

Master-Slave Paralleling Solution

MidTeQ PrimePower Hybrid Inverter

MID-H4/5/6/8/10/12kW – 25A

MID-H 10/12/15/20kW – 40A



www.midteq.com

 **MidTeQ**

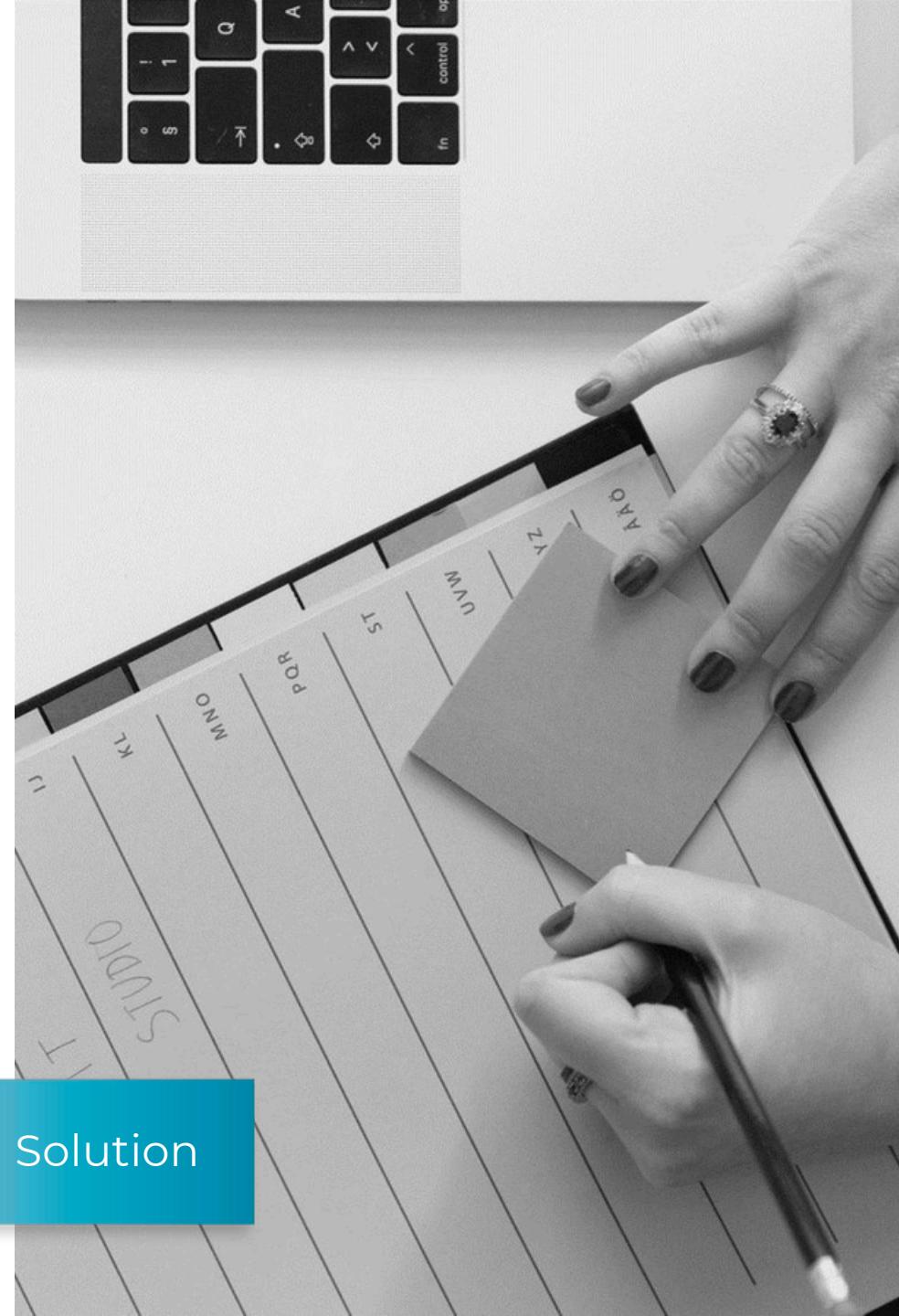
Solution Introduction

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 (≤ 10 pcs), 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.

