



[Swarm-PLC Installation Instructions]



Installation Manual

Swarm-PLC

V3.0-2024-06-26

The following describes how to install and connect cables to the Beehive and Swarm-PLC

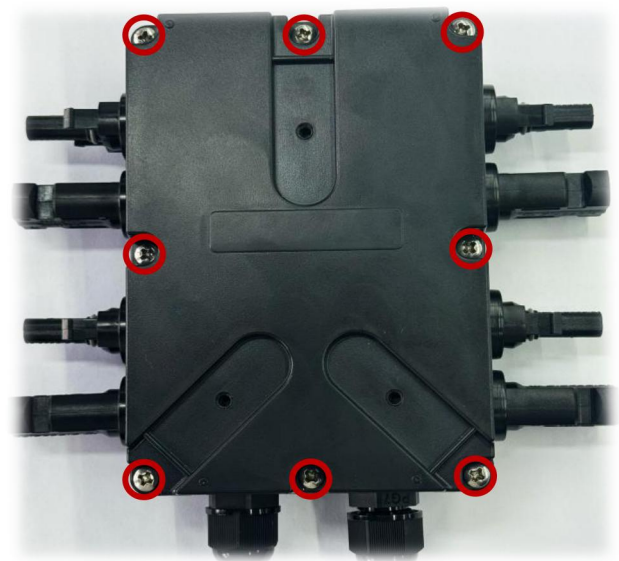
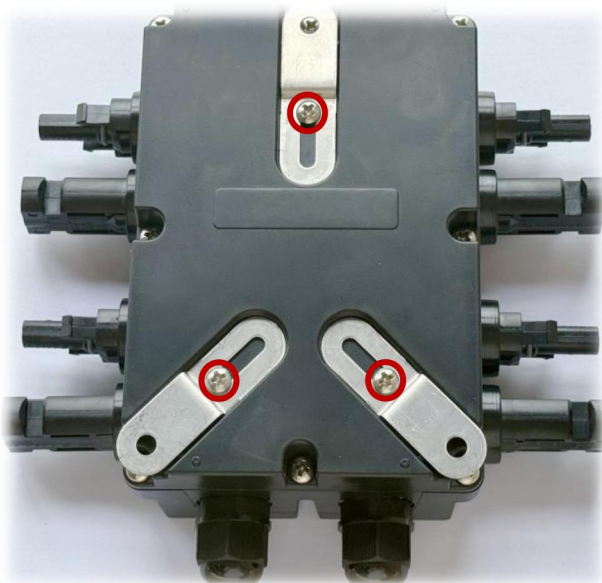
Step 1: Remove the cover screws of Beehive and Swarm-PLC installation instructions respectively. Before removing the cover screws of Swarm-PLC installation instructions, remove the three fixing plates.



