

MHT4-20KW THREE-PHASE HYBRID Paralleling Solution

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Introduction

INTEGRATE SOLAR INTELLIGENTLY



Introduction

Comparison between Master-Slave & Datalogger

Items	Master Slave Parallel	Datalogger Parallel
Device	2-10 inverters, 1 smart meter	2-10 inverters, 1 smart meter, 1 datalogger
Communication method	CAN+RS485 (smart meter)	CAN+RS485 (smart meter)
Communication with server	Each inverter needs to be equipped with communication module(WIFI/LAN), and communicates with server separately.	Communication module(WIFI/LAN) is unnecessary. Inverters communicate with server through the datalogger.
Australia DRED	Integrated	Integrated
Germany Ripple Control Receiver active power adjusting	Integrated	Integrated
Germany Ripple Control Receiver Reactive power adjusting	Non-Integrated	Integrated
Number of supported parallel inverter	10	10
Launch time	November,2022	March, 2023
Feature	<p>*More suitable for paralleling projects equipped with a handful of supported devices</p> <p>*Not integrated with reactive power adjusting function</p>	<p>*More suitable for paralleling projects equipped with large number of supported devices</p> <p>*Integrated with reactive power adjusting function</p> <p>*Able to be applied to projects equipped with multi-series inverters, like on-grid, hybrid and AC couple mixed parallel</p>

1. Each plant equipped with smart meter only supports one parallel system, which contains all installed inverters. Separately operating inverter is not involved in this system.
2. For master-slave controlling system, each parallel system must use the same model and specification in the same series of energy storage inverters, and battery (model and capacity) is recommended to be the same. The parallel system does not support grid-connected inverters or other models.
3. Batteries can not be connected in parallel. Each inverter is connected to its own battery.
4. When slave inverter loses the CAN bus communication in master-slave controlling system, the inverter itself will be automatically shutdown. When the RS485 communication between the Master/Datalogger and the smart meter is lost, the whole parallel system will automatically stop running.
5. In the parallel system, the priority strategy is to balance the output of each inverter. Also, the battery SOC connected to each inverter will be adjusted as consistently as possible by adjusting charge and discharge power.
6. The Master/Datalogger synchronizes the settings to the Slaves, which means the parameter settings of all inverters in the parallel system are the same.
7. At present, two solutions, master-slave and datalogger controlling, only support on-grid parallel, and off-grid parallel is expected to be launched by March, 2023.

2

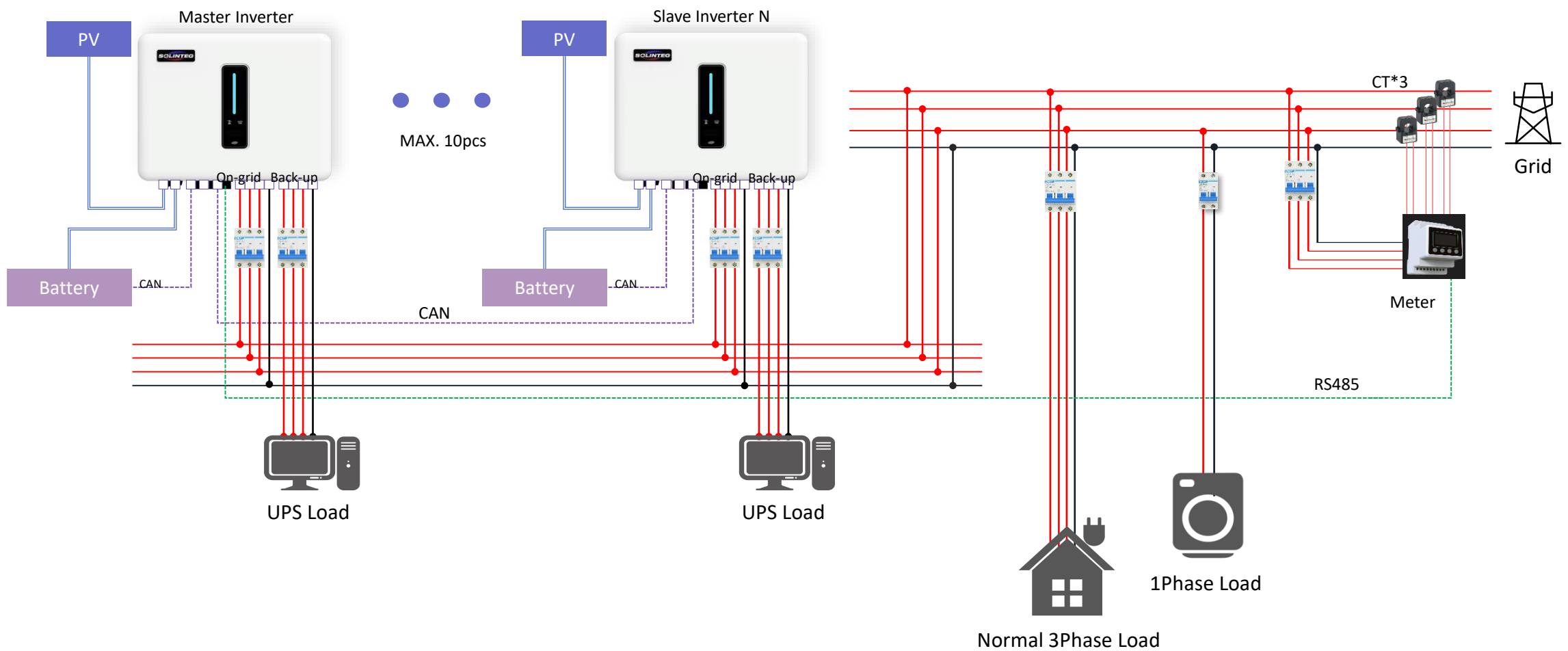
Master Slave Controlling

INTEGRATE SOLAR INTELLIGENTLY



Master Slave Controlling

System Connection Diagram



Master Slave Controlling

CAN Communication Connection

Master Inverter

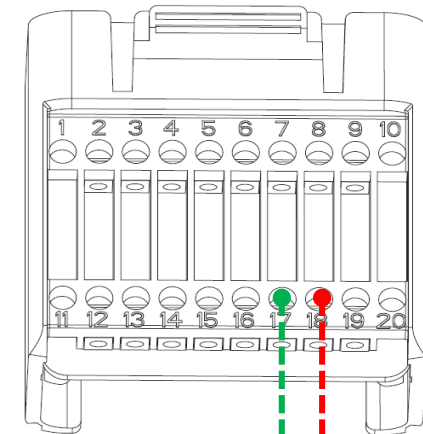
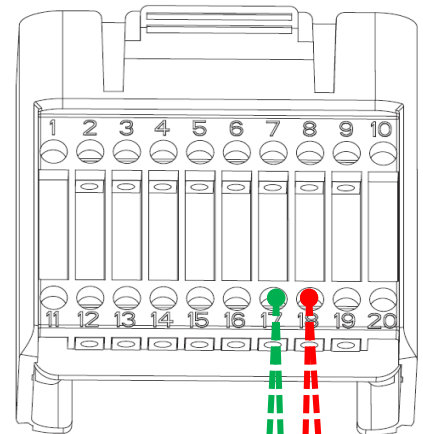
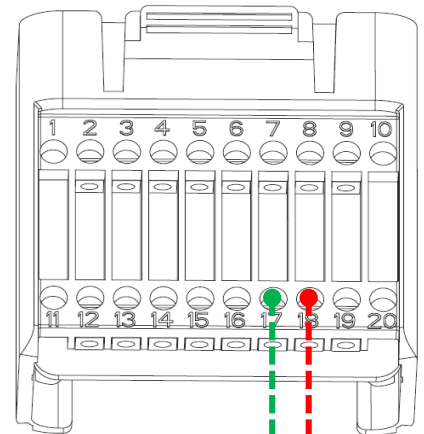
Slave Inverter 1

