

# Inverter Operation Guide

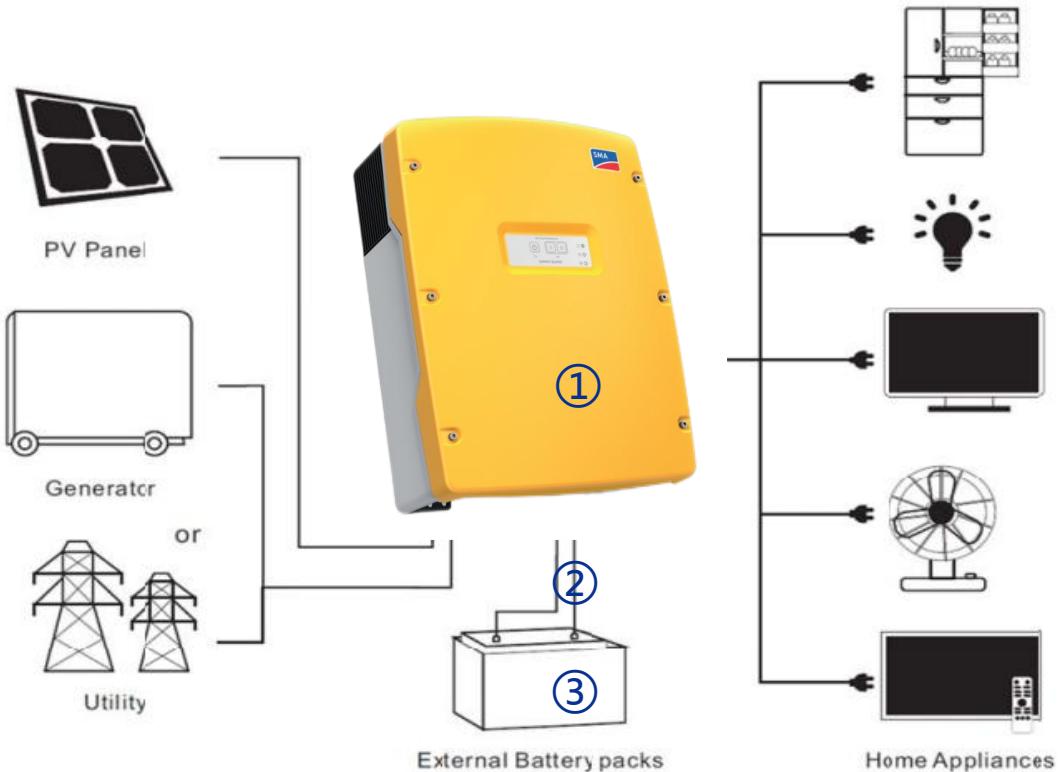
## SMA-SUNNY ISLAND 4.4M / 6.0H / 8.0H



# Contents

- 01 Scenario**
- 02 Connection**
- 03 Configuration**

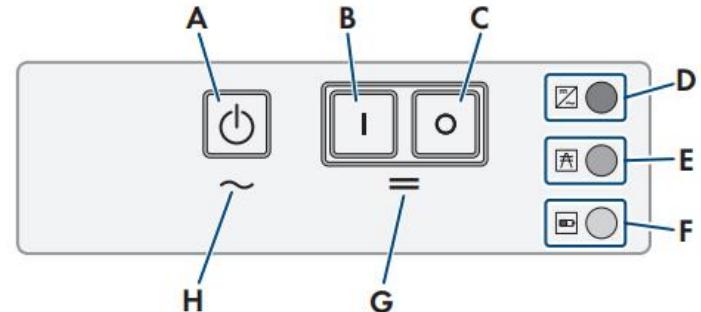
## Simple home storage scenario



### Key elements

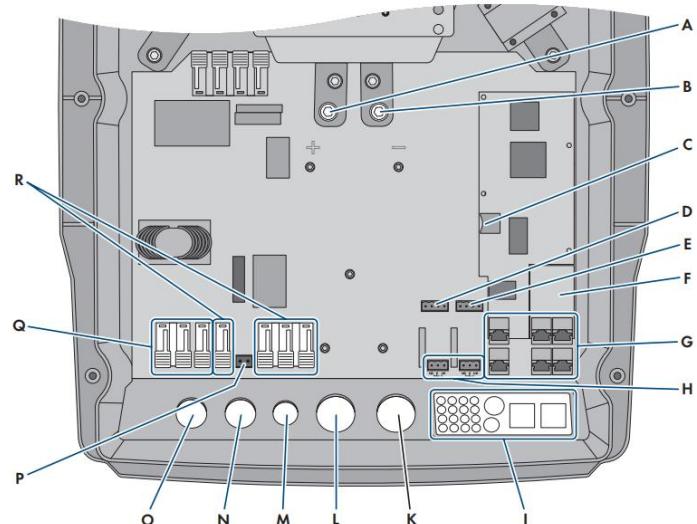
- ① **Invter** : SMA-SUNNY ISLAND 4.4M / 6.0H / 8.0H
- ② **Interconnection cable**: Customized communication cable
- ③ **Battery**: The Li-ion Battery Pack composed of 16 strings of cells