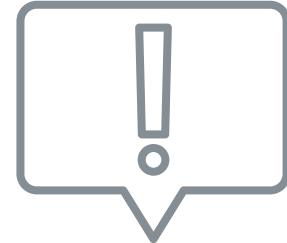
Parallel Solution



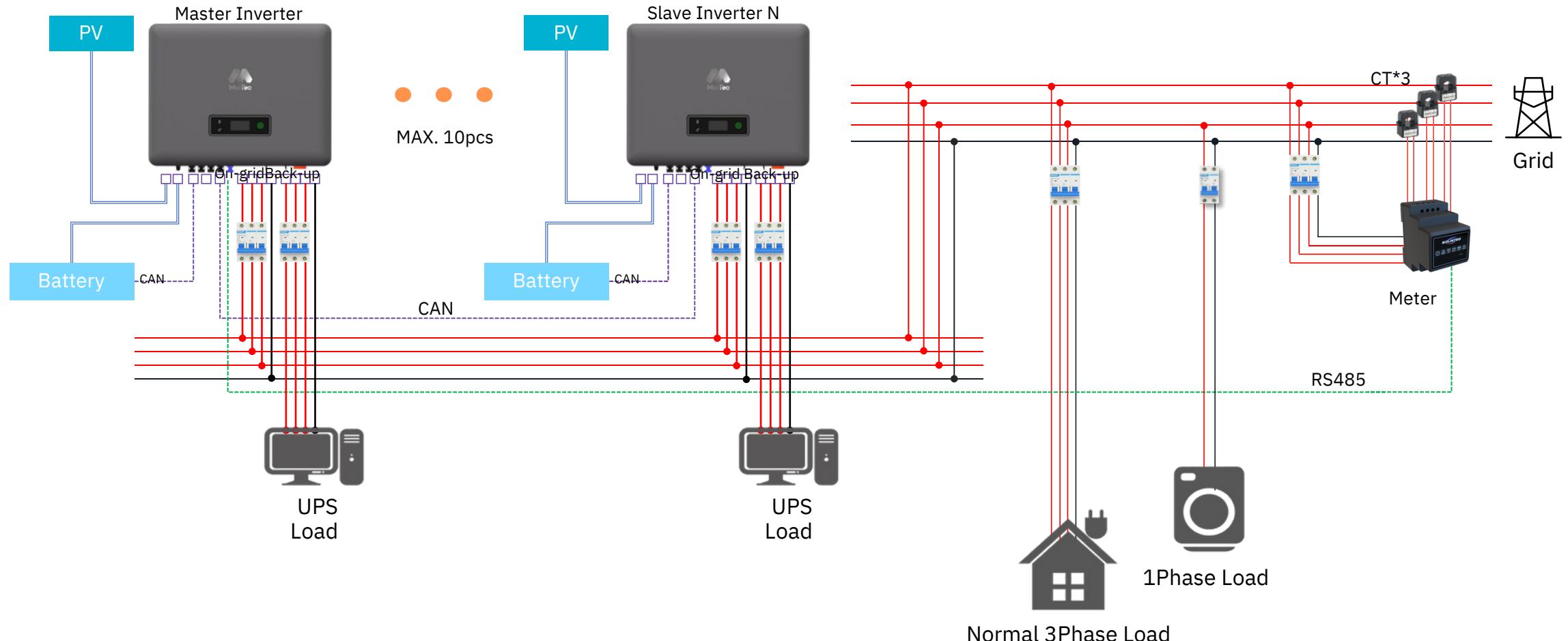
Notice Before Use

Master-Slave Control Parallel System

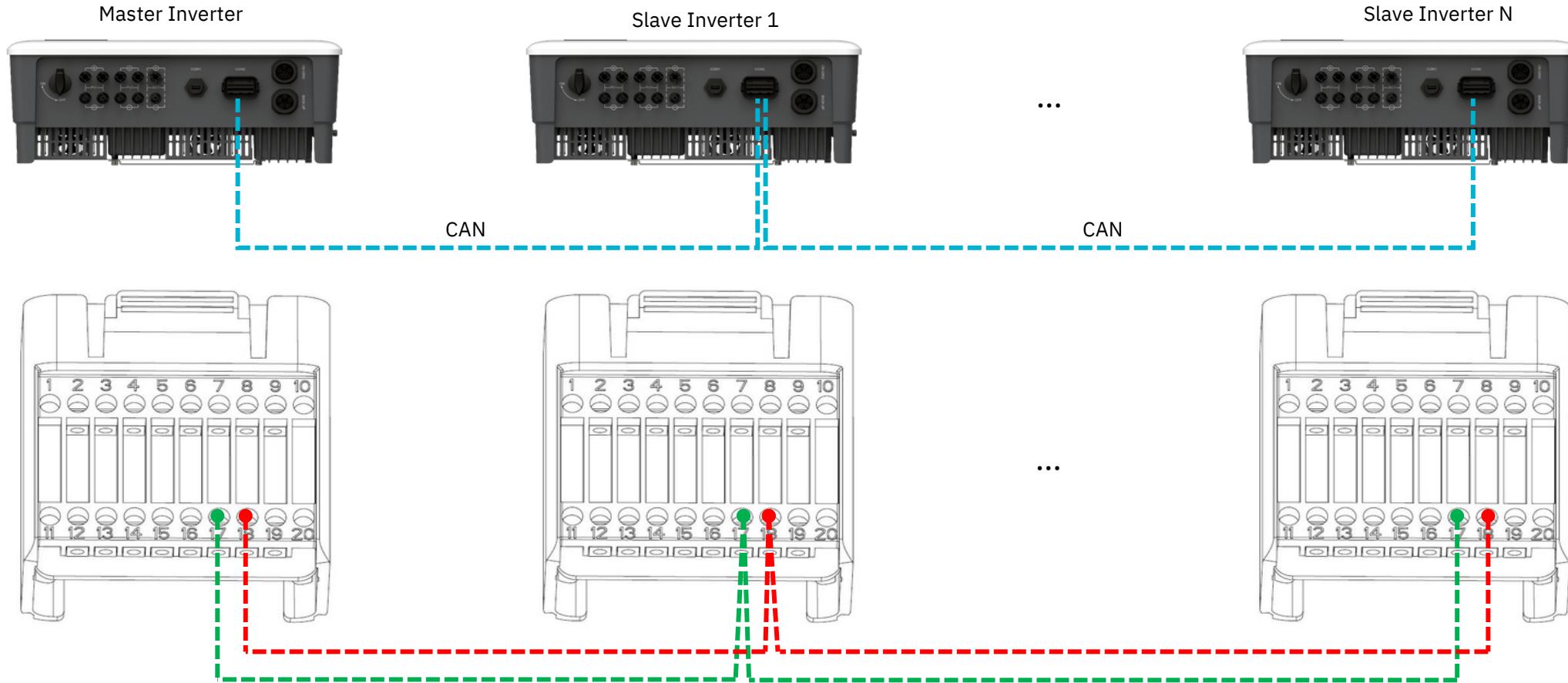
- Only a smart meter and a group of CTs are required for a parallel system.
- Inverters in the parallel system should be the same model, and battery as well.
- On-grid inverter cannot be involved in a paralleled hybrid system.
- Battery cannot be connected in parallel, one battery rack connects to one 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.



