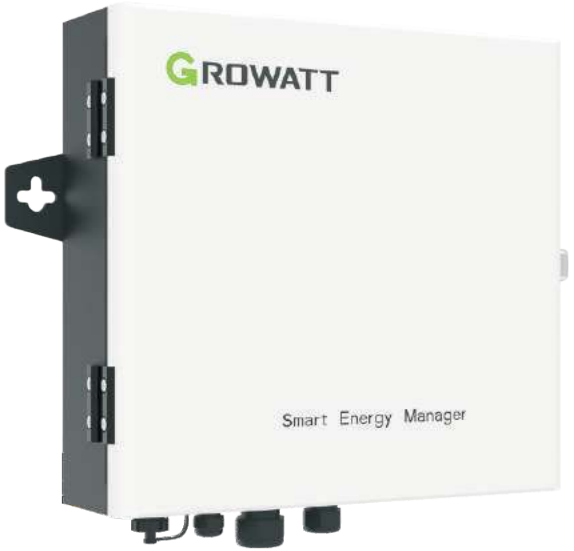


Installation & Operation Manual

SHENZHEN GROWATT NEW ENERGY TECHNOLOGY CO.,LTD
No.28 Guangming Road, Shiyan Street, Bao'an District,
Shenzhen, P.R.China
T 400-931-3122
F + 86 755 2747 2131
E service@ginverter.com
W www.ginverter.com

List

1 About the user manual
- 1.1 Manual description
- 1.2 Copyright statement
- 1.3 Applicable personnel
- 1.4 Manual usage

2 Product introduction and installation
- 2.1 The product overview
- 2.2 Operating principle
- 2.3 Unpacking
- 2.4 Installation
- 2.5 Wiring instructions
- 2.6 Cable specification

3 Operation and application
- 3.1 System block diagram
- 3.2 ShineMaster operation
- 3.3 Meter operation

4 Wiring and Export Limitation verification
- 4.1 Wiring verification
- 4.2 Export Limitation verification

5 Remote monitoring (optional)

6 Export Limitation and Self-consumption

7 Common malfunctions

8 Specifications

9 Contact us

1 About the user manual

1.1 Manual description

Dear users, thank you very much for using the Smart Energy Manager developed and produced by Shenzhen Growatt New Energy Co., Ltd. (hereinafter referred to as Growatt). We sincerely hope that this product will meet your needs and expect you give more opinions on the performance and function of the product. The purpose of this manual is to provide users with detailed product information and instructions for installation, operation, and maintenance.

1.2 Copyright statement

This user manual is copyrighted by Growatt. Any unit or individual may not excerpt or copy part or all of this user's manual without the written permission of the company. It may not be transmitted in any form, including materials and publications.Infringement must be investigated.
The version of this manual is V1.0. Growatt owns the final interpretation right of this user manual. If there is any change in product parameters, appearance, packaging, etc., the latest information of the company shall prevail without notice.

1.3 Applicable personnel

This manual is intended for professional technicians who install, commission, and maintain Smart Energy Managers and those who perform daily operations.If necessary, refer to Growatt's corresponding user manual or instruction.

1.4 Manual usage

Please read this manual carefully before using Smart Energy Manager. At the same time, please keep this manual in a safe place so that operators and maintenance personnel can find out. The contents of the manual will be continuously updated and corrected. It is inevitable that there will be slight inaccuracies or errors in the actual contents. Users should refer to the actual product purchased. The latest user manuals can be downloaded from www.ginverter.com, and can also be obtained through Growatt's sales or service channels.

Installation 2

2.1 The product overview

2.1.1 Appearance

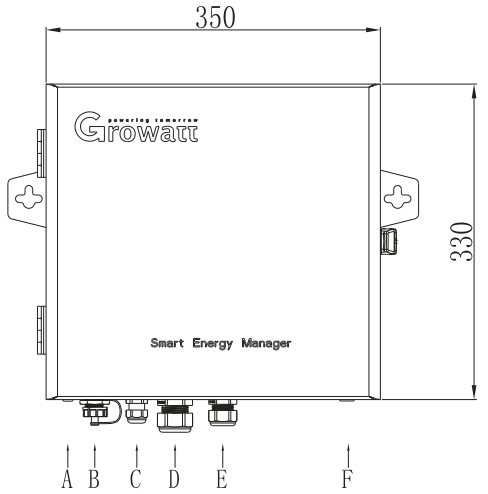


Figure 2-1 Appearance (Unit: mm)

Number	Description
A	Two antenna interfaces (optional)
B	RJ45 interface
C	RS485 interface
D	CT Port
E	Voltage sampling interface
F	Ground terminal

2.1.2 Internal structure

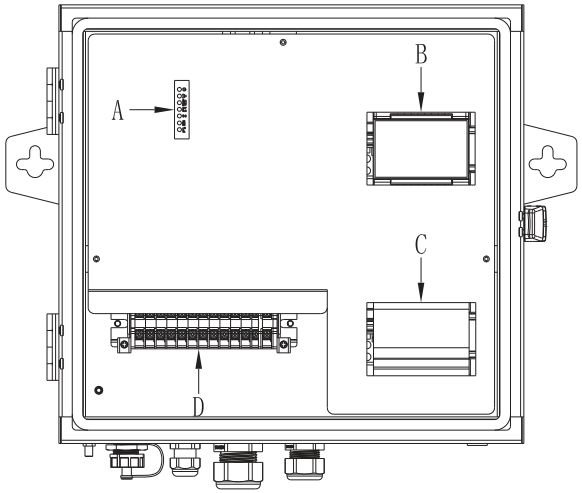


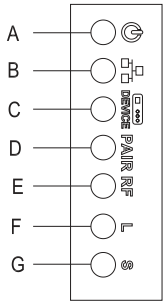
Figure 2-2 Internal structure diagram

Number	Description
A	ShineMaster Status LED
B	Meter panel
C	Breaker
D	Terminal block

The Smart Energy Manager is mainly composed of ShineMaster, electricity meter, power supply, breaker and terminal block. The functions of each part are as follows:
1.ShineMaster: control core, data communication with inverter and electric meter, realize inverter power adjustment function and remote monitoring function.
2. Electricity meter: Real-time monitoring of voltage, current and function parameters.
3. Power supply: Power supply for ShineMaster.
4. Breaker: control the start and shutdown of the electricity meter and power supply.
5. Wiring terminal block: The place where the user wiring.

2.1.2.1 ShineMaster Status LED

There are 7 ShineMaster status LEDs, which can be used to display the running status of ShineMaster.



Number	Name	Description
A	Power LED	Power indicator light, constant on means power supply is normal.
B	Network LED	Network light: 1.off means fail to obtain IP address; 2.flashing means connecting to the server; 3.on means connection to the server successfully.
C	Device LED	The number of the LED continuously flashing means the device number connected to the ShineMaster.
D	Configura-tion LED	Flashing when configuration, if successful, the LED will be off（temporarily unavailable）
E	RF LED	RF signal indicator（temporarily unavailable）
F	4G LED	4G signal indicator（temporarily unavailable）
G	Status LED	LED flashes when ShineMaster is in a fault condition

2.1.2.2 Meter panel

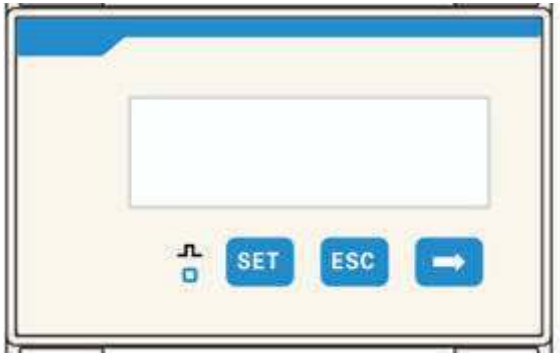


Figure 2-3 Meter panel

The panel of the meter can display various power parameters: voltage, current, active energy, active power, power factor, and so on. The display interface and setting parameters can be switched through the 3 buttons below the panel. Click "→" to switch to the next interface. Click "ESC" to switch to the previous interface. For details, see section 3.3.

2.1.2.3 Breaker

When the switch is shipped from the factory, it is in the OFF state of the lower dial. After the customer connects all the wires of the Smart Energy Manager, turn the circuit breaker up, so that the circuit breaker is in the ON state, and the meter and ShineMaster will start normally.

