

# 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](http://www.midteq.com)



# 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 ( $\leq 10$ 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.



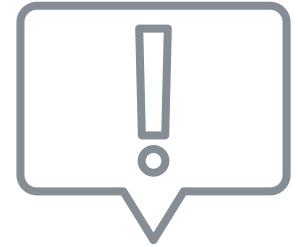
Parallel Solution



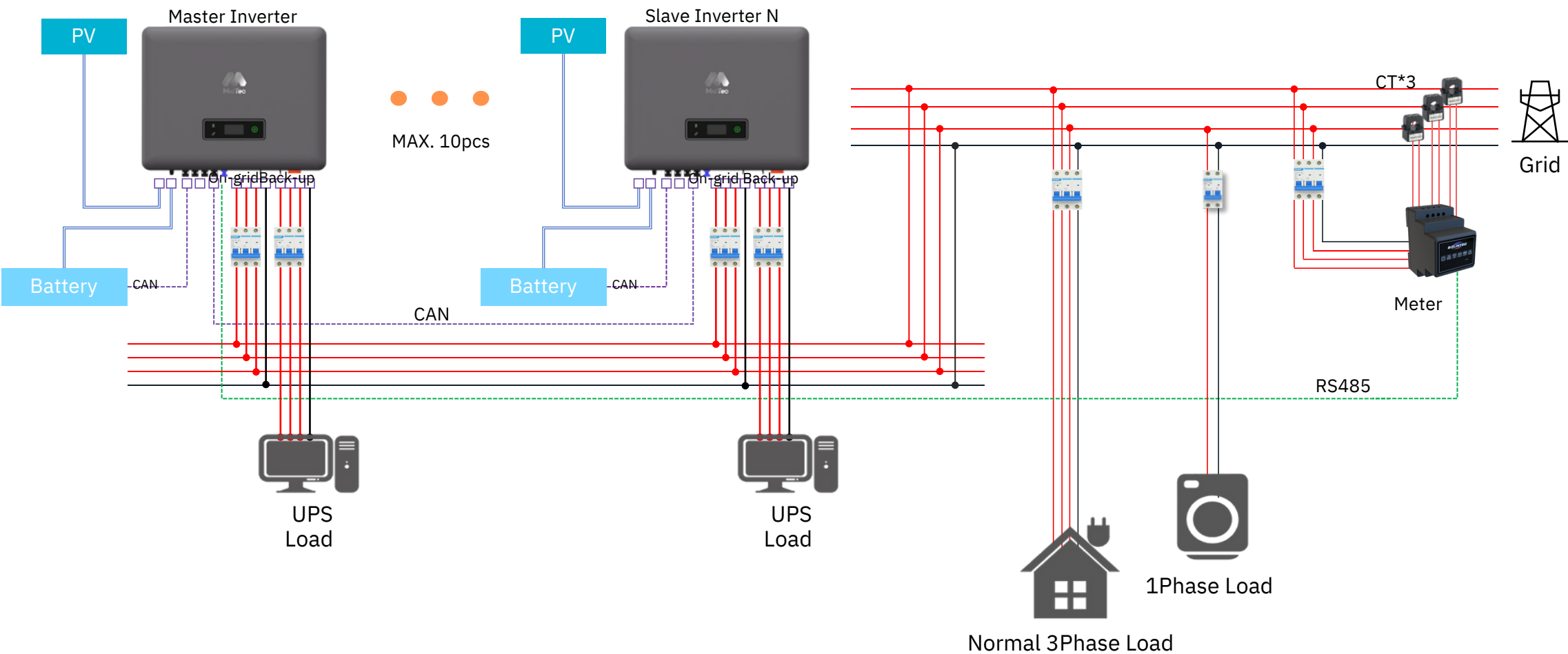
# Notice Before Use

## 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.

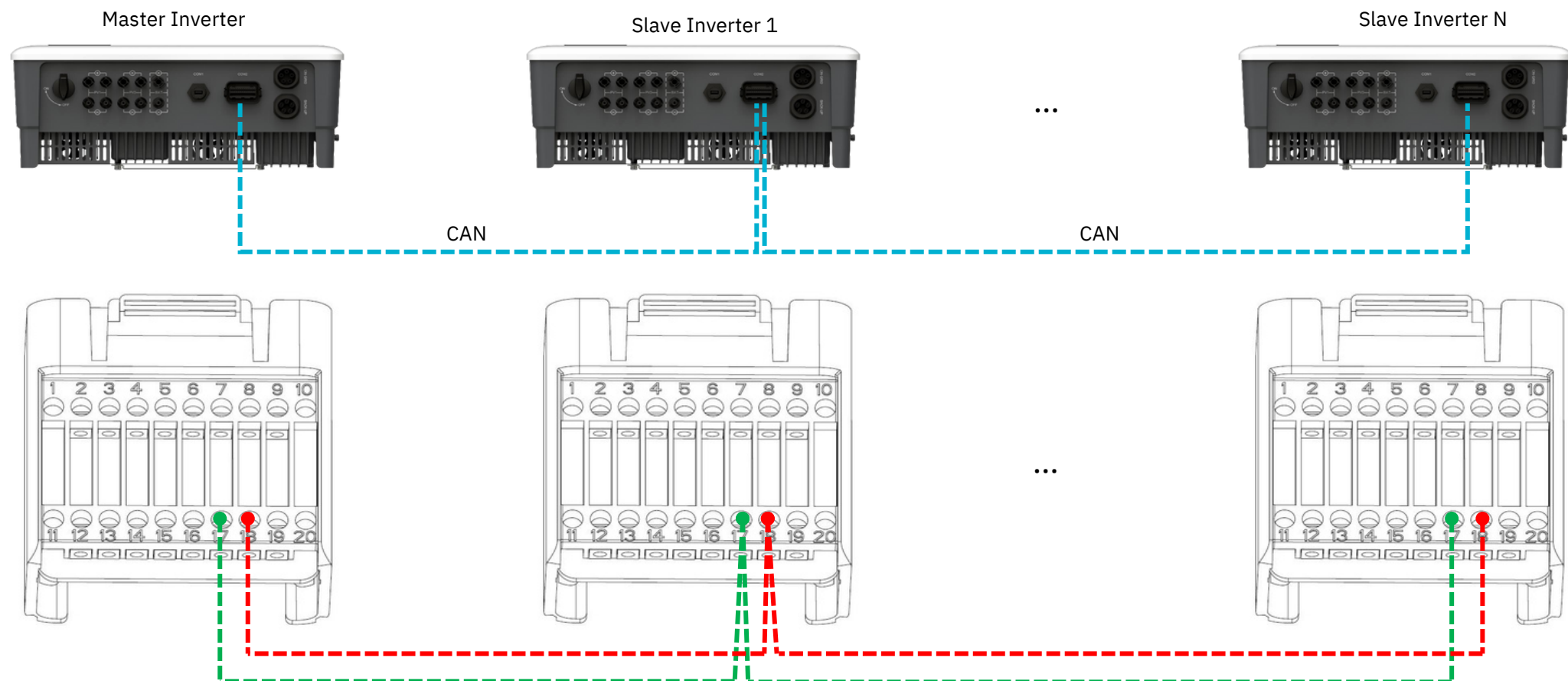


# Parallel System-Whole System Wiring Diagram

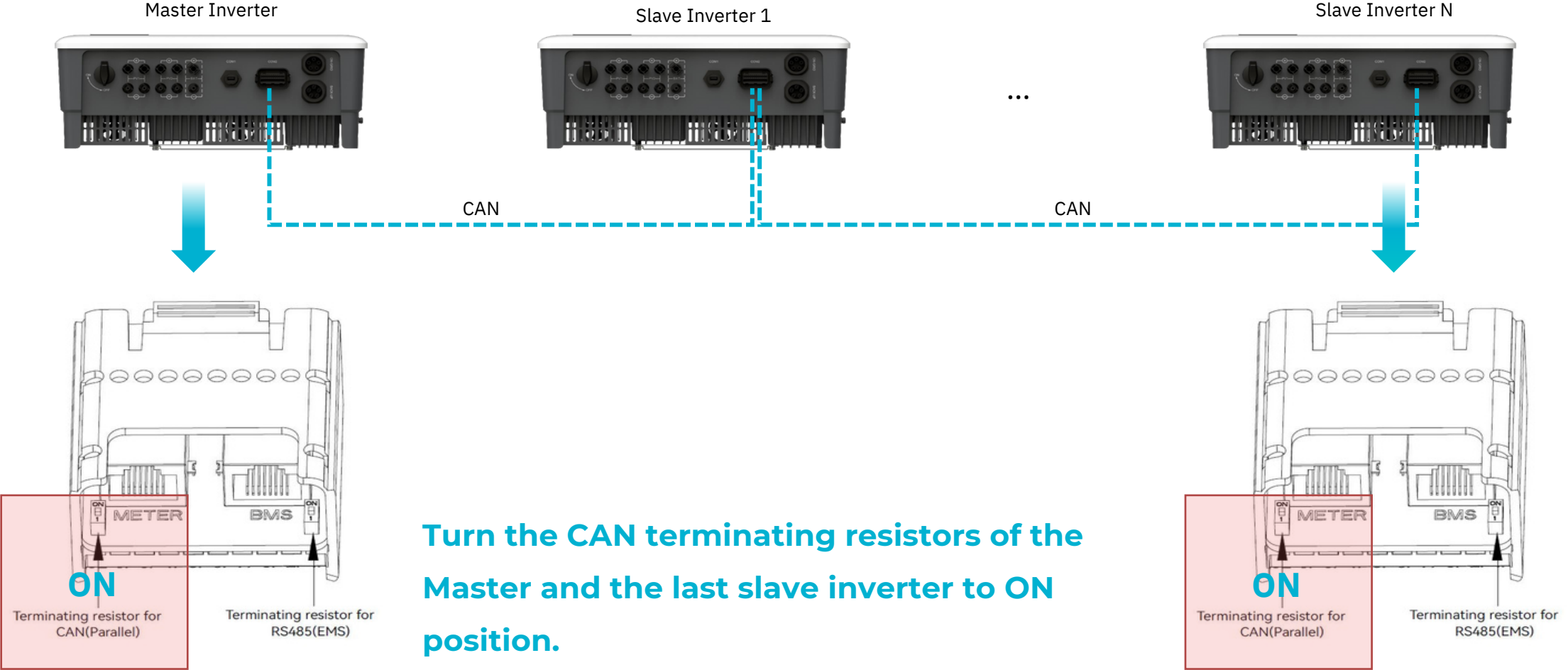




