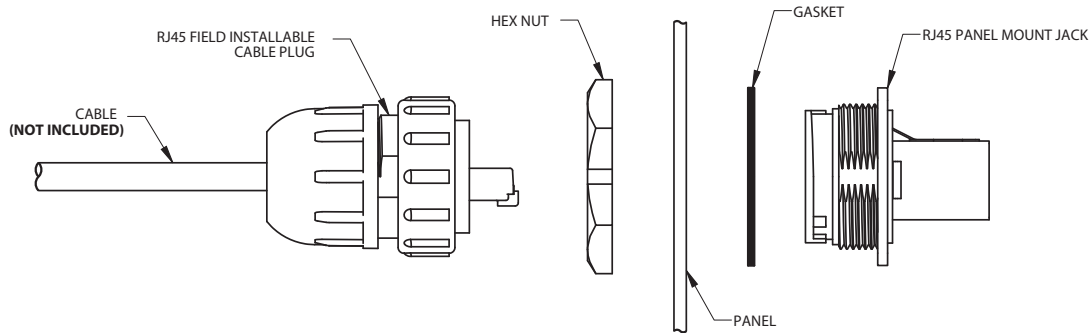
### **Recommended Cable Type**

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]

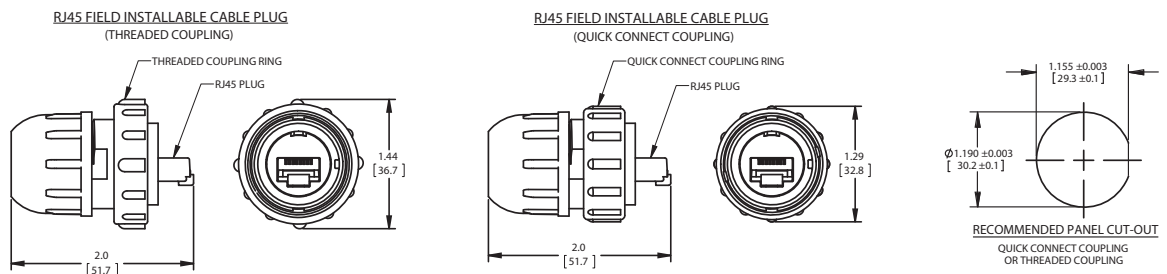
# RJ45 WEATHERTIGHT CONNECTORS

1.44" [37<sub>MM</sub>] OD

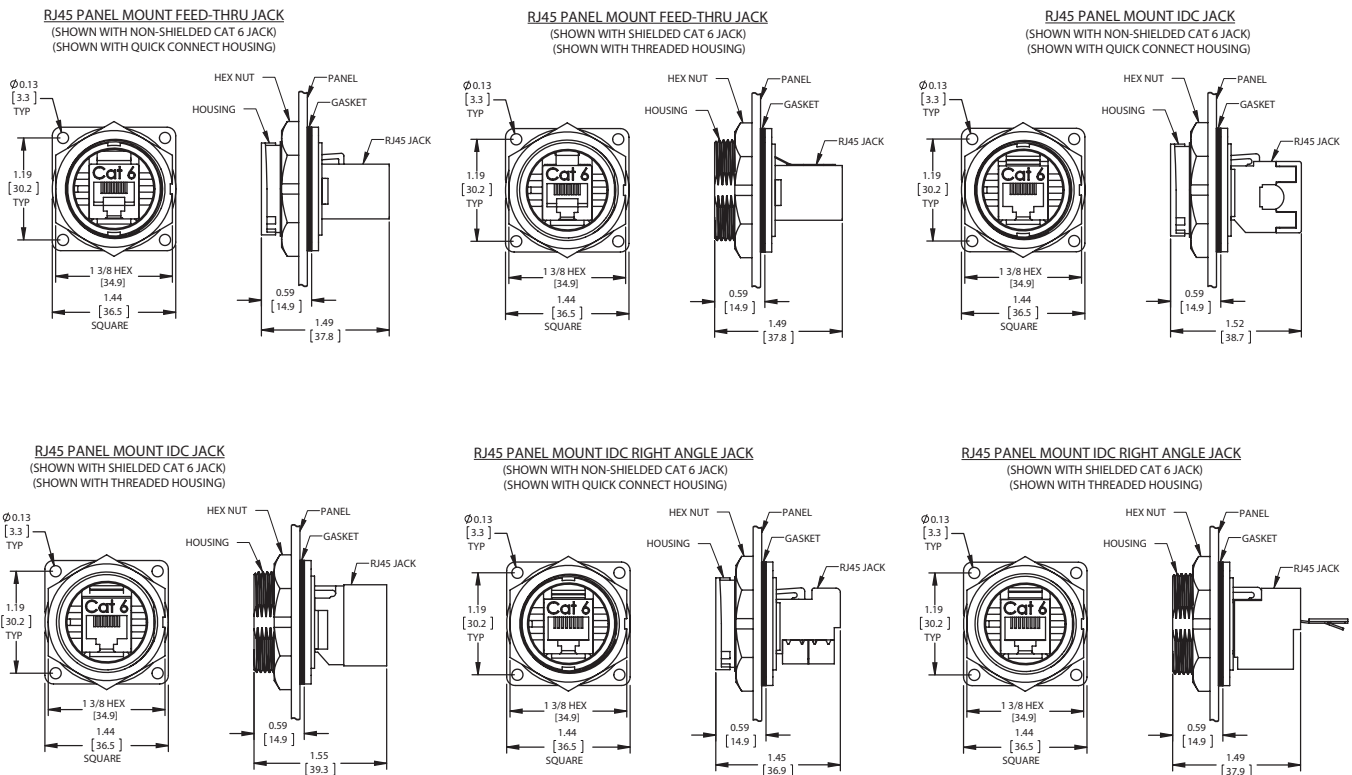
## DATA-CON-X®: RJ45 WEATHERTIGHT CONNECTORS



