

Quick Installation Guide

PV Optimizer

SP1200D/SP1400D



- The content of the manual will be updated from time to time due to product updates or other reasons. Under no circumstances should this guide be taken as a substitute for the user manual and safety instructions on the product.
- Before performing any operation, read through the user manual the relevant standards and specifications carefully, which can be downloaded from <http://support.sungrowpower.com/> or by scanning the QR code on the back cover of this guide.
- Operations must all be performed by qualified technical persons who have received special training, read through the manual carefully, have a good understanding of the instructions for safe operation, and are familiar with local standards and safety specifications for electrical systems.
- Before installation, check the delivery for quantity of items, consistency with the order, and damages according to the packing list. In case of anything abnormal, contact the transport service provider or SUNGROW.
- Make sure the cables are intact and well-insulated before electrical connections. Use insulated tools and wear personal protective equipment during operation.
- Failure to follow any of the above requirements may lead to personal injury or damage to the device.

Safety Instructions

SUNGROW shall not be held liable for any personal injury or device damage caused by violation of the operation instructions in this guide and the user manual.

DANGER

- Electric shock!
- The PV string will generate lethal high voltage when exposed to sunlight.
- All electrical connections must and can only be completed by qualified technical persons.
- All electrical connections must be completed in compliance with local and national electrical standards.

WARNING

- The safety signs, warning labels, and nameplate on the optimizer must all be legible and cannot be removed or covered.

CAUTION

- Danger of burns!
- Do not touch the optimizer when it is running. Otherwise, it may cause burns.

Security Declaration

- To learn more about the product network security vulnerability response process and vulnerability disclosure, please scan the QR code below or visit the following website:
<https://en.sungrowpower.com/security-vulnerability-management>



Signs on the Product



Lethal high voltage!
Only professional and qualified personnel are allowed to install and operate the optimizer!



Hot surface with a temperature that may exceed 60 °C . Risk of burns!



Equipment protected by double insulation or reinforced insulation.



Comply with RCM certification.



Comply with CE certification.
EU/EEA importer.

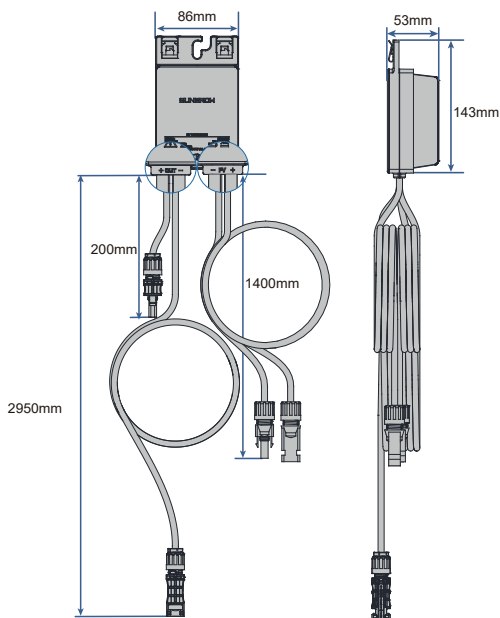


Read the instructions before performing any operation on the optimizer.



Do not dispose of the optimizer as household waste.

Product Introduction



Installation Site



85 °C (+185°F)



-40 °C (-40°F)



0-100 %



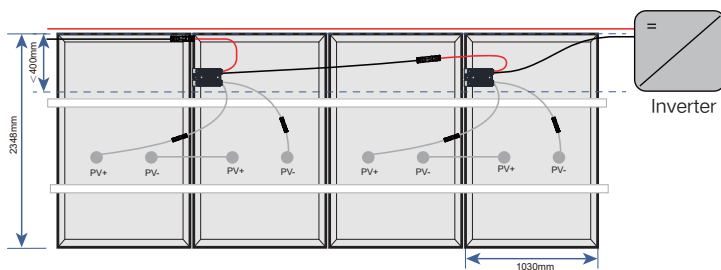
Installation Tools



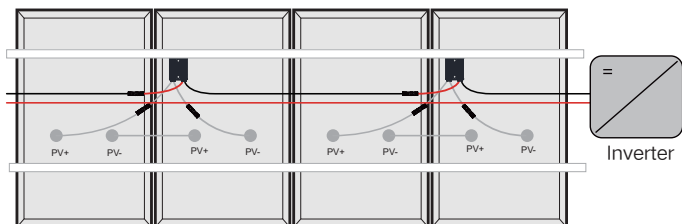
Installation Scenarios

Before installation, decide the installation and arrangement schemes based on the actual situation, to ensure that the optimizer can be connected to PV modules and adjacent optimizers normally.

