

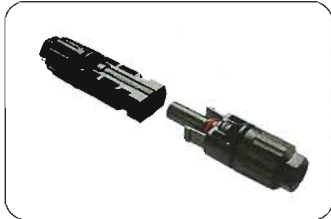


ELCOM

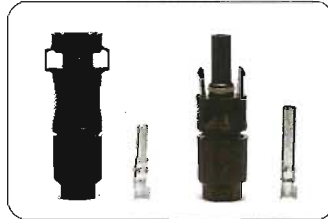
S O L A R



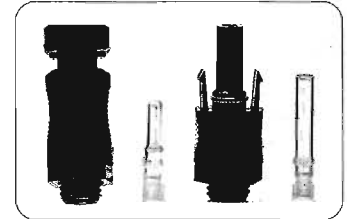
A. Solar PV Cable Connector



PV Cable Connector
(ESC-4)



PV Cable Connector with
safety Window (ESC-4-UW)

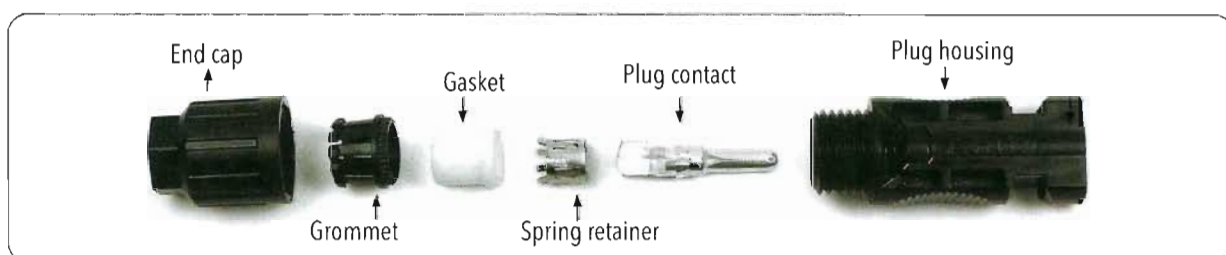
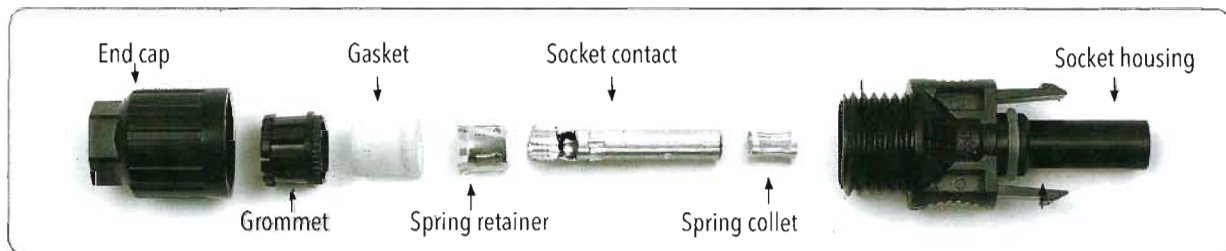


PV Panel Mount Connector
(ESC-4-PM)

Salient Features

- India's first manufacturer of Solar PV connector
- MC-4 Compatible
- Suitable cable cross section area 4 sq.mm & 6 sq.mm
- TUV approved as per EN 50521:2008
- Quick, easy and Safe snap
- IP68 - High class protection
- Temperature range : -40°C to +85°C
- Contact resistance <0.5 m-ohm.
- Contact material Copper with silver plating.
- Silver plated Beryllium Copper (BeCu) contact spring to achieve lower contact resistance.
- Engineering plastic, UV complaint and flame resistant apt for outdoor application.
- Suitable for Solar PV field installations and for direct connection to module junction box

Exploded view with description



End cap: End cap holds the entire connector assembly. End cap is made from PPO (polyphenylene oxide) material. It is best suited for outdoor application.

Grommet: Grommet makes available a reinforced hole through which the solar cable passes through. It helps the cable to remain in place and allows firm tightening of the end cap. Grommet is also made from PPO (polyphenylene oxide) material.

Rubber gasket: Rubber gasket avoids entry of dust and water inside the connector assembly. Thus, rubber gasket maintains the IP68 degree of protection. The gasket is made from Silicone, FR grade material.

