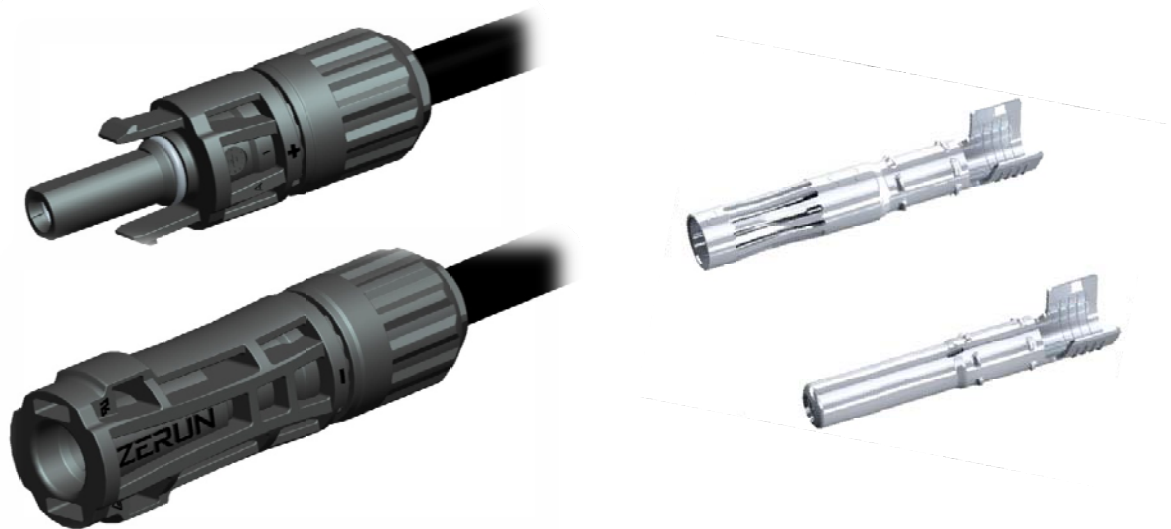




ZERUN Z4S-abcde Series

DC Photovoltaic Connector



Connection System for Solar Panel

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1. Scope

This Manual covers the requirements for application of the Z4S-abcde Connector as well as guideline for the assembly.

2. Product Characteristics

2.1 Product Specifications

Rated System Voltage	1500V DC (IEC / UL)
Rated Impulse Voltage	16000V
Rated Current	35A (2.5mm ² /14AWG)
	40A (4.0mm ² /12AWG)
	45A (6.0mm ² /10AWG)
Protection Class	Class II
Protection Degree (mated/ unmated)	IP68 (1m, 1h) / IP2X
Operating Temperature	- 40°C ~ +85°C

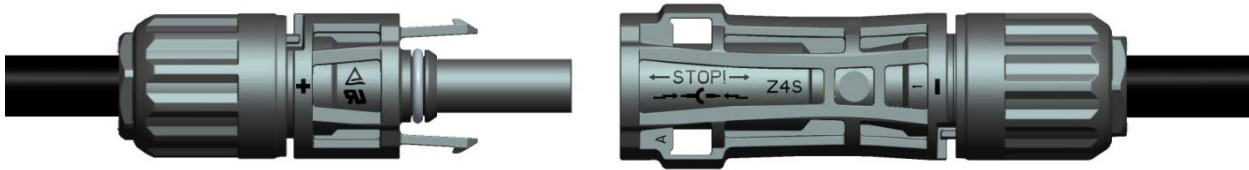
2.2 Features

- Contact with drum type crown spring, make electrical connection fastness.
- Ratchet mechanism to lock the nut cover, reliably avoid being loosened after long term use.
- Self-locking between the male and female connector, insert conveniently and reliably.
- Strong ageing resistance, UV resistance, suit for using in outdoor severe environment.
- Compatible with MC4 type connectors (MC4, H4, PV4, etc.), TUV & UL certificated.
- Contact resistance less than 0.30mΩ, less heating and low power consume.

