

SOURIAU

UTL SERIES



UL/IEC Power + Control Supply

**Esterline**  
Connection Technologies



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## Features & Benefits

### WATER PROOF

#### IP68/69K Dynamic Mated & Unmated

Ideal for outdoor and indoor dynamic applications requiring continuous underwater immersion, routine pressure washing and dust protection.

### UV RESISTANT

#### No Degradation - Long Outdoor Life

No mechanical degradation or important color variation due to environmental exposure (F1 material per the UL 746C).

### UL/IEC COMPLIANT

#### Qualified & Certified

- UL file: E169916
- VDE customer n°: 4282400

### QUICK RELEASE

#### Sensitive and Audible Click

Unique "Keyhole" shape of the connector allows users to mate and unmate in blind conditions with audible click confirming connection. Easy to use thumb latch design reduces labor and time during installations.

### FLEXIBLE

#### Direct Burial Compatible

The connector and cable are suitable for direct burial applications, providing additional flexibility to our customers.

**HARNESS**

Straight overmold  
(with or without strain relief)



**PLUG**

UTL6



UTL6JC only for 5 pos. (145)



**EVALUATION KIT**



**TYPES OF CONTACTS**



Machined pin



Machined sealed pin



Stamped and formed pin



Machined socket



Machined sealed socket



Stamped and formed socket



Screw socket only for UTL145

Terminating Resistance  
120Ω impedance

Only for 6 pos. (102G1W3) & 8 pos. (122G1W5)





## Description

- The UTL Series is a plastic connector range that meets industrial safety standards.
- UTL can be used for power supply and power + control supply with DMX or RDM signal.
- The «Key hole» of the coupling system allows blind mating. In dark conditions the mechanical discriminations allow easy mating to avoid connector damage.
- The stainless steel latch coupling system is simple to use. With only 1 finger, connectors are mated with an audible click.
- The UTL Series is rated at IP68/69K even in dynamic conditions and remains sealed even when used continuously underwater or cleaned using a high pressure hose while the cable is moving.
- The UTL Series uses an outdoor rated material per Underwriters Laboratories.
- Cable assembly equipped with DMX + Power cables suitable for outdoor use (PUR or Neoprene outer jacket), please consult us for more information.

## Technical features

### Materials

- **Housing:** Thermoplastic
- **Contacts:** Copper alloy
- **Latch:** Stainless steel

### Electrical

- Connector specially designed to be engaged or disengaged in normal use when live or under load
- First Mate Last Break contact mating on ground line
- Signal lines (for UTL102G1W3 & UTL122G1W5): RS485 compliant, 2.5A 10V
- Finger touch proof
- **In accordance with:**
  - Connector standards:
    - . UL 1977: UL file number ECBT2.E169916
    - . IEC 61984: please consult us
    - . C22.2 N°182.3: file number ECBT8.E169916
  - Equipment standards:
    - . IEC60065, IEC60598, IEC61076-2-103, IEC60320

. UL1598, UL498, UL94 , UL746



### Environmental

- **Operating temperature (according to IEC61984):**  
From -40°C to +105°C for connector
- **Flammability rating:**  
UL 94: V-0 for connector  
UL94: 5VA for thermoplastic  
UL746C: 5 inch (127mm) end-product flame test
- **Salt spray:**  
≥1,000 hours
- **UV resistant:**  
No mechanical degradation or important color variation due to environmental exposure (F1 material per the UL 746C)
- **Sealing:**
  - IP68/69K mated with standard contacts
  - IP68/69K unmated with specific contacts
  - IP68 1 bar / 1 week

- Moisture proof capability
- **Fluid resistance:**
  - Gas and oil
  - Mineral oil
  - Acid bath
  - Basic bath
  - For other fluids, please consult us

- **Halogen free**
- **RoHS compliant**



### Mechanical

- **Durability:**
  - 250 mating in CBC (Current Breaking Capacity) use (UL1977; IEC61984)
  - 500 mating in COC use (IEC61984)
  - 1,000 matings & unmatings tested
- **Coupling system:**
  - Sensitive and audible click
  - Blind mating
- **Touchproof:**  
IP2X in unmated condition (connector equipped with socket contacts)
- **Shock:**  
IK08 according to IEC60984