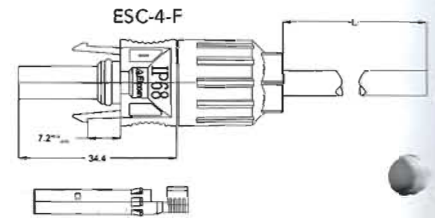
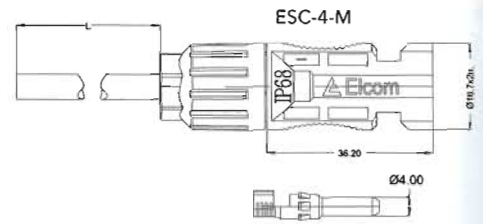
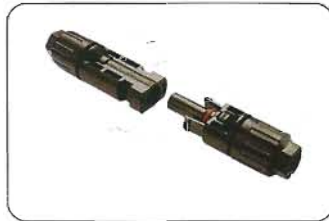
Spring retainer: Once the cable is crimped in the plug/socket contact, it is the function of spring retainer to provide firm grip to crimped contacts inside the connector assembly.

Plug/Socket contact: These are the current carrying parts of the connector. These are fully silver plated copper contacts. Elcom solar PV connectors achieve contact resistance of <math>< 0.5 \text{ m-ohm}</math>.

Plug/Socket housing: This PPO (polyphenylene oxide) housing houses the current carrying contact parts. Made from PPO (polyphenylene oxide) material is best suited for outdoor application and is UV resistant.

Spring collet: This spring plays a very important role in achieve better conductivity and reduce losses. Spring collect is inserted inside the socket contact. The material used is silver plated Beryllium Copper (BeCu) that helps achieve lower contact resistance.

a. PV Cable connector (ESC-4)



Ordering Code :

Solar PV Connector Wire Type

ESC-4-M	A	4 Sq.mm
ESC-4-F	B	6 Sq.mm
	C	2.5 Sq.mm

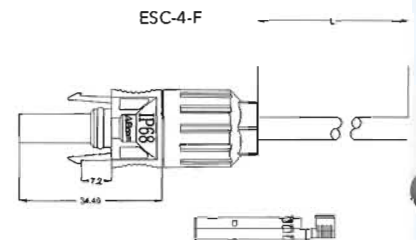
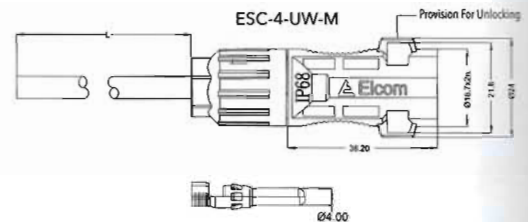
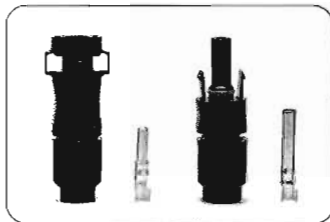
Wire Color

03	Black
04	Red

Wire Length (L)

As per Customer Requirement	
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b. PV Cable connector with safety window (ESC-4-UW)



Ordering Code :

Solar PV Connector Wire Type

ESC-4-UW-M	A	4 Sq.mm
ESC-4-UW-F	B	6 Sq.mm

Wire Color

03	Black
04	Red

Wire Length (L)

As per Customer Requirement	
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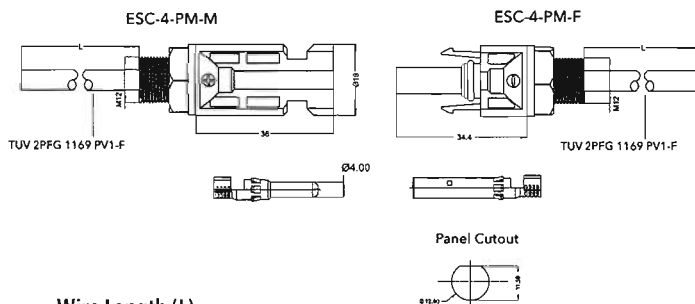
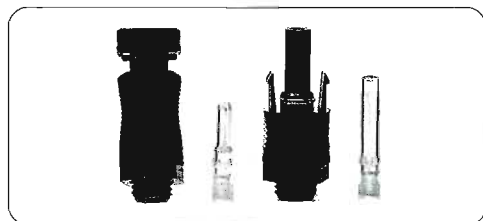
Specification Table

