

Smart PV RSD

SP5-RSD-AG

Quick installation manual

1. Must Read Before Installation

⚠ CAUTION

When carrying out various operations of this product, the relevant equipment precautions and special safety instructions provided by SolarPilot Energy must be strictly observed.

It is strictly forbidden to open the case, disassemble and repair the product without authorization to ensure the safety of personnel. In case of such necessary services, find a trained or qualified professional technician to do it.

The operators should comply with local regulations.

⚠ WARNING

Installation or maintenance operations must follow the sequence of steps of the task, and do not change the structure and installation order of the equipment without the manufacturer's permission.

A certain distance should be reserved between the RSD and the surrounding objects to ensure sufficient installation and heat dissipation space.

The installation, electrical connection, maintenance, troubleshooting, and replacement operations of the RSD must be carried out by a professional electrical technician.

⚠ DANGER

DO NOT wear watches, bracelets, rings and other conductive objects during operation.

DO NOT install the RSD in locations where water can be submerged for a long time.

DO NOT cut off the cable that comes with the RSD, otherwise the warranty will be invalidated.

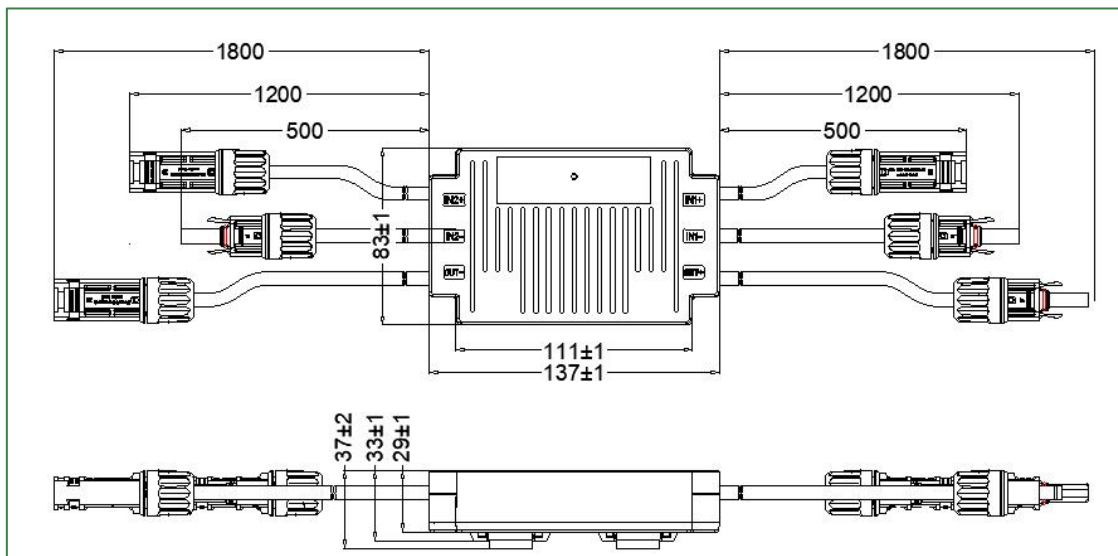
Malpractice or improper work during installation or operation might cause fire. DO NOT store flammable and/or explosive materials surrounding the areas where the RSD is installed.

The high voltage DC that generated during string operation of the RSD, might lead to electric shock that brings death, serious personal injury, or serious property damage. Please strictly follow the safety precautions listed in this manual and other relevant documents when operating.

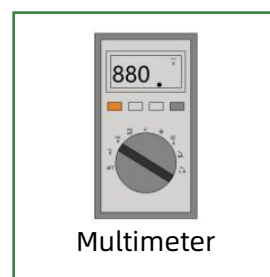
SolarPilot uses Staubli EVO2 as the DC connector of the RSD, please make sure to use the same model of docking DC connector. If the model is different, the DC connector manufacturer must provide a connector compatibility report and a third-party external laboratory (TUV, VED, or Bureau Veritas) report that indicates qualified adaptability. The use of other incompatible DC connectors may lead to serious consequences, and thus equipment damage is not covered in RSD warranty.