2.3 Product Family

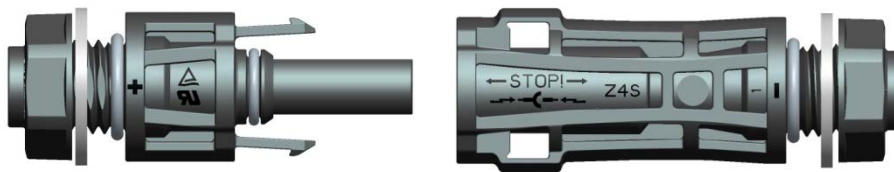
Type Designation	Z4S-abcde a, b, c, d,e are variables
a: Type	C: Cable mounting P: Panel mounting
b: Releasing Method	T: Tool is required H: By hand
c: Rated Current	3: 35A (2.5mm ² , 14AWG) 4: 40A (4.0mm ² , 12AWG) 5: 45A (6.0mm ² , 10AWG)
d: Cable Certificate	A: TUV 1000V B: TUV 1500V C: TUV&UL 1000V D: TUV&UL 1500V
e: Housing Material	1: PA 2: PPE

Connector for cable mounting



Picture 1

Connector for panel mounting



Picture 2

Connector for un-mating by hand



Picture 3

2.4 Related Documents

- Customer Drawing Z4S_T001
- Data Sheet Z4S_W005

3. User Instruction

3.1 Cleaning

Any type of exposure to contaminants (dust, humidity etc.) can negatively affect the system with regards to its functions, over the duration of use. This applies especially to the functionality of the connector seals and crimped contact connections. Therefore, during assembly, it is necessary to ensure a careful and clean processing environment.

During storage, transportation and installation, it is necessary to protect the non-inserted contacts against contamination from dust or moisture. Connectors should be protected with the appropriate recommended dust caps* prior to being fully connected.

* Dust caps supplied by Zerun are available. Refer to section 3.6.

Articles which can erode the plastics must not be used to clean the products. We recommend the use of soft cloths moistened with isopropyl alcohol for cleaning.



Un-mated contacts must be protected against moisture, dust and any environmental pollution. Only clean and dry mated contacts fulfill their respective pollution class.

3.2 Cable Preparation and Stripping Process

The possible connectable wire gauge sizes are 2.5 mm², 4.0 mm², 6.0 mm² (or AWG14, AWG12, AWG10).

Use a strip tool* to strip cable 7.0±0.5mm* and be careful not to nick conductors. See Picture 4.



* Zerun specified strip tool can be used in this step.

* The strip length can refer to the mark on Zerun wrench. See Picture 5.



Picture 5

Adjust the stripper stopper (Picture 6) and put the cable in corresponding notch to strip the length of 7mm.



Picture 6

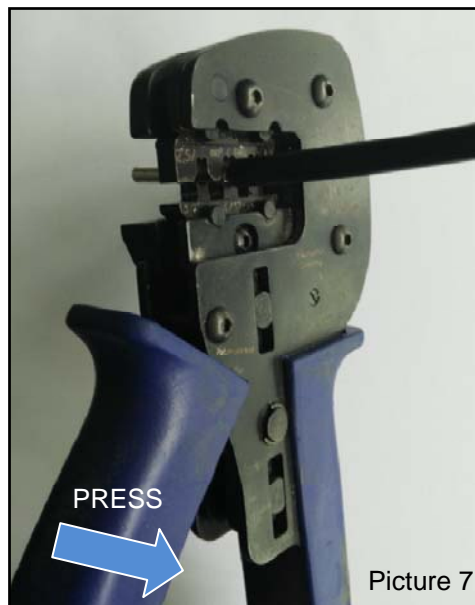


For the cable mounting type, If there is a visible deformation or damage appears at the sealing area of the cable, which matches with the connector component in following process, the cable end needs to be trimmed to remove the area.

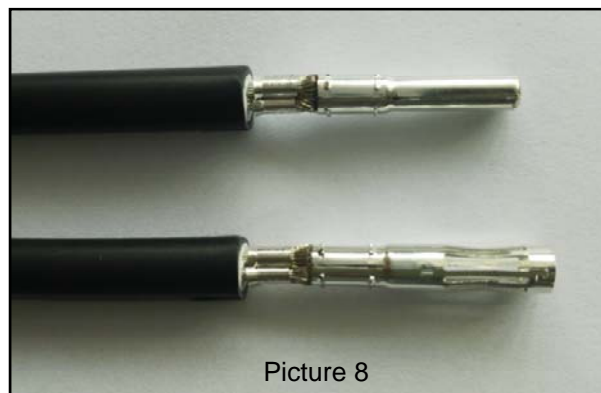
3.3 Crimping of the contacts

Zerun specified crimp tool should be used in this step.

