

2026

Smarttrack05M Module Configuration Solutions and Installation Guide

QC Solar Corp.

- This document is a module configuration solution for Smarttrack05M, which is mainly used for residential roofing or commercial/industrial roofing projects.
- Smarttrack05M input voltage is 16~160V, maximum input current is 30A, support 1.1 times current redundancy, support current over-allocation, can adapt to 6000m high altitude.
- Smarttrack05M is easy to install, supports snap-in mounting on module frames.

2 Module Basic Parameters

At present, the mainstream specifications of the modules are 540W~560W, 620W~645W, etc. Take a manufacturer as an example, the technical parameters of each module are shown in Table 1.

Module specifications	620W	630W	645W
Open circuit voltage-Voc (V)	43.2	43.9	44.8
Short circuit current-Isc (A)	18.18	18.24	18.33
Maximum Power Point Voltage-V _{MPP} (V)	36.1	36.6	37.2
Maximum Power Point Current-I _{MPP} (A)	17.16	17.22	17.34
Dimensions (mm)	2172 x 1303 x 33		
Temperature coefficient of short circuit current	0.04%/°C		
Temperature coefficient of open circuit voltage	-0.24%/°C		
Temperature coefficient of maximum power	-0.29%/°C		
Maximum system voltage (V)	1500		
Standardized test conditions	Irradiation intensity 1000W/m ² , module temperature 25°C		

Table 1 Parameters of various specifications of module commonly used in power stations

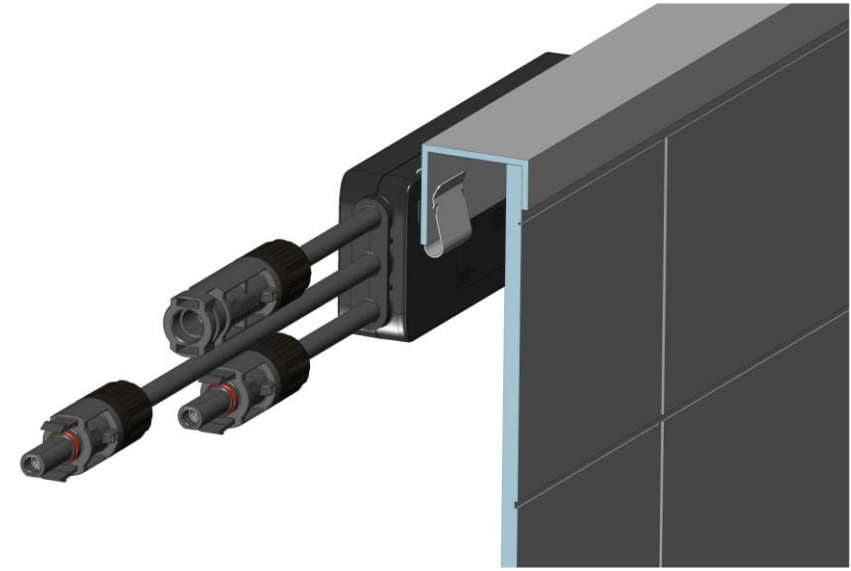
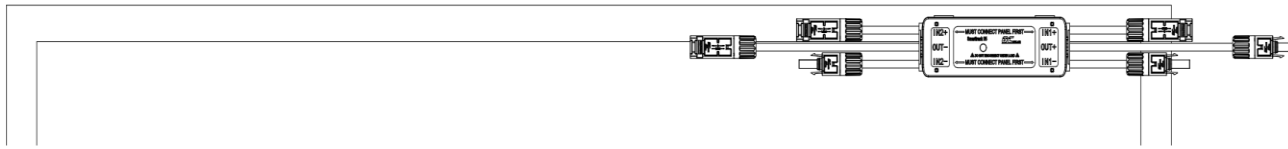
3 Design of modules in series

The module is selected as 645W module from a manufacturer, and the series design is illustrated in the case of 220V / 380V AC side voltage, as shown in Table 2.

