passion. create. smile.

Inverter Series:

Hybrid Monophase

Inverter Installation and commissioning manual (software)

Manual de instalare si punere in functiune a invertorului (software)

Before using this product, carefully read all product documentation and retain it for future reference.

Introduction

Please read the manual before installing and operating the inverter.

This user manual introduces the inverter in terms of its installation, and software configuration. Please read through the manual carefully before installing and using the inverter, and keep the manual well for future reference

About This Manual

This user manual is intended for photovoltaic (PV) inverter operating personnel and qualified electrical technicians.

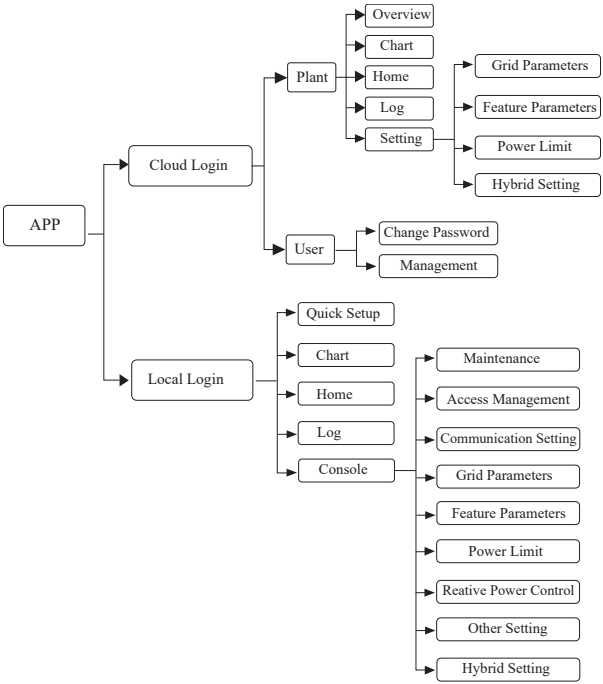
A. Local Initialization

FIRST STEP:

• The installation firm needs to contact nJoy for creating a personalized account that allows for better management of the installation sites. This account will be assigned to the firm, not on the individual person.

• Download the SolarTouch app on a smartphone. (The QR code can be found on the product label).

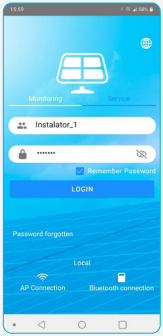
• You can acces the app from anywhere via internet ("Cloud Login") or local ("Bluetooth Connection").



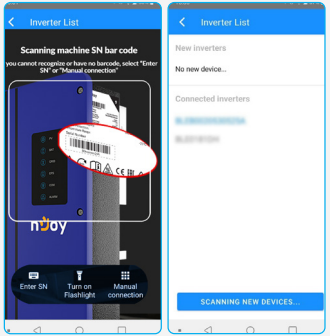
English

Română

1



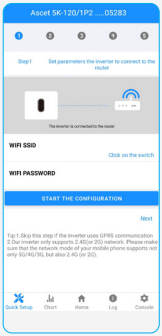
Launch the SolarTouch app and connect the device to Bluetooth (when launching the app will ask permission to access Bluetooth and GPS, please allow). Use "Bluetooth connection".



To successfully connect the inverter serial number needs to be added, by scanning or by manual adding and selecting the inverter's name from the available (blue) Bluetooth connections. (The Product serial number can be found on the side label attached to the inverter).

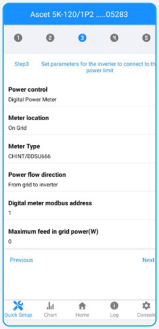
Quick Setup

2

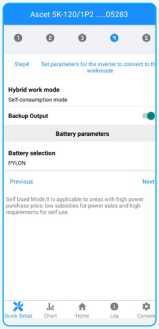


Start the "Quick Setup" by configuring the Wi-Fi module: enter the wireless access details (SSID and password).

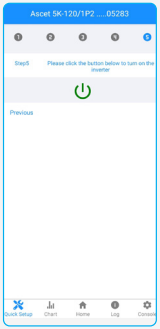
Set the grid parameters.