SR. NO	PARAMETER	SPECIFICATION
1	Type	Ø4mm PV Connector
2	Rated current	20A, 30A.
3	Rated voltage	1000V DC
4	Test voltage	6000VAC (1min)
5	Typical contact resistance	≤0.5 m-ohm
6	Degree of protection (Mated)	IP68 (IEC 60529)
7	Protection class	II
8	Flammability class	UL94U-0
9	Insulation material	PPO
10	Contact material	Copper, Silver Plated
11	Temperature range	-40°C~+85°C
12	Upper limiting temperature	100°C
13	Cable size	2.5mm ² , 4mm ² & 6mm ²
14	Rated impulse voltage	8KV

SR. NO	PARAMETER	SPECIFICATION
15	Application Class	A
16	Pollution Degree	3
17	Over voltage category	Category III
18	Relative humidity (%)	85%±5%
19	Pin dimensions	Ø4.0mm
20	Stripping Length	8mm Max.
21	Insertion force (Male Female hsg.)	≤50N
22	Withdrawal force (Male Female hsg.)	≥50N
23	Sealing material	Silicon rubber
24	Minimum creepage distance	Contact to contact not applicable
25	Insulation resistance	>1000 MΩ
26	Reference standard	EN-50521:2008

Note: For 2.5mm² wire crimping, Use Crimping tool of 4mm².

c. PV Panel Mount Connector (ESC-4-PM)



Solar PV Connector

Wire Type

Wire Color

Wire Length (L)

ESC-4-PM-M
ESC-4-PM-F
ESC-4-PM-UW-M

A	4 Sq.mm
B	6 Sq.mm

03	Black
04	Red

As per Customer Requirement

PV Panel Connector (ESC-4-PM) : Specification Table

SR. NO	PARAMETER	SPECIFICATION
1	Type	Ø4mm, PV connector
2	Rated current	20A-30A.
3	Rated voltage	1000V DC
4	Test voltage	6000V AC (1min)
5	Typical contact resistance	≤0.5 m-ohms
6	Degree of protection (Mated)	IP68(IEC 60529)
7	Protection class	II
8	Flammability class	UL94V-0
9	Insulation material	PPO
10	Contact material	Copper, Silver Plated
11	Temperature range	-40°C~ +85°C
12	Upper limiting temperature	100°C
13	Cable size	2.5mm ² , 4mm ² & 6mm ²
14	Rated impulse voltage	8KV
15	Application class	A
16	Pollution degree	3
17	Over voltage category	Category III
18	Relative Humidity (%)	85% ± 5%
19	Pin dimensions	Ø4.0mm
20	Stripping length	8mm max.
21	Insertion force (male female hsg.)	≤50N
22	Withdrawal force (male female hsg.)	≥50N
23	Sealing material	Silicon rubber
24	Minimum creepage distance	Contact to contact not applicable
25	Insulation resistance	> 1000 MΩ
26	Reference standard	EN-50521:2008

Note : For 2.5mm² wire crimping, use crimping tool of 4mm²

B. Solar PV Branch Connectors



PV 2-way Branch Connector



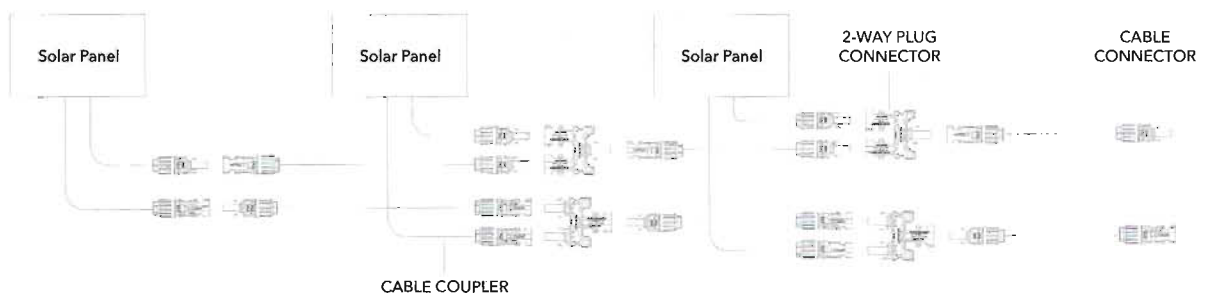
PV 3-way Branch Connector



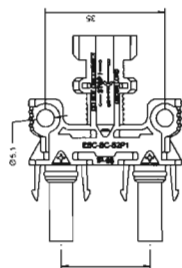
Salient Features

- Provides a quick and easy parallel wiring solution for solar panels
- MC-4 compatible
- Sealed to IP 68 and UV resistant
- Compact design
- Quick, easy assembly and allows secure gripping
- Engineering plastic, UV compliant and flame resistant apt for outdoor application.