## PCS Control Panel



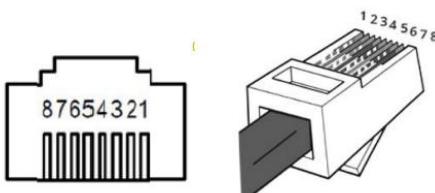
Object	Icon	Description
A		Start-stop button
B		"On" button
C		"Off" button
D		Inverter LED
E		Grid LED
F		Battery LED
G	=	Standby
H	~	AC operation

## PCS Interfaces



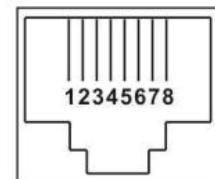
Object	Description	Object	Description
A	DC+ connection	K	Enclosure opening for DC-
B	DC- connection	L	Enclosure opening for DC+
C	Slot for optional micro SD card	M	Enclosure opening ExtVtg
D	BatTmp and BatCur connections	N	Enclosure opening AC2
E	BatVtgOut and DigIn connections	O	Enclosure opening AC1
F	Slot for optional communication interfaceSI_x0002_SYSCAN.BGx4)	P	ExtVtg connection
G	Connecting the communication unit	Q	AC1 connection
H	Relay1 and Relay2 connections	R	AC2 connection
I	Cable feed-through plate		