● Case 1: Mounted on PV module (Clip-on)



● Case 2: Mounted on guide rail

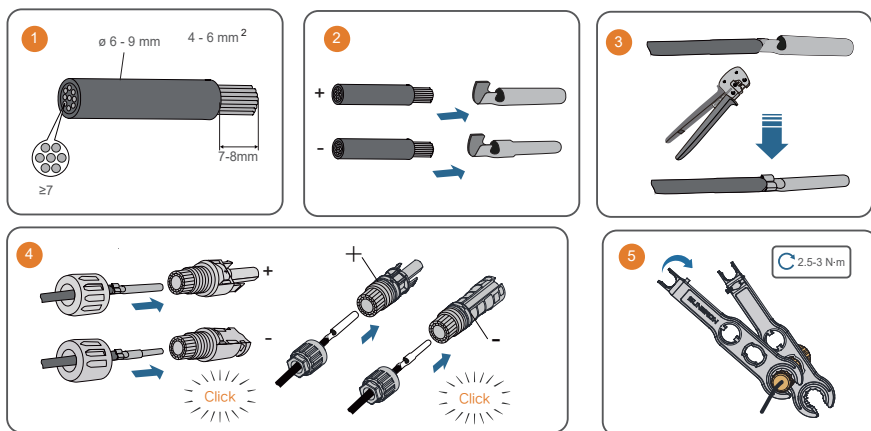


⚠ NOTICE

The mounting and wiring should be performed in compliance with local laws, regulations, safety standards, and installation specifications. If the cable is too long, make sure it does not hang down to the ground. You can secure it nearby to the bracket or the edge of the module. can secure it nearby to the bracket or the edge of the module.

When connecting the optimizer, if the distance between the connectors is too long, you will need to prepare an extension cable.

Extension Cable Preparation



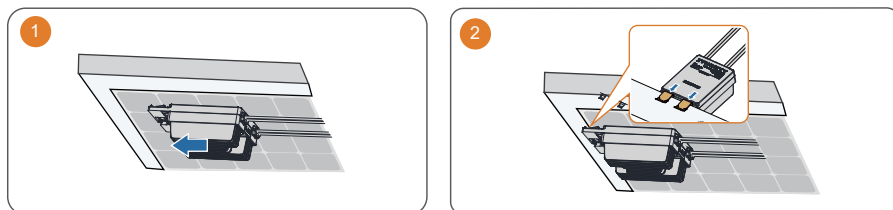
⚠ WARNING

- When preparing an extension cable, pay attention to the selection of DC connectors at the two ends of the cable. Do not mix them up.
- Make sure the DC connectors of the cable are identical to or compatible with the connectors on the product. Otherwise, it may lead to damage and such damage will not be covered by the warranty.

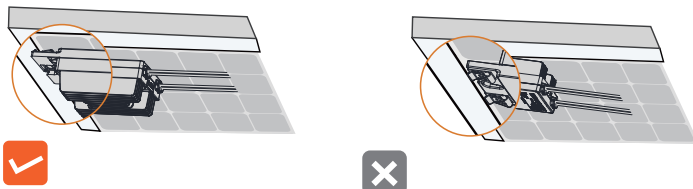
Optimizer Mounting

Decide on an appropriate position to mount the optimizer. Remove the QR code label from the optimizer, and attach the QR code label to the layout template by referring to the instructions for "Physical Layout Template".

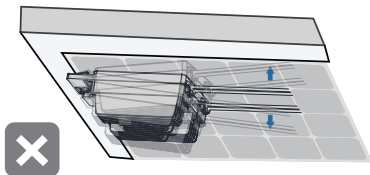
Mounted on PV module (Clip-on)



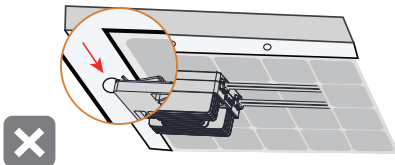
- Ensure that the optimizer is installed facing the back of the module. Otherwise, the clips may be damaged.



- Do not apply force to the optimizer in a direction vertical to its clips when clipping the optimizer onto the module. Otherwise, the clips may be damaged.