## UTL Series

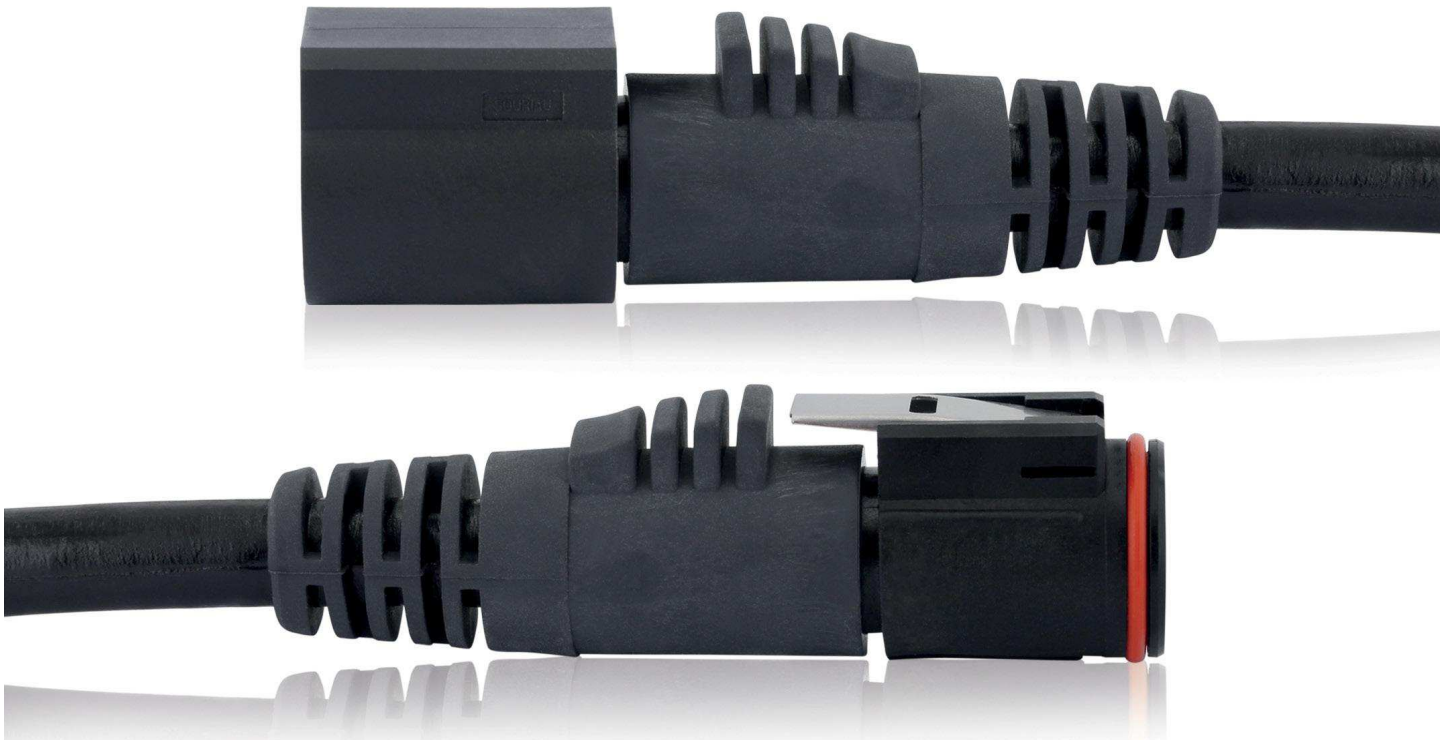
# Connector

■	Overmolded cable assembly .....	14
■	3 Contacts + ground 103G1: 16A 600V.....	18
■	5 Contacts 145: 16A 600V.....	22
■	6 Contacts 102G1W3: 16A 600V.....	24
■	8 Contacts 122G1W5: 16A 600V.....	30