## Connection Between PCS and BMS



Inverter pin	Defined declaration
2	Ground
4	CAN-H
5	CAN-L

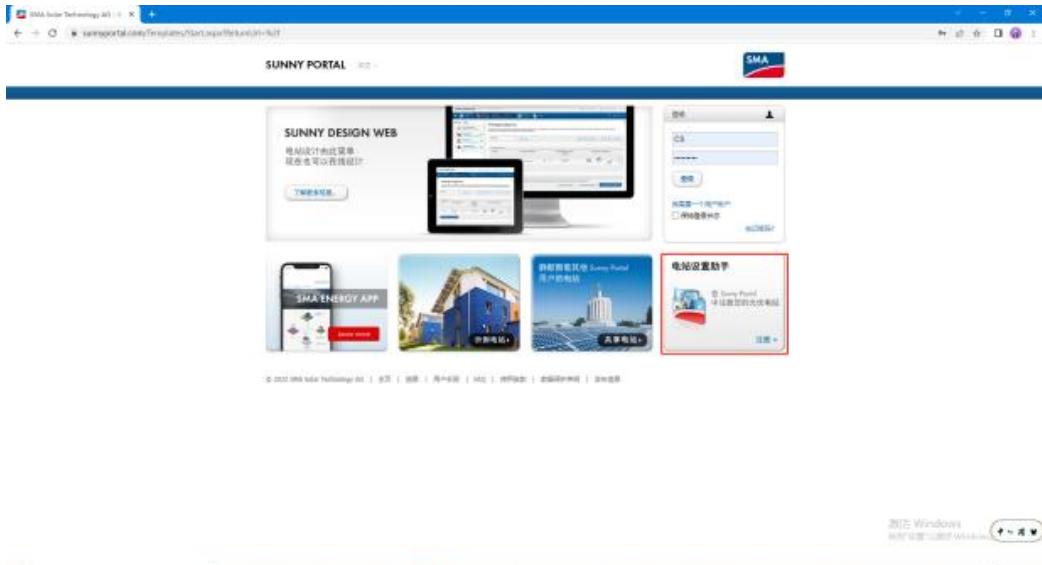
PCS Side



PIN1	RS485-B
PIN2	RS485-A
PIN3	GND
PIN4	CAN-H
PIN5	CAN-L
PIN6	GND
PIN7	RS485-A
PIN8	RS485-B

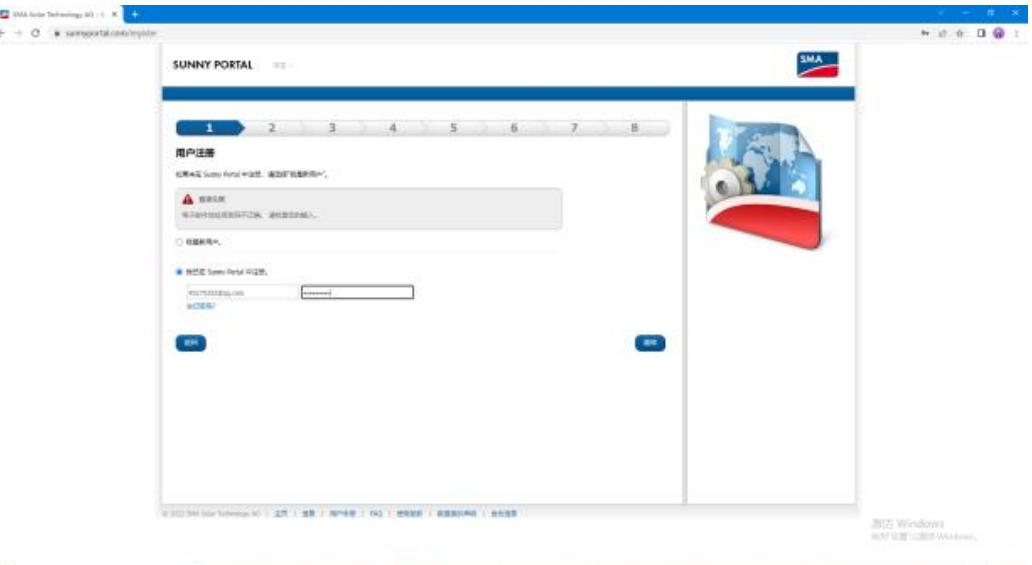
BMS Side

# Matching Setting of Inverter and BMS-1



①

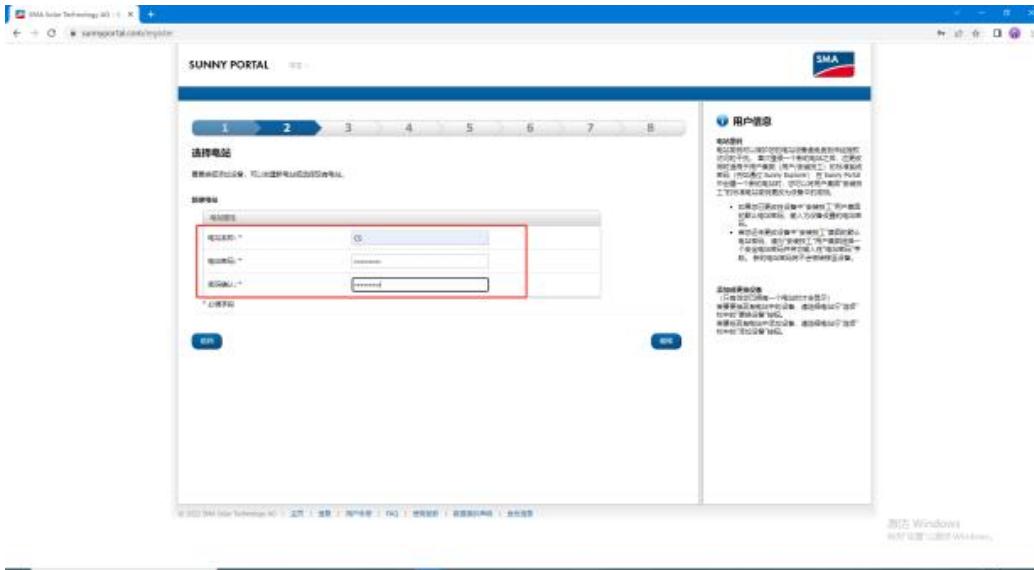
Log in to the website by Google:  
<https://www.sunnyportal.com/>



②

Register an account  
(Account number: xxx@xxx.com Password: xxx)

# Matching Setting of Inverter and BMS-2



③

Create a new power station  
(Account: xx Password: xx)



④

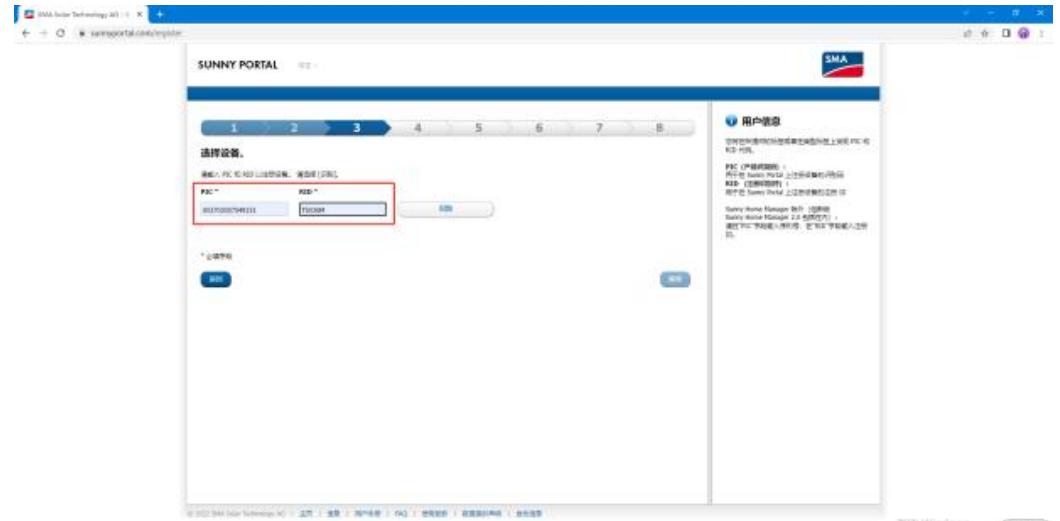
Connect the inverter with a network cable and router

