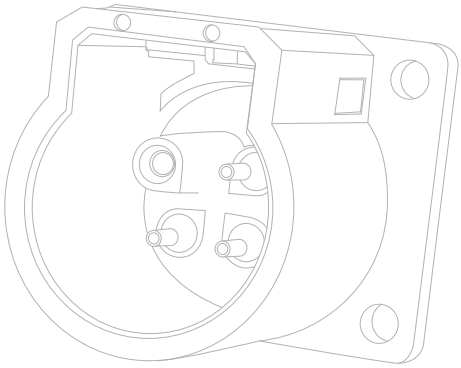
Plastic connectors for power and control
Souriau TRIM TRIO UTL series

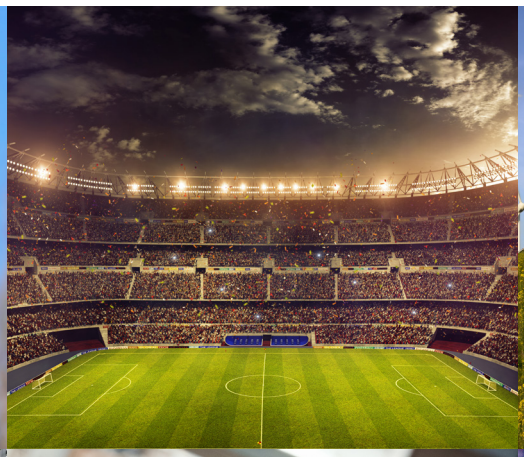
Powering Business Worldwide



UTL series

Plastic connectors for power and control

Typical applications



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Souriau UTL series

Technical specifications

Technical specifications

Materials

- Housing: thermoplastic
- Contacts: copper alloy
- Latch: stainless steel

Environmental

- Temperature class (according to IEC61984):
  - -40°C to +105°C for connector
- Flammability rating:
  - UL94: V-0 for connector
  - UL94: 5VA for thermoplastic
  - UL746C: 5 inch (127mm) end-product flame test
- Salt spray: ≥1,000 hours
- UV resistance: F1 material (no mechanical degradation or color change due to UV exposure)
- Sealing:
  - IP68/69K mated with standard contacts
  - IP68/69K unmated with specific contacts
  - IP44 UTL0164W4P19 self-closing cap
  - IP68 1 bar / 1 week
  - IP67 mated for evaluation kits
  - Moisture proof
- Fluid resistance:
  - Gas and oil
  - Mineral oil
  - Acid bath
  - Basic bath
- Halogen free
- RoHS compliant

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 and UTL122G1W5): RS485 compliant, 2.5A 10V
- Finger touchproof (connector equipped with socket contacts)
- In accordance with:
  - Connector standards: UL 1977: UL file number ECBT2. E169916, IEC 61984, C22.2 NO. 182.3: file number ECBT8 E169916
  - Equipment standards: IEC60065, IEC60598, IEC61076-2-103, IEC60320
  - Raw material standards: UL94, UL746

Mechanical

- Durability:
  - 250 matings under load according to UL1977 (excluding layout UTL16 4W4)
  - Up to 1,000 matings when not under load
- Coupling system:
  - Tactile and audible click
  - Blind mating
- Touchproof: IP2x in unmated condition (connector equipped with socket contacts)
- Shock resistance: IK07 according to IEC62262

Souriau UTL series

Range overview

Plugs

Protective shroud

UTL6JC 4 pos. (103G1)

Screwed backshell only available for UTL size 10: connector layout 103G1

UTL5 4 pos. (103G1)

Harness

Overmold

(straight or right angle)

UTL6

UTL6JC16

Terminating resistor

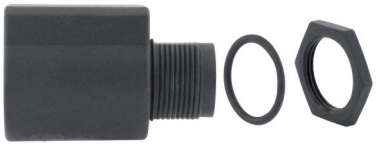
120Ω Impedance only for 6 pos. (102G1W3) & 8 pos. (122G1W5)

Receptacles

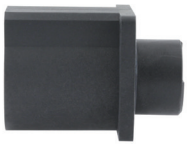
UTL1JC only for 4 pos. (103G1)

In-line - UTL1

Jam nut - UTL7



Square flange - UTL0 only for 4 pos. (103G1)



Terminating Resistor

120Ω impedance only for 6 pos. (102G1W3) & 8 pos. (122G1W5)

square flange receptacle – UTL016

Harness

Overmold

(straight or right angle)

Types of contacts

Machined pin

Machined sealed pin

Stamped and formed pin

Machined socket

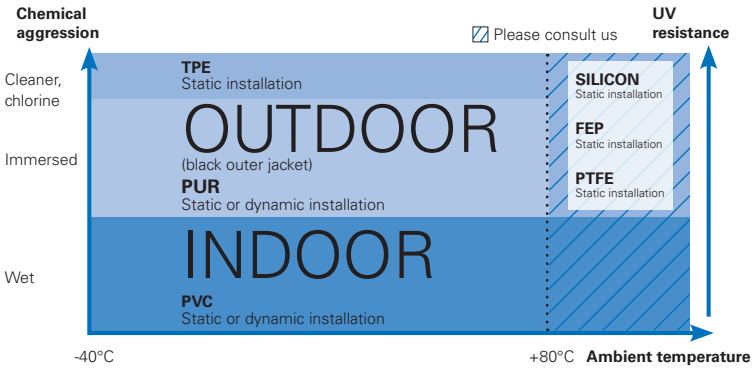
Machined sealed socket

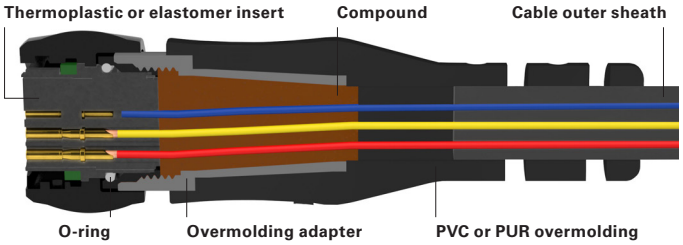
Stamped and formed socket

Improved durability and protection

Overmolding is a technique that significantly improves the UTL series' sealing characteristics, particularly when used over extended periods. It offers the flexibility to redirect the cable exit from a straight configuration to a 90° angle, effectively preventing undue strain on the cable terminated at the connector. Additionally, by enveloping the wires within the molding, overmolding establishes a protective barrier that effectively guards against the ingress of liquids into the equipment, even in the event of cable jacket damage.

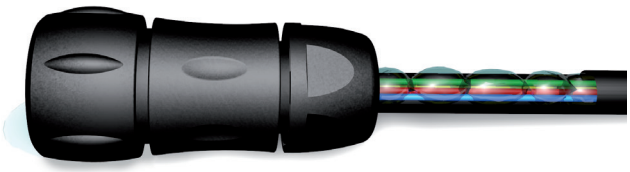
Choosing the outer jacket material





Connector with cable gland backshell

GOOD



Damage can occur if there is a breach in the cable jacket, allowing water to seep in.

Overmolded connector

BEST

In the event of a breach in the cable jacket, water ingress is prevented.

UTL overmolded cable assembly

Cable - 3 + ground
- Outer sheath: rubber compound EM2 in acc. to HD 22.1, 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: 0.22mm² and 1.5mm²

Cable - 8 pos.
- Signal: 2 x 2 x 0.22 + shielding power: 3G1.5
- Outer sheath: PUR RAL9005
- Outer sheath color: black
- Core section: 0.22mm² and 1.5mm²

Specifications

Plating	Salt spray	Temperature	Waterproof	Coupling
No plating	≥1000 H	Up to + 90° C with 103G1 (4 pos.)	IP68/69K dynamic mated & unmated	1,000 matings/unmatings
No plating	≥1000 H	Up to + 80° C with 102G1W3 (6 pos.)	IP68/69K dynamic mated & unmated	1,000 matings/unmatings
No plating	≥1000 H	Up to + 80° C with 122G1W5 (8 pos.)	IP68/69K dynamic mated & unmated	1,000 matings/unmatings

Souriau UTL series

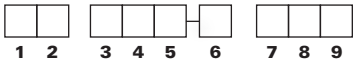
UTL overmolded cable assembly

Cable information

Rated voltage	Wire section	Temperature	Harmonized reference
U0/U: 450/750 V	3 + ground: 2.5 mm² 6 pos. & 8 pos.: 1.5 mm² (power), 0.22 mm² (signal)	3 + ground: flexible use and fixed installation -25° C up to -60° C 6 pos. & 8 pos.: flexible use -15° C up to +70° C, fixed installation -30° C up to +70° C	3 + ground: H07 RNF 4G x 2.5 6 pos. & 8 pos.: not applicable

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

Harmonized wire coding system

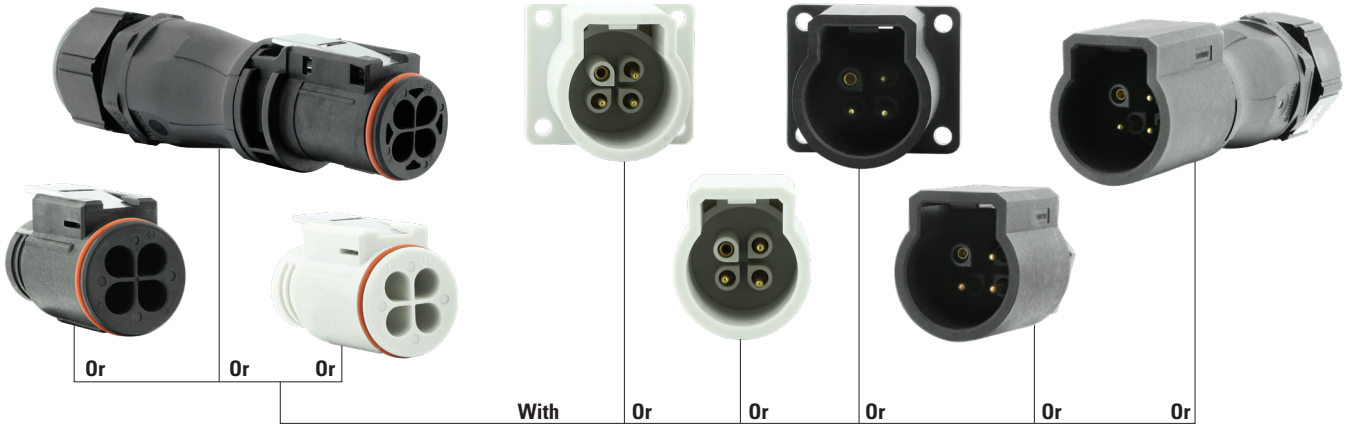


1. Basic type	2. Working voltage	3. Insulation	4. Sheath-cladding material	5. Special features	6. Conductor types	7. Number of conductors	8. Protective conductor	9. Conductor cross-sectional
H: Harmonized type	03: 300/300V	V: PVC	V: PVC	H: Ribbon cable, separable	U: Single wire	–	X: Without protective 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: Chloroprene 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, 300/500V, PVC insulating, PVC sheath-cladding, fine wire, 3x1.5 cross-sectional: H05VVF3x1.5

Standardization of American cable

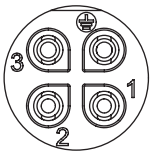
Nomenclature key		Cable types	
S:	Service grade (also means extra hard service when not followed by J, V, or P)	**SVT:**	Thermoplastic insulated vacuum cleaner cord, with or without 3rd conductor for grounding purposes; 300V (PVC)
J:	Hard service	**SJT:**	Junior hard service, thermoplastic insulated conductors and jacket. 300V (PVC)
V:	Vacuum cleaner cord (also light duty cable)	**SJTW:**	Same as SJT except outdoor rated (PVC)
P:	Parallel cord (also known as zip cord) – always light duty	**SJTO:**	Same as SJT but oil resistant outer jacket (PVC)
E:	Thermoplastic elastomer (UL/NEC designation ONLY)	**SJTOW:**	Same as SJTO except outdoor rated (PVC)
O:	Oil resistant outer jacket	**ST:**	Hard service cord with all thermoplastic construction, 600V (PVC)
OO:	Oil resistant outer jacket and insulation	**STW:**	Same as ST except outdoor rated (PVC)
T:	Thermoplastic	**STO:**	Same as ST but with oil resistant outer jacket (PVC)
W:	Outdoor-includes sunlight resistant jacket and wet location rated conductors (formerly "W-A")	**STOW:**	Same as STO except outdoor rated (PVC)
H:	Heater cable		
VW-1:	Flame retardant (vertical grade)		
FT2:	Flame retardant (horizontal grade)		



Connector part numbers

Plugs and receptacles must be equipped with both contact genders. Ground line must be equipped with opposite gender contact from neutral and phase contacts.

UTL 103G1



3 contacts + ground
13A/277V
per UL 1977
with AWG16 wire

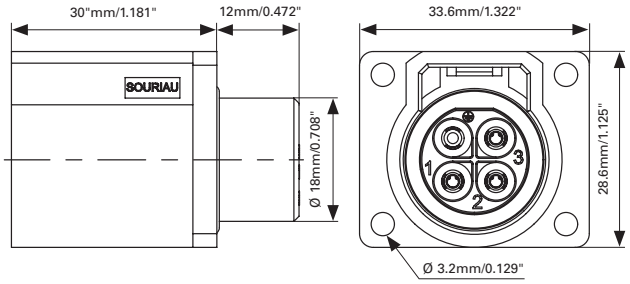
		Part numbers			
		Male insert		Female insert	
Contact type	Connector type	Black color	Gray color	Black color	Gray color
Crimp or PCB contacts supplied separately	Square flange receptacle	UTL0103G1P	UTL0103G1P03	UTL0103G1S	UTL0103G1S03
	Jam nut receptacle	UTL7103G1P	UTL7103G1P03	UTL7103G1S	UTL7103G1S03
	In-line receptacle without backshell	UTL1103G1P	UTL1103G1P03	UTL1103G1S	UTL1103G1S03
	In-line receptacle with backshell	UTL1JC103G1P	–	UTL1JC103G1S	–
	Plug for panel mounting	UTL5103G1P	–	UTL5103G1S	–
	Plug for overmolding	UTL6103G1P	UTL6103G1P03	UTL6103G1S	UTL6103G1S03
	Plug threaded without backshell and O-ring	UTL6TH103G1P	–	UTL6TH103G1S	–
	Plug with backshell	UTL6JC103G1P	–	UTL6JC103G1S	–

Souriau UTL series

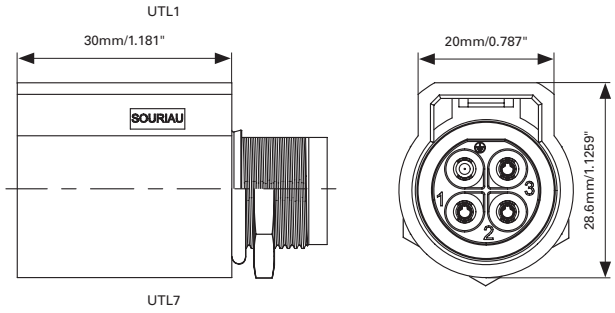
103G1 (shell size 10, 3 + ground, 4x#16)

Dimensions (for mated connector length, see **Page 44**)

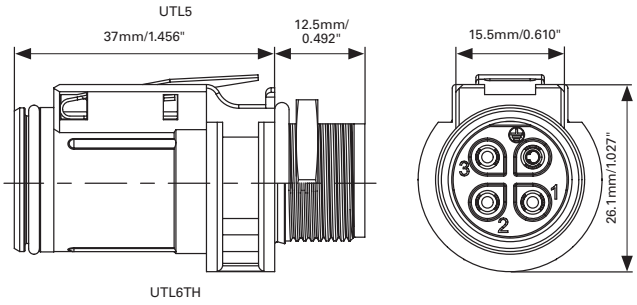
Square flange receptacle - UTL0



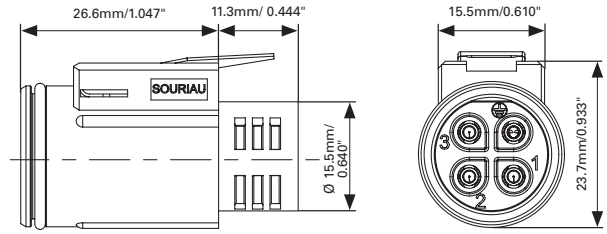
In-line receptacle - UTL1 and jam nut receptacle - UTL7



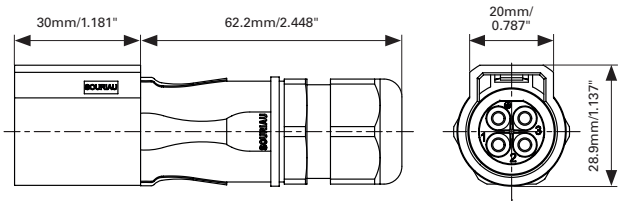
Plug - UTL5 & UTL6TH



Plug for overmolding - UTL6

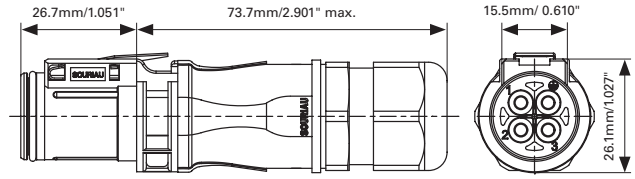


In-line receptacle - UTL1JC



Cable diameter acceptance of backshell:
from 7 to 12 mm/0.275 to 0.472"

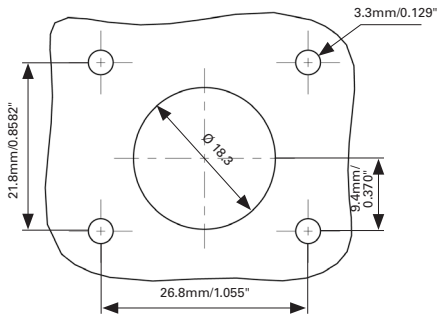
Plug with backshell - UTL6JC



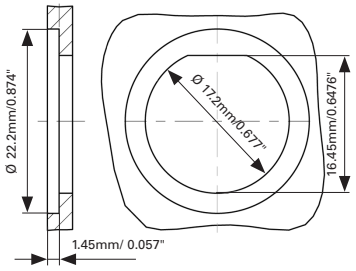
Cable diameter acceptance of backshell:
from 7 to 12 mm/0.275 to 0.472"

Panel cut-out

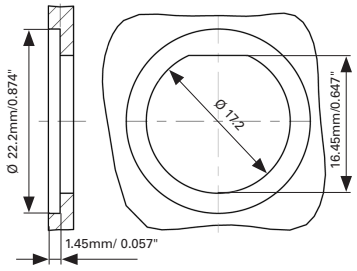
Square flange receptacle - UTL0



Plug for panel mounting - UTL5
maximum panel thickness: 6 mm



Jam nut receptacle - UTL7
maximum panel thickness: 5 mm



Note: all dimensions are in mm/inch

Accessories

Dustcap for plug

Ingress protection	Part number
IP67	UTL610DCG

Dustcap for receptacle

Ingress protection	Part number
IP67	UTL10DCG

Dustcap for male receptacle

Ingress protection	Part number
IP67	UTL103G1PDCG68

Dustcap for female receptacle

Ingress protection	Part number
IP68/69K	UTL103G1SDCG68

Backshell*

Ingress protection	Part number
Cable gland	UTL10JC
Housing	UTL10JCP1

* Backshells delivered with UTL10SEAL for sealing with plug or receptacle

O-ring

Part number
UTL10SEAL

Nut

Part number
UTL10NUT

Protective shroud

Part number
UTL610PS

Extraction tool #16

Part number
RX2025GE1

Sealing plug

Part number
SWSFILLERPLUG

Insertion tool #16

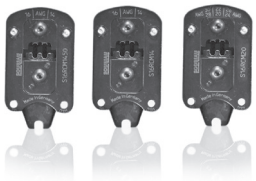
Part number
RTM205

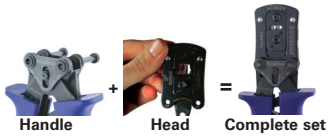
Tooling

Tooling

Description	Part number
Handle (without head)	Shandles
Box containing handle and several crimp tooling	Toolkit