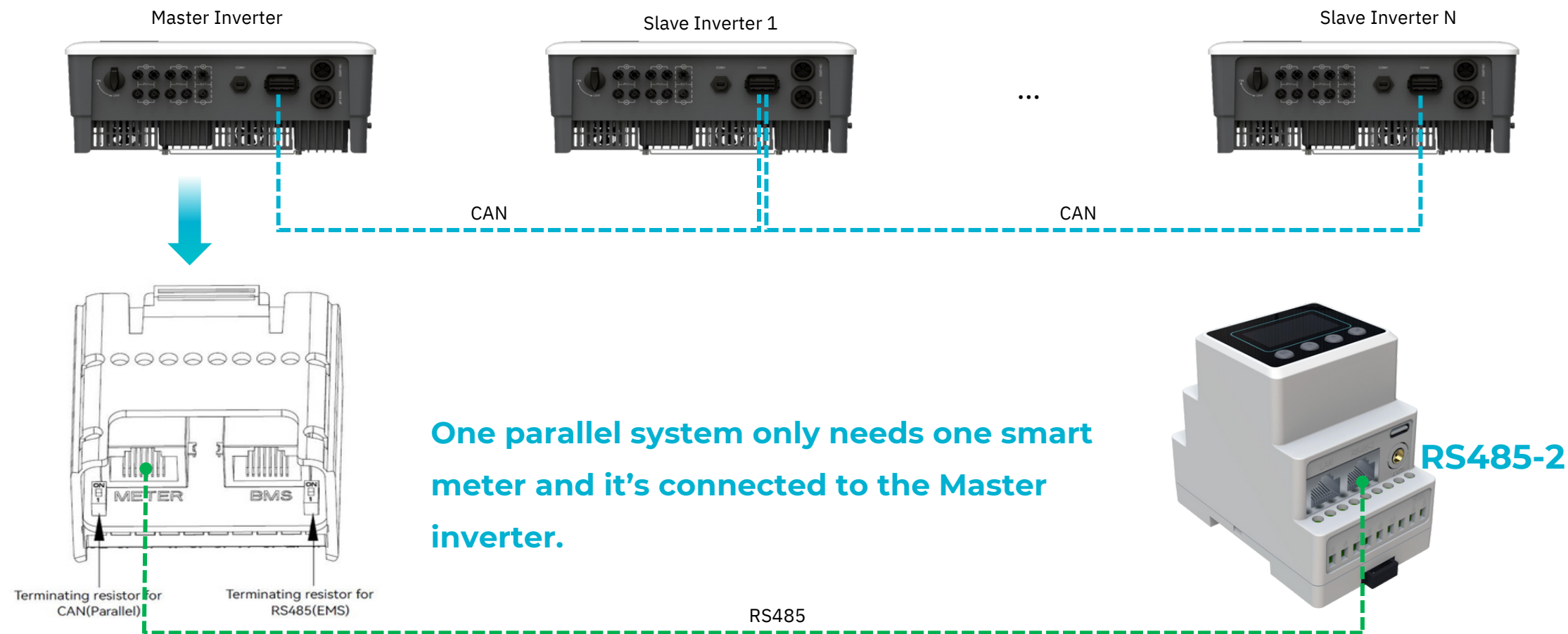
# Parallel System-CAN Communication Illustration



# Parallel System-CAN Communication Wiring



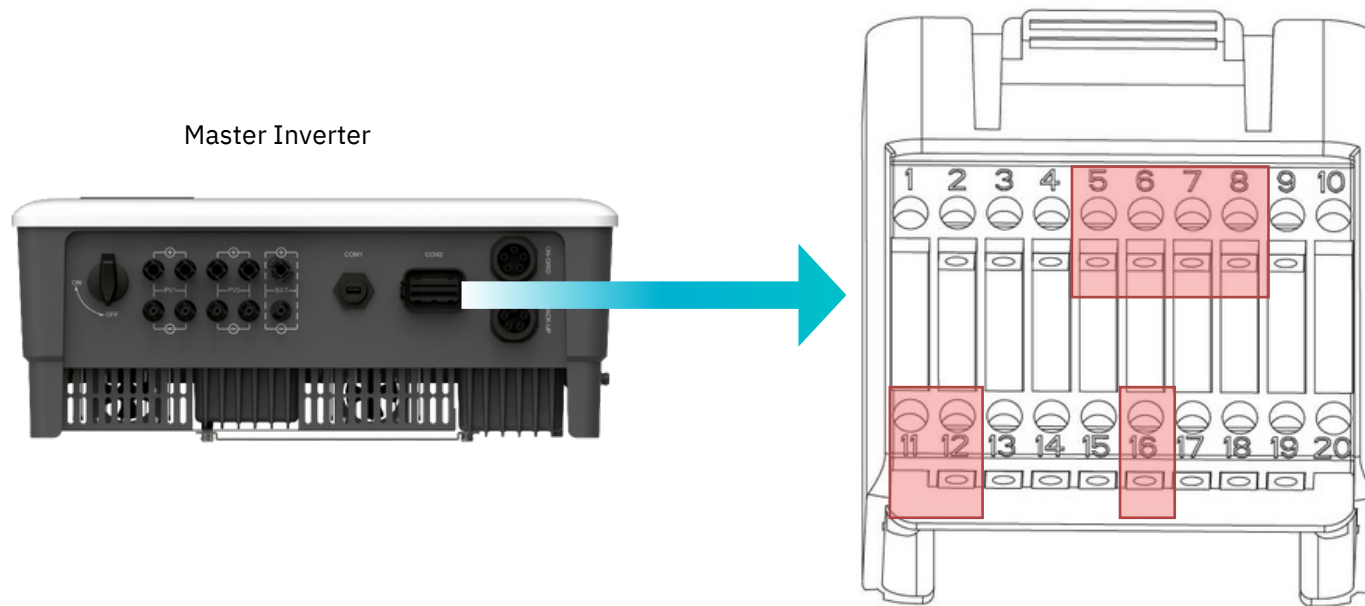
# Parallel System-Smart Meter Connection