Set the power control parameters.



Set the work mode and battery parameters.



Start / Stop the inverter.

English

Română

Chart

3

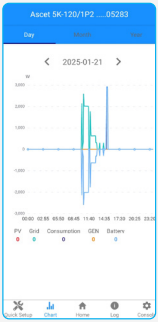
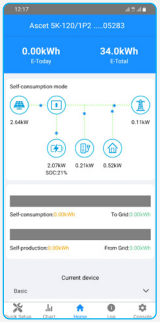
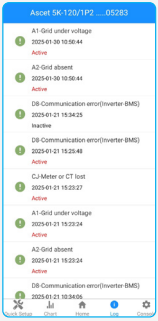


Chart - Under this menu, you can you can check the relevant data curve of energy (including Daily, Monthly and Annual).



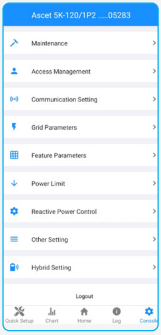
Local Setting Homepage - This page shows the basic information of inverter.



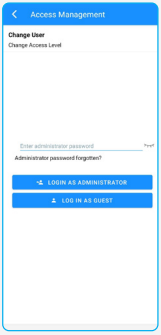
History Log - Press Log for the history log page. It contains all the logs for the inverter.

Console

4



"Console" - here you can access all the inverter settings.



First you need to gain access to all the settings. Choose the Access Management option. Access Change User and login as administrator by entering the password that will be provided to the installer by nJoy when creating the installer account.

NOTE! From this point on, the administrator account remains active. To deactivate the account it is necessary to switch to the login as a guest option. This switch will change the inverter parameters to be only viewed and not modified.

English

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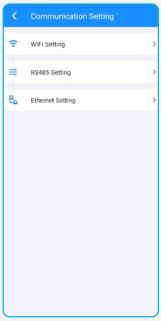
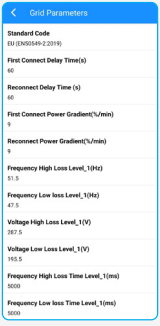
Maintenance - In this page, you can view the basic information like some version information, do some maintaining operations like turn off/ on the inverter and manage data.

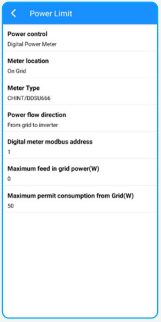


Communication Setting - In this page, you can set or change the parameters of communication settings: Basic Setting, RS485 Setting and Ethernet Setting.



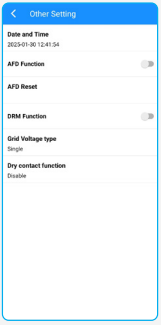
Grid Parameters - In this page, you can set or change the parameters of the grid.

Feature Parameters - In this page, you can set or change the feature parameters.



Power Limit - In this page, you can set or change the parameters for power control.

Reactive Power Control - In this page, you can set or change the Reactive Power Control parameters.



Other Setting - In this page, you can set other setting parameters.

English

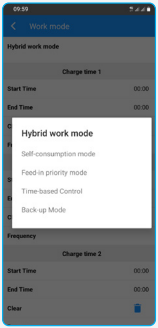
Română

B. Specific settings for hybrid inverters

1

Hybrid inverters, having several energy sources (grid, photovoltaic panels, battery) and several consumption channels (domestic appliances, battery charging, grid feeding), they have a greater variety of settings that the installer has to be aware of, for the optimal use of the solar system.

Considering this, in case of hybrid inverters, the bluetooth configuration application under the **Console** menu has the **Hybrid Settings** submenu:



In this menu, the first setting is ***Work Mode***. This item establishes the priority of the power sources and the consumers, as follows:

Self consumption mode: This mode aims to be as independent from the grid as possible. PV panels will be used for regular consumers; remaining power (if any) will be used to charge the batteries, and if it's still power left, it will be injected into grid. If PV power is not enough for the consumers, the difference will be taken from the battery and lastly from the grid.