### FIELD INSTALLABLE KITS

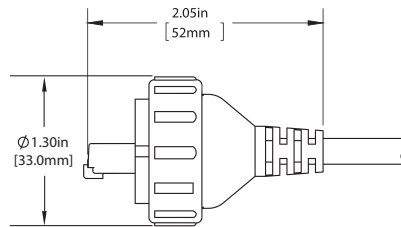


### PANEL MOUNT ASSEMBLY KITS

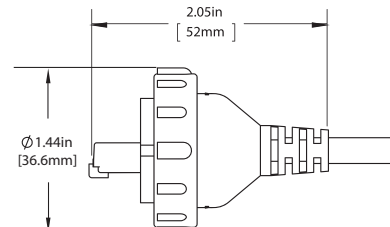


All dimensions are for reference only. Units shown: in/[mm].

## CUSTOM MOLDED CABLE ASSEMBLIES



DCM-RJXXB-XXXX  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLD  
QUICK CONNECT



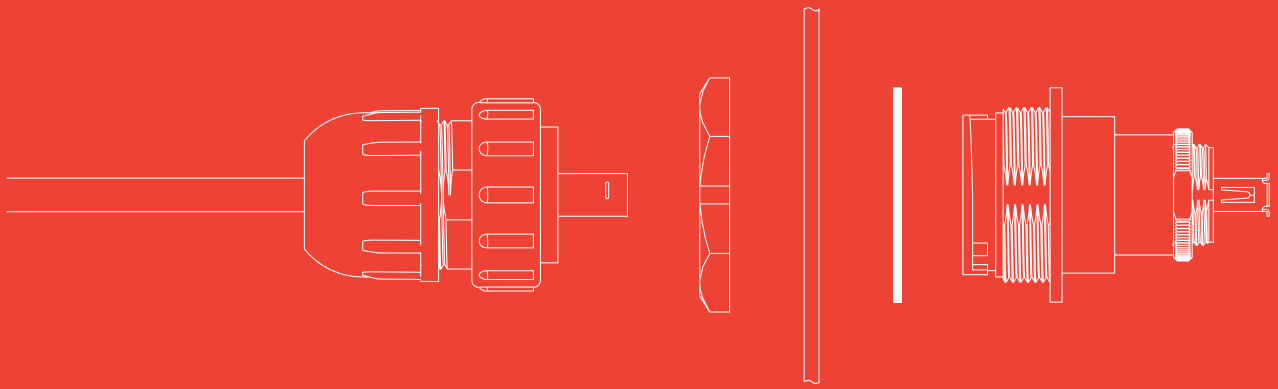
DCM-RJXXT-XXXX  
CUSTOM CABLE CONNECTOR  
STRAIGHT OVERMOLD  
THREADED CONNECT

## PART NUMBER TO ORDER

DCC	-	RJ6	X	X	-	310
RJ45 FIELD INSTALLABLE CABLE PLUG ASSEMBLY		PLUG TYPE	PLUG SHIELDING	COUPLING TYPE		SERIES
DCC		RJ6 = RJ45 CAT 6	BLANK = UNSHIELDED S = SHIELDED	B = QUICK CONNECT T = THREADED		310

DCP	-	XXX	X	X	-	XX
RJ45 FIELD INSTALLABLE PANEL HOUSING ASSEMBLY		JACK TYPE	JACK SHIELDING	COUPLING TYPE		SERIES
DCP		RJ5 = RJ45 CAT 5e RJ6 = RJ45 CAT 6	BLANK = UNSHIELDED S = SHIELDED	B = QUICK CONNECT T = THREADED		F = FEED-THRU (TO SAME CONNECTOR) SD = IDC, STRAIGHT RD = IDC, RIGHT ANGLE