2.1.2.4 Terminal block

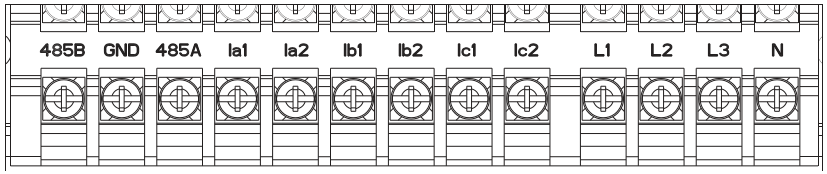


Figure 2-4 Terminal block

The terminal block has a total of 13 wiring ports, from left to right: RS485 interface (485B, GND, 485A), current transformer interface (Ia1, Ia2, Ib1, Ib2, Ic1, Ic2), voltage sampling interface (L1, L2, L3, N).

2.1.2.5 Current Transformer

Smart Energy Manager with different system capacity will deliver different types of split current transformers for detecting the current of the grid-connected access points in low voltage distribution system. The specifications are as follows:

System capacity	Current ratio	Precision degree	Through the number of turns	Outline size(mm) W*H*D	Through size(mm) a*e
100KW	250/5A	0.5	1	90*114*40	22*32
300KW	600/5A	0.5	1	114*140*36	42*62
600KW	1200/5A	0.5	1	144*199*36	82*122
1MW	2000/5A	0.5	1	184*254*52	82*162
2MW	4000/5A	0.2	1	184*254*52	82*162

Note:
1. The total power of the inverter or the total power of the load in the whole system cannot exceed the system capacity corresponding to the Smart Energy Manager.

2. Under any conditions, the current flowing through the primary side of the current transformer (CT) must not exceed its maximum detection range.

3. The current transformer should not be operated in a high humidity environment.

2.2 Operating principle

The Smart Energy Manager works as follows:
1. The inverter converts the direct current generated by the sunlight to the photovoltaic string into alternating current.

2. The energy generated by the inverter can be used for user load or output to the grid.

3. The Smart Energy Manager is located between the inverter, the user load and the grid, and detects the voltage and current of the grid connection point. According to the user's needs and settings, the inverter's output power is adjusted in real time to control the final output to the grid.

Photovoltaic grid-connected Export Limitation system block diagram:

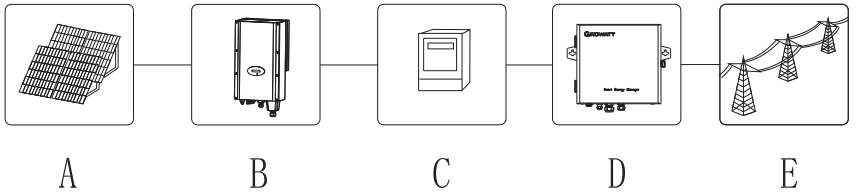


Figure2-5 Photovoltaic grid-connected Export Limitation system

Symbol	Description	Symbol	Description
A	Photovoltaic string	B	Inverter
C	Load	D	Smart Energy Manager
E	Grid		

2.3 Unpacking

The main accessories of the Smart Energy Manager are as follows:

Number	Description	Quantity
A	Smart Energy Manager	1
B	CT	3
C	Expansion pipe	2
D	Self-Tapping Screw	2
E	Key	1

2.4 Installation

Refer to the distance between the two wall-hanging holes in the figure below and make two holes in the wall. Insert the plastic expansion tube and lock the self-tapping screw on the plastic expansion tube. Fix the Smart Energy Manager on the wall and complete the installation.

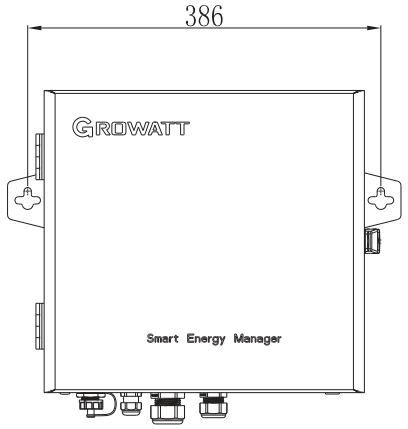


Figure 2-6 Wall-mounting holes (unit: mm)

Note: This product provides a special key for locking the upper cover, and the customer can operate according to the actual situation.

2.3 Wiring instructions

Remove the screws of the front cover, and you can see marks of wiring labels. Do the wiring according to Figure 2-3.

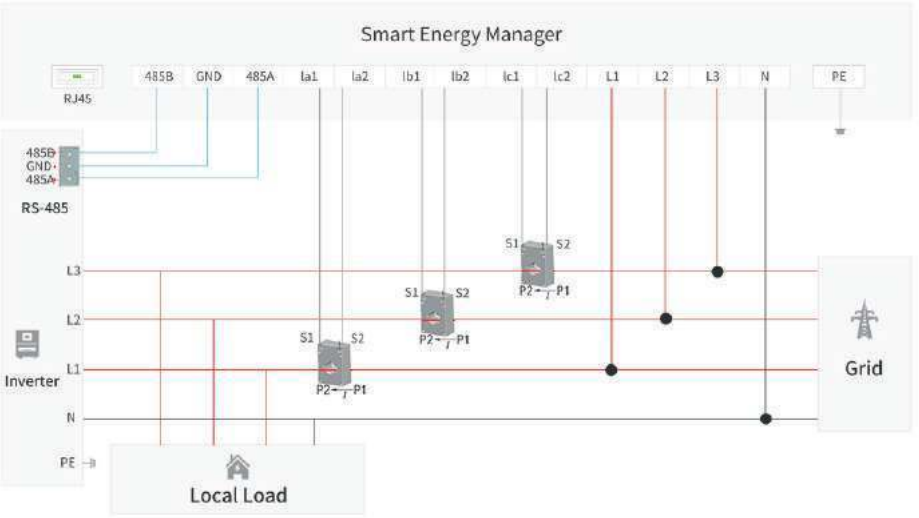


Figure 2-7 Wiring diagram of Export Limitation system

1. Overall wiring
As shown in the figure above, three current transformers and AC voltage sampling lines need to be placed between the load and the grid to detect the power of the grid access point in real time. The Smart Energy Manager is recommended to be installed near the power distribution cabinet and place the CT and AC voltage sampling lines in the power distribution cabinet.

2.RS485 interface
The RS485 interface of the Smart Energy Manager is used to connect the RS485 interface of the inverter. The wiring mode of multiple inverters can refer to the following figure. The notes are as follows:

(1) It is recommended to use shielded twisted pair cable for RS485 wire. The shielding layer is connected to the GND pin of RS485 interface of smart energy manager and inverter.

(2) The inverter can only be connected to a maximum of 32 units, and the reference wiring diagram is wired in a daisy-chain topology. If the number of inverters is n $\geqslant$ 2, the last inverter n is to add the matching resistor. Add a matching resistor operation to view the user manual of the relevant inverter.

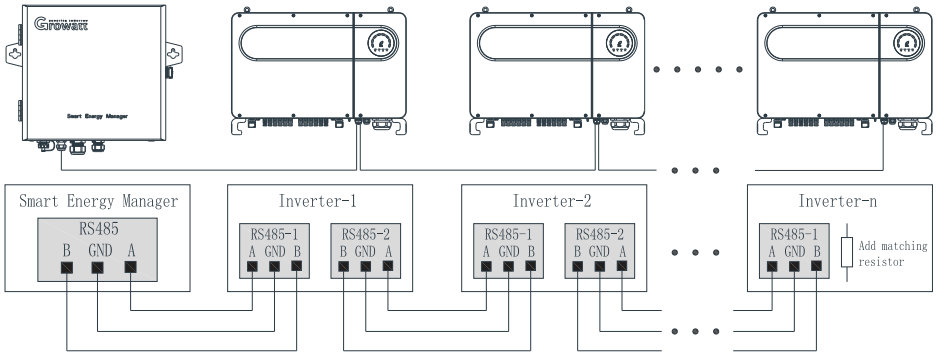


Figure 2-8 RS485 wiring diagram

3. Current transformer interface
There are P1 and P2 silk screens on both sides of the current transformer to distinguish the direction. Refer to Figure 2-5 for wiring. The P1 side is close to the grid and the P2 side is close to the inverter and load. The transformer connection is as follows:
(1) S1 of current transformer 1 (CT1) on inverter L1 is connected to Ia1, and S2 is connected to Ia2,
(2) S1 of current transformer 2 (CT2) on inverter L2 is connected to Ib1, and S2 is connected to Ib2,
(3) S1 of current transformer 3 (CT3) on inverter L3 is connected to Ic1, and S2 is connected to Ic2,

Note:
(1) Before the current transformer is installed, it must be connected to the smart energy manager twice to ensure that there is no open circuit on the secondary side of the transformer.
(2) If the primary busbar on the site is a cable, it can be installed by professional electricians. If the busbar is a copper busbar, the electrification operation requires a high degree of proficiency for the operator and requires insulation protection measures.
(3) When installing the current transformer, no foreign matter such as impurities or dust may fall into the cut surface of the core to avoid affecting the performance of the transformer.