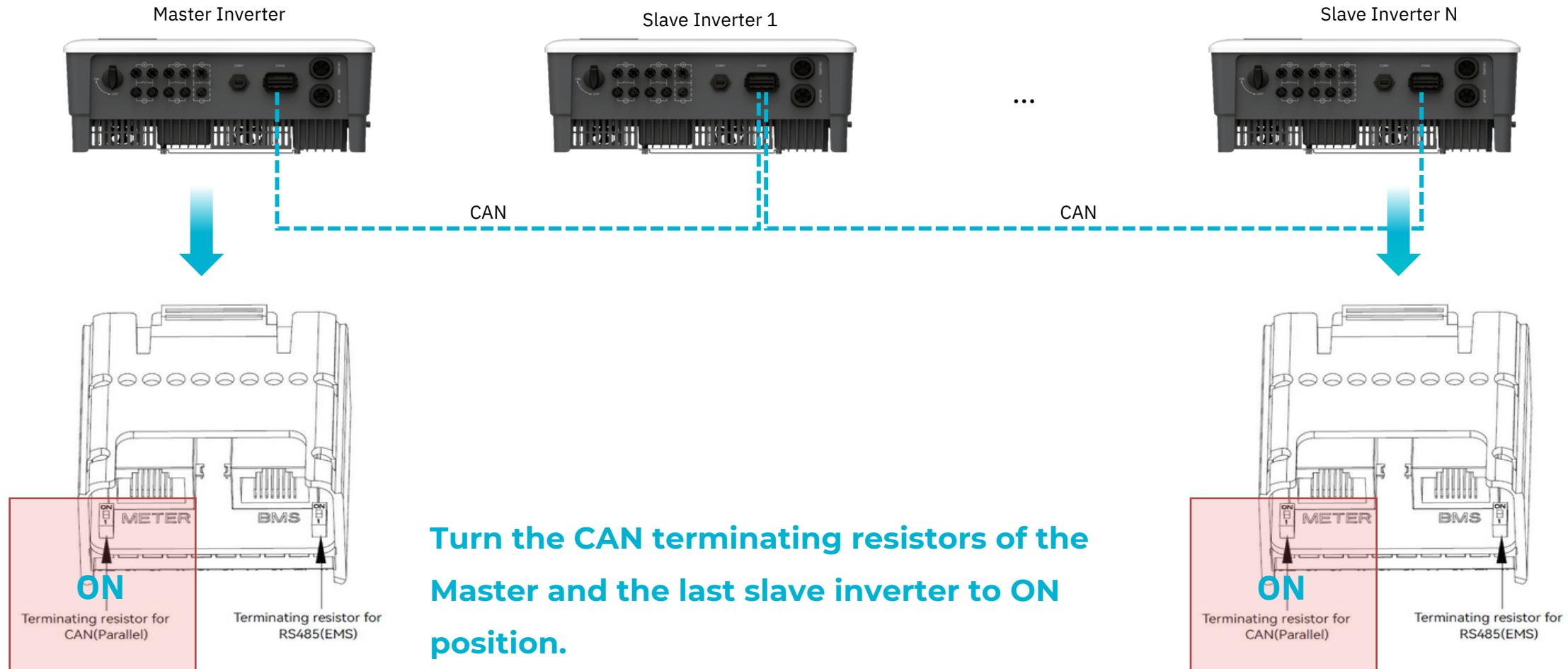
Parallel System-Whole System Wiring Diagram