The front of the Beehive

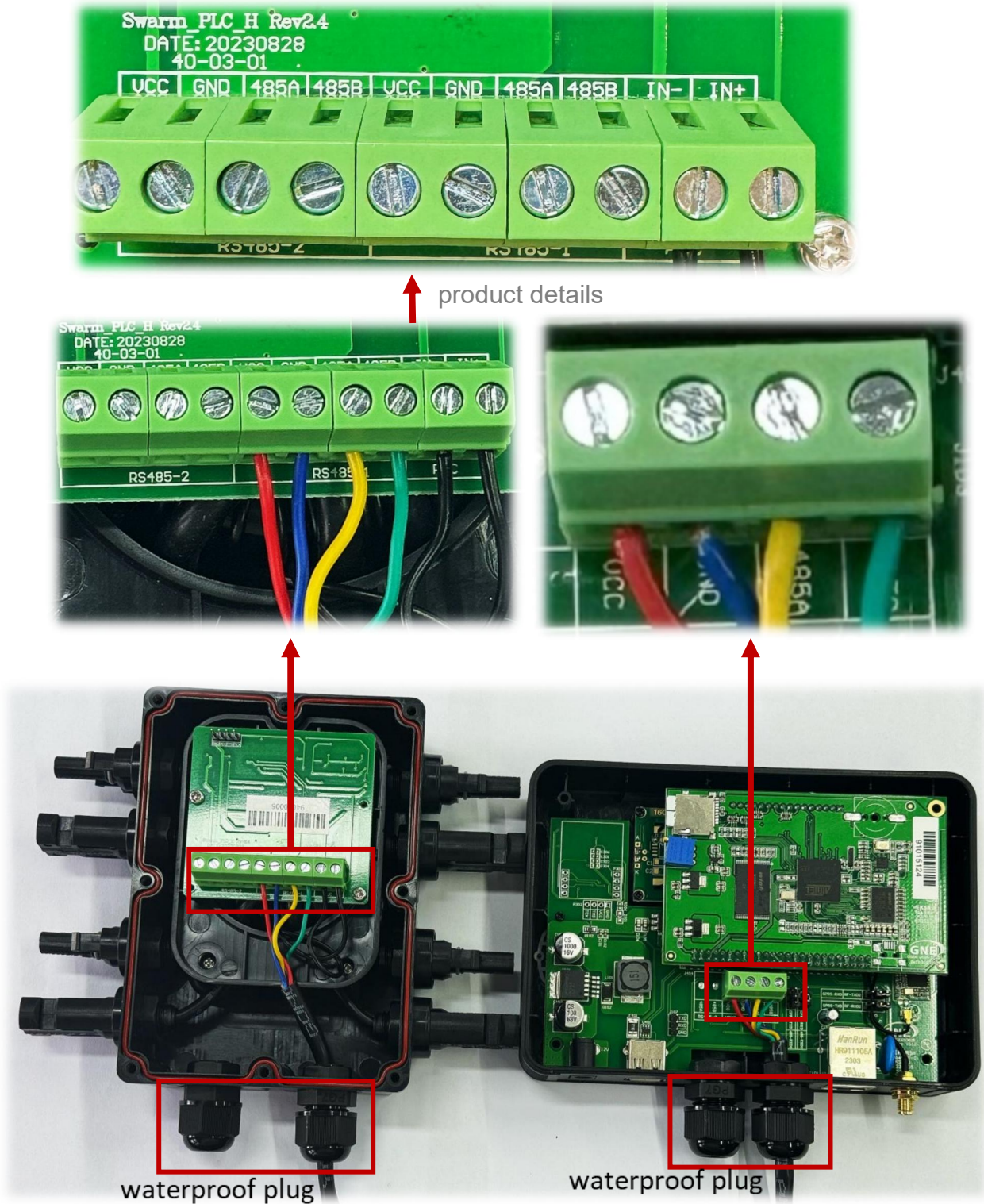


The back of the Beehive

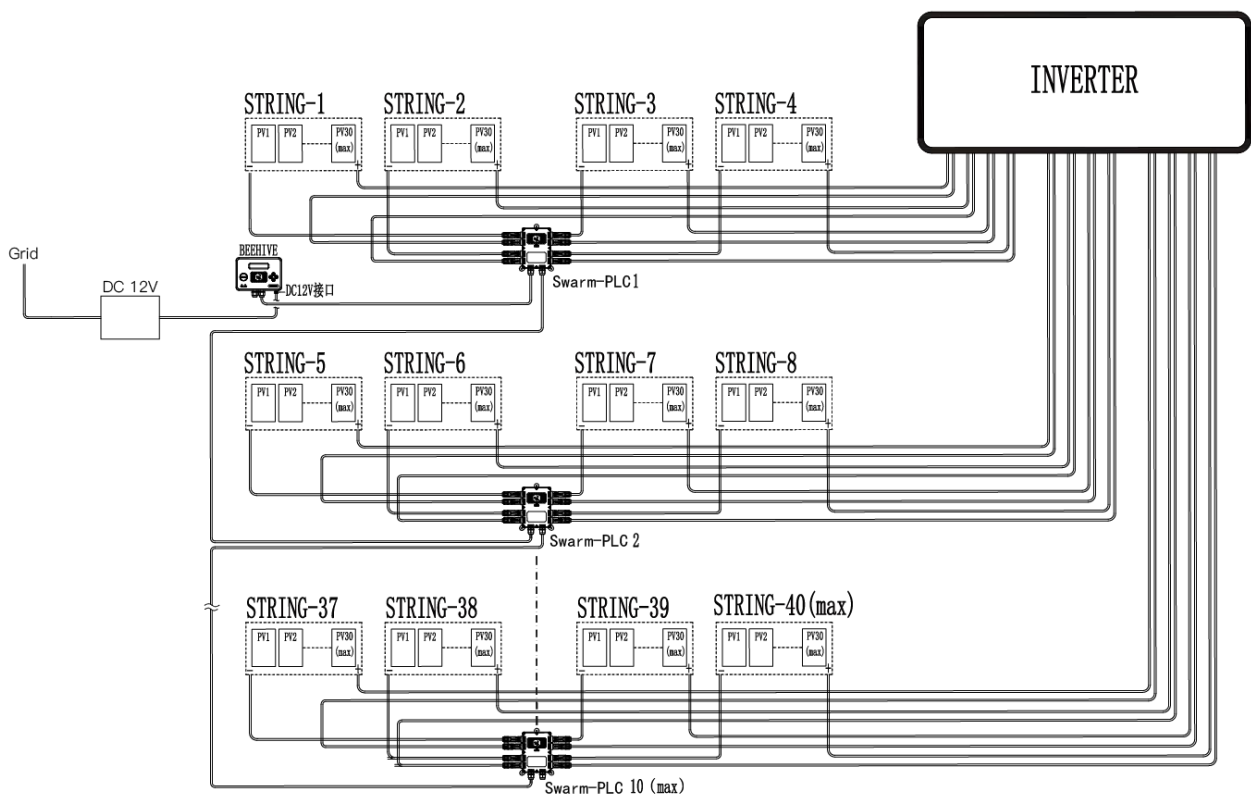


The back of the Swarm

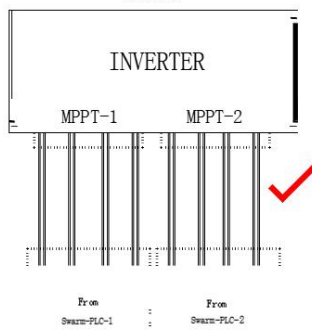
Step 2: Connect the RS485 cable through the waterproof plug to the RS485 wiring terminal. Connect the red cable to VCC, blue cable to GND, yellow cable to 485A, green cable to 485B, and connect to the RS485-1 wiring terminal respectively.



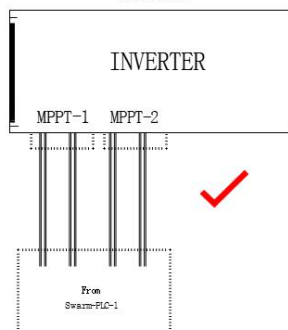
Step 3: If one Beehive connects to multiple Swarm-PLCs, the 485-2 connecting to Swarm-PLCs needs to be connected to the 485-1 connecting to the next Swarm-PLCs using 485 cables.



