APX+WIT+SEM

System Commissioning Guide

First Drafted by *Kai Wang*

Supervised & Translated by **Overseas Marketing**

Document History

Version	Change	Author	Date
V0.1	First publish	*Kai Wang*	20240715
V0.2	Changed the update order of firmware	*Kai Wang*	20240821
V0.2a	U.S. version, added and modified content based on latest U.S. WIT+APX solution and system information	*Jayce Yang*	20241115
V0.2aRD	R&D reviewed version of V0.2a based on U.S. department feedback, added and deleted some content	*Xudong Pan*	20241206
V0.2aMA (English)	The marketing team refined and translated version of V0.2aRD, added diagrams, notes and flowcharts to enhance readability.	*Jayce Yang*	20241220

Content

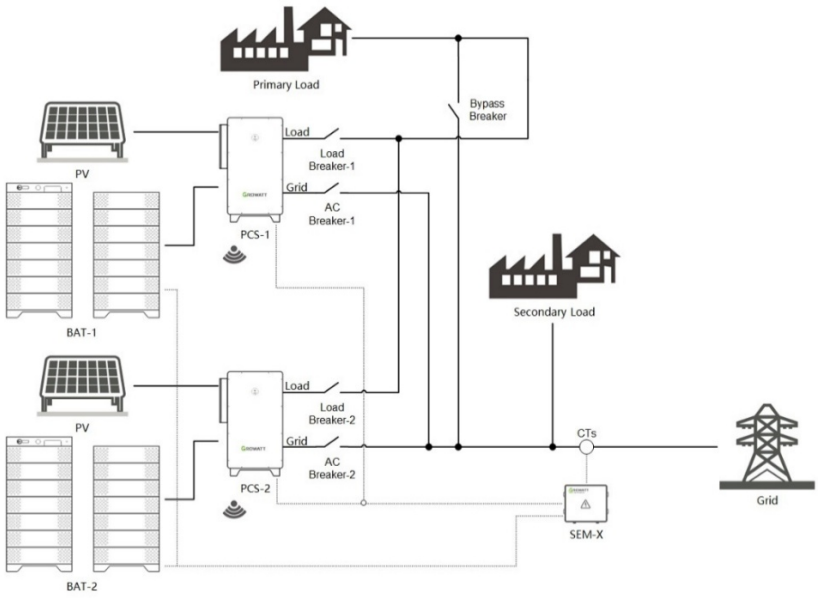
1 Document Description

This document serves as a guidebook for APX+WIT+SEM system commissioning, which is used to introduce the upgrade process and precautions when upgrading firmware, and system debugging guidance, to familiarize relevant personnel with the use of the upgrade process.

1.1 Use

This document must be used after confirming all necessary installation and wiring procedures of WIT+APX system are finished. Some of the content will remind the operator to check such items. When carrying out installation and wiring of WIT+APX system, refer to user manuals and quick guides of related products or any other related documentation.

System Topology (Parallel On/Off-Grid System)



2 System Information Confirmation

2.1 AC Side

Confirm the following information on AC terminal wiring:

Item	Description	Actual Situation
Connection	3P3W / 3P4W	
Breaker information	Overloading capacity of breaker (current/power)	
Ac cable specification	Overloading capacity of AC cables	
Grounding	Check whether grounding is connected	

Confirm the following other information on AC side:

Item	Description	Actual Situation
Export limitation enable	Whether to apply export limitation function	
Export limitation	Export limitation value	
Import limitation	Import limitation value	

2.2 Load Side

Confirm the following information on load terminal wiring:

Item	Description	Actual Situation
Connection	3P3W / 3P4W	
Breaker information	Overloading capacity of breaker (current/power)	

Ac cable specification	Overloading capacity of AC cables	
Grounding	Check whether grounding is connected	

Confirm the following other information on load side (if connected):

Item	Description	Actual Situation
Load type	Inductive/Capacitive load information	
Load power	Average load and peak load	
Generator on the load side	Whether to integrate generator on the load side and if yes, the specification and integration plan	