# Parallel System-RCR Connection

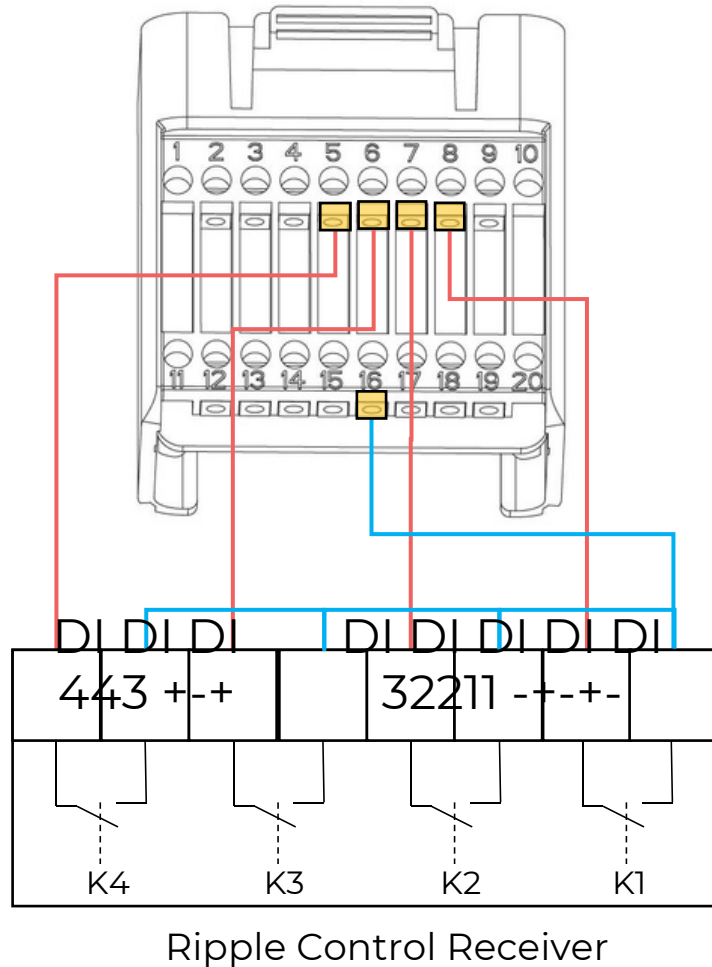
In Germany and some European countries, an inverter connected to the grid must be able to receive the grid dispatch instructions to feed the power to the grid as required, which we called the RCR function. The communications ports for the RCR device to connect are shown below;