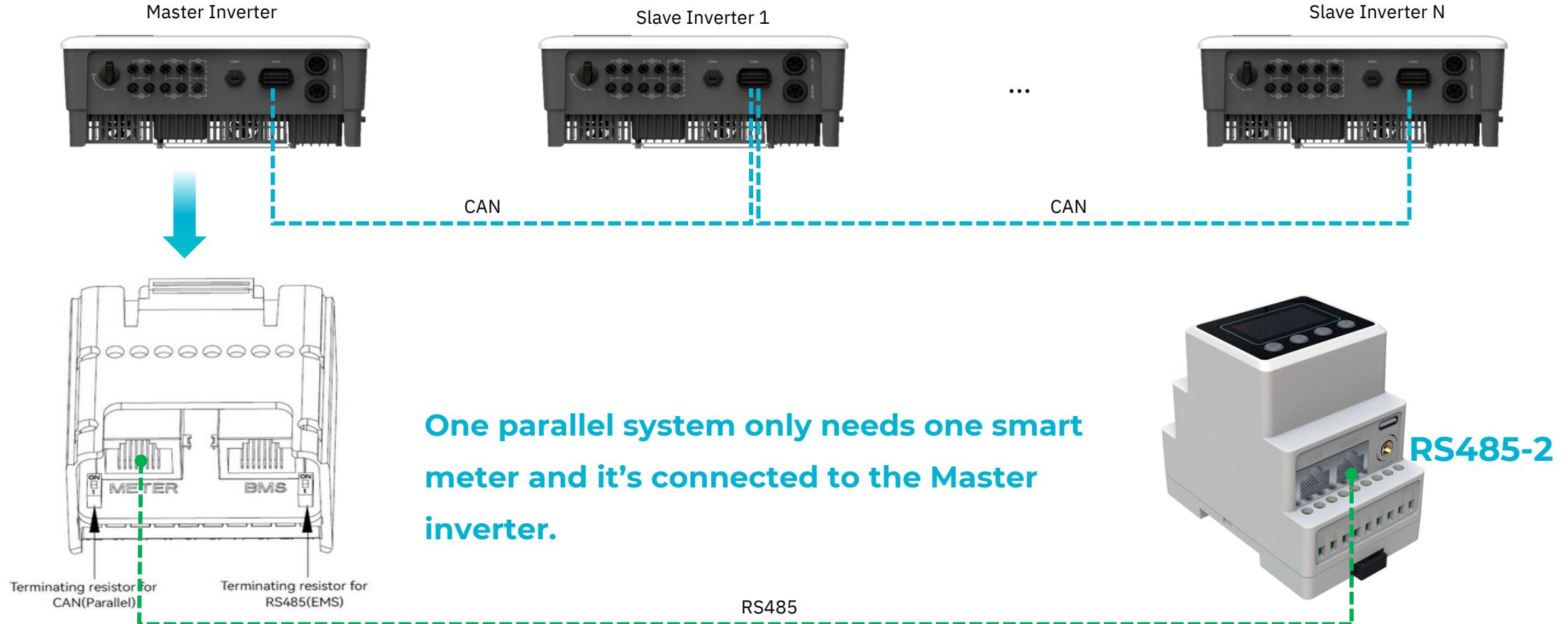
Parallel System-CAN Communication Illustration