2.3 Battery System

Confirm the following information:

Item	Description	Actual Situation
Polarity of WIT-to-Battery Cable	Confirm positive cable to positive terminal, negative cable to negative terminal	
Battery Capacity	Battery capacity	
Battery backup SoC	Reserved SoC for backup operation (if needed)	
Max. Charging Power	Maximum allowed charging power (if needed)	
Max. Discharging Power	Maximum allowed charging power (if needed)	
Max. AC Charging Power	Maximum allowed charging power from	

2.4 Communications

Confirm the following information:

Item	Description	Actual Situation
WIT to Battery System Communication	Confirm communication cable connection	
Battery inter-modular communication	1. Confirm communication cable connection between battery modules. 2. The last battery module of APX battery system needs to insert shorting cap and dustproof cap to ensure normal communication.	
Meter to SEM-X communication	Confirm communication cable connection (if SEM-X is used)	
WIT to SEM-X communication	Confirm communication cable connection (if SEM-X is used)	
Battery System to SEM-X communication	Confirm communication cable connection (if SEM-X is used)	
WIT parallel communication cables	Confirm communication cable connection (if needed)	

2.5 Other Wiring and Connection

Confirm the following information:

Item	Description	Actual Situation
WIT to Battery System AC Auxiliary Cable Connection	Check the cable connection between WIT BMS-AC and battery system AC Input.	

WIT to SEM-X 24V Power Supply Connection	Check the 24V power supply cable connection between WIT and SEM-X (if SEM-X is used)	
CT to SEM-X Connection	Check the cable connection between CTs and SEM-X (if SEM-X is used)	
Smart Meter to CT Connection	Check the cable connection between CTs and smart meter (if smart meter is used)	
Ct orientation	Check the CT orientation	
Check Smart Meter AC Auxiliary Power Supply inside SEM-X	Check the AC auxiliary power supply cable connection of smart meter inside SEM-X	

3 Firmware Upgrade

3.1 WIT Upgrade via Shinebus

Preparation: Connect COM1 port PIN3 and PIN4 of WIT inverter with Shinebus software using RS485-to-USB cable.

