



Zerun RSD Series
Rapid Shutdown Junction Box
for Photovoltaic Module



Connection System for Solar Panel

Content

1. Scope.....	2
2. Product Characteristics	2
2.1 Product Specifications.....	2
2.2 Product Family.....	2
2.3 Related Documents.....	2
3. General comments.....	2
4. User Instruction	3
4.1 Cleaning.....	3
4.2 Installation for the Junction Box Attachment to the PV Modules.....	3
4.2.1 Content.....	3
4.2.2 Equipment	3
4.2.3 Safety Instructions	3
4.2.4 Final Assembly Process Using Single Component Silicon Adhesive.....	4
4.2.4.1 Preparation.....	4
4.2.4.2 Adhesive Application Procedure.....	4
4.2.5 Final Assembly Process for Using to Applied PV Bracket	5
4.2.5.1 Final Assembly Process By Metal bracket and M4 nut + bolt.....	5
4.2.5.2 Final Assembly Process By M4 Nuts and Bolt	5
4.3 Wiring the Junction Box	6
4.4 Cable Routing.....	6

1. Scope

This specification contains guidelines for the assembly, installation and fitting of the RSD Solar junction boxes, and connection parts to customer solar panels.

2. Product Characteristics

2.1 Product Specifications

Rating type	RSD-PFO	RSD-PAO	RSD-PFK	RSD-PAK
a) Maximum System Voltage	1500V	1500V	1000V	1000V
b) Range of input operating voltage (dc)	12V-75V	12V-85V	12V-75V	12V-85V
c) Max input current (dc)	15Adc	11Adc	15Adc	11Adc
d) Max Input short circuit current(dc)	20Adc	16Adc	20Adc	16Adc
e) Rapid shutdown time limit ①	Less than 15s	Less than 15s	Less than 15s	Less than 15s
f) Normal operation temperature range	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
g) Enclosure Type	IP68	IP68	IP68	IP68
h) Conductor AWG range	12AWG	12AWG	12AWG	12AWG

① This device is qualified as a PV Rapid Shutdown Equipment (PVRSE) to be complied with Section 690.56(C) of the NEC (NFPA 70) and the National Electrical Code, ANSI/NFPA 70 Section 690.12

② PCBA detail information refer to Datasheet RSD_W001

2.2 Product Family

Type Designation	RSD-abc (a, b, c are variables)
RSD	J-Box Series: RSD Rapid Shutdown J-box
a: PCB Type	P : PLC model
b: Rated Current	F: 15A A: 11A
c: System Voltage	K: 1000V O: 1500V

2.3 Related Documents

- Customer Drawing RSD_C001
- Data Sheet RSD_W001

3. General comments

Contaminants such as dust, moisture oil etc. can be detrimental to the assembly process. It is recommended that the work area and all components be as clean and dust-free as possible.



THIS PHOTOVOLTAIC RAPID SHUTDOWN EQUIPMENT (PVRSE) DOES NOT PERFORM ALL OF THE FUNCTIONS OF A COMPLETE PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM (PVRSS). THIS PVRSE MUST BE INSTALLED WITH OTHER EQUIPMENT TO FORM A COMPLETE PVRSS THAT MEETS THE REQUIREMENTS OF NEC (NFPA 70) SECTION 690.12 FOR CONTROLLED CONDUCTORS OUTSIDE THE ARRAY. OTHER EQUIPMENT INSTALLED IN OR ON THIS PV SYSTEM MAY ADVERSLY AFFECT THE OPERATION OF THE PVRSS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE COMPLETED PV SYSTEM MEETS THE RAPID SHUT DOWN FUNCTIONAL REQUIREMENTS. THIS EQUIPMENT MUST BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

4. User Instruction

4.1 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.

* Suitable protective covers are available for connectors.

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



Unplugged terminal points must be protected against moisture, dust and any environmental pollution. Only clean and dry plugged terminal points fulfill their respective pollution class.