Steps for designing modules in series or parallel	Design Examples
Step 1: Determine Open circuit voltage and system voltage	Voc is 44.8V, system voltage is 1500V
Step 2: Determine the number of modules N1, $N1 = \text{System voltage} / \text{Voc}$	The actual system voltage is taken as 1300V, $N1 = 1300 / 44.8 \approx 29 \text{ pcs}$
Step 3: Determine the number of modules that can be series connected to the transmitter N2, $N2 = 320 / \text{Isc}$	One magnetic ring of the transmitter can pass 160A current, and the transmitter contains two magnetic rings, which can pass 320A current ; $N2 = 320 / 18.33 \approx 17 \text{ strings}$, One transmitter can be connected to 8 strings of modules
Step 4: Determine the number of controllable modules for a transmitter, corresponding to the string power value, $W = \text{system voltage} * \text{Isc} * N2$	$W = \text{system voltage} * \text{Isc} * N2$ $= 1300\text{V} * 18.33\text{A} * 17 \text{ strings}$ $\approx 405 \text{ KW}$ One transmitter can control inverters $\leq 405 \text{ KW}$; If the inverter power is $> 405 \text{ KW}$, a transmitter with higher saturation current is required.

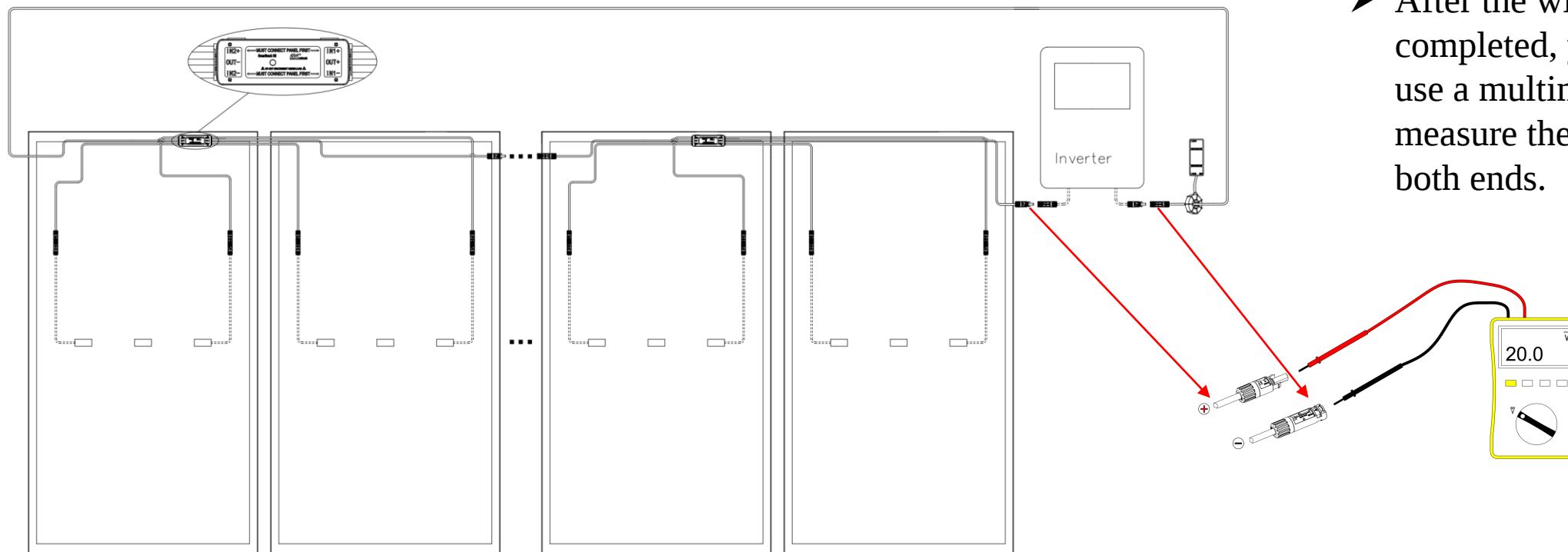
Table 2 645W modules in series design

Step1: Snap-In Mounting Smarttrack05M



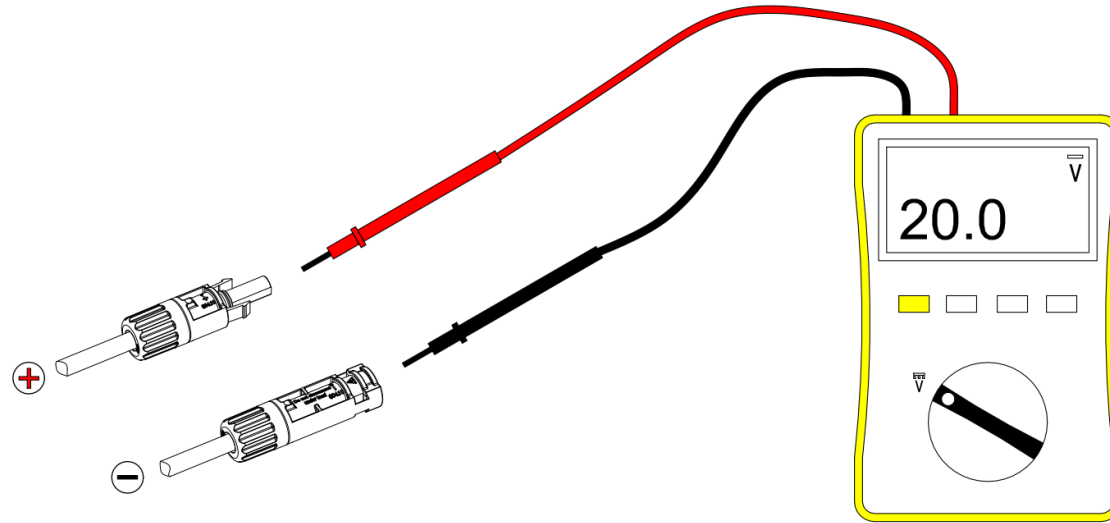
Mounting Smarttrack05M

Step 2: Smarttrack05M wiring diagram



- After the wiring is completed, you need to use a multimeter to measure the voltage at both ends.

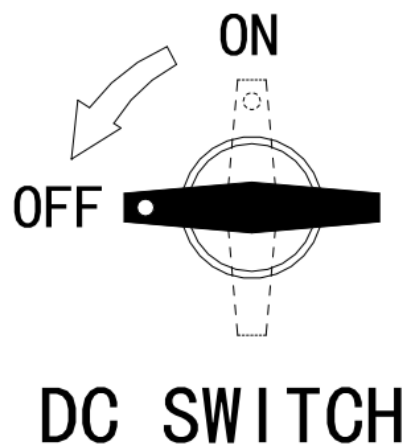
Step 3: Measured voltage



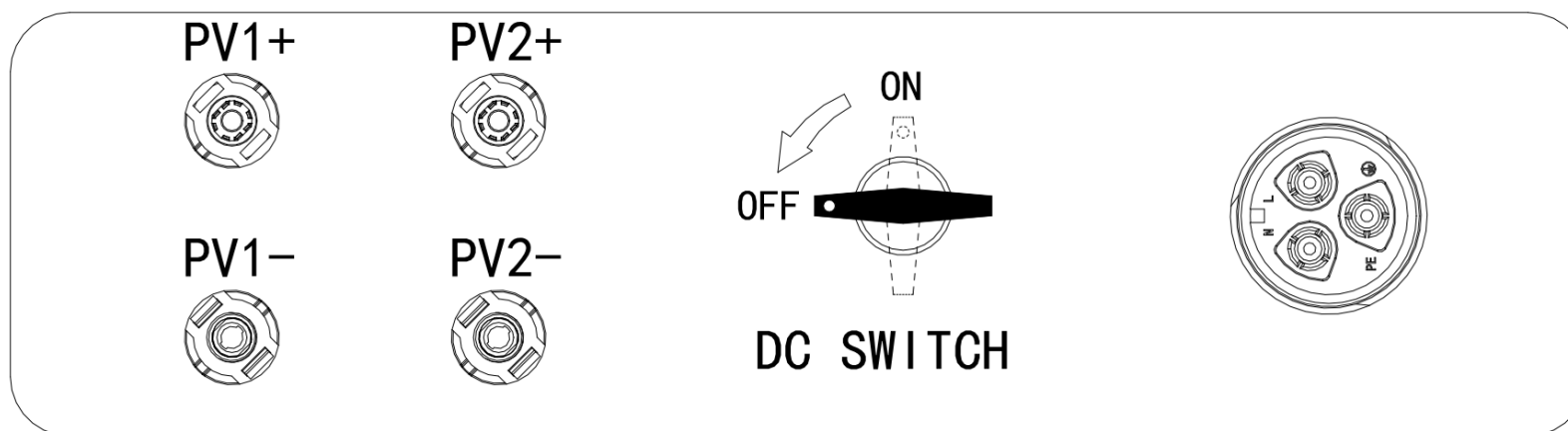
- Before connecting the Inverter, measure the voltage at both ends. The voltage is approximate $1 * N/2$ (N is the number of modules) V.