Slave Inverter N



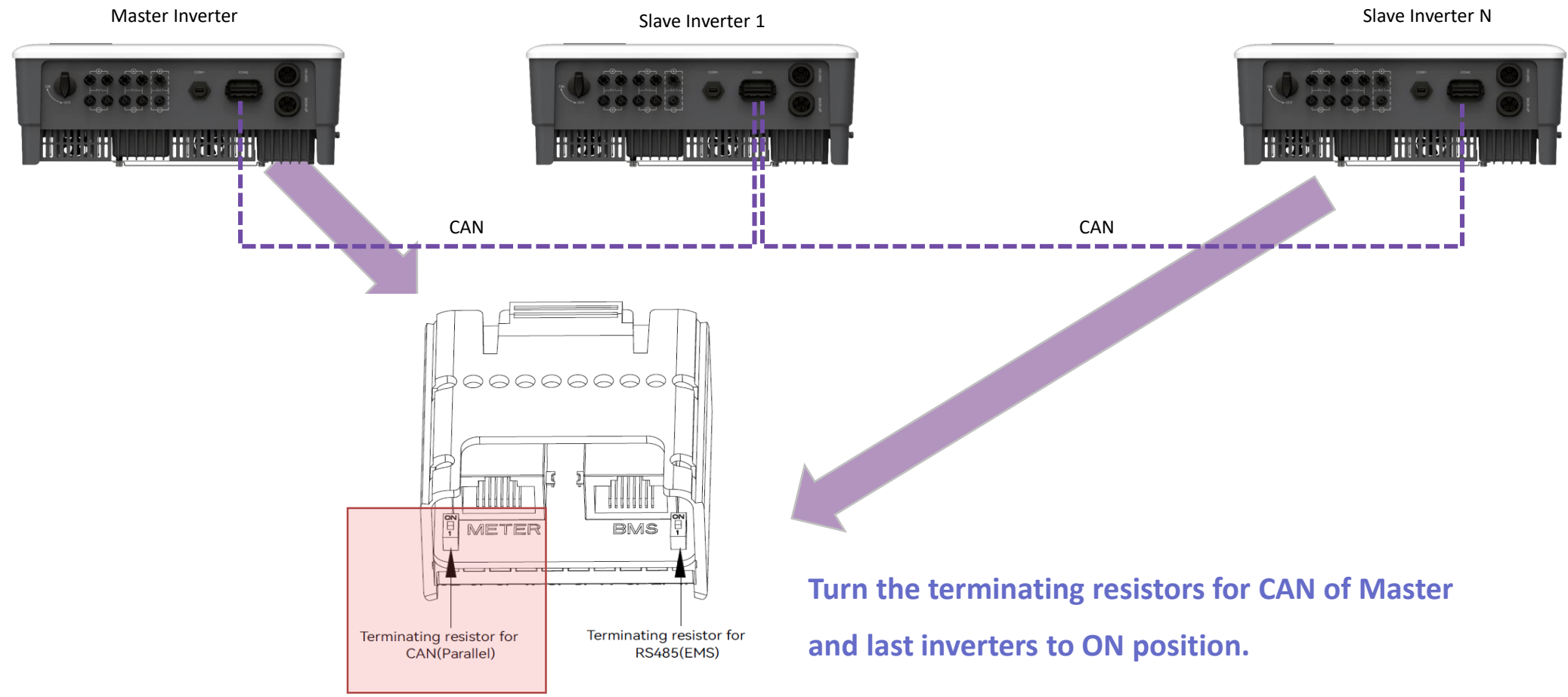
CAN

CAN



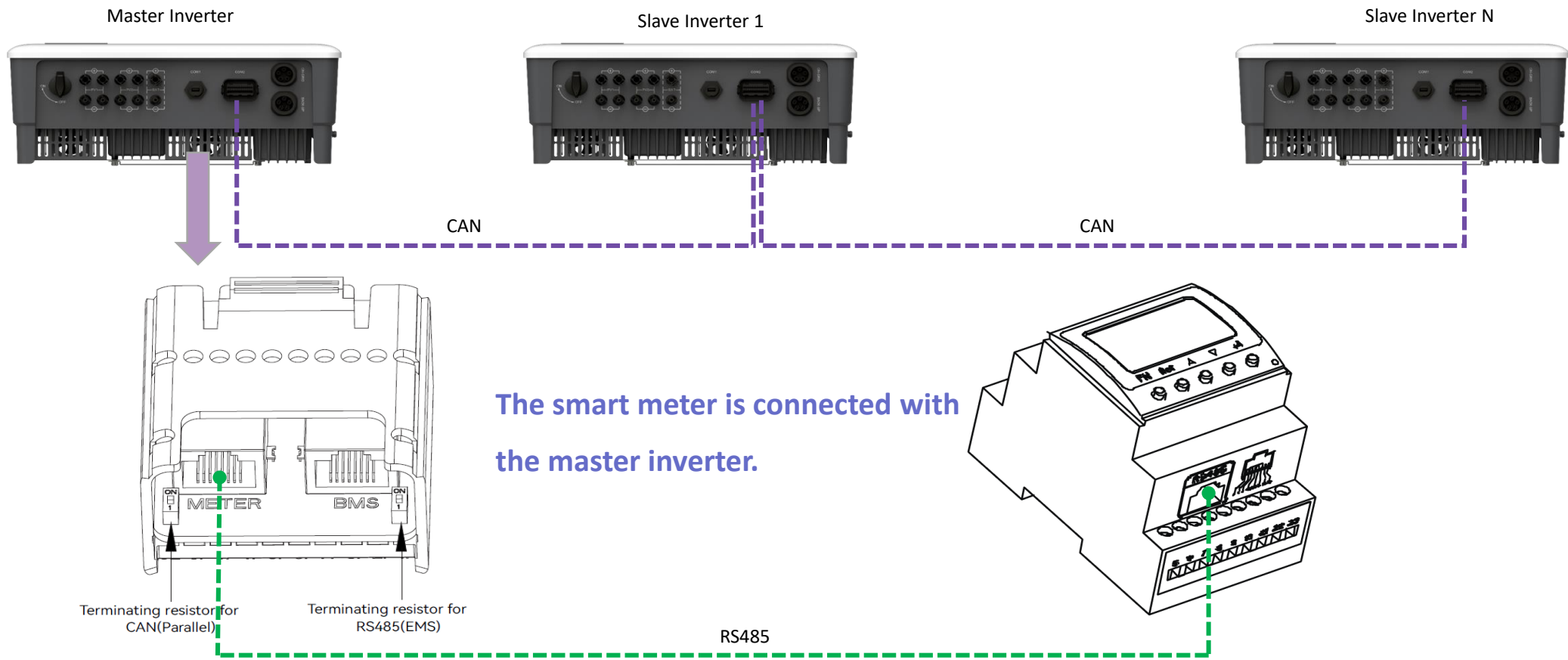
Master Slave Controlling

CAN Communication Connection



Master Slave Controlling

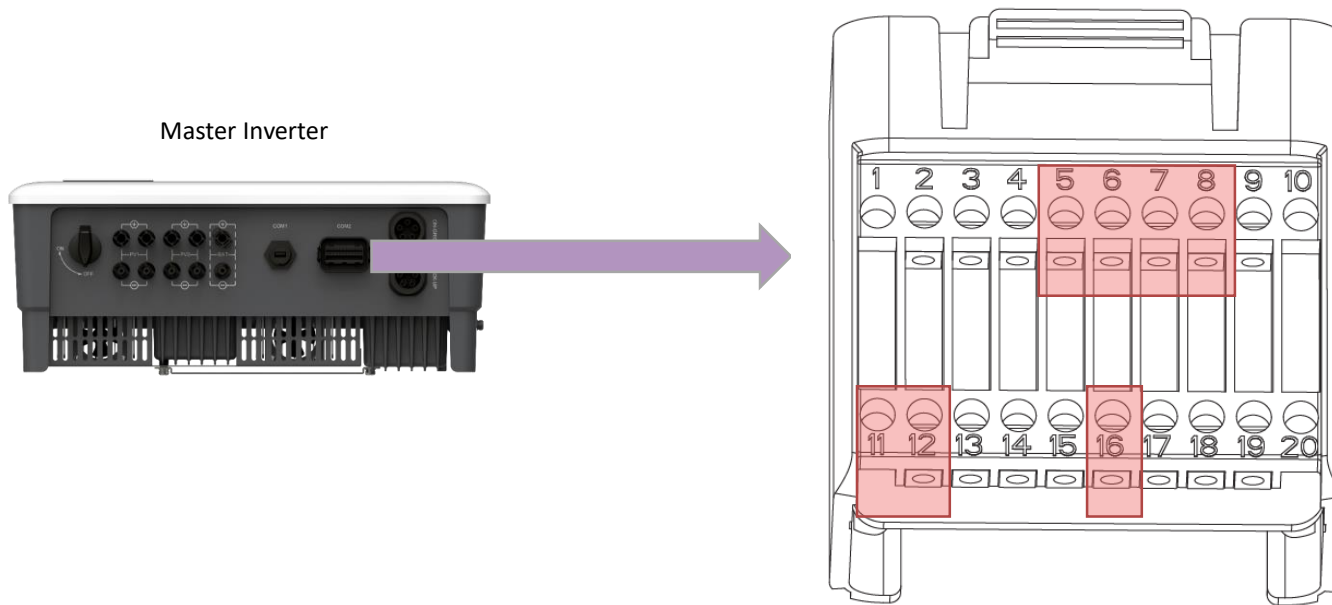
Smart Meter Communication Connection



Master Slave Controlling

Ripple Control Receiver Connection

In Germany and some European areas, a Ripple Control Receiver is widely used by the grid company. It is aimed to control maximum allowed feed-in power through converting power grid dispatch instructions to dry contact signal which is received by dry contact purchased as requires. The interface of this function is as follows.