**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**

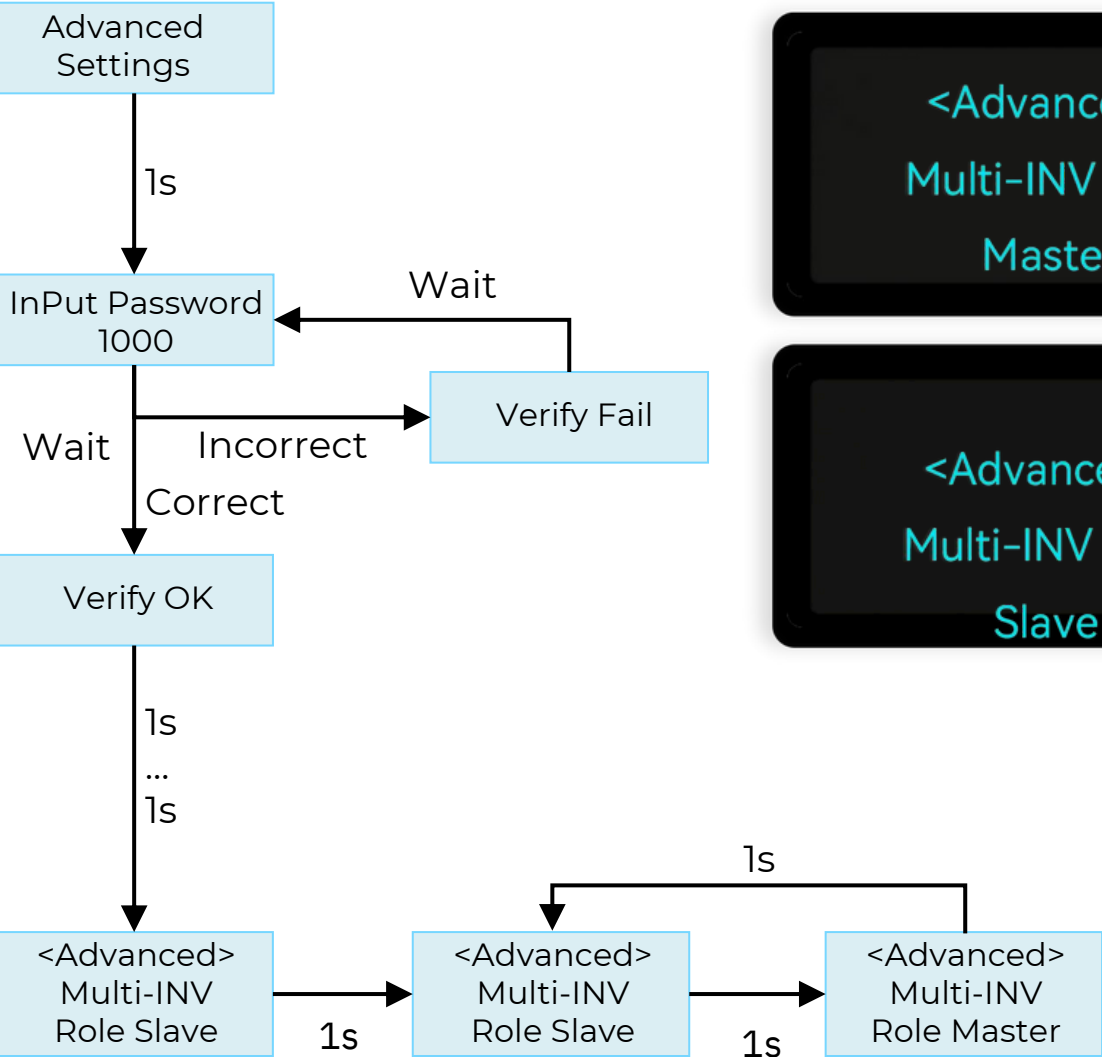
# Parallel System-Operation Procedures

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.)
  - 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.

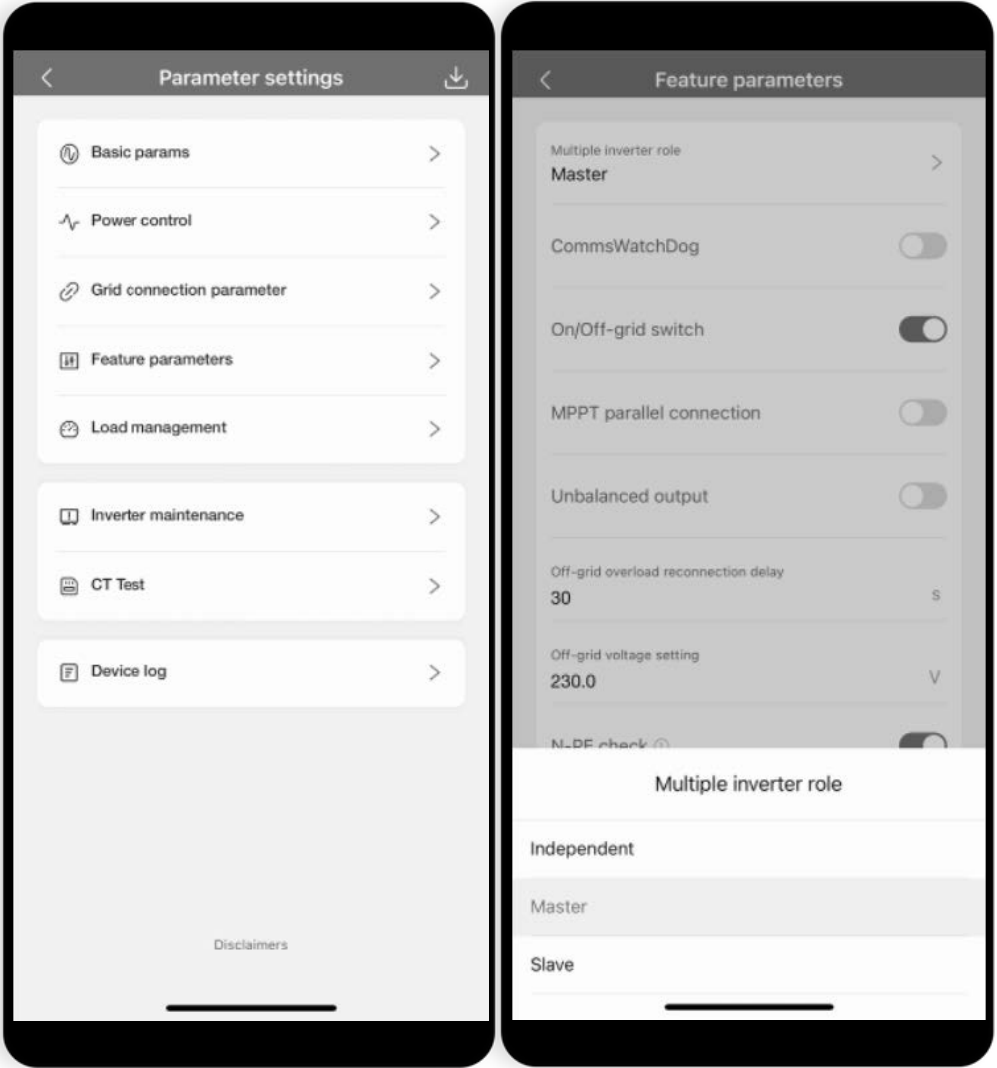


# Parallel System-Inverter Role Setting

## 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

Plants

DashboardFeedbackEnglish

OverviewDevicesAlarmBasic info

Scan devicesAdd devices

Status	Device name	Device SN	SOC	Superior device	Device type	Device model	Remote - Local	Slave firmware version	Operate
	M		69.30%	--	Hybrid Inverter	Energy Butler 12kW-3P-3G40	LAN-/		  
	S		99.90%		Hybrid Inverter	Energy Butler 12kW-3P-3G40	LAN-CAN		  
	S		99.90%		Hybrid Inverter	Energy Butler 12kW-3P-3G40	LAN-CAN		  