# Matching Setting of Inverter and BMS-3



⑤

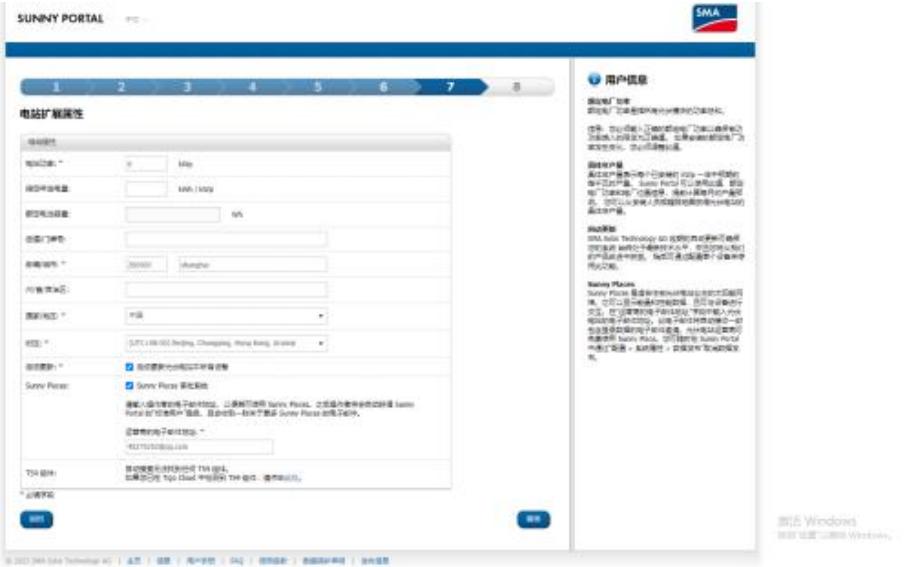
PIC and RID on the right side of the inverter



⑥

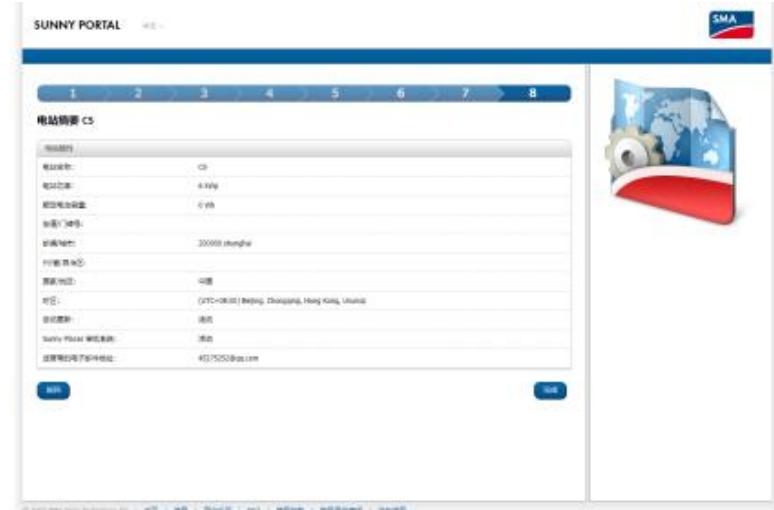
Enter PIC and RID, then click on 'Identify' after input