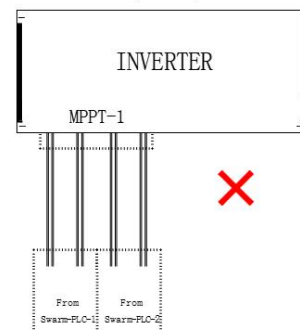
Strings from different Swarms-PLC can be connected to different MPPTs of the inverter respectively. (advised)



Strings from one Swarm-PLC can be connected to different MPPTs of the inverter. (not advised)



Strings from different Swarms-PLC cannot be connected to one MPPT of the inverter. (forbidden)

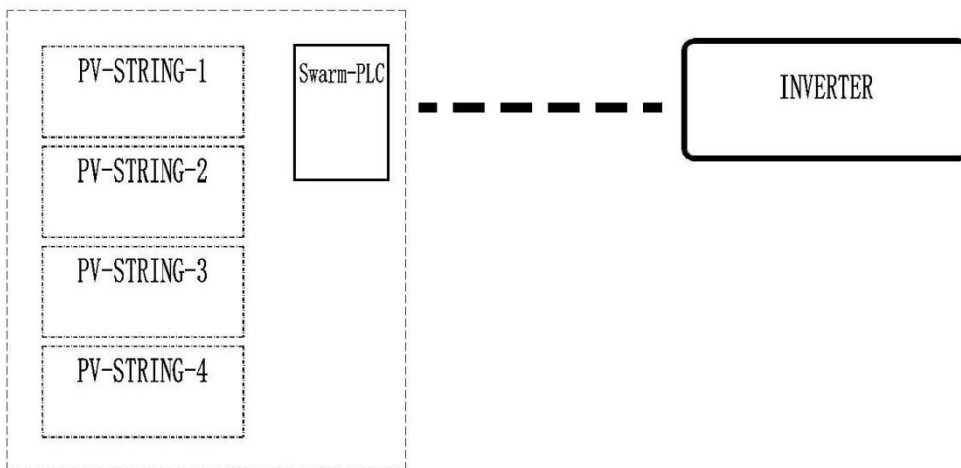


- ❖ A string of up to maximum 30 modules in series
- ❖ A Swarm-PLC can connect up to 4 strings at most