2. Product Introduction

The smart PV RSD is a safety device used in PV systems. It complies with the NEC2020 690.12 standard requirements, supports remote rapid shutdown and local rapid shutdown functions, and can collect PV module operating parameters in real time to ensure the safe operation of PV power plants.



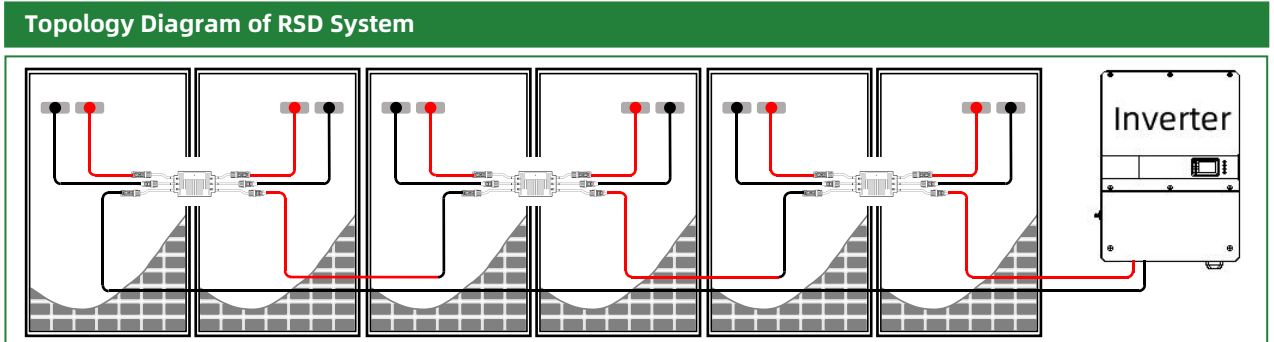
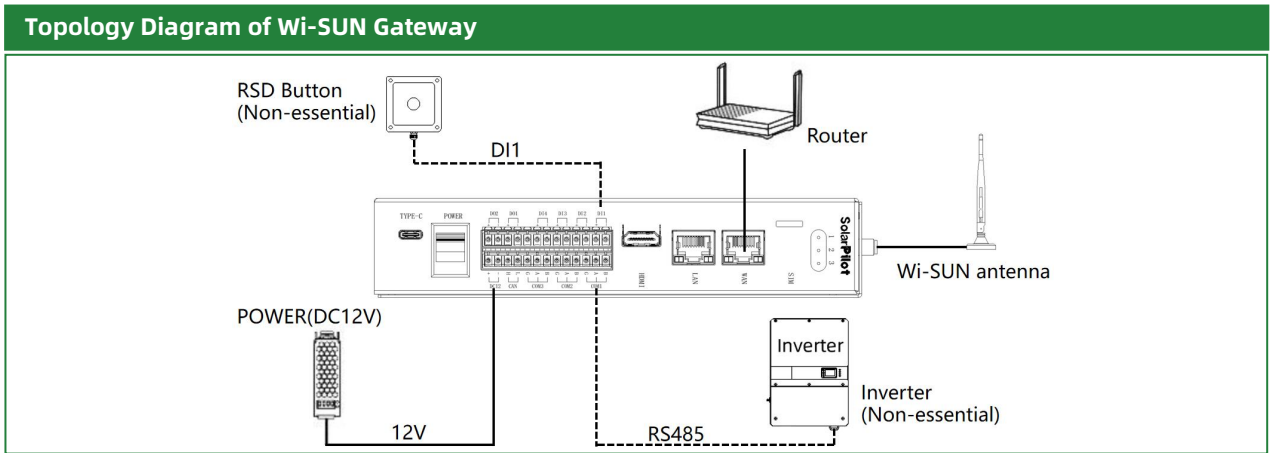
3. Prepared Tools



