



# [ Swarm Layout and Installation ]



## Installation Manual

Swarm

## **I : Rooftop communication distance of 2.4G Swarm and Optimizers**

The theoretical communication distance of Swarm in an open scene is a radius of 50meters. Limited by various types of actual installation scenarios, the communication distance will be reduced to varying degrees. Therefore, in many power stations, two or more Swarms are needed to collect data from the optimizer.

In this scenario, the communication distance of Swarm in the direction of the same row of components is 20meters, but 10 meters between different rows.



In this scenario, the Swarm communication range is 10 meters by radius;



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In this installation scenario, the communication range of Swarm is 10 meters by radius. The number and location of Swarms are configured according to the needs of the site, and the Swarm is installed in the center area of the corresponding solar modules and is higher than their plane.



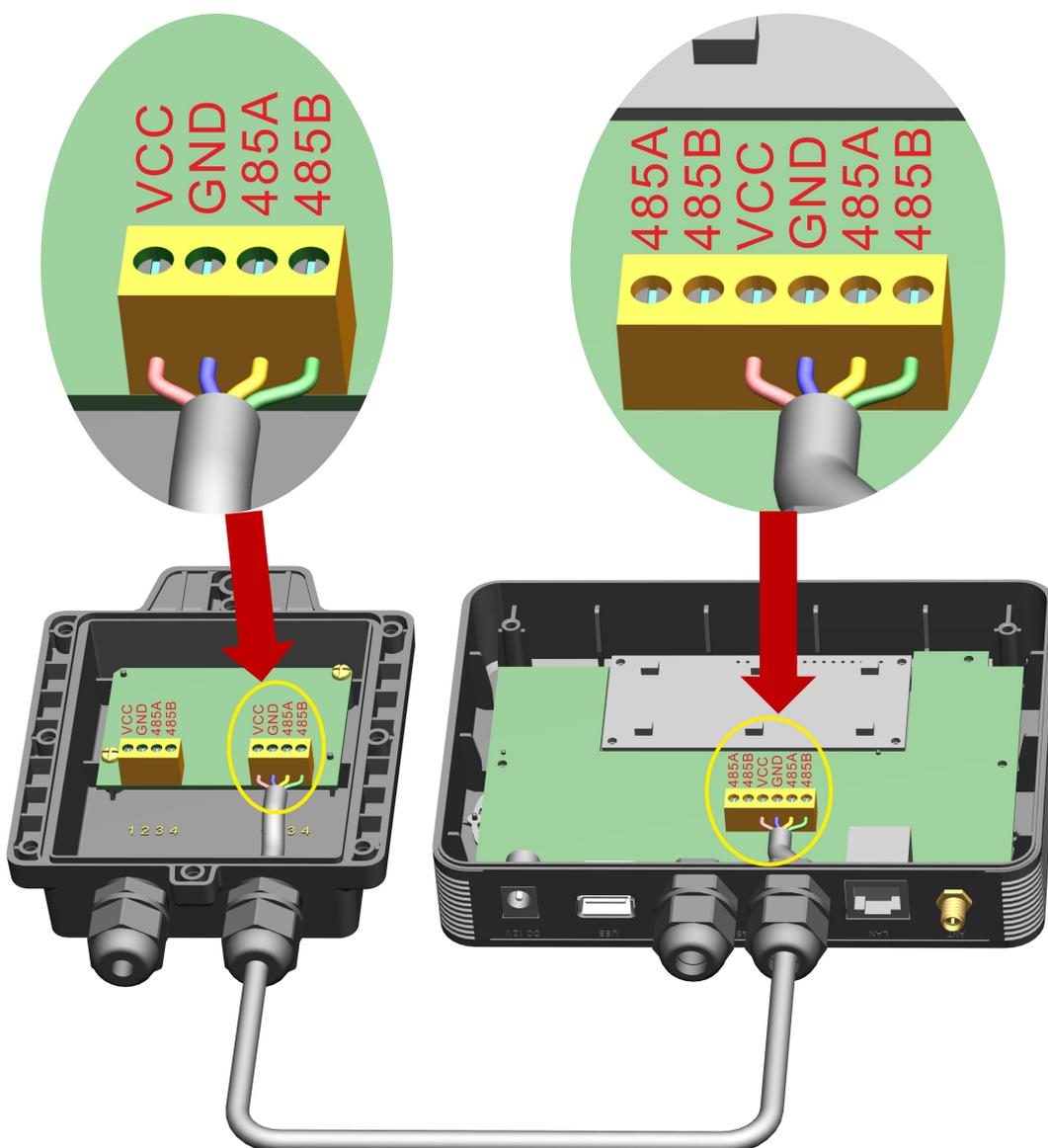
## II: Single Swarm connection

Swarm connects directly to Beehive and does not need to be set up.