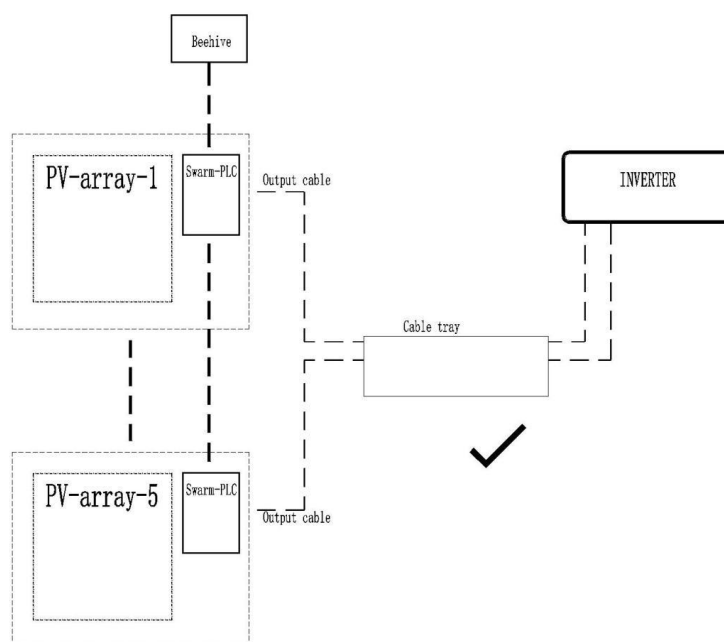
- ❖ Maximum 10 Swarm-PLC cascade
- ❖ The entire system can support up to 40 strings at most

Notes: The following specifications should be met when installing multiple Swarm-PLCs.