Insert the contact into the corresponding crimping notch or locator (male or female) taking into account the cable size used. Press the pliers gently together until the crimp s are properly located within the crimping die. Insert the stripped cable end until the insulation comes up against the crimp insert. Completely close the crimping pliers. See Picture 7.



See Picture 8 of crimp result.



When you insert striped cable into contact barrel, always insure all conductor strands are captured in the contact barrel.

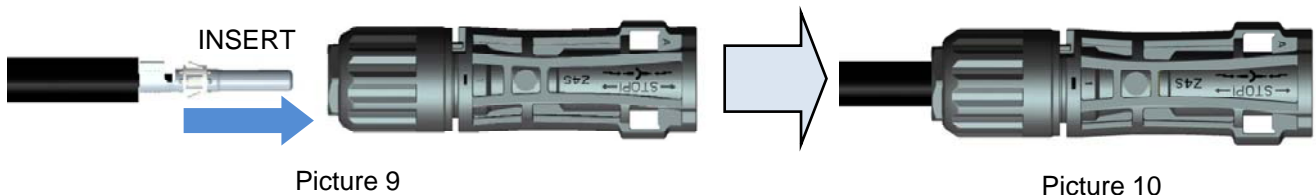
The cable pull-out forces requirement will have to be the following:

Cable size	Cable pull –out force requirement
2.5 mm ² (or 14AWG)	Min. 230N (~50 Lbs)
4.0 mm ² (or 12AWG)	Min.320N (~70 Lbs)
6.0 mm ² (or 10AWG)	Min.360N (~80 Lbs)

3.4 Assembly Process

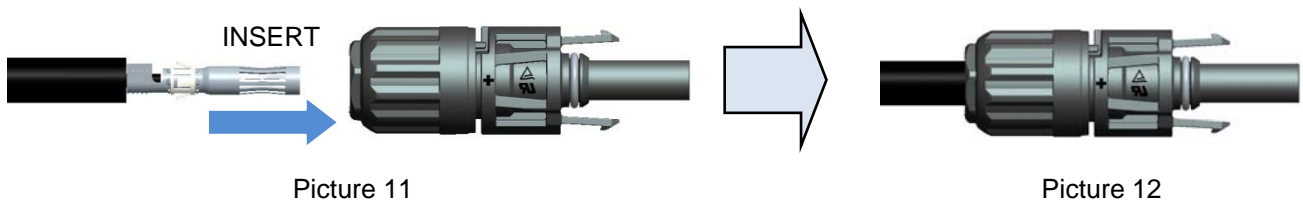
Cable Monuting

Insert contact cable assembly into back of male and female connector. A “click” should be heard or felt when the contact cable assembly is seated in correct position. Contacts cannot be removed once seated. See Picture 9, 10, 11 and 12.



Picture 9

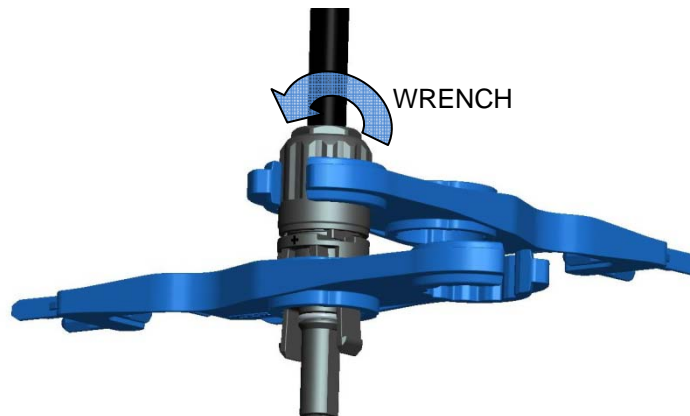
Picture 10



Picture 11

Picture 12

Back cap must be closed using a torque between 2.8 and 3.1Nm. Zerun wrench can be used in this step. See Picture 13.



