Master-Slave Paralleling Solution

MidTeQ PrimePower Hybrid Inverer
MID-H4/5/6/8/10/12kW – 25A
MID-H 10/12/15/20kW – 40A

www.midteqcom

MidTeQ

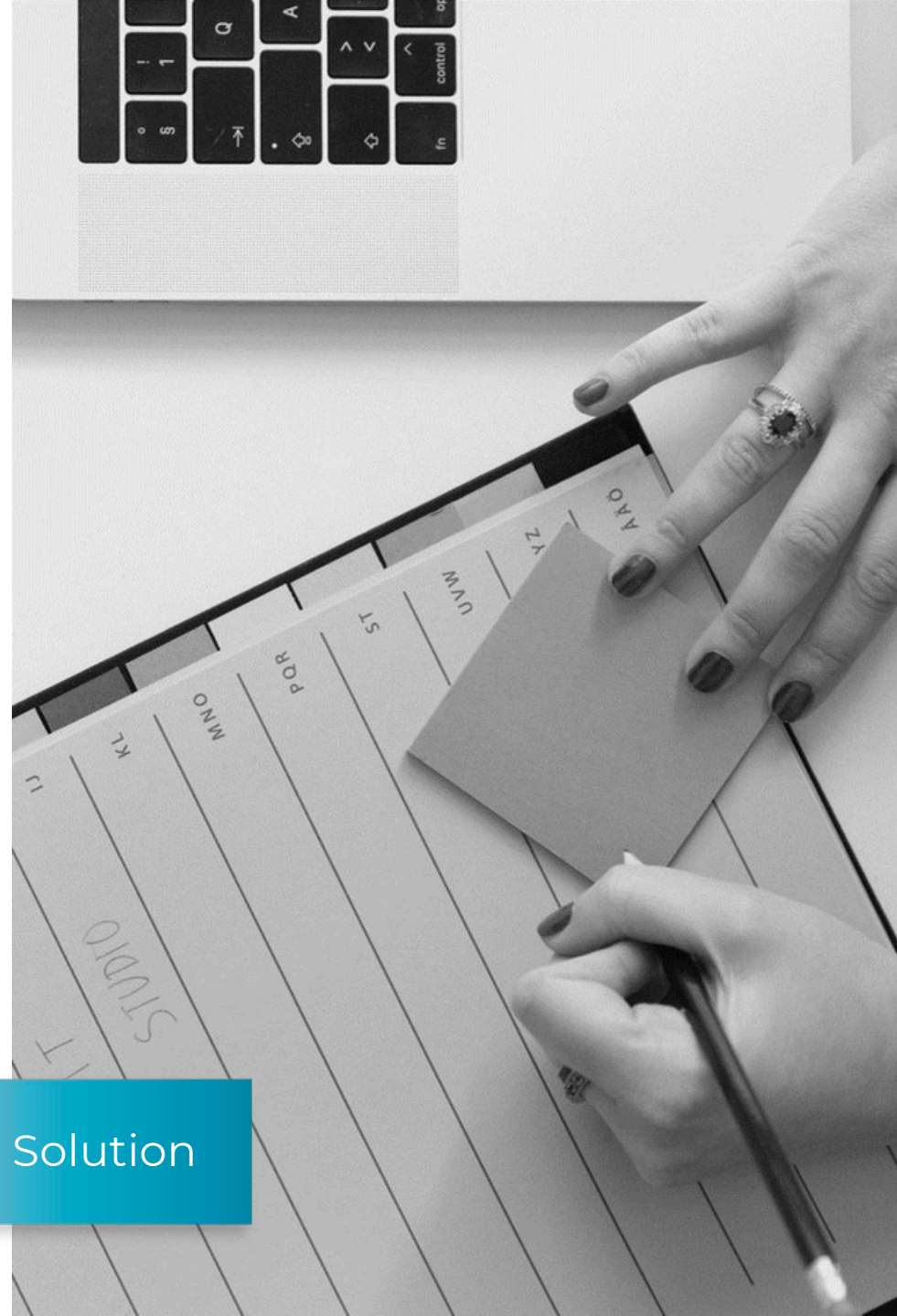
Solution Introduction

Master-Slave Control Parallel System

The hybrid inverter has become a new trend that has gained popularity in recent years as a result of the rising energy problem and electricity rates. But due to its short emergence, the power range hasn't been enlarged to cover all kinds of scenarios, so in some cases, a parallel system is required to expand the system application diversity.

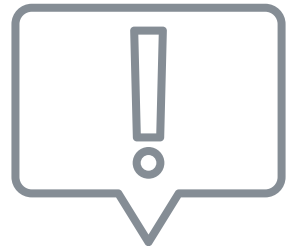
In a storage system with multiple MidTeQ MID-H hybrid inverters (≤10pcs), a parallel solution is required to manage and control all inverters' operation modes, energy supply and use. MidTeQ Hybrid inverter supports up to 10pcs parallel with master-slave control, which saves time and money on the installation and provides higher stability. In the parallel system, all batteries connected to different inverters are always kept at the same SOC level no matter how diversified the loads are connected with each inverter.

Parallel Solution



Notice Before Use

Master-Slave Control Parallel System



•Only a smart meter and a group of CTs are required for a parallel system.

•Inverters in the parallel system should be the same model, and battery as well.

•On-grid inverter cannot be involved in a paralleled hybrid system.

•Battery cannot be connected in parallel, one battery rack connects to one inverter.