Parallel System-CAN Communication Wiring

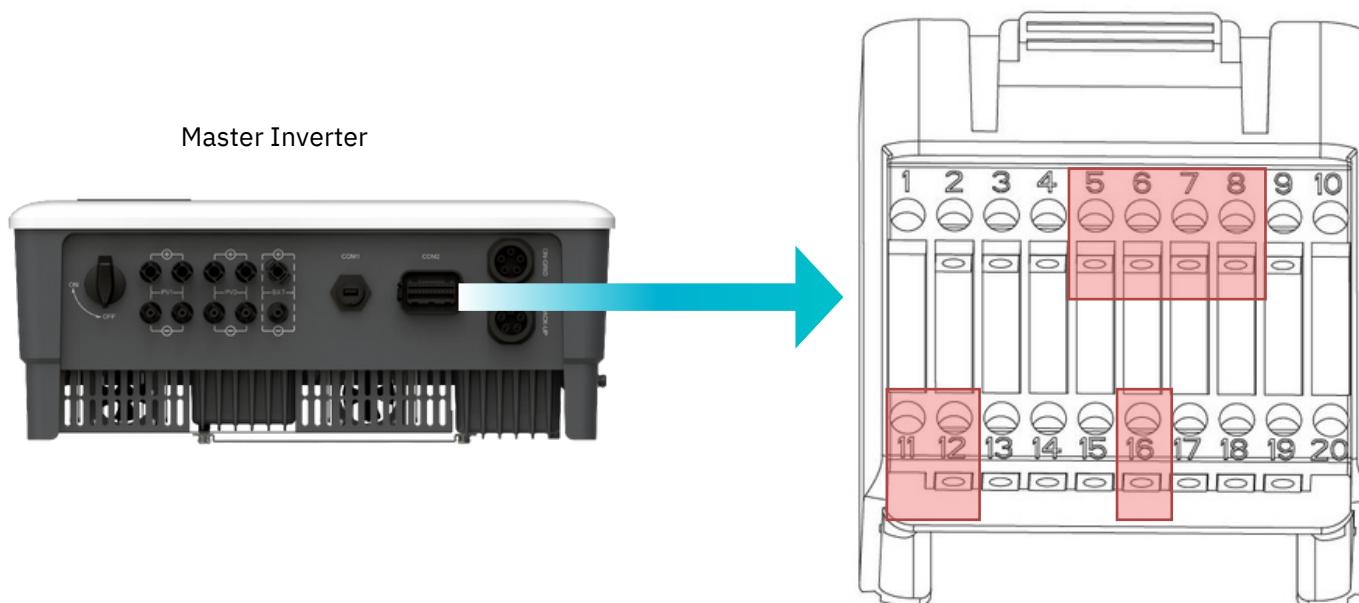


Parallel System-Smart Meter Connection



Parallel System-RCR Connection

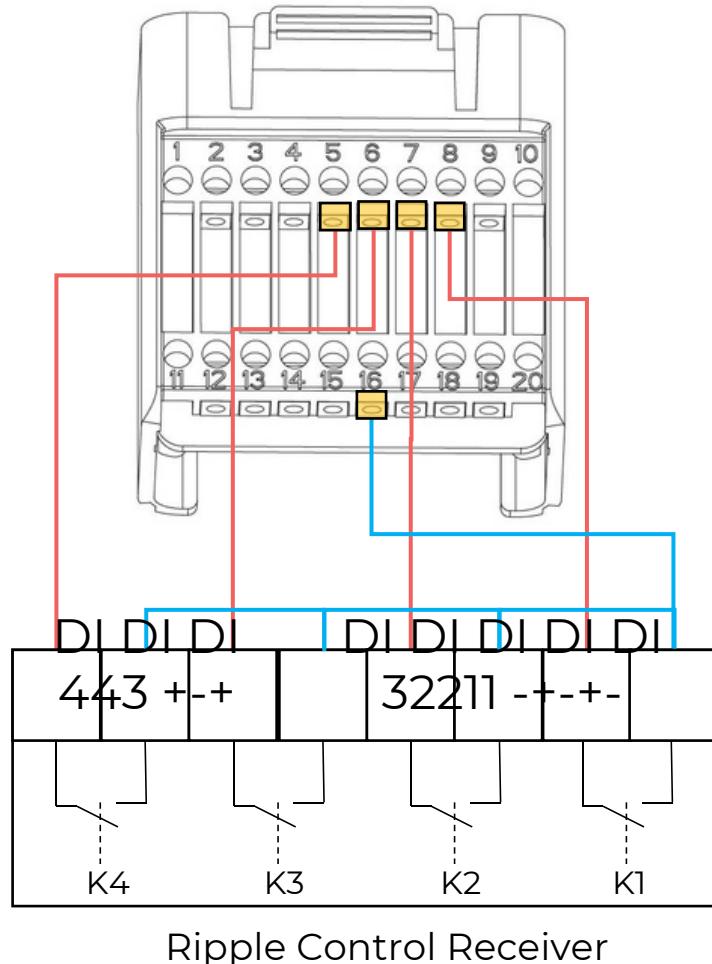
In Germany and some European countries, an inverter connected to the grid must be able to receive the grid dispatch instructions to feed the power to the grid as required, which we called the RCR function. The communications ports for the RCR device to connect are shown below;



 **Only the master device needs to be connected.**

 **Only integrated with active power adjusting function.**

Parallel System-RCR Connection



- 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.