PV -> Load – Battery – Grid
Load <- PV – Battery – Grid

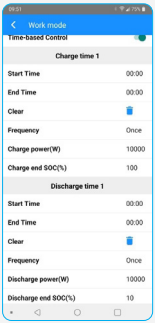
Feed-in priority mode: This mode prioritises feeding the grid (solar farms, etc.). PV panels will be used first for regular consumers; remaining power (if any) will be fed in the grid. If still there is power left, it will be used to charge the batteries. If the PV power is not enough to sustain the consumers and feed the grid, battery will be used to supply power.

PV -> Load – Grid – Battery
Load <- PV – Battery – Grid

Time-based Control allows a detailed management of the battery, by specifying the maximum charge and discharge power on various time frames. For example, during night time when PV panels don't deliver power, the charging power can be reduced to avoid grid consumption, etc.

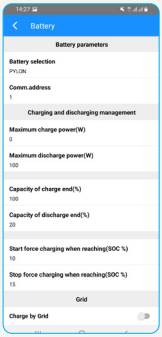
Back-up Mode: This mode prioritises charging the battery, beneficial for areas with poor grid supply (Ex. frequent blackouts). PV panels will charge the batteries (if needed); the remaining power will support the regular load, and the remaining power will be fed into grid. If PV are not operating (Ex. at night time), the battery will be charged from the grid. The energy stored in batteries will be used only when grid is off and PV panel don't deliver enough energy to support the regular load.

PV -> Battery - Load - Grid
Load <- PV - Grid - Battery



English
Română

2



Battery: it contains the settings to manage the charging and discharging the battery. The behaviour of some settings depends on the Work Mode chosen, also on the battery type used (Pb-acid, Li-Ion etc.)

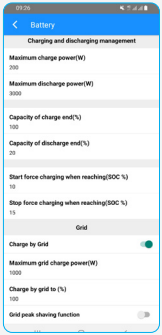
Battery Brand Selection: selects the type and brand of the battery used (Pb-acid, Li-Ion or a specific brand). The following settings are related to the Li-Ion batteries mostly, as they are more complex.

Comm.address: Communication address with the battery BMS. Should be 1 unless otherwise specified.

Maximum charge / discharge power (W): Maximum absolute charging power, respectively discharging power of the battery.

WARNING! *For Pb-acid batteries it is necessary to set a Maximum charge power in correlation with the battery solution used to protect the batteries.*

Capacity of charge end(%) / Capacity of discharge end(%): Battery capacity (%) at which the charging, respectively discharging will be halted.



Start force charging when reaching(SOC%): Starts force charging of the battery if the charge level is under the value specified.

Stop force charging when reaching(SOC%): Stops force charging of the battery if the charge level is over the value specified.

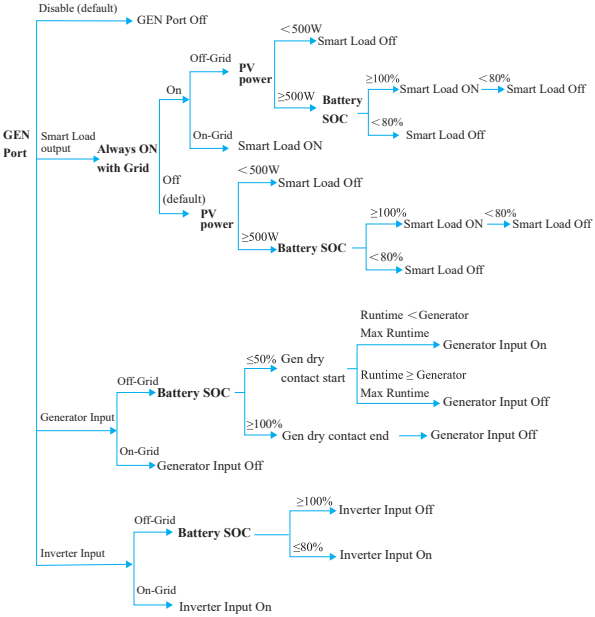
Charge by Grid: Allows or forbids grid charging.

Maximum grid charge power (W): Maximum grid power used to charge the battery.

Charge by grid to(%): Battery will be charged from grid until it reaches the specified charge level (SoC).