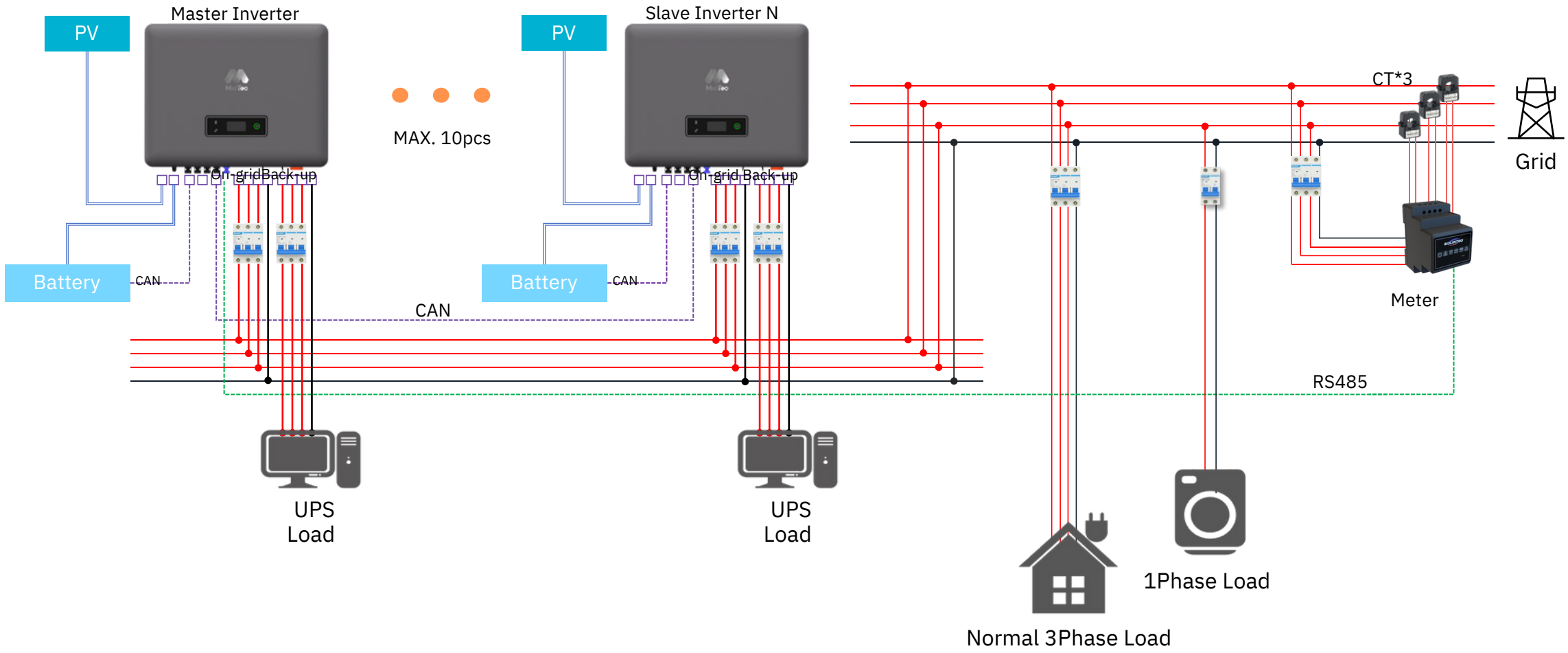
•A slave inverter in a parallel system that loses CAN bus communication won't affect the whole system's operation, just the inverter that lost communication will stop working. However, if a master inverter in a parallel system loses contact with the Smart Meter, the entire system will fail.

•In the parallel system, each battery connected in the system can reach a fully charged status or discharge to a specific SOC value almost at the same time.

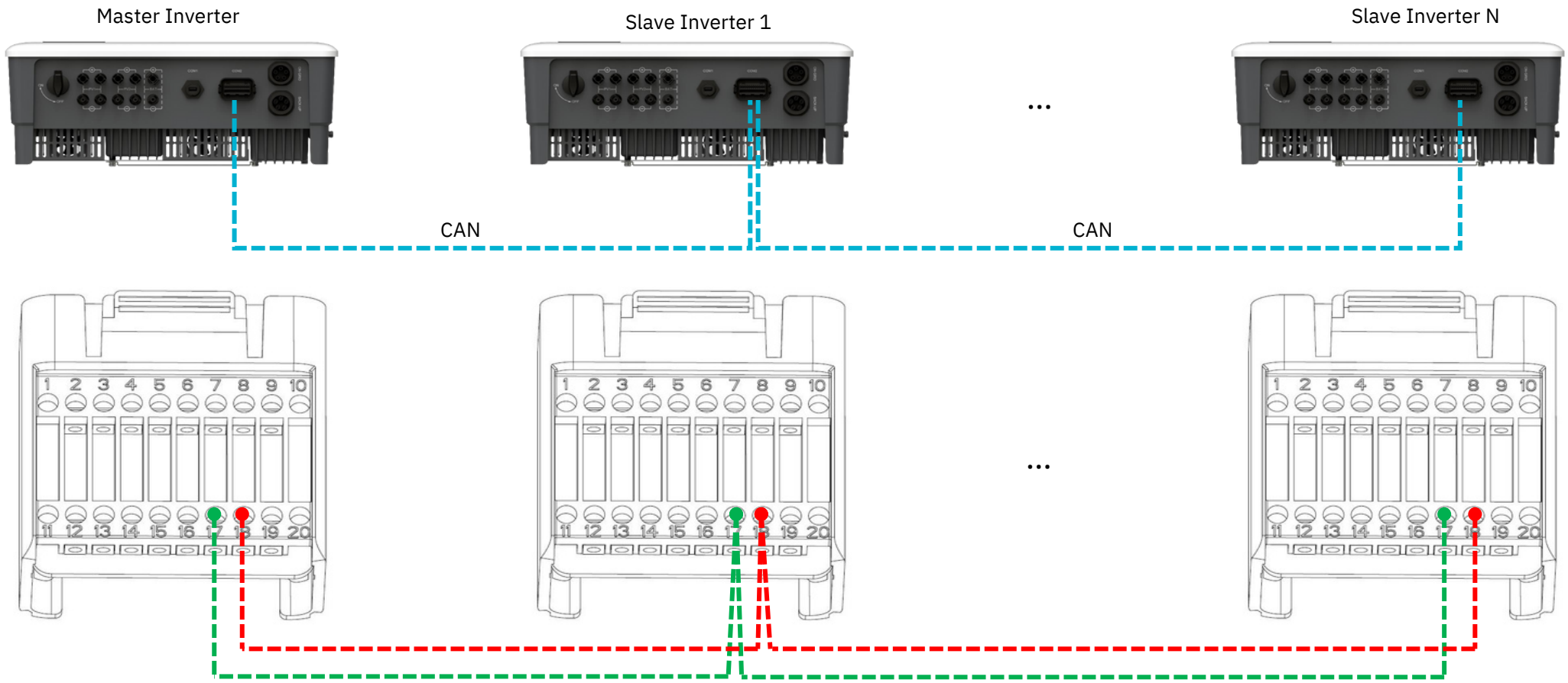
•In the parallel system, the settings of the master inverter will automatically sync to all slave inverters, which means you just need to set the parameters of the system once.