Parameter settings

SNDevice namePlant name

Search

Basic paramsPower controlGrid connection p...Protection parame...Grid connection par...Reactive power coit...Voltage related ocl...Active response to f...LVRTFeature parametersLoad managementInverter maintena...CT Test

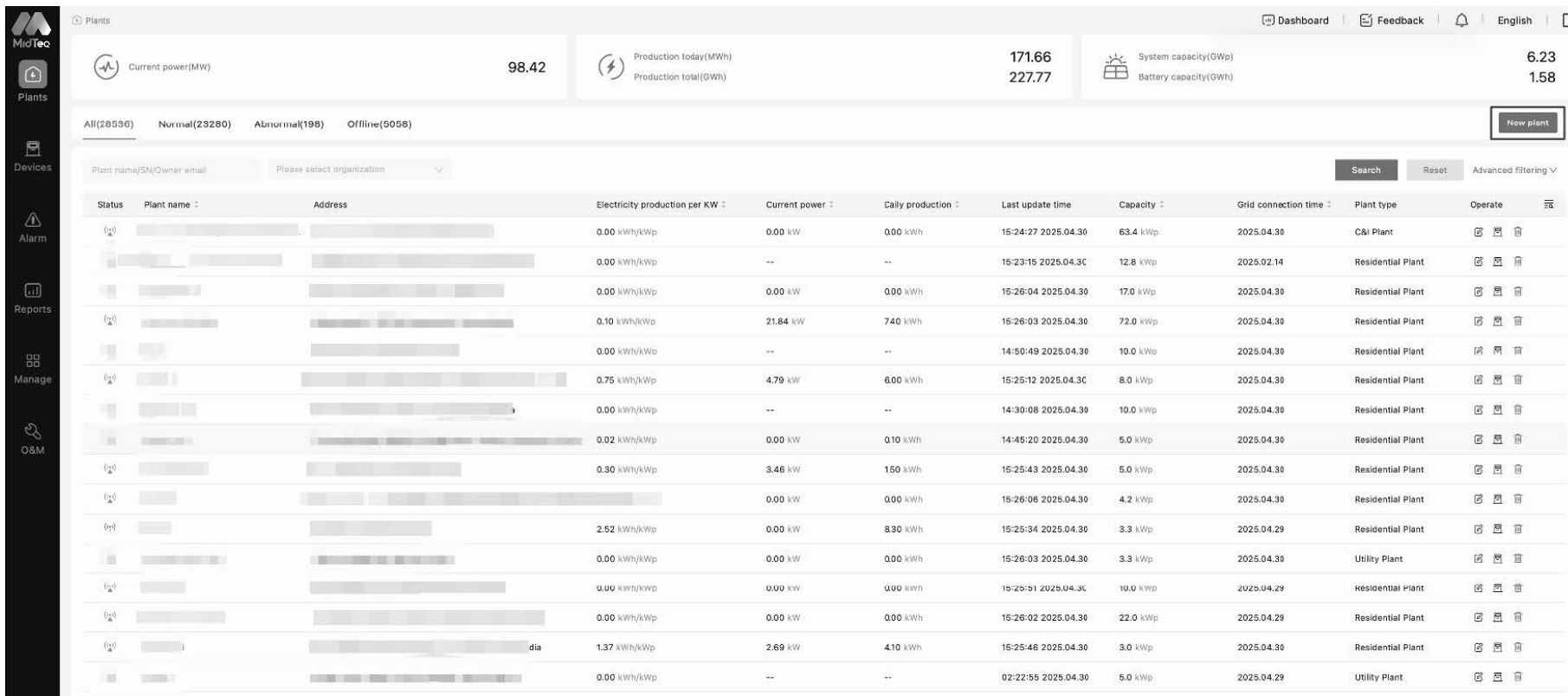
Multiple inverter roleIndependentMasterSlave

CommeWatchDogOn/Off-grid switchMPPT parallel connectionDisableEnableUnbalanced outputDisableEnableOff-grid overload reconnection delay30sOff-grid voltage setting230.0VN-PE checkOffOnEmergency shutdown modeNormally open

