Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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UTL SERIES

SOURIAU

UL/IEC Power Supply & Power Cable Connectors

Esterline
Connection Technologies

Contents

UTL SERIES

UTL Series

Overview

Typical Applications

Stage & Light

Energy - Power

Building Automation & Control

Telecom - Data infrastructure

Medical

Instrumentation & Measurement

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 reduced labor and time during installations.

COST SAVINGS

Mixed Power & Signal Layouts

Power supply and signal transmission can be combined in a unique interconnect solution to reduce system complexity and minimize component/installation costs.

Rang

EVALUATION KIT

HARNESS

Overmould
(straight or right angle)

PLUG

UTL6

TYPES OF CONTACTS

Machined pin

Machined sealed pin

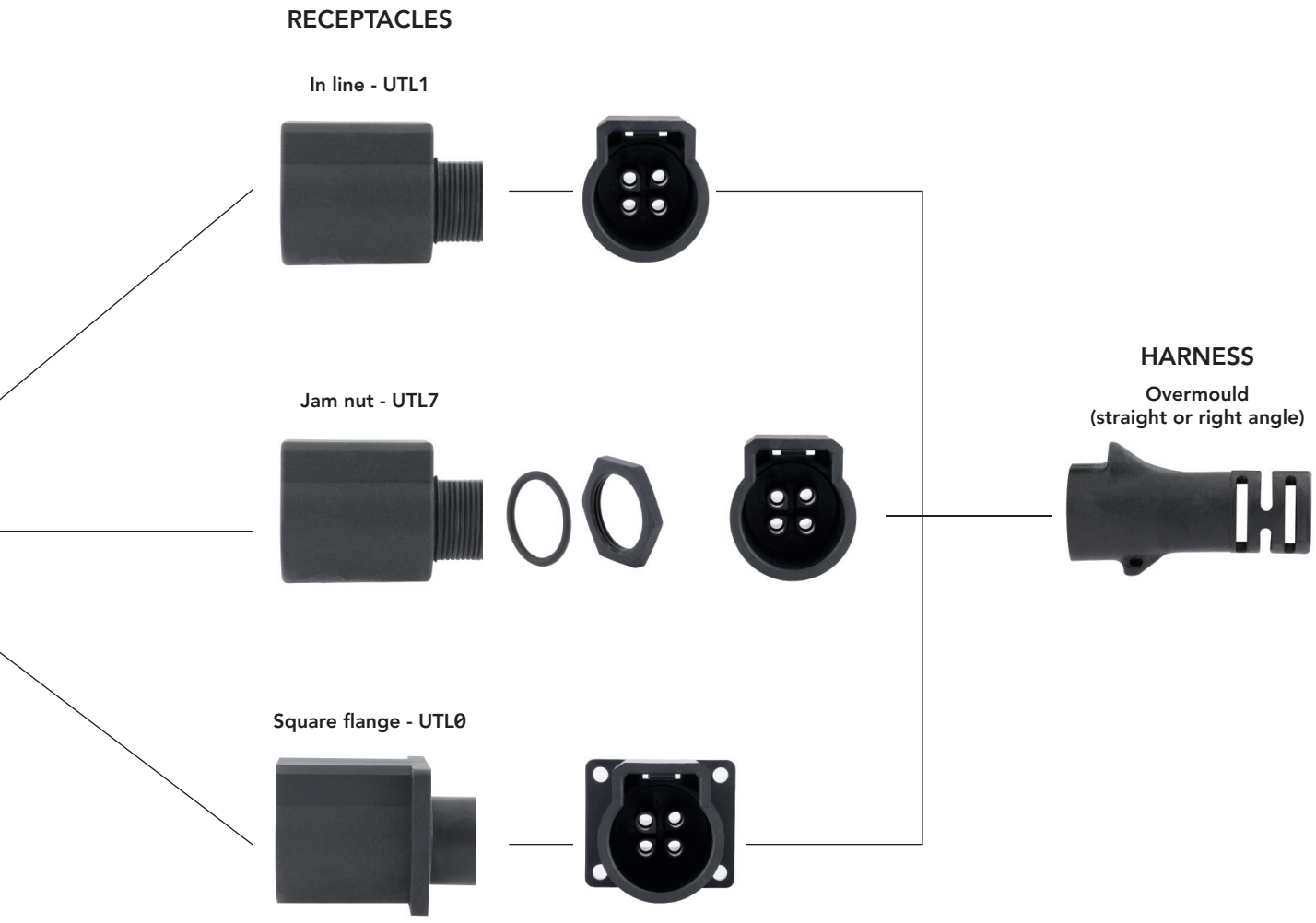
Stamped and formed pin

Machined socket

Machined sealed socket

Stamped and formed socket

e overview


RECEPTACLES
In line - UTL1
Jam nut - UTL7
Square flange - UTL0
HARNESS
Overmould
(straight or right angle)

Description

- The UTL Series is a plastic connector range that meets current safety standards.
- The stainless steel latch coupling system is simple to use. With only 1 finger, connectors are mated with an audible and sensitive "click".
- The "Key hole" of the coupling system allows blind mating. In dark conditions the mechanical discriminations allow easy mating to avoid connector damage.
- 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 and cable is moving.
- The UTL Series uses an outdoor rated material per Underwriters Laboratories.