Picture 13

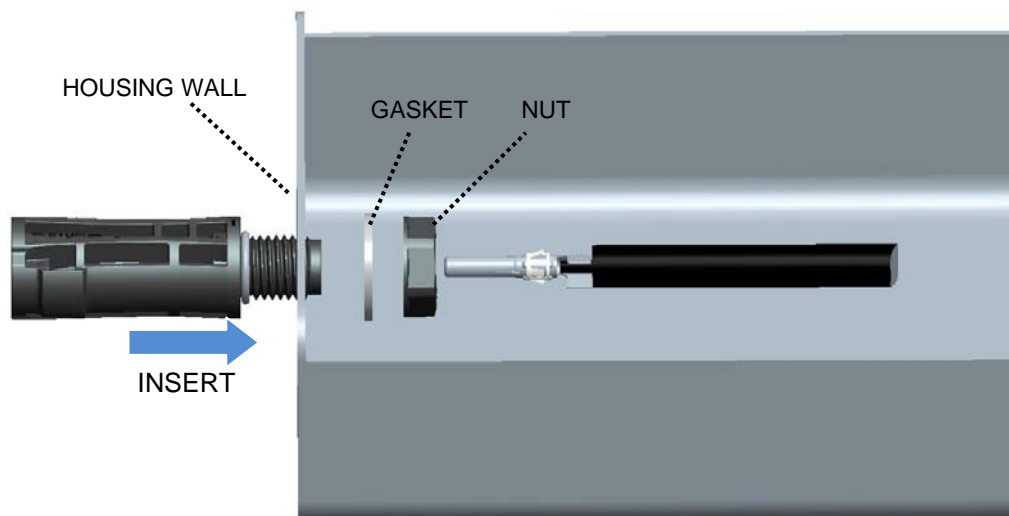
Panel Mounting

Install on a flat, vertical housing surface which thickness of the housing wall not less than 1.5mm.
The diameter of the through-hole on the panel shall be between 12.9 mm and 13mm

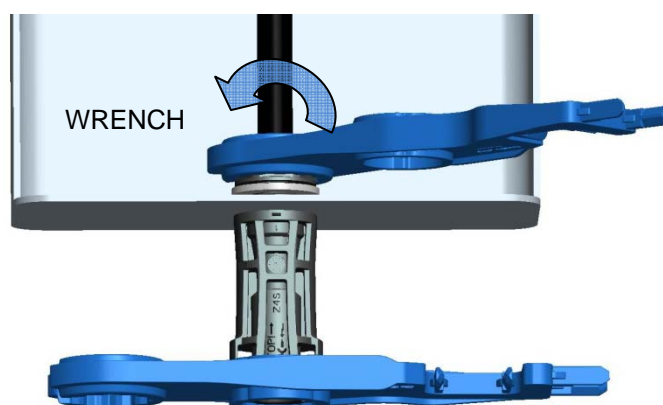


The surface of the through-hole where match with o-ring shall be smooth, and there shall be no burrs or other defects which might scrape the o-ring.

Insert the connector through the hole on panel, and then install the gasket and nut. See Picture 14.
During the process Zerun wrench can be used. See Picture 15.
Recommended torque of installing nut is 2 N.m.