# Parallel System-Create A Parallel Plant in MidTeQ Monitoring



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



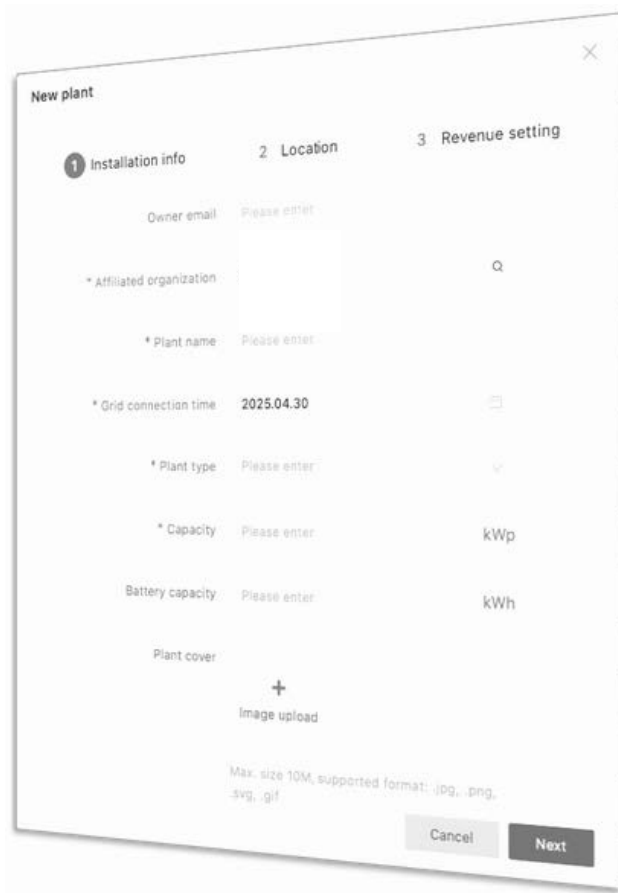
The screenshot displays the MidTeQ Monitoring Dashboard. At the top, there are four summary cards: Current power(MW) at 98.42, Production today(MWh) at 171.66 and Production total(GWh) at 227.77, and System capacity(GWp) at 6.23 and Battery capacity(GWh) at 1.58. Below these, there are filters for plant status: All(28530), Normal(23280), Abnormal(198), and Offline(5058). A 'New plant' button is visible on the right. The main section is a table listing individual plants with columns for Status, Plant name, Address, Electricity production per KW, Current power, Daily production, Last update time, Capacity, Grid connection time, Plant type, and Operate. The table contains 15 rows of data, including various Residential Plants and Utility Plants.

Status	Plant name	Address	Electricity production per KW	Current power	Daily production	Last update time	Capacity	Grid connection time	Plant type	Operate
Normal	[Redacted]	[Redacted]	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	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	--	--	15:23:15 2025.04.30	12.8 kWp	2025.02.14	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:04 2025.04.30	17.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.10 kWh/kWp	21.84 kW	740 kWh	15:26:03 2025.04.30	72.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	--	--	14:50:49 2025.04.30	10.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.75 kWh/kWp	4.79 kW	6.00 kWh	15:25:12 2025.04.30	8.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	--	--	14:30:08 2025.04.30	10.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.02 kWh/kWp	0.00 kW	0.10 kWh	14:45:20 2025.04.30	5.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.30 kWh/kWp	3.46 kW	150 kWh	15:25:43 2025.04.30	5.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:06 2025.04.30	4.2 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	2.52 kWh/kWp	0.00 kW	8.30 kWh	15:25:34 2025.04.30	3.3 kWp	2025.04.29	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:03 2025.04.30	3.3 kWp	2025.04.30	Utility Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:25:51 2025.04.30	10.0 kWp	2025.04.29	Residential plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	0.00 kW	0.00 kWh	15:26:02 2025.04.30	22.0 kWp	2025.04.29	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	1.37 kWh/kWp	2.69 kW	4.10 kWh	15:25:46 2025.04.30	3.0 kWp	2025.04.30	Residential Plant	[Icons]
Normal	[Redacted]	[Redacted]	0.00 kWh/kWp	--	--	02:22:55 2025.04.30	5.0 kWp	2025.04.29	Utility Plant	[Icons]



# 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:

\* Capacity:  kWp

Battery capacity:  kWh

Plant cover:   
+   
Image upload

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)