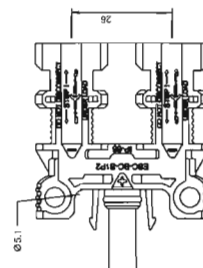
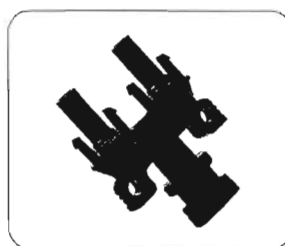
2 WAY BRANCH CONNECTOR



a. PV 2-way Branch Connector

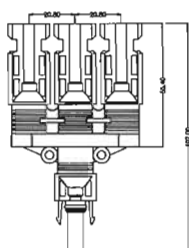


ESC-BC-S2P1

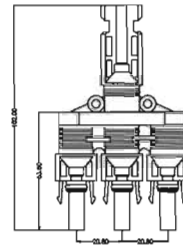


ESC-BC-S1P2

b. PV 3-way Branch Connector



ESC-BC-S1P3



ESC-BC-S3P1

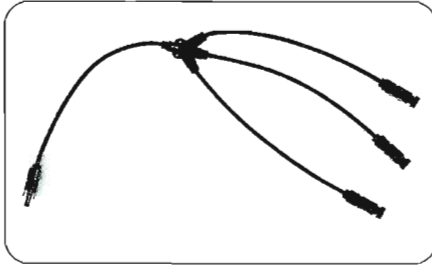
PV 2-WAY BRANCH CONNECTOR : Specification Table

SR. NO	PARAMETER	SPECIFICATION
1	Type	Ø4mm, Y branch connector
2	Rated current	20A-30A.
3	Rated voltage	1000V DC
4	Test voltage	6000V AC (1min)
5	Typical contact resistance	≤0.5 m-ohms
6	Degree of protection (Mated)	IP68 (IEC 60529)
7	Protection class	II
8	Flammability class	UL94V-0
9	Insulation material	PPO
10	Contact material	Copper alloy, tin plating
11	Temperature range	-40°C~+85°C
12	Suitable cable cross sec.	2.5mm ² -6.0mm ²
13	Pin dimensions	Ø4.0mm
14	Reference standard	EN-50521:2008
15	Sealing material	Silicon rubber

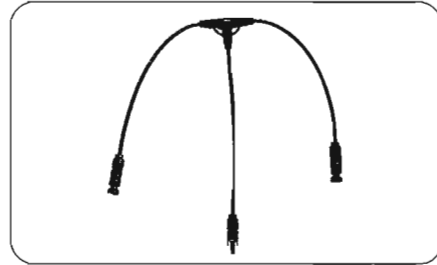
PV 3-WAY BRANCH CONNECTOR : Specification Table

SR. NO	PARAMETER	SPECIFICATION
1	Type	Ø4mm, Branch connector
2	Rated current	20A-30A.
3	Rated voltage	1000V DC
4	Test voltage	6000V AC (1min)
5	Typical contact resistance	≤0.5 m-ohms
6	Degree of protection (Mated)	IP68(IEC 60529)
7	Protection class	II
8	Flammability class	UL94V-0
9	Insulation material	PPO
10	Contact material	Copper alloy, tin plating
11	Temperature range	-40°C~+85°C
12	Pin dimensions	Ø4.0mm
14	Reference standard	EN-50521:2008
15	Sealing material	Silicon rubber

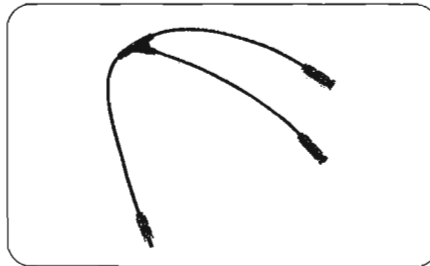
C. Solar T and Y PV Branch Connectors with cable assembly