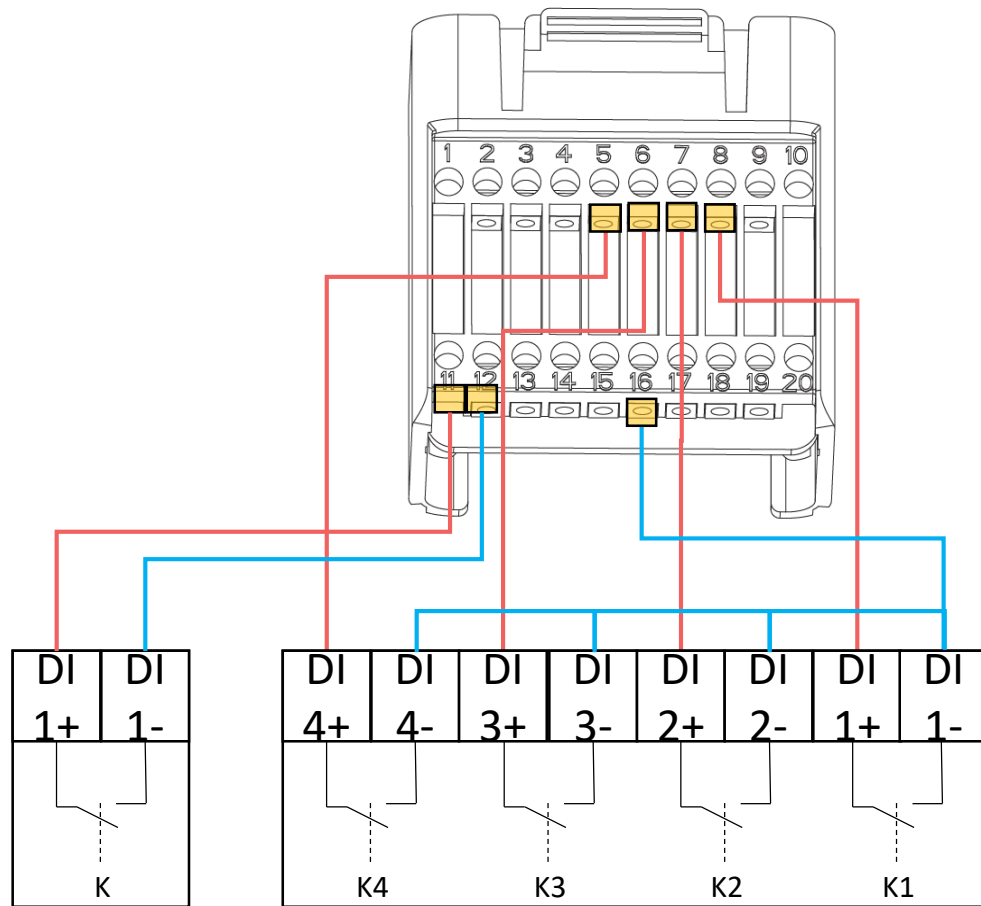


Only the master device needs to be connected.

Only integrated with active power adjusting function.

Master Slave Controlling

Ripple Control Receiver Connection



Fast-Stop

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.

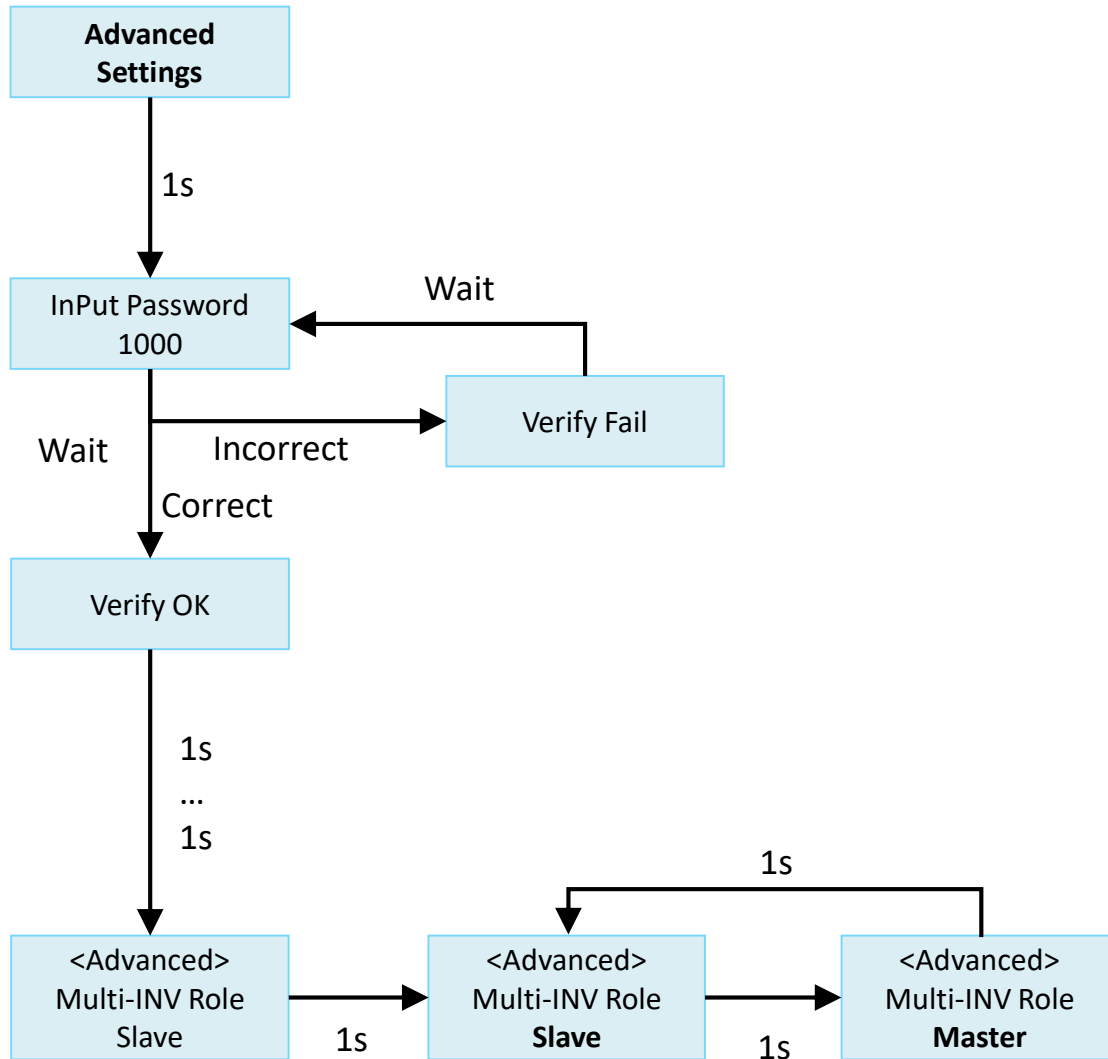
☰ The RCRR function must be enabled on the inverter screen. If the Ripple Control Receiver is not connected or the RCRR function is not enabled, the inverter will fail to output.

☰ The Ripple Control Receiver connection for single inverter is the same.

1. According to the instructions and parallel system drawing, install the whole system including cable connections.
2. Ensure that the inverters and batteries are securely connected, cable connections are firm, and each inverter is equipped with communication module.
3. Power on all the inverters
 - ① If there is power grid, the inverter is only connected to the power grid, not the back-up load;
 - ② If there is no power grid, switch on the battery and PV, but do not switch on the back-up load.
4. Configure the WIFI network for system.
5. Create a plant in monitoring APP to add all inverters.
6. Set the inverter connected to the smart meter as the Master via monitoring APP (or on screen)
7. Confirm that all inverters are online in the monitoring APP.
8. Set the necessary parameters of the master inverter via APP or screen, such as safety code, export limit, RCRR, etc.
9. All inverters are connected to the power grid, batteries and PV to make sure that the system can run normally.
10. After the system runs properly, connect the load.