4.2 Installation for the Junction Box Attachment to the PV Modules

While installed the RSD, the National Electrical Code, ANSI/NFPA 70 section 690.12 shall be followed

The following application technical instructions are made as guidelines. These instructions do not excuse the user or installer of the RSD box from independently testing the adhesive tapes or silicone glues to determine the suitability for their proposed assembly process and application.

4.2.1 Content

This section describes the gluing of connecting boxes onto the rear side of the solar modules with the goal to secure the product in accordance with this specification.

It can attached on module backsheet (See 3.2.4) and PV bracket (See 3.2.5) .

4.2.2 Equipment

The recommended adhesive is typically provided in cartridges. Refer to supplier's application instructions for adhesive applicator and application.

- Guns for spraying from the cartridge
- Gloves, soft and clean cloths
- Cleaning product isopropyl alcohol
- Spatula, brush
- Weight, for example a piece of metal with an approximate weight of 1kg

4.2.3 Safety Instructions

Before beginning the junction box attachment process, obtain, review and follow the manufacturer's material safety information.



The use of appropriate gloves and eye protection is required throughout the attachment process. Ensure adequate ventilation at all times during the attachment process. Refrain from eating, drinking or smoking in the vicinity. Do not expose to open flames.

When working with silicone adhesive:

Avoid contact with eyes. If eye contact occurs, rinse for a period of 15 minutes and seek medical help.

Avoid prolonged contact with skin.

4.2.4 Final Assembly Process Using Single Component Silicon Adhesive

4.2.4.1 Preparation

Place the PV panel face down on the work table. The attachment area of the PV panel must be dry, oil-/fat-free and free of any dust, oil and contaminants. Thoroughly clean the attachment area with a clean, lightly moistened Isopropyl alcohol soft cloth (e.g. moistened using a dosing unit).

Further auxiliary or other cleaning agents are not permitted. Use of any other cleaning agents has to be specified and tested by the customer. The attachment area must be free from condensation and moisture.

To improve adherence, junction boxes may be treated with primer. The attachment area should be thoroughly covered with primer by using a small spatula brush. The specification from the supplier of the primer has to be followed.

Bend the PV panel PV ribbons so that they extend perpendicular from the plane of the panel.

4.2.4.2 Adhesive Application Procedure

8mm~12mm wide and 3mm~5mm height band of adhesive applied to the area which as shown in Figure 1 is adequate.

During this process, ensure that the silicon bead is continuous and free of gaps.

The region marked with "X" is used for mounting this junction box with module, and the area is about 3000mm².

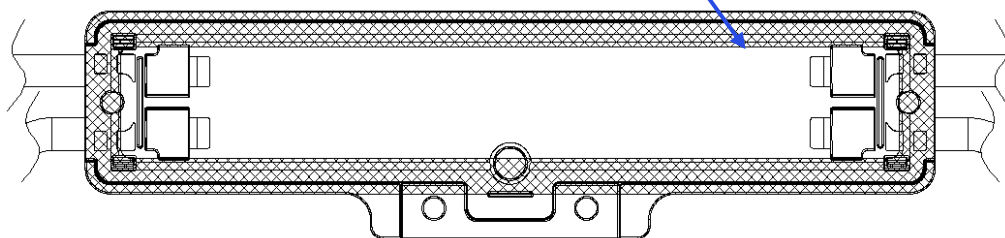


Figure 1

To attach the junction box to the PV panel, thread the PV ribbon through the openings in the bottom of the junction box. Make sure the junction box is properly oriented in a horizontal position before firmly placing the junction box into its final position on the PV panel. Then, the 1kg metal weight can be applied to the top of the junction box to ensure adequate adhesive coverage.

If needed, use the spatula to smooth any excess silicon that may have extruded out of the joint. Keep the PV module assembly in the horizontal until full cure is obtained.

A full cure requires 24 hours at room temperature before the PV module can be connected and tested.