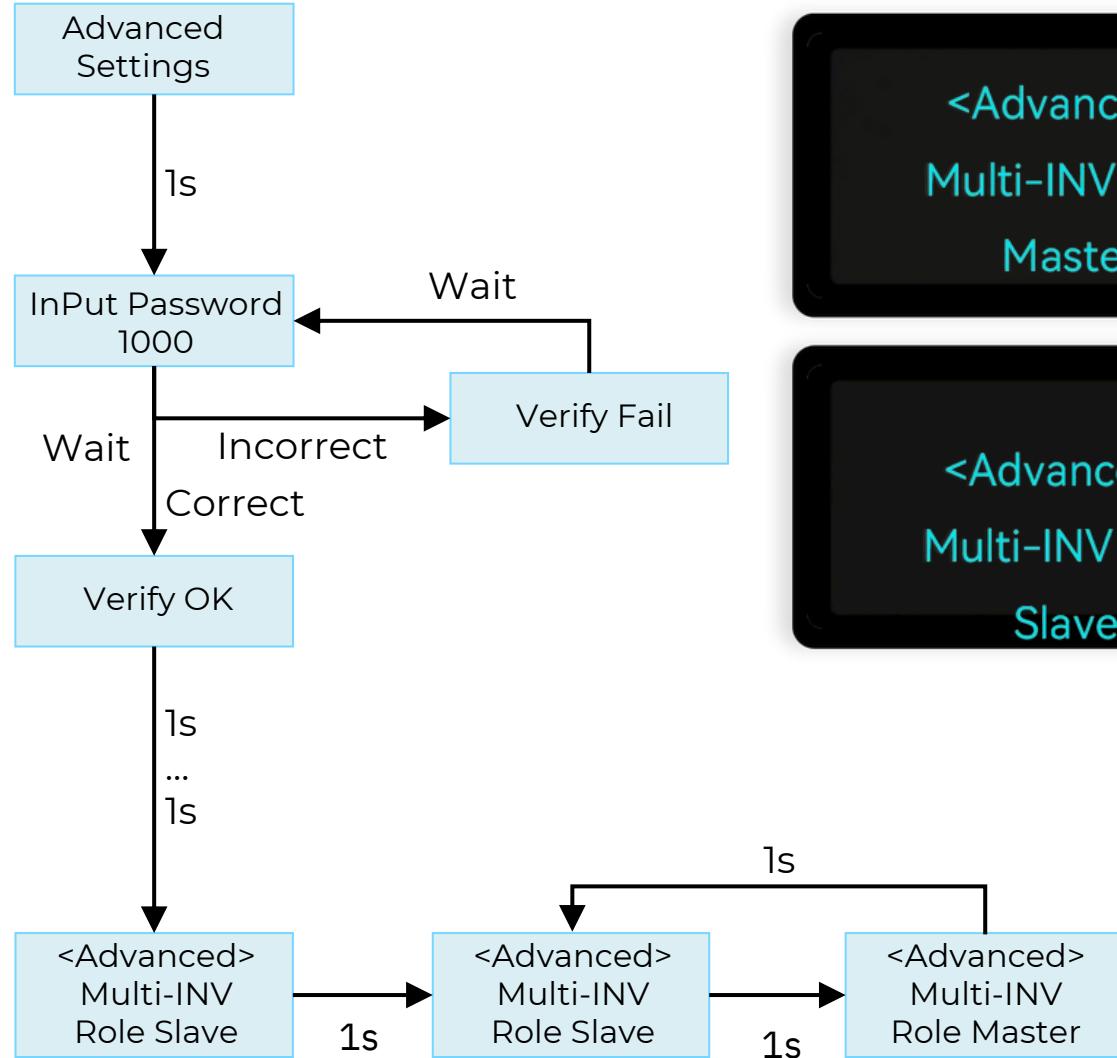
Active Power Dry Contact Connection Diagram