# Matching Setting of Inverter and BMS-4



⑦

Set power



⑧

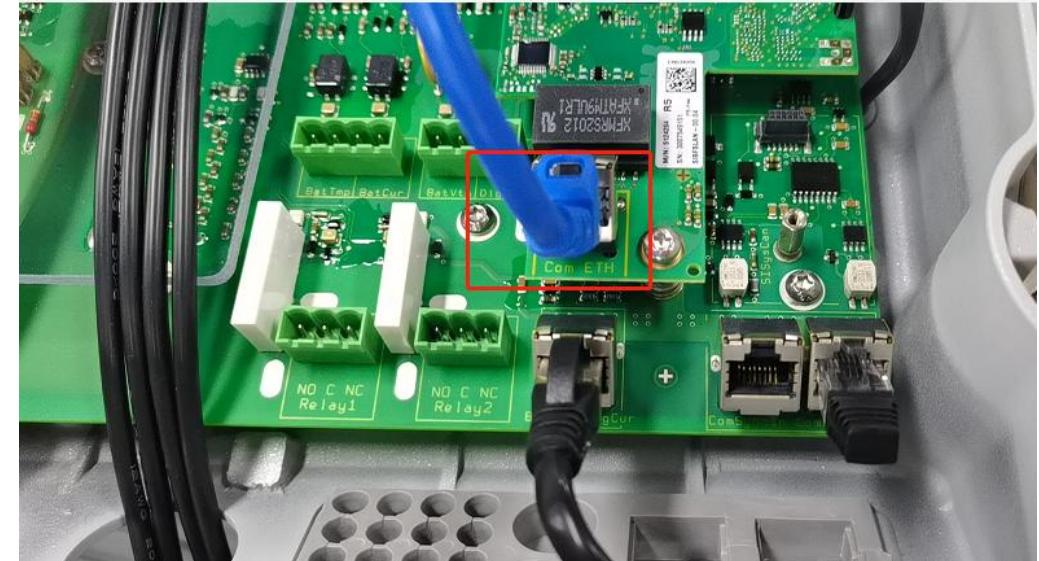
Click Finish

# Matching Setting of Inverter and BMS-5



⑨

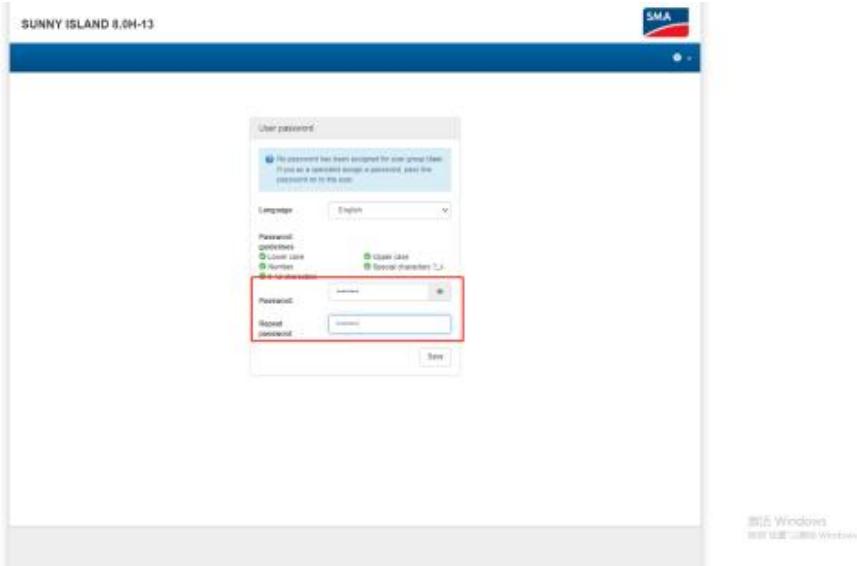
Complete



⑩

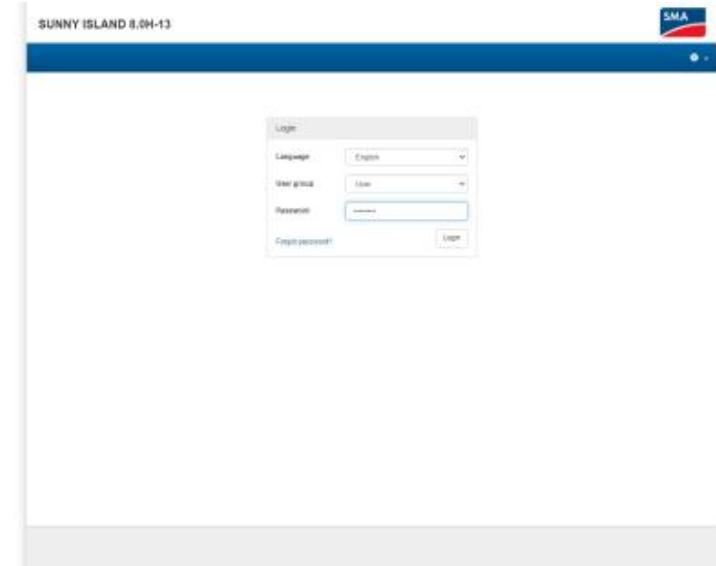
Log in to website 169.254.12.3 and plug the inverter network cable directly into the computer

# Matching Setting of Inverter and BMS-6



(11)

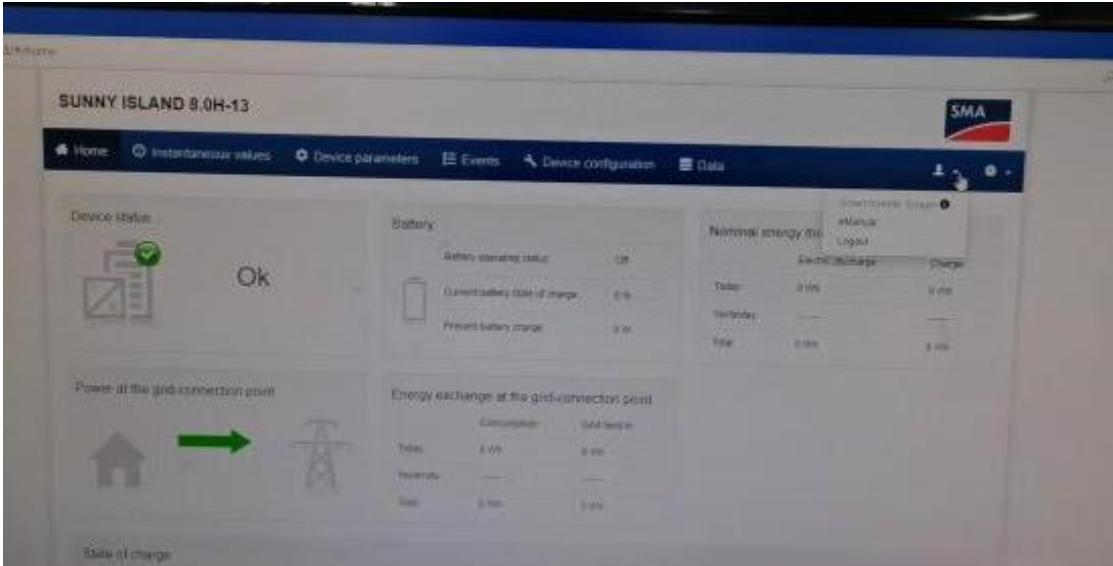
Set password  
(xxx, the next duplicate password)



(12)