4.2.5 Final Assembly Process for Using to Applied PV Bracket

4.2.5.1 Final Assembly Process By Metal bracket and M4 nut + bolt

The first is installed the metal bracket to the RSD J-BOX by two M4 nuts and two bolts. See figure 2. Then, installed into the PV bracket by the same way. See figure 3.

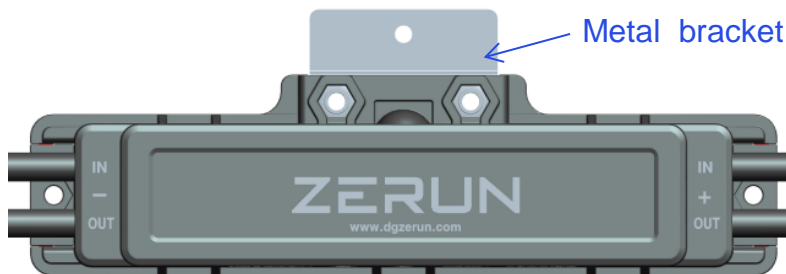


Figure 2

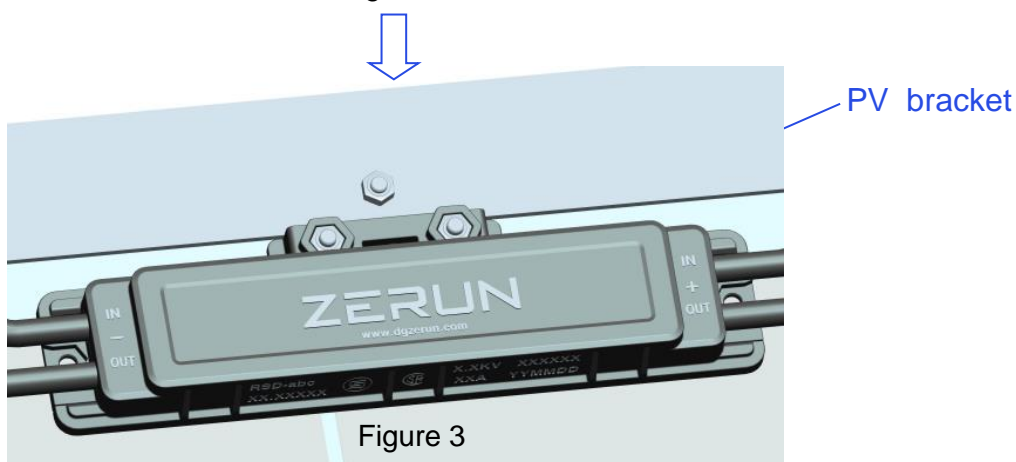


Figure 3

4.2.5.2 Final Assembly Process By M4 Nuts and Bolt

Through the installation holes on both side of RSD J-BOX, installed into the PV bracket by two M4 nuts and two bolts. See figure 4 and 5.