Parallel System-Operation Procedures

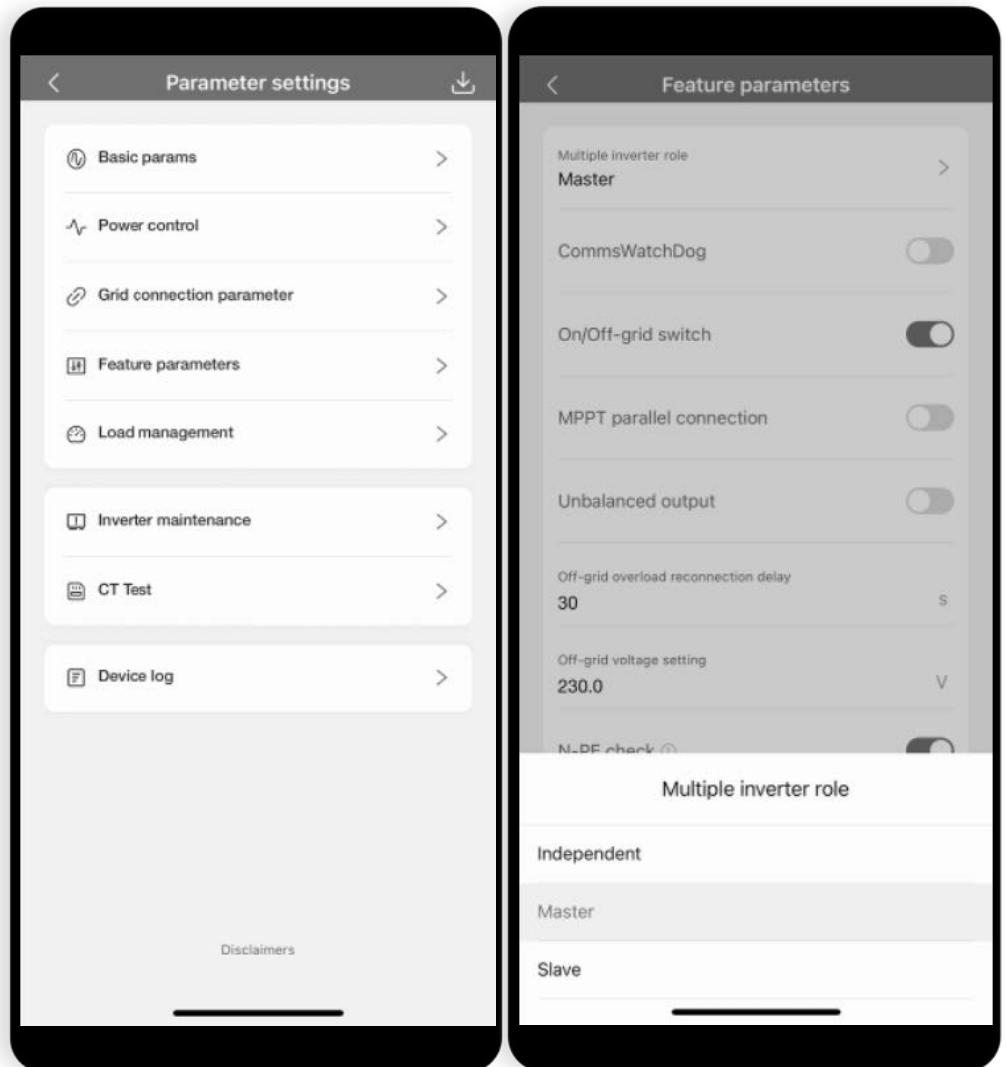
1. Install the parallel system according to the system wiring diagram, especially the CAN communication between each inverter.
2. Each inverter has to be equipped with a WiFi/LAN/DuoCom dongle.
3. Batteries need to be connected to each inverter separately.
4. Power on all the inverters (Don't turn on the backup loads before the parallel system commissioning is completed.)
 - ① If there is a power grid connection, connect the inverter to the power grid.
 - ② If 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.

Parallel System-Inverter Role Setting

Inverter ScreenSettings



Inverter App Settings



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.

①

The screenshot shows the MidTeQ Web Portal interface. The top navigation bar includes 'Plants' (dropdown), 'Overview', 'Devices' (selected), 'Alarm', 'Basic info', 'Dashboard', 'Feedback', a bell icon, 'English' (dropdown), and a search bar. Below the navigation is a 'Scan devices' and 'Add devices' button. The main content area is titled 'Devices' and displays a table with three rows. The columns are: Status, Device name, Device SN, SOC, Superior device, Device type, Device model, Remote - Local, Slave firmware version, and Operate. The third row, which has a red box around its 'Operate' column, represents an inverter with the following details: Status: M, Device name: [redacted], Device SN: [redacted], SOC: 69.30%, Superior device: --, Device type: Hybrid Inverter, Device model: Energy Butler 12kW-3P-3G40, Remote - Local: LAN-/ [redacted], Slave firmware version: [redacted], and Operate: [redacted].

The screenshot shows the 'Parameter settings' dialog box. The 'Feature parameters' tab is selected. In the 'Multiple inverter role' section, the 'Slave' option is highlighted with a red box. Other options shown are 'Master' and 'Independent'. The 'CommWatchDog' and 'On/Off-grid switch' sections are also visible. The bottom of the dialog shows 'Feature parameters', 'Load management', 'Inverter maintenance', and 'CT Test' tabs.

②

Parallel System-Create A Parallel Plant in MidTeQ Monitoring



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

The screenshot shows the MidTeQ Monitoring Platform's Plants dashboard. At the top, there are four key performance indicators: Current power (98.42 MW), Production today (171.66 MWh, 227.77 GWh total), System capacity (6.23 GWP), and Battery capacity (1.58 GWh). Below these are four status filters: All (28536), Normal (23280), Abnormal (198), and Offline (5058). A prominent 'New plant' button is located in the top right of the main content area. The main table lists 19 solar plants, each with a unique ID, address, electricity production per kW, current power, daily production, last update time, capacity, grid connection time, plant type, and operate status. The table includes search, reset, and advanced filtering options. The left sidebar features navigation links for Plants, Devices, Alarm, Reports, Manage, and O&M.