Technical Features

Materials

- **Housing:** Thermoplastic
- **Contacts:** See page 31
- **Latch:** Stainless steel
- **Halogen free**

Electrical

- UL: 600V 16A UL94 5VA
  277V 13A for CBC use
- CN: 600V 13A
  277V 10A for CBC use
- IEC: 16A 500V 6KV 4
  13A 250V 4KV 4 for CBC use
- 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
- **In accordance with:**
  - IEC60065, IEC60598, UL1598, IEC60320, UL498, UL94 , UL746 , IEC61076-2-103
  - UL 1977: UL file number E169916
  - IEC 61984: IEC file number 4282400-1431-0004/168702

Environmental

- **Operating temperature:**
  From -40°C to +105°C for connector
  From -25°C to +60°C for cable assemblies due to cable performances: see page 14 for cable assemblies
- **Flammability rating:**
  UL 94 5VA
- **Salt spray:**
  ≥1000 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 even unmated with sealed contacts (see page 31)
- **Fluid resistance:**
  - Gas and oil
  - Mineral oil
  - Acid bath
  - Basic bath
- **RoHS compliant & conforms to the Chinese standard SJ/T1166-2006**
  (Chinese RoHS equivalent)

Mechanical

- **Durability:**
  1.000 matings & unmatings
- **Coupling system:**
  - Sensitive and audible click
  - Blind mating
- **Touchproof:**
  IP2X in unmated conditions (connector equipped with socket contacts)