WARNING! *Start force charging ("Start force charging when reachingSOC%") will override the "Charge by Grid" and "Charge by grid to(%)" settings.*

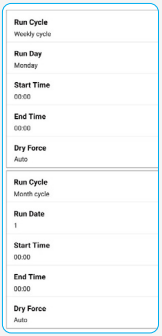
Logic diagram to Enable/Disable the GEN Port function:



NOTE!

When the Capacity Mode was set to voltage, the Gen Port still follows the above logic.

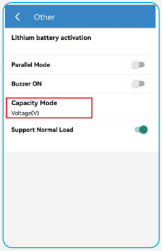
3



Generator Input Mode* (*for devices equipped with this feature)
Under this mode, the GEN port works as an input port from the generator while under off-grid condition. The generator input can charge the battery or take the backup load.

Go to Console > Hybrid Setting > Generator > Generator Port page and choose Generator Input.

Maximum Input power from Generator (W): Forbid the generator power larger than the setting value (W).
Maximum GEN charger power (W): Maximum battery charge power from generator.
Generator start SOC(%): Battery SOC below which the generator starts to charge the battery.
Generator Max Runtime (Min): When the generator running time reaches to the setting value, the inverter will disconnect the input from generator.
Generator end SOC (%): Battery SOC above which the generator stops charging the battery.
Generator Down time (Min): When the inverter disconnect the input from generator, the generator will keep working for a while by the down time setting value (Min).
Run Cycle: Generator Cycle run mode. You can set as Weekly or Month cycle.
Dry force: When the Grid power is abnormal, the generator is forced to be turned on.
Generator start Bat. Volt(V): Battery voltage below which the generator starts to charge the battery.
Generator end Bat. Volt(V): Battery voltage above which the generator stops charging the battery.



NOTE!

Go to Hybrid setting > Other > Capacity Mode, when you set Capacity Mode to voltage (V), parameter settings about Generator start SOC (%) will be changed to Generator start Bat. Volt(V). Also, parameter settings about Generator end SOC (%) will be changed to Generator start Bat. Volt(V).

4

Smart Load Output Mode* (* for devices equipped with this feature)
Under this mode, the GEN Port works as an output port for the Smart Load connected to the GEN terminal.

Go to Console > Hybrid Setting > Generator > Generator Port page and choose Smart Load Output as below.

Minimum PV power of Smart Load On(W) & Battery SOC of Smart Load On (%): If the PV input power is higher than the setting value(Power), and the battery SOC exceeds the setting value simultaneously, the Smart Load will switch on.
Battery SOC of Smart Load Off (%): If the battery SOC is lower than the setting value, the Smart Load will switch off.
Always On with Grid: When click "Always On with Grid" the Smart Load will switch on when the grid is present.

Battery voltage of Smart Load On (V): If the battery voltage is higher than the setting value, and the PV input power exceeds the setting value(Power) simultaneously, the Smart Load will switch on.
Battery voltage of Smart Load Off (V): If the battery voltage is lower than the setting value, the Smart Load will switch off.

WARNING!
When setting the charging / discharging parameters we recommend you to take into account the following:

- strong charging / discharging will negatively affect the battery life
- deep discharges will negatively affect battery life .
We recommend to set:
"Maximum charge power (W):" 4000W
"Capacity of discharge end(%)" to 20%
"Start force charging when reaching(SOC %)" at 10%
"Stop force charging when reaching(SOC %)" to 15%

WARNING!
After finalizing all the settings, from the "Access Management" menu choose the "LOGIN AS GUEST" option to put the application in monitoring mode, blocking user access to sensitive settings.

C. Owner's account for continuous monitoring

In order to provide remote support, it is necessary to create an owner account for each installation and associate this with the installer account. This way, in the future, the installer will be able to remotely access the inverter via the phone app or the web platform.

Creating the owner account and assigning it to an installer account can be done in two ways:

Method C1

1. The installer creates the owner account via the web application. The owner account will then be automatically assigned to the installer account. Knowledge of the inverter SN and an email address of the owner is required.