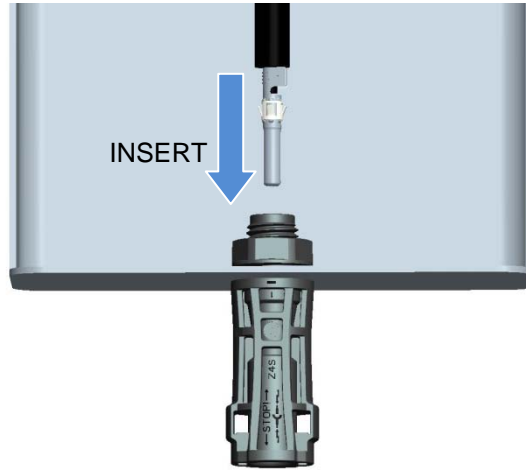


Picture 14



Picture 15

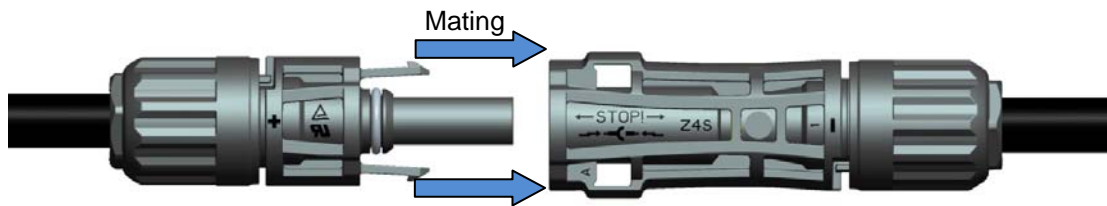
Insert contact cable assembly into back of male and female connector. A “click” should be heard or felt when the contact cable assembly is seated in correct position. Contacts cannot be removed once seated. See picture 16.



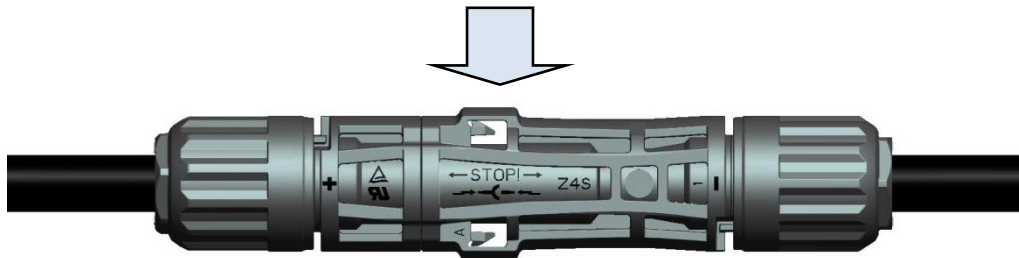
Picture 16

3.5 Connector Mating and Un-mating

For mating align the 2 half connectors and mate them together by hand until a “click” is heard and/or felt. Pulling female and male connector to make sure the connector is firmly engaged. The force is 20N max.

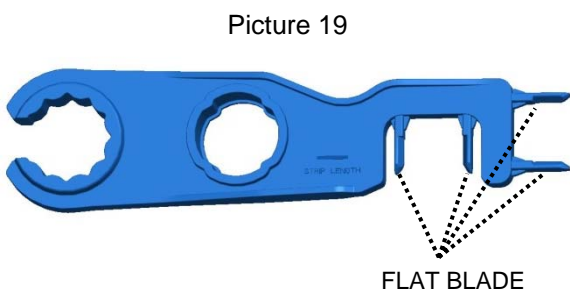


Picture 17

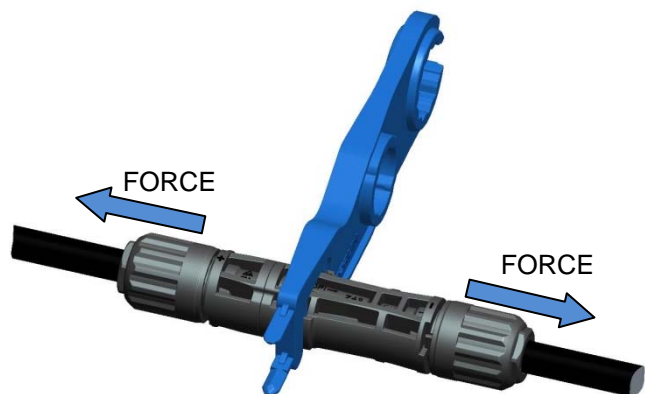


Picture 18

For un-mating, Zerun wrench should be used in this step. Insert the flat blade and then pull out the connector. See Picture 20.



Picture 19



Picture 20



Do not disconnect the connector while it is under an electrical load. Components within the connector may be electrically charged and capable of inflicting severe injury or death. Extreme caution should be applied when disconnect the connector.

Attention: The connector should only be opened by authorized and trained personnel.

3.6 Dust cap

Dust caps serve for the protection against environmental contaminants. (Protection level IP44).



Picture 21

3.7 Cable Routing

The cable must not be bent or crushed on the direct exiting. A minimum bending radius $R \geq 5 \times \text{cable diameter}$ must be maintained. The cable must be routed in a way that tensile stress on the conductor or connections is prevented.



Picture 22