PV 3-way Branch Connector



PV 2-way T Branch Connector

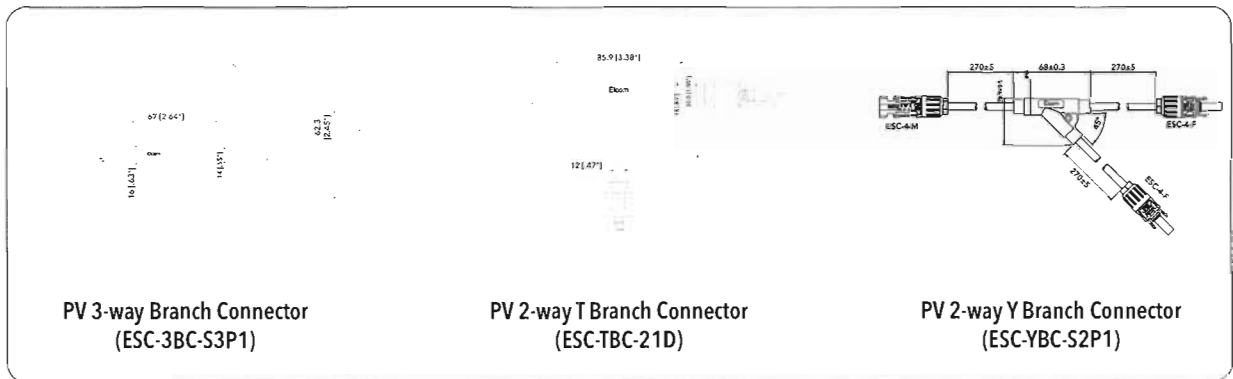
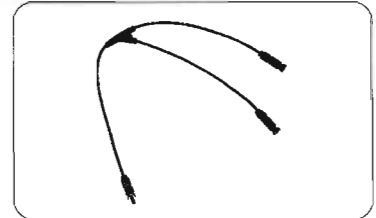
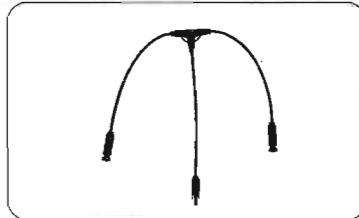
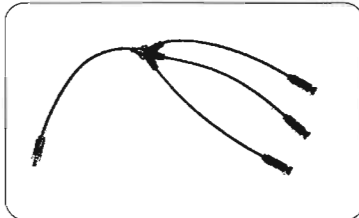


PV 2-way Y Branch Connector

Salient Features

- Provides a quick and easy parallel wiring solution for solar panels
- MC-4 compatible
- Sealed to IP 68 and UV resistant
- Compact design
- Quick, easy assembly and allows secure gripping
- Engineering plastic, UV complaint and flame resistant apt for outdoor application.

C. Solar T and Y PV Branch Connectors with cable assembly



PV 3-way Branch Connector
(ESC-3BC-S3P1)

PV 2-way T Branch Connector
(ESC-TBC-21D)

PV 2-way Y Branch Connector
(ESC-YBC-S2P1)

Specification Table		PV 3-way Branch Connector (ESC-3BC-S3P1)	PV 2-way T Branch Connector (ESC-TBC-21D)	PV 2-way Y Branch Connector (ESC-YBC-S2P1)
SR. NO	PARAMETER	SPECIFICATION	SPECIFICATION	SPECIFICATION
1	Type	Ø4mm, 3 branch connector (S3P1)	Ø4mm, T branch connector (S1P2)	Ø4mm, T branch connector (S1P2)
2	Rated current	20A-30A.	20A-30A.	20A-30A.
3	Rated voltage	1000V DC	1000V DC	1000V DC
4	Test voltage	6000V AC (1min)	6000V AC (1min)	6000V AC (1min)
5	Typical contact resistance	≤5mOhms	≤5mOhms	≤5mOhms
6	Degree of protection (Mated)	IP67(IEC 60529)	IP67(IEC 60529)	IP67(IEC 60529)
7	Protection class	I	II	II
8	Flammability class	UL94V-0	UL94V-0	UL94V-0
9	Insulation material	PPO	PPO	PPO
10	Contact material	Copper alloy, tin plating	Copper alloy, tin plating	Copper alloy, tin plating
11	Temperature range	-40°C~+85°C	-40°C~+85°C	-40°C~+85°C
12	Suitable cable cross sec.	2.5mm ² - 6.0mm ² 14AWG - 10AWG	2.5mm ² - 6.0mm ² 14AWG - 10AWG	As per ordering table
13	Pin dimensions	Ø4.0mm	Ø4.0mm	Ø4.0mm
14	Cable length	0.3 meter	0.3 meter	As per customer requirement
15	Reference standard	EN-50521:2008	EN-50521:2008	EN-50521:2008
16	PV connector	ESC-4-M (1no.) ESC-4-F (3nos.)	ESC-4-M (2no.) ESC-4-M (1nos.)	ESC-4-M (2no.) ESC-4-M (1nos.)