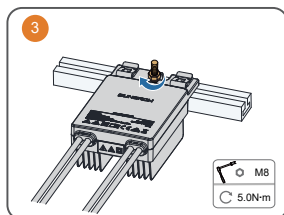
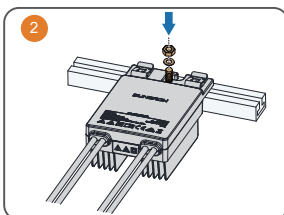
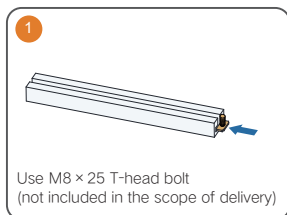


- Do not clip the optimizer into holes in the module frame during installation. Otherwise, you may not be able to remove the optimizer again and its clips may be damaged.

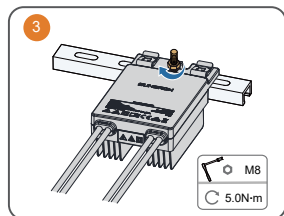
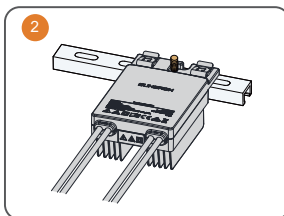
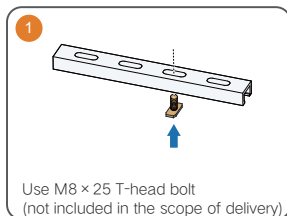


- Do not forcibly bend its clips when clipping the optimizer onto the module. Otherwise, the clips may be damaged.
- It is recommended to install optimizers on the same side of modules.
- Do not clip and remove the optimizer repeatedly. Otherwise, the clips may become loose and thus cannot function properly.

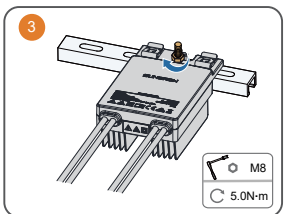
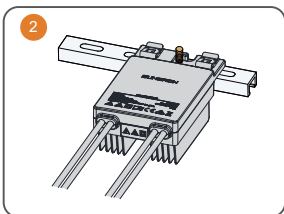
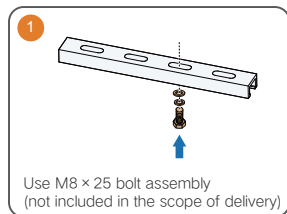
Mounted on aluminum guide rail



Mounted on steel guide rail (T-head bolt)

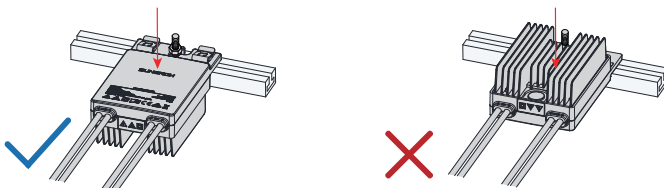


Mounted on steel guide rail (bolt assembly)

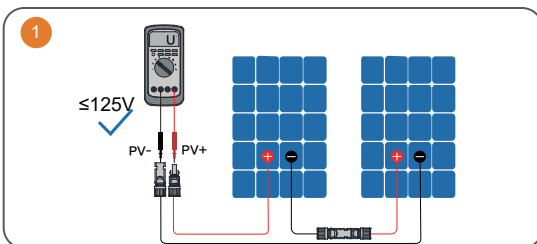
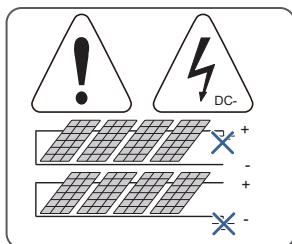


⚠ WARNING

- During installation, make sure the metal clips do not get in contact with the bracket.
- Install the optimizer with its back tightly against the bracket. Installing it from the opposite direction may damage the optimizer and such damage will not be covered by warranty.
- Ensure the optimizer is installed in the correct orientation. Failing to do so may impede proper installation of the PV module and hence result in rework.

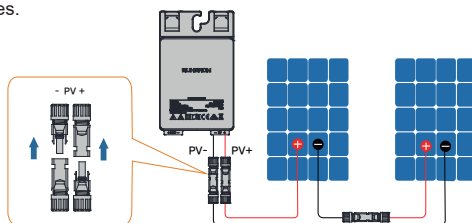


Electrical Wiring



- Before connecting the PV module to the optimizer's input terminals, test the input voltage of the optimizer using a multimeter and make sure it is below 125V. optimizer or PV module damages caused by failing to observe this instruction will not be covered by the warranty.

2 Connect the modules.

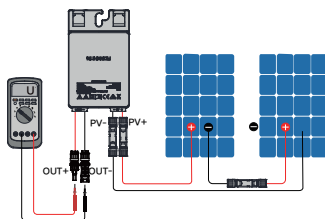


⚠ NOTICE

Complete the optimizer wiring and measure the output voltage by following the steps below.