4. Voltage sampling interface
Refer to Figure 2-7 to connect the voltage sampling line. According to the three-phase four-wire connection mode, L1/L2/L3/N must be connected, otherwise the Smart Energy Manager will not work properly.

5.RJ45 network cable interface
Pull a network cable from a router with a network and plug it directly into the RJ45 port of the Smart Energy Manager. This interface is used for remote monitoring. For details, see Chapter 5.

6. Ground terminal
In order to ensure the reliable operation and personal safety of the smart energy manager, the grounding terminal on the outer casing must be reliably grounded.
Note: The ground terminal should be waterproof.

2.6 Cable specification

Cable location	Cable cross-sectional area (mm2)	
	Range	Recommended value
RS485 wiring	1~2.5 (16~14AWG)	1 (16AWG)
Current transformer wiring	1~2.5 (16~14AWG)	2.5 (14AWG)
Voltage sampling wiring	1~2.5 (16~14AWG)	2.5 (14AWG)
Ground wire	2.5~4 (14~12AWG)	4 (12AWG)

Operation and application 3

3.1 System block diagram

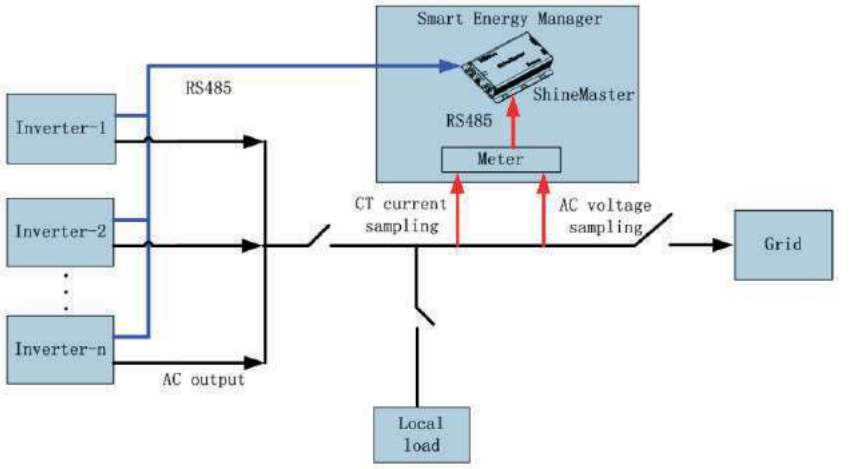


Figure 3-1 Block diagram of the Export Limitation system

1. ShineMaster obtains meter data every 1 s and performs Export Limitation regulation for the real-time power of the grid-connected access point.
2. In the Export Limitation system, turn on the Export Limitation function in the ShineMaster built-in interface.

Export Limitation adjustment instructions:
A: The inverter with the lowest rated power in the Export Limitation system,
B: The inverter with the highest rated power in the Export Limitation system,
P1: Control power (P1=meter power + Export Limitation power, Export Limitation power can be positive or negative),
P2: Idle power (P2=inverter rated power-inverter actual output power P)

（1) When -(A rated power *1%) ≤ P1 ≤ （B rated power *1%), Export Limitation regulation is not triggered.

（2) When the Export Limitation regulation is triggered and P1 > (B rated power *1%), the inverter is required to increase the power output. The system starts to adjust within 10s, and the inverters are sorted according to the idle power P2 from large to small. If P2 ≥ P1, then only the first inverter can be adjusted.If P2 < P1, the remaining required power (P1-P2) is assigned to the next inverter, and so on.

For example, there are 20K, 60K inverters in the system, 60K*1%=600W, and P1>600W for Export Limitation regulation.

（3) When the Export Limitation regulation is triggered and - (A rated power *1%) > P1, the inverter is required to reduce the power output. The system starts to adjust within 10s, and the system sorts the inverters according to the actual output power P from large to small. If P ≥ | P1 |, then only the first inverter can be adjusted. If P < | P1 |, the remaining power to be adjusted (| P1 | - P) is assigned to the next inverter, and so on.
For example, there are 20K, 60K inverters in the system, 20K*1%=200W, P<-200W for Export Limitation regulation.

Note: When triggering Export Limitation regulation, the Smart Energy Manager intelligently distributes power according to the actual operating conditions of the inverter. The actual adjustment process and the above instructions may vary slightly.

3.2 ShineMaster operation

3.2.1 Visit the ShineMaster built-in page

ShineMaster can access built-in pages through both static IP and dynamic IP access. The method of accessing the ShineMaster built-in page can be selected according to the site conditions.

3.2.1.1 Computer directly connected to ShineMaster to access the built-in page (static IP)

Connect the PC directly to the ShineMaster via the RJ45 cable. The computer IP is modified to 192.168.0.XXX (XXX is 2~253), and the default IP of ShineMaster is: 192.168.0.254. You can access the ShineMaster built-in page by entering 192.168.0.254 on your computer browser. Computer IP settings can refer to the following form:

IP address	192.168.0.5
Subnet mask	255.255.255.0
Default gateway	192.168.0.1

Note:
Do not need to set the DNS server address.

3.2.1.2 Accessing the ShineMaster's built-in page through the router（Dynamic IP)

1. Connect the PC and ShineMaster to the same router so that they are on the same LAN.
2. Check the IP address of ShineMaster.
Take the TP_LINK router as an example: enter the management page of the router; click "DHCP Server -> Client List"; find the same client name as the serial number SN of the collector; this IP is the IP address assigned to the ShineMaster by the router. Ratio: ShineMaster serial number SN is: AEA3745001, the query result is as shown below:



Note: The router must have DHCP enabled.

3. Enter the ShineMaster IP address 192.168.100.101 into the ShineMaster built-in page in your browser.

3.2.2 Log in

1. After the user successfully accesses the ShineMaster built-in page, you need to log in to modify or set the parameters. As shown below:



2. Enter the user name and password, the default login user name: admin password: admin, fill in and click on “login” to enter the ShineMaster system page.

3.2.3 ShineMaster Datalogger State

Click on the “datalogger State” section on the left side of the page to view information such as ShineMaster “System Status Information”, “Serial Number”, “Server Address”, “Number of Connected Devices”. The operator can know the running information of ShineMaster from this column.

Datalogger Information	
State Info.	Online
SN	XXXXXXXXXX
Server IP	server.growatt.com
Server PORT	5279
Datalogger Location IP	192.168.100.103
Time	5
Datalogger MAC	00:47:C0:0B:B8:A1
Hardware Version	V1.0
Firmware Version	1.0.3.5
Datalogger Type	ShineMaster
Device Number	0
Offline Data Number	0
Location Time	2019-10-16 15:28:26
ExportLimit Enable	DISABLE
ExportLimit Power(kw)	0
BaudRate	RS485_1: 9600;RS485_2: 9600

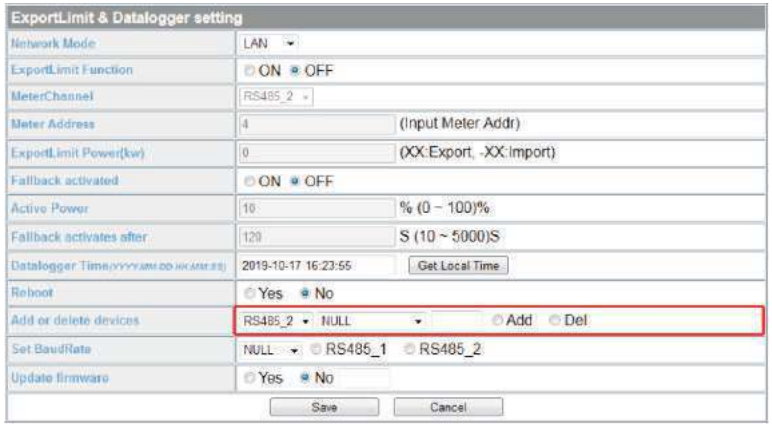
3.2.4 ShineMaster ExportLimit & Datalogger setting

Click the “ExportLimit & Datalogger setting” section on the left side of the page to perform Export Limitation function, add and delete devices, and modify the baud rate.