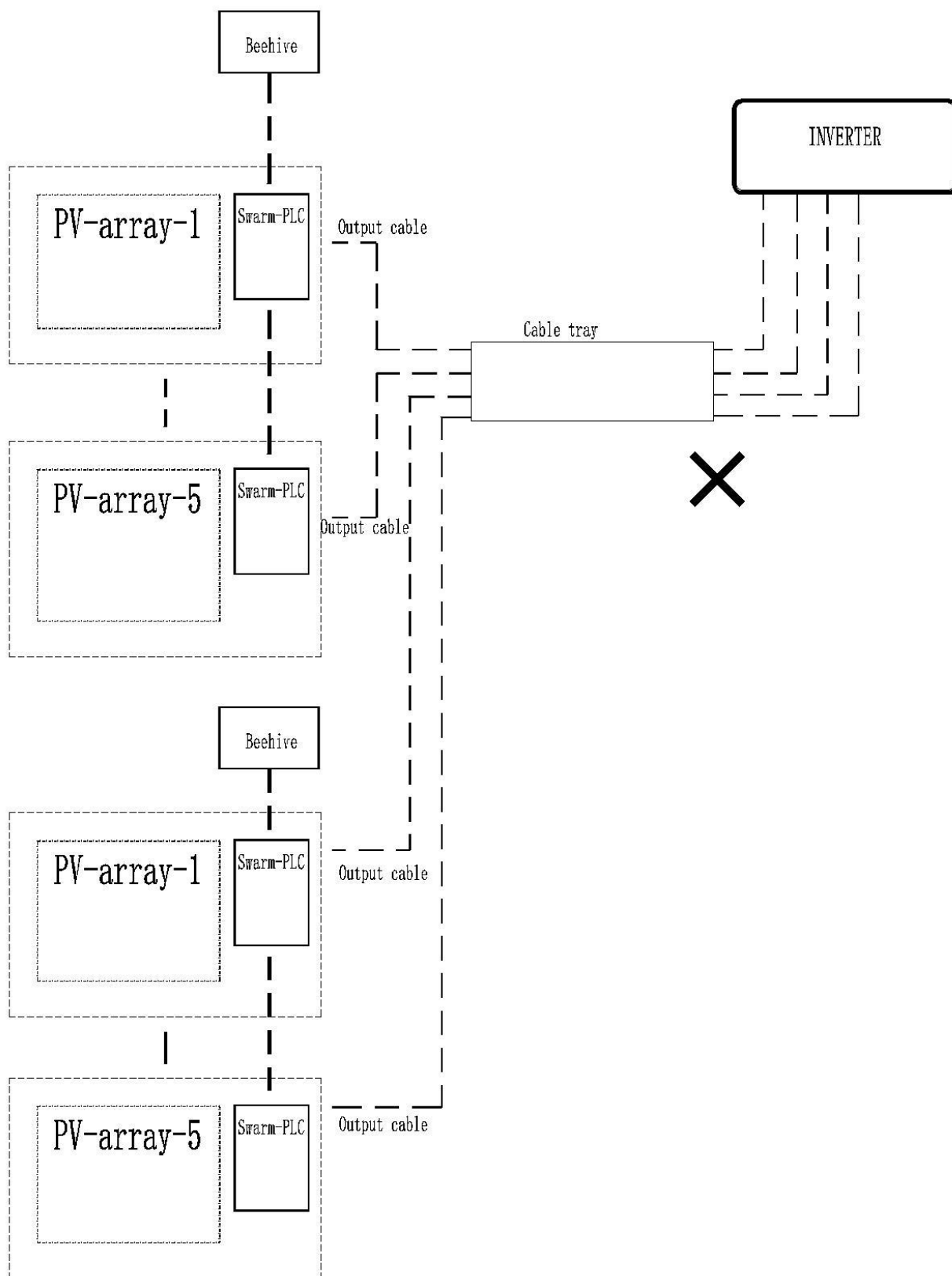
① Swarm-PLC should be located by the PV array rather than the inverter.



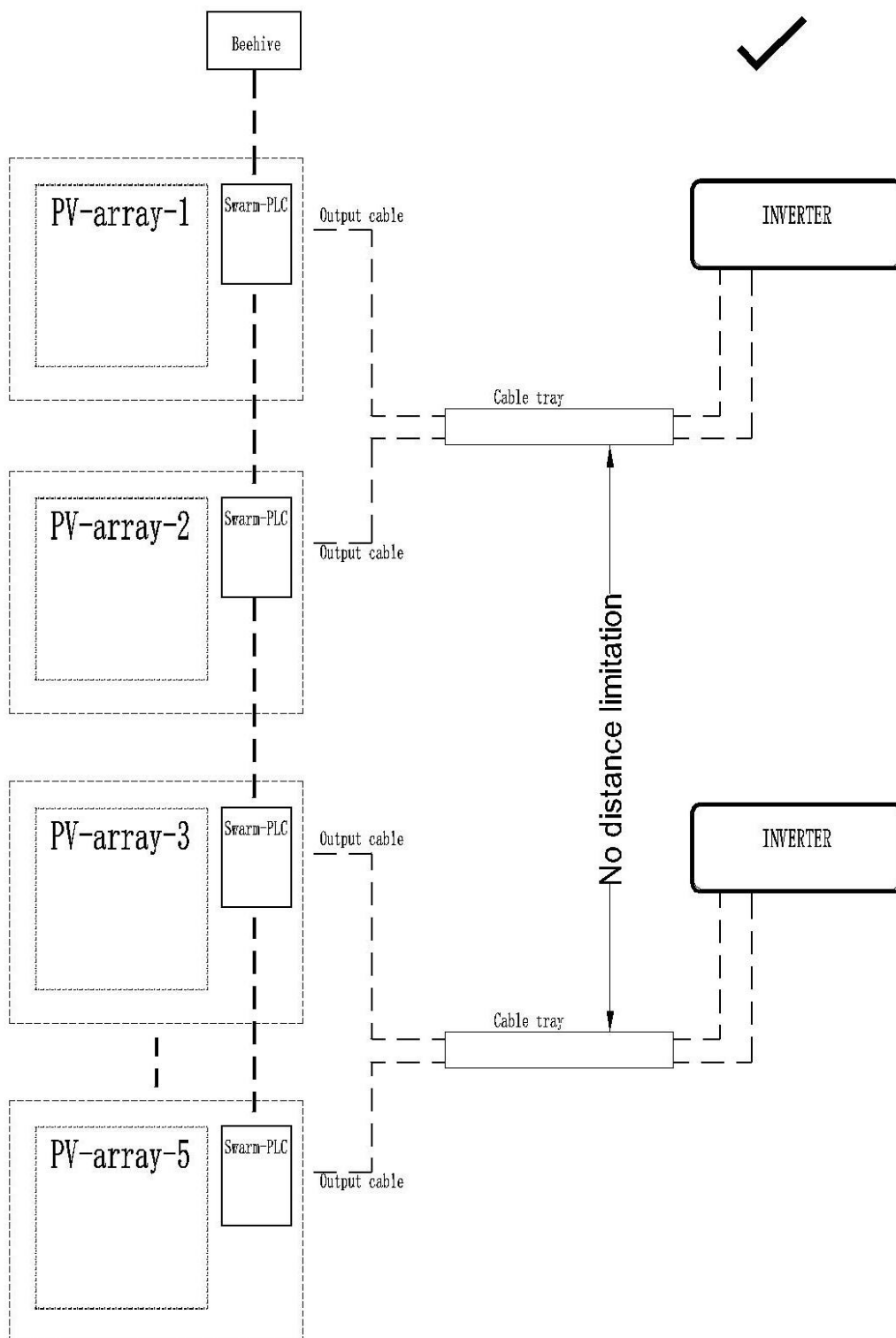
② One cable tray corresponds to only one beehive.