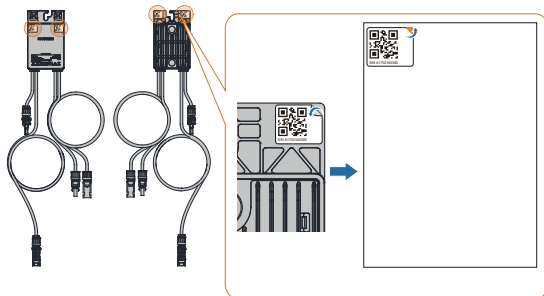
- When there is an odd number of PV modules, it is allowed to connect one single module to an optimizer.
- After completing the wiring of an optimizer, use a multimeter to measure its output voltage. Ensure that the output voltage of each optimizer is within the normal range.
- After confirming that the output voltages of all optimizers are normal, use a multimeter to measure the output voltages of optimizers in the same string.
- If you do not check the optimizer output voltage and confirm the string wiring is completed properly in this step, in case of something abnormal, you may have to check the whole wiring again, where rework is required.

- 4 Measure the output voltage of each optimizer.

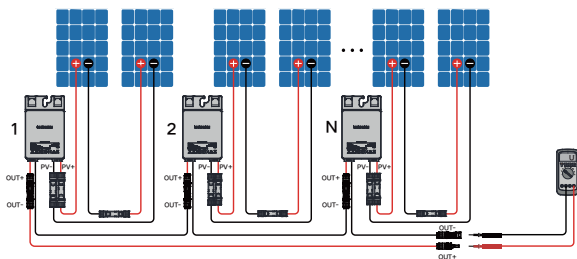


Voltage	Description	Suggestion
$0.9V \leq U \leq 1V$	Optimizer normal.	/
$U \leq 0.9V$	1. Poor sunlight.	1. Measure the voltage when there is sufficient sunlight.
	2. No PV module is connected to the input side of the optimizer.	2. Connect the PV module to the input side of the optimizer.
	3. The wiring of the optimizer is wrong.	3. Reconnect the optimizer cables correctly. Make sure the input side of the optimizer is connected to the output side of the PV module.
	4. Optimizer fault.	4. Replace the optimizer.
$U \geq 1.1V$	Optimizer fault.	Replace the optimizer.

- 4 Each optimizer is equipped with four QR code labels on its front and back sides. Remove any one of these labels and affix it to the paper in the logical order of the actual wiring. This allows you to add the optimizer to iSolarCloud by importing an Excel layout file.

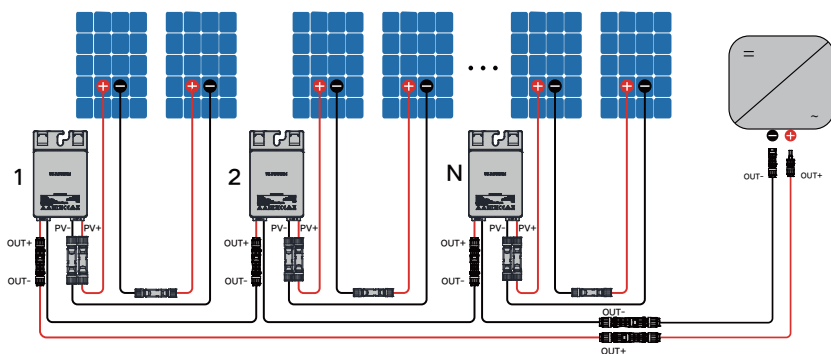


- 5 Measure the output voltages of all optimizers in the same string. Typical voltage value $U: 1V \times N$.