Master Slave Controlling

Setting



Screen Display

3

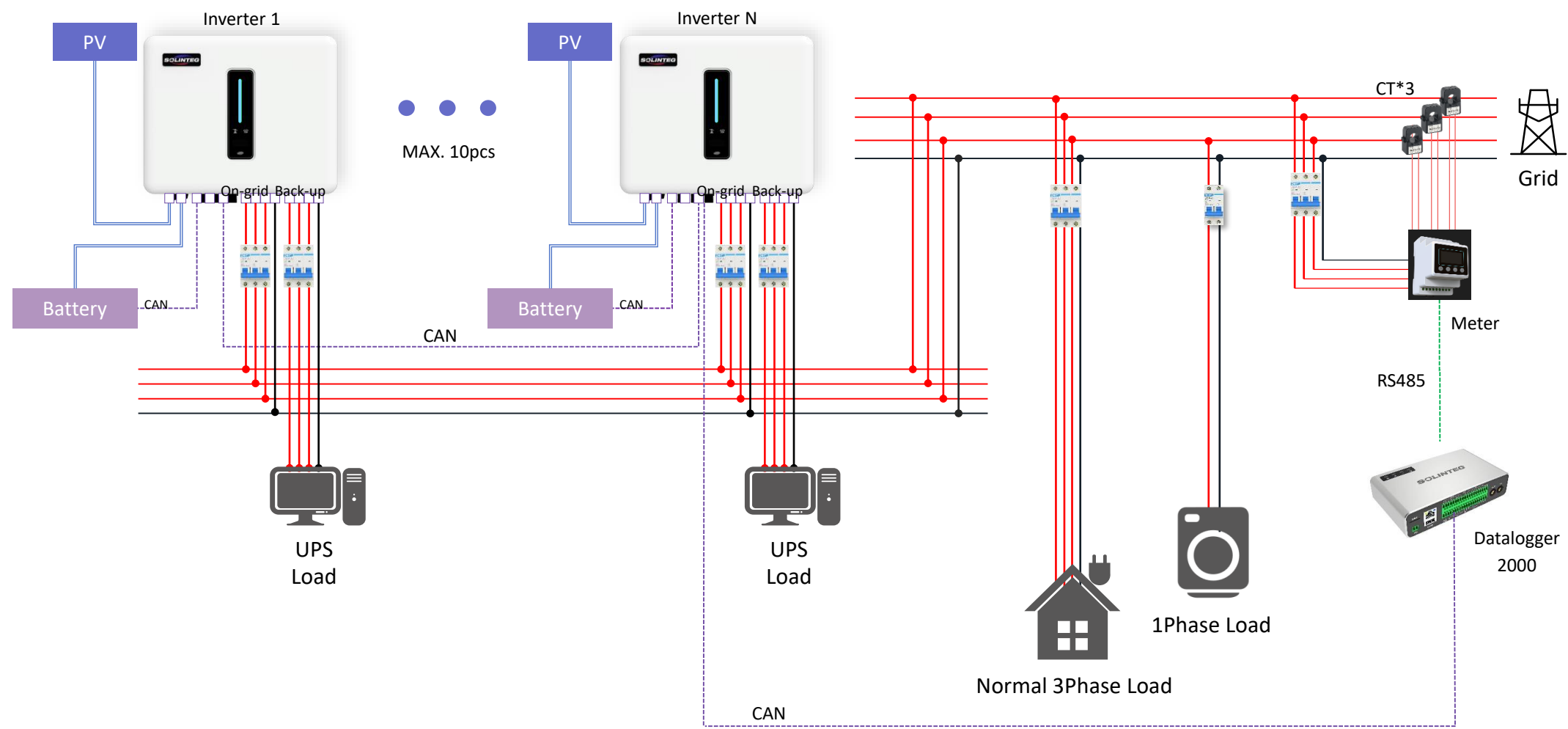
Datalogger Controlling

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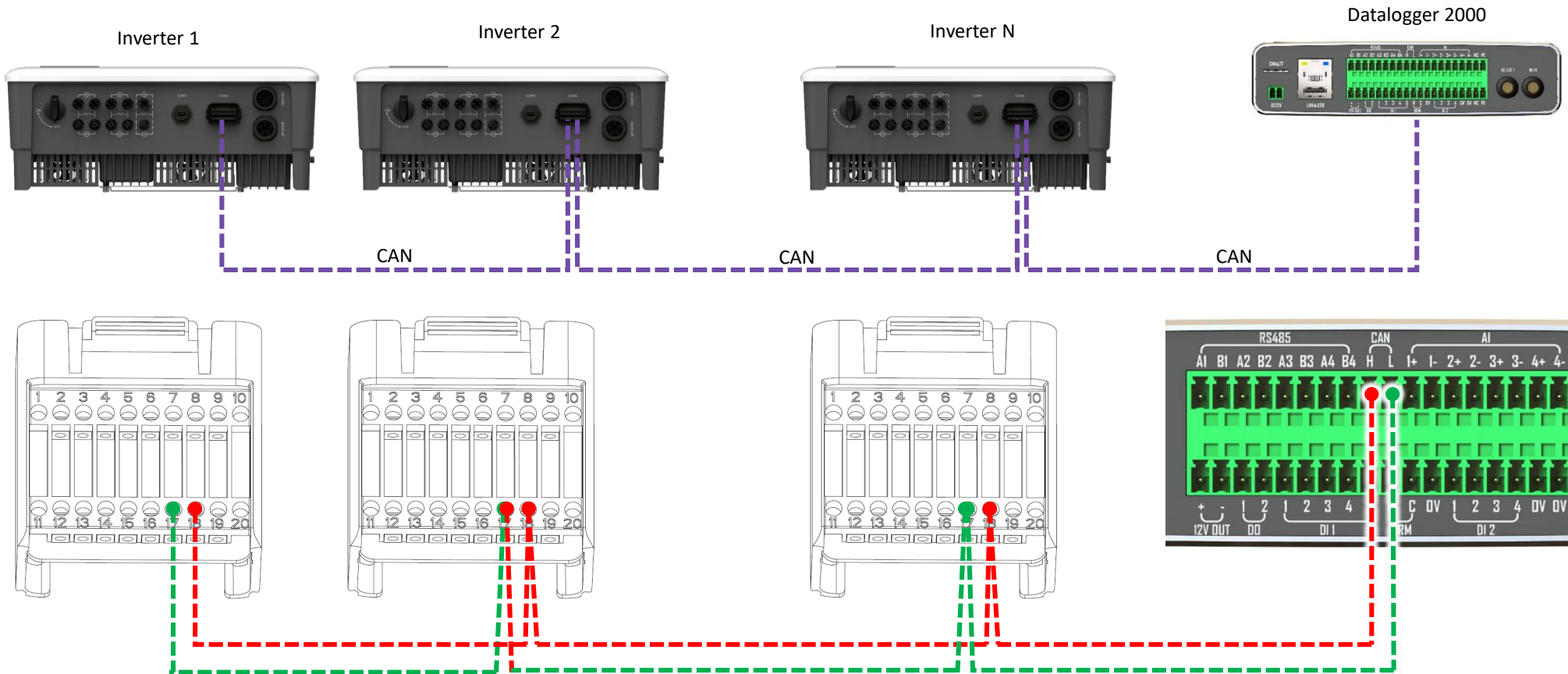
Datalogger Controlling

System Connection Diagram



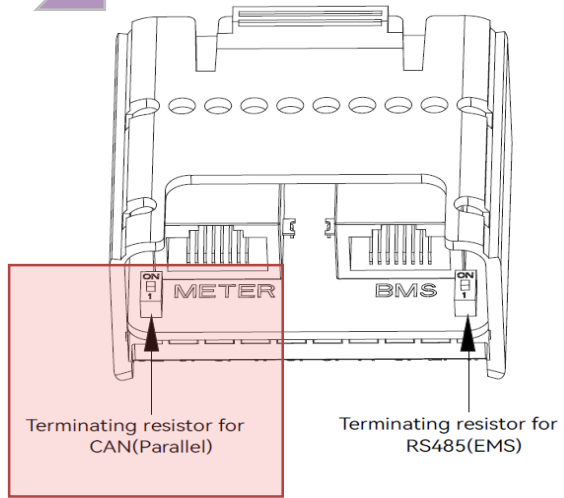
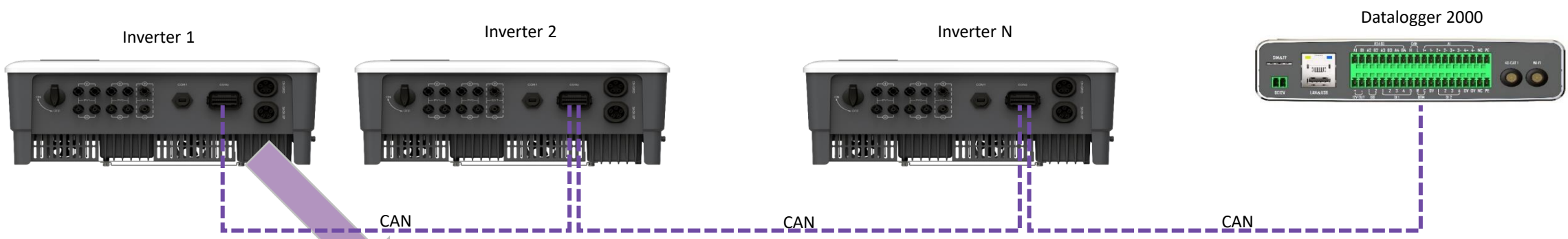
Datalogger Controlling

CAN Communication Connection



Datalogger Controlling

CAN Communication Connection

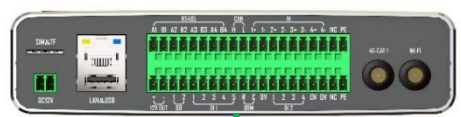


Turn Terminating resistor for CAN of the last inverter to the ON position.