Notes: Connecting cable of Beehive and Swarm

>20 meters RS485 cable, twisted pair, shielding, 0.5mm<sup>2</sup>

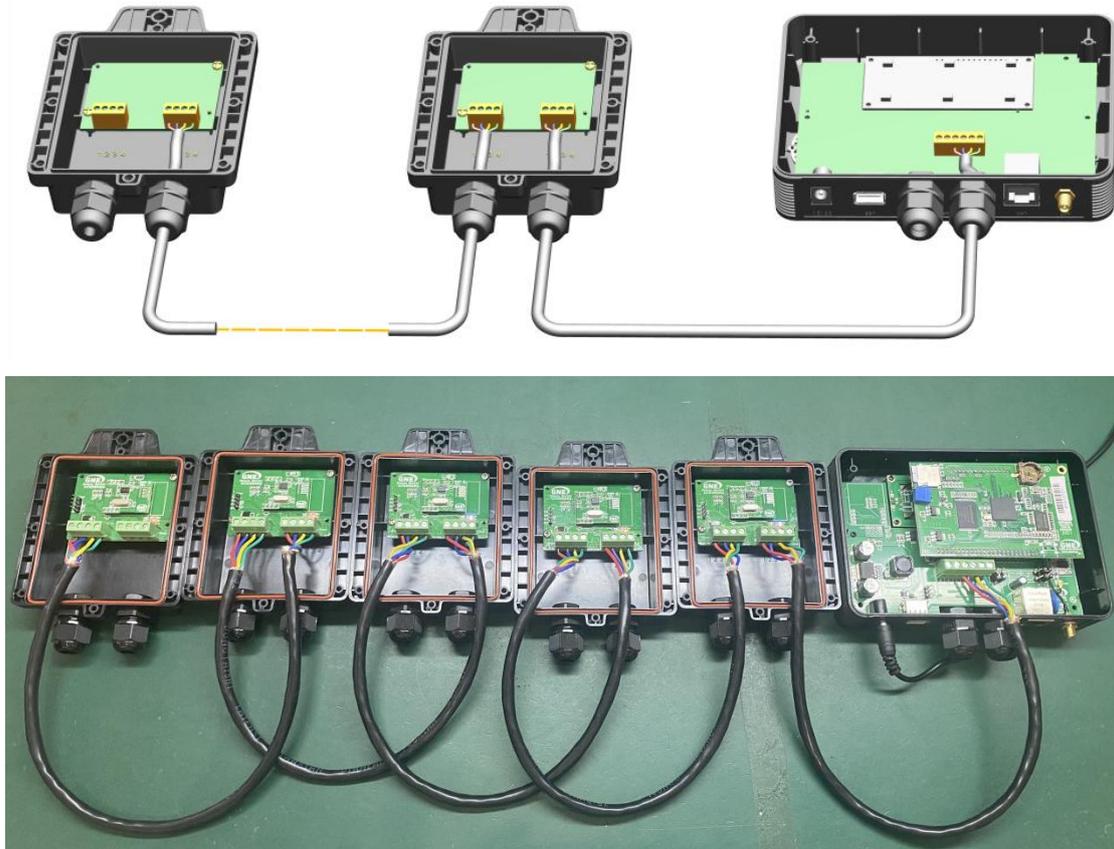
<20 meters Network cable is allowed



### III : Multiple Swarm connection ( No more than 5 Swarms )

Notes: only RS485 cable, twisted pair, shielding, 0.5mm<sup>2</sup>

>500 meters RS485 cable, twisted pair, shielding, 0.75mm<sup>2</sup>



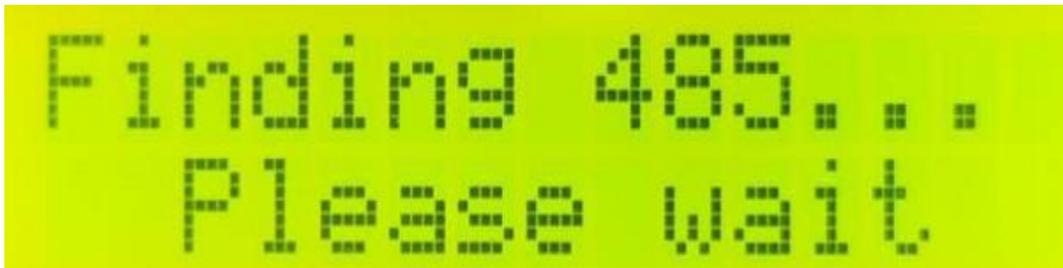