Crimp tooling





Head crimp tooling (without handle)

Contact size	Contacts	Part number of head
Standard contacts #16 Ø 1.6mm/0.062"	RM/RC 28M1K(1)	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*
	RM/RC 16M25K	S16RCM1625*
	RM/RC 14M25K	S16RCM1425*
Coaxial contacts #16 Ø 1.6mm/0.062"	RMDXK10D28K	M20S-1J
	RCDXK1D28K	M20S-1J
	RM/RC DX60xxD28K	M20S-1J
	RM/RC DXK10D28 + YORX090	M20S-1J
	RM/RC DX60xxD28	M20S-1J

(1): Example of plating, for other plating options see **Page 26**
(*): Heads to be used with handle PN: SHANDLES

Souriau UTL series

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

Contacts #16

Contact style	Contact type	Cable acceptance AWG	Cable acceptance mm²	Part number Male	Female	Wire Ø max mm	Insulator Ø max mm
Crimp	Machined	30-28	0.05-0.08	RM28M1K(1)	RC28M1K(1)	0.55	1.00
		26-24	0.13-0.25	RM24M9K(1)	RC24M9K(1)	0.80	1.58
		22-20	0.32-0.52	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	0.32-0.52	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	0.52-1.48	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	1.48-2.48	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Machined sealed (with O-ring for IP68/69K unmated)	20-16	0.52-1.48	RM16M25K	RC16M25K	1.80	3.20
		16-14	1.48-2.48	RM14M25K	RC14M25K	2.28	3.20
		24	0.25			0.65	3.20
	Stamped and formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	–	0.90-1.58
		22-20	0.32-0.52	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	–	1.20-2.10
		18-16	0.80-1.48	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	–	3.20
		18-16	0.80-1.48	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	–	3.00
		14	2.48	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	–	3.20
PCB	For male insert	–	–	RM20M12E8K	RC20M12E84K	–	–
	For female insert	–	–	RM20M12E8K	RC20M12E83K	–	–
Coaxial	Cable multipiece	see **Page 30**	see **Page 30**	RMDXK10D28*	RCDXK1D28*	–	–
	Cable monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28*	RCDX60xxD28*	–	–
	Twisted pair multipiece	see **Page 30**	see **Page 30**	RMDXK10D28 + YORX090*	RCDXK1D28 + YORX090*	–	–
	Twisted pair monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28*	RCDX60xxD28*	–	–
Handsolder	Loaded in the connector	14-18	2.48-0.80	–	–	–	–

(1): Example of plating, for other plating options see **Page 26**
(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6
(*): Coax contacts cannot be used in the ground cavity

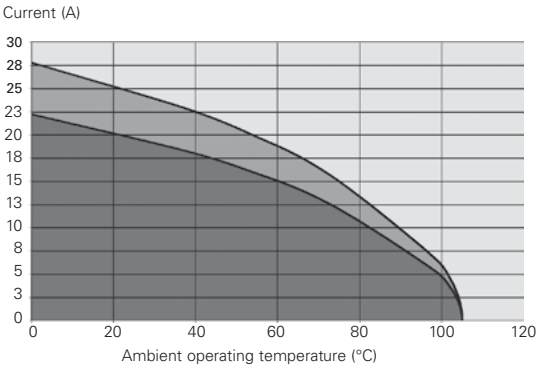
Reminder

Plugs and receptacles must be equipped with both contact genders. Example: UTL6103G1P = 3 x SM16M1TK6 (signal) + 1 x SC16M1TK6 (ground)

Electrical characteristics

UL	CN	IEC
16A 600V V0 13A 277V for CBC use	13A 600V 10A 277V for CBC use	16A 500V 6KV 4 13A 250V 4KV 4 for CBC use

UTL 103G1 derating curves

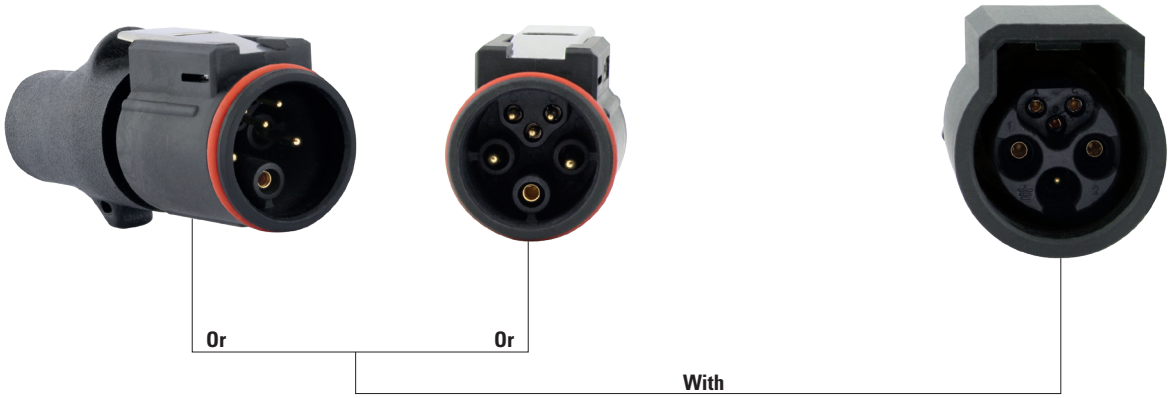


Current use
Limited use
Not recommended

Test conditions

Contact used: machined contacts
Wires used: 1.31 mm²

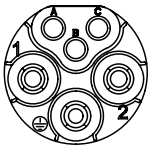
Derating curves based on continuous current application.



Connector part numbers

Plugs and receptacles must be equipped with both contact genders. Ground line is never equipped with the same contacts as the neutral and phase.

UTL 102G1W3



3 contacts + ground
16A/500V
per UL 1977
with AWG16 wire

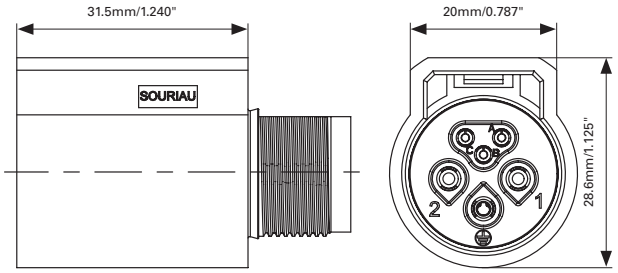
		Part	
Contact type	**Connector type**	**Male insert**	**Female insert**
Crimp contacts supplied separately	Plug	UTL6102G1W3P	UTL6102G1W3S
	Jam nut receptacle	UTL7102G1W3P	UTL7102G1W3S
	In-line receptacle	UTL1102G1W3P	UTL1102G1W3S
Contacts included	Terminating resistor plug - 120Ω	UTL6102G1W3PCDMX	UTL6102G1W3SCDMX
	Terminating resistor receptacle - 120Ω	UTL1102G1W3PCDMX	UTL1102G1W3SCDMX

Souriau UTL series

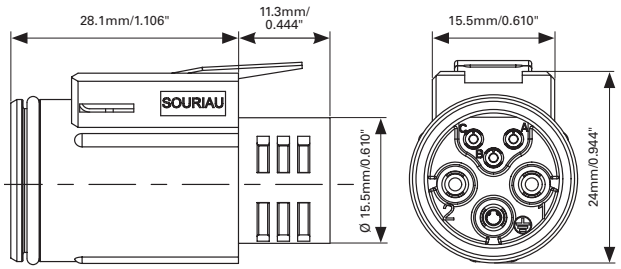
102G1W3 (shell size 10, 3x#16 + 3x#20)

Dimensions (for mated connector length, see **Page 44**)

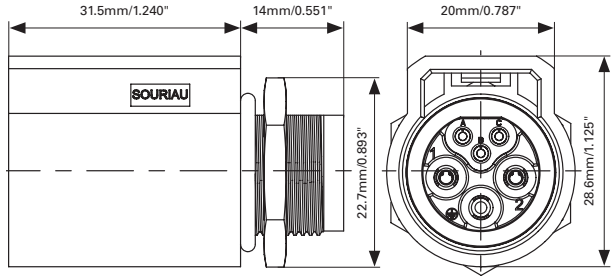
In line receptacle - UTL1



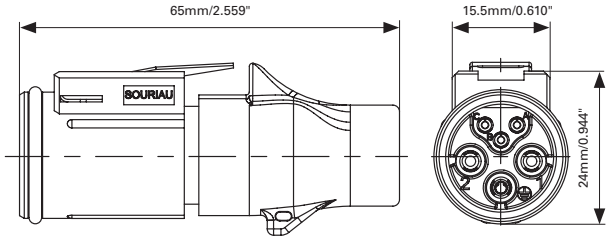
Plug for overmolding - UTL6



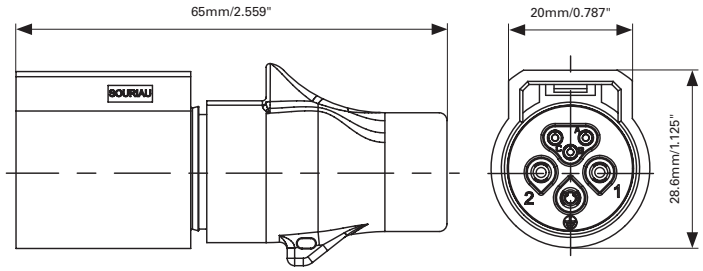
Jam nut receptacle - UTL7



Terminating resistor plug

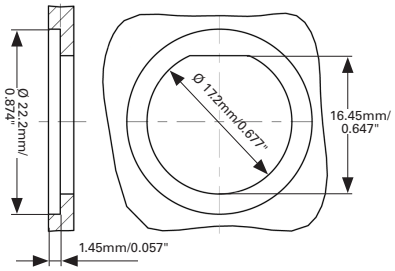


Terminating resistor receptacle



Panel cut-out

Jam nut receptacle - UTL7
maximum panel thickness: 5 mm/0.196"



Note: all dimensions are in mm/inch

Accessories

Dustcap for plug

Ingress protection	Part number
IP67	UTL610DCG

Dustcap for receptacle

Ingress protection	Part number
IP67	UTL103G1PDCG68

Dustcap for male receptacle

Ingress protection	Part number
IP67	UTL10DCG

Dustcap for female receptacle

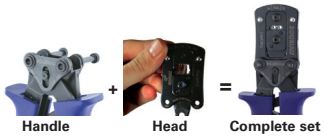
Ingress protection	Part number
IP68/69K	UTL103G1SDCG68

Tooling

Tooling

Ingress protection	Part number
Handle (without head)	Shandles
Box containing handle and several crimp tooling	Toolkit

Crimp tooling



Extraction tool #16

Part number
RX2025GE1

Insertion tool #16

Part number
RTM205

Insertion tool #20

Part number
RX20D44

Head crimp tooling (without handle)

Contact size	Contacts	Part number of head
Standard contacts #20 Ø 1 mm/0.039"	RM/RC 24W3K(1)	S20RCM*
	RM/RC 20W3K(1)	S20RCM*
	RM/RC 18W3K(1)	S20RCM*
	SM/SC 24WL3(1)(2)	S20SCM20*
	SM/SC 20WL3(1)(2)	S20SCM20*
Standard contacts #16 Ø 1.6 mm/0.062"	RM/RC 28M1K(1)	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*
	RM/RC 16M25K	S16RCM1625*
	RM/RC 14M25K	S16RCM1425*
Coaxial contacts #16 Ø 1.6 mm/0.062"	RMDXK10D28K	M20S-1J
	RCDXK1D28K	M20S-1J
	RM/RC DX60xxD28K	M20S-1J
	RM/RC DXK10D28 + YORX090	M20S-1J
	RM/RC DX60xxD28	M20S-1J

(1): Example of plating, for other plating options see **Page 26**

(*): Heads to be used with handle PN: SHANDLES

Souriau UTL series

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

Contacts #20

Contact style	Contact type	Cable acceptance AWG	Cable acceptance mm²	Part number Male	Female	Wire Ø max mm	Insulator Ø max mm
Crimp contacts	Machined	26-24	0.13-0.25	RM24W3K(1)	RC24W3K(1)	0.80	1.58
		22-20	0.32-0.52	RM20W3K(1)	RC20W3K(1)	1.15	1.80
		20-18	0.52-0.80	RM18W3K(1)	RC18W3K(1)	1.30	2.10
	Stamped and formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	–	0.90-1.58
		26-24	0.13-0.25	SM24W3S26(1)(2)	SC24W3S25(1)(2)	–	0.90-1.58
		22-20	0.32-0.52	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	–	1.20-2.10
		22-20	0.32-0.52	SM20W3S26(1)(2)	SC20W3S25(1)(2)	–	1.20-2.10

Contacts #16

Contact style	Contact type	Cable acceptance AWG	Cable acceptance mm²	Part number Male	Female	Wire Ø max mm	Insulator Ø max mm
Crimp contacts	Machined	30-28	0.05-0.08	RM28M1K(1)	RC28M1K(1)	0.55	1.00
		26-24	0.13-0.25	RM24M9K(1)	RC24M9K(1)	0.80	1.58
		22-20	0.32-0.52	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	0.32-0.52	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	0.52-1.48	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	1.48-2.48	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped and formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	–	0.90-1.58
		22-20	0.32-0.52	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	–	1.20-2.10
		18-16	0.80-1.48	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	–	3.20
		18-16	0.80-1.48	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	–	3.00
		14	2.48	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	–	3.20
Coaxial*	Cable multipiece	see **Page 30**	see **Page 30**	RMDXK10D28*	RCDXK1D28*	–	–
	Cable monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28*	RCDX60xxD28*	–	–
	Twisted pair multipiece	see **Page 30**	see **Page 30**	RMDXK10D28 + YORX090*	RCDXK1D28 + YORX090*	–	–
	Twisted pair monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28*	RCDX60xxD28*	–	–

(1): Example of plating, for other plating options see **Page 26**
(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6
(*): Coax contacts cannot be used in the ground cavity

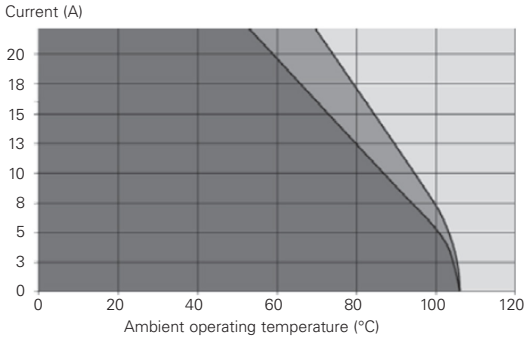
Electrical characteristics

UL	CN	IEC
16A 600V V0 13A 277V for CBC use	13A 600V 10A 277V for CBC use	16A 500V 6KV 4 13A 250V 4KV 4 for CBC use

Reminder

Plugs and receptacles must be equipped with both contact genders.
Example: UTL6102W3G1P = 2 x SM16M1TK6 (power) + 1 x SC16M1TK6 (ground) + 3 x SM20W3TK6 (signal)

UTL 102G1W3 derating curves

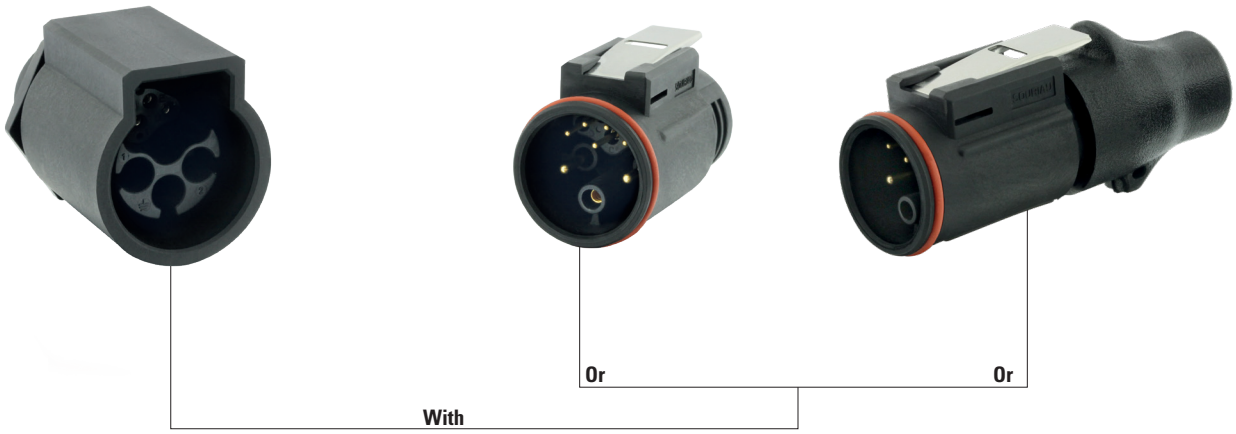


Derating curves based on continuous current application.

- Current use
- Limited use
- Not recommended

Test conditions

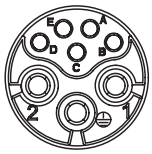
Contact used: machined contacts
Wires used: #16 contacts wired onto 1.5 mm² or AWG16 conductors, #20 contacts wired onto 0.5 mm² or AWG20 conductors and powered at 2.5 Amps



Connector part numbers

Plugs and receptacles must be equipped with both contact genders. Ground line is never equipped with the same contacts as the neutral and phase.

UTL 122G1W5



3 contacts + ground
16A/500V
per UL 1977
with AWG16 wire

		Part	
Contact type	**Connector type**	**Male insert**	**Female insert**
Crimp contacts supplied separately	Plug	UTL6122G1W5P	UTL6122G1W5S
	Jam nut receptacle	UTL7122G1W5P	UTL7122G1W5S
	In line receptacle	UTL1122G1W5P	UTL1122G1W5S
Contacts included	Terminating resistor plug - 120Ω	UTL6122G1W5PCDMX	UTL6122G1W5SCDMX
	Terminating resistor receptacle - 120Ω	UTL1122G1W5PCDMX	UTL1122G1W5SCDMX

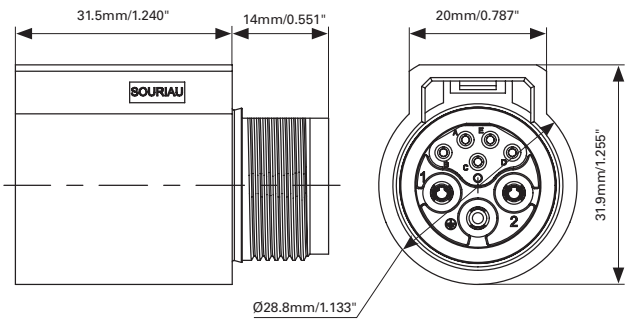
The terminating resistor is only designed to ensure the 120 Ohms impedance on the signal lines, no contact loaded in the power positions.
#20 contacts and plastic plate are not removable.