NOTE

1. Remove COM2 connection and any other PIN connection of COM1 to avoid interference.

2. Refer to the description here for all future operation involving Shinebus.

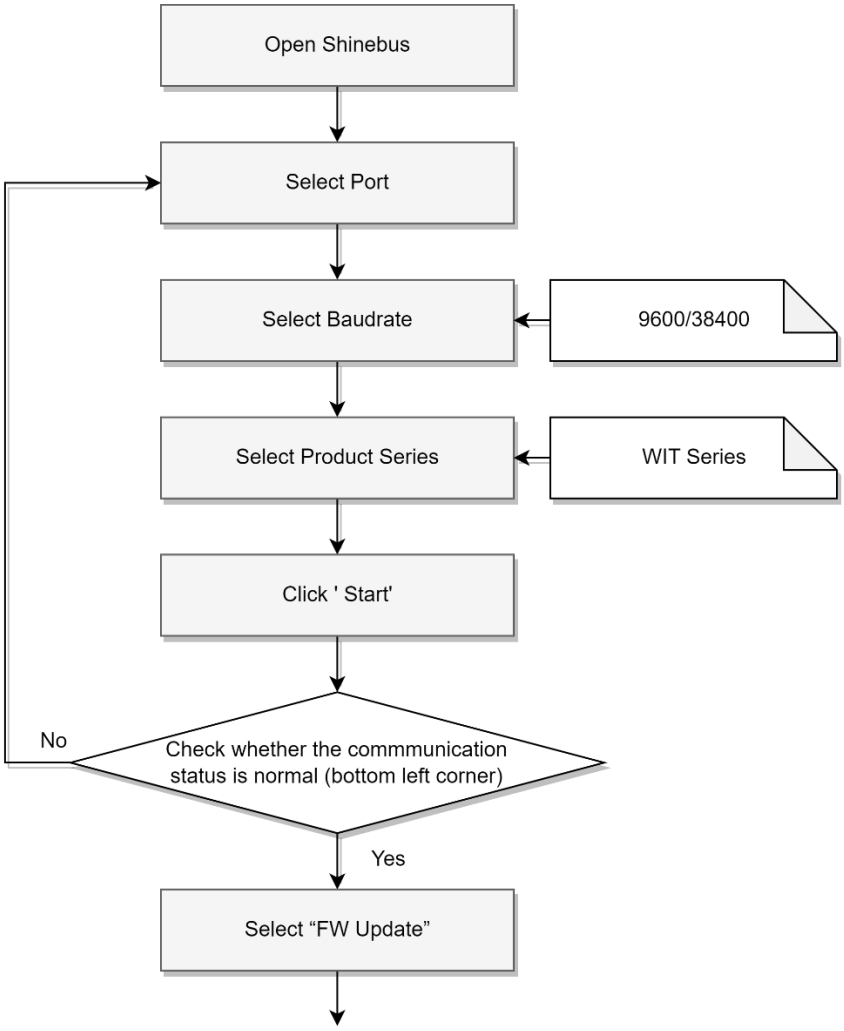
Example of Upgrade Firmware Files

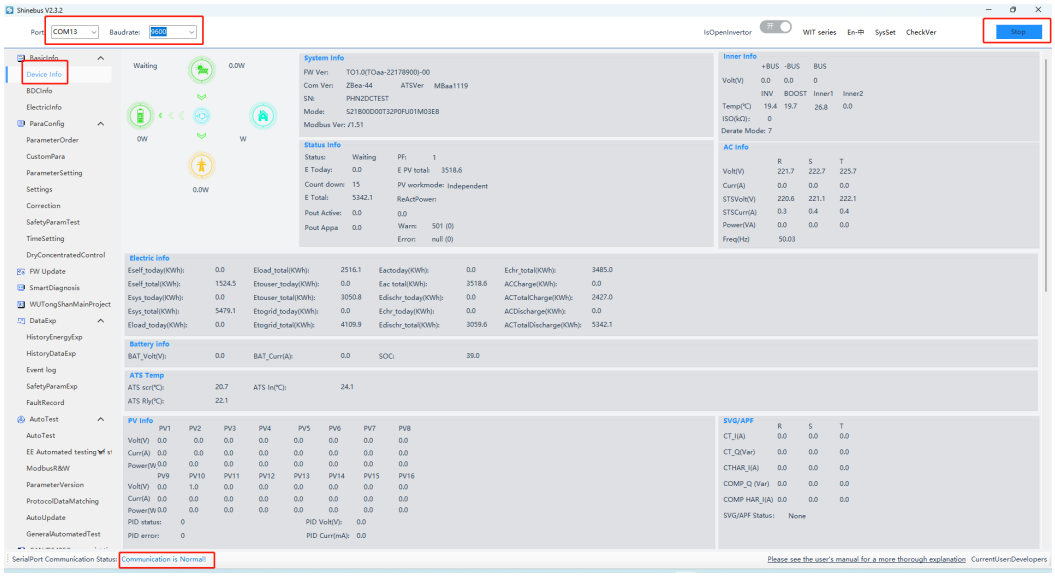
Upgrade Order	Chip	Firmware File Name
1	PCS-M3	ZBea-41.bin
2	ATS-M3	MBaa-xx17.bin
3	PCS-CPLD	TOaa-xxxx89.hex
4	PCS-374S	TOaa-20xxxx.hex
5	PCS-067	TOaa-xx15xx.hex
6	ATS-067	MBaa-09xx.hex