4.Prepared Materials

#	Material	Model	Function
1	DC connector	EVO2	to connect smart PV RSD
2	DC cable	PV1-F 1*4mm ²	
3	Ethernet cable	CAT 5E	to provide network to WiSUN gateway
4	Router	/	
5	Communication line	RVSP-2*1mm ²	to connect the RSD button(if you need)
6	DC power	12V	to provide power to WiSUN gateway
7	DC cable	20AWG	

5. RSD System Connection Diagram

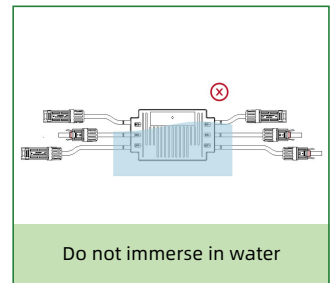
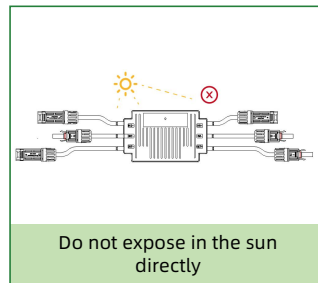
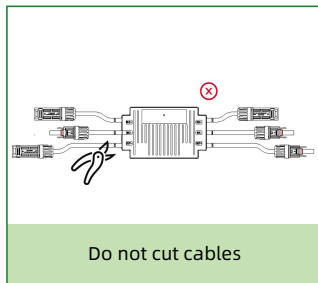
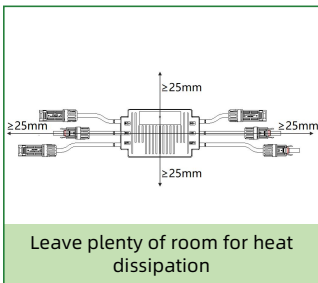
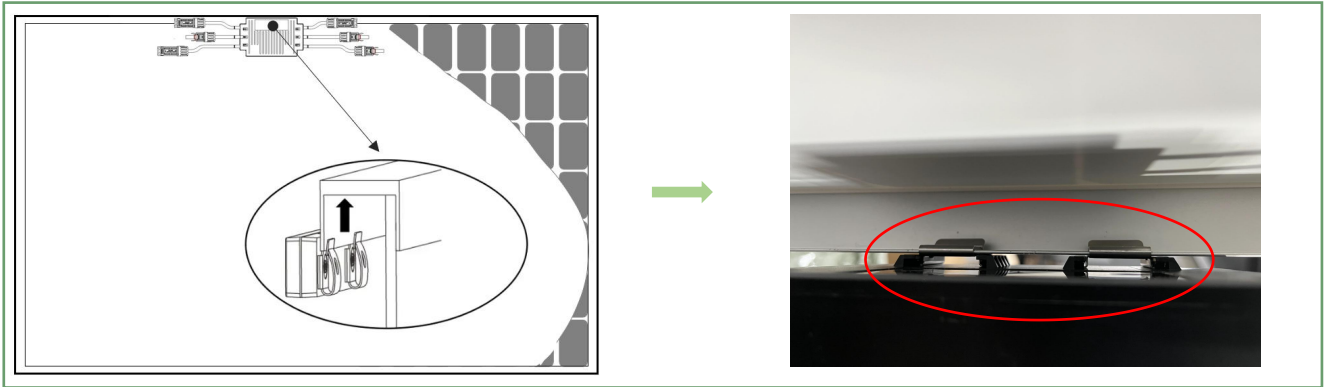


6. Installation Steps

- 1** Install RSD
- 2** Measure RSD voltage
- 3** Measure string voltage
- 4** Connect to inverter
- 5** Generate layout
- 6** Connect devices via App