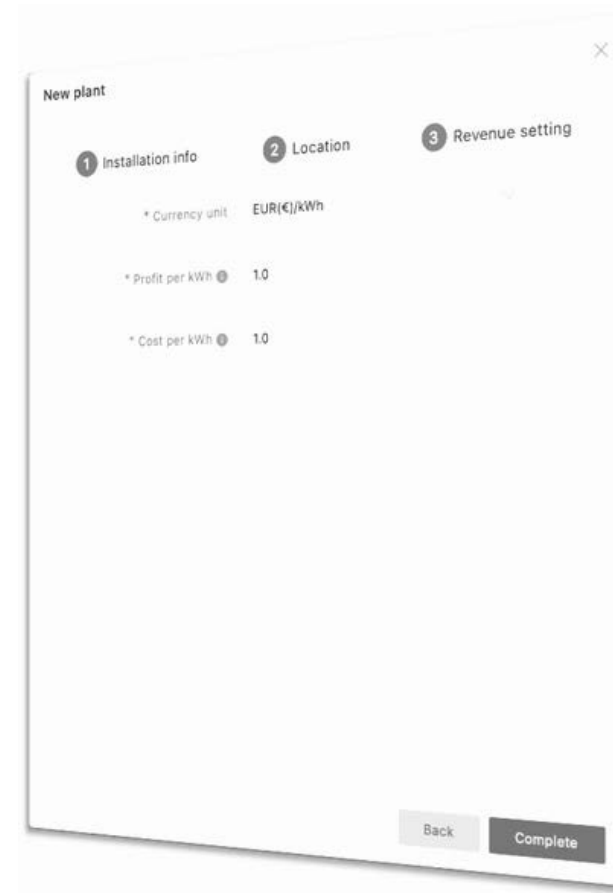
\* Timezone: UTC+01:00

\* Location: 100010, Dongcheng District, Beijing, Peopl

Detailed address: Please enter detailed address



Back    Next



**New plant**

1 Installation info    2 Location    3 Revenue setting

\* Currency unit: EUR(€)/kWh

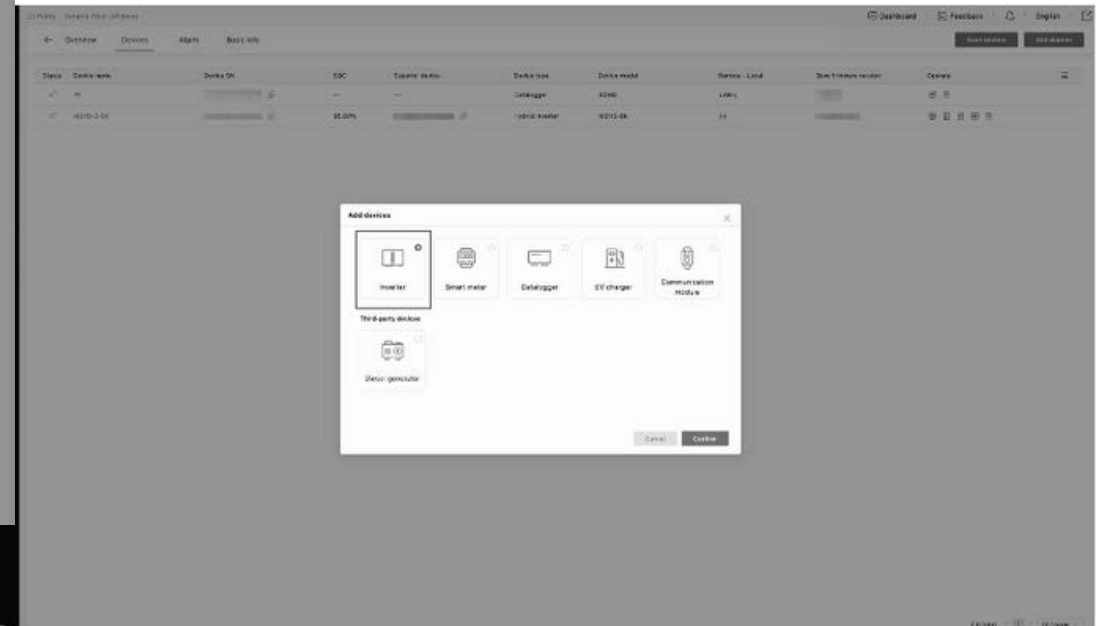
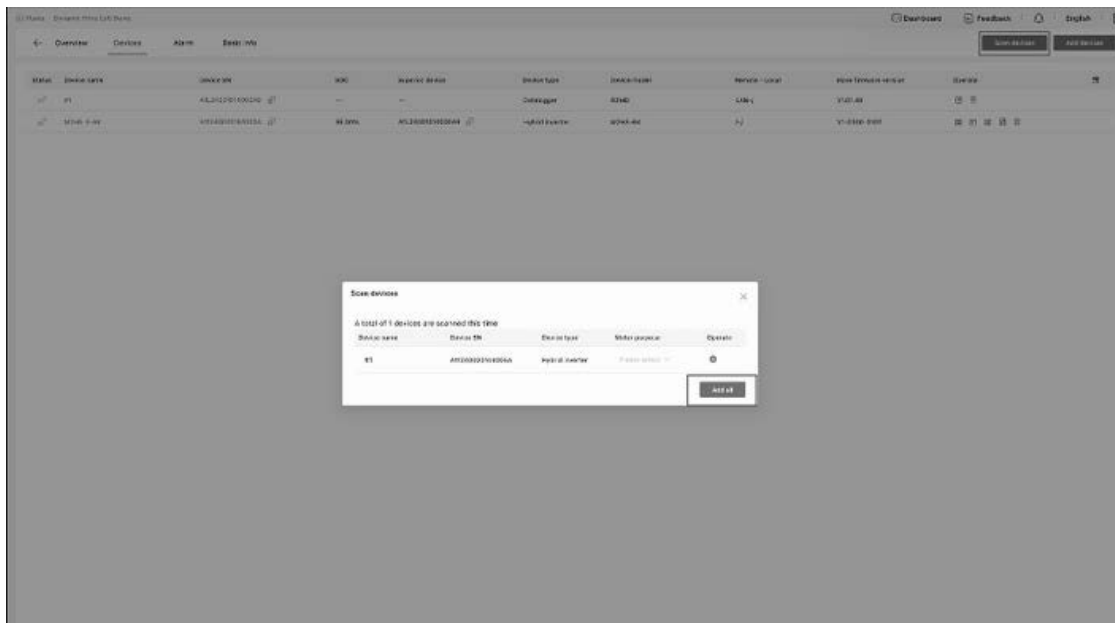
\* Profit per kWh: 1.0

\* 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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