Notes

UTL SERIES

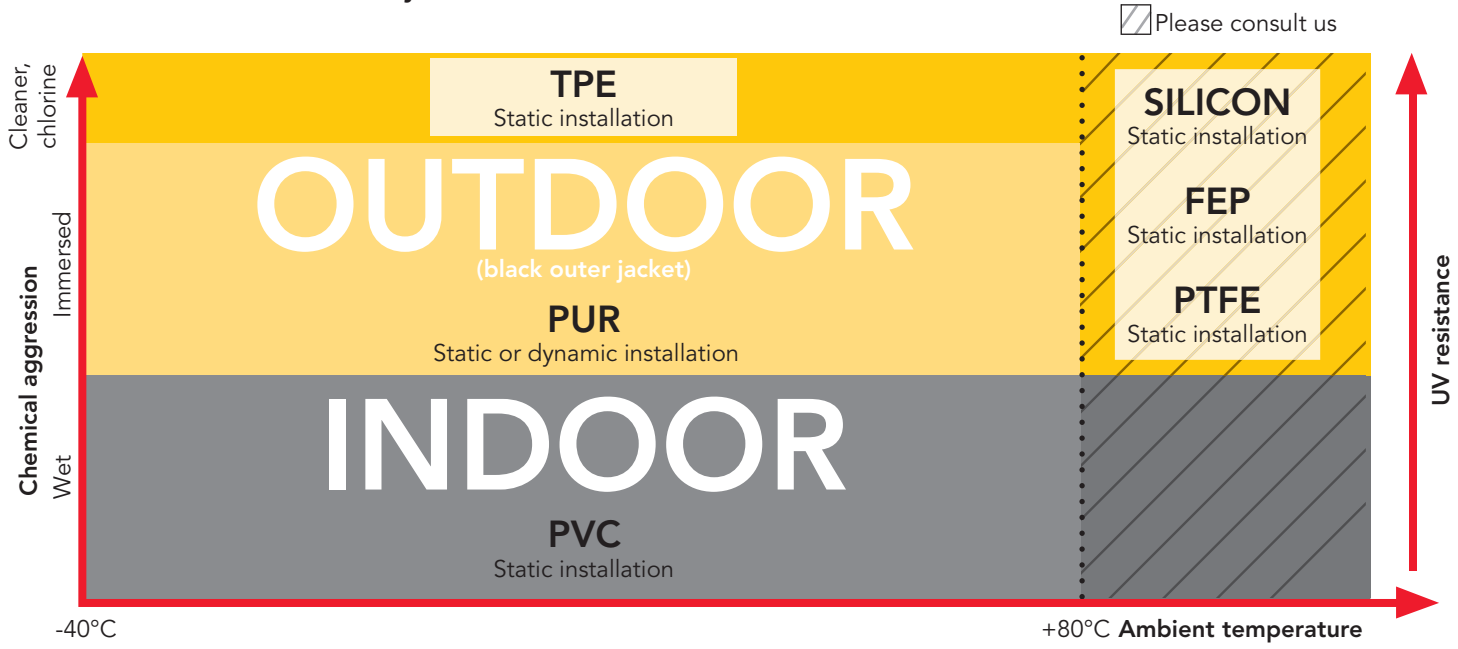
UTL Series

Connector

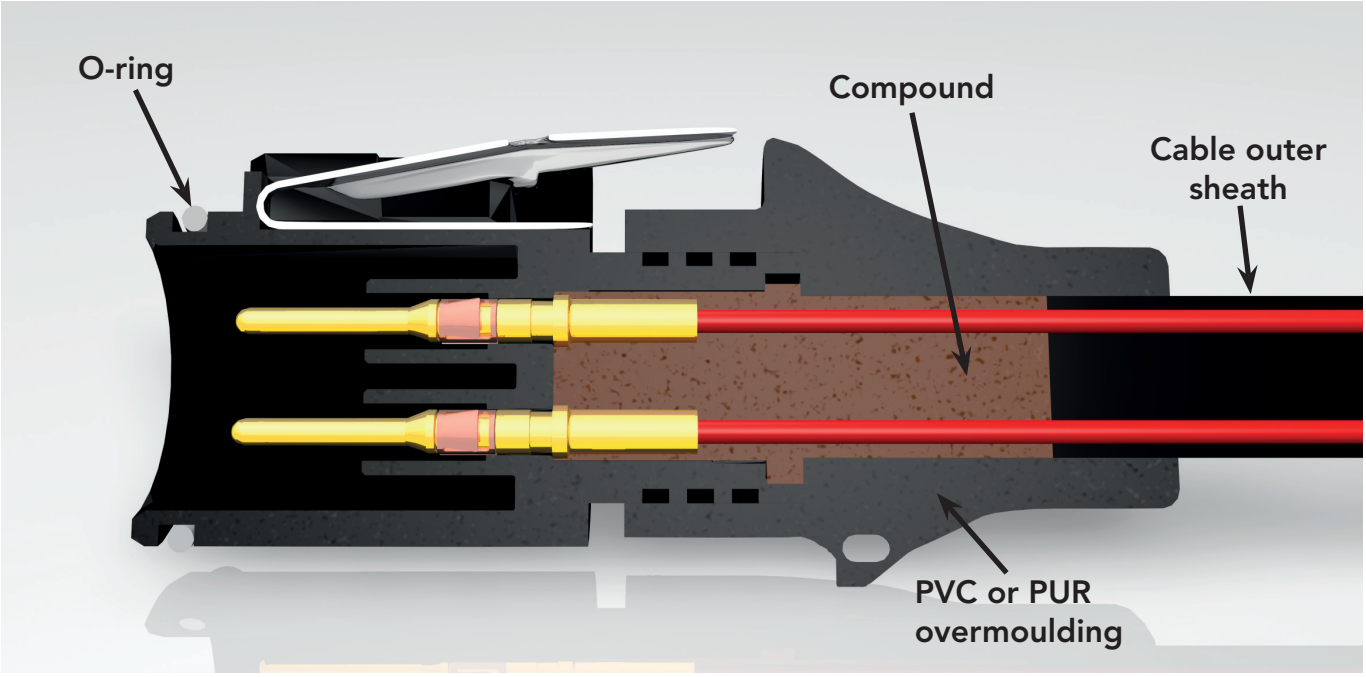
Overmoulded Cable Assembly

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 Overmoulded 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. Overmoulding 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



Overmoulding Description

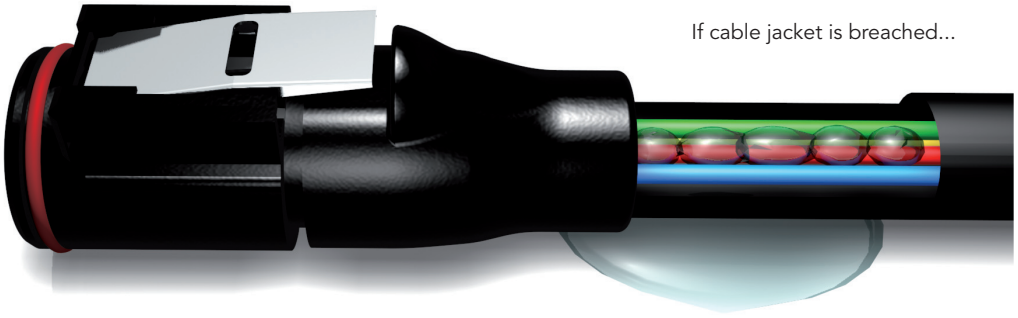


Connector with cable gland backshell

GOOD

Overmoulded connector

BEST



UTL Overmoulded Cable Assembly (Continued)

Description

Cable - 3 + ground

- Outer sheath: rubber compound EM2 in acc. to HD 22.1 that is VDE 0282 part 1
- Outer sheath color: black
- Flame retardant in acc. to IEC 60332-1-2 resp. VDE 0482 part 332-1-2
- Resistant to Oil, Solvents, Water, Ozone, aging and abrasion

Cable - 6 pos.