Souriau UTL series

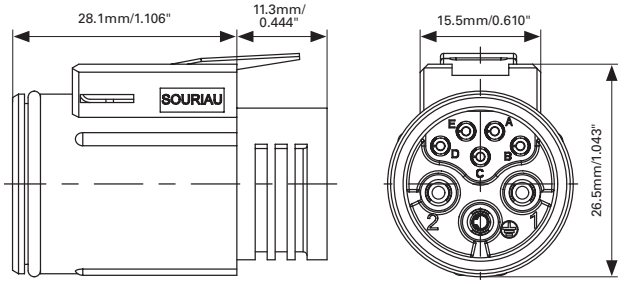
122G1W5 (shell size 12, 3x#16 + 5x#20)

Dimensions (for mated connector lengths, see **Page 44**)

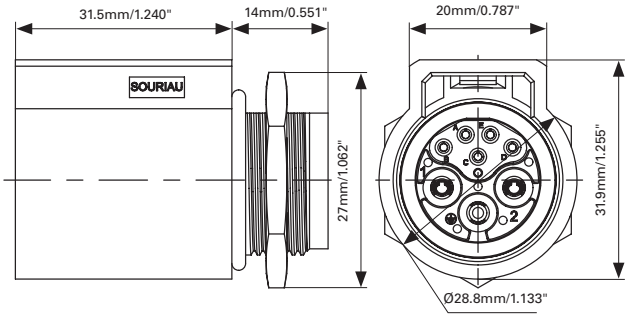
In-line receptacle - UTL1



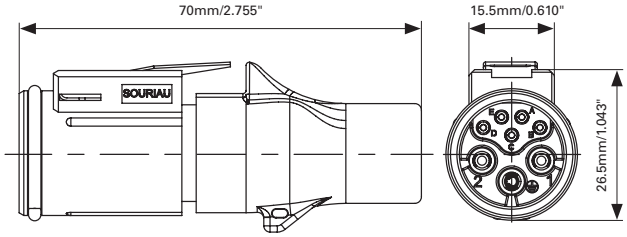
Plug for overmolding - UTL6



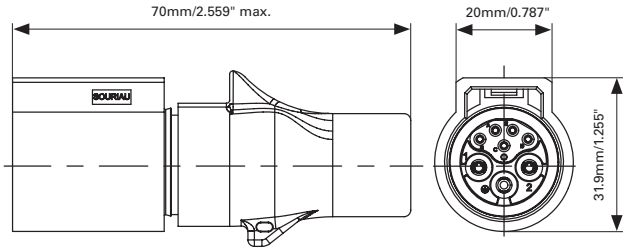
Jam nut receptacle - UTL7



Terminating resistor plug

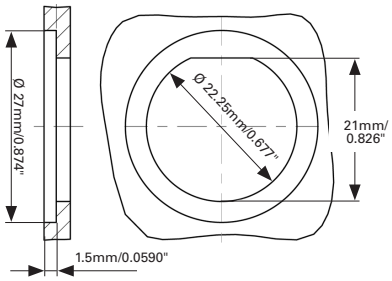


Terminating resistor receptacle



Panel cut-out

Jam nut receptacle - UTL7
maximum panel thickness: 5 mm/0.196"



Note: all dimensions are in mm/inch

Accessories

Dustcap for plug

Ingress protection	Part number
IP67	UTL612DCG

Dustcap for receptacle

Ingress protection	Part number
IP67	UTL12DCG

Tooling

Tooling

Description	Part number
Handle (without head)	Shandles
Box containing handle and several crimp tooling	Toolkit

Extraction tool #16

Part number
RX2025GE1

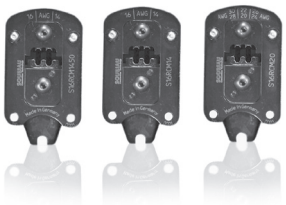
Insertion tool #16

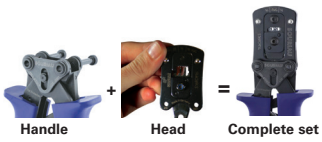
Part number
RTM205

Insertion tool #20

Part number
RX20D44

Crimp tooling (without Shandles)





Head crimp tooling (without handle)

Contact size	Contacts	Part number of head
Standard contacts #20 Ø 1 mm	RM/RC 24W3K(1)	S20RCM*
	RM/RC 20W3K(1)	S20RCM*
	RM/RC 18W3K(1)	S20RCM*
	SM/SC 24WL3(1)(2)	S20SCM20*
	SM/SC 20WL3(1)(2)	S20SCM20*
Standard contacts #16 Ø 1.6 mm	RM/RC 28M1K(1)	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*
	RM/RC 16M25K	S16RCM1625*
	RM/RC 14M25K	S16RCM1425*
Coaxial contacts #16 Ø 1.6 mm	RMDXK10D28K	M20S-1J
	RCDXK1D28K	M20S-1J
	RM/RC DX60xxD28K	M20S-1J
	RM/RC DXK10D28 + YORX090	M20S-1J
	RM/RC DX60xxD28	M20S-1J

(1): Example of plating, for other plating options see **Page 26**
(*): Heads to be used with handle PN: SHANDLES

Souriau UTL series

122G1W5 (shell size 12, 3x#16 + 5x#20)

Contacts #20

Contact style	Contact type	Cable acceptance AWG	Cable acceptance mm²	Part number Male	Female	Wire Ø max mm	Insulator Ø max mm
Crimp contacts	Machined	26-24	0.13-0.25	RM24W3K(1)	RC24W3K(1)	0.80	1.58
		22-20	0.32-0.52	RM20W3K(1)	RC20W3K(1)	1.15	1.80
		20-18	0.52-0.80	RM18W3K(1)	RC18W3K(1)	1.30	2.10
	Stamped and formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	–	0.90-1.58
		26-24	0.13-0.25	SM24W3S26(1)(2)	SC24W3S25(1)(2)	–	0.90-1.58
		22-20	0.32-0.52	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	–	1.20-2.10
		22-20	0.32-0.52	SM20W3S26(1)(2)	SC20W3S25(1)(2)	–	1.20-2.10

Contacts #16

Contact style	Contact type	Cable acceptance AWG	Cable acceptance mm²	Part number Male	Female	Wire Ø max mm	Insulator Ø max mm
Crimp contacts	Machined	30-28	0.05-0.08	RM28M1K(1)	RC28M1K(1)	0.55	1.00
		26-24	0.13-0.25	RM24M9K(1)	RC24M9K(1)	0.80	1.58
		22-20	0.32-0.52	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	0.32-0.52	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	0.52-1.48	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	1.48-2.48	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped and formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	–	0.90-1.58
		22-20	0.32-0.52	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	–	1.20-2.10
		18-16	0.80-1.48	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	–	3.20
		18-16	0.80-1.48	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	–	3.00
		14	2.48	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	–	3.20
Coaxial	Cable multipiece	see **Page 30**	see **Page 30**	RMDXK10D28	RCDXK1D28	–	–
	Cable monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28	RCDX60xxD28	–	–
	Twisted pair multipiece	see **Page 30**	see **Page 30**	RMDXK10D28 + yorx090	RCDXK1D28 + yorx090	–	–
	Twisted pair monocrimp	see **Page 30**	see **Page 30**	RMDX60xxD28	RCDX60xxD28	–	–

(1): Example of plating, for other plating options see **Page 26**
(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6
(*): Coax contacts cannot be used in the ground cavity

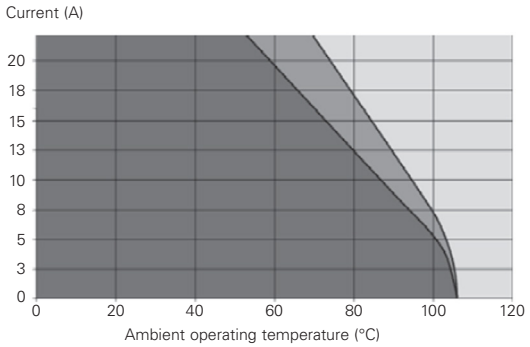
Electrical characteristics

UL	CN	IEC
16A 600V V0 13A 277V for CBC use	13A 600V 10A 277V for CBC use	16A 500V 6KV 4 13A 250V 4KV 4 for CBC use

Reminder

Plugs and receptacles must be equipped with both contact genders.
Example: UTL6122G1W5P = 2 x SM16M1TK6 (power) + 1 x SC16M1TK6 (ground) + 5 x SM20W3TK6 (signal)

UTL122G1W5 derating curves

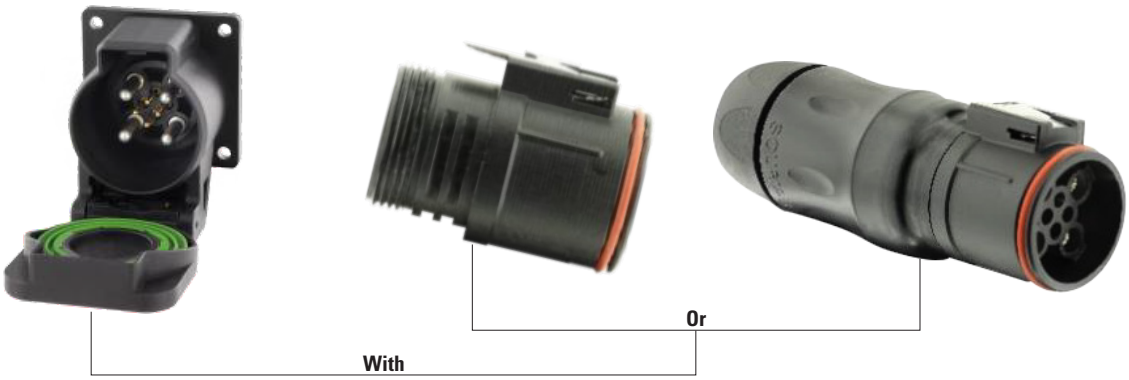


Derating curves based on continuous current application.

- Current use
- Limited use
- Not recommended

Test conditions

Contact used: machined contacts
Wires used: #16 contacts wired onto 2.5 mm² or AWG14 conductors, #20 contacts wired onto 0.5 mm² or AWG20 conductors and powered at 2.5 Amps



Connector part numbers

Plugs and receptacles must be equipped with both contact genders. Ground line is never equipped with the same contacts as the neutral and phase.

UTL 164W4

4 power contacts
- #8 contacts, silver plated
- Up to 44A per contact
- Wires AWG 16 to 8 / 1.5mm² to 10mm²

4 signal contacts
- #16 trim trio contact
- Up to 16A per contact
- Wires AWG 30 to 14 / 0.05mm² to 2.5mm²

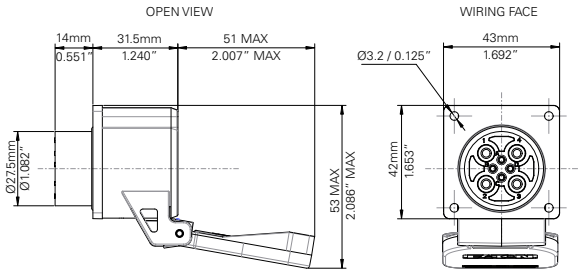
Contact type	Connector type	Part numbers Male insert	Female insert
Crimp contacts supplied separately	Plug without backshell		UTL6164W4S
	Plug with backshell		UTL6JC164W4S
	Square flange receptacle with self-closing cap	UTL0164W4P19	

Souriau UTL series

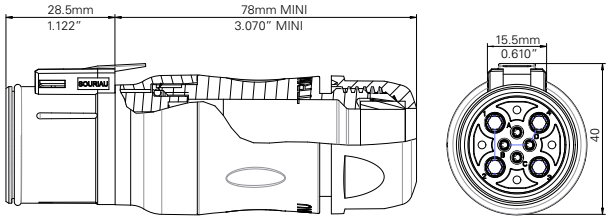
UTL 16 4W4 (shell size 16, 4 x #8, 4x #16)

Dimensions

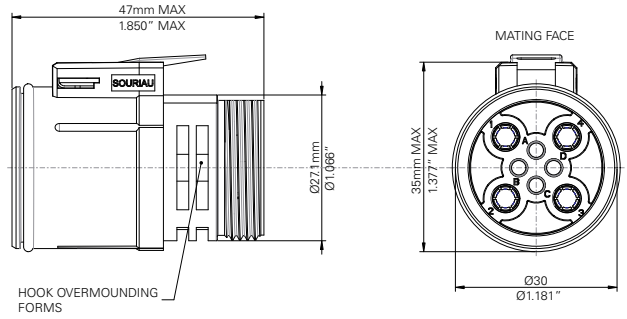
Panel mount receptacle - UTL0



Plug with backshell - UTL6JC



Plug for overmolding - UTL6



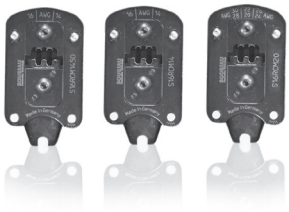
Accessories

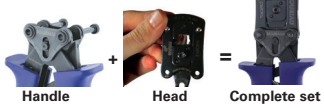
Tooling

Tooling

Description	Part number
Handle (without head)	Shandles
Box containing handle and several crimp tooling	Toolkit

Crimp tooling





Extraction tool #16

Part number
RX2025GE1

Insertion tool #16

Part number
RTM205

Head crimp tooling (without handle)

Contact size	Contacts	Part number of head
Standard contacts #20 Ø 1 mm	RM/RC 24W3K(1)	S20RCM*
	RM/RC 20W3K(1)	S20RCM*
	RM/RC 18W3K(1)	S20RCM*
	SM/SC 24WL3(1)(2)	S20SCM20*
	SM/SC 20WL3(1)(2)	S20SCM20*
Standard contacts #16 Ø 1.6 mm	RM/RC 28M1K(1)	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*
	RM/RC 16M25K	S16RCM1625*
	RM/RC 14M25K	S16RCM1425*
Coaxial contacts #16 Ø 1.6 mm	RMDXK10D28K	M20S-1J
	RCDXK1D28K	M20S-1J
	RM/RC DX60xxD28K	M20S-1J
	RM/RC DXK10D28 + YORX090	M20S-1J
	RM/RC DX60xxD28	M20S-1J

(1): Example of plating, for other plating options see **Page 26**

(*): Heads to be used with handle PN: SHANDLES

Tooling

Crimp tooling #8

Contact size	Part number hand tool	Part number positioner + locator setting
For crimp contacts #8 Ø 0.141" (3.6)	**M317**	**VGE10078A**

Souriau UTL series

UTL 16 4W4 (shell size 16, 4 x #8, 4x #16)

Contacts

#16	Contact type	Wire size AWG	mm²	Part number Male	Female	Max wire Ø (mm)	Max insulator Ø (mm)
Crimp	Machined	30-28	0.05-0.08	**RM28M1K**	**RC28M1K**	0.55	1.00
		26-24	0.13-0.25	**RM24M9K**	**RC24M9K**	0.80	1.60
		22-20	0.32-0.52	**RM2ØM13K**	**RC2ØM13K**	1.15	1.80
		22-20	0.32-0.52	**RM2ØM12K**	**RC2ØM12K**	1.15	2.20
		20-16	0.52-1.50	**RM16M23K**	**RC16M23K**	1.80	3.20
		16-14	1.50-2.50	**RM14M3ØK**	**RC14M3ØK**	2.30	3.20
	Stamped & Formed reeled contacts See note (2) for loose piece	26-24	0.13-0.25	**SM24M1TK6**(1)(2)	**SC24M1TK6**(1)(2)	-	0.90-1.60
		22-20	0.32-0.52	**SM2ØM1TK6**(1)(2)	**SC2ØM1TK6**(1)(2)	-	1.20-2.10
		18-16	0.80-1.50	**SM16M1TK6**(1)(2)	**SC16M1TK6**(1)(2)	-	3.20
		18-16	0.80-1.50	**SM16M1TK6**(1)(2)	**SC16M1TK6**(1)(2)	-	3.00
		14	2.50	**SM14M1TK6**(1)(2)	**SC14M1TK6**(1)(2)	-	3.20
PCB	Machined (3)	-	-	**RM2ØM12E83K**(1)	**RC2ØM12E83K**(1)	-	-
Coaxial	Cable Multipiece	-	-	**RMDXK1ØD28**	**RCDXK1D28**	-	-
	Cable Monocrimp	-	-	**RMDX6ØxxD28**	**RCDX6ØxxD28**	-	-
	Twisted pair Multipiece	-	-	**RMDXK1ØD28 + yorkØ9Ø**	**RCDXK1D28 + yorkØ9Ø**	-	-
	Twisted pair Monocrimp	-	-	**RMDX6ØxxD28**	**RCDX6ØxxD28**	-	-
Fiber optic	POF contacts (Plastic Optical Fiber)	-	-	**RMPOF1ØØØ**	**RCPOF1ØØØB**	-	-
8							
Crimp	Machined	16	1.50	**82913ØØ1A**(1)	**82913ØØA**(1)	1.72	
		14	2.50	**82913Ø03A**(1)	**82913Ø02A**(1)	2.22	
		12	4.00	**82913Ø05A**(1)	**82913Ø04A**(1)	2.82	6.50
		10	6.00	**82913Ø07A**(1)	**82913Ø06A**(1)	3.50	
		8	10.00	**82913Ø09A**(1)	**82913Ø08A**(1)	4.35	
PCB	Machined (3)	-	-	**82911685NPC**(1)	**82911684NPC**(1)	-	-

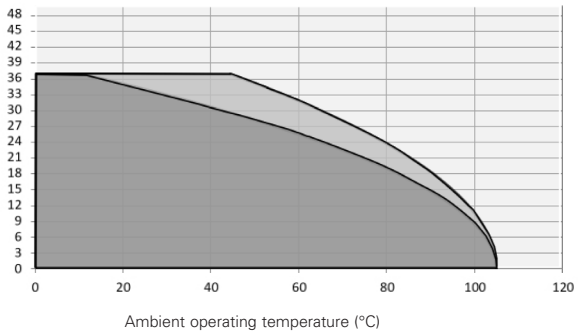
Electrical characteristics

UL	CN	IEC
16A 600V V0	13A 600V	16A 500V 6KV 4
13A 277V for CBC use	10A 277V for CBC use	13A 250V 4KV 4 for CBC use

Reminder

For safety reasons, power contacts are activated only after the signal contacts are connected.

UTL 16 4W4 derating curves



Derating curves based on continuous current application.

- Current use
- Limited use
- Not recommended

Test conditions

Contacts used : machined contacts

wires used:

- 6mm² / AWG9 wires with #8 contacts at 44A
- 4mm² / AWG11 wires with #16 contacts at 33A

The TRIM TRIO product line features a consistent contact style across layouts with the identical active part size (i.e. #20, #16, #12). This standardization means you can use a single type of contact for all connectors within the TRIM TRIO range.

The UTL series offers solder or PCB contacts for hi-seal versions and comes without contacts for standard crimp versions. This approach significantly reduces inventory requirements, eliminates the need for extra tooling, and simplifies the assembly process. Additionally, Souriau TRIM TRIO contacts are designed for easy snap-in installation, removing the necessity for an insertion tool.

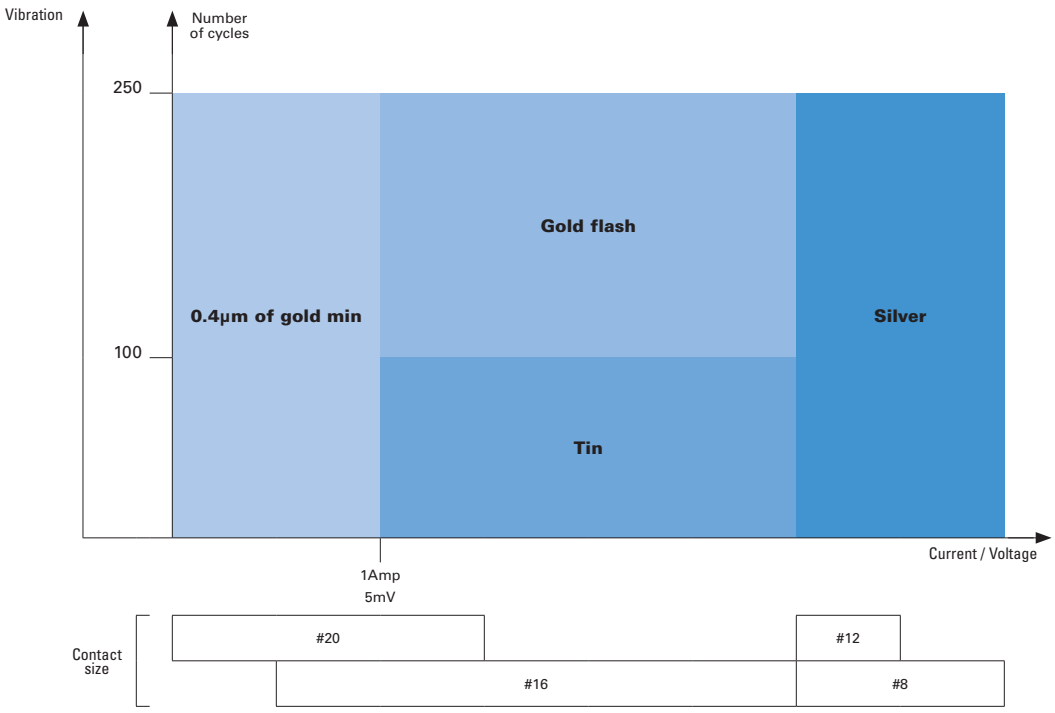
Machined contacts

Stamped and formed contacts

Contact plating selector guide

Machined contacts are generally selected as a better solution for power applications or when lower quantities are needed. Stamped and formed contacts offer the ability to be crimped automatically which makes them more suitable for high volume production applications. The ideal plating is selected based on your application. Use the graph below to identify a plating based on the number of mating cycles, vibration and current/voltage needs for your application.