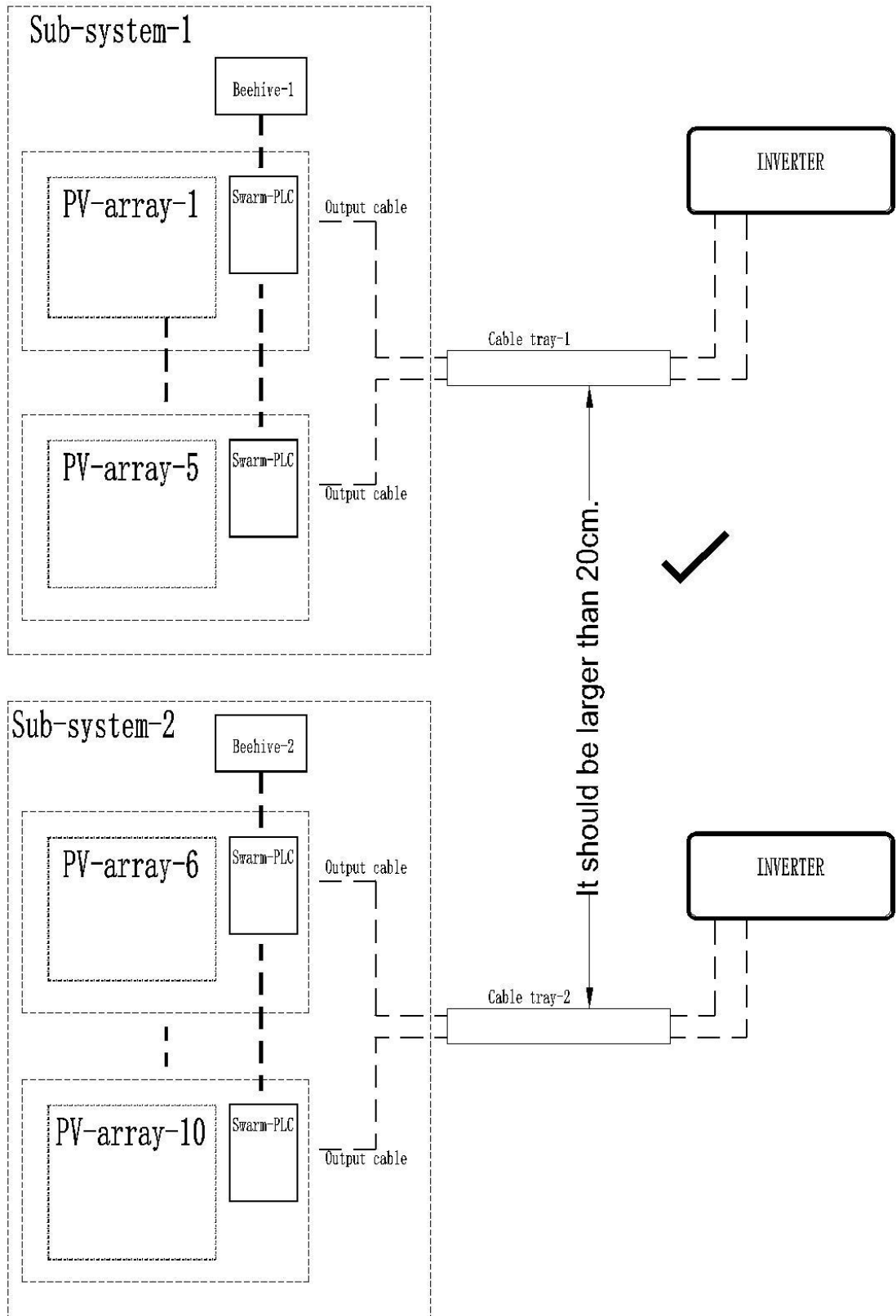
③ One cable tray can't correspond to two or more beehives.