- Signal: 1 x 2 x 0.22 + shielding
  Power: 3G1.5
- Outer sheath: PUR RAL9005
- Outer sheath color: black
- Core section: 0.22 mm² and 1.5 mm²

Specifications

PLATING	SALT SPRAY	DEGREE	WATERPROOF	COUPLING
No plating	≥1000 H	Up to + 60° C (1) with 103G1 Up to + 70° C (1) with 102G1W3	IP68/69K dynamic mated & unmated	1 000 matings/unmatings

(1) See page 17 for more information

Cable Information

Rated voltage: U0/U: 450/750 V

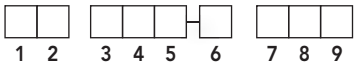
Wire section: 3 + ground: 2.5 mm²
6 pos.: 1.5 mm² (power), 0.22 mm² (signal)

Temperature: 3 + ground: flexible use and fixed installation -25° C up to +60° C
6 pos.: flexible use -15° C up to +70° C, fixed installation -30° C up to +70° C

Harmonized reference: 3 + ground: H07 RNF 4G x 2.5
6 pos.: Not Applicable

Standardization of European cable - DIN VDE 0281/DIN VDE 0282/DIN VDE 0292

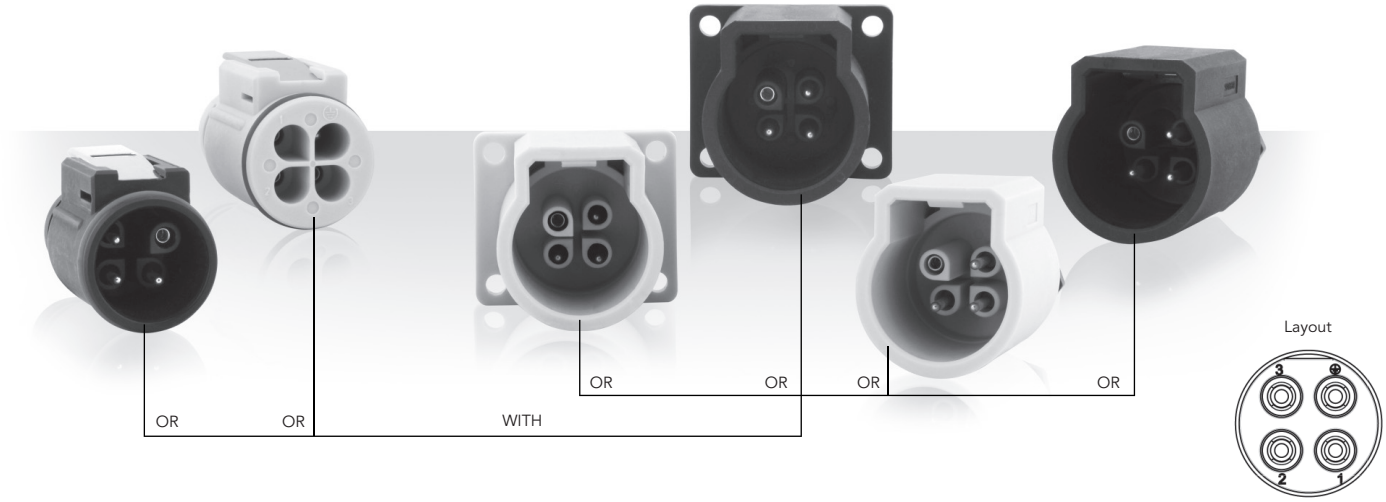
Harmonized wire coding system



1. Basic type	2. Working voltage	3. Insulating	4. Sheath-cladding material	5. Special features	6. Conductor types	7. Number of conductors	8. Protective conductor	9. Conductor cross-sectional
H: Harmonized Type	03: 300/300V	V: PVC	V: PVC	H: Ribbon cable, separable	U: Single wire		X: Without protective conductor	Area specified in mm²
A: National Type	05: 300/500V	R: Rubber	R: Rubber	H2: Ribbon cable non-separable	R: Multi-wire		G: With protective conductor	
	07: 450/750V	S: Silicone Rubber	N: Cloroprene Rubber		K: Fine wire (permanently installed)			
			J: Glass-filament braiding		F: Fine wire (flexible)			
			T: Textile braiding		H: Super fine wire			
					Y: Tinsel strand			

Example: Harmonized type, 450/750V, rubber insulating, Cloroprene rubber sheath-cladding, Fine wire, 3x1.5 cross-sectional: H07RNF3x1.5

103G1 (shell size 10, 3 + ground, 4x#16)



Connector Part Number

Contact type	Connector type	Part number			
		Male insert		Female insert	
		Black color	Grey color	Black color	Grey color
Crimp contacts supplied separately see page 21	Square flange receptacle	**UTL0103G1P**	**UTL0103G1P03**	**UTL0103G1S**	**UTL0103G1S03**
	Plug	**UTL6103G1P**	**UTL6103G1P03**	**UTL6103G1S**	**UTL6103G1S03**
	Jam nut receptacle	**UTL7103G1P**	**UTL7103G1P03**	**UTL7103G1S**	**UTL7103G1S03**
	In line receptacle	**UTL1103G1P**	**UTL1103G1P03**	**UTL1103G1S**	**UTL1103G1S03**