MidTeq

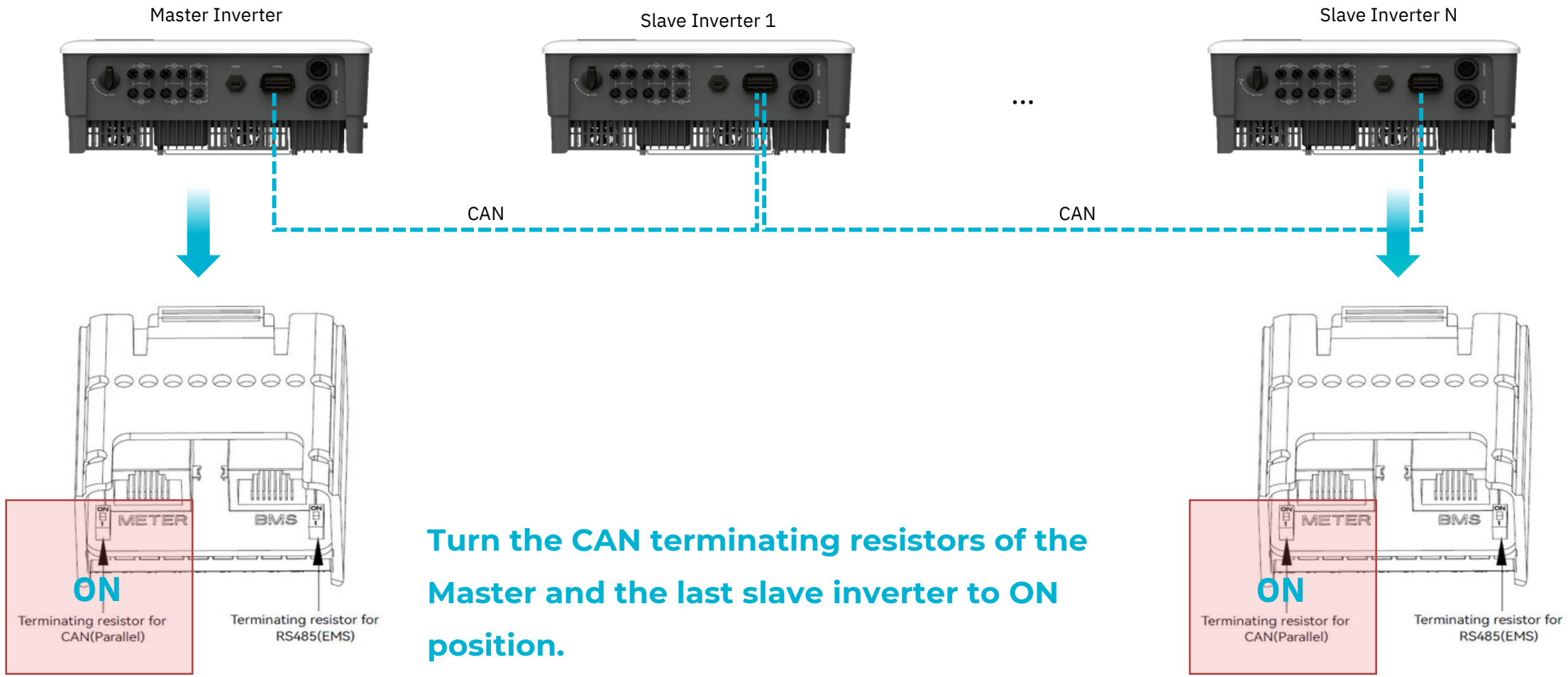
Parallel System-Whole System Wiring Diagram



Parallel System-CAN Communication Illustration



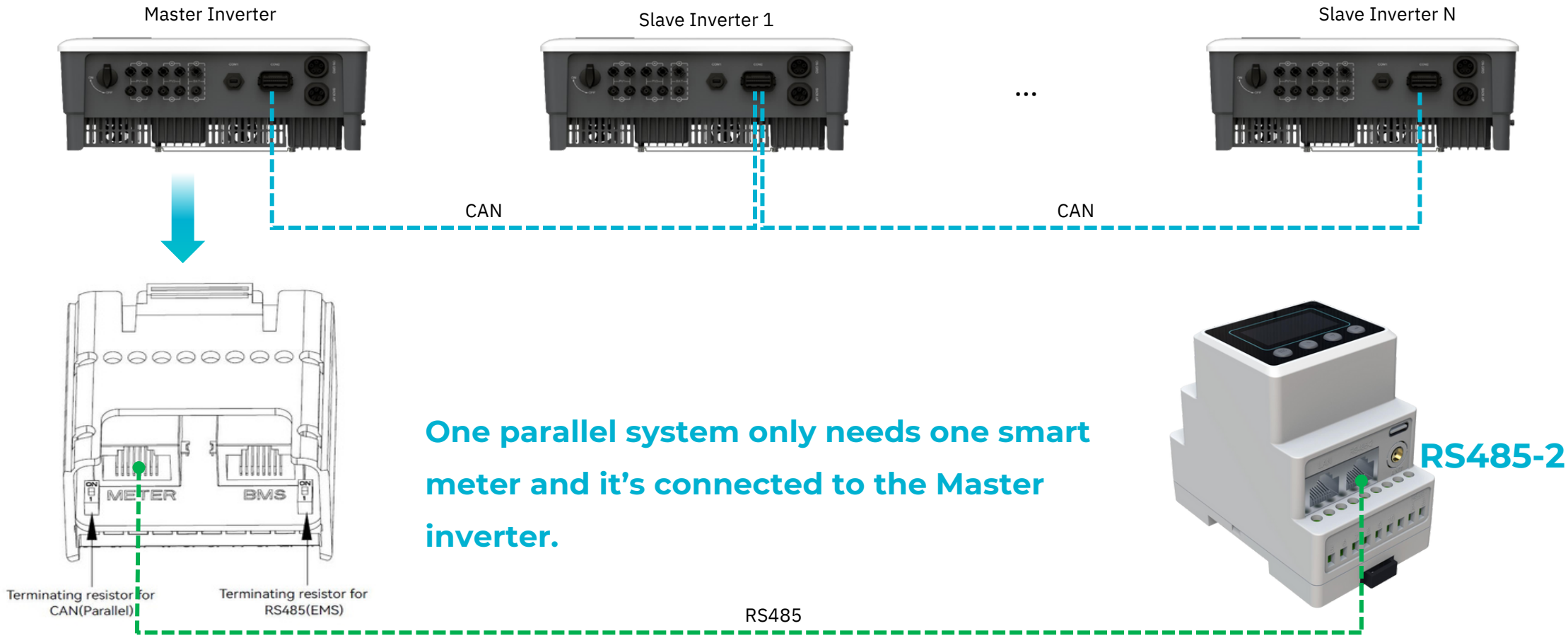
Parallel System-CAN Communication Wiring



Turn the CAN terminating resistors of the Master and the last slave inverter to ON position.