Physical connection diagram

### IV: 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.



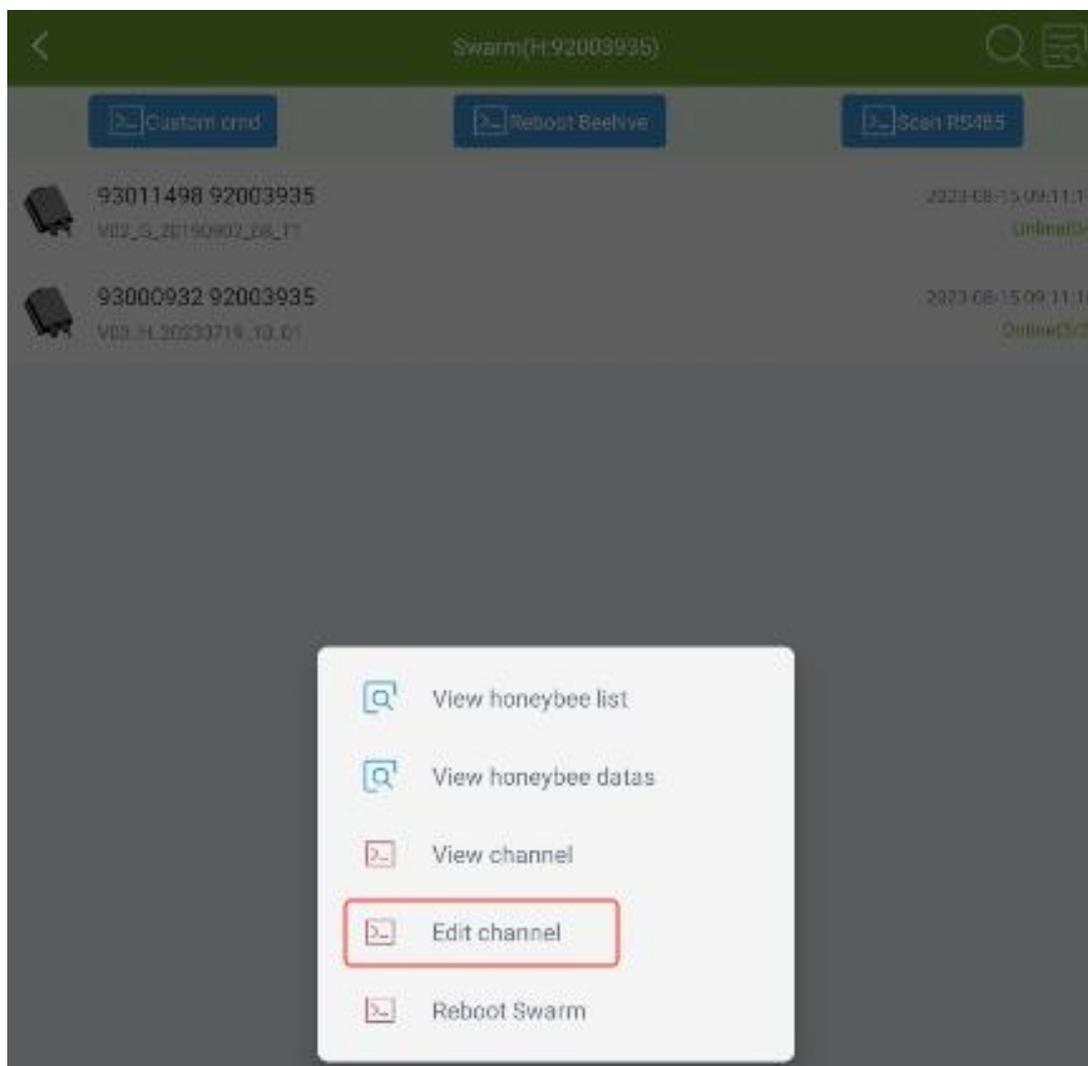
### **V: View Swarm**

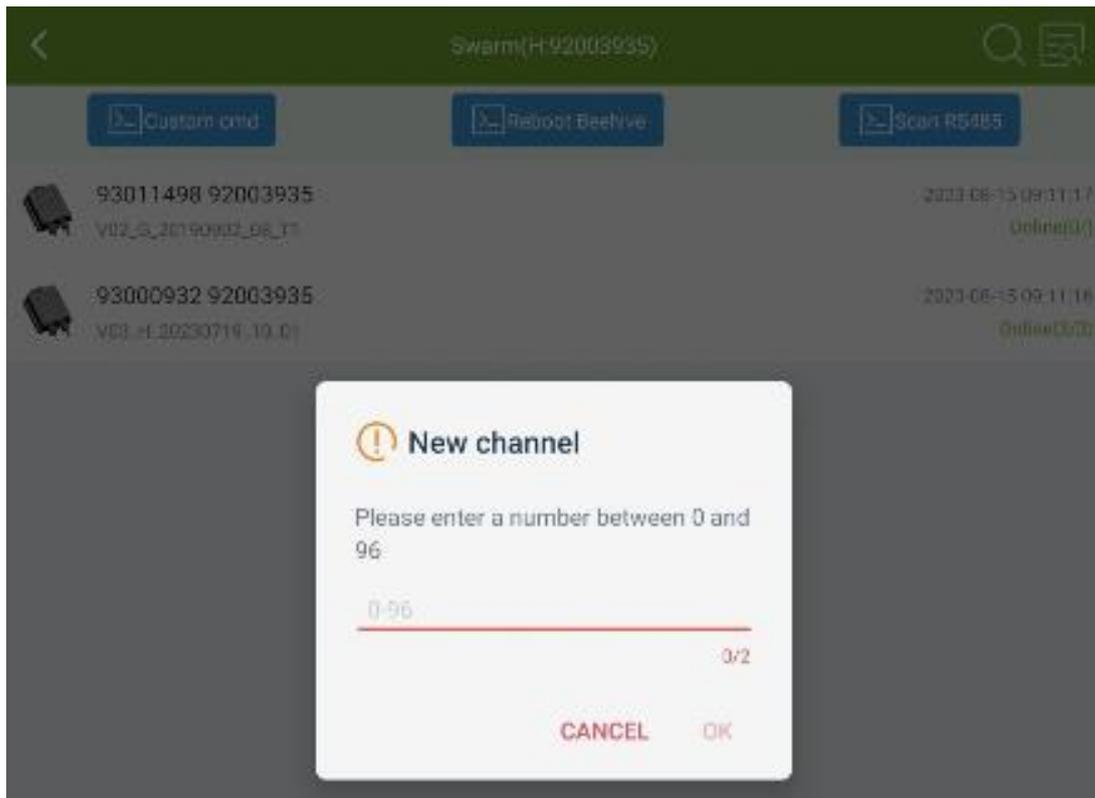
This menu is to view the number of Swarm connected to the Beehive. Operation steps: Main Menu->Work Status->Swarm; the display is shown as below. No.of Swarm connected.



## VI: Modify the Swarm channel

Download commander app. In the Swarm list interface, select the Swarm you want to view, select "Edit channel" from the pop-up function menu, enter the channel to be modified in the pop-up input box, and click "OK" to send the command to modify the channel.





Click the history icon in the upper right corner to view the execution of the sent restart command.





G N E W e b s i t e

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