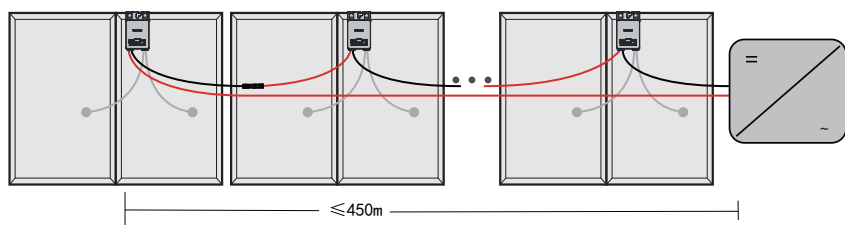
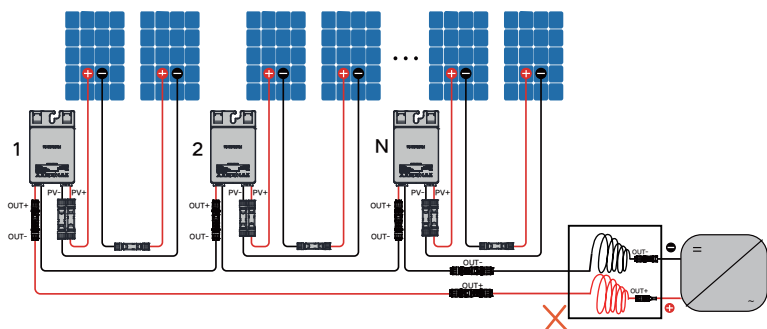
Voltage	Description	Suggestion
$U = 1 * N$	optimizer normal.	/
$U = 0$	1. The string is open-circuited. 2. The cables are not connected to the same string.	1. Check whether the string is open-circuited. 2. Identify the string cables correctly.
$U < 0$	1. The probes are reversely connected. 2. The cable labels are incorrect.	1. Reconnect the positive and negative probes correctly. 2. Prepare cable labels correctly.
$U < 0.9 * N$	1. Some optimizer input cables are not connected. 2. Some optimizer output cables are not connected. 3. Some optimizer output cables are reversely connected.	Check whether cables of modules and strings are properly connected.
$U > 1.1 * N$	1. The actual number of optimizers in the string is greater than expected. 2. The PV module is connected to the string directly, not connected to any optimizer.	1. Check whether the number of optimizers in the string is correct. 2. Check whether cables of modules and strings are properly connected.

6 Connect the inverter.



⚠ WARNING

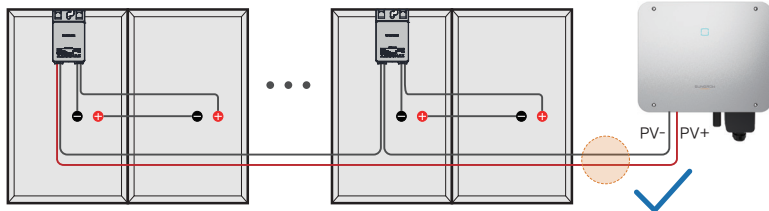
- Do not coil the optimizer's cable when wiring, given that the communication quality may decline if the extension cable is too long.
- The maximum communication distance between the inverter and the optimizer should be no more than 450m. If the distance exceeds 450m, consult SUNGROW first.



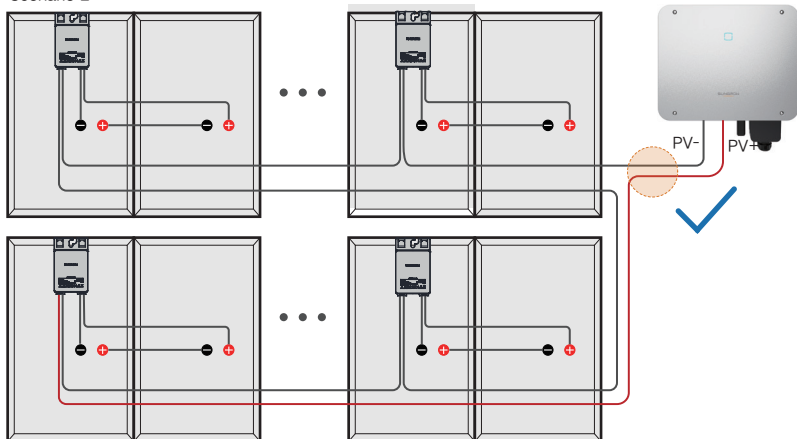
⚠ WARNING

- DC wiring requirements: The positive and negative DC cables of the same PV string should be kept parallel and close to each other. The correct wiring is shown below.

Scenario 1



Scenario 2



⚠ WARNING

- The positive and negative DC cables of the same PV string are not allowed to be routed apart separately, as shown in the figure below.

Commissioning

- Once the optimizer installation and wiring are complete, use the whitelist feature on the iSolarCloud WEB to add the optimizers to the plant. For detailed instructions, scan the QR code below and refer to Plant -> Plant Details -> Layout Settings -> Layout Setup for Distributed PV Plant.



- Users can view the plant where the optimizers are added, check the layout, and replace optimizers using the iSolarCloud APP. For more information, scan the QR code below and refer to Plant Management -> View Optimizer/RSD Information.





For more product information in the QR code
or at <http://support.sungrowpower.com/>



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