MidTeq

Parallel System-Smart Meter Connection

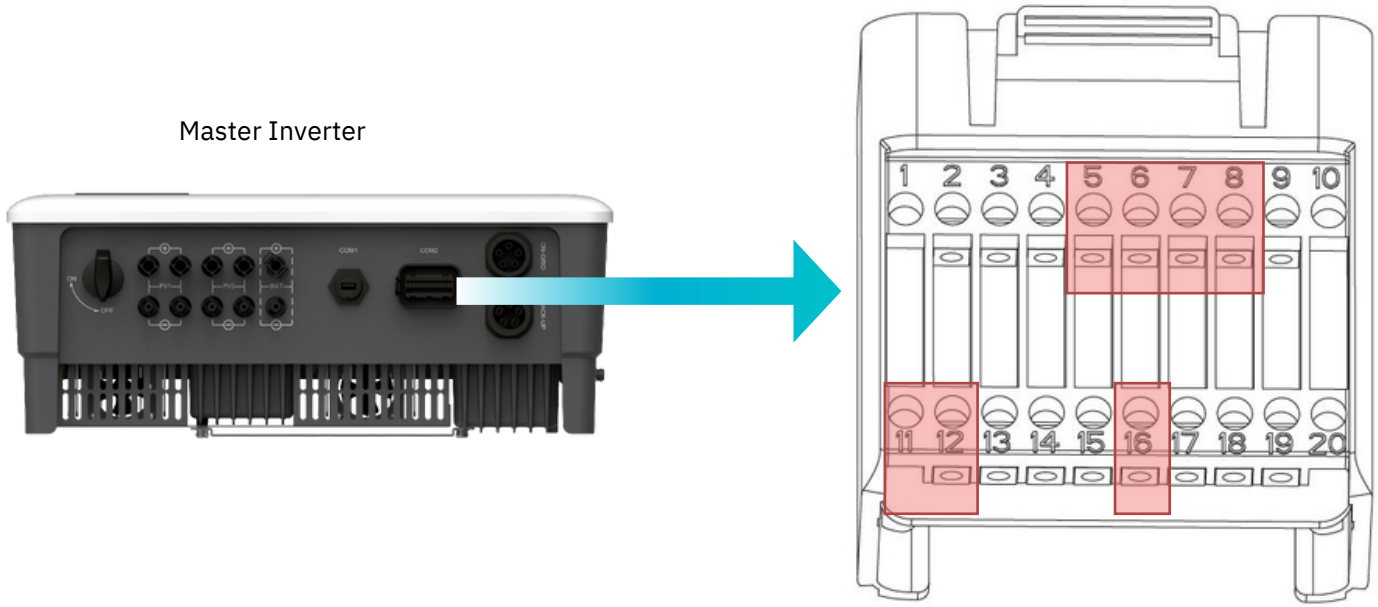


One parallel system only needs one smart meter and it's connected to the Master inverter.

Parallel System-RCR Connection

In Germany and some European countries, an inverter connected to the grid must be able to receive the grid dispatch instructions to feed the power to the grid as required, which we called the RCR function. The communications ports for the RCR device to connect are shown below;

Master Inverter

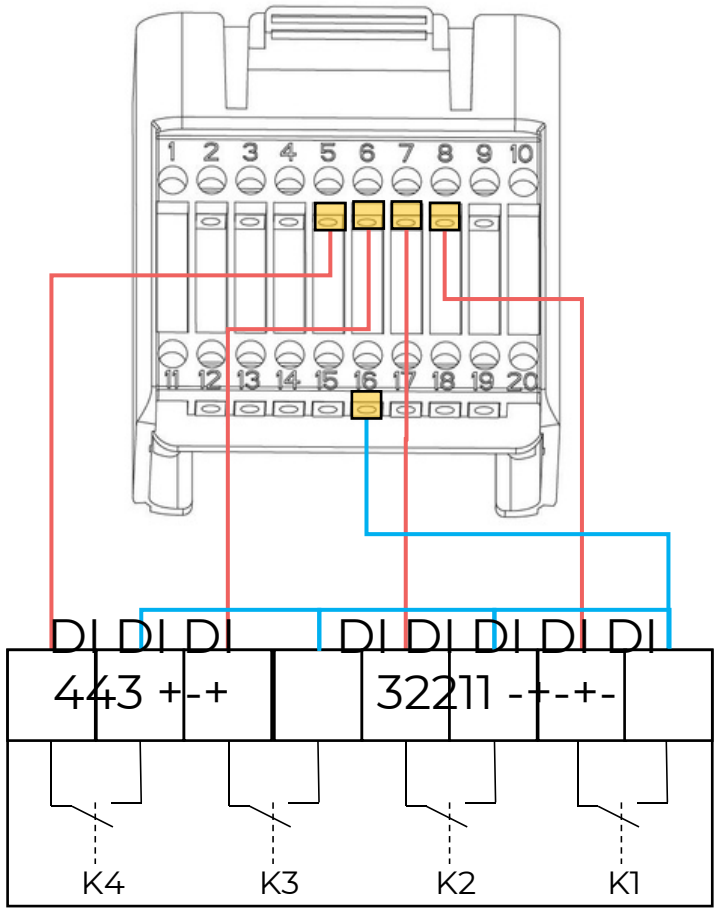


Only the master device needs to be connected.

Only integrated with active power adjusting function.