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



# USB A & B WEATHERTIGHT CONNECTORS

1.44" [37MM] OD



**CABLE END - USB A  
QUICK CONNECT**

MATES WITH PANEL MOUNT



**CABLE END - USB A  
THREADED CONNECT**

MATES WITH PANEL MOUNT



**CABLE END - USB B  
QUICK CONNECT**

MATES WITH PANEL MOUNT



**CABLE END - USB B  
THREADED CONNECT**

MATES WITH PANEL MOUNT



**PANEL MOUNT - USB A  
QUICK CONNECT**

MATES WITH CABLE END



**PANEL MOUNT - USB A  
THREADED CONNECT**

MATES WITH CABLE END



**PANEL MOUNT - USB B  
QUICK CONNECT**

MATES WITH CABLE END



**PANEL MOUNT - USB B  
THREADED CONNECT**

MATES WITH CABLE END

## 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

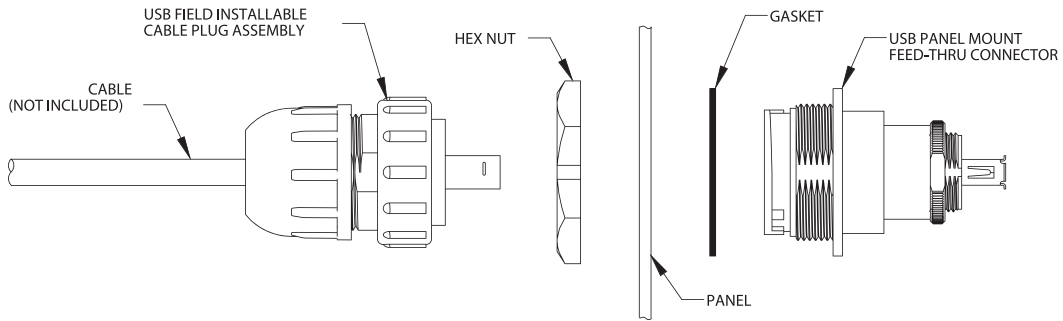
### **Other**

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

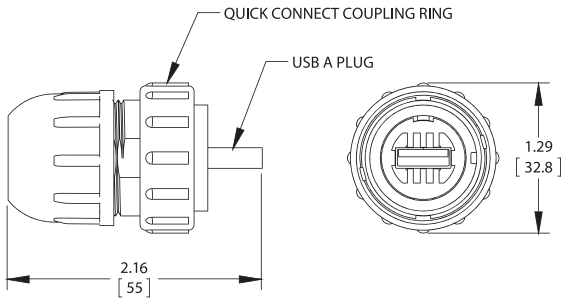
### **Recommended Cable Type**

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]

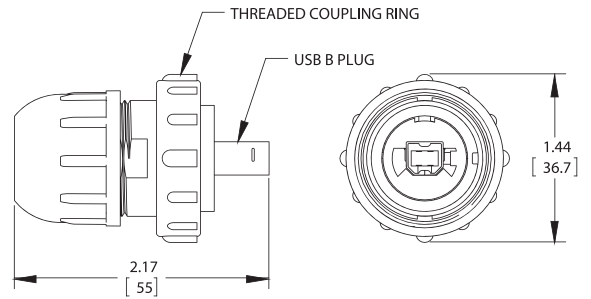
## DATA-CON-X®:USB A & B WEATHERTIGHT CONNECTORS



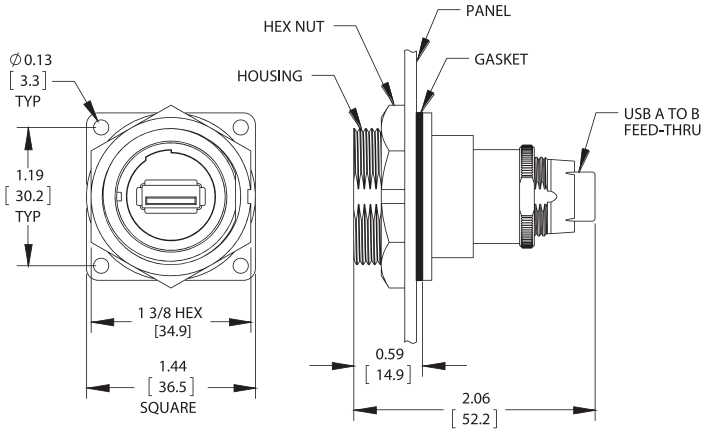
**USB A FIELD INSTALLABLE CABLE PLUG**  
(SHOWN WITH QUICK CONNECT COUPLING)