Overmoulded Cable Assembly Part Number

Layout	Description	Connector and Overmould type		Length*	
		Connector	Overmould type	1m	2m
103G1	In line	Male In line receptacle	Straight	**HAUTL13G1PS1M**	**HAUTL13G1PS2M**
		Male In line receptacle	Right angle	**HAUTL13G1PR1M**	**HAUTL13G1PR2M**
		Female In line receptacle	Straight	**HAUTL13G1SS1M**	**HAUTL13G1SS2M**
		Female In line receptacle	Right angle	**HAUTL13G1SR1M**	**HAUTL13G1SR2M**
	Plug	Male plug	Straight	**HAUTL63G1PS1M**	**HAUTL63G1PS2M**
		Male plug	Right angle	**HAUTL63G1PR1M**	**HAUTL63G1PR2M**
		Female plug	Straight	**HAUTL63G1SS1M**	**HAUTL63G1SS2M**
		Female plug	Right angle	**HAUTL63G1SR1M**	**HAUTL63G1SR2M**

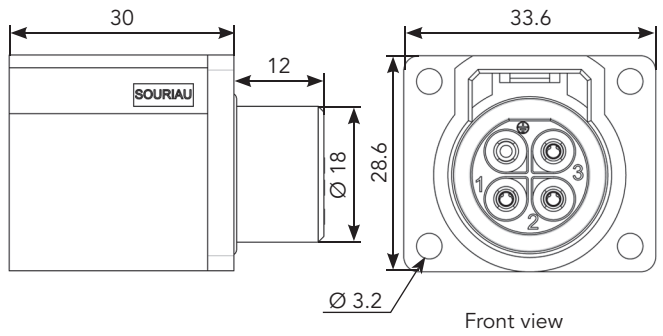
* : Other lengths consult us

Evaluation kit - See page 49

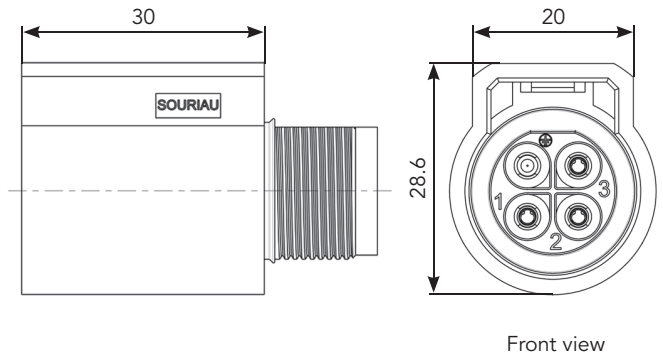
103G1 (shell size 10, 3 + ground, 4x#16)

Dimensions (For mated connector lengths see page 44)