Note: Do not mix different plating (i.e. tin plated pin contacts with gold plated socket contacts).



Machined contacts

		Plating description
Contact size	**Plating code**	**Active area**
#20Ø 0.039"/ 1.0 mm	K	0.4µm Gold over 2µm nickel min
#16Ø 0.062"/ 1.6 mm	K	0.4µm Gold over 2µm nickel min
	J	Gold flash over nickel 2µm min
	T	Tin 3µm (-0/+2) over 1.3µm nickel min
	D28 for coax contacts only	0.75µm min Gold over 2µm nickel min
#8 Ø 0.141"/ 3.6 mm	A	2µm Nickel + 2µm Ag

Stamped and formed contacts

		Plating description	
Contact size	**Plating code**	**Active area**	**Other area**
#20Ø 0.039"/ 1.0 mm	S25 (female)	0.75µm Gold min over nickel	Gold flash over nickel
	S26 (male)	0.75µm Gold min over nickel	Gold flash over nickel
	TK6	0.5µm - 2.5µm Sn pre-plated	-
#16Ø 0.062"/ 1.6 mm	S31	Gold flash over nickel	Crimped area: 1.3µm Tin min over nickel Other areas: 1.3µm Tin min
	S18	0.75µm Gold min over nickel	
	D70	0.13µm Gold min over nickel	Gold flash over nickel
	TK6	0.5µm - 2.5µm Sn pre-plated	-

Electrical characteristics - contact resistance

Contact size	Contact type	Resistance
#20Ø 0.039"/ 1.0 mm	Machined	< 6mΩ
	Stamped and formed	< 6mΩ
#16Ø 0.062"/ 1.6 mm	Machined	< 3mΩ
	Stamped and formed	< 6mΩ
#8 Ø 0.141"/ 3.6 mm	Machined	< 5mΩ

Packaging options for trim trio contacts

TRIM TRIO contacts are available in a variety of packaging, ranging from small bulk quantities to large, reeled parts.

Contacts size #20 (Ø 0.039"/ 1 mm) and #16 (Ø 0.062"/ 1.6 mm)

Stamped and formed contacts

Description	Quantity
Loose package	**25 pieces**
Reeled	**3,000 pieces**

Machined contacts

Description	Quantity
Bulk package	**50 pieces**
Bulk package	**1,000 pieces**
Reeled size #16 only	**2,000 pieces**

Contacts machined size #8 (Ø 0.141"/ 3.6 mm)

Machined contacts

Description	Number
Bulk package	**100 pieces**

Note: 1,000 pieces bulk package available by adding 1000 at the end of the part number: e.g. RC16M23K1000 2,000 pieces reeled package available by adding K at the beginning of the part number: e.g. KRC16M23K

Standard version

Contact size	Type	Wire size			Part number		Insulator Ø max		Available plating see Page 26
		AWG	inch²	mm²	Male	Female	inch	mm	
#20 Ø 0.039" (1)	Machined	26-24	0.005"-0.007"	0.13-0.20	**RM24W3K**	**RC24W3K**	0.062" max	1.58 max	K
	Stamped and formed	26-24	0.005"-0.009"	0.13-0.25	**SM24W3-**(1)	**SC24W3-**(1)	0.035"-0.062"	0.89-1.58	TK6 S25 (female) S26 (male)
	Stamped and formed	26-24	0.005"-0.009"	0.13-0.25	**SM24WL3-**(2)	**SC24WL3-**(2)	0.035"-0.062"	0.89-1.58	TK6 S25 (female) S26 (male)
	Machined	22-20	0.012"-0.020"	0.32-0.52	**RM20W3K**	**RC20W3K**	0.062" max	1.58 max	K
	Stamped and formed	22-20	0.013"-0.019"	0.35-0.5	**SM20W3-**(1)	**SC20W3-**(1)	0.046"-0.081"	1.17-2.08	TK6 S25 (female) S26 (male)
	Stamped and formed	22-20	0.013"-0.019"	0.35-0.5	**SM20WL3-**(2)	**SC20WL3-**(2)	0.046"-0.081"	1.17-2.08	TK6 S25 (female) S26 (male)
	Machined	20-18	0.019"-0.031"	0.5-0.80	**RM18W3K**	**RC18W3K**	0.082" max	2.10 max	K
#16 Ø 0.062" (1.6)	Machined	30-28	0.002"-0.003"	0.05-0.08	**RM28M1-**	**RC28M1-**	0.043"	1.1	K, J
	Machined	26-24	0.005"-0.007"	0.13-0.2	**RM24M9-**	**RC24M9-**	0.062"	1.6	K, J
	Stamped and formed	26-24	0.005"-0.009"	0.13-0.25	**SM24M1-**(1) **SM24ML1-**(2)	**SC24M1-**(1) **SC24ML1-**(2)	0.089"-0.062"	0.89-1.58	S31, S18, TK6
	Machined	22-20	0.012"-0.020"	0.32-0.52	**RM20M13-**	**RC20M13-**	0.070"	1.8	K, J
	Machined	22-20	0.012"-0.020"	0.32-0.52	**RM20M12-**	**RC20M12-**	0.086"	2.2	K, J
	Stamped and formed	22-20	0.013"-0.019"	0.35-0.5	**SM20M1-**(1) **SM20ML1-**(2)	**SC20M1-**(1) **SC20ML1-**(2)	0.046"-0.081"	1.17-2.08	S31, S18, TK6
	Machined	18-16	0.031"-0.059"	0.92-1.5	**RM16M23-**	**RC16M23-**	0.125"	3.2	K, J
	Stamped and formed	18-16	0.031"-0.059"	0.8-1.5	**SM16M1-**(1) **SM16ML1-**(2)	**SC16M1-**(1) **SC16ML1-**(2)	No insulation grip	No insulation grip	S31, S18, TK6
	Stamped and formed	18-16	0.031"-0.059"	0.8-1.5	**SM16M11-**(1) **SM16ML11-**(2)	**SC16M11-**(1) **SC16ML11-**(2)	0.081"-0.118"	2.08-3.0	S31, S18, TK6
	Machined	16-14	0.059"-0.098"	1.5-2.5	**RM14M30-**	**RC14M30-**	0.125"	3.2	K, J
	Stamped and formed	14	0.078"-0.098"	2.0-2.5	**SM14M1-**(1) **SM14ML1-**(2)	**SC14M1-**(1) **SC14ML1-**(2)	No insulation grip	No insulation grip	S31, S18, TK6
#8 Ø 0.141" (Ø 3.6)	Machined	16	0.059"	1.5	**82913601A**	**82913600A**	0.248"	6.3	A
	Machined	14	0.098"	2.5	**82913603A**	**82913602A**	0.248"	6.3	A
	Machined	12	0.157"	4	**82913605A**	**82913604A**	0.248"	6.3	A
	Machined	10	0.236"	6.0	**82913607A**	**82913606A**	0.248"	6.3	A
	Machined	8	0.393"	10.0	**82913609A**	**82913608A**	0.248"	6.3	A

(1): Reeled contacts
(2): loose contact. Example: RM24W3K - Size #20, Machined, AWG24 wire

Reminder

Plugs and receptacles must be equipped with both contact genders. Examples: UTL6122W3G1P = 2 x SM16M1TK6 (power) + 1 x SC16M1TK6 (ground) + 5 x SM20W3TK6 (signal)

First mate, last break male contacts

Contact size	Type	Wire size AWG	Wire size mm²	Part numbers Male	Part numbers Female	Max wire Ø (mm)	Max insulator Ø (mm)	Color band Front	Color band Rear	Available plating see Page 26
#16 Ø 0.062"/1.6 mm	Machined	30-26	0.05-0.08	**RM28M1GE1K**	–	0.55	1.0	-	Red	K
		26-24	0.13-0.2	**RM24M9GE1K**	–	0.8	1.6	Red	Red	K
Longer male contact (+1 mm) for first mate last break connection		22-20	0.32-0.52	**RM20M12GE1K**	–	1.15	2.2	Blue	Red	K
		20-16	0.52-1.5	**RM16M23GE1K**	–	1.8	3.2	–	Red	K
		16-14	1.5-2.5	**RM14M30GE1K**	–	2.26	–	–	Red	K
#16 Ø 0.062"/1.6 mm	Machined	30-26	0.05-0.08	–	**RC28M1GE7K**	0.55	1.0	-	Blue	K
		26-24	0.13-0.2	–	**RC20M12GE7K**	0.8	1.6	Red	Blue	K
Shorter female contact (-0.7 mm) for last mate first break connection		22-20	0.32-0.52	–	**RC20M12GE7K**	1.15	2.2	Blue	Blue	K
		18-16	0.52-1.5	–	**RC16M23GE7K**	1.8	3.2	–	Blue	K
		16-14	1.5-2.5	–	**RC14M30GE7K**	2.26	–	–	Blue	K

FMLB/LMFB connection

Contact 2	Contact 1: Standard male contact	Contact 1: Longer male contact
Standard male contact		
Standard female contact		FMLB
Shorter female contact	LMFB	

FMLB: First mate last break / LMFB: Last mate first break

First mate last break contacts should be chosen only if the cavity is not marked with the ground symbol. For cavities marked with the ground symbol, standard contacts will fulfill the same role as a first mate, last break contact used in a standard cavity.

Ground symbol

#16 coaxial contacts

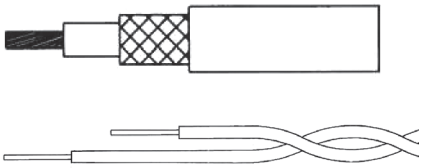
We two types of coaxial contacts suitable for 48 or 75Ω, coaxial cable or twisted pair cable.

Monocrimp coaxial contact

- The monocrimp one-piece coaxial contacts offer high reliability plus the economic advantage of a 95% reduction in installation time over conventional assembly methods. This is achieved by simultaneously crimping both the inner conductor and outer braid or drain wire.

Multipiece crimp coaxial contact

- The inner conductor and outer braid is crimped individually.
- The thermoplastic insulating bushing in the outer body is designed to accept and permanently retain the inner contact.
- An outer ferrule is used to connect the braid to the outer contact and provide cable support to ensure against bending and vibration.



Suitable for coaxial cable or twisted cable

- For jacket diameter from 1.78 to 3.05 mm.
  Inner conductor up to 2.42 mm diameter
- For jacket diameter from 0.64 to 1.45 mm.
  Inner conductor from AWG30 to AWG24

Contacts for coaxial cable

Contact type	Male contact	Female contact
Multipiece	**RMDXK10D28**	**RCDXK1D28**
Monocrimp	**RMDX60xxD28**	**RCDX60xxD28**

Contacts for twisted pairs cable

Contact type	Male contact	Female contact
Multipiece	**RMDXK10D28 + YORX090**	**RCDXK1D28 + YORX090**
Monocrimp	**RMDX60xxD28**	**RCDX60xxD28**

PCB contacts for 3 + ground - UTL103G1

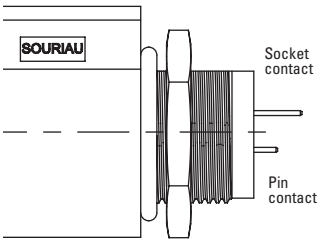
PCB soldering

The UTL range is compatible with wave soldering but not with reflow soldering. All high-temperature processes are prohibited.

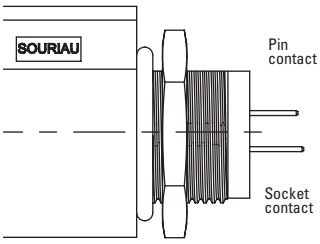
Contact size	Connector type	Part number Male	Female	Plating see Page 27
#16 Ø 1.6 mm	Male version	RM20M12E8K	RC20M12E84K	K
	Female version	RM20M12E8K	RC20M12E83K	

Minimum length (mm)

UTL7 female



UTL7 male



Dimension of dip solder contacts out of connector (contacts must be ordered separately).

UTL103G1	Pin contact RM20M12E8K*	Socket contact RC20M12E83K*	RC20M12E84K*
Female	2.9	4.7	4.7
Male	4.6	4.6	4.6

(*) Plating indication see **Page 27**

Note: The 6 pos. & 8 pos. layouts do not support PCB contacts.

Note: all dimensions are in mm

Crimping tools for standard contacts

Contact size	Part number	Head*	Handles*	Insertion tool	Extraction tool
#20 Ø 1 mm	RM/RC 24W3K	**S20RCM**	**SHANDLES**	–	**RX20D44**
	RM/RC 20W3K	**S20RCM**	**SHANDLES**	–	**RX20D44**
	RM/RC 18W3K	**S20RCM**	**SHANDLES**	–	**RX20D44**
	SM 24WL3S*(1) SC 24WL3S*(1)	**S20SCM20**	**SHANDLES**	–	**RX20D44**
	SM/SC 20WL3S*(1)	**S20SCM20**	**SHANDLES**	–	**RX20D44**
#16 Ø 1.6 mm	RM/RC 28M1*	**S16RCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	RM/RC 24M9*	**S16RCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	RM/RC 20M13*	**S16RCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	RM/RC 20M12*	**S16RCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	RM/RC 16M23*	**S16RCM16**	**SHANDLES**	**RTM205**	**RX2025GE1**
	RM/RC 14M30*	**S16RCM14**	**SHANDLES**	**RTM205**	**RX2025GE1**
	SM/SC 24ML1*(1)	**S16SCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	SM/SC 20ML1*(1)	**S16SCM20**	**SHANDLES**	**RTM205**	**RX2025GE1**
	SM/SC 16ML1*(1)	**S16SCML1**	**SHANDLES**	**RTM205**	**RX2025GE1**
	SM/SC 14ML1*(1)	**S16SCML1**	**SHANDLES**	**RTM205**	**RX2025GE1**
	SM/SC 16ML11*(1)	**S16SCML11**	**SHANDLES**	**RTM205**	**RX2025GE1**
#8 Ø 0.141" (3.6)	82913601A / 82913600A	**M317**	**VGE10078A**	**3**	**51060210936**
	82913603A / 82913602A	**M317**	**VGE10078A**	**3**	**51060210936**
	82913605A / 82913604A	**M317**	**VGE10078A**	**4**	**51060210936**
	82913607A / 82913606A	**M317**	**VGE10078A**	**5**	**51060210936**
	82913609A / 82913608A	**M317**	**VGE10078A**	**6/7**	**51060210936**

(1): loose contact
(*): endurance of SHANDLES & Head tools = 48,000 cycles

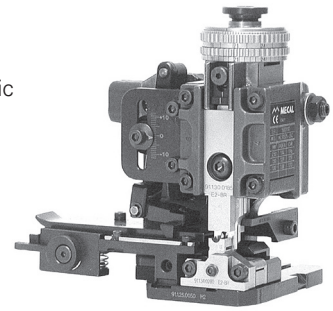
Specific contacts (First mate last break contacts)

Contact size	Part number*	Hand tools (SHANDLES) Head	Tool with separate locator Hand tool	Positioner +	locator setting	Insertion tool	Extraction tool
#16 Ø 1.6 mm Longer RM contact	RM/RC 24M25K	**S16RCM1625**	–	–	–	**RTM205**	**RX2025GE1**
	RM/RC 16M25K	**S16RCM1625**	–	–	–	**RTM205**	**RX2025GE1**
	RM/RC 14M25K	**S16RCM1425**	–	–	–	**RTM205**	**RX2025GE1**
#16 Ø 1.6 mm Longer RM contact	RM28M1GE1K	**S16RCM20**	**MH860**	**MH86186**	4/6	**RTM205**	**RX2025GE1**
	RM24M9GE1K	**S16RCM20**	**MH860**	**MH86186**	5/6	**RTM205**	**RX2025GE1**
	RM16M23GE1K RM20M12GE1K	**S16RCM16**	**MH860**	**MH86186**	6/8	**RTM205**	**RX2025GE1**
	RM14M30GE1K	**S16RCM14**	**M317**	**UH25**	3	**RTM205**	**RX2025GE1**
#16 Ø 1.6 mm Shorter RC contact	RC28M1GE7K	**S16RCM20**	**MH860**	**MH86164G**	4/6	**RTM205**	**RX2025GE1**
	RC24M9GE7K	**S16RCM20**	**MH860**	**MH86164G**	5/6	**RTM205**	**RX2025GE1**
	RC20M13GE7K RC20M12GE7K	**S16RCM20**	**MH860**	**MH86164G**	5/7	**RTM205**	**RX2025GE1**
	RC16M23GE7K	**S16RCM16**	**MH860**	**MH86164G**	6/8	**RTM205**	**RX2025GE1**
	RC14M30GE7K	**S16RCM14**	**M317**	**UH25**	3	**RTM205**	**RX2025GE1**

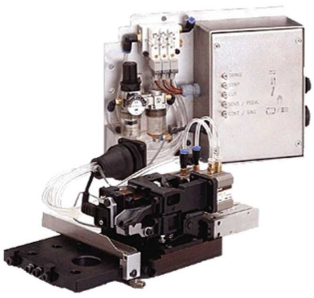
(*): see **Page 26** for plating options and other contact details

Automatic crimping tools

Please contact Mecal (www.mecal.net) for semi-automatic production tools.