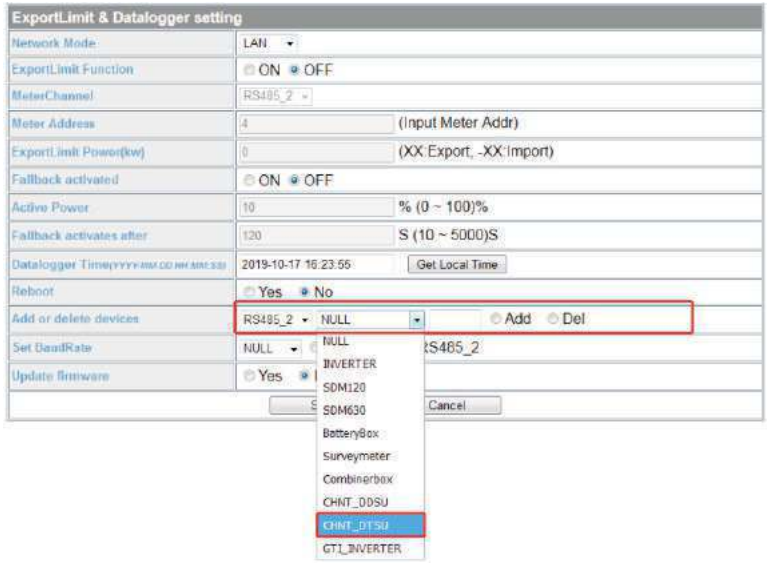
3.2.4.1 Add meter (Added at the factory)

The meter in the Smart Energy Manager has been added to the RS485_2 channel at the factory, so the operator does not need to set it.

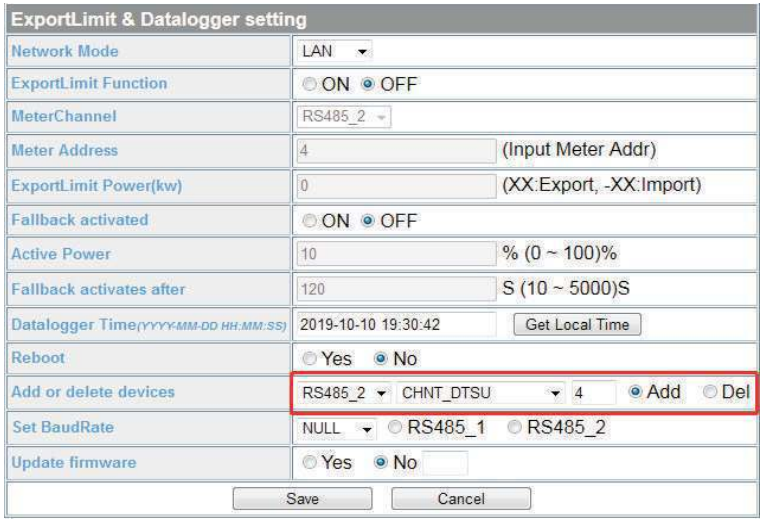
1. Select the RS485 channel of the monitoring meter in the first drop-down list of “Add or Remove Devices”: “RS485-2”.



2. Select the type of PV device to be monitored in the second drop-down list: CHNT_DTSU.



3.Fill in the communication address of the meter in the third column.
(Note: The default address of the meter is 4 and the baud rate defaults to 9600bps)



4.Select "Add" and click Save.

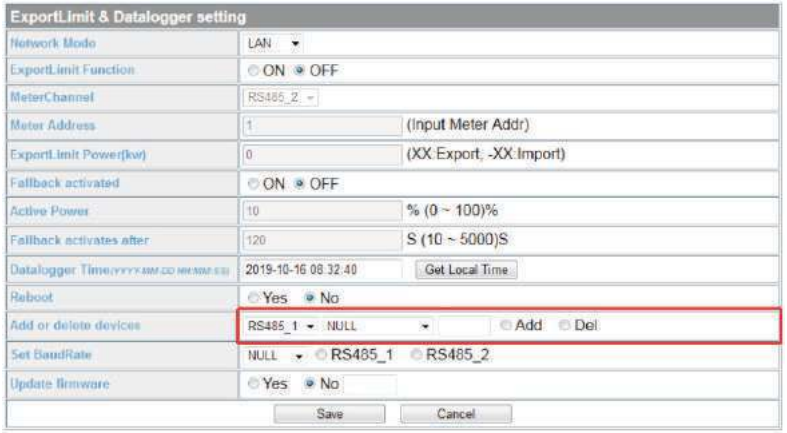
5.After successfully saving, enter the "Device Status" page to confirm whether the device is added successfully.

3.2.4.2 Add inverters

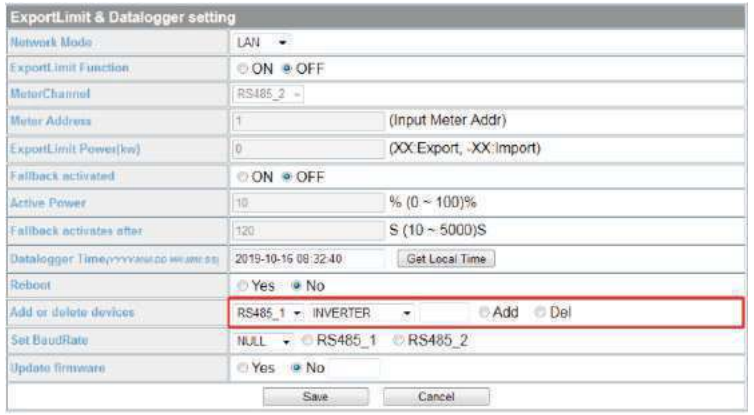
Before ShineMaster monitors photovoltaic equipment, it is necessary to enter the “ExportLimit & Datalogger setting” page of the built-in page to add devices.

1.Add one device at a time

(1) Select the RS485 channel in the first drop-down list of “Add or Remove Devices”: “RS485-1”.

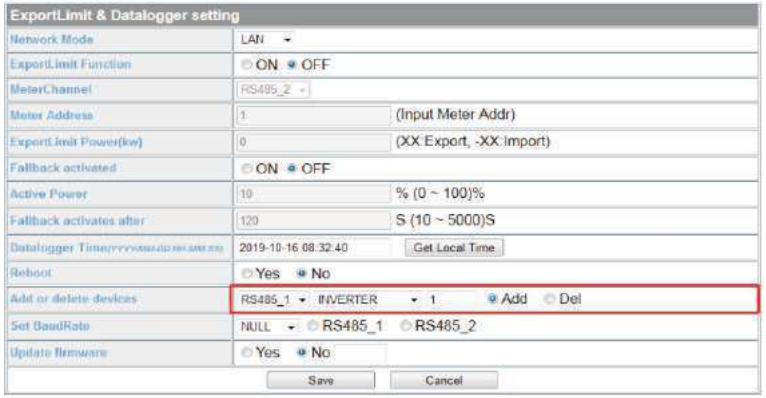


(2) Select the type of PV device to be monitored in the second drop-down list:"INVERTER".



Device types parameter information:
INVERTER:GROWATT Inverter;
CHNT_DDSU:ZT single phase meter;
CHNT_DTSU:ZT three phase four wire meter.

(3) Fill in the communication address of the inverter in the third column.



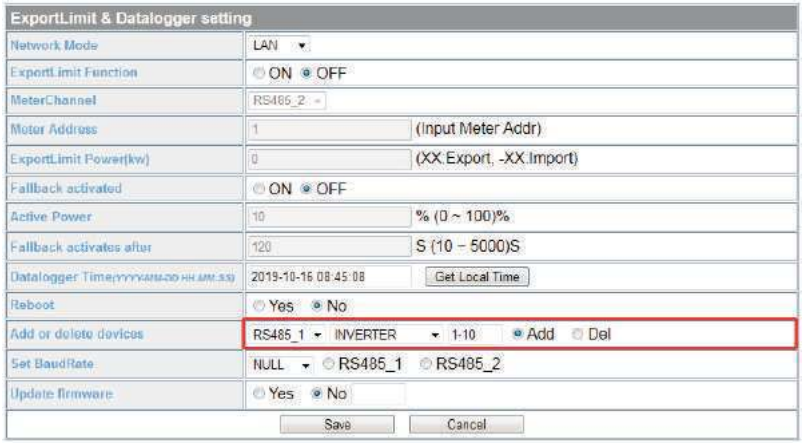
(4) Select "Add" and click Save.