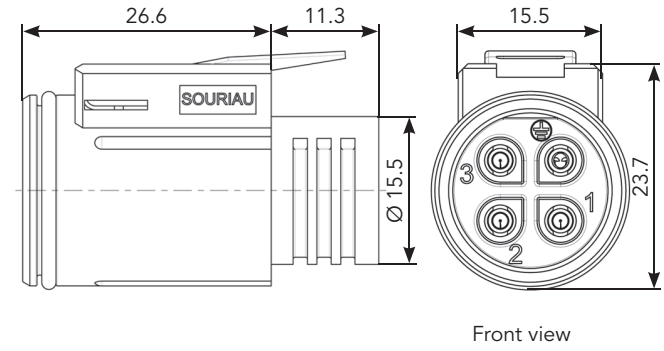
Square flange receptacle - UTL0



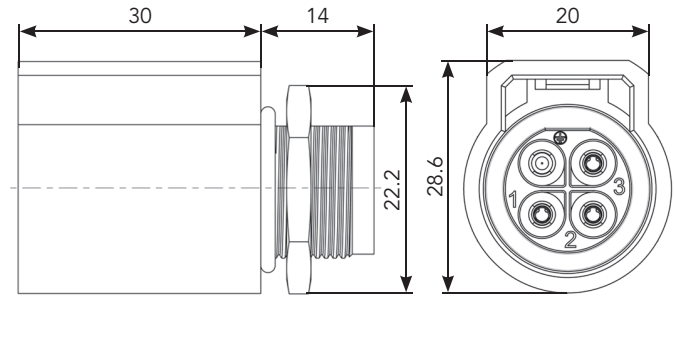
In line receptacle - UTL1



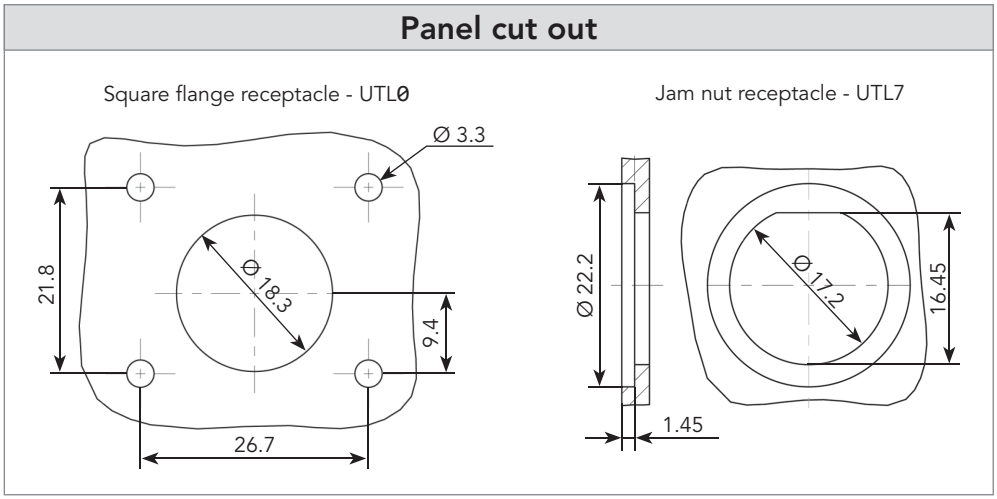
Plug - UTL6



Jam nut receptacle - UTL7



Panel cut out



Note: all dimensions are in mm

103G1 (shell size 10, 3 + ground, 4x#16)

Accessories and Tooling

Dustcap for plug

IP67

Part number
UTL610DCG

Dustcap for receptacle

IP67

Part number
UTL10DCG

Handle (without head)

Part number
SHANDLES

Tool kit

Part number
TOOLKIT

Dustcap for male receptacle

IP68/69K

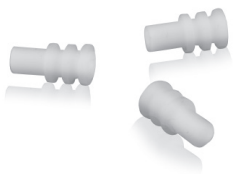
Part number
UTL103G1PDCG68

Dustcap for female receptacle

IP68/69K

Part number
UTL103G1SDCG68

Grommet



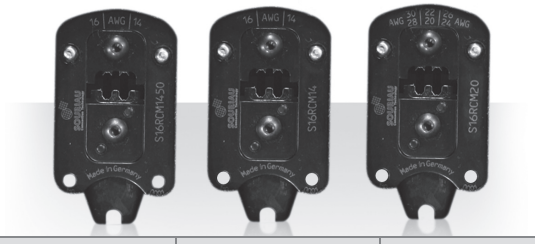
Part number
SWSFILLERPLUG

See instruction page 48

Extraction Tool #16

Part number
RX2025GE1

Head Crimp Tooling (without shandles)



Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
SM/SC 16M25K		S16RCM1625*
SM/SC 14M25K		S16RCM1425*
RMDXK10D28K	Coaxial contacts #16 Ø 1.6mm	M10S1J with die set & stop bushing see page 66 to 72
RCDXK1D28K		
RM/RC DX60xxD28K		
RM/RC DXK10D28 + york090		
RM/RC DX60xxD28		

(1): Example of plating, for other plating options see page 30
* Heads to be used with handle PN: SHANDLES

103G1 (shell size 10, 3 + ground, 4x#16)

Contacts

#16	Contact type	AWG	Part number		Max wire Ø	Max insulator Ø
			Male	Female		
Crimp	Machined	30-28	RM28M1K(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Machined Sealed (with O-Ring for IP68/69K unmated)	20-16	RM16M25K	RC16M25K	1.80	3.20
		16-14	RM14M25K	RC14M25K	2.28	3.20
	Stamped & Formed Reeled Contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
Coaxial	Cable Multipiece	see pages 33, 66 to 67	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 30
(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

Note: all dimensions are in mm

REMINDER
Plugs and receptacles have to be equipped with both contact genders.
EX: UTL6103G1P = 3 x SM16M1S31 + 1 x SC16M1S31