Min applicator



Stripper

Presses

Extraction tool

RX20D44

RX2025GE1

51060210924

51060210936

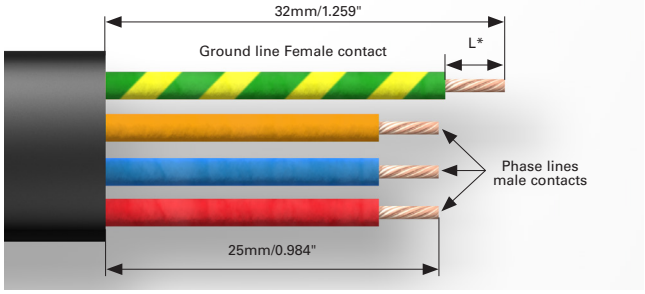
RX2031J

Contact size	Part number
#20	**RX20D44**
#16	**RX2025GE1**
#16 Long endurance tool	**RX2031J**
#12	**51060210924**
#8	**51060210936**

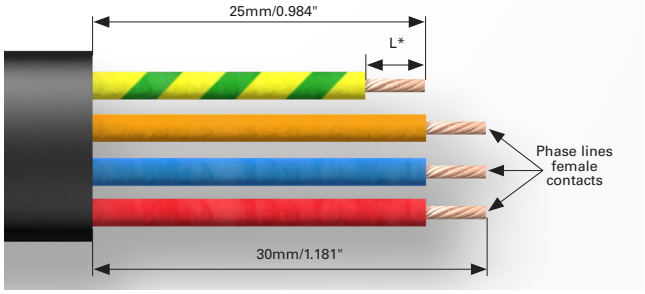
Stripping and cutting dimensions for UTL3 + ground

- Female insulator: Strip the external cable sheath and adjust the ground cable length.
- Male insulator: Strip the external cable sheath and adjust the signal cable lengths.
- Strip individual wires according to the recommended stripping length below.
- Crimp contacts (see **Page 36**) /

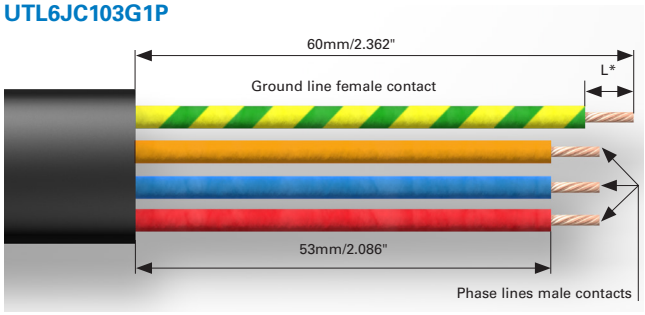
UTL0103G1P - UTL1103G1P - UTL5103G1P - UTL6103G1P - UTL6TH103G1P - UTL7103G1P - UTL6R13G1P01



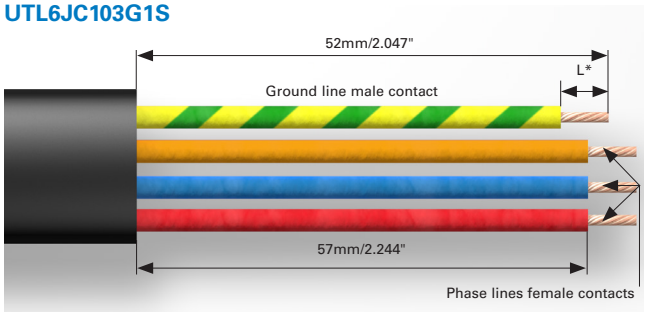
UTL0103G1S - UTL1103G1S - UTL5103G1S - UTL6103G1S - UTL6TH103G1S - UTL7103G1S - UTL1R13G1S01



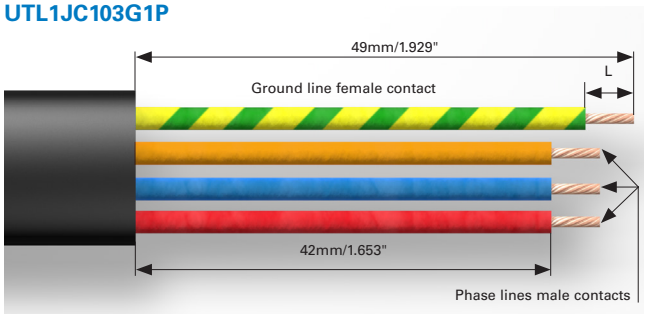
UTL6JC103G1P



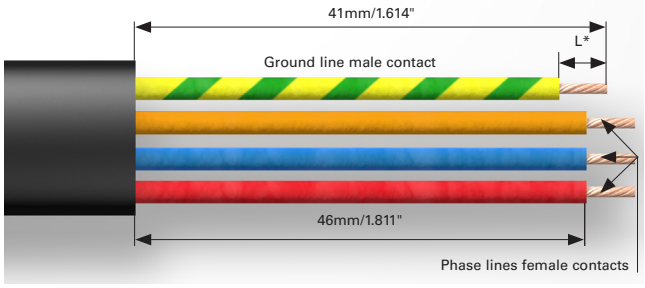
UTL6JC103G1S



UTL1JC103G1P



UTL1JC103G1S



* See **Page 36**

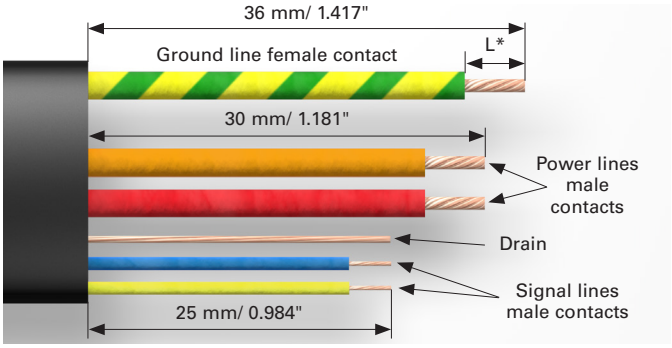
Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

Souriau UTL series

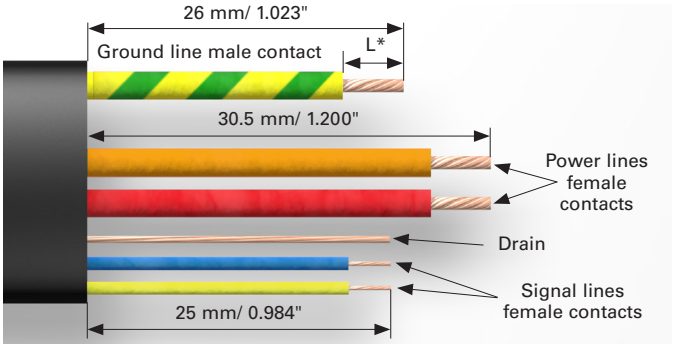
Stripping instructions for crimp contacts

Stripping and cutting dimensions for UTL 6 pos.

UTL6102G1W3P - UTL7102G1W3P - UTL1102G1W3P



UTL6102G1W3S - UTL7102G1W3S - UTL1102G1W3S



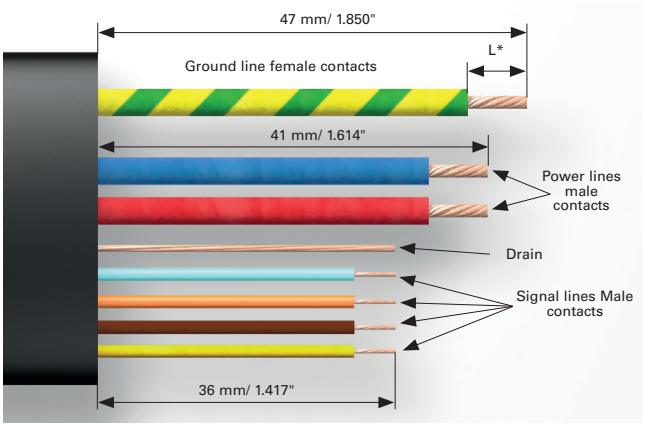
* See **Page 36**

Note: The assembly operations described above must not conflict with or contradict the IPC-WHMA-A-620B standards.

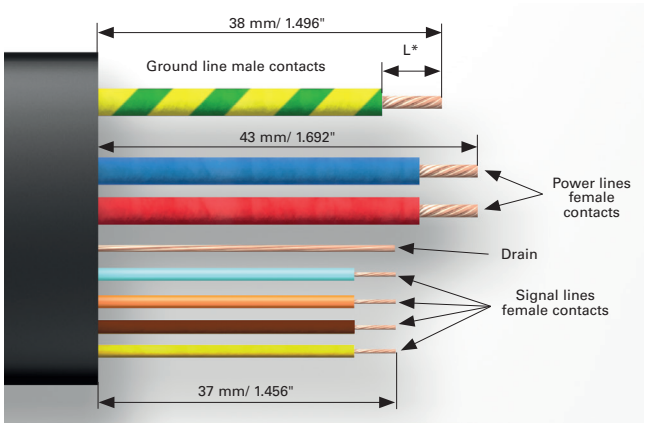
Stripping and cutting dimensions of outer jacket for UTL 8 pos.

- Female insulator: Strip the external cable sheath and adjust the ground cable length.
- Male insulator: Strip the external cable sheath and adjust the ground cable length.
- Strip individual wires according to the recommended stripping length below.
- Crimp contacts (see **Page 36**).

UTL6122G1W5P - UTL7122G1W5P - UTL1122G1W5P



UTL6122G1W5S - UTL7122G1W5S - UTL1122G1W5S



* See **Page 36**

Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

Wire stripping length

Machined contact

Contact size	Part number Male	Female	Stripping length L (mm)
#20 Ø 1 mm	RM24W3- / RM20W3- RM18W3-	RC24W3- / RC20W3- RC18W3-	4.8
#16 Ø 1.6 mm	RM28M1- / RM24M9- RM20M13- / RM20M12-	RC28M1- / RC24M9- RC20M13- / RC20M12-	4.8
	RM16M23- /RM14M30-	RC16M23- /RC14M30-	7.1
	RM16M25- /RM14M25-	RC16M25- /RC14M25-	5.4 / 5.2

Stamped & formed with insulation support

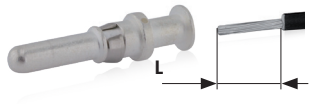
Contact size	Part number Male	Female	Stripping length L (mm)
#20 Ø 1 mm	SM24W3- / SM24WL3- SM20W3- / SM20WL3-	SC24W3- / SC24WL3- SC20W3- / SC20WL3-	4
#16 Ø 1.6 mm	SM24M1- / SM24ML1- SM20M1- / SM20ML1-	SC24M1- / SC24ML1- SC20M1- / SC20ML1-	4
	SM16M11- / SM16ML11-	SC16M11- / SC16ML11-	4.65

Stamped & formed without insulation support

Contact size	Part number Male	Female	Stripping length L (mm)
#16 Ø 1.6 mm	SM16M1- / SM16ML1-	SC16M1- / SC16ML1-	6.35
	SM14M1- / SM14ML1-	SC14M1- / SC14ML1-	6.35

Note: See **Page 27** for plating options and other contact details.

Power contacts

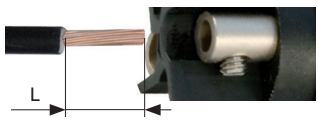


Contact size	Part number Male	Female	Stripping length L (mm)
#8 Ø 0.141"(3.6)	82913601- / 82913603-82913605- / 82913607-82913609-	82913600- / 82913602-82913604- / 82913606-82913608-	6.5 to 7.5

Note: See **Page 27** for plating options and other contact details

Screw termination version

Screw contact delivered with connector



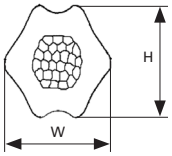
Contact size	Stripping length L (mm)
#16 Ø 1.6 mm	5.8

Note: Section: 1.5 mm² or AWG16 max, 0.5 mm² or AWG20 min. Insulate diameter: Ø 4 mm max. Cable diameter : Ø 9 mm to Ø 17 mm max.

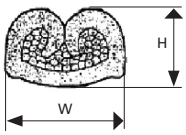
Crimping control for crimp contacts

The termination method for contacts plays a crucial role in determining a connector's performance. Crimped connections are widely regarded as the optimal solution for ensuring quality and longevity throughout the product's lifespan.

Machined contact



Stamped & formed contact

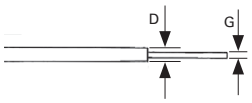


Active contact part	Contact type	Die location on heads	Wire section range	Section (mm²)	Tensile straight test (min)	Height (mm) W (±0.075)	Width (mm) W (±0.075)	Tooling head part number
Machined contacts size #20 Ø 1 mm	**RM24W3K RC24W3K**	26/24	26 AWG	0.12 min	15 N	0.95	1.27	**S20RCM**
			24 AWG	0.25 max	32 N	0.95	1.27	**S20RCM**
	RM20W3K RC20W3K	22/20	22 AWG	0.32 min	40 N	1.26	1.78	**S20RCM**
			20 AWG	0.50 max	60 N	1.26	1.78	**S20RCM**
	RM18W3K RC18W3K	20/18	20 AWG	0.50 max	60 N	1.35	1.86	**S20RCM**
			18 AWG	0.82 max	90 N	1.35	1.86	**S20RCM**
Stamped & formed contacts size #20 Ø 1 mm	**SM24WL3TK6* SC24WL3TK6***	26/24	26 AWG	0.12 min	15 N	0.80	1.49	**S20SCM20**
			24 AWG	0.25 max	32 N	0.80	1.49	**S20SCM20**
	SM20WL3TK6* SC20WL3TK6*	22/20	22 AWG	0.32 min	40 N	1.01	1.53	**S20SCM20**
			20 AWG	0.50 max	60 N	1.01	1.53	**S20SCM20**
Machined contacts size #16 Ø 1.6 mm	**RM28M1K* RC28M1K***	30/28	30 AWG	0.05 min	11 N	1.14	1.41	**S16RCM20**
			28 AWG	0.08 max	6 N	1.14	1.41	**S16RCM20**
	RM24M9K* RC24M9K*	26/24	26 AWG	0.12 min	15 N	1.15	1.41	**S16RCM20**
			24 AWG	0.25 max	32 N	1.15	1.41	**S16RCM20**
	RM20M13K* RC20M13K*	22/20	22 AWG	0.32 min	40 N	1.26	1.76	**S16RCM20**
			20 AWG	0.50 max	60 N	1.26	1.76	**S16RCM20**
	RM20M12K* RC20M12K*	22/20	22 AWG	0.32 min	40 N	1.26	1.76	**S16RCM20**
			20 AWG	0.50 max	60 N	1.26	1.76	**S16RCM20**
	RM16M23K* RC16M23K*	18	18 AWG	0.82 max	90 N	1.80	2.28	**S16RCM16**
		16	16 AWG	1.50 max	150 N	1.96	2.43	**S16RCM16**
	RM14M30K* RC14M30K*	16	16 AWG	1.50 min	150 N	2.10	2.68	**S16RCM14**
		14	14 AWG	2.50 min	230 N	2.30	2.78	**S16RCM14**
Stamped & formed contacts size #16 Ø 1.6 mm	**SM24ML1TK6* SC24ML1TK6***	26/24	26 AWG	0.12 min	15 N	0.84	1.50	**S16SCM20**
			24 AWG	0.25 max	32 N	0.84	1.50	**S16SCM20**
	SM20ML1TK6* SC20ML1TK6*	22/20	22 AWG	0.32 min	40 N	1.02	1.54	**S16SCM20**
			20 AWG	0.50 max	60 N	1.02	1.54	**S16SCM20**
	SM16ML11TK6* SC16ML11TK6*	18	18 AWG	0.82 min	90 N	1.32	2.09	**S16SCML11**
		16	16 AWG	1.50 max	150 N	1.36	2.10	**S16SCML11**
	SM16ML1TK6* SC16ML1TK6*	18	18 AWG	0.82 min	90 N	1.149	2.02	**S16SCML1**
		16	16 AWG	1.50 max	150 N	1.70	2.05	**S16SCML1**
	SM14ML1TK6* SC14ML1TK6*	14	14 AWG	2.50 max	230 N	1.79	2.58	**S16SCML1**

(*) example of plating, for other plating see **Page 26**
Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

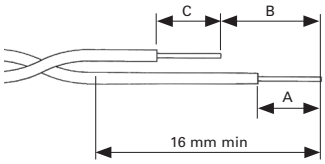
Twisted pair cable monocrimp contact cabling

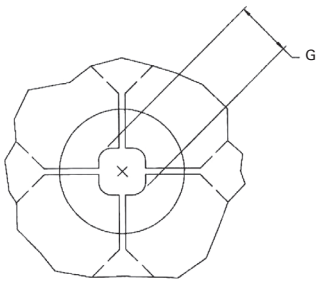
Ø over jacket



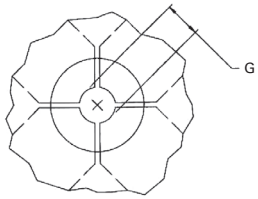
Cable type	Ø over jacket (mm) Outer max Ø D	Inner conductor Ø G	Part number Male	Part number Female	Crimp tool	Inner + outer tool	Cable strip length (mm) A	B	C
AWG26 (7 x 0.16 mm)	1.05	0.48	**RMDX6031D28**	**RCDX6031D28**	M20S-1J	S-80J + SL-105J	4.7	6.0	4.0

Cable strip length

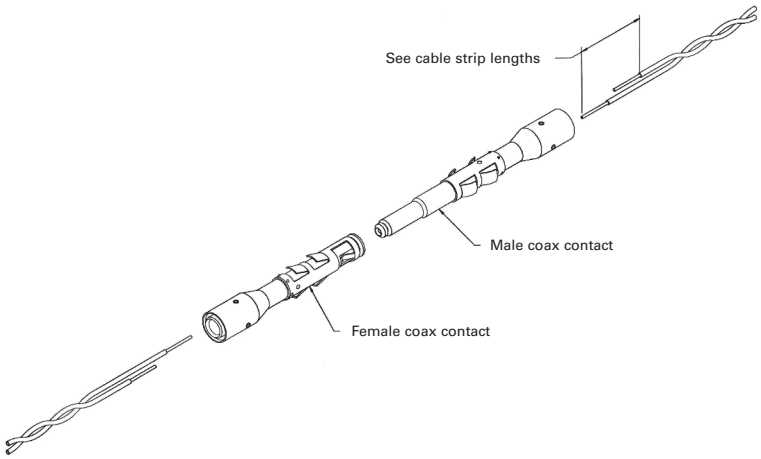




Braid crimp (G) to be measured with die set fully closed



Inner conductor crimp (G) to be measured with die set fully closed



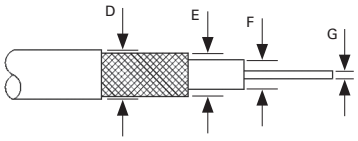
Tooling for coaxial contacts

M20S-1J

Die and stop bushing

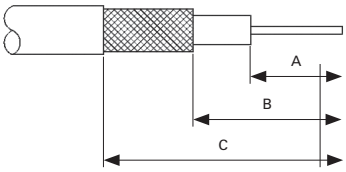
Coax cable with monocrimp contact cabling

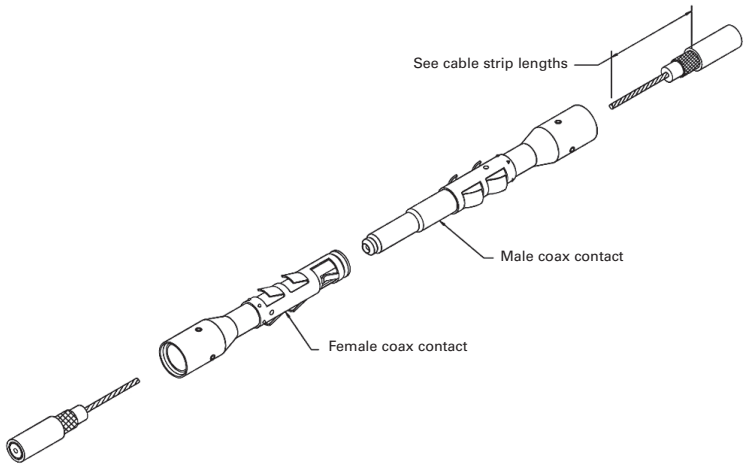
Ø over jacket



Cable type	Ø over jacket (mm) Impedance Ohm	Outer max Ø D	Outer braid Ø E	Dielectric Ø F	Inner conductor Ø D	Part number Male	Part number Female	Crimp tool	Inner + outer tool	Cable strip length (mm) A	B	C
RG174/U	50	2.92	2.24	1.52	0.48	**RMDX6032D28**	**RCDX6032D28**	M20S-1J	S-80J + SL-105J	5.08	6.35	11.68
RG188A/U	50	2.79	1.98	1.52	0.51	**RMDX6036D28**	**RCDX6036D28**	M20S-1J	S-80J + SL-105J	5.08	6.35	11.68
RG316/U	50	2.49	2.05	1.52	0.51	**RMDX6036D28**	**RCDX6036D28**	M20S-1J	S-80J + SL-105J	5.08	6.35	11.68