NOTE

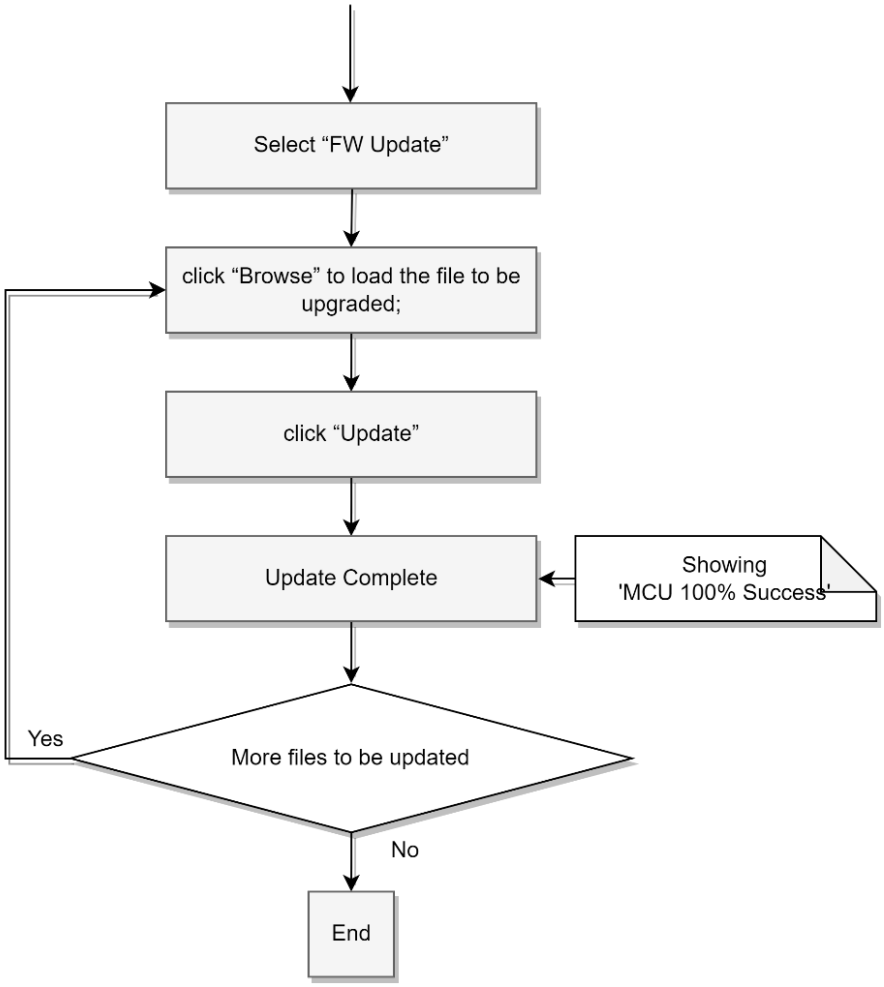
Detailed firmware and upgrade order are subject to the latest R&D updates, this is only an example.

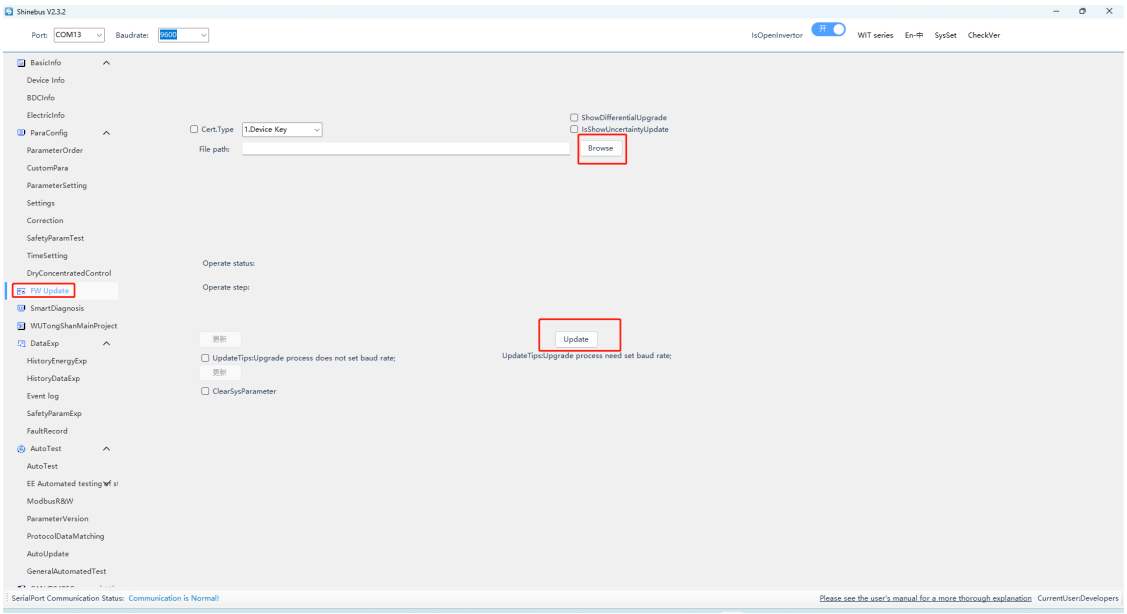
Step 1: Set up communication:





Step 2: Firmware update:





3.2 APX Upgrade

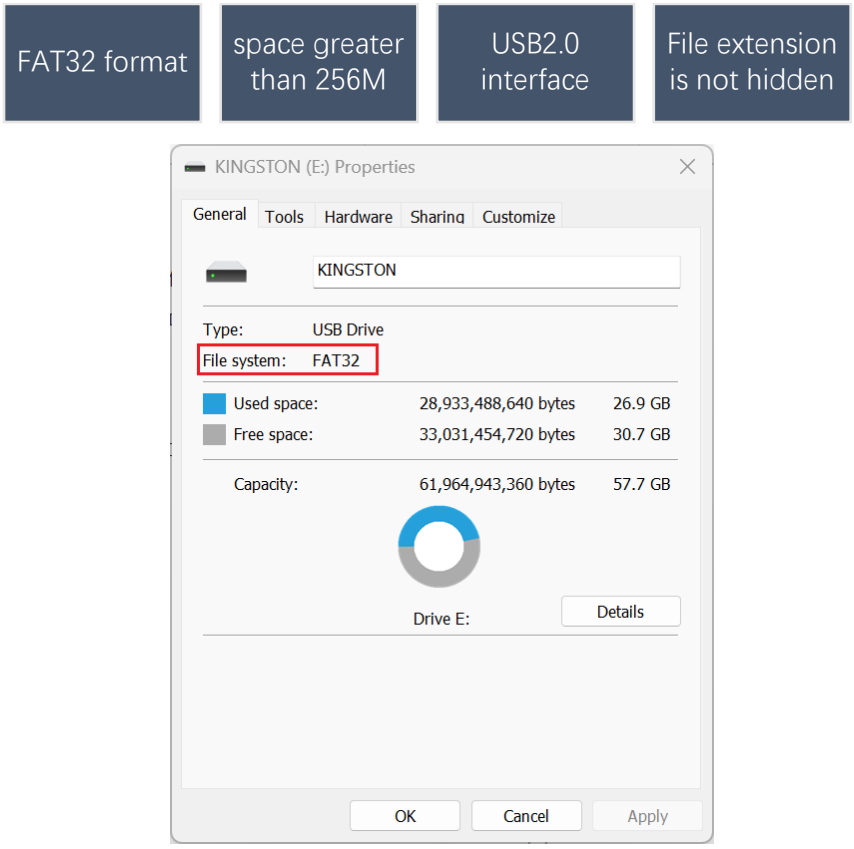
NOTE

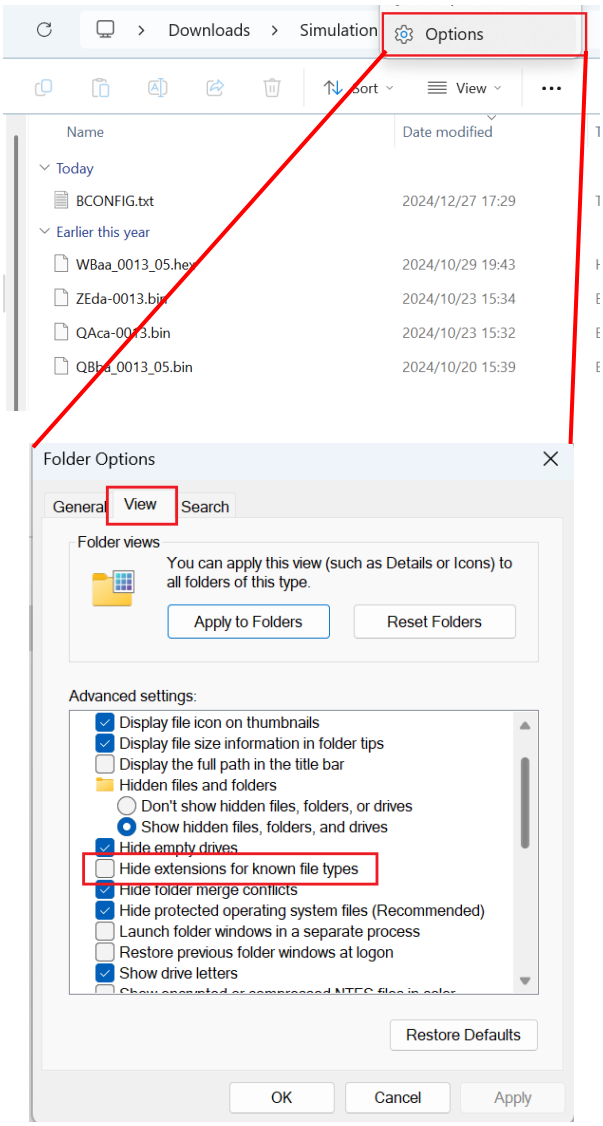
1. The AC auxiliary energy source provided by WIT must be connected for the upgrade to work (the BMS-AC cable).

2. Take care to connect the BMS-AC cable from the CM, as well as the communication cable between the BMs and the short connector