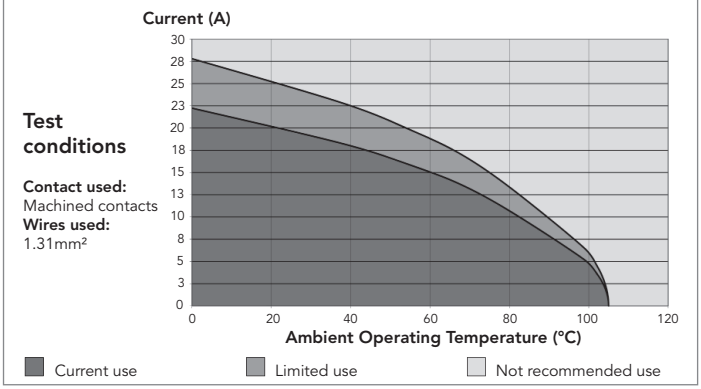
Electrical characteristics

UL
600V 16A UL94 5VA
277V 13A for CBC use

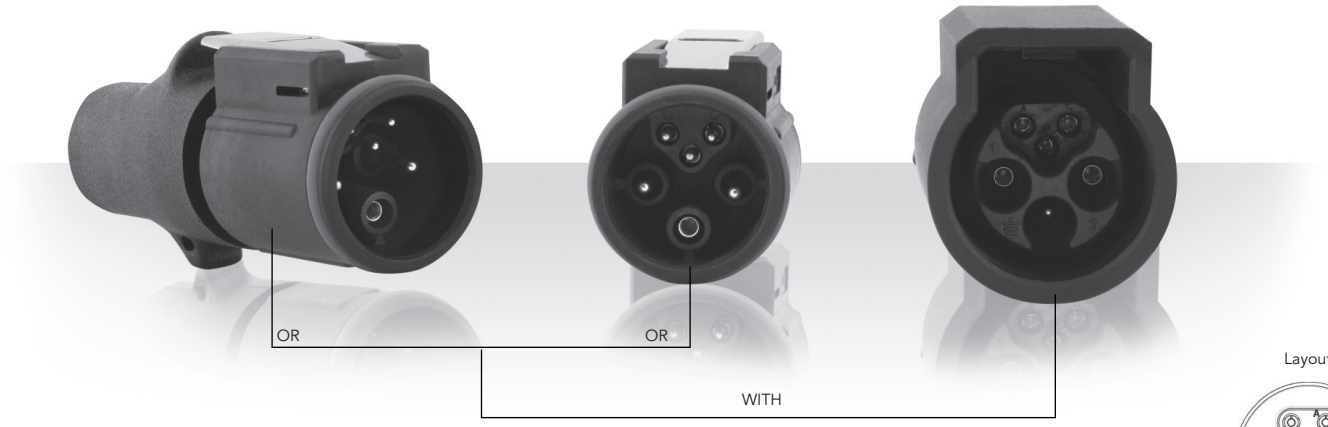
CN
600V 13A
277V 10A for CBC use

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

UTL103G1 derating curves



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



Layout

Connector Part Number

Contact type	Connector type	Part number			
		Male insert		Female insert	
		Black color	Grey color	Black color	Grey color
Crimp contacts supplied separately see page 25	Plug	UTL6102G1W3P	UTL6102G1W3P03	UTL6102G1W3S	UTL6102G1W3S03
	Jam nut receptacle	UTL7102G1W3P	UTL7102G1W3P03	UTL7102G1W3S	UTL7102G1W3S03
	In line receptacle	UTL1102G1W3P	UTL1102G1W3P03	UTL1102G1W3S	UTL1102G1W3S03
-	Terminating resistance plug - 120Ω	UTL6102G1W3PCDMX	-	UTL6102G1W3SCDMX	-
	Terminating resistance receptacle - 120Ω	UTL1102G1W3PCDMX	-	UTL1102G1W3SCDMX	-

Overmoulded Cable Assembly Part Number

Layout	Description	Connector and Overmould type		Length*	
		Connector	Overmould type	1m	2m
102G1W3	In line	Male In line receptacle	Straight	HAUTL12G1W3PS1M	HAUTL12G1W3PS2M
		Male In line receptacle	Right angle	HAUTL12G1W3PR1M	HAUTL12G1W3PR2M
		Female In line receptacle	Straight	HAUTL12G1W3SS1M	HAUTL12G1W3SS2M
		Female In line receptacle	Right angle	HAUTL12G1W3SR1M	HAUTL12G1W3SR2M
	Plug	Male plug	Straight	HAUTL62G1W3PS1M	HAUTL62G1W3PS2M
		Male plug	Right angle	HAUTL62G1W3PR1M	HAUTL62G1W3PR2M
		Female plug	Straight	HAUTL62G1W3SS1M	HAUTL62G1W3SS2M
		Female plug	Right angle	HAUTL62G1W3SR1M	HAUTL62G1W3SR2M

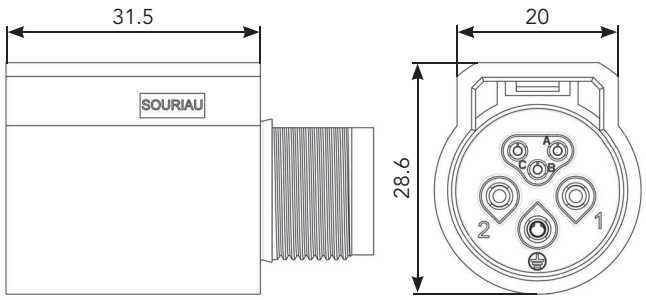
* : Other lengths consult us

Evaluation kit - See page 50

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

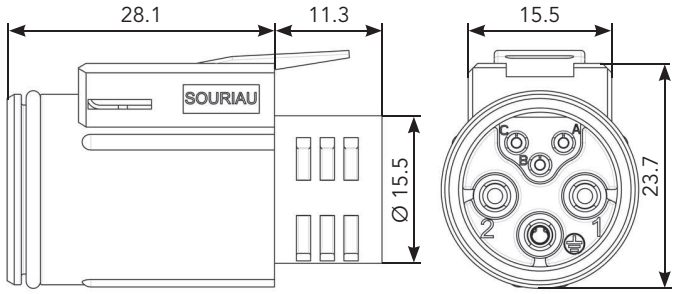
Dimensions (For mated connector lengths see page 44)