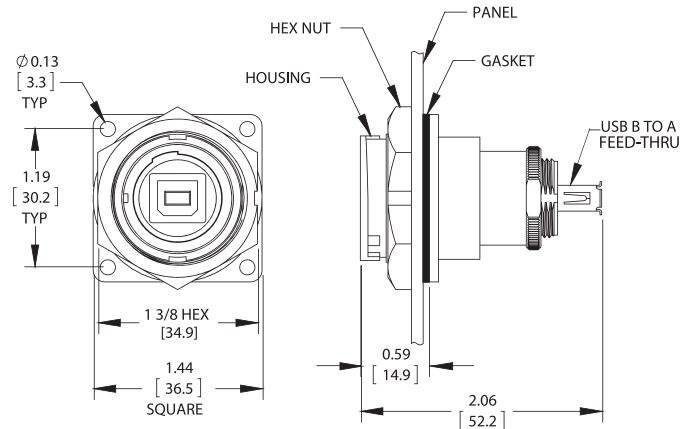
**USB B FIELD INSTALLABLE CABLE PLUG**  
(SHOWN WITH THREADED COUPLING)



**USB PANEL MOUNT FEED-THRU CONNECTOR**  
(SHOWN WITH USB A TO B FEED-THRU CONNECTOR)  
(SHOWN WITH THREADED HOUSING)



**USB PANEL MOUNT FEED-THRU CONNECTOR**  
(SHOWN WITH USB B TO A FEED-THRU CONNECTOR)  
(SHOWN WITH QUICK CONNECT HOUSING)



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



# USB A & B WEATHERTIGHT CONNECTORS

1.44" [37<sub>MM</sub>] OD

## PART NUMBER TO ORDER

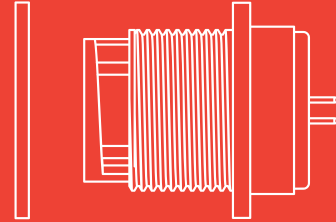
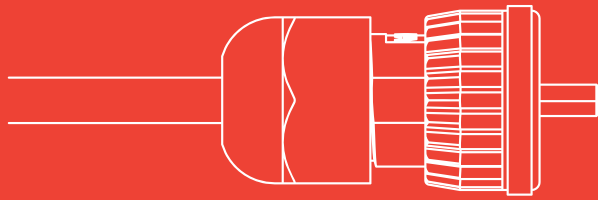


USB FIELD INSTALLABLE CABLE PLUG PART NUMBER CHART			
USB FIELD INSTALLABLE CABLE PLUG ASSEMBLY	PLUG TYPE	COUPLING TYPE	SERIES
DCC	<b>USBA</b> = USB "A" 2.0 <b>USBB</b> = USB "B" 2.0	<b>B</b> = QUICK CONNECT <b>T</b> = THREADED	<b>150</b> = $\varnothing 0.134''-0.170''$ [3.40-4.33mm] <b>180</b> = $\varnothing 0.171''-0.208''$ [4.34-5.28mm]



USB PANEL MOUNT FEED-THRU CONNECTORS PART NUMBER CHART			
USB FIELD INSTALLABLE PANEL HOUSING ASSEMBLY	RECEPTACLE TYPE (SEALED END)	COUPLING TYPE	RECEPTACLE TYPE (NON-SEALED END)
<b>DCP</b>	<b>USBA</b> = USB "A" 2.0 <b>USBB</b> = USB "B" 2.0	<b>B</b> = QUICK CONNECT <b>T</b> = THREADED	<b>USBA</b> = USB "A" 2.0 * <b>USBB</b> = USB "B" 2.0 **

\* (NOT AVAILABLE WITH USBA ON SEALED END)  
\*\* (NOT AVAILABLE WITH USBB ON SEALED END)