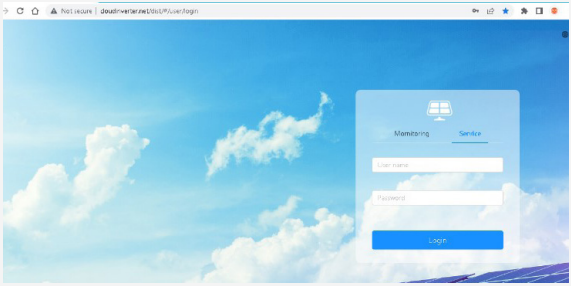
2. The installer transmits the account details to the owner, who then installs the monitoring phone app.

Method C2

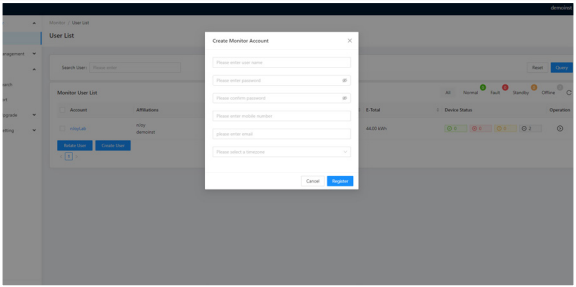
1. The owner creates the owner account through the phone app and associates the installed inverter.

2. The installer assigns the account created by the owner to his installer account via the web application. Knowledge of the inverter SN and the already created owner account is required.

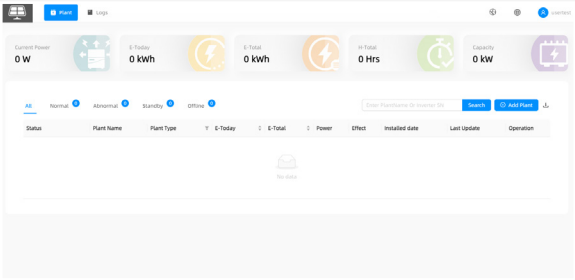
C1



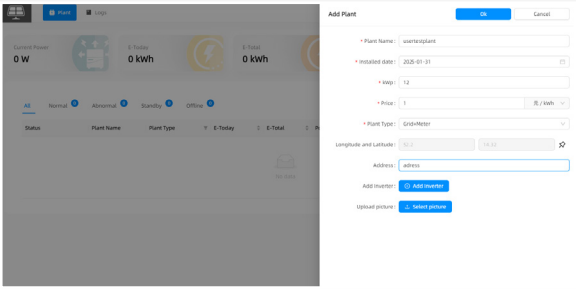
Open the browser and search https://www.cloudinverter.net/
Select the Service version and fill the installer name and the password provided by nJoy. If you don't have an installer account, please contact us at support@njoy.ro, provide company details, and we will create your installer account.



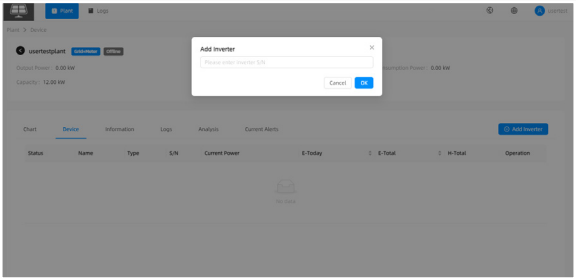
Press “Create User”, in the window that opens you will need to enter the owner’s details and click ”Register”.



Click on the account name in the list to enter the user page.



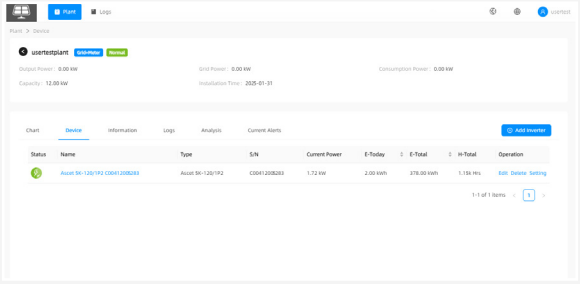
Here you need to create the plant. Click on "Add Plant" and fill in the details then click "OK". (You do not add the inverter on this step, only after the plant is created).