MidTeq

Parallel System-RCR Connection



Ripple Control Receiver

Active Power Dry Contact Connection Diagram

- When K1 is turned on, the maximum allowed feed-in power is 100% of the total rated power of the inverter.
- When K2 is turned on, the maximum allowed feed-in power is 60% of the total rated power of the inverter.
- When K3 is turned on, the maximum allowed feed-in power is 30% of the total rated power of the inverter.
- When K4 is turned on, feed-in power is not allowed.

The RCR function must be enabled on the inverter screen or the App. If the Ripple Control Receiver is not connected or the RCR function is not enabled, the inverter will fail to output.

Only the master inverter needs to connect to the Ripple Control Receiver in a parallel system.

MidTeq

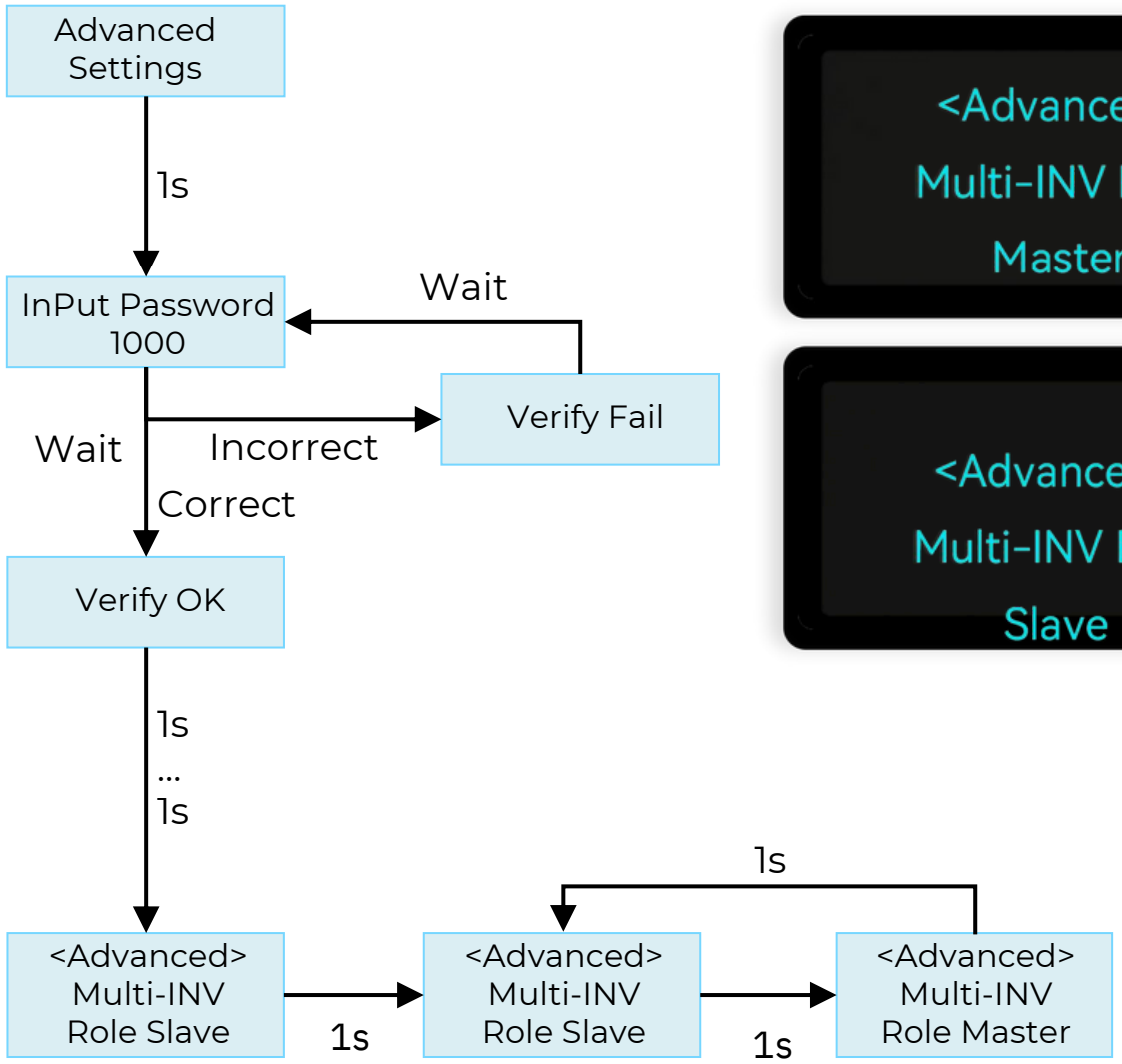
Parallel System-Operation Procedures

1. Install the parallel system according to the system wiring diagram, especially the CAN communication between each inverter.
2. Each inverter has to be equipped with a WiFi/LAN/DuoCom dongle.
3. Batteries need to be connected to each inverter separately.
4. Power on all the inverters (Don’t turn on the backup loads before the parallel system commissioning is completed.)
   ①If there is a power grid connection, connect the inverter to the power grid.
   ②If there is no power grid, switch on the battery and PV.
5. Configure the WIFI network for the whole system.
6. Create a power plant in the MidTeQ monitoring platform and add all inverters in the plant.
7. Set the inverter connected to the smart meter as the Master via the monitoring platform (or the screen) and set other inverters as Slave by the same means, turn on the terminal resistor of the Master and last Slave inverter.
8. Confirm that all inverters are online in the monitoring platform.
9. Set the necessary parameters of the master inverter via APP or screen, such as safety code, export limit, RRCR, etc.
10. All inverters are connected to the power grid, batteries and PV to make sure that the system can run normally.
11. When the parallel system runs properly, turn on the loads connected to the backup side.