# SEALED 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**

## 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

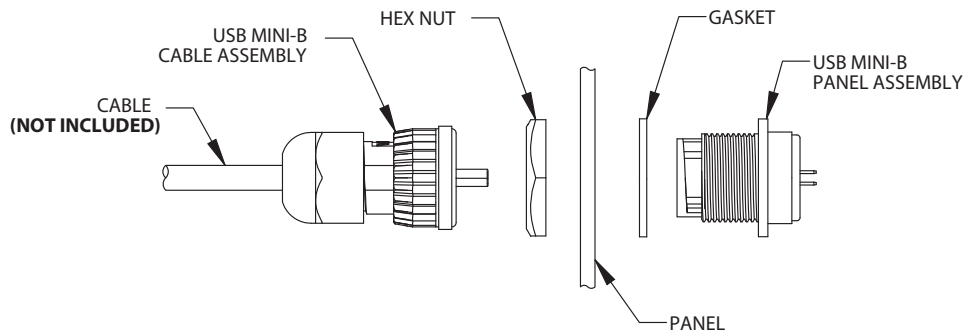
### **Molded Cable Assemblies**

Consult factory for molded options

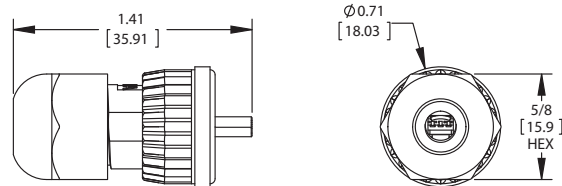
### **Other**

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



**DCC-USBNB-160**  
USB MINI-B CABLE PLUG FIELD INSTALLABLE



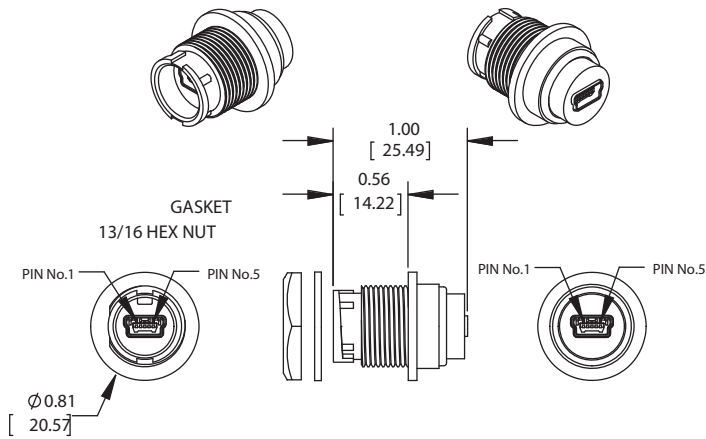
## PART NUMBER TO ORDER

Part Number	Style	Description
DCC-USBNB-160	Plug	Field Installable Cable Plug
DCP-USBNB-MNHD	Receptacle	Panel Mount: USB Mini-B to PC Tails
DCP-USBNB-MNSC	Receptacle	Panel Mount: USB Mini-B to Solder Holes
DCP-USBNB-USBN	Receptacle	Panel Mount: USB Mini-B Feed-thru

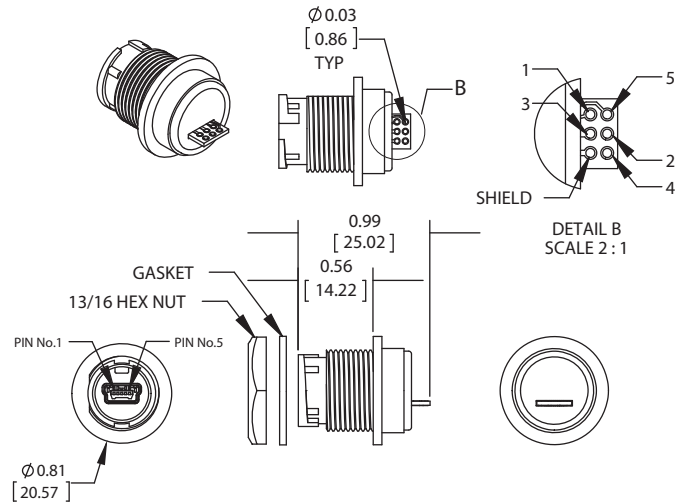
All dimensions are for reference only. Units shown: in[mm].

## PANEL MOUNT ASSEMBLY KITS

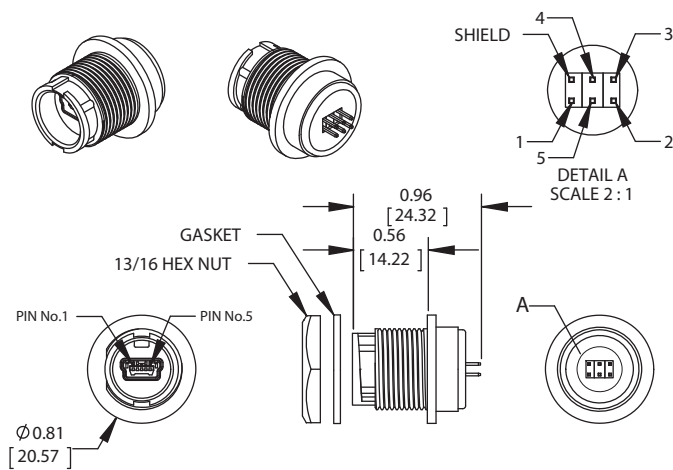
**DCP-USBNB-USBN**  
USB MINI-B FEED-THRU



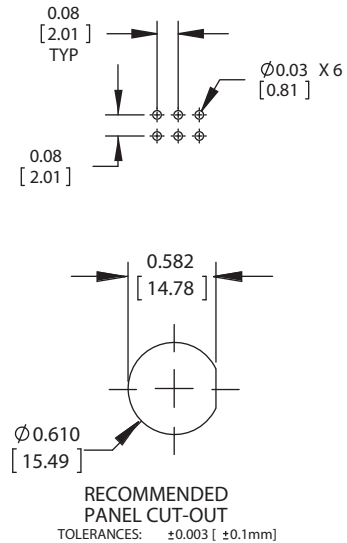
**DCP-USBNB-MNSC**  
USB MINI-B TO SOLDER HOLES