Now you will have the created plant in the list. Click on the plant name to enter the plant page. Here go on the "Device" tab and click on "Add Inverter".

English

Română

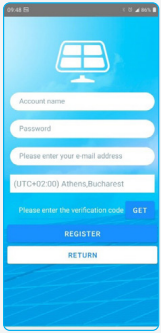


Here you will enter the inverter SN and click OK.

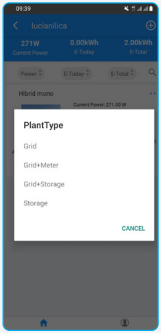
Now the owner account is created and alocated to you installer account and you can remotly monitor and change settings.

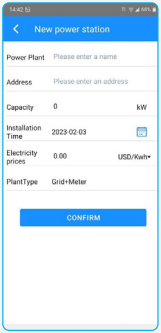
You will have to transmit the owner the account data (account name and password) so that the user can use the mobile app to monitor his system.

C2

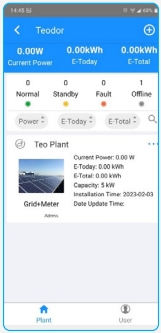


Open the app, and select REGISTER NEW USER to create a new account. With the owner, choose an account name, a password, an email address and the timezone (+2 GMT for Romania). Press GET to receive a confirmation code (on the owner's email address). Insert the verification code and press REGISTER. From this moment on the account is active.





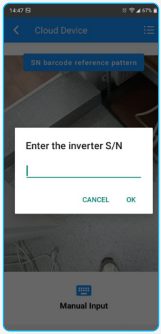
Click the "Please add power station" button. Now choose the inverter type (On Grid, On Grid with CT or Smart Meter, On Grid with Storage, Storage). After making the selection, please fill in the following fields: Name, address, installed power (kW), installation date, the price of electrical energy (kWh). Press CONFIRM.



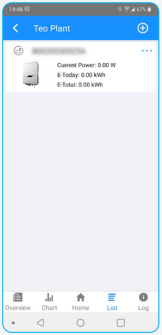
After CONFIRM, you'll see the owner's sites. Please select the desired site to access the monitoring screen (Homepage). Here can be observed the energy yield from the solar system to loads and/or electrical grid. For the moment all values are 0 because there is no installed equipment. To see a list of all inverters that have been installed, press List.

English

Română



For now, the inverter list is empty. To add a new inverter to the list press + on the upper-right side of the screen. You need to provide the inverter SN (Serial Number). This SN can be added by simply scanning the side label of the inverter or manually (by pressing Manual Input on the bottom page and add the numbers/letters).



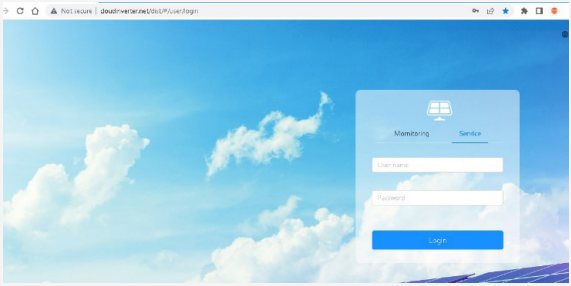
If this S/N is correct the app will automatically detect the inverter and will be added to the list.

NOTE! If the inverter is already added to another account, the serial number will be null. For this situation please contact nJoy Technical Support.

By pressing the Home button you can see how the electricity is distributed.

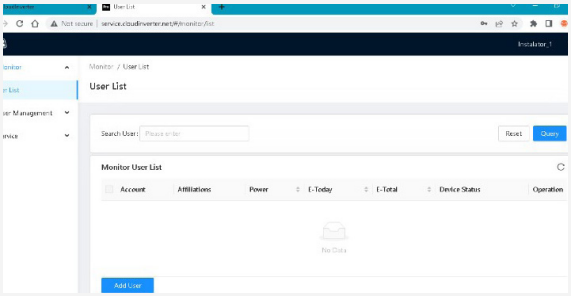
NOTE! Unlike the bluetooth connection, where data transmission is done in real time, when connecting remotely, online, data query is done via the cloud, where the refresh rate is 5-10 minutes.