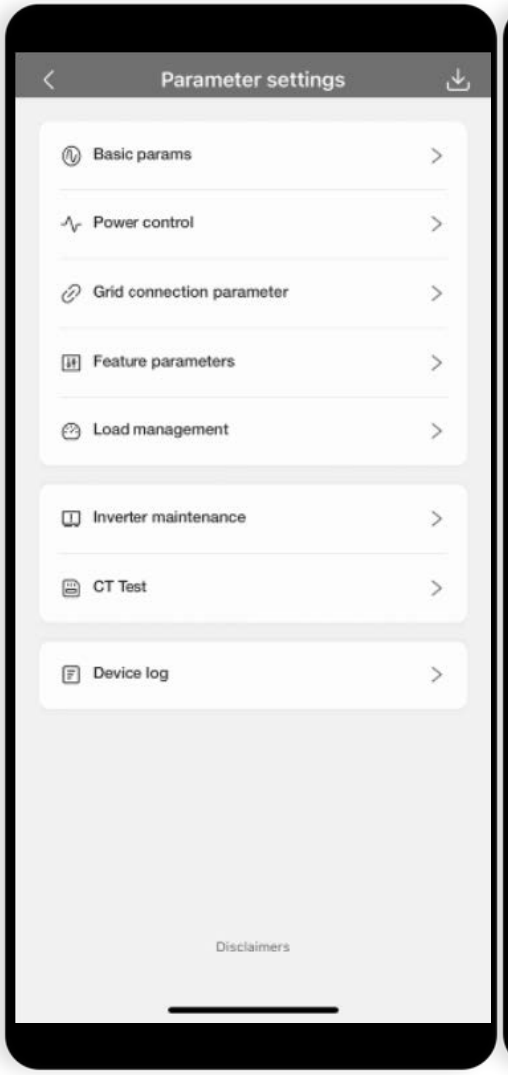
MidTeQ

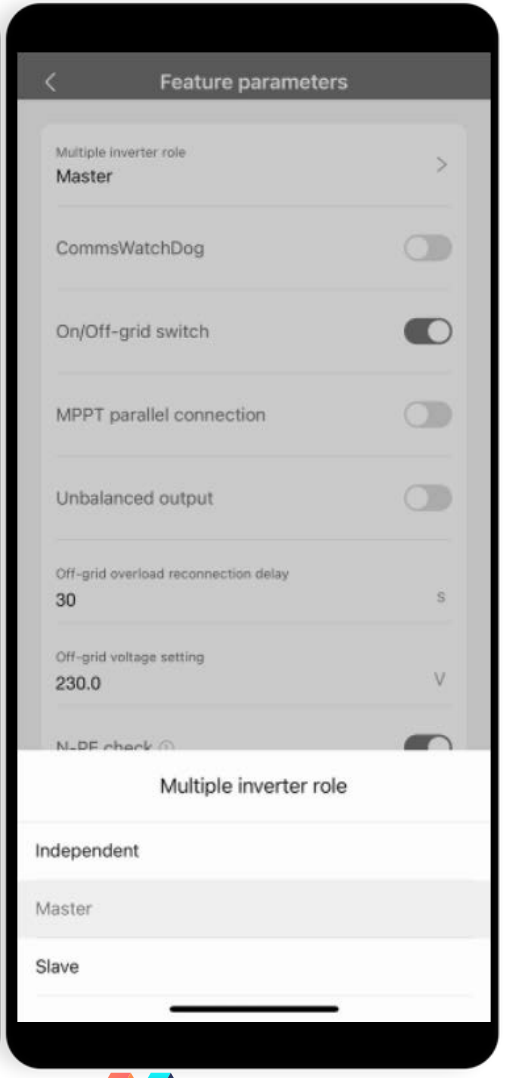
Parallel System-Inverter Role Setting

Inverter ScreenSettings



Inverter App Settings





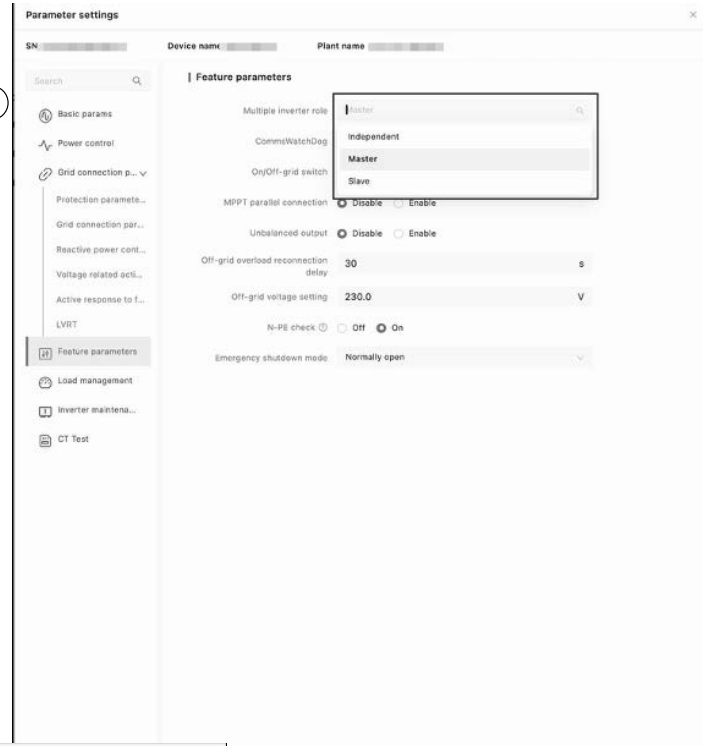
MidTeq

Parallel System-Inverter Role Setting

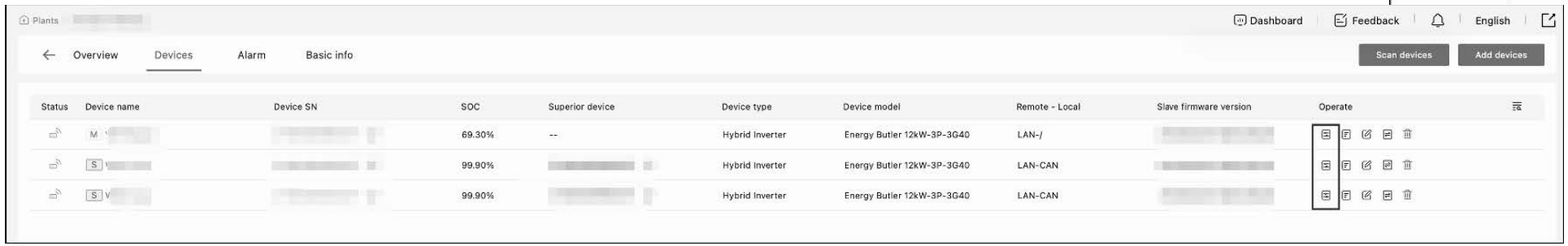
Web Portal Settings

Set each inverter's role in a parallel system in the Web portal. Click [Plants], [Devices],[ ], [Feature Parameters], [Multiple Inverter Role] to set or change the inverter role.