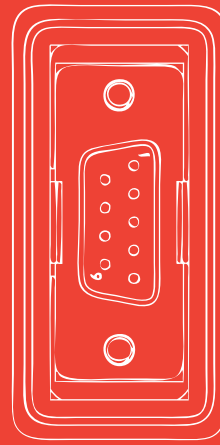
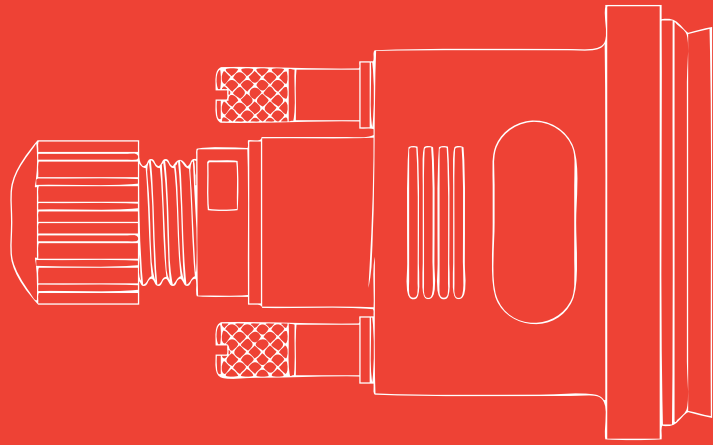
**DCP-USBNB-MNHD**  
USB MINI-B TO PC TAILS