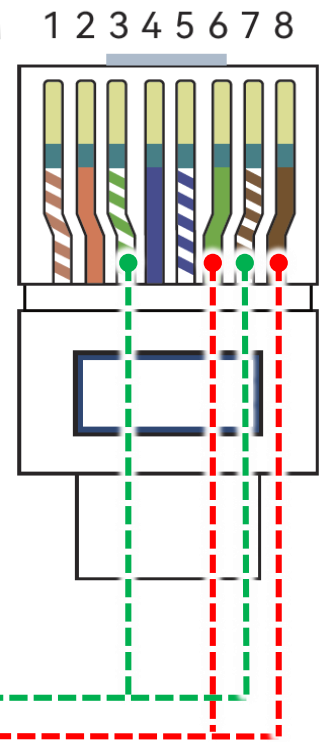
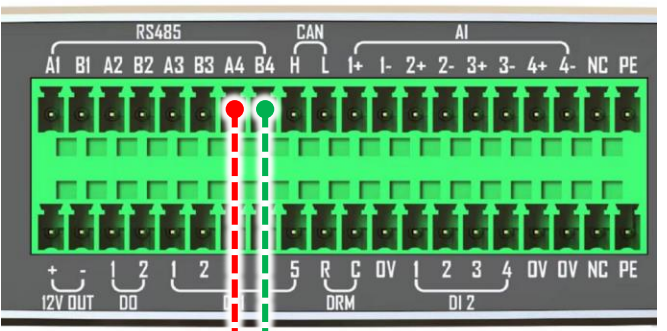
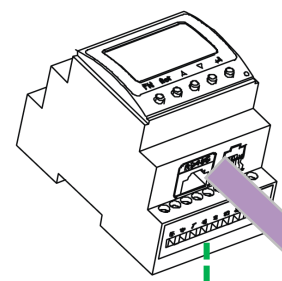
Datalogger Controlling

Smart Meter Communication Connection

Datalogger 2000



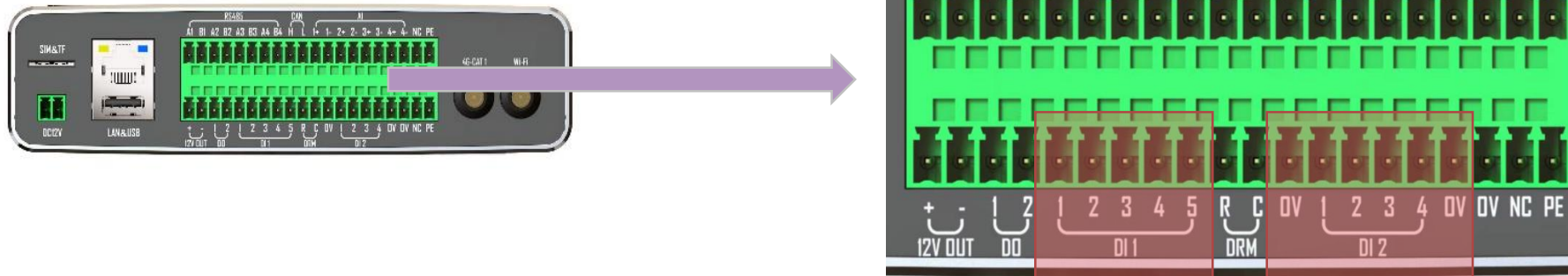
The smart meter is connected with the datalogger.



RS485

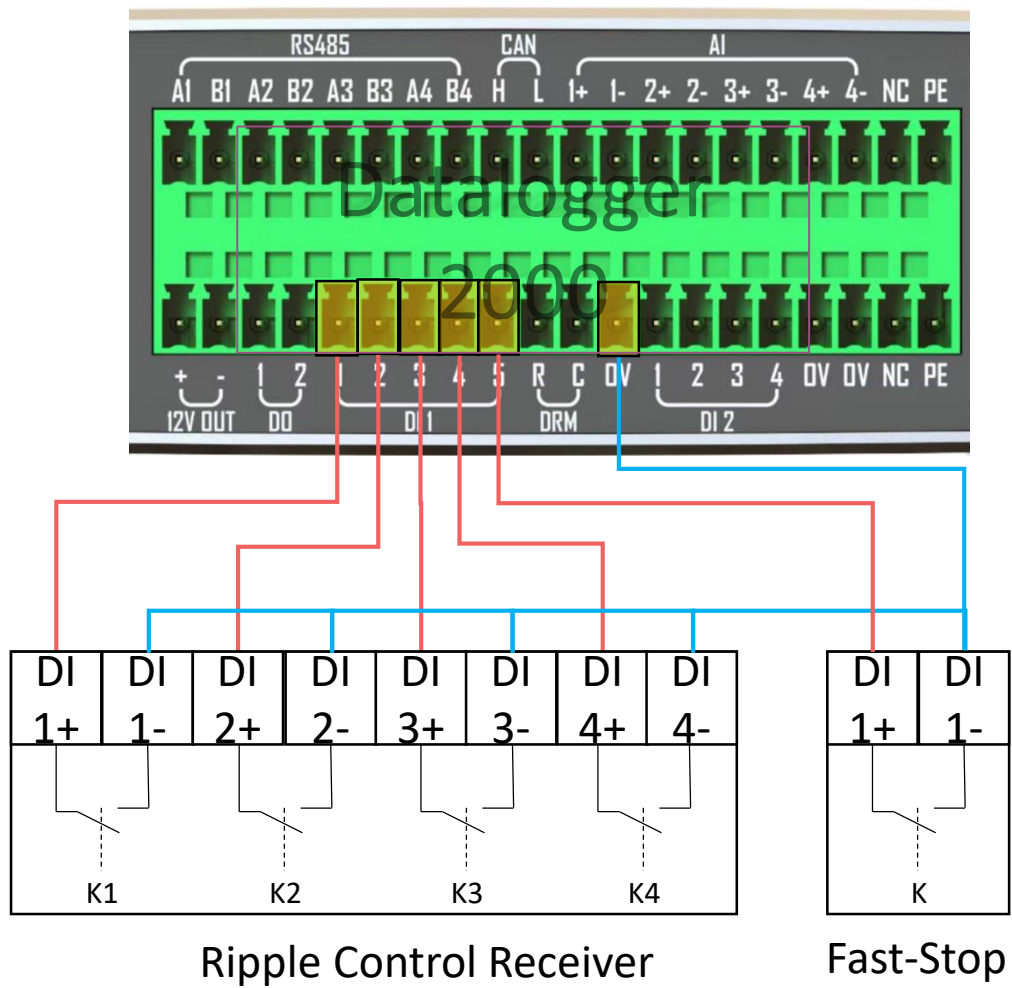
RS485

In Germany and some European areas, a Ripple Control Receiver is widely used by the grid company. It is aimed to control maximum allowed feed-in power through converting power grid dispatch instructions to dry contact signal which is received by dry contact purchased as requires. The Datalogger2000 interface of this function is as follows.



Datalogger Controlling

Ripple Control Receiver Connection

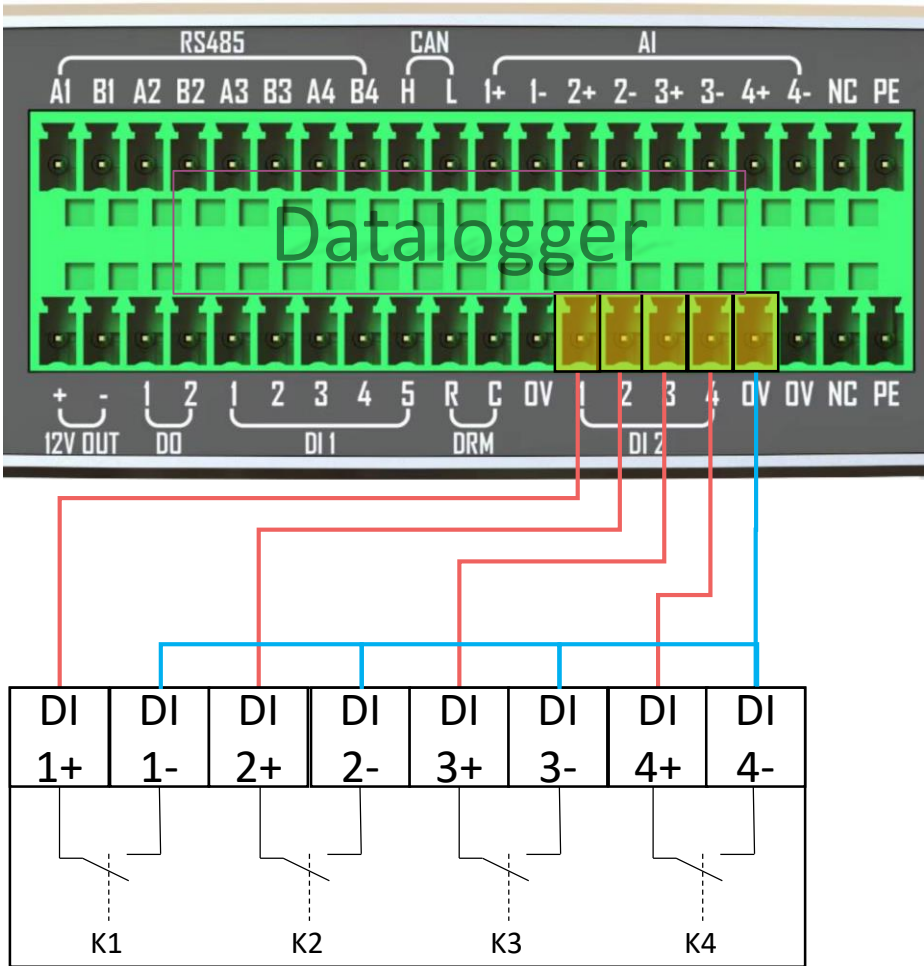


The settings can be customized.
Instructions to be updated.