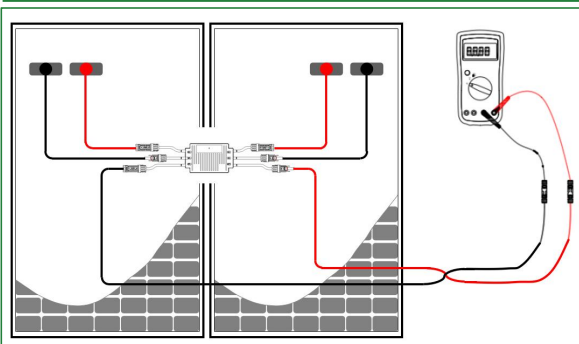
① Install RSD

Clip-on installation



② Measure RSD voltage

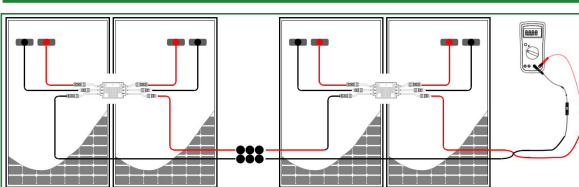
Voltage is $2V(\pm 10\%)$ in RSD mode



Voltage	Cause
$V=2V(\pm 10\%)$	The RSD is normal.
$V > 2V(\pm 10\%)$	<ul style="list-style-type: none"> The RSD works in Normal mode. The RSD is faulty.
$V < 2V(\pm 10\%)$	<ul style="list-style-type: none"> The irradiance is low. The RSD input cables are not connected. The RSD cables are incorrectly connected. The RSD is faulty.
$V \approx -2V(\pm 10\%)$	<ul style="list-style-type: none"> The probes are reversely connected.

③ Measure string voltage

Voltage is $N*2V(\pm 10\%)$ in RSD mode

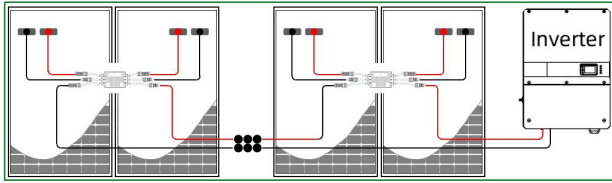


Voltage	Cause
$V=N*2V(\pm 10\%)$	The PV string is normal.
$V \approx 0$	<ul style="list-style-type: none"> The PV string is open-circuited. The cables are not connected to the same PV string.
$V < 0$	<ul style="list-style-type: none"> The probes are reversely connected. The cable labels are incorrect.
$0 < V < N*2V(\pm 10\%)$	<ul style="list-style-type: none"> Some RSD input power cables are not connected. Some RSD output power cables are not connected. Some RSD output power cables are reversely connected.
$V > N*2V(\pm 10\%)$	<ul style="list-style-type: none"> The actual number of RSD in the PV string is greater than expected. PV modules are directly connected to PV strings without being connected to RSD. Partial RSD work in Normal mode.

NOTE

If the voltage is abnormal, refer to the user manual for troubleshooting suggestions.

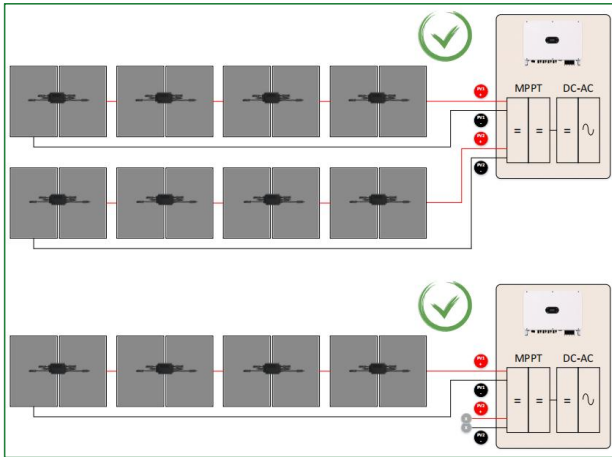
④ Connect to inverter



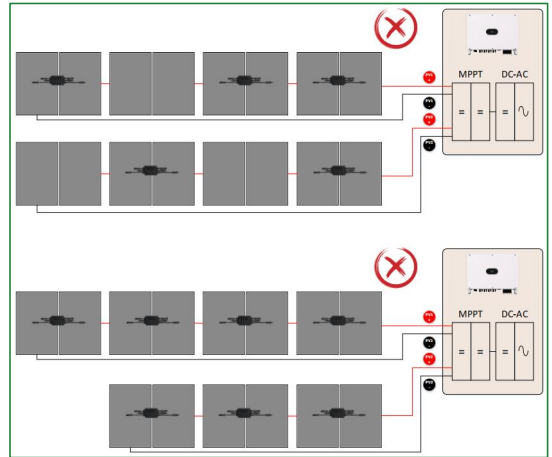
NOTE

Only Support Full RSD:
All PV modules connected to the inverter should be connected to the RSD.