C. Solar Module Junction box



2-rail Junction box



3-rail Junction box

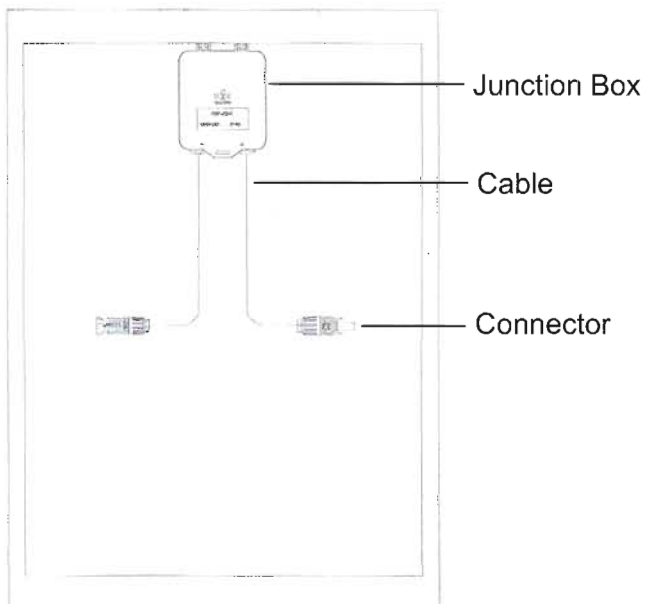


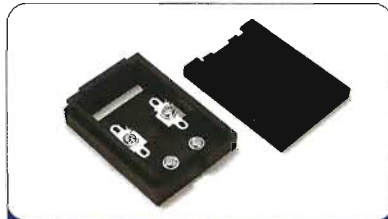
4-rail Junction box

Salient Features

- Available in various configurations - 2-rail, 3-rail and 4-rail
- Reliable locking mechanism
- Multi-diode options
- Flame resistant polymer (UL 94V-0 compliance)
- Ageing and UV resistant
- IP65 (IEC 60529) protection
- Suitable for 600V and 1000V DC systems

Rear View of Solar Module





2-rail (ESP-JB2-E)



3-rail (ESP-JB3-E)



2-rail (ESC-JB2)



3-rail (ESC-JB3)



4-rail (ESC-JB4)

Specification Table

SR. NO	PARAMETER	ESC-JB2	ESC-JB3	ESC-JB4
1	Typical contact resistance	≤5m0hms	≤5m0hms	≤5m0hms
2	Rated current	3A-20A (Potting)	3A-20A (Potting)	3A-20A (Potting)
3	Rated voltage	1000V DC	1000V DC	1000V DC
4	Degree of protection (Mated)	IP65(IEC 60529)	IP65(IEC 60529)	IP65(IEC 60529)
5	Flammability class	UL94V-0	UL94V-0	UL94V-0
6	Insulation material	PPO	PPO	PPO
7	Contact material	Brass, tin plating	Brass, tin plating	Brass, tin plating
8	Temperature range	-40°C~+85°C	-40°C~+85°C	-40°C~+85°C
9	Suitable cable cross sec.	4.0mm ² - 6.0mm ² (0.16 ² -0.24 ² Inch) 12AWG - 10AWG	4.0mm ² - 6.0mm ² (0.16 ² -0.24 ² Inch) 12AWG - 10AWG	4.0mm ² - 6.0mm ² (0.16 ² -0.24 ² Inch) 12AWG - 10AWG
10	Joining of ribbon	Soldering	Soldering	Soldering
11	Diode Qty.	1 nos.	2 nos.	3 nos.
12	Pin dimensions	Ø4.0(0.16")	Ø4.0(0.16")	Ø4.0(0.16")
14	Cable length	1000 (0.039")	1000 (0.039")	1000 (0.039")
15	Sealing Gasket	Silicon rubber	Silicon rubber	Silicon rubber
16	Reference standard	EN-50521-2008	EN-50521-2008	EN-50521-2008

Tools and Accessories

a. Crimping tool



CT-001

Salient Features

- Crimping tool for cable range 2.5 sq.mm/4 sq.mm/6 sq.mm
- Hardened and durable steel construction
- Accurate and high quality crimping
- Portable and light weight
- Perfect handle gripping position

b. Disconnect tools



CT-002



CT-003

Salient Features

- For locking and unlocking of solar connector cap
- Portable
- Perfect for locking cap
- Light weight
- Easy to use