Active Power Dry Contact Connection Diagram

Datalogger Controlling

Ripple Control Receiver Connection



Ripple Control Receiver

Reactive Power Dry Contact Connection Diagram

The settings can be customized.
Instructions to be updated.

4

Solinteg Cloud Setting

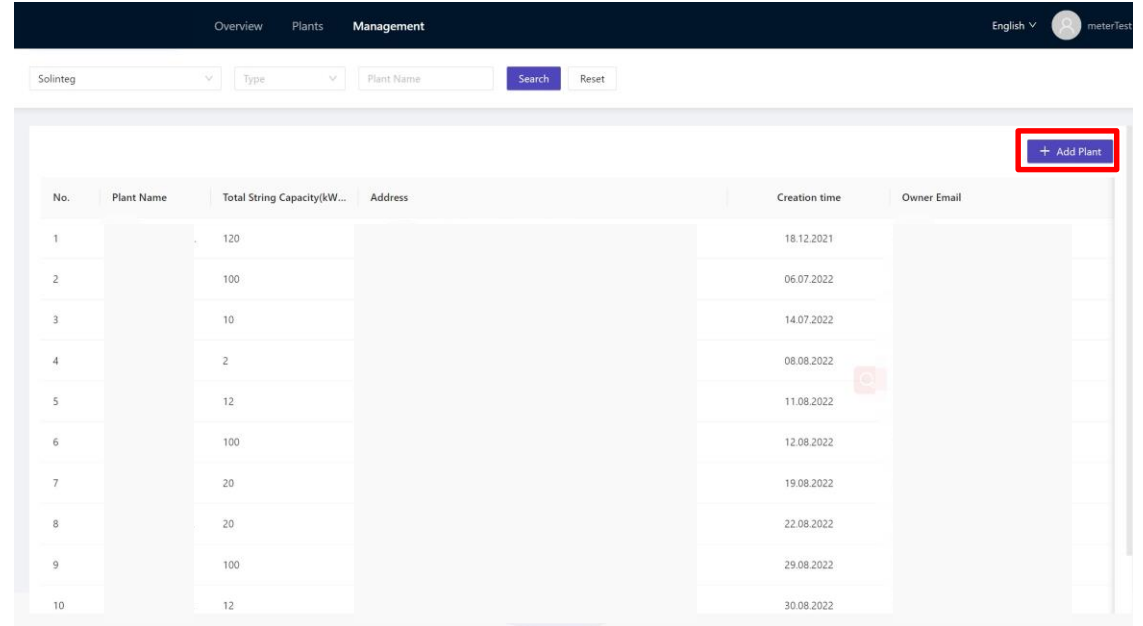
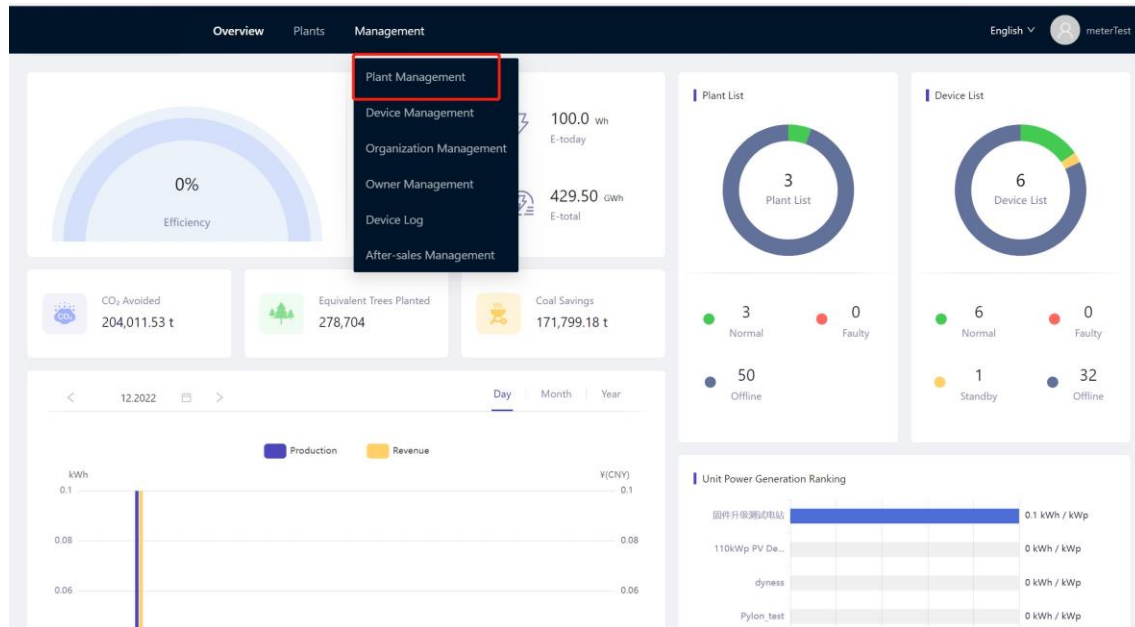
INTEGRATE SOLAR INTELLIGENTLY



Solinteg Cloud Setting

Create a New Paralleling Plant

 Login Solinteg cloud, and click[Plant Management]—Add Plant.




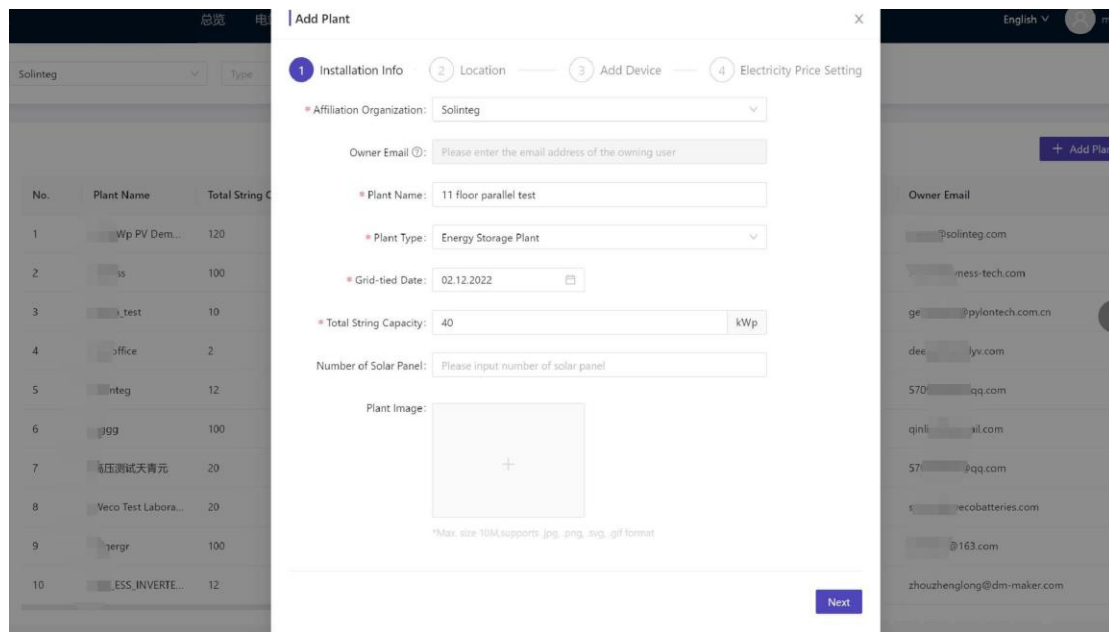
The screenshot shows the Solinteg Cloud Plant Management table. The table has columns for No., Plant Name, Total String Capacity(kW...), Address, Creation time, and Owner Email. A '+ Add Plant' button is highlighted in the top right corner.

No.	Plant Name	Total String Capacity(kW...	Address	Creation time	Owner Email
1		120		18.12.2021	
2		100		06.07.2022	
3		10		14.07.2022	
4		2		08.08.2022	
5		12		11.08.2022	
6		100		12.08.2022	
7		20		19.08.2022	
8		20		22.08.2022	
9		100		29.08.2022	
10		12		30.08.2022	