Now the owner account is created, you need to associate this account with the installer account. This will be done using the web platform.



Open the browser and search https://www.cloudinverter.net/

Select the Service version and fill the installer name and the password provided by nJoy. If you don't have an installer account, please contact us at support@njoy.ro, provide company details, and we will create your installer account.

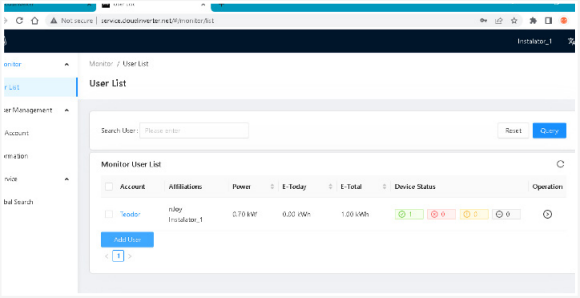


If you have already created the owner's account through the mobile app, click the "Relate User" button to associate the existing account with the SN of the equipment (inverter) you have installed. You will need to enter the owner account name and the SN of the inverter.

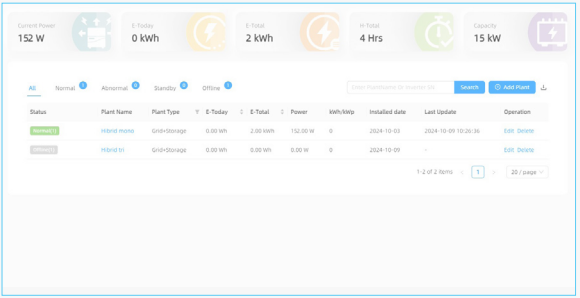
English

Română

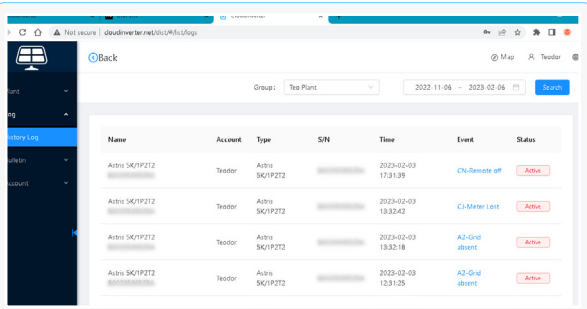
D. Using the web platform for monitoring and service.



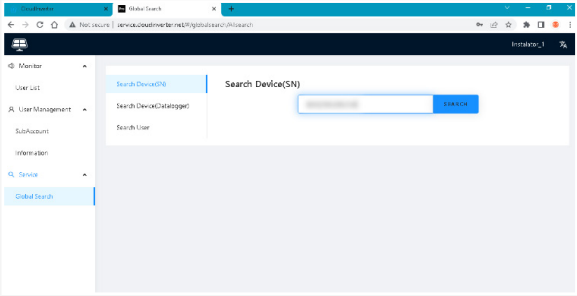
The owner account will be added to the User List. You can now see the system status (online, offline, error etc), the power generated from the PV panels, the daily yield or total yield etc.



By clicking on the blue account name, a new tab will open with the user account data monitoring. Here can be seen details about the installed system, the location etc.



By clicking on LOG > HISTORY LOG from the owner's account, all events will be displayed such as inverter function, notifications, errors etc.

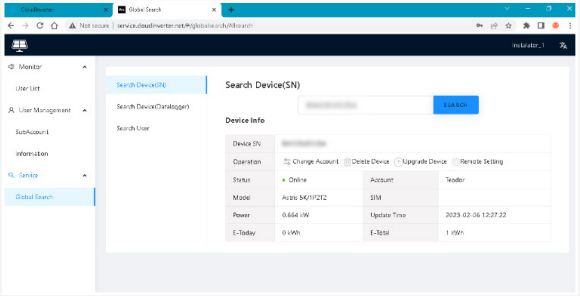


From the Service > Global search menu you can search inverters. by S/N.