④ Two cable trays correspond to one beehive.



⑤ It should be larger than 20cm between two cable trays which correspond to different beehives.



Step 4: Connect all devices and tighten the waterproof plugs. Tighten the screws on the cover of Beehive and Swarm-PLC.

Step 5: A Swarm-PLC can connect four electrical strings, connect one end of the negative electrode of the electrical string to STR-1-IN through the extension line, STR-1-OUT through the extension line to the negative electrode of the inverter, and the positive electrode of the string is directly connected to the positive electrode of the inverter through the extension line.

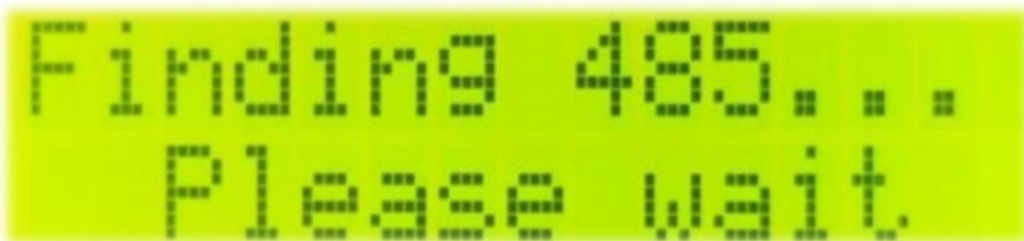


Step 6: After all lines are connected, the aggregator can be powered for network connection (WiFi, Cable). One of the connection modes can be selected. If multiple Swarm-PLC sets are connected, it is necessary to scan RS485 for Swarm-PLC networking.

Search Swarm:

This menu is used to find and record all the Swarms connected to the RS485 bus, operation steps: Main Menu->Settings->Search Swarm, press OK to search and waiting for the result. The display is shown as below.

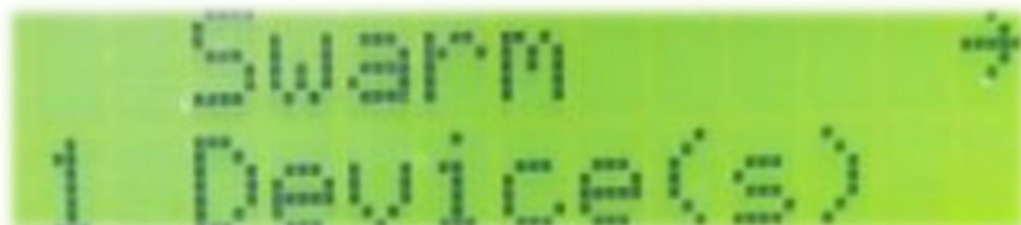
When the search is complete, the quantity is displayed. If the displayed number matches the actual connection number, it indicates that the RS485 connection is correct. If it does not match it, please check the connection and press the menu item again.



Finding 485...
Please wait

View Swarm:

This menu is to view the number of Swarm connected to the Beehive. Operation steps: Main Menu->Work Status->Swarm; the display is shown as below. No. of Swarm connected.



Swarm →
1 Device(s)



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