Cable strip length





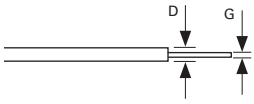
Tooling for coaxial contacts

M20S-1J

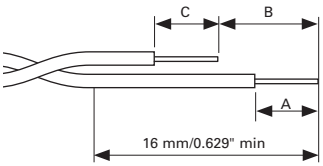
Die and stop bushing

Twisted pair cable multipiece contact cabling

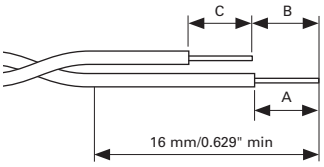
Ø over jacket



Male cable strip length



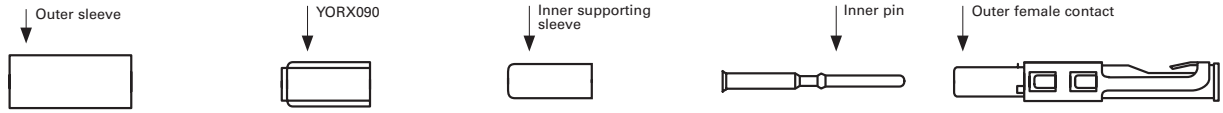
Female cable strip length



Cable type	Ø over jacket (mm) Outer max Ø D	Ø over jacket (mm) Inner conductor Ø G	Part number Male	Part number Female	Crimp tool	Inner tool	Outer tool	Cable strip length (mm) A	Cable strip length (mm) B	Cable strip length (mm) C
AWG26 (7 x 0.16 mm)	1.05	0.48	**RMDXK10D28 + YORX090**	**RCDXK10D28 + YORX090**	M20S-1J	S26D2J + SL46D2K	S22-1J + SL47-1J	7.95	7.95	7.95

Male contact

Female contact



Multipiece kit

RMDXK10D28 or RCDXK1D28 include:

- Outer contact
- Inner contact
- Outer sleeve
- Inner supporting sleeve

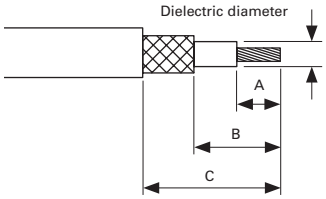
Tooling for coaxial contacts

M20S-1J

Die and stop bushing

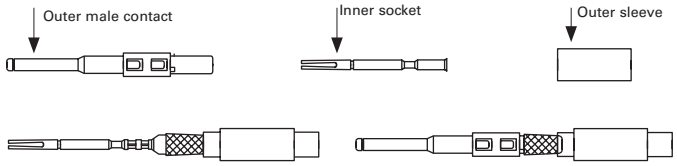
Twisted pair cable multipiece male contact cabling

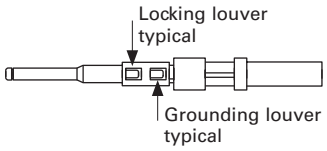
Cable strip length



Cable type	Ø over jacket (mm) Impedance Ohm	Outer max Ø D	Outer braid Ø E	Dielectric Ø F	Inner conductor Ø D	Part number	Crimp tool	Inner tool	Outer tool	Cable strip length (mm) A	B	C
RG174/U	50	2.92	2.24	1.52	0.48	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	7.95	15.88
RG188/U	50	2.79	1.98	1.52	0.51	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	7.95	15.88
RG161/U	70	2.10	–	1.45	0.30	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	7.95	15.88
RG179A/U RG179B/U	75	2.67	2.13	1.60	0.30	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	7.95	15.88
RG187/U	75	2.79	1.98	1.52	0.30	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	7.95	15.88
RG178A/U	50	1.91	1.37	0.86	0.30	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	7.54	9.12	17.53
RG196/U	50	2.03	–	0.86	0.30	**RMDXK10D28**	M20S-1J see **Page 44**	S26D2J + SL46D2K	S22-1J + SL47-1J	7.54	9.12	17.53

Contact assembly with dielectric diameter over 1.4 mm - without inner supporting sleeve





Step 1

- Slide the outer sleeve onto the cable.
- Attach the inner socket to the inner conductor and crimp it.

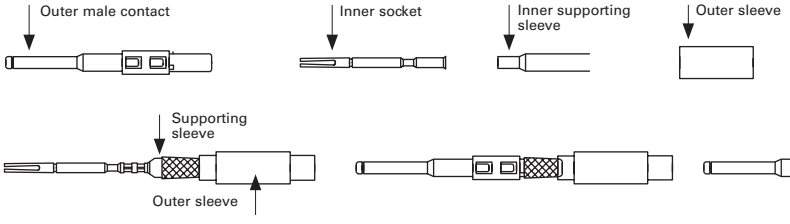
Step 2

- Insert the assembly into the outer male contact until the inner socket snaps into place.
- Ensure the cable braid (shield) covers the barrel of the outer male contact as illustrated.

Step 3

- Side the outer sleeve forward against the spring and crimp it in place as illustrated.

Contact assembly with dielectric diameter under 1.4 mm - with inner supporting sleeve



Step 1

- Slide the outer sleeve onto the cable.
- Place the supporting sleeve over the dielectric and under the braid.
- Attach the inner socket to the inner conductor, push it back against the sleeve, and crimp it.

Step 2

- Insert the assembly into the outer male contact until the inner socket snaps into place.
- Ensure the cable braid (shield) covers the barrel of the outer male contact as illustrated.

Step 3

- Side the outer sleeve forward against the spring and crimp it in place as illustrated.

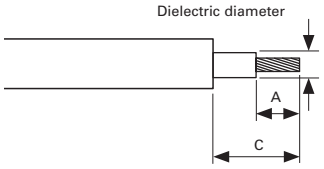
Multipiece kit

RRMDXK10D28 includes:

- Outer contact
- Inner contact
- Outer sleeve
- Inner supporting sleeve

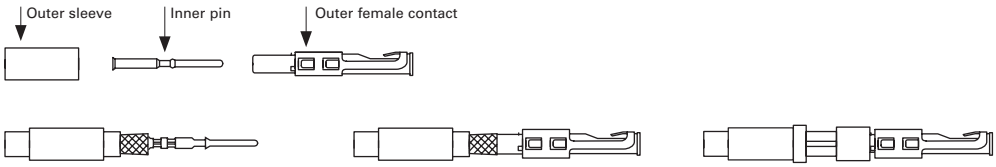
Twisted pair cable multipiece female contact cabling

Cable strip length



Cable type	Impedance Ohm	Ø over jacket (mm) Outer maxi Ø D	Outer braid Ø E	Dielectric Ø F	Inner conductor Ø D	Part number	Crimp tool	Inner tool	Outer tool	Cable strip length (mm) A	C
RG174/U	50	2.92	2.24	1.52	0.48	**RMDXK10D28**	M20S-1J see **Page 41**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	11.13
RG188/U	50	2.79	1.98	1.52	0.51	**RMDXK10D28**	M20S-1J see **Page 41**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	11.13
RG161/U	70	2.10	–	1.45	0.30	**RMDXK10D28**	M20S-1J see **Page 5**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	11.13
RG179A/U RG179B/U	75	2.67	2.13	1.60	0.30	**RMDXK10D28**	M20S-1J see **Page 41**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	11.13
RG187/U	75	2.79	1.98	1.52	0.30	**RMDXK10D28**	M20S-1J see **Page 5**	S26D2J + SL46D2K	S22-1J + SL47-1J	4.37	11.13
RG178A/U	50	1.91	1.37	0.86	0.30	**RMDXK10D28**	M20S-1J see **Page 41**	S26D2J + SL46D2K	S22-1J + SL47-1J	6.35	11.13
RG196/U	50	2.03	–	0.86	0.30	**RMDXK10D28**	M20S-1J see **Page 41**	S26D2J + SL46D2K	S22-1J + SL47-1J	6.35	11.13

Contact assembly with dielectric diameter over 1.4 mm - without inner supporting sleeve



Step 1

- Slide the outer sleeve onto the cable.
- Attach the inner socket to the inner conductor and crimp it.

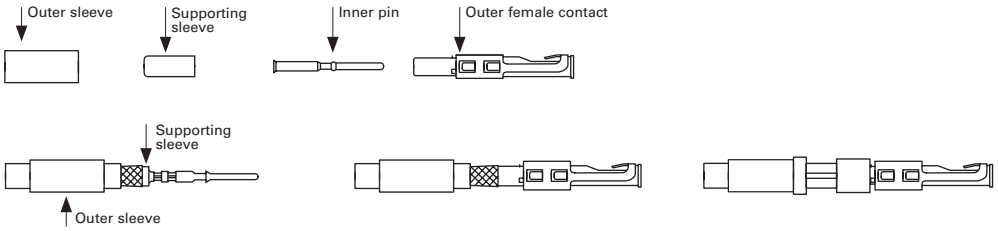
Step 2

- Insert the assembly into the outer male contact until the inner socket snaps into place.
- Ensure the cable braid (shield) covers the barrel of the outer male contact as illustrated.

Step 3

- Side the outer sleeve forward against the spring and crimp it in place as illustrated.

Contact assembly with dielectric diameter under 1.4 mm - with inner supporting sleeve



Step 1

- Slide the outer sleeve onto the cable.
- Place the supporting sleeve over the dielectric and under the braid.
- Attach the inner socket to the inner conductor, push it back against the sleeve, and crimp it.

Step 2

- Insert the assembly into the outer male contact until the inner socket snaps into place.
- Ensure the cable braid (shield) covers the barrel of the outer male contact as illustrated.

Step 3

- Side the outer sleeve forward against the spring and crimp it in place as illustrated.

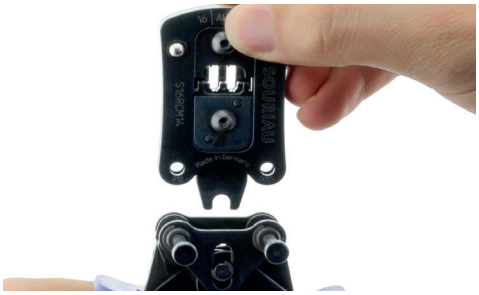
Multipiece kit details

RCDXK1D28 includes:

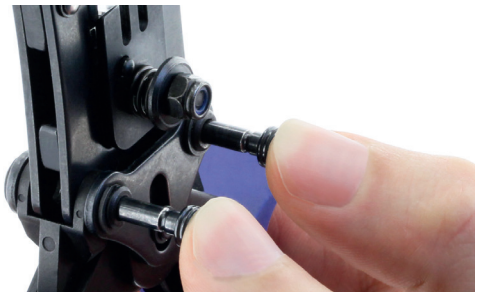
- Outer contact
- Inner contact
- Outer sleeve
- Inner supporting sleeve

Crimping tooling

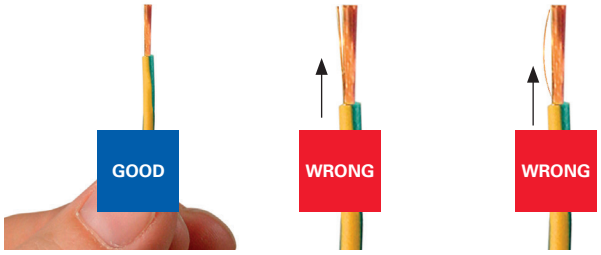
1) Fully close and release the tool, keeping it open, then open the two pins.



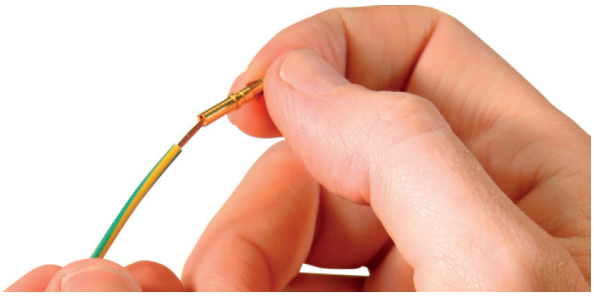
2) Select the adapter head (sold separately), keep it vertical, and slide it into the handle until it reaches the mechanical stop.



3) Simultaneously close the two pins to secure the head.



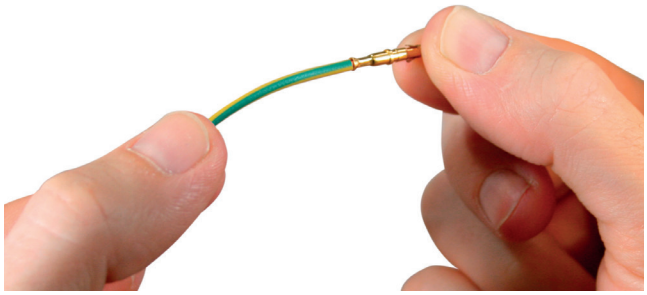
4) Strip the cable to the recommended length (**see Page 36**).



5) Place the conductors, ensuring they are undamaged, into the contact bucket, making sure all strands are positioned in the crimp bucket.

6) Position the contact at the bottom of the tool, ensuring correct orientation, and keep the wire in place.

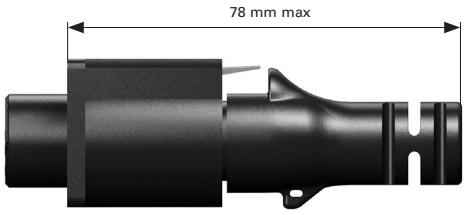
7) Tighten the handles to the end of the mechanism (maximum 175 N). Once the handles are opened, extract the contact.



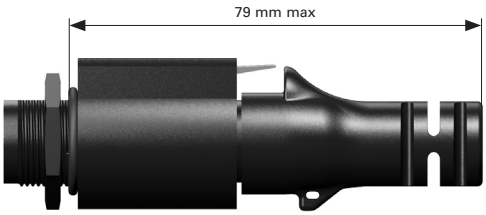
8) Verify the crimping quality.

Mated connector length E0655112- 103G1 and 102G1W3

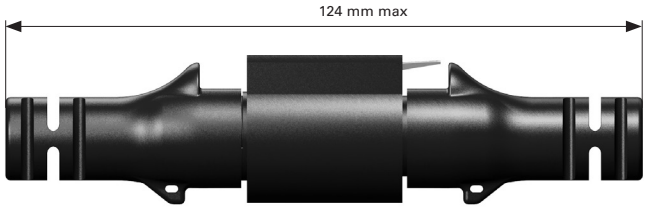
UTL0 + UTL6 overmolded



UTL7 + UTL6 overmolded



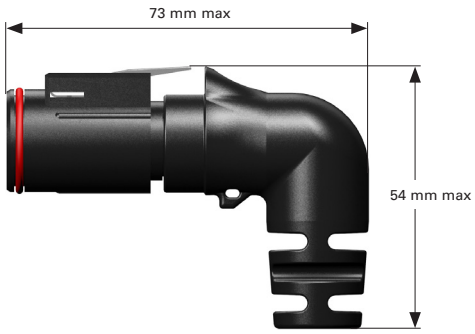
UTL1 + UTL6 overmolded



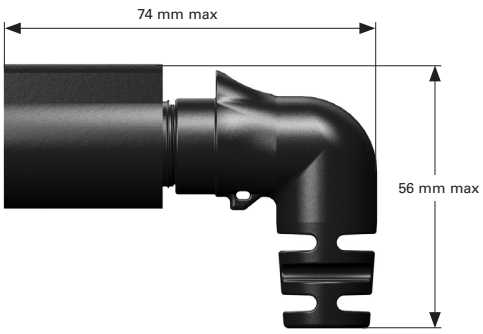
UTL5 + UTL1JC

UTL7 + UTL6JC

Right angle overmolded plug



Right angle overmolded receptacle

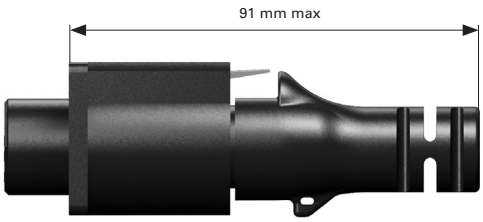


Souriau UTL series

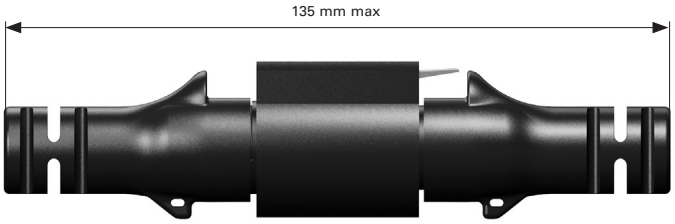
Mated connector length

Mated connector length E0655112 - 122G1W5

UTL7 + UTL6 overmolded

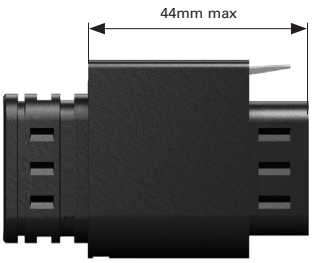


UTL1 overmolded + UTL6 overmolded



Mated connector length E0655112 - R103G1

UTL1 + UTL6



Mated connector length E0655112 - 164W4

UTL6JC164W4 + UTL0164W4

UTL0164W4 + UTL6164W4

Evaluation kit 3 contacts + ground part number (103G1)

The evaluation kit consists of one connector, contacts, and one heat shrink boot. It is ideal for quick prototyping. Please note that the IP level of the evaluation kit is IP67.

					Kit contains													
			Wire section		UTL6103G1W3S	UTL6103G1W3S	UTL1103G1W3P	UTL1103G1W3S	UTL7103G1W3P	UTL7103G1W3S	UTL0103G1W3P	UTL0103G1W3S	SM20ML1S31	SC20ML1S31	SM16ML1S31	SC16ML1S31	SM14ML1S31	SC14ML1S31
Part number	**Connector type**	**Gender**	**AWG**	**mm²**														
UTL6103G1P20AWG	Plug	Male power	20	0.5	1	–	–	–	–	–	–	–	4	2	–	–	–	–
UTL6103G1P16AWG	Plug	Male power	16	1.5	1	–	–	–	–	–	–	–	–	–	4	2	–	–
UTL6103G1P14AWG	Plug	Male power	14	2.5	1	–	–	–	–	–	–	–	–	–	–	–	4	2
UTL6103G1S20AWG	Plug	Female power	20	0.5	–	1	–	–	–	–	–	–	2	4	–	–	–	–
UTL6103G1S16AWG	Plug	Female power	16	1.5	–	1	–	–	–	–	–	–	–	–	2	4	–	–
UTL6103G1S14AWG	Plug	Female power	14	2.5	–	1	–	–	–	–	–	–	–	–	–	–	2	4
UTL1103G1P20AWG	In-line receptacle	Male power	20	0.5	–	–	1	–	–	–	–	–	4	2	–	–	–	–
UTL1103G1P16AWG	In-line receptacle	Male power	16	1.5	–	–	1	–	–	–	–	–	–	–	4	2	–	–
UTL1103G1P14AWG	In-line receptacle	Male power	14	2.5	–	–	1	–	–	–	–	–	–	–	–	–	4	2
UTL1103G1S20AWG	In-line receptacle	Female power	20	0.5	–	–	–	1	–	–	–	–	2	4	–	–	–	–
UTL1103G1S16AWG	In-line receptacle	Female power	16	1.5	–	–	–	1	–	–	–	–	–	–	2	4	–	–
UTL1103G1S14AWG	In-line receptacle	Female power	14	2.5	–	–	–	1	–	–	–	–	–	–	–	–	2	4
UTL7103G1P20AWG	Jam nut receptacle	Male power	20	0.5	–	–	–	–	1	–	–	–	4	2	–	–	–	–
UTL7103G1P16AWG	Jam nut receptacle	Male power	16	1.5	–	–	–	–	1	–	–	–	–	–	4	2	–	–
UTL7103G1P14AWG	Jam nut receptacle	Male power	14	2.5	–	–	–	–	1	–	–	–	–	–	–	–	4	2
UTL7103G1S20AWG	Jam nut receptacle	Female power	20	0.5	–	–	–	–	–	1	–	–	2	4	–	–	–	–
UTL7103G1S16AWG	Jam nut receptacle	Female power	16	1.5	–	–	–	–	–	1	–	–	–	–	2	4	–	–
UTL7103G1S14AWG	Jam nut receptacle	Female power	14	2.5	–	–	–	–	–	1	–	–	–	–	–	–	2	4
UTL0103G1P20AWG	Square flange receptacle	Male power	20	0.5	–	–	–	–	–	–	1	–	4	2	–	–	–	–
UTL0103G1P16AWG	Square flange receptacle	Male power	16	1.5	–	–	–	–	–	–	1	–	–	–	4	2	–	–
UTL0103G1P14AWG	Square flange receptacle	Male power	14	2.5	–	–	–	–	–	–	1	–	–	–	–	–	4	2
UTL0103G1S20AWG	Square flange receptacle	Female power	20	0.5	–	–	–	–	–	–	–	1	2	4	–	–	–	–
UTL0103G1S16AWG	Square flange receptacle	Female power	16	1.5	–	–	–	–	–	–	–	1	–	–	2	4	–	–
UTL0103G1S14AWG	Square flange receptacle	Female power	14	2.5	–	–	–	–	–	–	–	1	–	–	–	–	2	4

Evaluation kit 6 contacts part number (102G1W3)

The evaluation kit consists of one connector, contacts, and one heat shrink boot. It is ideal for quick prototyping. Please note that the IP level of the evaluation kit is IP67.