Examples of correct configuration

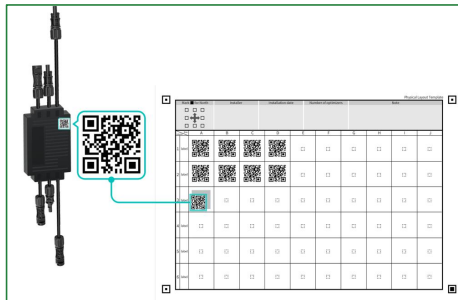


Examples of incorrect configuration



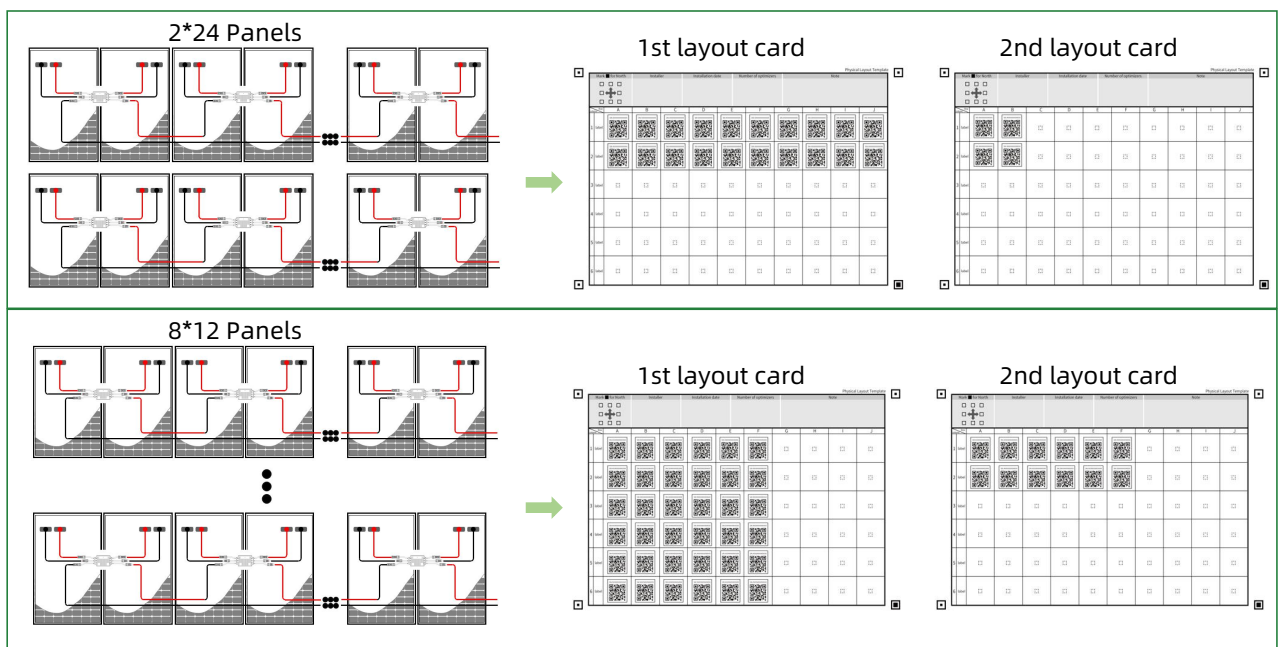
⑤ Generate Layout

Paste QR code



Once determining the location where RSD are installed, tear off the QR codes from the RSD and paste it on the physical layout template.