(5) After successfully saving, enter the "Device Status" page to confirm whether the device is added successfully.

Device Addr	Device Type	Device SN	Device State	communication mode
001	Inverter		Suspend	RS485_1
004	CHNT_DTSU666		Suspend	RS485_2

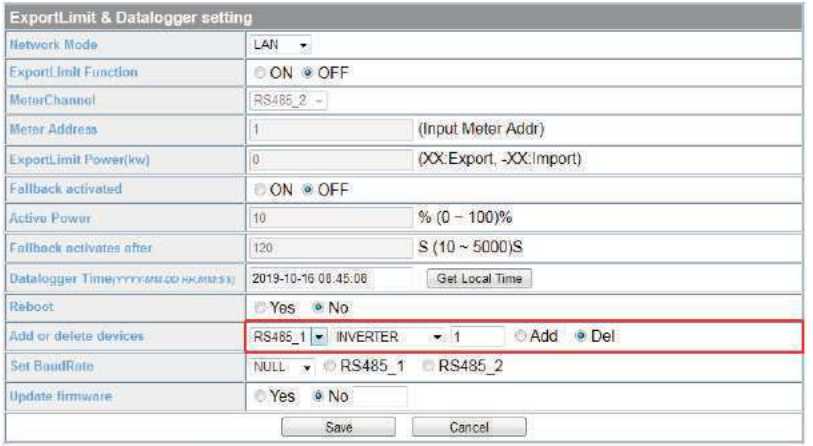
The “Device State” in the above figure shows “normal”, which means that the inverter or the meter is connected to the ShineMaster and is in normal communication.

2.Add multiple devices at once.
When there are multiple devices in a certain type and the addresses are consecutive, they can be added once on the system.
As shown below: Add 10 inverters with addresses 1~10 on RS485_1.

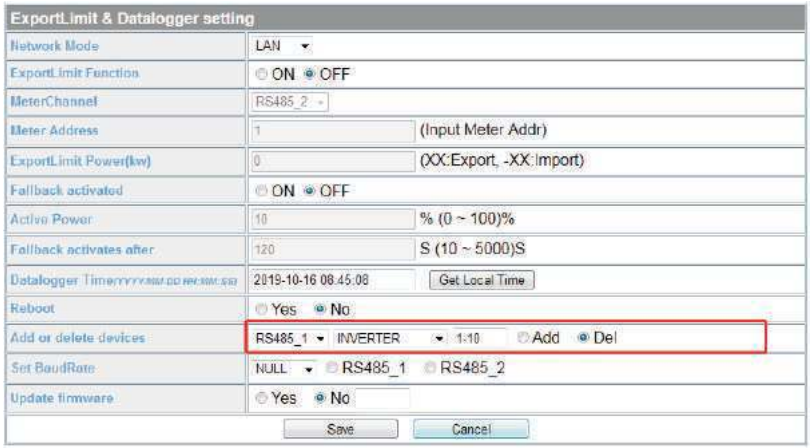


3.2.4.3 Remove device

1.Delete one device at a time.
(1)Select the monitoring method for monitoring PV devices in the first drop-down list of "Add or Remove Devices".
(2)In the second drop-down list, select the type of PV plant being monitored.
(3) Fill in the PV device communication address in the third drop-down list.
(4)Select "Del" and click Save to finish removing of the device.
(5) After successfully saving, enter the "Device State" page to confirm whether the device is successfully deleted.
As shown below:



2.Delete multiple devices at once.
You can delete certain types of devices in an address range continuously, but the types of devices must be the same.
As shown below: Delete the inverter with an address range of 1~10.



Add and remove device notes:
1.The second option: device type: All of Growatt's inverter products: PCS, HPS, MAX, MIN, MTLP-US, SPC3000, SPC2000 and other inverter models are selected as "INVERTER" in this item.

2.When you need to delete a device, all the options should be the same with the moment you add this device like: 485 channel, device type, address, if you are not sure about this you can check the device status first.

3.When one address is occupied, you cannot just overwrite by adding the new device, you have to delete the old device and then use this address.

3.2.4.4 Export Limitation function setting

The Export Limitation function is not enabled by default at the factory. To use the Export Limitation feature, you can modify it through the configuration page.

1. Turn on Export Limitation function
(1) Select "ON" in the "ExportLimit Function" column;

(2) In the "MeterChannel" column, select the 485 channel "RS485_2" that connects the meter;

(3)Enter the 485 communication address of the meter in the "Meter Address" column: 4;

(4) Enter the maximum power allowed to be delivered to the grid or allowed to be taken from the grid in the "Export Limitation Power (KW)" field. The default is 0;

Note: If you enter -100, the user is allowed to obtain a maximum of 100KW power from the grid. If the load exceeds 100KW, the inverter will rise output power. If enter 100, the system will allowed to export 100KW to the grid. When the output of the grid exceeding 100KW，the system will limit the inverter power output.

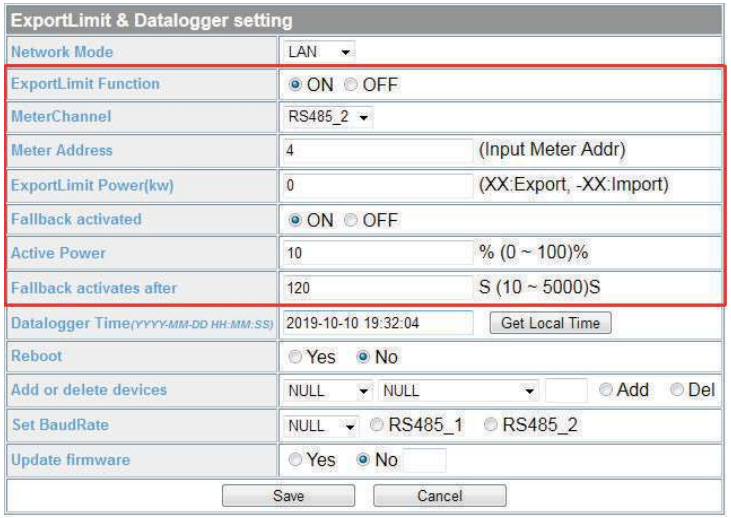
(5) Select "ON" in the "Fallback activated" column to enable the Export Limitation failsafe function. When "OFF" is selected, "Active Power" and “Fallback activates after" will be invalid.

Note: If the “Fallback activated” column is “ON”. When the communication between the inverter and the Smart Energy Manager fails, the inverter is not controlled by the Smart Energy Manager. When the communication failsafe time exceeds the “Fallback activates after" set value, the inverter will alarm and enter the Export Limitation failsafe state. The maximum output power of the inverter is limited to “Active Power” set value.

(6)In the “Active Power” column, you can enter 0~100, which means that when the Export Limitation function fails, all inverters participating in the Export Limitation adjustment limit the maximum output power by this percentage.

Note: One inverter is rated at 20KW and “10” is entered in this column. When theExport Limitation function fails, the maximum output power of the inverter is limited to 20KW*10% = 2KW.

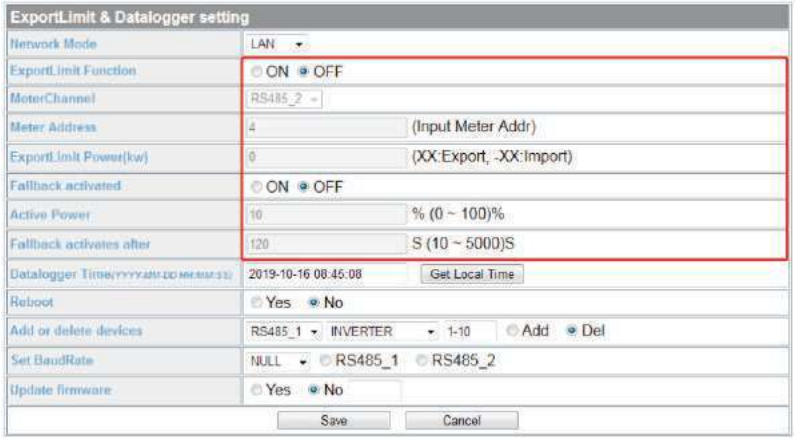
(7)Enter 10~5000s in the "Fallback activates after" field. When the inverter and Smart Energy Manager have a communication failure and exceed this set time, the



The Export Limitation function is enabled in the above figure:
“Active Power" is set to 0 and this general recommended setting is 0. The inverter connected to the Smart Energy Manager's RS485 interface will actually be connected to the ShineMaster's RS485_1 channel and will participate in the Export Limitation regulation.