Solinteg Cloud Setting

Create a New Paralleling Plant

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



Add Plant

1 Installation Info 2 Location 3 Add Device 4 Electricity Price Setting

* Affiliation Organization: Solinteg

Owner Email: Please enter the email address of the owning user

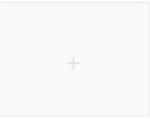
* Plant Name: 11 floor parallel test

* Plant Type: Energy Storage Plant

* Grid-tied Date: 02.12.2022

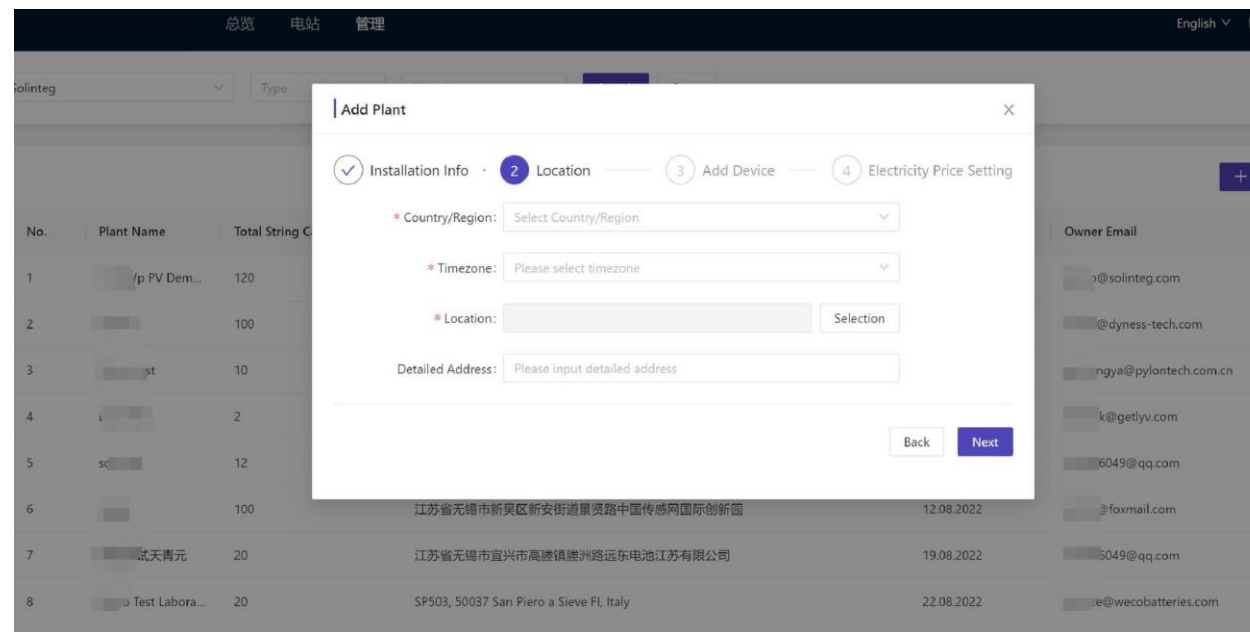
* Total String Capacity: 40 kWp

Number of Solar Panel: Please input number of solar panel

Plant Image: 

*Max size 10M, supports jpg, png, svg, gif format

Next



Add Plant

1 Installation Info 2 Location 3 Add Device 4 Electricity Price Setting

* Country/Region: Select Country/Region

* Timezone: Please select timezone

* Location: Selection

Detailed Address: Please input detailed address

Back Next

- Once one device information of the Master or Slave inverter of a paralleling is filled in, the others will show automatically in the next page. Click [Batch] to add all the inverters. (Please set the inverters as Master and Slave via inverter screen or Solinteg SetAPP).

Add Plant

Installation Info · Location · **3 Add Device** · Electricity Price Setting

* SN: 9112200100130147

* Check Code: 238272

* Device Name: Device 1 M

Owner Email: @solinteg.com, @dyness-tech.com, @pylontech.com.cn, @getlyv.com, @06049@qq.com, @hiz@foxmail.com, @049@qq.com, @wecobatteries.com, @nu@163.com, @zhenglong@dm-maker.com

Back Next

No.	Plant Name	Total String C	Address	Date	Email
1	Wp PV Dem...	120			@solinteg.com
2	s	100			@dyness-tech.com
3	test	10			@pylontech.com.cn
4	e	2			@getlyv.com
5		12	江苏省无锡市宜兴市高塍镇洲路远东电池江苏有限公司	11.08.2022	@06049@qq.com
6	g	100	江苏省无锡市新吴区新安街道景贤路中国传感网国际创新园	12.08.2022	@hiz@foxmail.com
7	天青元	20	江苏省无锡市宜兴市高塍镇洲路远东电池江苏有限公司	19.08.2022	@049@qq.com
8	Test Labora...	20	SPS03, 50037 San Piero a Sieve FI, Italy	22.08.2022	@wecobatteries.com
9	r	100	江苏省无锡市梁溪区崇安寺街道银樾摩天360江原医院	29.08.2022	@nu@163.com
10	S_INVERTE...	12	江苏省无锡市滨湖区太湖街道北京银行(无锡分行)渔业国际城	30.08.2022	@zhenglong@dm-maker.com

Add Device

Plant Related: 11 floor parallel


Selected5/Total 5, Connected: 0

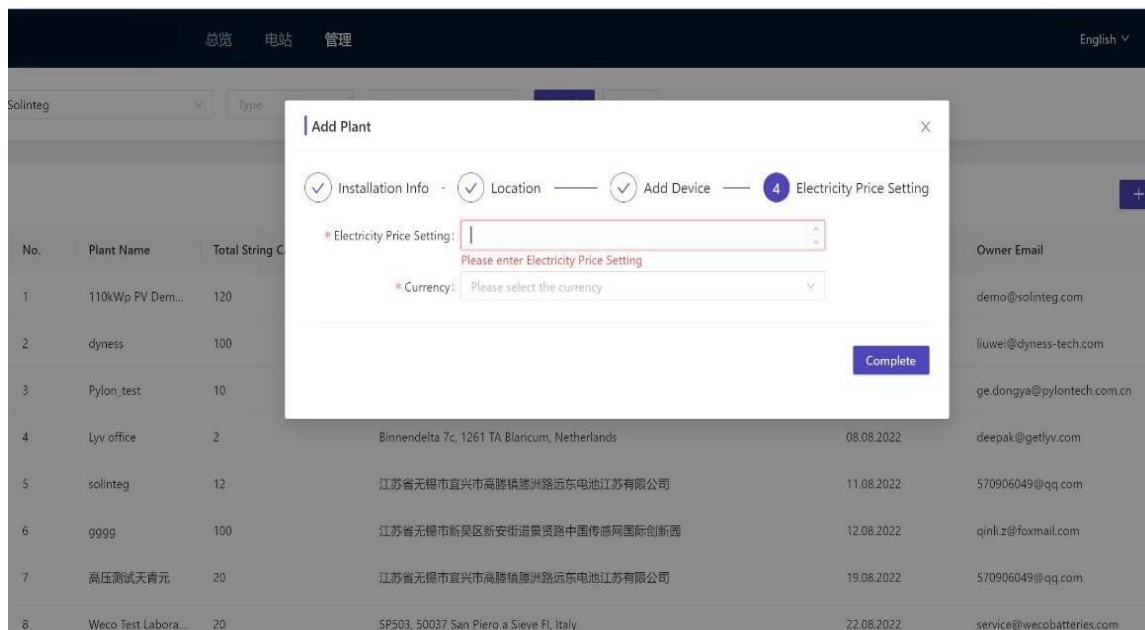
Device Name	SN	Check Code
Device 1 M	9112200100130147	238272
INV#666138	A112200162230146	
INV#578811	A112200147430048	
INV#717672	9112200100230147	
INV#900828	A112100101830128	

Batch

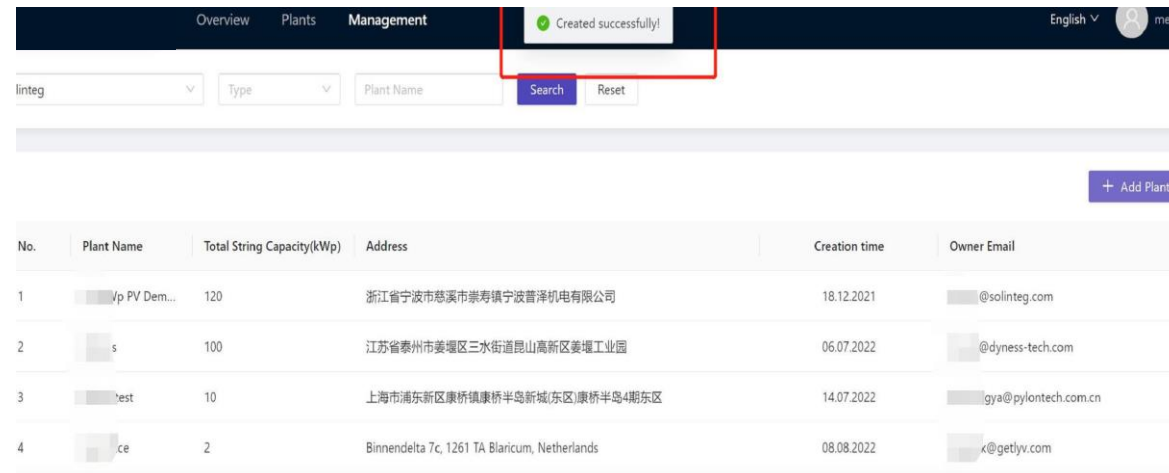
Solinteg Cloud Setting

Create a New Paralleling Plant

 The moment you click [Complete] after electricity price and currency are filled in based on local regulation, the plant will be created successfully.