Examples of physical layout template



⑥ Connect devices via App

① Download the app

Method 1:

Search "SolarPilot Energy" in the App Store, Google Play or other application market on smart phone;



SolarPilot Energy APP icon

Method 2:

Scan the QR code to download the APP in right hand.



QR code for Android



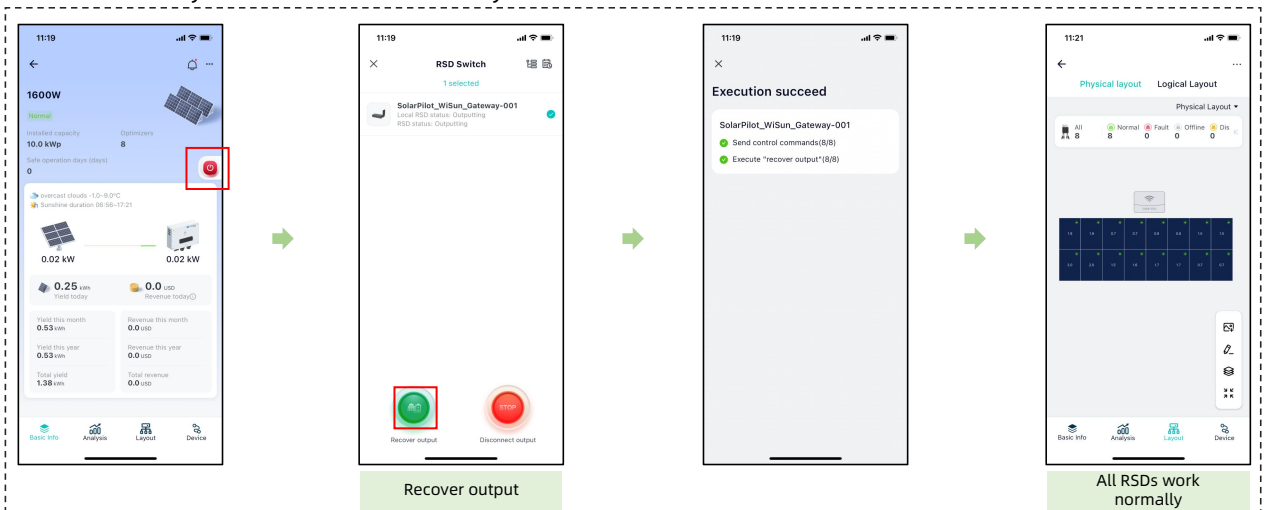
QR code for IOS

② Follow the APP operation guide to complete adding devices

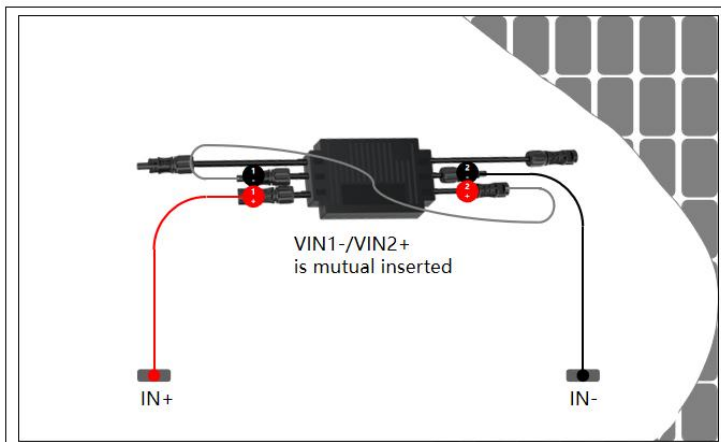
For details about the gateway operation process, see 《SolarPilot-User Manual-SP5-RSD-AG》、
《SolarPilot-User Manual-SP4-WISUN-GW》

7. Execute Recover Output (Very Important)

The RSD works in RSD mode by default and needs to recover output.
Otherwise the PV system will work abnormally.



8. Odd module Installation Instructions



NOTE

For odd module,
VIN1+ is connected to the positive terminal of the PV module,
VIN2- is connected to the negative terminal of the PV module,
VIN1-/VIN2+ are connected to each other.