2.Turn off the Export Limitation function

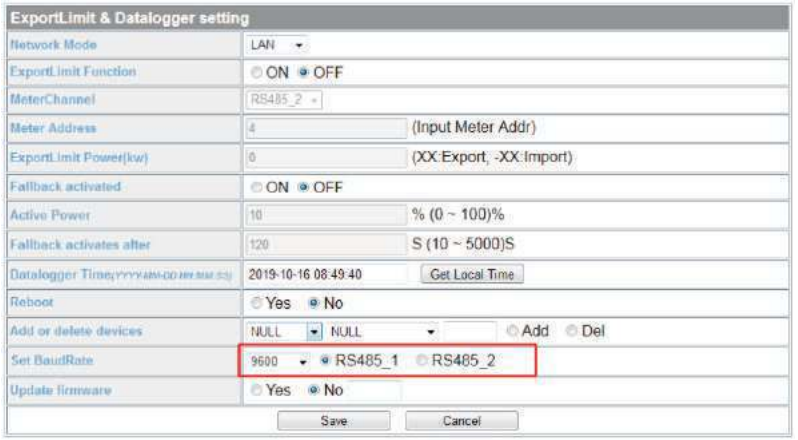
The Export Limitation function is not enabled by default at the factory. If the Export Limitation function is enabled during installation and then you need to turn it off, simply select OFF in the “Export Limitation Function" field. Other options may be modified. Click "Save" to turn off the Export Limitation function of the entire system.



3.2.4.5 Baud Rate setting

The 485 baud rate of both channels of ShineMaster at the factory is: 9600. The second channel RS485_2 has been fixedly assigned to the meter in the smart energy manager, so the user can only modify the baud rate of the first channel RS485_1:

1. Select the desired baud rate in the "Set BaudRate" field.
2. Select the channel "RS485_1" and click "Save".



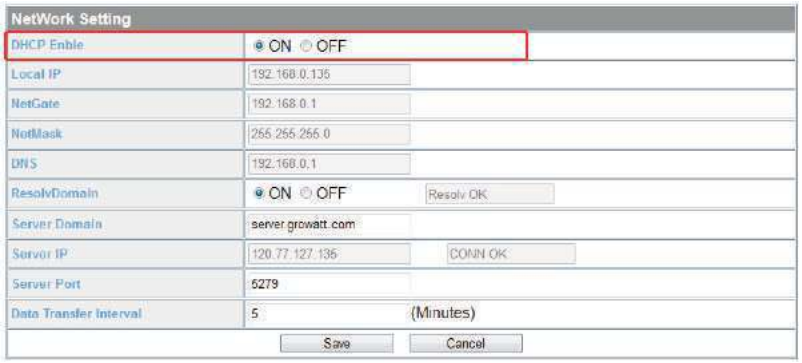
3.2.5 ShineMaster network settings

When you need to use the remote monitoring function of ShineMaster, you need to set up your network. Under normal circumstances, the network parameters have been set at the factory, and can be run according to the default configuration.

3.2.5.1 Collector network IP settings (default)

Click on the "NetWork Setting" section on the left side of the page to set up the network.

1.ShineMaster's Default setting of the DHCP function is "ON" it will automatically get IP address from router.



2.If you need to set ShineMaster to a fixed IP, you need to set it as follows:

(1) Select "OFF" in the "DHCP Enble" column to disable the DHCP function.

(2) Set parameters such as IP, gateway, subnet mask, DNS, etc., and then click "Save". As shown below:

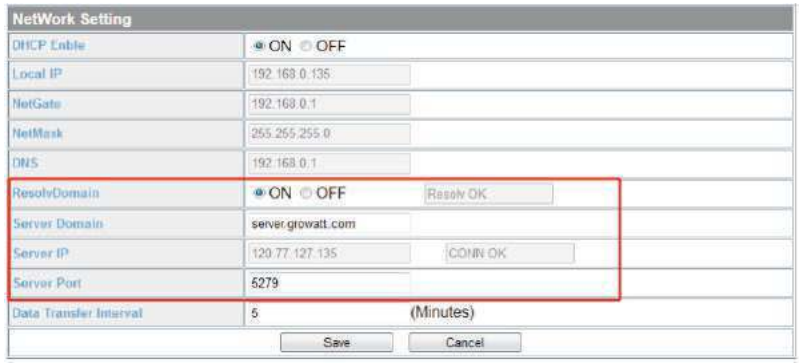


3.2.5.2 Server address setting (default)

There are two ways to access the server: fill in the IP address and fill in the domain name address. You can only enable one of the two methods, please choose according to the actual use. The default setting at the factory is to connect to the server by domain name address.

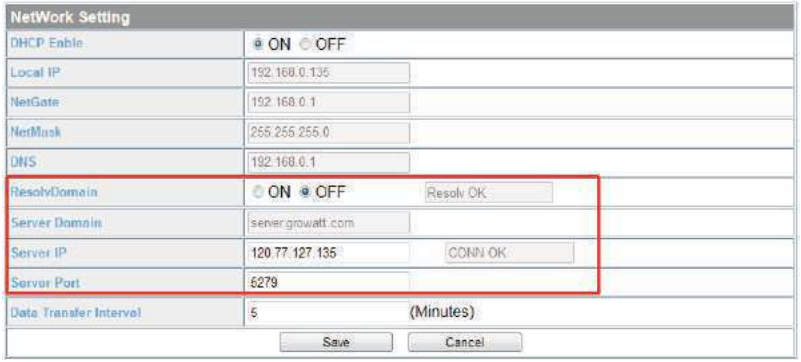
1. Access the server by domain address

In the "ResolvDomain" column, select "ON", then the "Server IP" column will be grayed out. Set the domain name to: server.growatt.com. As shown below:



2. Access the server by IP address

Select "OFF" in the "ResolvDomain" column, and the "Server Domain" column will be grayed out. Set the IP address to 120.77.127.135. As shown below:



Note: If the connection is a Growatt server, the columns "Server Port" and "Data Transfer Interval" are fixed and should not be modified by the user.

3.2.6 Configuration page operation precautions

1. If you add a device, the interface will not be refreshed after clicking Save. Please restart the ShineMaster and click "Device State" to check whether the last operation was successful.

2. When configuring the parameters of the corresponding function, simply configure the parameters of the corresponding function as described above. Other parameters that are not related to the required configuration function should remain unchanged.

3.3 Meter operation

3.3.1 Displayed function



Figure3-2 Liquid crystal display

No.	Display interface	Instruction	No.	Display interface	Instruction
1	10000.00 kWh	Combined active energy=10000.00 kWh	10	Pt 3.291 kW	Combined phase active power=3.291kW
2	10000.00 kWh	Positive active energy =10000.00kWh	11	PA 1.090 kW	Phase A active power=1.090kW
3	2345.67 kWh	Reserve active energy =2345.67kWh	12	Pb 1.101 kW	Phase B active power=1.101kW
4	UA 220.0 V	Phase A voltage =220.0V	13	PC 1.100 kW	Phase C active power =1.100kW
5	Ub 220.1 V	Phase B voltage =220.1V	14	Ft 0.500	Combined phase power factor PFt=0.5
6	UC 220.2 V	Phase C voltage =220.20V	15	FA 1.000	phase A power factor PFa=1.0
7	IA 5.000 A	Phase A current =5.001A	16	Fb 0.500	phase B power factor PFb=0.5
8	Ib 5.001 A	Phase B current =5.001A	17	FC-0.500	phase C power factor PFc=-0.5
9	IC 5.002 A	Phase C current =5.002A			

3.3.2 Programming operation

Button description: “SET”button represents “confirmation”, or “cursor shift”(when input digits), “ESC” button represents “exit”, “→” button represents “add”. The input code is (default 701).