ID	Address	Electricity production per kW	Current power	Daily production	Last update time	Capacity	Grid connection time	Plant type	Operate
1	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:24:27 2025.04.30	63.4 kWp	2025.04.30	C&I Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2	...	0.00 kWh/kWp	--	--	15:23:15 2025.04.30	12.8 kWp	2025.02.14	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:04 2025.04.30	17.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4	...	0.10 kWh/kWp	21.84 kW	740 kWh	15:26:03 2025.04.30	72.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5	...	0.00 kWh/kWp	--	--	14:50:49 2025.04.30	10.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6	...	0.75 kWh/kWp	4.79 kW	6.00 kWh	15:25:12 2025.04.30	8.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7	...	0.00 kWh/kWp	--	--	14:30:08 2025.04.30	10.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8	...	0.02 kWh/kWp	0.00 kW	0.10 kWh	14:45:20 2025.04.30	5.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9	...	0.30 kWh/kWp	3.46 kW	150 kWh	15:25:43 2025.04.30	5.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:06 2025.04.30	4.2 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11	...	2.52 kWh/kWp	0.00 kW	830 kWh	15:25:34 2025.04.30	3.3 kWp	2025.04.29	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:03 2025.04.30	3.3 kWp	2025.04.30	Utility Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
13	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:25:51 2025.04.30	10.0 kWp	2025.04.29	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
14	...	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:02 2025.04.30	22.0 kWp	2025.04.29	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
15	...	1.37 kWh/kWp	2.69 kW	410 kWh	15:25:46 2025.04.30	3.0 kWp	2025.04.30	Residential Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
16	...	0.00 kWh/kWp	--	--	02:22:55 2025.04.30	5.0 kWp	2025.04.29	Utility Plant	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Parallel System-Create A Parallel Plant in MidTeQ Monitoring



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

New plant

1 Installation info 2 Location 3 Revenue setting

Owner email Please enter

* Affiliated organization

* Plant name Please enter

* Grid connection time 2025.04.30

* Plant type Please enter

* Capacity Please enter kWp

Battery capacity Please enter kWh

Plant cover

Max. size 10M, supported format: jpg, png, svg, gif

Cancel Next

New plant

1 Installation info 2 Location 3 Revenue setting

* Country/Region Deutschland (Germany)

* Timezone UTC+01:00

* Location 100010, Dongcheng District, Beijing, People's Republic of China

Detailed address Please enter detailed address

Back Next

New plant

1 Installation info 2 Location 3 Revenue setting

* Currency unit EUR(€)/kWh

* Profit per kWh 1.0

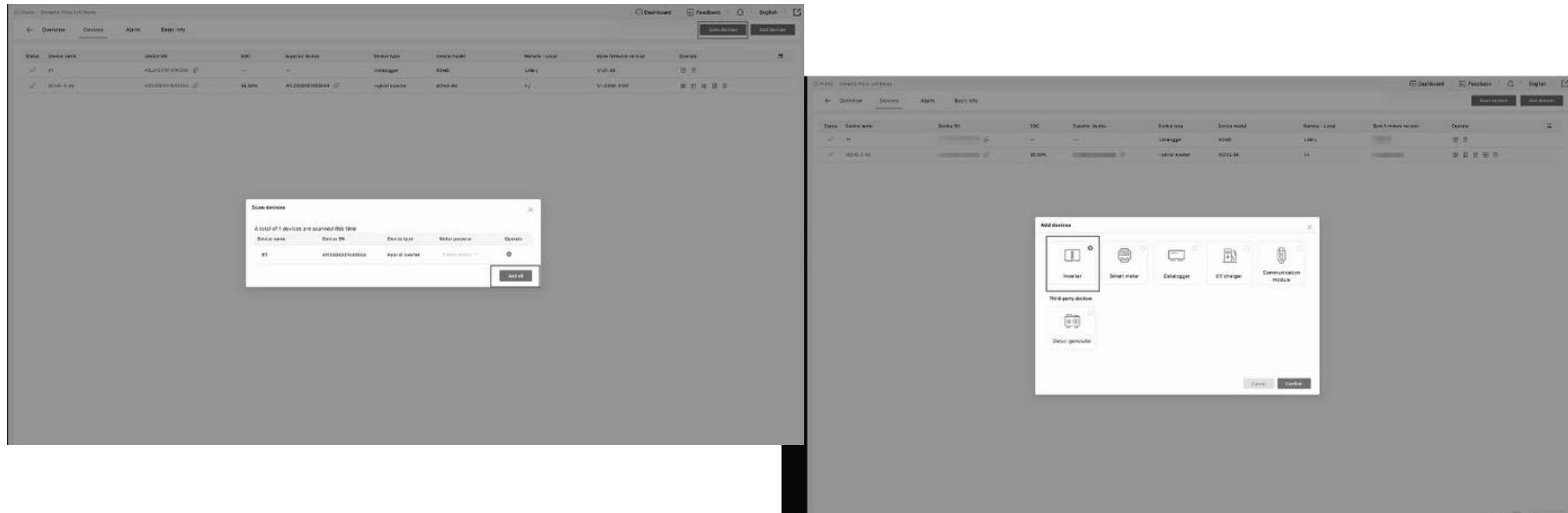
* Cost per kWh 1.0

Back Complete

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

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