- Voltage $\approx 1 * N/2$ (N is the number of modules)
- Voltage must be positive.

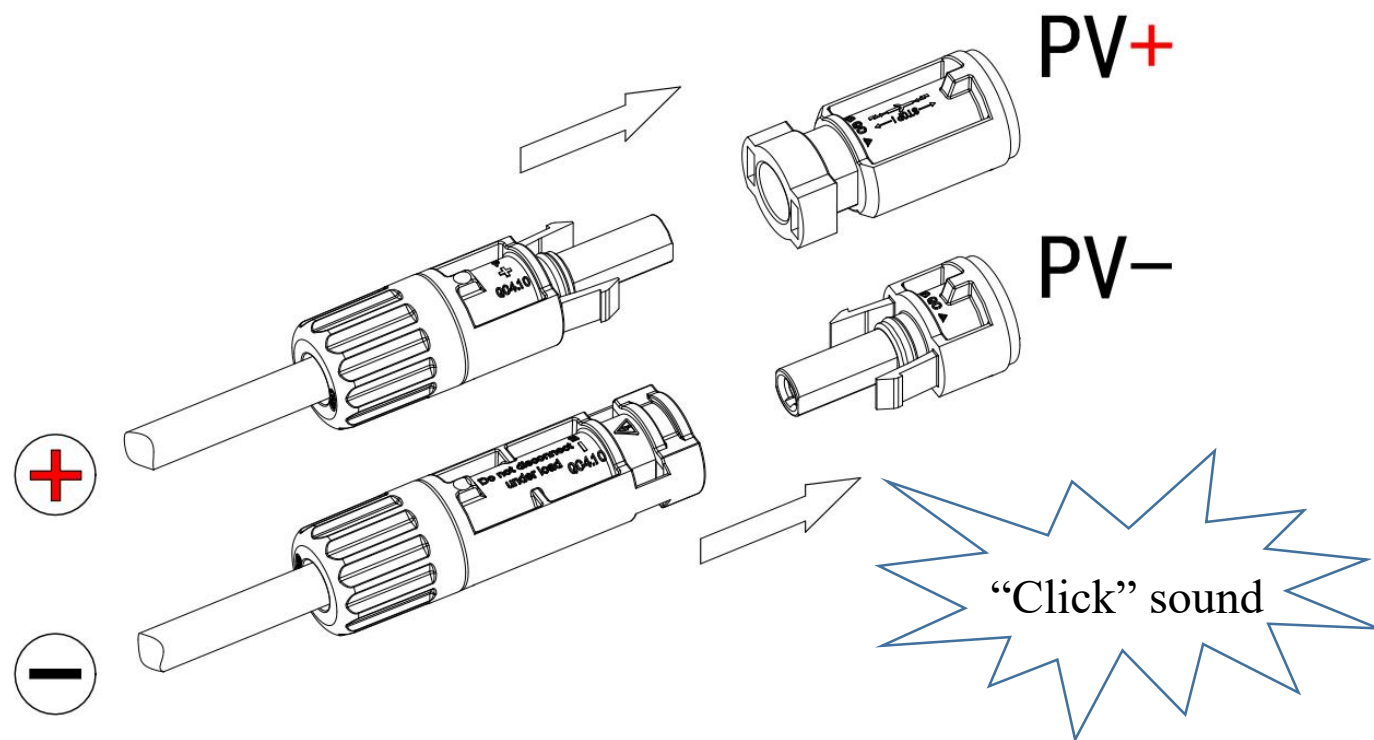
Step 4: Turn the inverter switch off



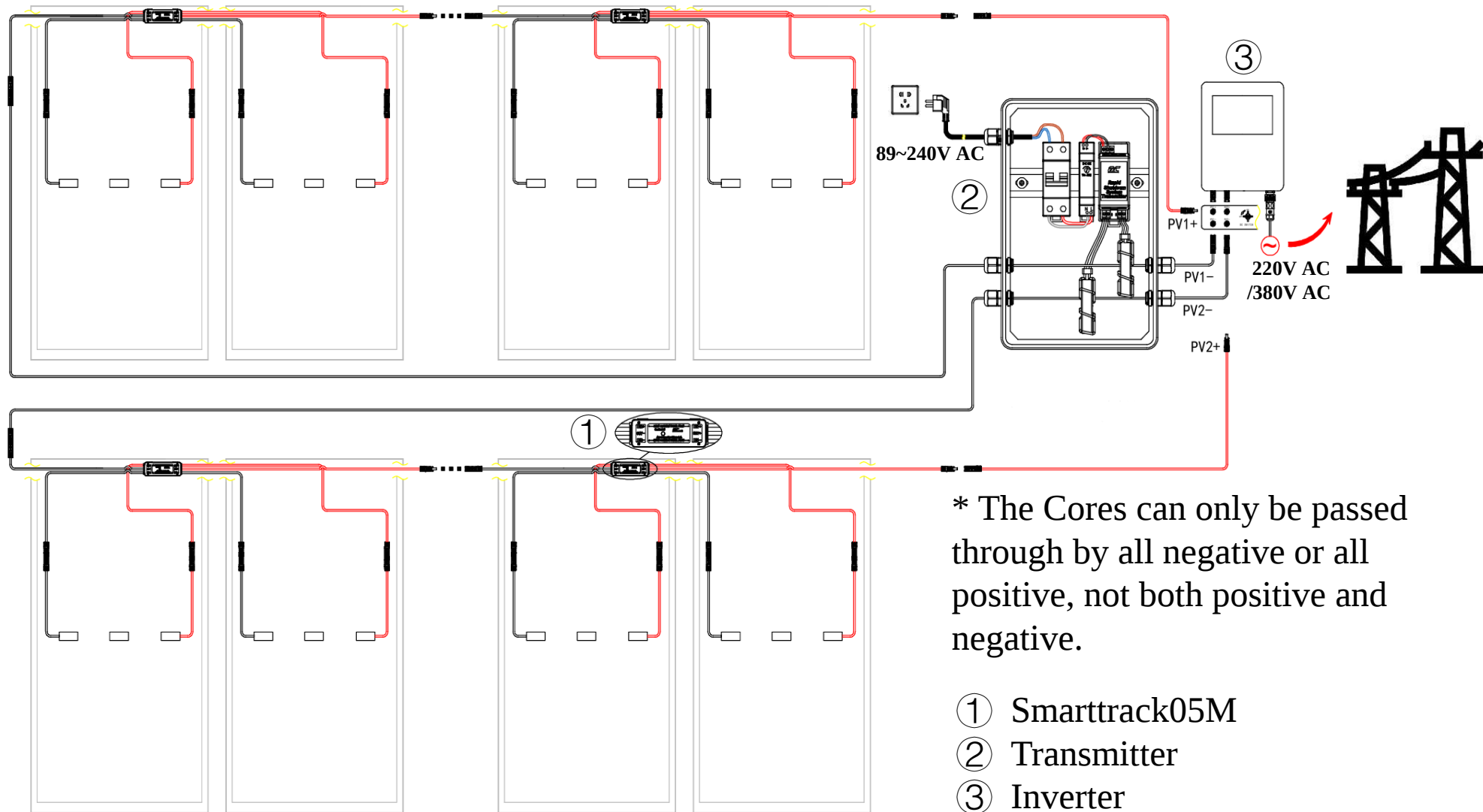
- Leave the inverter switched off before connecting the inverter.



Step 5: Connect the inverter



- After the voltage is measured accurately, connect the Inverter.
- When the connection is completed, you will hear the “Click” sound.



* The Cores can only be passed through by all negative or all positive, not both positive and negative.

- ① Smartrack05M
- ② Transmitter
- ③ Inverter

Sheet ____ of ____

Mark for North

To sheet

To sheet

Physical Layout Template

Customer

Installer

PV Module

Inverter

Optimizer

Issue:

Row

Column

A

B

C

D

E

F

G

H

I

J

1

Label

Alias

2

Label

Alias

3

Label

Alias

4

Label

Alias

5

Label

Alias

6

Label

Alias

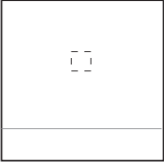
To sheet

To sheet

Physical Layout Template

Instructions:

You need to perform operations on the corresponding square cells only when there are PV modules.