NOTE! *In order to find a specific equipment, it needs to be linked to an owner account and this account to be added to the installer service application. You will only be able to find installed equipment assigned to this installer account.*

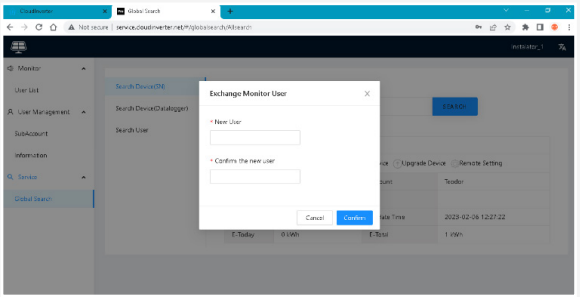
English

Română

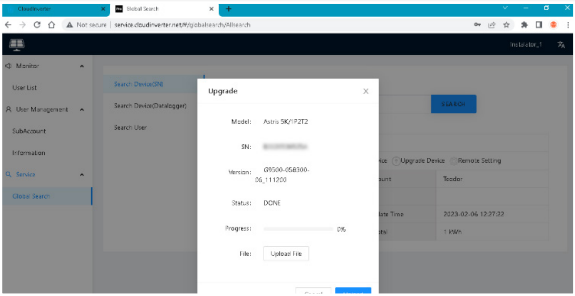


If the equipment is found, all data available will be displayed (model name, rated power, current status, owner's account linked etc).

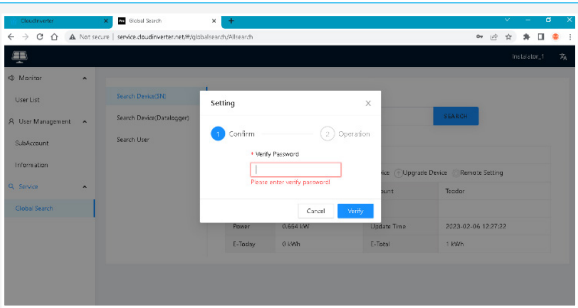
Several actions are available, accessible from the Operation line.



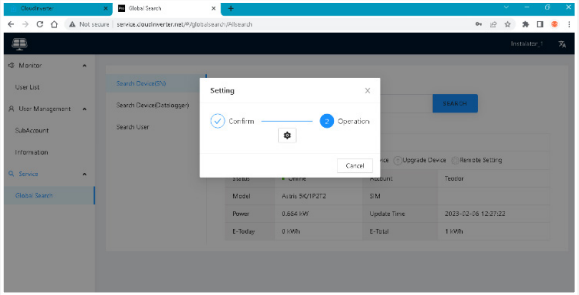
By clicking CHANGE ACCOUNT this equipment can be transferred to another owner by updating the account with the relevant information and added to the Service area of the app. The DELETE DEVICE button allows for the equipment to be erased from the owner's account.



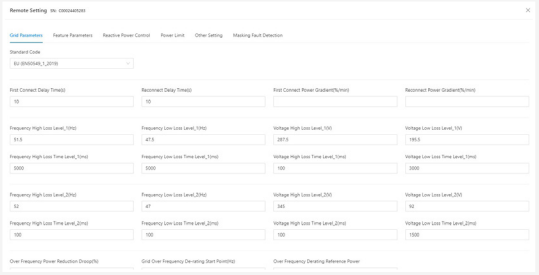
By clicking UPGRADE DEVICE the firmware can be remotely updated.



The REMOTE SETTING button allows for modification of the parameters and settings of the inverter. To have access to these parameters modifications you'll need password (that will be provided to the installer by nJoy when creating the installer account) and click Verify.



If the password is correct, a Settings symbol will appear (a gear wheel). By clicking this symbol you will have access to settings and parameters.



The settings are arranged in categories: Grid Parameters, Feature Parameters, Reactive Power Control, Power Limit, Other Setting and Masking Fault Detection. The values displayed are the current measured values and these can be changed. By clicking on UPLOAD (down page button) the new settings are sent to the inverter.

NOTE! *Parameters that are 'blank' have not been read yet. To bring the values up to date, press the 'Read' button.*