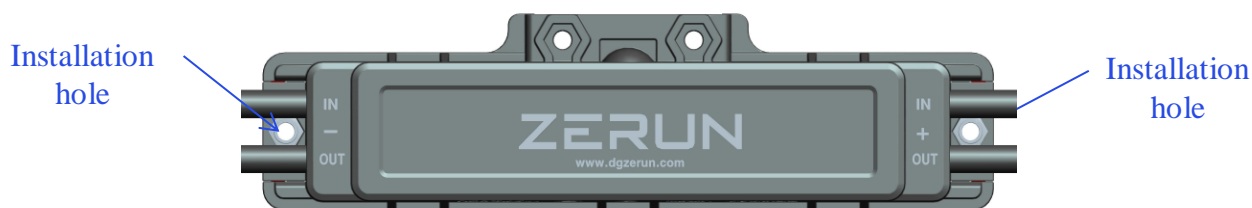


Figure 4

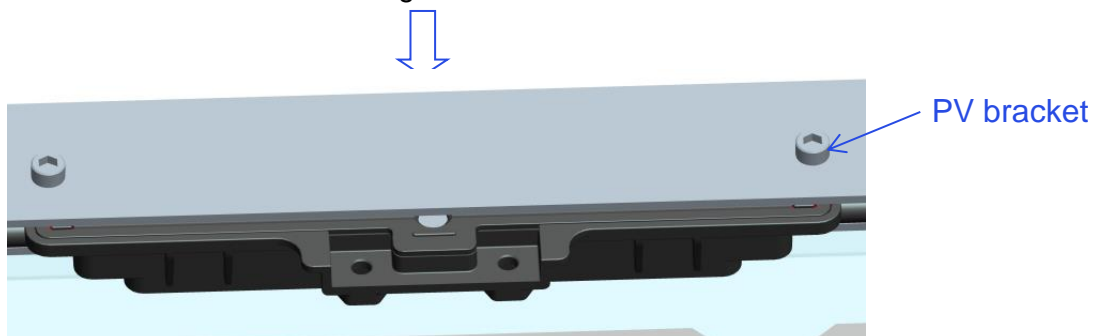


Figure 5

4.3 Wiring the Junction Box

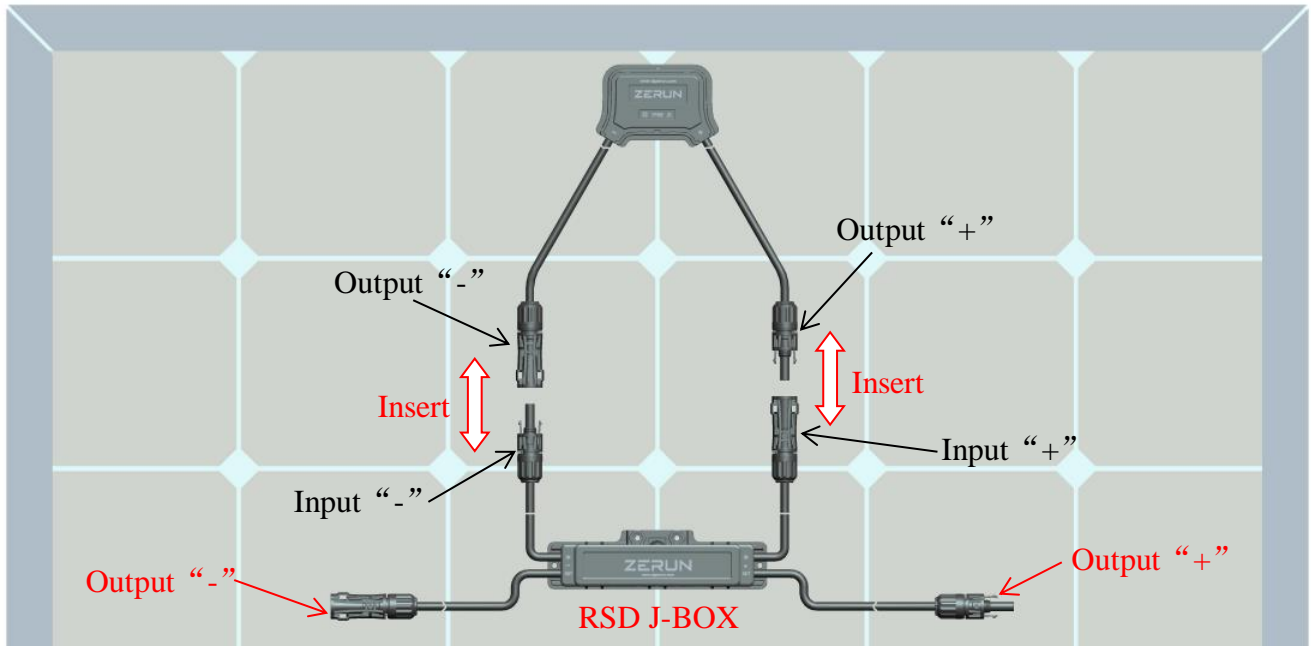


Figure 6

Make sure the polarities of PV ribbons from solar module keep conformity with that of junction box, See Figure 6.

4.4 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.



Figure 7-1



Figure 7-2