In line receptacle - UTL1



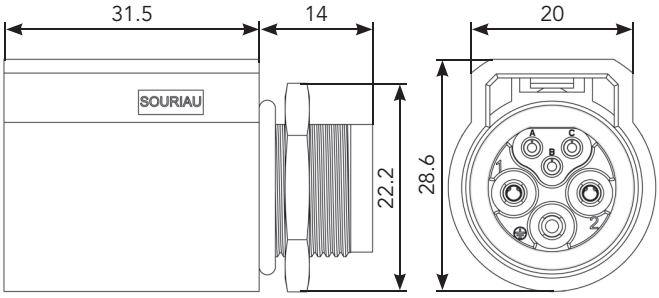
Front view

Plug - UTL6



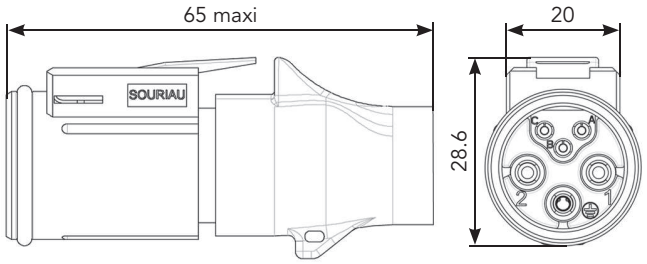
Front view

Jam nut receptacle - UTL7



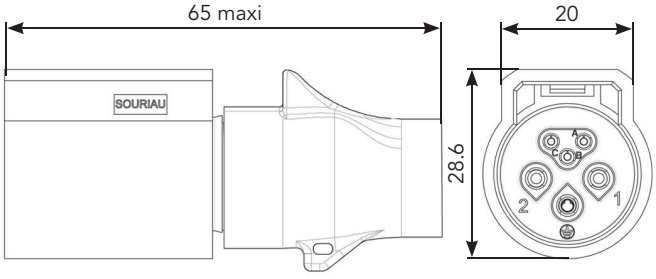
Front view

Terminating resistance plug



Front view

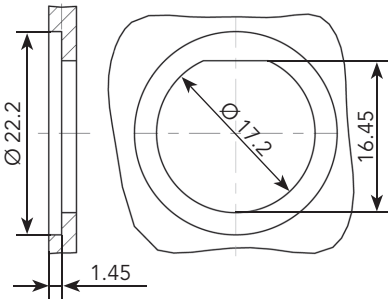
Terminating resistance receptacle



Front view

Panel cut out

Jam nut receptacle - UTL7



Note: all dimensions are in mm

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

Accessories and Tooling

Dustcap for plug

IP67

Part number
UTL610DCG

Dustcap for receptacle

IP67

Part number
UTL10DCG

Handle (without head)

Part number
SHANDLES

Tool kit

Part number
TOOLKIT

Dustcap for male receptacle

IP68/69K

Part number
UTL102G1W3PDCG68

Dustcap for female receptacle

IP68/69K

Part number
UTL102G1W3SDCG68

Head Crimp Tooling (without shandles)

Contacts	Contact size	Part number of head
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		S20SCM20*
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
SM/SC 16M25K		S16RCM1625*
RMDXK10D28K	Coaxial contacts #16 Ø 1.6mm	M10S1J with die set & stop bushing see page 66 to 72
RCDXK1D28K		
RM/RC DX60xxD28K		
RM/RC DXK10D28 + york090		
RM/RC DX60xxD28		

(1): Example of plating, for other plating options see page 30 (2): loose contact
* Heads to be used with handle PN: SHANDLES

Extraction Tool #16

Part number
RX2025GE1

Extraction Tool #20

Part number
RX20D44

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

#20	Contact type	AWG	Part number		Max wire Ø	Max insulator Ø
			Male	Female		
Crimp	Machined	26-24	RM24W3K(1)	RC24W3K(1)	0.80	1.60
		22-20	RM20W3K(1)	RC20W3K(1)	1.15	1.60
		20-18	RM18W3K(1)	RC18W3K(1)	1.30	2.10
	Stamped & Formed reeled contacts See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
#16						
Crimp	Machined	30-28	RM28M1K(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & Formed Reeled Contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
Coaxial	Cable Multipiece	see pages 33, 66 to 67	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 30
(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

Note: all dimensions are in mm

REMINDER
Plugs and receptacles have to be equipped with both contact genders.
EX: UTL6102W3G1P = 2 x SM16M1TK6 + 1 x SC16M1TK6 + 3 x SM20W3TK6

Electrical characteristics

UL
600V 16A UL94 5VA
277V 13A for CBC use

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

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

UTL102G1W3 derating curves