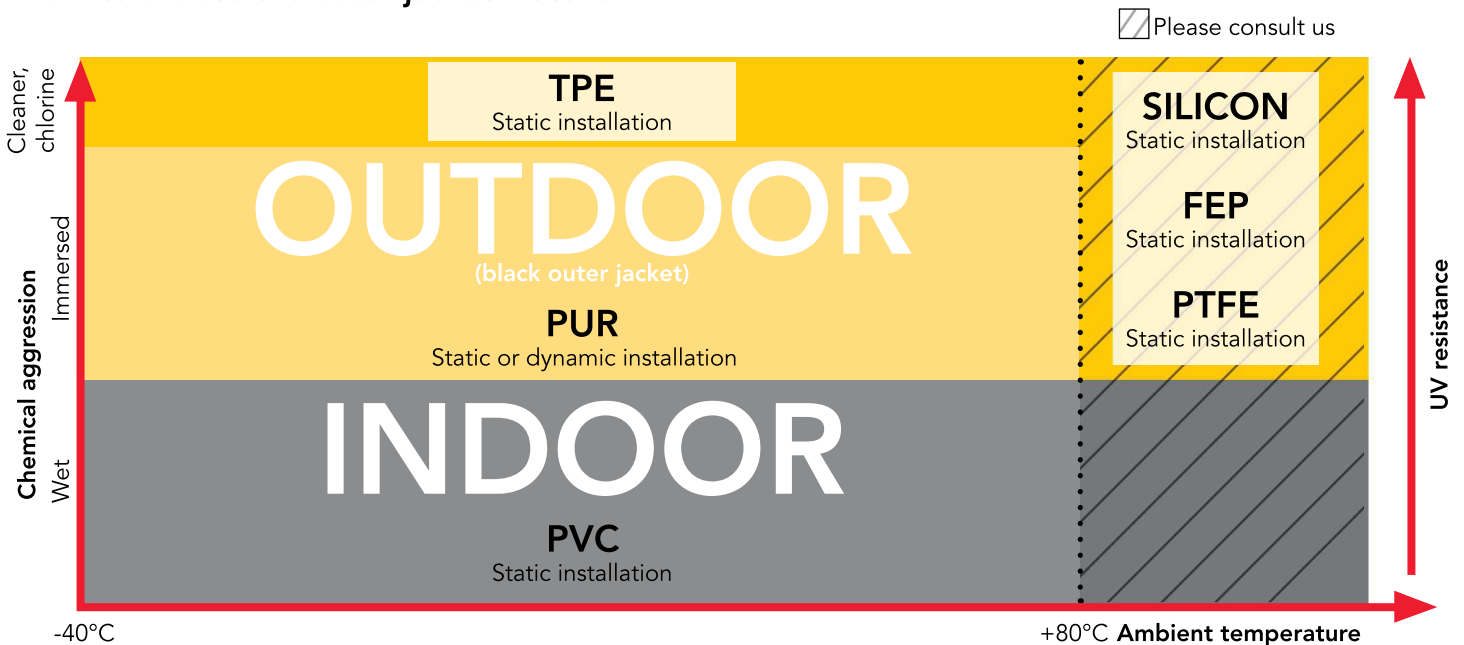


## Overmolded cable assembly

SOURIAU has provided connectors for various applications for more than 90 years and has been used in the most extreme environments. Conscious about the difficulty in finding a quick and reliable harness manufacturer, we began our own in-house overmolded cable assembly production. It allows customers to reduce the number of suppliers and to take advantage of the “best in class” quality of the SOURIAU group. Overmolding is a process that further enhances the sealing properties and helps to minimize stress on the cable termination to the connector. In addition, the wires are encapsulated inside the molding which creates a barrier preventing liquid/moisture from entering the equipment through the connector or cable jacket if breached.