No.	Plant Name	Total String C	Owner Email
1	110kWp PV Dem...	120	demo@solinteg.com
2	dyness	100	liuwei@dyness-tech.com
3	Pylon_test	10	ge.dongya@pylontech.com.cn
4	lyv office	2	deepak@getlyv.com
5	solinteg	12	570906049@qq.com
6	gggg	100	qinli.z@foxmail.com
7	高压测试天青元	20	570906049@qq.com
8	Weco Test Labora...	20	service@wecobatteries.com

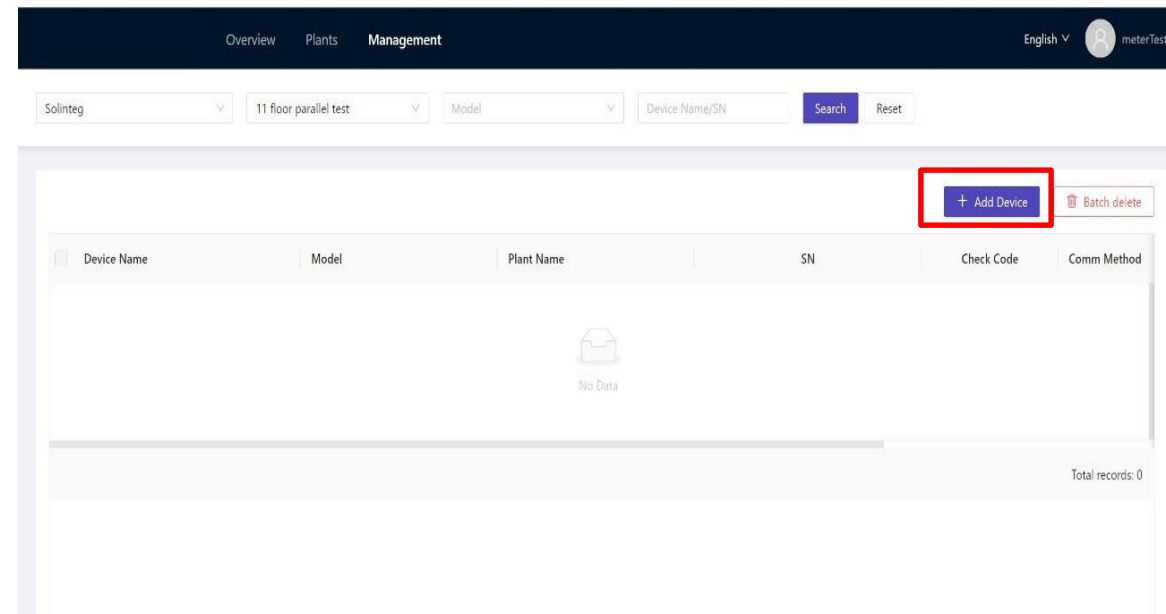
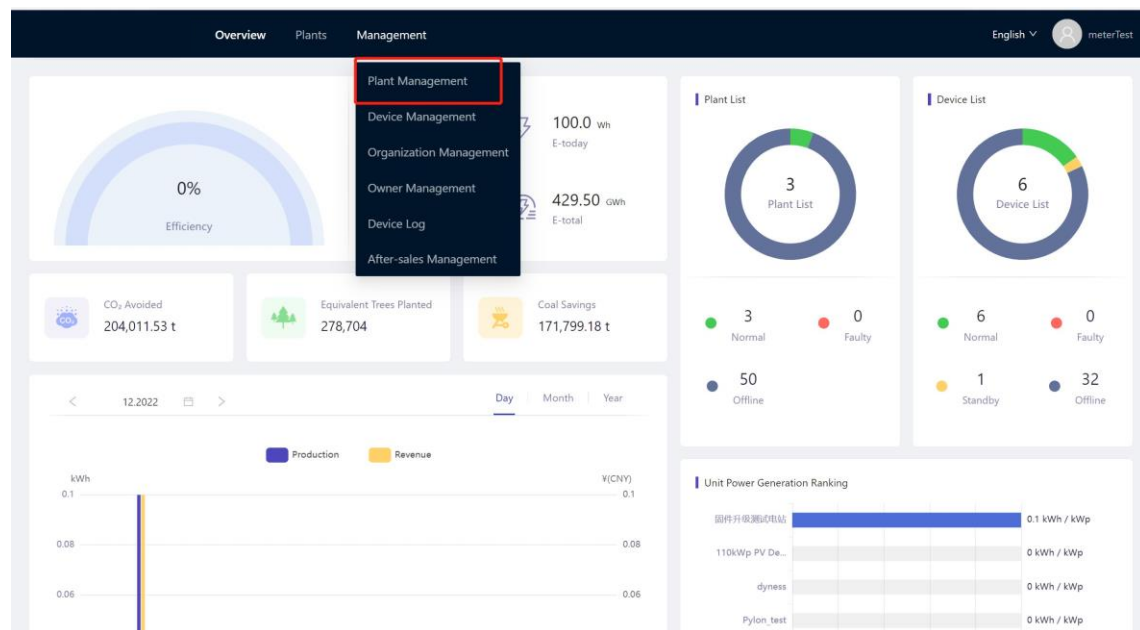


No.	Plant Name	Total String Capacity(kWp)	Address	Creation time	Owner Email
1	Vp PV Dem...	120	浙江省宁波市慈溪市崇寿镇宁波普泽机电有限公司	18.12.2021	@solinteg.com
2	s	100	江苏省泰州市姜堰区三水街道昆山高新区姜堰工业园	06.07.2022	@dyness-tech.com
3	est	10	上海市浦东新区康桥镇康桥半岛新城(东区)康桥半岛4期东区	14.07.2022	gya@pylontech.com.cn
4	ce	2	Binnendelta 7c, 1261 TA Blaricum, Netherlands	08.08.2022	x@getlyv.com

Solinteg Cloud Setting

Add Device into
an Existing Plant

 Login Solinteg cloud , enter [Plant Management] menu, and then click [Add Device].



Solinteg Cloud Setting

Add Device into
an Existing Plant

- Once one device information of the Master or Slave inverter of a paralleling is filled in, the others will show automatically in the next page. Click [Batch] to add all the inverters. (Please set the inverters as Master and Slave via inverter screen or Solinteg SetAPP).

If your power station is a multi-machine parallel system with a host set up on the screen, simply add the host and the system will automatically find its associated equipment. If there is any abnormality in the wiring, you can add it individually and wait for the physical connection to be normal, it will be automatically updated to the server.

* Plant Related: 11 floor parallel test

Device Name	SN	Check Code	Operate
Device 1M	9112200100130147	238272	<input checked="" type="checkbox"/> <input type="checkbox"/>

Plant Related: 11 floor parallel test Selected5/Total 5, Connected: 0

Device Name	SN	Check Code
<input checked="" type="checkbox"/> Device 1M	9112200100130147	238272
<input checked="" type="checkbox"/> INV#173251	A112200162230146	
<input checked="" type="checkbox"/> INV#931668	A112200147430048	
<input checked="" type="checkbox"/> INV#942585	9112200100230147	
<input checked="" type="checkbox"/> INV#081647	A112100101830128	

Batch

Solinteg Cloud Setting

Add Device into
an Existing Plant



The inverters will be shown in the device list of the plant.

Overview Plants **Management** English meterTest

Solinteg 11 floor parallel test Model Device Name/SN Search Reset

+ Add Device Batch delete

<input type="checkbox"/>	Device Name	Model	Plant Name	SN	Check Code	Comm Method
<input type="checkbox"/>	Master Device 1M	MHT-10K-25	11 floor parallel test	9112200100130147	238272	WIFI
<input type="checkbox"/>	Slave INV#173251	MHT-10K-25	11 floor parallel test	A112200162230146	407551	WIFI
<input type="checkbox"/>	Slave INV#931668	MHT-10K-25	11 floor parallel test	A112200147430048	146382	WIFI
<input type="checkbox"/>	Slave INV#942585	MHT-10K-25	11 floor parallel test	9112200100230147	599227	WIFI
<input type="checkbox"/>	Slave INV#081647	MHT-6K-25	11 floor parallel test	A112100101830128	636667	WIFI





















Total records: 1

 Master-slave role can be changed via [Parameter setting ].

Overview Plants Management English meter

Solinteg 11 floor parallel test Model Device Name/SN Search Reset

+ Add Device Batch delete

Device Name	SN	Check Code	Comm Method	Master Firm...	Slave Firmw...	Operate
<input type="checkbox"/> Master Device 1 M	9112200100130147	238272	WIFI	V1.0.0.0	V5.23.1.0	   
<input type="checkbox"/> Slave INV#666138	A112200162230146	407551	WIFI	V1.0.3.0	V5.23.7.0	   
<input type="checkbox"/> Slave INV#578811	A112200147430048	146382	WIFI	V1.0.0.0	V5.23.1.0	   
<input type="checkbox"/> Slave INV#717672	9112200100230147	599227	WIFI	V1.0.0.0	V5.23.1.0	   
<input type="checkbox"/> Slave INV#900828	A112100101830128	636667	WIFI	V1.0.0.0	V5.23.1.0	   

Total records: 1

Overview Plants Management English meter

Parameter Settings(Device 1 M)

Grid Parameters: Master-Slave Setup: Master

Power Control: System Maintenance: Startup Stop Restart

Protection Parameters: System Control: Hard

Feature Parameters: On/Off-grid switch:

Battery Parameters: MPPT parallel connection:

Meter checking: Disclaimer

Set Refresh Cancel

THANK YOU

www.solinteg.com