**PCB HOLE LAYOUT FOR DCP-USBNB-MNHD**



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



# SEALED D-SUB CONNECTORS

9 OR 15 CONTACTS



**9 PIN STANDARD CABLE MOUNT-SOCKET**  
MATES WITH PANEL MOUNT



**9 PIN STANDARD CABLE MOUNT-PIN**  
MATES WITH PANEL MOUNT



**9 PIN STANDARD PANEL MOUNT**  
MATES WITH CABLE MOUNT



**15 PIN HIGH DENSITY CABLE MOUNT-SOCKET**  
MATES WITH PANEL MOUNT



**15 PIN HIGH DENSITY CABLE MOUNT-PIN**  
MATES WITH PANEL MOUNT



**15 PIN HIGH DENSITY PANEL MOUNT**  
MATES WITH CABLE MOUNT



**CAP FOR PANEL MOUNT**  
P/N DBSCAP

## 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

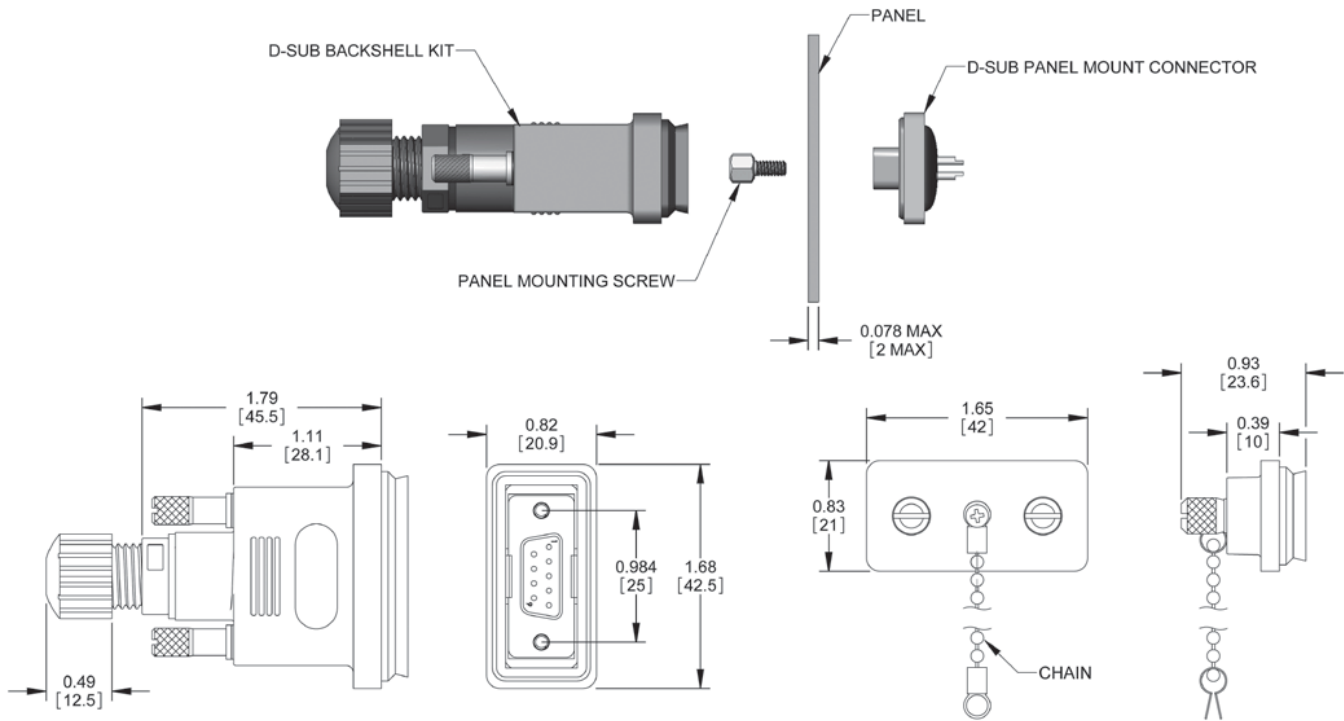
### **Other**

Flame Rating:	UL 94V-0
Recommended Panel Thickness:	0.048" - 0.078" [1.22mm to 1.98mm]

### **Recommended Cable Type**

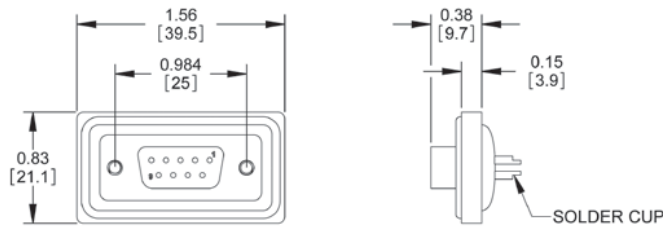
Conductor Type:	Solid or Stranded Conductors, 22-26 AWG
Outer Cable O.D. Range:	Ø0.138" - Ø0.276" [3.51mm to 7.01mm]

## DATA-CON-X®: SEALED D-SUB

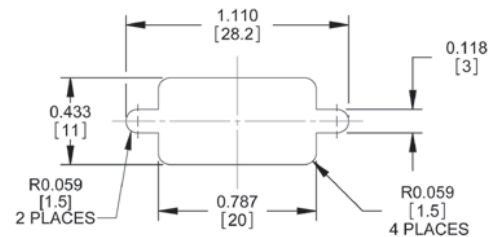


**D-SUB BACKSHELL KIT**  
(9 PIN MALE D-SUB SHOWN)

**D-SUB CONNECTOR CAP**



**PANEL MOUNT SOLDER CONNECTOR**  
(9 PIN FEMALE D-SUB SHOWN)



**RECOMMENDED PANEL CUT-OUT**

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



# SEALED D-SUB CONNECTORS

9 OR 15 CONTACTS

## PART NUMBER TO ORDER

DCP	XXXX	X	SC	P
<b>D-Sub Panel Mount Series</b>	<b>D-Sub</b>	<b>Gender</b>	<b>Termination Style</b>	<b>Panel</b>
<b>DCP</b>	<b>DB09</b> = 9 pin Standard <b>HD15</b> = 15 Pin, High Density	<b>M</b> = Male <b>F</b> = Female	<b>SC</b> = Solder Cup	1 = 0.48-0.78 in [1.22-1.98 mm]

DCC	XXXX	X
<b>D-Sub Backshell Kit Series</b>	<b>D-Sub</b>	<b>Gender</b>
<b>DCC</b>	<b>DB09</b> = 9 pin Standard <b>HD15</b> = 15 Pin, High Density	<b>M</b> = Male <b>F</b> = Female

# 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  
\_\_\_\_\_ Strip & Tin (S&T)  
\_\_\_\_\_ Standard 1/4" outer jacket, 1/8" inner jacket  
\_\_\_\_\_ Straight cut-off (SCO)  
\_\_\_\_\_ Other (Please specify) \_\_\_\_\_

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

CONTACT SIZE	CONDUCTOR SIZE - AWG	NUMBER OF CONDUCTORS	CURRENT RATING
#12	#12	1 through 7	23.0A
	#14	1 through 3	17.0A
		4 through 6	12.75A
		7 through 9	11.0A
	#16	1 through 3	13.0A
		4 through 6	9.75A
7		8.45A	
#16	#16	1 through 10	13.0A
		11 and 12	7.5A
	#18	1 through 3	10.0A
		4 through 12	7.5A
#20	#18	1 through 3	7.5A
		4 through 20	5.6A
		21 through 31	2.3A
	#20	1 through 3	7.5A
		4 through 20	5.6A
		21 through 31	2.3A
	#20 Multi-Con-X	10 through 12	5.0A
	#22	1 through 3	6.0A
		4 through 20	2.5A
		21 through 31	2.5A
	#24	1 through 3	4.5A
		4 through 20	2.0A
21 through 31		1.5A	
#22	#22	4	5.5A
	#24	4	5.0A
#26	#24	5 to 6	4.0A
	#24	7	3.5A
	#26	5 to 6	2.5A
	#26	7	2.5A
	#28*	5 to 6	2.0A
	#28*	7	2.0A