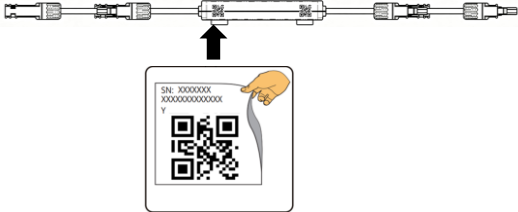


If PV modules with RSD are installed, remove labels from the optimizers, attach them to the corresponding square cells, and then write an alias (you are advised to use the string number and position as the alias).



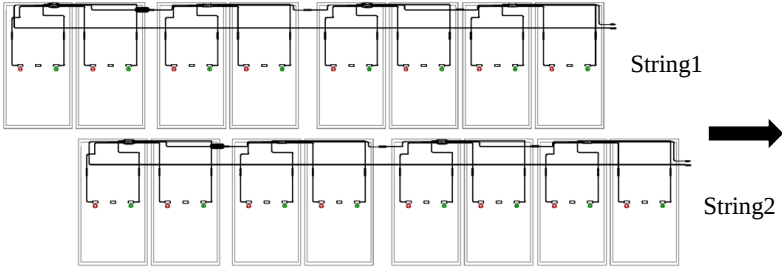
String number → X-X ← Position

Remove the below label on the side of RSD and attach it to the physical layout template.

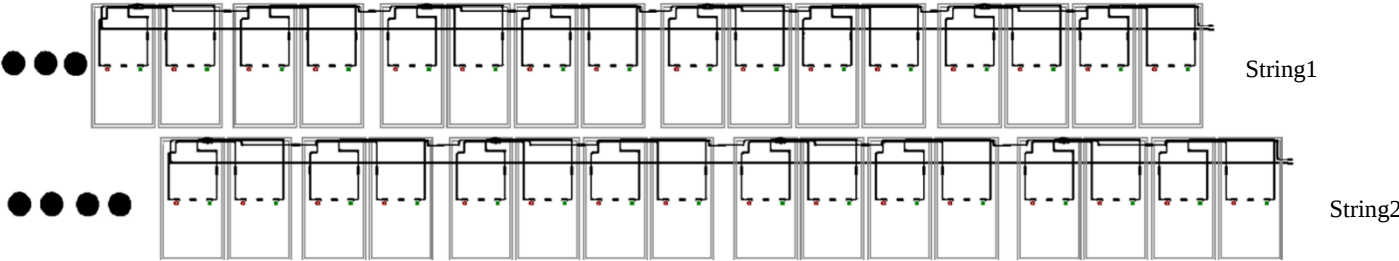


Examples:

Example 1 (single drawing):
Installation positions of PV modules and RSD.



Example 2 (multiple drawings):
Installation positions of PV modules and RSD.



The following shows the labels on the physical layout drawing:

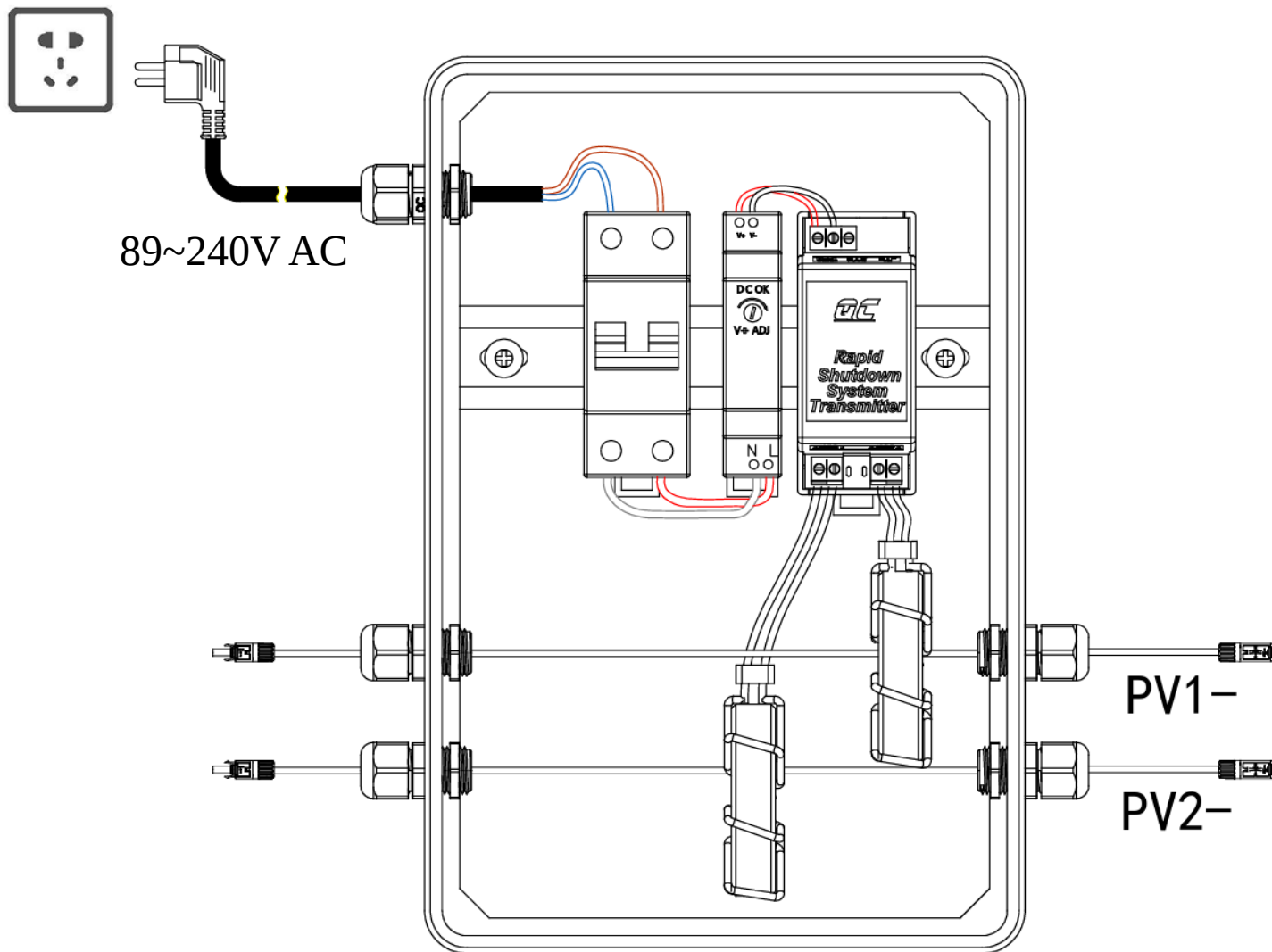
Sheet of		To sheet		To sheet		To sheet		To sheet		To sheet		To sheet	
Mark for North		Customer		Installer		PV Module		Inverter		Optimizer		Issues	
Row		Column		A		B		C		D		E	
Label		Alias		1-1		1-2		1-3		1-4		1-5	
2		Label		Alias		2-2		2-3		2-4		2-5	
3		Label		Alias									
4		Label		Alias									
5		Label		Alias									
6		Label		Alias									

Sheet of		To sheet		To sheet		To sheet		To sheet		To sheet		To sheet	
Mark for North		Customer		Installer		PV Module		Inverter		Optimizer		Issues	
Row		Column		A		B		C		D		E	
Label		Alias		1-4		1-5		1-6		1-7		1-8	
2		Label		Alias		2-5		2-6		2-7		2-8	
3		Label		Alias									
4		Label		Alias									
5		Label		Alias									
6		Label		Alias									

Sheet of		To sheet		To sheet		To sheet		To sheet		To sheet		To sheet	
Mark for North		Customer		Installer		PV Module		Inverter		Optimizer		Issues	
Row		Column		A		B		C		D		E	
Label		Alias		1-11		1-12		1-13		1-14		1-15	
2		Label		Alias		2-11		2-12		2-13		2-14	
3		Label		Alias									
4		Label		Alias									
5		Label		Alias									
6		Label		Alias									

Transmitter Power Wiring Diagram

Waterproof
Socket/Air
Switch





THANKS

Walk The Talk, Do The Best !



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