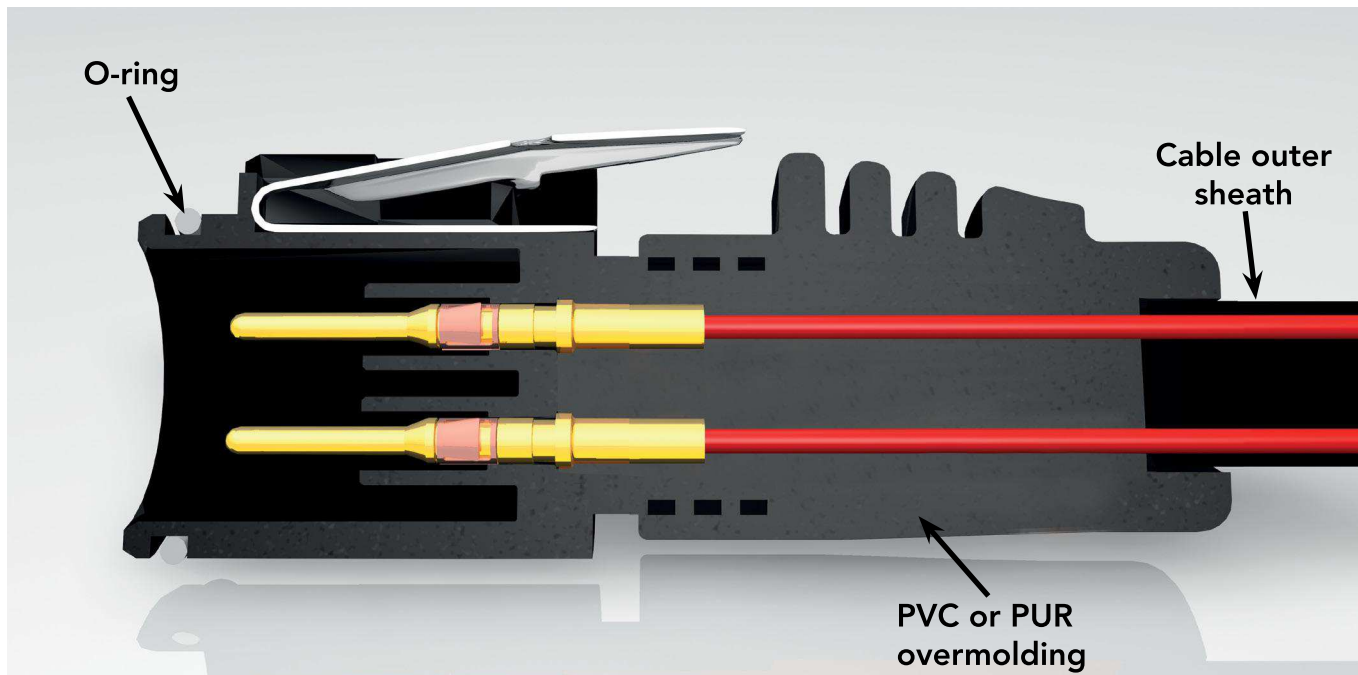


### How to choose the outer jacket material



## Overmolded cable assembly

### Overmolding Description



Connector

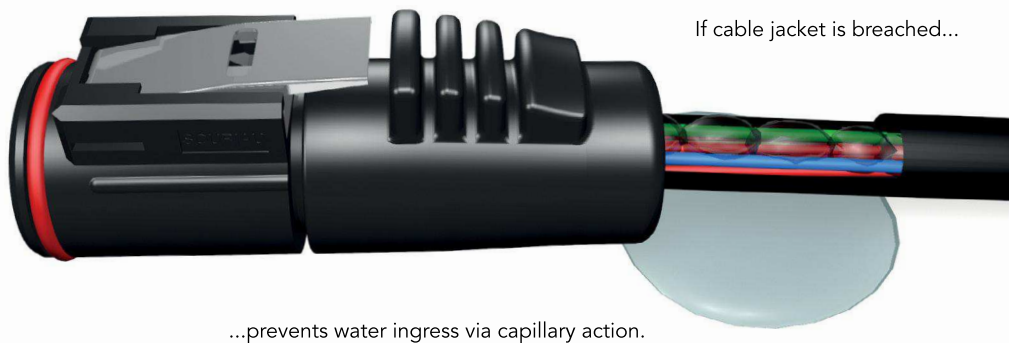
### Connector with cable gland backshell

**GOOD**



### Overmolded connector

**BEST**





## UTL overmolded cable assembly



### Description

**Cable - 3 + ground**

- Outer sheath: rubber
- Outer sheath color: black
- Core section: 4x14AWG or 4x16AWG

**Cable - 6 pos.**

- Outer sheath: PVC
- Outer sheath color: black
- Core section:
  - 3x14AWG + 1 Twisted Pair 20AWG + 24AWG Drain or
  - 3x16AWG + 1 Twisted Pair 20AWG + 24AWG Drain

**Cable - 8 pos.**

- Outer sheath: PVC
- Outer sheath color: black
- Core section:
  - 3x14AWG + 2 Twisted Pairs 20AWG + 24AWG Drain or
  - 3x16AWG + 2 Twisted Pairs 20AWG + 24AWG Drain

## Specifications

PLATING	SALT SPRAY	TEMPERATURE	WATERPROOF	COUPLING
No plating	≥1000 H	Up to + 90° C <sup>(1)</sup> with 103G1 (4 pos) Up to + 80° C <sup>(1)</sup> with 102G1W3 (6 pos) Up to + 80° C <sup>(1)</sup> with 122G1W5 (8 pos)	IP68/69K dynamic mated & unmated	1,000 matings/unmatings