②



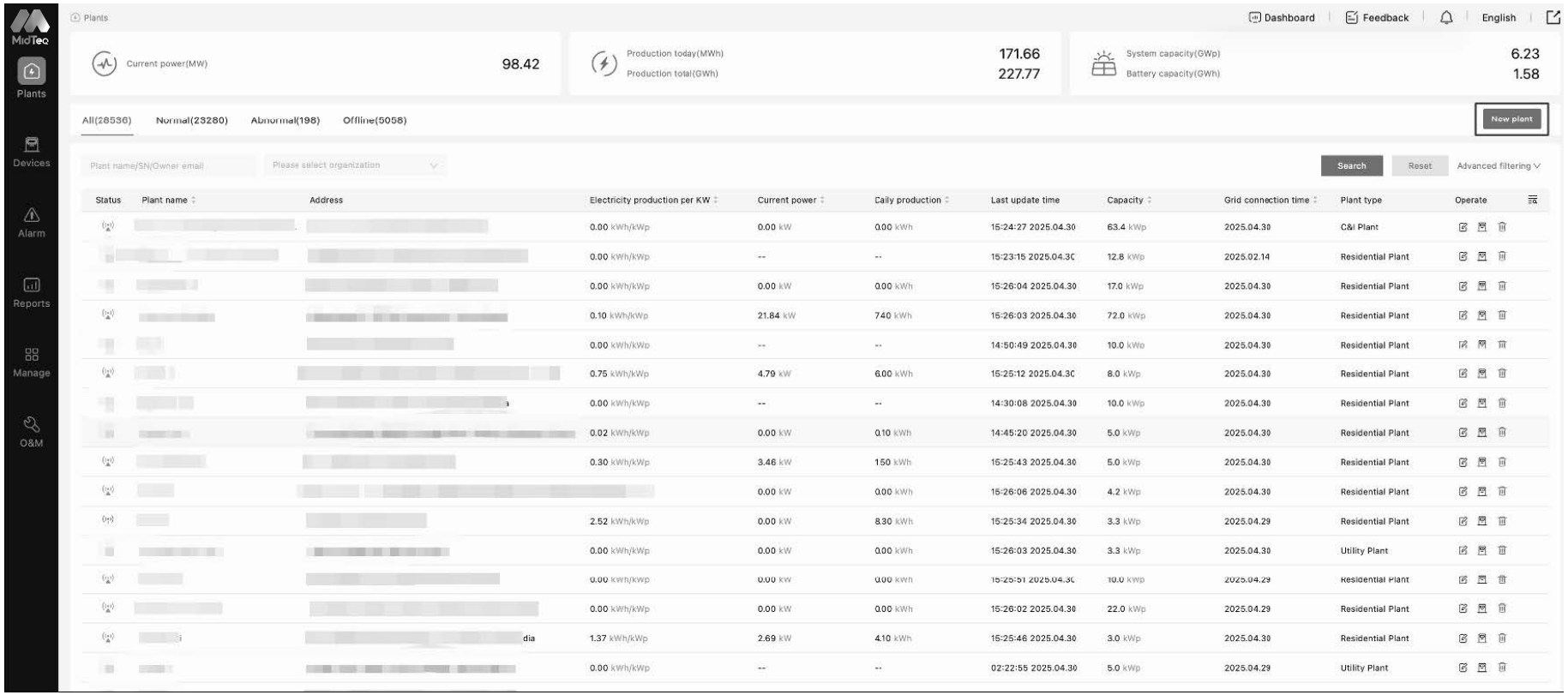
①



MidTeq

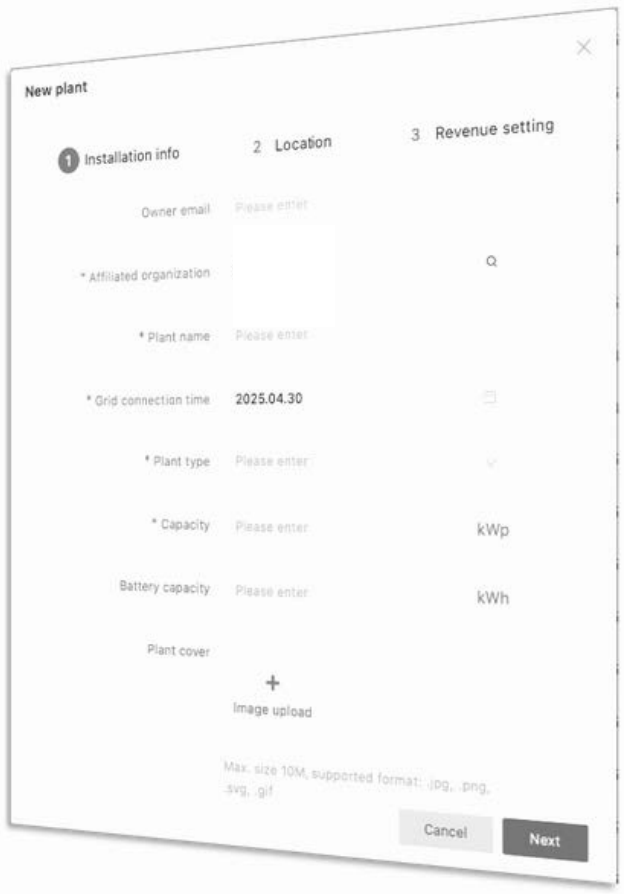
Parallel System-Create A Parallel Plant in MidTeQ Monitoring