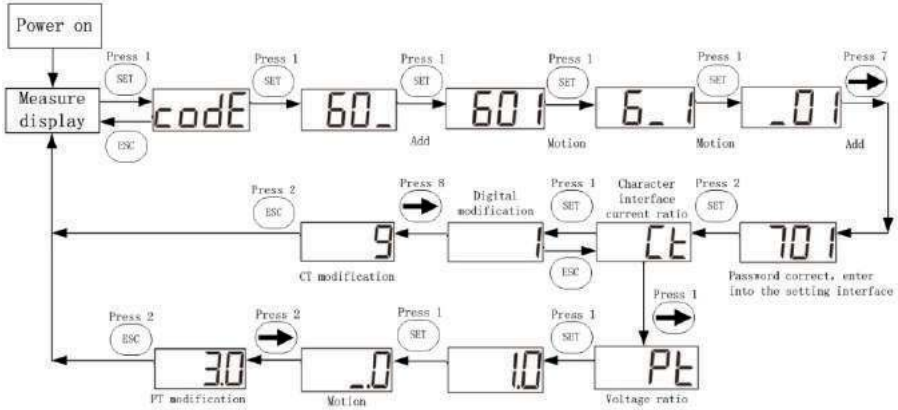


Figure3-3 Setting examples for current ratio

When input digits, “ SET ”can be used as cursor “_”motion button;“ ➡ ”is “add” button,“ ESC ”is Exit the programming operation interface or switch to the character interface from digit modification interface, add from the beginning after setting the digit to the maximum value.

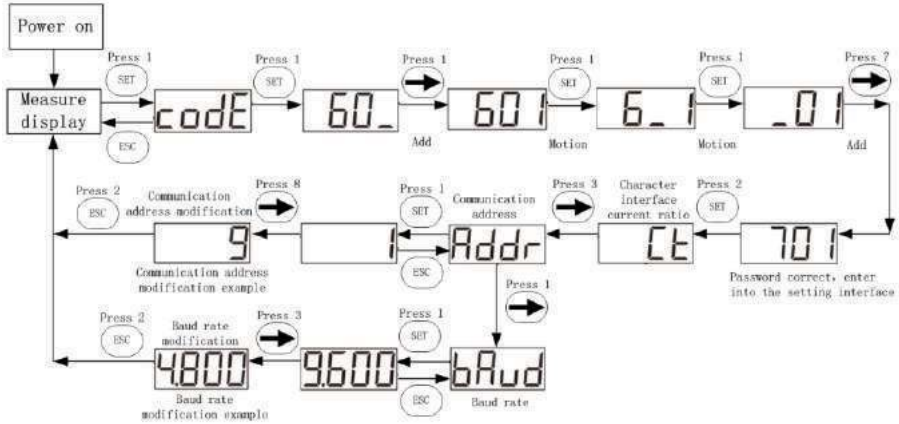


Figure3-4 Setting examples for communication address or baud rate

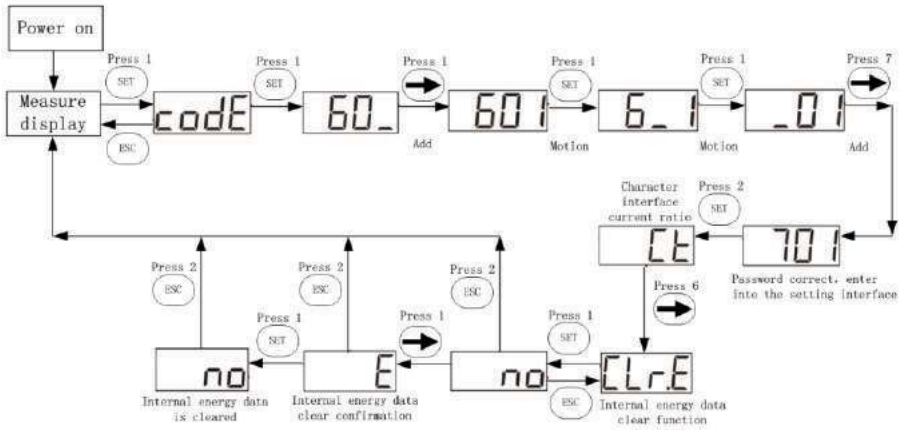


Figure3-5 Setting examples for internal energy data clear function

4 Wiring and Export Limitation verification

Before verifying, confirm that the inverter and the meter in the ShineMaster built-in page are connected, or log in to the monitoring server to confirm that the inverter and the meter are online.

4.1 Wiring verification

Method 1: After completing the wiring, turn off all inverters, and all inverters output power is 0. At this time, if the load power is 20KW, the combined active power of the meter should be displayed as +20KW. This shows that the sampling point and CT wiring of the meter are correct.

Method 2: After the wiring is completed, the load is disconnected and the load power is 0. At this time, set "Export Power (KW)" to 10KW. If the inverter has enough illumination to output 10 kW, the combined active power of the meter should be displayed as -10 kW. This shows that the sampling point and CT wiring of the meter are correct.

4.2 Export Limitation verification

After the wiring is completed, the Export Limitation function can be verified by observing the inverter power change.

Method: After setting "Export Power (KW)" to 0, disconnect the load. If the power of the inverter drops significantly to about 0KW after 60s (the power displayed on the LCD screen or LED of the inverter becomes smaller), the Export Limitation function is normal.

Remote monitoring (optional) 5

The Smart Energy Manager can implement functions such as Export Limitation and Self-consumption locally. When ShineMaster is required to upload the monitored data to the Growatt server (ShineServer), ShineMaster needs to be added to the server. Access through domain names to view historical data, current data, data charts, and historical data charts.

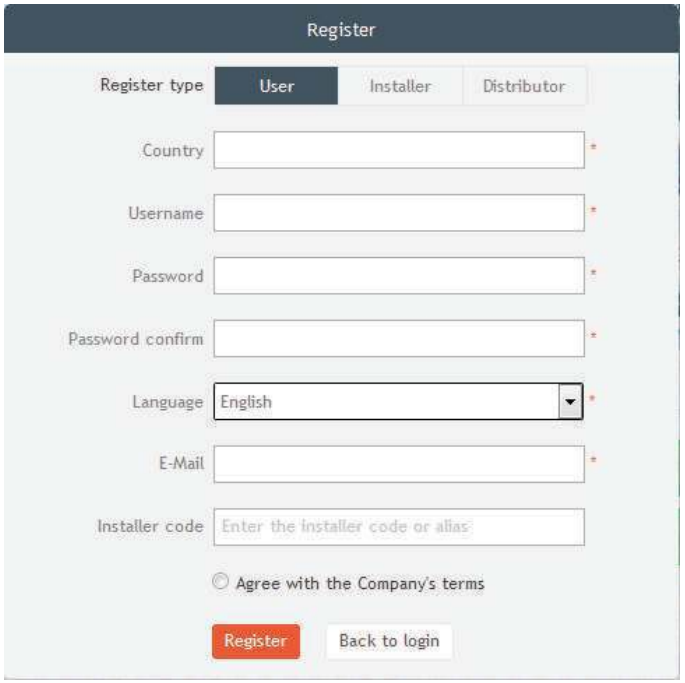
1. Enter the server domain name on the computer browser and go to the ShineServer login page. If you are logging in for the first time, please register your username first. Enter the domain name access page as shown in Figure 5-1.

The server domain name of the Chinese user is: http://server-cn.growatt.com
The server domain name of the international user is: http://server.growatt.com

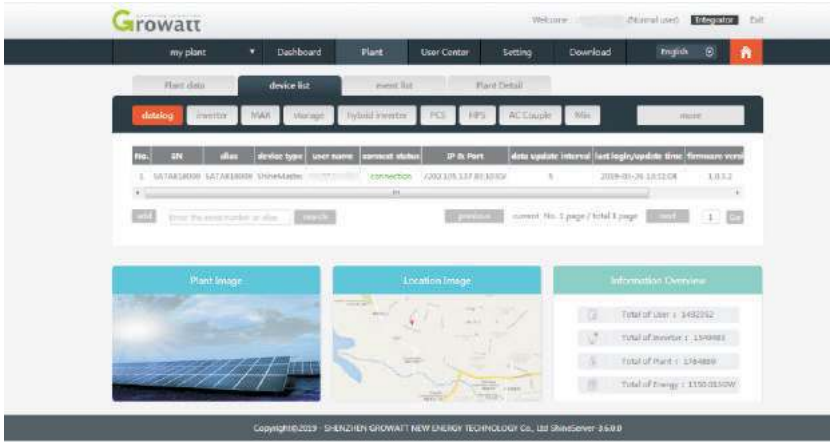


Figure 5-1 Shine Server login page

2.Register the user name, enter the user information according to the prompt, and fill in the information, click “Register”.



3.After the registration is completed, it will automatically jump to the main interface of Shine Server.Click “Power Station” → “Device Management” to view real-time data of “Data Collector”, “Inverter List” and “Smart Meter List”.