(1) See page 17 for more information

## UTL overmolded cable assembly

### Cable Information

**3+ ground**

SJOOW: 4 x 14 AWG wire

SOOW: 4 x 16 AWG wire or 4 x 18 AWG wire

**6 pos.**

PVC Jacket: 3X14 AWG + TP20AWG Shielded with drain

PVC Jacket: 3X16 AWG + TP20AWG Shielded with drain

**8 pos.**

PVC Jacket: 3X14 AWG + 2 X TP20AWG Shielded with drain

PVC Jacket: 3X16 AWG + 2 X TP20AWG Shielded with drain

**Applications**

- Industrial Controls
- Electronics
- Controlled Environment Equipment
- LED Lighting
- Solar (UV Stable)
- Outdoor Displays

### Standardization of American Cable

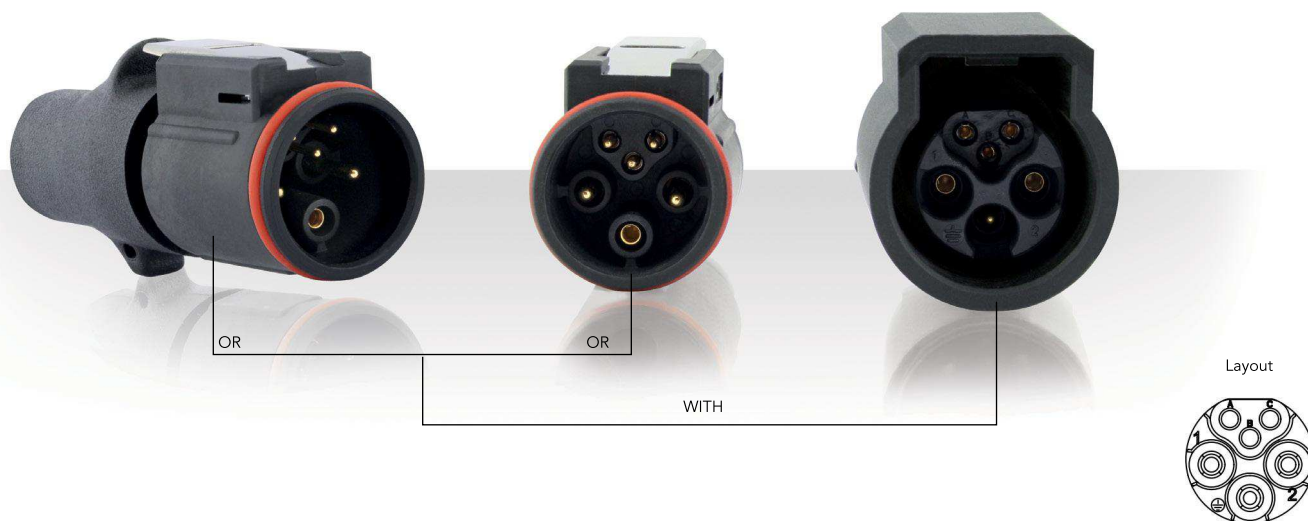
#### Nomenclature Key

- S:** Service Grade (also means extra hard service when not followed by J, V, or P)
- J:** Hard Service
- V:** Vacuum cleaner cord (also light duty cable)
- P:** Parallel cord (also known as zip cord) – Always light duty
- E:** Thermoplastic Elastomer (UL/NEC designation ONLY)
- O:** Oil Resistant outer jacket
- OO:** Oil Resistant outer jacket and insulation
- T:** Thermoplastic
- W:** Outdoor-includes sunlight resistant jacket and wet location rated conductors (formerly "W-A")
- H:** Heater cable
- VW-1:** Flame retardant (vertical grade)
- FT2:** Flame retardant (horizontal grade)

#### Definitions of Cable Types

- SVT:** Thermoplastic insulated vacuum cleaner cord, with or without 3rd conductor for grounding purposes; 300V (PVC)
- SJT:** Junior hard service, thermoplastic insulated conductors and jacket. 300V (PVC)
- SJTW:** Same as SJT except outdoor rated. (PVC)
- SJTO:** Same as SJT but oil resistant outer jacket. (PVC)
- SJTOW:** Same as SJTO except outdoor rated. (PVC)
- ST:** Hard service cord with all thermoplastic construction, 600V (PVC)
- STW:** Same as ST except outdoor rated. (PVC)
- STO:** Same as ST but with oil resistant outer jacket. (PVC)
- STOW:** Same as STO except outdoor rated. (PVC)

## 102G1W3 (shell size 10, 3x#16 + 3x#20)



### Connector part number

Plugs and receptacles have to be equipped with both contact genders. Ground lines will never be equipped with the same contacts than the neutral and phase.