					Kit contains													
			Wire section		UTL6102G1W3P	UTL6102G1W3S	UTL1102G1W3P	UTL1102G1W3S	UTL7102G1W3P	UTL7102G1W3S	Heat shrink boot	SM20WL3S26	SC20WL3S25	SM24WL3S26	SC24WL3S25	SM16ML1S31	SC16ML1S31	SM14ML1S31	SC14ML1S31
Part number	**Connector type**	**Gender**	**AWG**	**mm²**															
UTL6102G1W3P16AWG	Plug	Male power	16	1.5	1	–	–	–	–	–	1	1	–	3	–	3	2	–	–
UTL6102G1W3P14AWG	Plug	Male power	14	2.5	1	–	–	–	–	–	1	1	–	3	–	–	–	3	2
UTL6102G1W3S16AWG	Plug	Female power	16	1.5	–	1	–	–	–	–	1	–	1	–	3	2	3	–	–
UTL6102G1W3S14AWG	Plug	Female power	14	2.5	–	1	–	–	–	–	1	–	1	–	3	–	–	2	3
UTL1102G1W3P16AWG	In-line receptacle	Male power	16	1.5	–	–	1	–	–	–	1	1	–	3	–	3	2	–	–
UTL1102G1W3P14AWG	In-line receptacle	Male power	14	2.5	–	–	1	–	–	–	1	1	–	3	–	–	–	3	2
UTL1102G1W3S16AWG	In-line receptacle	Female power	16	1.5	–	–	–	1	–	–	1	–	1	–	3	2	3	–	–
UTL1102G1W3S14AWG	In-line receptacle	Female power	14	2.5	–	–	–	1	–	–	1	–	1	–	3	–	–	2	3
UTL7102G1W3P16AWG	Jam nut receptacle	Male power	16	1.5	–	–	–	–	1	–	–	1	–	3	–	3	2	–	–
UTL7102G1W3P14AWG	Jam nut receptacle	Male power	14	2.5	–	–	–	–	1	–	–	1	–	3	–	–	–	3	2
UTL7102G1W3S16AWG	Jam nut receptacle	Female power	16	1.5	–	–	–	–	–	1	–	–	1	–	3	2	3	–	–
UTL7102G1W3S14AWG	Jam nut receptacle	Female power	14	2.5	–	–	–	–	–	1	–	–	1	–	3	–	–	2	3

Evaluation kit 8 contacts part number (122G1W5)

The evaluation kit consists of one connector, contacts, and one heat shrink boot. It is ideal for quick prototyping. Please note that the IP level of the evaluation kit is IP67.

					Kit contains													
			Wire section		UTL6122G1W5P	UTL6122G1W5S	UTL1122G1W5P	UTL1122G1W5S	UTL7122G1W5P	UTL7122G1W5S	Heat shrink boot	SM20WL3S26	SC20WL3S25	SM24WL3S26	SC24WL3S25	SM16ML1S31	SC16ML1S31	SM14ML1S31	SC14ML1S31
Part number	**Connector type**	**Gender**	**AWG**	**mm²**															
UTL6122G1W5P16AWG	Plug	Male power	16	1.5	1	–	–	–	–	–	1	2	–	5	–	3	2	–	–
UTL6122G1W5P14AWG	Plug	Male power	14	2.5	1	–	–	–	–	–	1	2	–	5	–	–	–	3	2
UTL6122G1W5S16AWG	Plug	Female power	16	1.5	–	1	–	–	–	–	1	–	2	–	5	2	3	–	–
UTL6122G1W5S14AWG	Plug	Female power	14	2.5	–	1	–	–	–	–	1	–	2	–	5	–	–	2	3
UTL1122G1W5P16AWG	In-line receptacle	Male power	16	1.5	–	–	1	–	–	–	1	2	–	5	–	3	2	–	–
UTL1122G1W5P14AWG	In-line receptacle	Male power	14	2.5	–	–	1	–	–	–	1	2	–	5	–	–	–	3	2
UTL1122G1W5S16AWG	In-line receptacle	Female power	16	1.5	–	–	–	1	–	–	1	–	2	–	5	2	3	–	–
UTL1122G1W5S14AWG	In-line receptacle	Female power	14	2.5	–	–	–	1	–	–	1	–	2	–	5	–	–	2	3
UTL7122G1W5P16AWG	Jam nut receptacle	Male power	16	1.5	–	–	–	–	1	–	–	2	–	5	–	3	2	–	–
UTL7122G1W5P14AWG	Jam nut receptacle	Male power	14	2.5	–	–	–	–	1	–	–	2	–	5	–	–	–	3	2
UTL7122G1W5S16AWG	Jam nut receptacle	Female power	16	1.5	–	–	–	–	–	1	–	–	2	–	5	2	3	–	–
UTL7122G1W5S14AWG	Jam nut receptacle	Female power	14	2.5	–	–	–	–	–	1	–	–	2	–	5	–	–	2	3

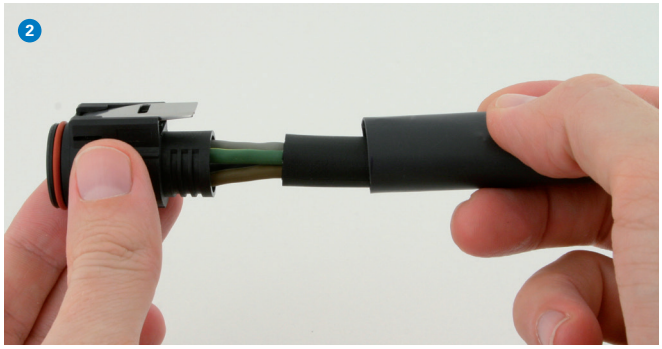
Assembly instructions

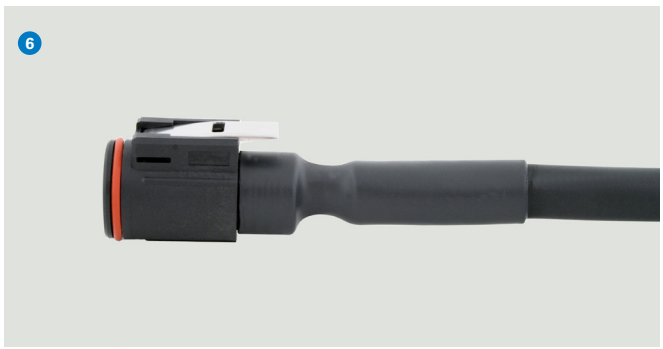
The boot is semi-flexible and heat-shrinkable with a moldable adhesive inner lining.

- Place the heat shrink boot over the cable.
- Strip the cable jacket (see **Page 34**).
- Strip the individual wires (see **Page 36**).
- Crimp the contacts (see **Page 37**).
- Insert the contacts into their cavities, checking retention by gently pulling the cable.
- Clean the connector surface and the cable jacket with isopropyl alcohol.

Note: It is recommended to rub the jacket with sandpaper and clean it before shrinking the boot.

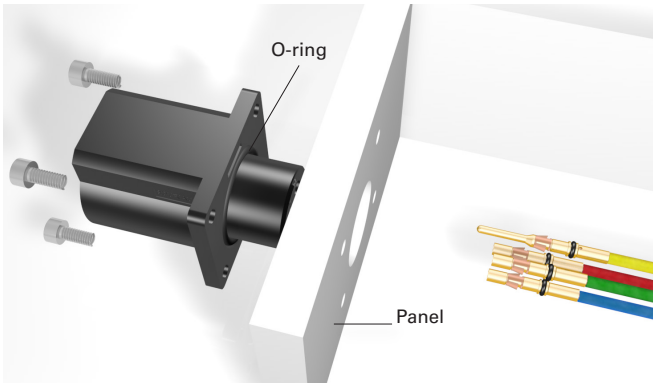
- Heat the boot with a heat gun:
  Minimum shrink temperature: 80°C
  Minimum full recovery temperature: 110°C
- Ensure even heat application around the boot, starting from the rear of the connector. Avoid excessive heat to prevent damage to the connector or boot.
- Allow the boot to cool down.
- Check for good retention and the adhesion of the boot glue.

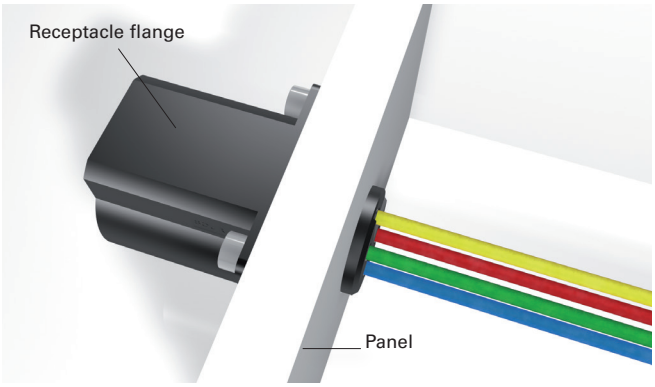




UTL0 assembly (mounting suggestion)

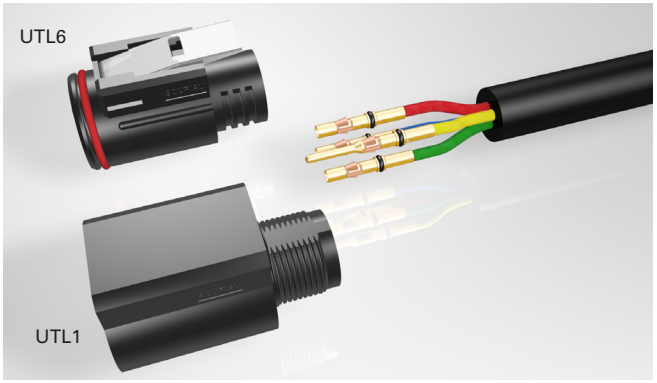
- Strip the wires.
- Crimp the contacts.
- Insert all contacts into their corresponding cavities.
- Manually push each contact, or use our tool (RTM205 for #16 contacts), until you hear an audible click. Verify each contact's retention by gently pulling with two fingers.
- Place the receptacle in the panel cut-out.
- Secure the receptacle with M3 screws (not supplied), tightening to a maximum torque of 0.7 Nm.

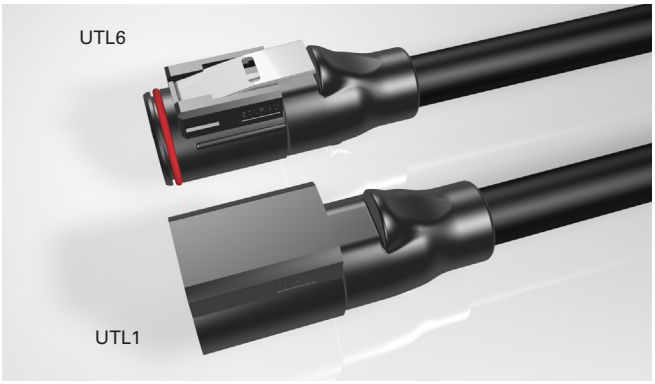




UTL6 or UTL1 assembly

- Strip the wires.
- Crimp the contacts.
- Insert all contacts into their corresponding cavities.
- Manually push each contact, or use our tool (RTM205 for #16 contacts), until you hear an audible click. Verify each contact's retention by gently pulling with two fingers.
- Apply overmolding to the wired set or use a heat shrink boot.





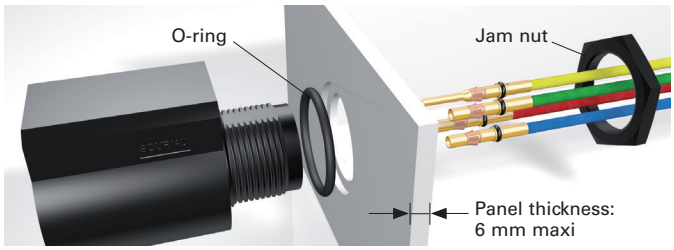
Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

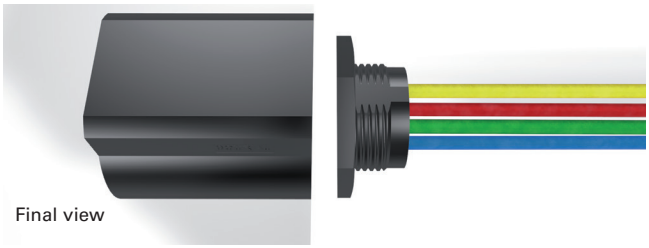
UTL7 assembly (mounting suggestion)

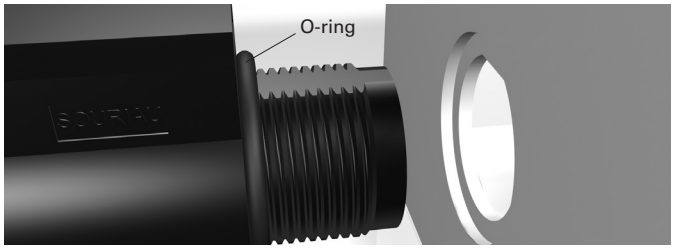
- Slide the nut over the wires.
- Strip the wires.
- Crimp the contacts.

Insert all contacts into their corresponding cavities.

- Manually push each contact, or use our tool (RTM205 for #16 contacts), until you hear an audible click. Verify each contact's retention by gently pulling with two fingers.
- Seat the O-ring and place the receptacle in the panel cut-out.
- Tighten the jam nut to a maximum torque of 2.5 Nm using a 7/8" tightening tool.





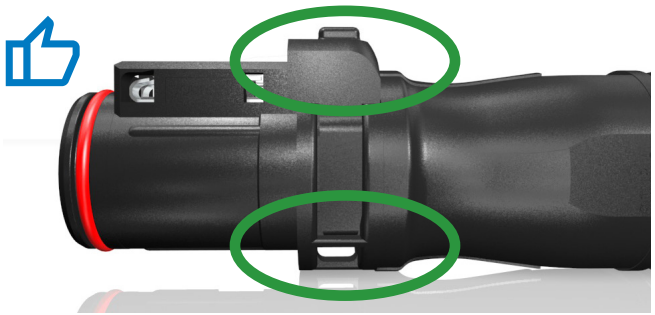


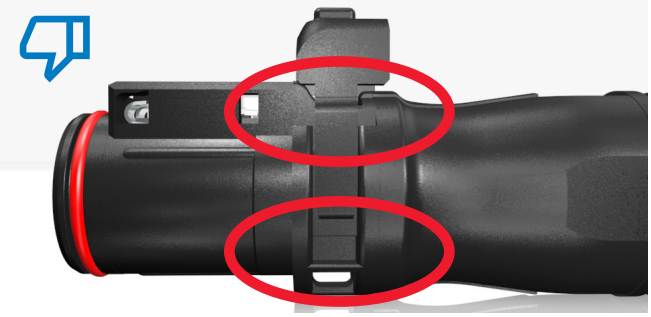
Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

Protective shroud assembly UTL6JC & UTL6TH (mounting suggestion)

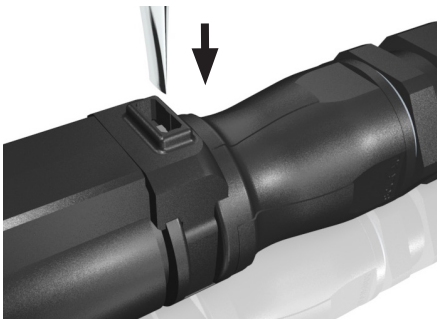
- No tools are needed to assemble the UTL10PS protective shroud onto the plug.
- Ensure the protective shroud is correctly oriented.
- Place the protective shroud onto the designated area until you hear a click.
- Visually confirm that the protective shroud is properly oriented and fully inserted.

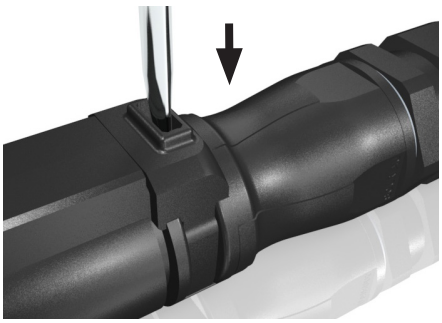
Note: We do not recommend dismantling the protective shroud after assembly.

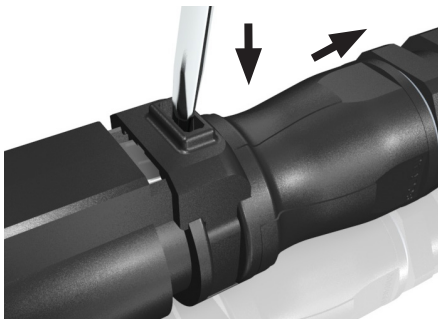




- The purpose of the protective shroud is to prevent the plug from being disconnected without the use of a tool.
- To disconnect the plug when the protective shroud is in use, insert a screwdriver into the hole of the protective shroud.
- Then, push on the screwdriver and gently pull on the plug to disconnect it.