\*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

# MIL-E-QUAL<sup>®</sup> ELECTRICAL CURRENT RATING CHART

CONTACT SIZE	CONDUCTOR SIZE - AWG	NUMBER OF CONDUCTORS	CURRENT RATING
#12	#12	1 through 3	23.0A
		4 through 6	17.0A
		7 through 9	13.0A
	#14	1 through 3	17.0A
		4 through 6	12.75A
		7 through 9	11.0A
	#16	1 through 3	13.0A
		4 through 6	9.75A
		7 through 9	8.45A
#16	#16	1 through 3	13.0A
		4 through 6	9.75A
		7 through 10	8.45A
		10 through 20	5.85A
		21 through 30	4.55A
		31 and up	3.9A
	#18	1 through 3	10.0A
		4 through 6	7.5A
		7 through 9	6.5A
		10 through 20	4.5A
		21 through 30	3.5A
		31 and up	3.0A
	#20	1 through 3	7.5A
		4 through 6	5.6A
		7 through 9	4.8A
		10 through 20	3.4A
		21 through 30	2.62A
		31 and up	2.3A

# EN2 & EN3® ELECTRICAL CURRENT RATING CHART

**EN2 SERIES CURRENT RATING TABLE**

CONTACTS	WIRE (AWG)	CURRENT RATING (A) AT OPERATING TEMPERATURE (°C)				
		45° C MAX	55° C MAX	65° C MAX	75° C MAX	85° C MAX
2 #20	20	7	6	5	4	3.5
	22	5.5	5	4	3	2.5
	24	5.5	5	4	3	2.5
	26	4	3.5	2.5	2	1
3 #20	20	6.5	5.5	4.5	3.5	2
	22	5	4.5	3.5	3	1.5
	24	5	4.5	3.5	3	1.5
	26	3	2.5	2	1.5	0.5
4 #22	20	5	4.5	3.5	3	1.5
	22	4.5	4	3	2	1
	24	4.5	4	3	2	1
	26	3	2.5	2	1.5	0.5
5-7 #26	26	3	2.5	2	1.5	1
	28	2.5	2	1.5	1	0.5
	30	2	1.5	1	0.5	0.5

**EN3® SERIES CURRENT RATING TABLE**

CONTACT SIZE	CONDUCTOR SIZE - AWG	NUMBER OF CONDUCTORS	CURRENT RATING
#16	16	2 through 3	13.0A
	18		
#20	20	2 through 6	7.5A
	22		
	20	7 through 8	6.5A
	22		
#26	26	9 through 18	3A
	28		

# TOOLING

## CON-X® MANUAL CONTACT CRIMPING TOOL

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

## CON-X® MANUAL CONTACT INSERTION TOOL

Handle	Description	Insertion Bits	Contact Sizes
356-1	Single Contact Hand Tool	356-12	#12
		356-16	#16
		356-20	#20
		356-22	#22 (20 AWG Crimp Barrel)
		356-22-1-K	#22 (22 AWG Crimp Barrel)
		356-26-K	#26

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

Handle	Description	Positioner	Contact Sizes	Wire Sizes	Conductor Strip Length
359-24	Hand Crimp Tool	358-112	#12	12-14 AWG	7/32 in
			#16	16-18-20 AWG	9/32 in

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

Handle	Description	Insertion Bits	Contact Sizes
356-1	Single Contact Hand Tool	356-12	#12
		356-16	#16

# TOOLING

## EN2 & EN3® CONTACT CRIMPING TOOL

Handle	Description	Positioner	Contact Sizes	Wire Sizes
EN3CR	Crimp Hand Tool	EN3POS16	#16	16 AWG
		EN3POS20	#20	20 & 22 AWG
		EN3POS26	#26	26, 28 & 30 AWG
EN3CRAUTO	Pneumatic Crimp Tool	EN3POS16	#16	16 AWG
		EN3POS20	#20	20 & 22 AWG
		EN3POS26	#26	26, 28 & 30 AWG

## EN2 & EN3® INSERTION / EXTRACTION TOOLS

Part Number	Contact Sizes	Description
EN3INS16	#16	Insertion / Extraction Tool for 16 AWG
EN3INS20	#20, #22	Insertion / Extraction Tool for 20 & 22 AWG
EN3INS26	#26	Insertion / Extraction Tool for 26, 28 & 30 AWG

## EN2 & EN3® ALTERNATE LARGER FRAME TOOL

Handle	Description	Positioner	Contact Sizes	Wire Sizes
EN2CRL	Hand Tool	EN2POS20L	#20, #22	20-22-24-26 AWG
EN2CRAUTOL	Pneumatic Tool			

# NOTES



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