Contact type	Connector type	Part number			
		Male insert with female ground		Female insert with male ground	
		Black color	Grey color	Black color	Grey color
Crimp contacts supplied separately see page 29	Plug	UTL6102G1W3P	UTL6102G1W3P03	UTL6102G1W3S	UTL6102G1W3S03
	Jam nut receptacle	UTL7102G1W3P	UTL7102G1W3P03	UTL7102G1W3S	UTL7102G1W3S03
	In line receptacle	UTL1102G1W3P	UTL1102G1W3P03	UTL1102G1W3S	UTL1102G1W3S03
Contacts included	Terminating resistance plug - 120Ω	UTL6102G1W3PCDMX	-	UTL6102G1W3SCDMX	-
	Terminating resistance receptacle - 120Ω	UTL1102G1W3PCDMX	-	UTL1102G1W3SCDMX	-

The terminating resistance is only designed to ensure the 120 Ohms impedance on the signal lines, no contact loaded in the power positions. #20 contacts and plastic plate are not removable.

### Overmolded cable assembly part number

Layout	Wire size	Overmolded harnesses, straight ending Connector	Length* (FT)	Part number
102G1W3	14 AWG	D/E assembly 1 male plug & 1 female plug	3	UTL6V2G1W3PS03FT0
		S/E assembly 1 female plug	3	UTL6V2G1W3S03FT0
		S/E assembly 1 male plug	3	UTL6V2G1W3P03FT0
		D/E assembly 1 male plug & 1 female in line receptacle	3	UTL61V2G1W3PS03FT0
	16 AWG	D/E assembly 1 male plug & 1 female plug	3	UTL6V2G1W3PS03FT1
		S/E assembly 1 female plug	3	UTL6V2G1W3S03FT1
		S/E assembly 1 male plug	3	UTL6V2G1W3P03FT1
		D/E assembly 1 male plug & 1 female in line receptacle	3	UTL61V2G1W3PS03FT1