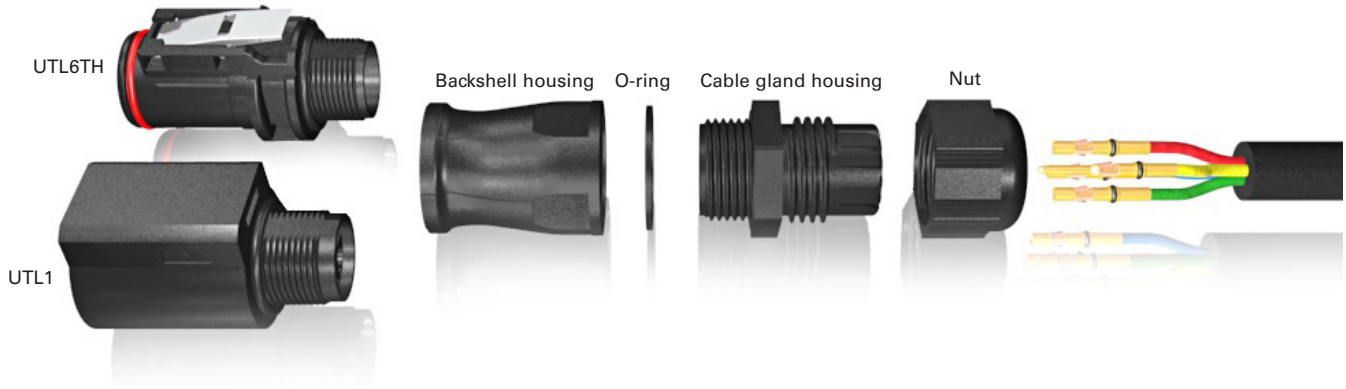




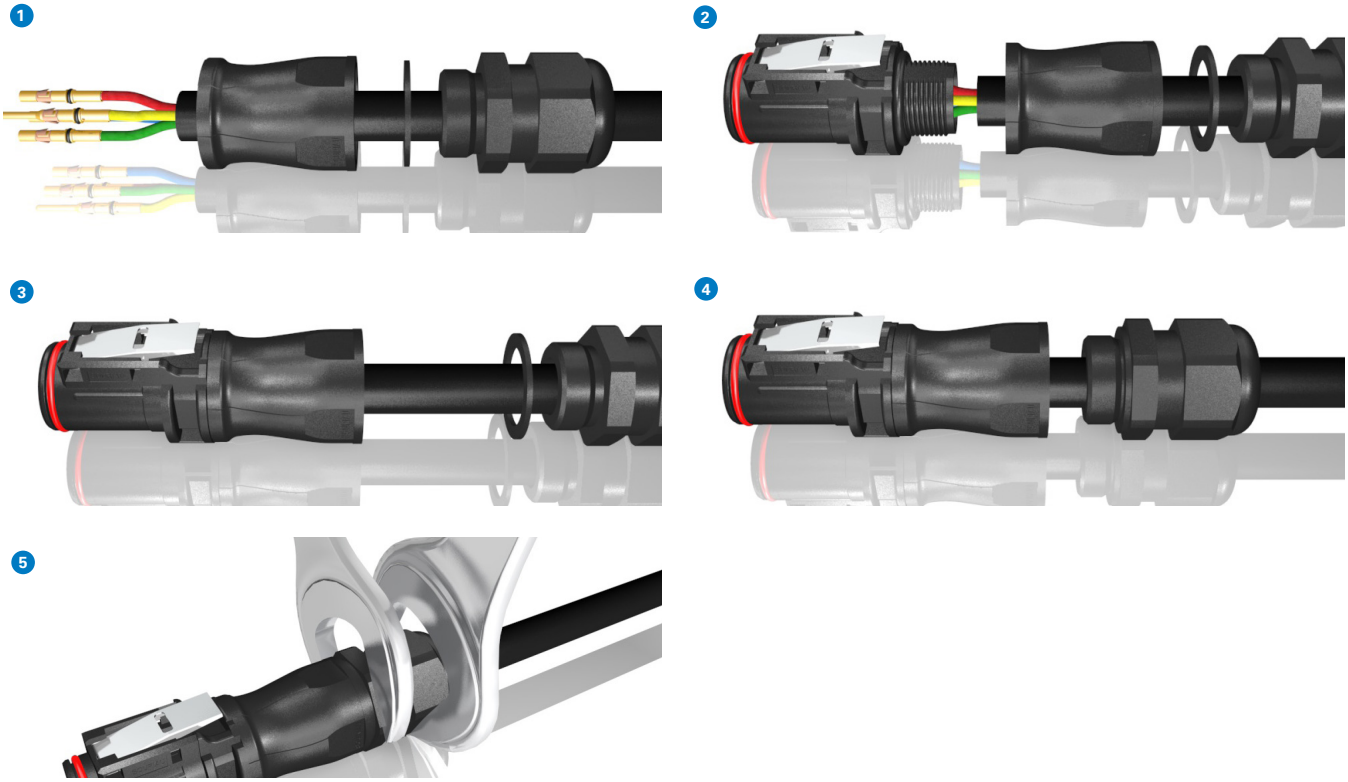


Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

Protective shroud assembly UTL6JC & UTL6TH (mounting suggestion)



- Slide the nut over the wires. 1
- Strip the wires.
- Crimp the contacts.
- Insert contacts into their corresponding cavities.
- Manually push each contact, or use our tool (RTM205 for #16 contacts), until you hear an audible click. Verify each contact's retention by gently pulling with two fingers. retraction 2
- Ensure the connector O-ring is present and properly positioned.
- Screw the backshell housing onto the rear of the connector until it reaches the mechanical stop (recommended coupling torque: 2.5 Nm). You can use a dummy receptacle to facilitate this assembly. 3
- Verify the presence and correct positioning of the cable gland gasket.
- Screw the cable gland housing onto the rear of the backshell housing using a size 25 wrench (recommended coupling torque: 3 Nm). 4
- Tighten the nut of the cable gland using a size 25 wrench (recommended coupling torque: 5 Nm). Note that the coupling torque of the nut is for reference only and may need adjustment based on your cable specifications (e.g., diameter, flexibility, outer jacket material). Eaton is not responsible if the coupling torque is not suitable for your cable specifications.

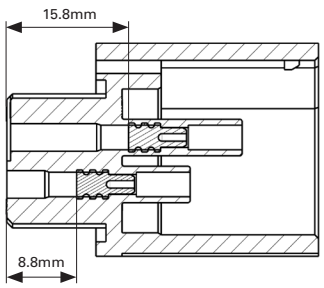


Note: The assembly operations outlined above must comply with the IPC-WHMA-A-620B standards and should not conflict with or contradict them.

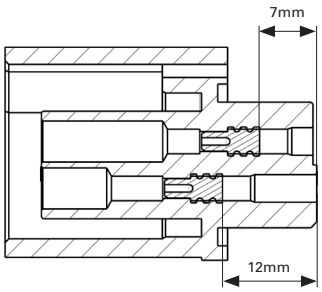
SWSFILLERPLUG mounting for 3 + ground

Insert the sealing plug into each connector cavity until it reaches a mechanical stop to ensure a proper seal.

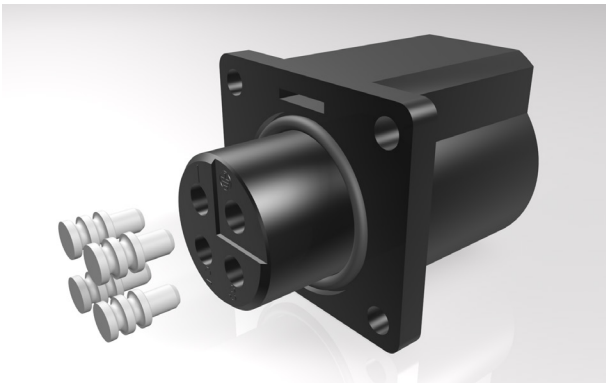
UTL0



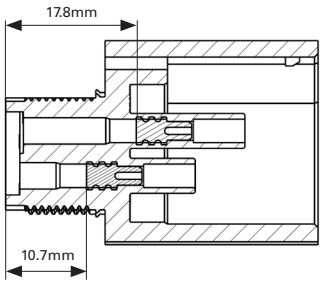
Male



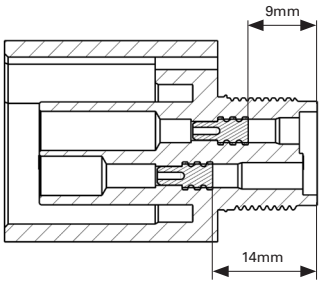
Female



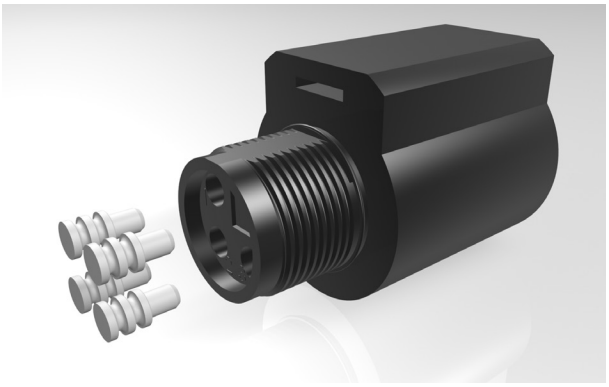
UTL7 & UTL1



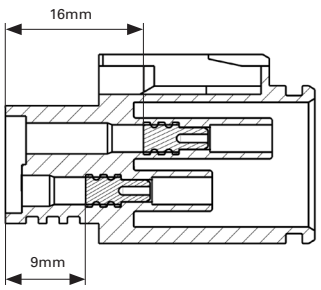
Male



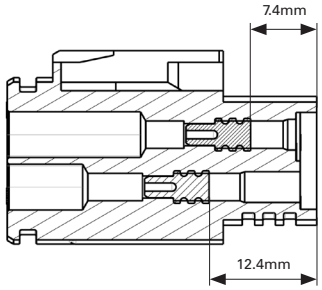
Female



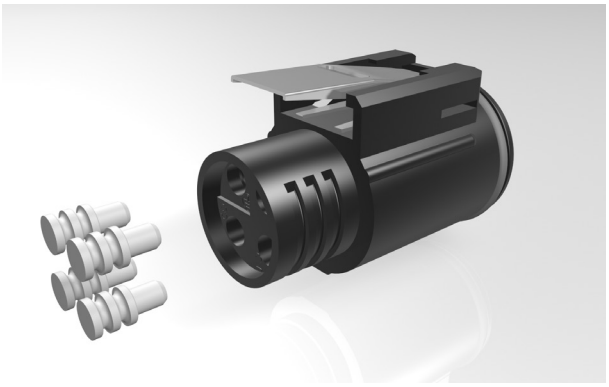
UTL6



Male



Female



Note: all dimensions are in mm

Current carrying capacity

The current carrying capacity of a connector is limited by the thermal properties of materials used in its construction. The amount of current that can be handled depends on the size of cable used, the ambient temperature and the heat that is generated inside the connector. Part 3 of the IEC 60512 standard determines through a derating curve, the maximum current permissible, which varies from one layout to another (Fig.1 & Fig.2). Wire size plays an important role as well, since they help to dissipate heat and avoid overheating (Fig.1 & Fig.2).

Please note that the curve should be adjusted when dealing with potential hot spots, which can occur as a result of unequal loading of current across a number of contacts. As a general rule, it is best to avoid locating power handling contacts in the middle of the connector; try to locate them towards the edge where heat can be dissipated more effectively. Eventually you should find a level which represents the permissible operating range:

Fig.1: UTL 103G1 – 1.5 mm² wires

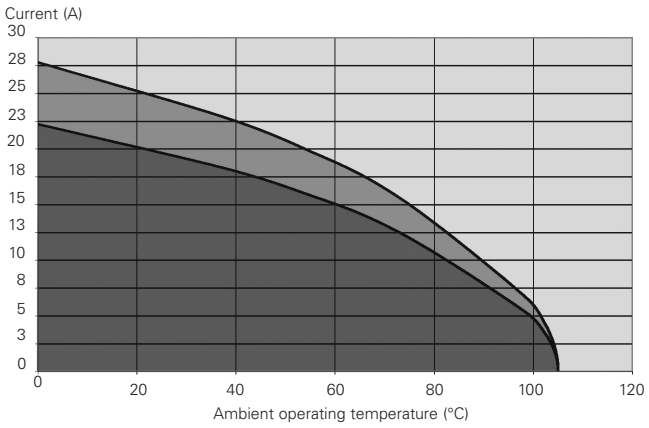
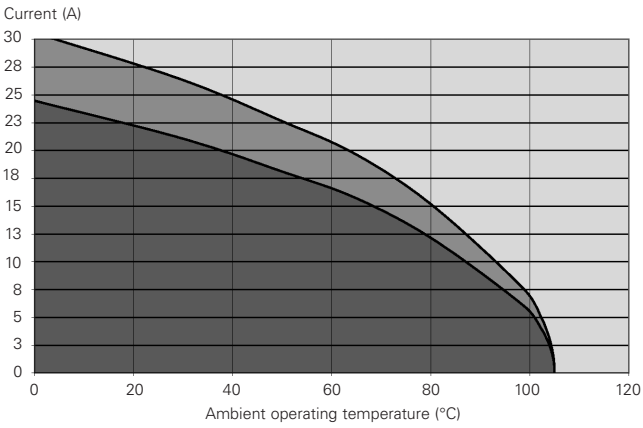


Fig.2: UTL 103G1 – 2.5 mm² wires



Current use
Limited use
Not recommended

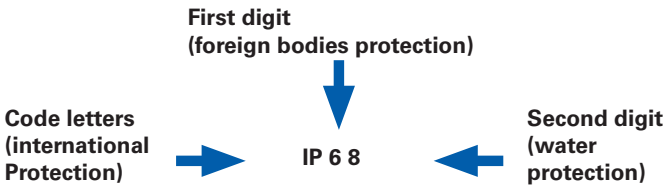
The rated current is defined as uninterrupted continuous current that a connector can take when all contacts are energized simultaneously without exceeding the maximum limit of temperature. The ground contact is never loaded.

UV resistance

Plastics can be susceptible to extreme degradation over time. The UTL series is made with (f1) material according to UL746C. The UTL material withstand a 1,000 hours UV exposure following ISO4892 standards, with no noticeable changes in color, cracking or alterations in mechanical properties.

Protection provided by an enclosure

To ensure safety, electrical equipment must be safeguarded against external factors. The standard IEC 60529 serves as the foundation for assessing protection levels (IP) concerning the accessibility of live components, guarding against the entry of water or foreign objects.



First digit	Degree of protection	Second digit	Degree of protection
0	No protection against accidental contact. No protection against solid foreign bodies.	0	No protection against water.
1	Protection against contact with any large area by hand and against large solid foreign bodies with a diameter bigger than 1.889" (48).	1	Drip-proof. Protection against vertical water drips.
2	Protection against contact with the fingers. Protection against solid foreign bodies with a diameter bigger than 0.472" (12).	2	Drip-proof. Protection against water drips up to a 15° angle.
3	Protection against tools, wires or similar objects with a diameter bigger than 0.078" (2.5). Protection against small solid bodies with a diameter bigger than 0.078" (2.5).	3	Spray-proof. Protection against diagonal water drips up to a 60° angle.
4	Same as 3 however diameter is bigger than 0.039" (1).	4	Splash-proof. Protection against splashed water from all directions.
5	Full protection against contact. Protection against interior injurious dust deposits.	5	Hose-proof. Protection against water (out of a nozzle) from all directions.
6	Total protection against contact. Protection against penetration of dust.	6	Protection against powerful water jets .
UTL offers high sealing: IP68/69K even in dynamic situations.		7	Protection against temporary immersions.
		8	Protection against water pressure. Pressure and immersion time to be specified by supplier.
			In addition to the IEC 60529 we also use the ISO 20653 for the implementation of IPx9K testing:
		9K	High pressure hose-proof. Protection against high pressure water (out of a nozzle) from all directions.

To understand Ethernet theory, a functional comparison to a busy city with highways, buildings and cars is often used. The table below provides the correlation between the different components/pieces/links that encompass Ethernet network connectivity, and the larger scale infrastructure of a metropolitan city.

City	Buildings	Roads	Cars	Tolls	Bridges	Traffic laws
The network itself	End equipment, PC, server, etc.	Ethernet cabling	Data packets, datagrams, bits, bytes, etc.	Firewalls	Connectors	Protocol Communication specifications

Ethernet is a widely used communications protocol that is used to transmit data packets (datagrams) between network devices. Imagine a highway in a large metropolitan area six lanes wide at rush hour. The vehicles on the highway need rules to follow so that they get to their destination without crashing into each other. In an Ethernet network link, there could be 100 million bits of information transmitted in one second. In the Ethernet standard, there exist rules to govern packet structure, transmission requirements, error correction, communication with end equipment, etc.

Ethernet connectors

To understand the differences between 100Mhz, 100 Base TX and Cat5e/Cat6, the comparison to the city is helpful.

- 100Mhz is a measurement of frequency for the signal, comparable to the speed limit on a highway.
- 100BaseTX (or Fast Ethernet) is an Ethernet link standard and identifies available link bandwidth. The bandwidth is measured in units of MBits/S (megabits per second), comparable to the number of cars that pass a point in one second.
- Cat5e/Cat6 are an EIA/TIA standard for performance and physical characteristics for cables and connectors, comparable to performance specifications of the car and highway.

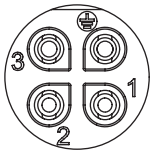
Specifying Ethernet connectors and contacts

In connectors and cables, Fast Ethernet uses two pairs, one for transmit and one for receive. This way data traffic can flow in both directions simultaneously. To carry 100Mb/s data signals, 100BaseTX or Fast Ethernet, it is recommended to use Cat5e connectors as well as Cat5e cables with the support of a 100MHz signal. However, a 100Mb/s signal can be transmitted in certain conditions: short distance, only one connector, lower frequency, and so does not necessarily need to be Cat5e rated.

Ethernet twisted pairs carry a symmetrical (balanced) signal. With coax contacts, the inner core will be shield, but not the other core. This will result in an unbalanced signal due to electromagnetic interferences. Coax contacts will not work correctly and are not recommended.

Quadrax contacts are used in railway applications because of the use of quad cables. In this specific industry, the standard Ethernet twisted pair cables cannot be used as they are too thin and usually solid, not stranded. In other industries, UTP (Unshielded Twisted Pair) cables are widely used. Quadrax contacts are not designed to terminate UTP cables and are not recommended.

Standard solutions



103G1
16A 600V
13A 600V
3 contacts + ground
Ø 1.6 mm (#16)

UTL, 4 contacts - Cat 5
1 (Pair 1) = ground
2 (Pair 1) = 2
3 (Pair 2) = 3
4 (Pair 2) = 1

RS-485 signals are used in a wide range of applications (from computers and networks to building automation and stage lighting). In addition, it may be used to control video surveillance systems or to interconnect security control panels and devices such as access control card readers.

RS-485 basics

RS-485 only specifies electrical characteristics of the generator and the receiver. It does not specify or recommend any communications protocol, only the physical layer. An RS-485 network consists of a single controller (the master) and 1up to 32 slave devices (the receivers). For example, a lighting console is frequently employed as the controller for a network of slave devices like dimmers, fog machines and intelligent lights.

Physical layer

The standard transmission medium is twisted-pair cable of either #22 or #24 AWG solid wire. Typically, a minimum of two lines are used but a third reference wire may be accommodated. Four-wire cables can also be used if full-duplex operation is desired. The cables may be shielded or unshielded, with unshielded the most common.

The nominal characteristic impedance is 100 or 120 Ω. It also defines three generator interface points (signal lines); "A", "B" and "C". The data is transmitted on "A" and "B" with "C" being used as a ground reference.

Terminating load resistors are required to ensure a matched line condition. Without terminating load resistors, reflections of fast driver edges can cause multiple data edges and subsequent data/signal corruption.

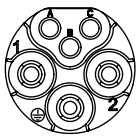
What is DMX?

The DMX, or Digital Multiplex, is the protocol for stage lighting applications using the RS-485 standard.

Example of a DMX simple network

Controller (the master)

Duplex

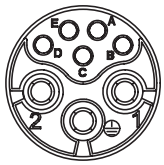


102G1W3
3 Ø 1.0mm (#20)
3 Ø 1.6mm (#16)

UTL, 6 contacts - Power + RS 485 1 Twisted pair

1 (Pair 1) = A	Phase = 1
2 (Pair 1) = B	Neutral = 2
Ground = C	Ground = Ground

Full Duplex



122G1W5
5 Ø 1.0mm (#20)
3 Ø 1.6mm (#16)

UTL, 8 contacts - Power + RS 485 2 Twisted pairs

1 (Pair 1) = A	Phase = 1
2 (Pair 1) = B	Neutral = 2
3 (Pair 2) = E	Ground = Ground
4 (Pair 2) = D	
Ground = C	

Part number index

Connector

Evaluation kit

Accessories

Contacts

Tooling

For more information, contact us:
www.eaton.com/interconnect-support

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