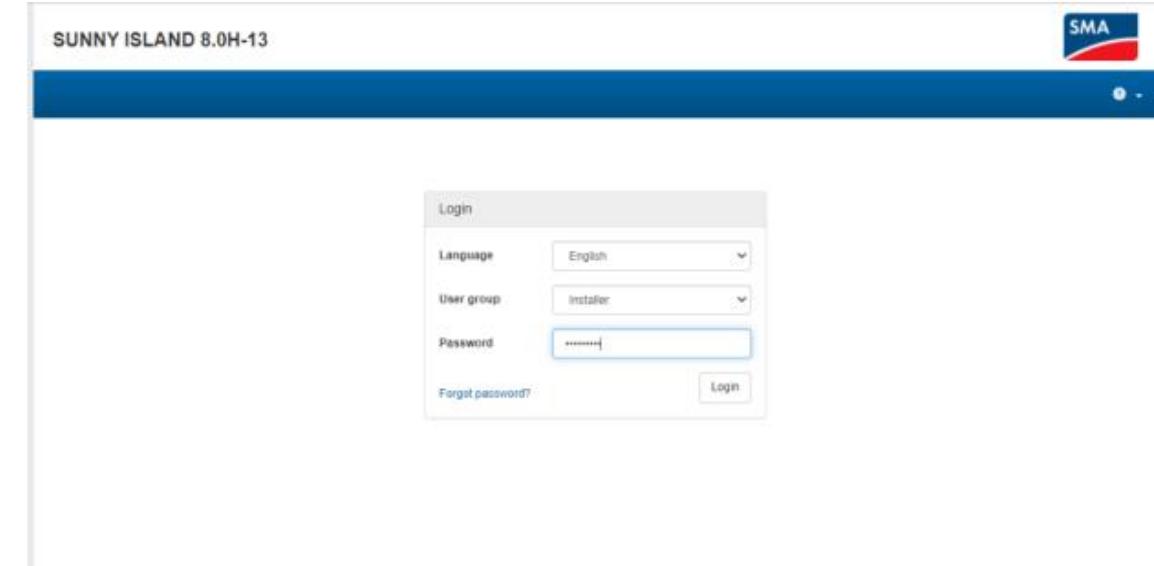
Select a user account with password xxx (as above)

# Matching Setting of Inverter and BMS-7



(13)

After logging in, there is no data available.  
You need to select 'logout' on the head  
side and then install 'to log in'



(14)

Select the installer account and login password xxx (as above)

# Matching Setting of Inverter and BMS-8

SUNNY ISLAND 8.0H-13

**1** Network configuration **2** Time and date **3** Application **4** System configuration **5** Grid management service **6** Battery configuration **7** Summary

**Network configuration**

**Networks configured**

Network name	Type of communication	IP address of the device	Status
WLAN		0.0.0.0	No connection
Ethernet		199.254.12.3	Ok

**Type of communication**

Ethernet WLAN

Automatic configuration switched on

**User information**

**Network configuration**

You can integrate the product, depending on its function, into your local network via WLAN or Ethernet using a cable or wireless via WLAN. Select the respective option under Type of communication.

Configuring Communication via Ethernet

You can either obtain the network settings automatically from a DHCP server or configure them manually. Select the desired option under Automatic configuration switched on.

If you want to configure the network settings manually, you have to enter the required network data additionally.

Direct Ethernet Connection

If you want to establish a direct connection to the device via a network cable, you need to activate the automatic configuration of the Ethernet interface. Select the option Yes under Automatic configuration switched on.

Information: You will find the IP address of the device on which you are currently logged into in the status bar below in the user interface after having completed the configuration procedure. You will require the IP address to call up the user interface in the local network.

With automatic configuration via DHCP, you can determine the IP address of the device assigned

**Save and next**

15

Will enter the settings, select save and next

SUNNY ISLAND 8.0H-13

**1** Network configuration **2** Time and date **3** Application **4** System configuration **5** Grid management service **6** Battery configuration **7** Summary

**Set date and device time**

**Automatic time synchronization**

On Off

Date Mar 25, 2022

Time zone (UTC-AUTO) Automatic via SMA protocol

**User information**

**Set date and device time**

You can set the date and the system time of the device either manually or automatically from an NTP server. An internet connection is required for automatic time synchronization.