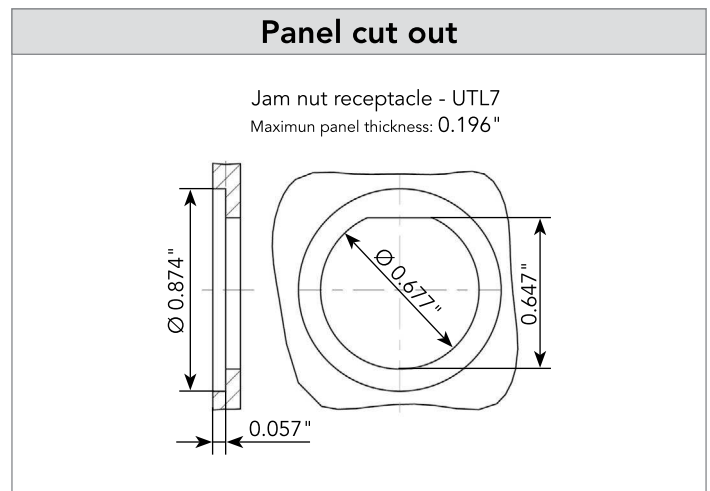
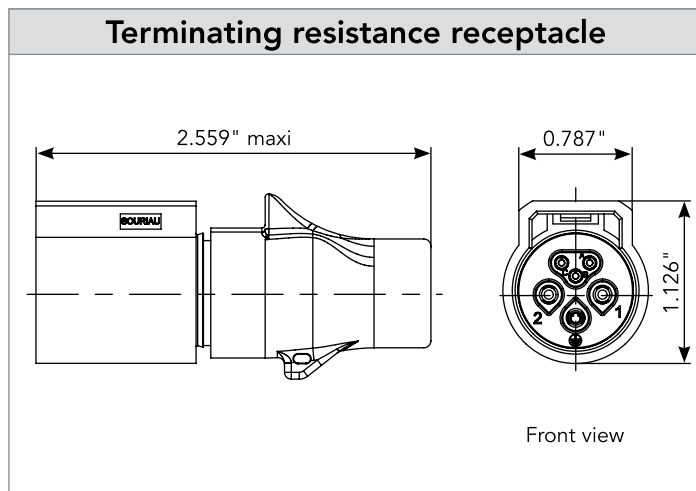
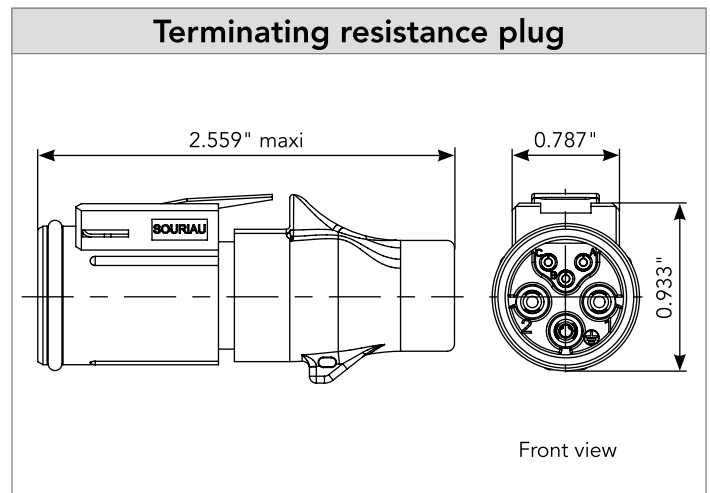
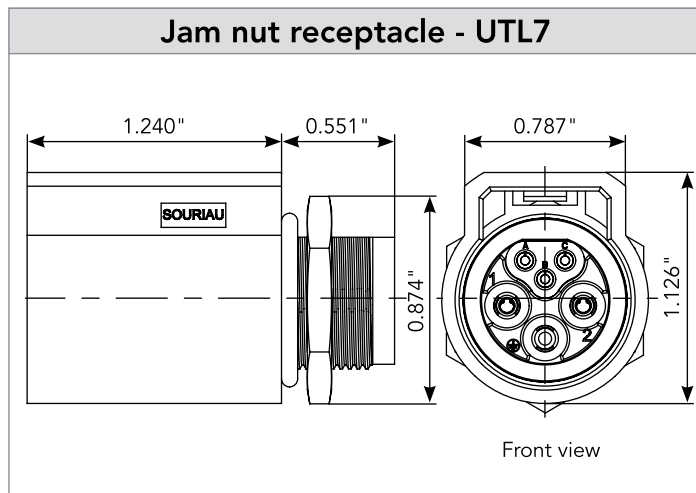
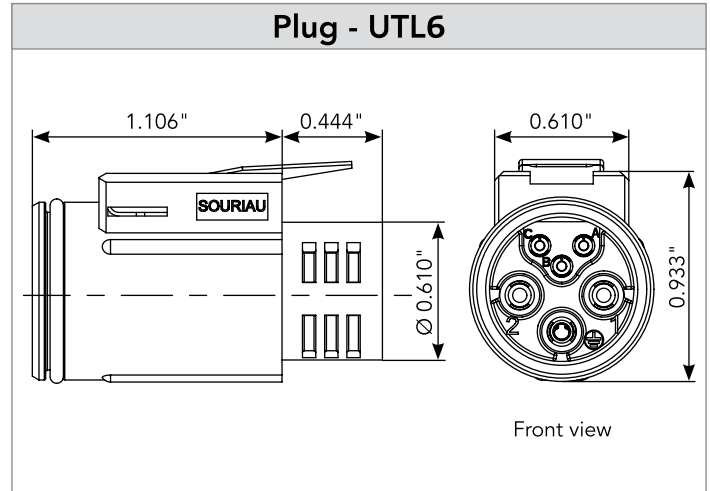
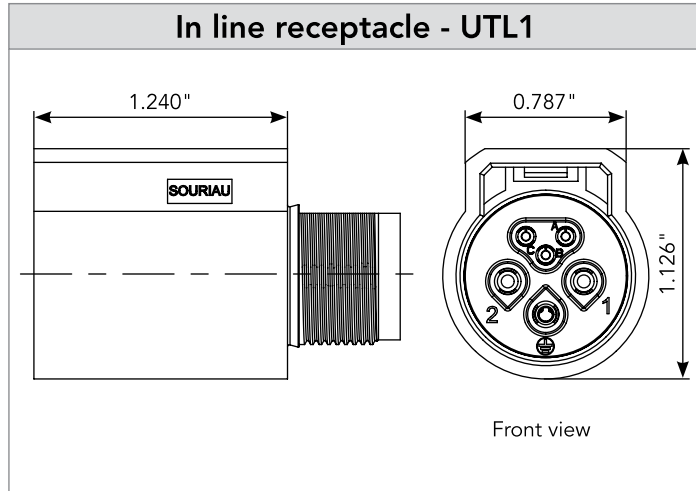
\* Other stock lengths available: 6 and 12 foot only: e.g. UTL6V2G1W3P06FT0 for a 6 foot version 14 AWG  
Contact us for custom length or design needs.