6 Export Limitation and Self-consumption

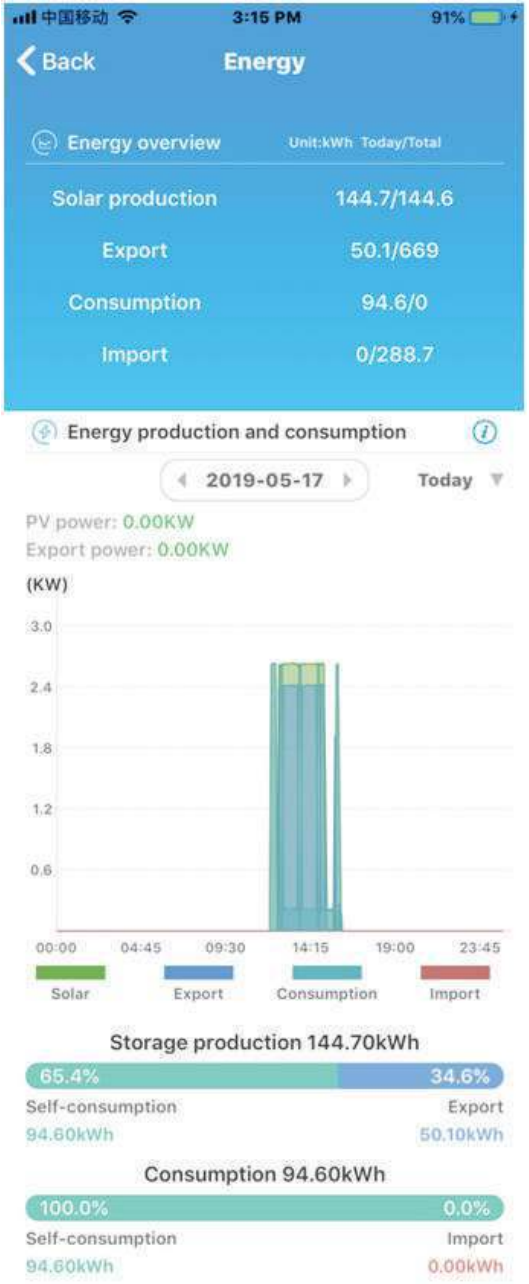
In the "Dashboard" section of the monitoring (Shineserver and Shinephone) home page, when the Export Limitation function is turned on, it is displayed as an Export Limitation interface; when the Export Limitation function is turned off, it is displayed as a Self-consumption interface.

The monitoring page can display data such as power generation, power consumption, power supply back to the grid, and power consumption of the grid, and support remote monitoring and parameter setting.

1.Export Limitation page

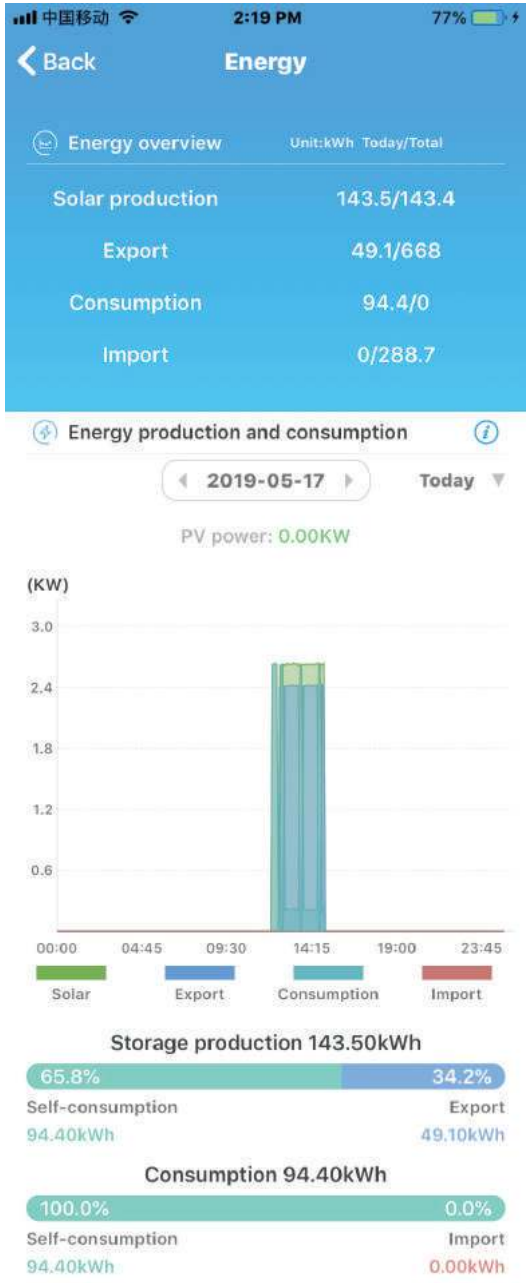
When the Export Limitation function is turned on, the page will identify "Export Limitation is turned on" and display the power fed back to the grid and the power taken by the grid. The interfaces of Shineserver and Shinephone are as follows:





2.Self-consumption page
When the Export Limitation function is turned off, the page no longer identifies Export Limitation data and displays the system status of Self-consumption. The interfaces of Shineserver and Shinephone are as shown below:





Common malfunctions 7

Fault description	Fault performance	Troubleshooting method
After adding ShineMaster to the server, it has not been online for a long time.	ShineMaster's network LED is flashing for a long time	1. Ensure that the ShineMaster and the router network cable are connected properly. 2. The router needs to enable DHCP and the network is normal. 3. The router cannot block port 5279. 4. Refer to section 3.2.5.2.The international user website is server.growatt.com
ShineMaster is online, the inverter is not online for a long time	ShineMaster's Device LED is off or the number of periodic flashes is not equal to the number of machines	1. ShineMaster and inverter RS485 communication wiring is abnormal. 2. The device is not added to the ShineMaster built-in page. 3. The RS485 address of the added device is different from the actual RS485 address of the inverter. 4. Adding the RS485 channel of the device is different from the actual RS485 channel of the inverter.
ShineMaster is online, smart meter is not online for a long time	ShineMaster's Device LED is off or the number of periodic flashes is not equal to the number of machines	1. ShineMaster and inverter RS485 communication wiring is abnormal. 2. The device is not added to the ShineMaster built-in page. 3. The RS485 address of the added device is different from the actual RS485 address of the meter. 4.Adding the RS485 channel of the device is different from the actual RS485 channel of the meter.
Export Limitation failure	The meter display data does not match the Export Limitation effect	1.The abnormality of the RS485 connection between ShineMaster and the inverter or meter. 2.The actual communication address of the inverter or meter is different from the added address. 3.Current transformer wiring is misaligned or reversed.
The meter detection power value does not match the actual value	The power displayed by the meter is too much wrong with the actual value	1. Current transformer connection item is misaligned or reversed. 2. Meter current ratio setting error.

8 Specification

Smart Energy Manager					
System capacity / Specifications	100KW	300KW	600KW	1MW	2MW
Input voltage data					
Nominal input voltage / range	230/400Vac 180~540Vac				
Nominal input frequency / range	50/60Hz 45-55Hz/55-65Hz				
AC grid connection type	3W/N/PE				
Input current and CT data					
Maximum detection current (CT primary current)	250A	600A	1200A	2000A	4000A
Maximum input current (CT secondary current)	5A				
Current detection accuracy (CT)	0. 5				0. 2
Interfaces					
RS485	Yes				
Ethernet	Yes				
Inverter maximum connection number	32pcs				
Maximum communication distance	RS485 shielded twisted pair cable：500m Ethernet cable：100m				
General data					
Dimensions(W/H/D)	350*330*107mm				
Weight	6kg				
Operating temperature range	-25°C - +60°C				
Protection degree	IP65				
Relative humidity	0~100%				
Location	Indoor				

System capacity / Specifications	100KW	300KW	600KW	1MW	2MW
Altitude	2000m				
Terminal type	U shape terminal				
Certification					
Safety	CE				

Note:
1. The total power of the inverter or the total power of the load in the whole system cannot exceed the system capacity corresponding to the Smart Energy Manager.

Contact us 9

Growatt New Energy provides customers with a full range of technical support. Users can contact the nearest Growatt new energy office or customer service point, or they can contact the company's customer service center directly.

Shenzhen Growatt New Energy Technology Co.,LTD
No.28 Guangming Road, Shiyan Street, Bao'an District, Shenzhen PR.China
T: +86 0755 2747 1942
E: service@ginverter.com
W: www.ginverter.com