**Device time**

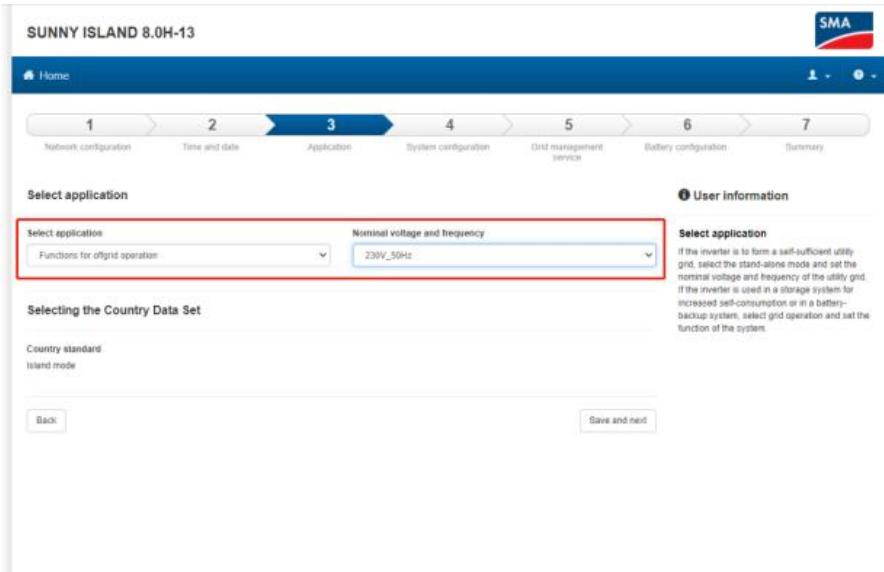
11 84 AM

**Save and next**

16

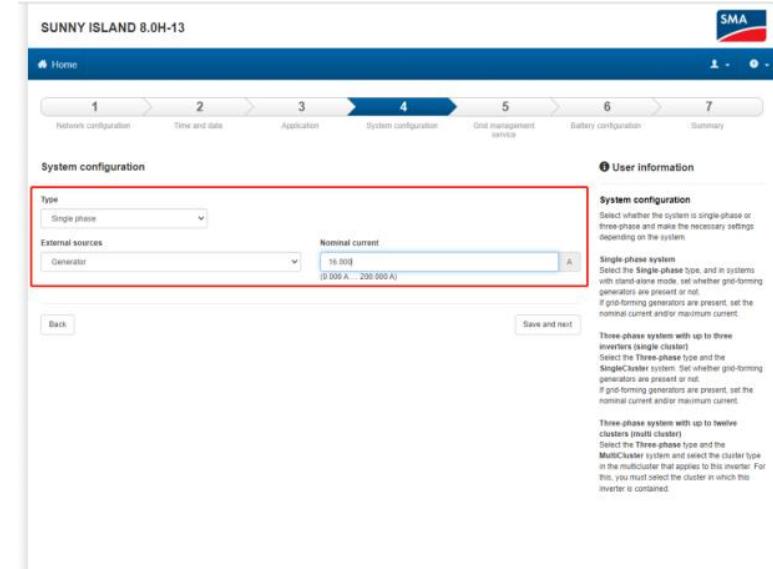
Set date and time

# Matching Setting of Inverter and BMS-9



(17)

Select Functions for OffGrid operation,  
230V/50Hz



(18)

Select Single Phase, External Source can be selected as  
Generator

# Matching Setting of Inverter and BMS-10

SUNNY ISLAND 8.0H-13

**Home**

1 > 2 > **3** > 4 > 5 > 6 > 7

Network configuration Time and date Application System configuration Grid management service Battery configuration Summary

**Select application**

Select application Nominal voltage and frequency

Functions for grid operation 230V\_50Hz

**User information**

**Select application**

If the inverter is to form a self-sufficient utility grid, select the stand-alone mode and set the nominal voltage and frequency of the utility grid. If the inverter is used in a storage system for increased self-consumption or in a battery-backup system, select grid operation and set the function of the system.

**Selecting the Country Data Set**

Country standard Island mode

Back Save and next

(19)

Battery selection Lithium-ion

SUNNY ISLAND 8.0H-13

**Home**

1 > 2 > 3 > **4** > 5 > 6 > 7

Network configuration Time and date Application System configuration Grid management service Battery configuration Summary

**System configuration**

Type Single phase

External sources Generator

Nominal current 16.000 (0.000 A - 200.000 A)

**User information**

**System configuration**

Select whether the system is single-phase or three-phase and make the necessary settings depending on the system.

**Single-phase system**

Select the Single-phase type, and in systems with stand-alone mode, set whether grid-forming generators are present or not. If grid-forming generators are present, set the nominal current and/or maximum current.

**Three-phase system with up to three inverters (single cluster)**

Select the Three-phase type and the SingleCluster system. Set whether grid-forming generators are present or not. If grid-forming generators are present, set the nominal current and/or maximum current.