### Evaluation kit

Evaluation kit is composed of 1 connector, contacts and 1 heat shrink boot for a quick and easy assembly production. For more information please see page 60.

102G1W3 (shell size 10, 3x#16 + 3x#20)

Dimensions (for mated connector lengths see page 57)



Note: all dimensions are in inches and for information only

# 102G1W3 (shell size 10, 3x#16 + 3x#20)

## Contacts

#20	Contact type	AWG	Part number		Max wire Ø	Max insulator Ø		
			Male	Female				
Crimp	Machined	26-24	RM24W3K <sup>(1)</sup>	RC24W3K <sup>(1)</sup>	0.031"	0.062"		
		22-20	RM20W3K <sup>(1)</sup>	RC20W3K <sup>(1)</sup>	0.045"	0.062"		
		20-18	RM18W3K <sup>(1)</sup>	RC18W3K <sup>(1)</sup>	0.051"	0.082"		
	Stamped & Formed reeled contacts See note (2) for loose piece	26-24	SM24W3TK6 <sup>(1)(2)</sup>	SC24W3TK6 <sup>(1)(2)</sup>	-	0.035"-0.062"		
		26-24	SM24W3S26 <sup>(1)(2)</sup>	SC24W3S25 <sup>(1)(2)</sup>	-	0.035"-0.062"		
		22-20	SM20W3TK6 <sup>(1)(2)</sup>	SC20W3TK6 <sup>(1)(2)</sup>	-	0.047"-0.082"		
		22-20	SM20W3S26 <sup>(1)(2)</sup>	SC20W3S25 <sup>(1)(2)</sup>	-	0.047"-0.082"		
Crimp	Machined	30-28	RM28M1K <sup>(1)</sup>	RC28M1K <sup>(1)</sup>	0.021"	0.039"		
		26-24	RM24M9K <sup>(1)</sup>	RC24M9K <sup>(1)</sup>	0.031"	0.062"		
		22-20	RM20M13K <sup>(1)</sup>	RC20M13K <sup>(1)</sup>	0.046"	0.070"		
		22-20	RM20M12K <sup>(1)</sup>	RC20M12K <sup>(1)</sup>	0.046"	0.086"		
		20-16	RM16M23K <sup>(1)</sup>	RC16M23K <sup>(1)</sup>	0.070"	0.125"		
		16-14	RM14M30K <sup>(1)</sup>	RC14M30K <sup>(1)</sup>	0.089"	0.125"		
	Stamped & Formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6 <sup>(1)(2)</sup>	SC24M1TK6 <sup>(1)(2)</sup>	-	0.035"-0.050"		
		22-20	SM20M1TK6 <sup>(1)(2)</sup>	SC20M1TK6 <sup>(1)(2)</sup>	-	0.046"-0.081"		
		18-16	SM16M1TK6 <sup>(1)(2)</sup>	SC16M1TK6 <sup>(1)(2)</sup>	-	0.125"		
		18-16	SM16M11TK6 <sup>(1)(2)</sup>	SC16M11TK6 <sup>(1)(2)</sup>	-	0.118"		
		14	SM14M1TK6 <sup>(1)(2)</sup>	SC14M1TK6 <sup>(1)(2)</sup>	-	0.125"		
		Coaxial	Cable multipiece	see pages 41, 78 to 79	RMDXK10D28	RCDXK1D28	-	-
			Cable monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
Twisted pair multipiece	RMDXK10D28 + york090		RCDXK1D28 + york090		-	-		
Twisted pair monocrimp	RMDX60xxD28		RCDX60xxD28		-	-		

(1): Example of plating, for other plating options see page 38

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

Note: all dimensions are in inches

### REMINDER

Plugs and receptacles have to be equipped with both contact genders.

EX: UTL6102W3G1P = 2 x SM16M1TK6 (power) + 1 x SC16M1TK6 (ground) + 3 x SM20W3TK6 (signal)

### Electrical characteristics

**UL**  
16A 600V V0  
13A 277V for CBC use

**CN**  
13A 600V  
10A 277V for CBC use

**IEC**  
16A 500V 6KV 4  
13A 250V 4KV 4 for CBC use

### UTL102G1W3 derating curves