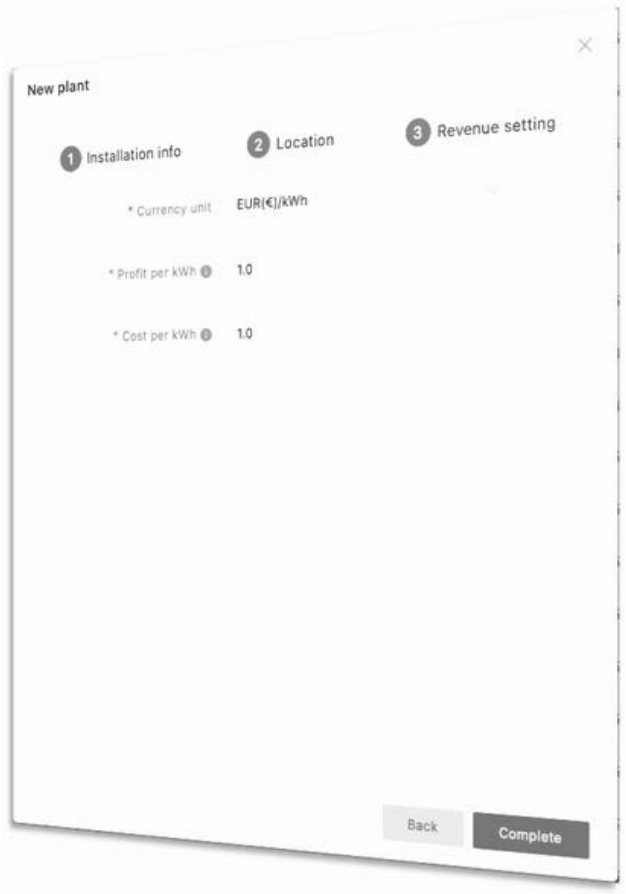
Login MidTeQ cloud @ https://www.midteq-cloud.com and click [New Plant].



Parallel System-Create A Parallel Plant in MidTeQ Monitoring

Fill in the required fields which are marked with * in Installation Info and Location menu.

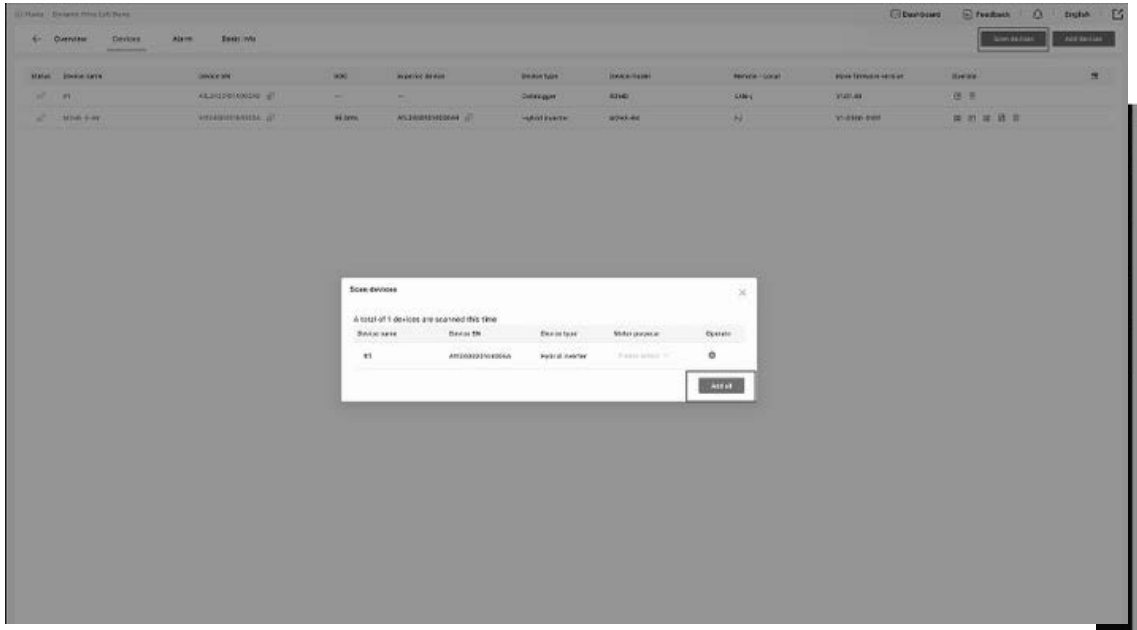


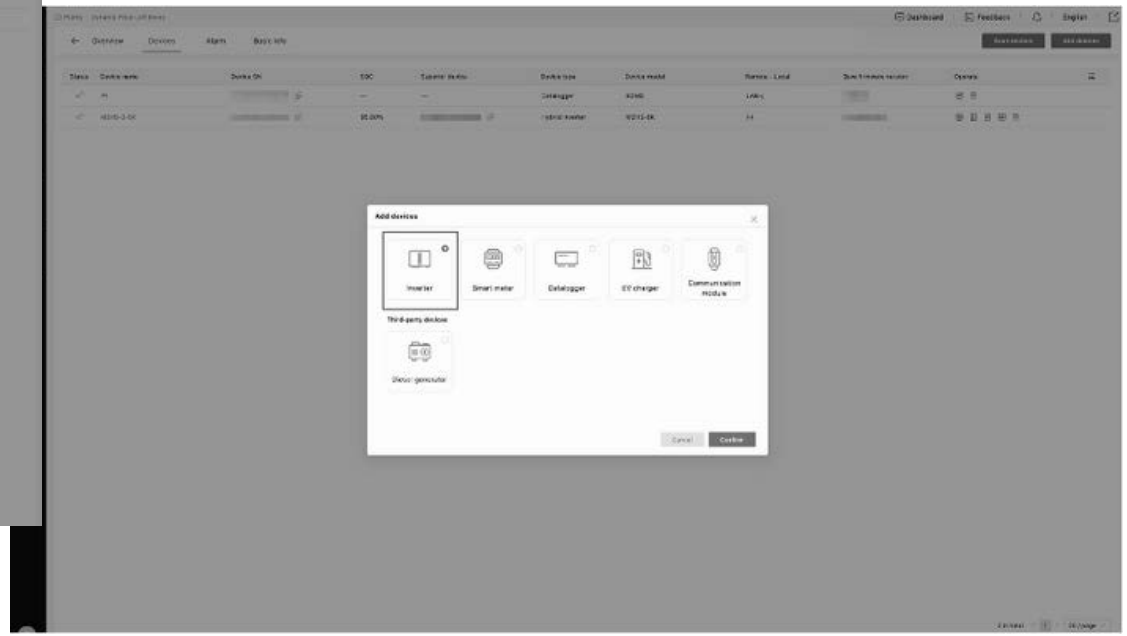


MidTeQ

Parallel System-Create A Parallel Plant in MidTeQ Monitoring

Once one device information from the paralleling system is filled in, the others in this parallel system will automatically pop up. Click [Batch] to add all the inverters. (Please remember to set the inverter's role as Master or Slave via the inverter screen or MidTeQ Solar Link APP). **Note:** The inverter connected with Smart Meter must be set as Master inverter.





THANK YOU
www.midteq.com