**Three-phase systems with up to twelve clusters (multi cluster)**

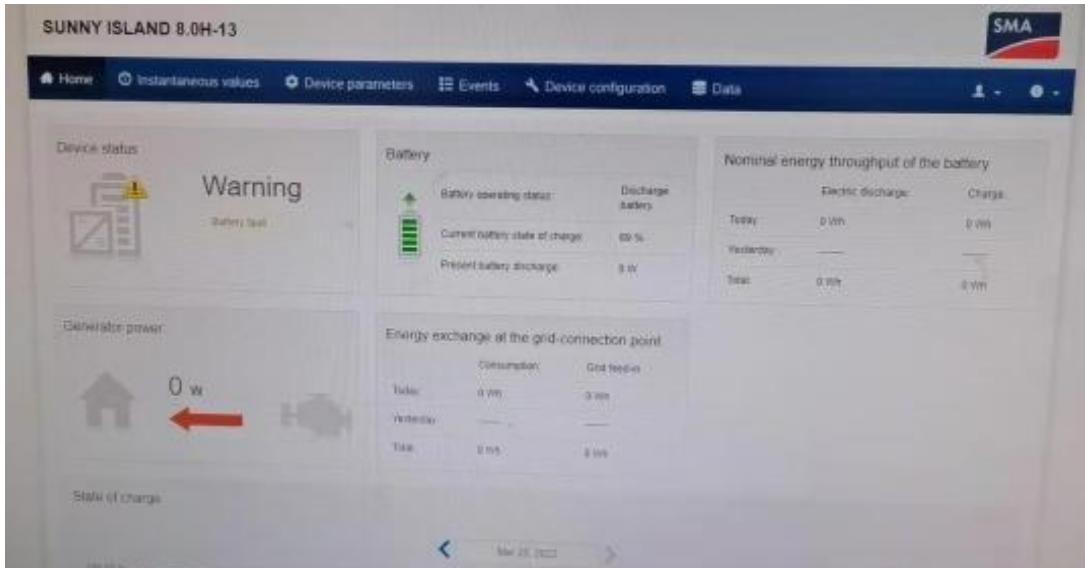
Select the Three-phase type and the MultiCluster system and select the cluster type in the multicluster that applies to this inverter. For this, you must select the cluster in which this inverter is contained.

Back Save and next

(20)

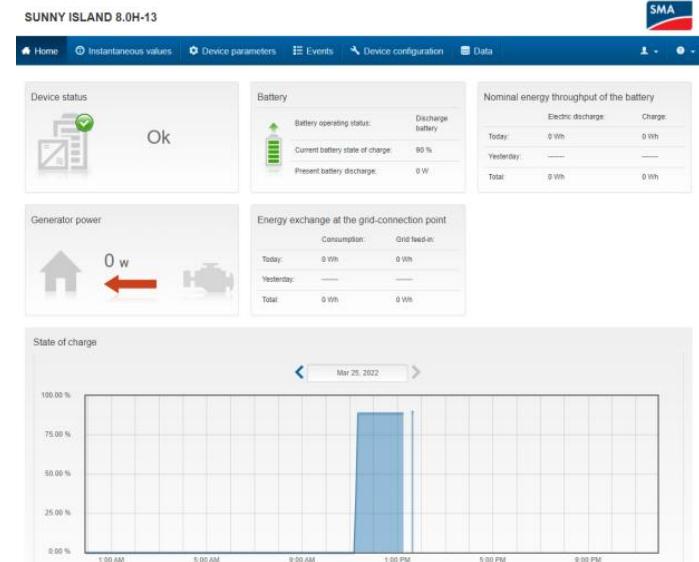
Finally, continue and complete the setup

# Matching Setting of Inverter and BMS-11



(21)

After completion, the data upload is normal



(22)

APP数据页面

# Matching Setting of Inverter and BMS-12



The screenshot shows the SMA Sunny Island 8.0H-13 web interface. The top navigation bar includes links for Home, Instantaneous values, Device parameters, Events, Device configuration, and Data. The left sidebar lists various monitoring categories: Status, Device, DC Side, AC Side, Generator, Battery, System communication, External Communication, and System and device control. The main content area is partially visible, showing some graphical elements and data.

(23)

Instantaneous values  
(Select battery data in Battery)

Battery	
State of charge	90 %
Temperature	25.2 °C
Voltage	53.09 V
Current	0.123 A
Remaining time until full charge	—
Remaining time until equalization charge	—
Remaining absorption time	—
Fault state of charge	—
General operating status	Discharge battery
Control charging via communication available	Information not available
Absorption phase active	Information not available

(24)

The Battery data in Instantaneous values is uploaded by BMS  
(Battery: SOC, temperature, battery voltage, current)

# Matching Setting of Inverter and BMS-13

**Charge**

Current set charging voltage	56.60 V
Active charging process	Information not available
No. of equalization charges	-----
No. of full charges	-----
Relative battery discharge since last full charge	-----
Relative battery discharge since last equalization charge	-----

**Maintenance**

Full and equalization charge	Information not available
------------------------------	---------------------------

**Battery charge**

Present battery charge	0 W
Battery charge	0 Wh

**Battery discharge**

Present battery discharge	0 W
Battery discharge	0 Wh

**Areas of application**

Lower discharge limit for private consumption range	0 %
Status	Information not available

(25)

The Battery data in Instantaneous values  
is uploaded by BMS (Charge: request  
charging voltage -1), and the inverter itself  
-1

**SUNNY ISLAND 8.0H-13**

**SMA**

Home Instantaneous values Device parameters Events Device configuration Data

Edit parameters Export all parameters

- > Type Label
- > Device
- > User Rights
- > DC Side
- > AC Side
- > Grid Monitoring
- > Generator
- > Battery
- > System communication
- > External Communication
- > Device Components
- > System and device control
- > Grid connection

To the start of the page

(26)

Device parameters  
(Select battery data in Battery)

▼ Battery charge	
Process specification battery charge current	30.0 A
▼ Battery discharge	
Process specification battery discharge current	95.0 A

(27)

The Battery data in Device parameters is uploaded by BMS (Battery charge: charging request current, Battery discharge: discharge request current)