and dust cap on the last BM, otherwise the upgrade will fail.

APX batteries can be upgraded using Shinebus software, the steps are like WIT firmware upgrade.

You can also use USB to upgrade the firmware. When using USB to upgrade the firmware, you need to make sure that the USB flash drive matches the following requirements:





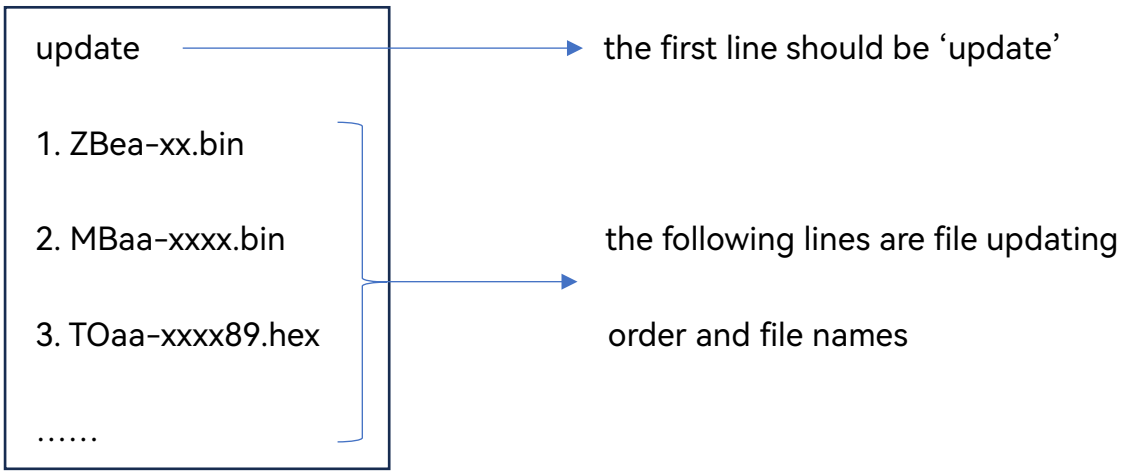
NOTE

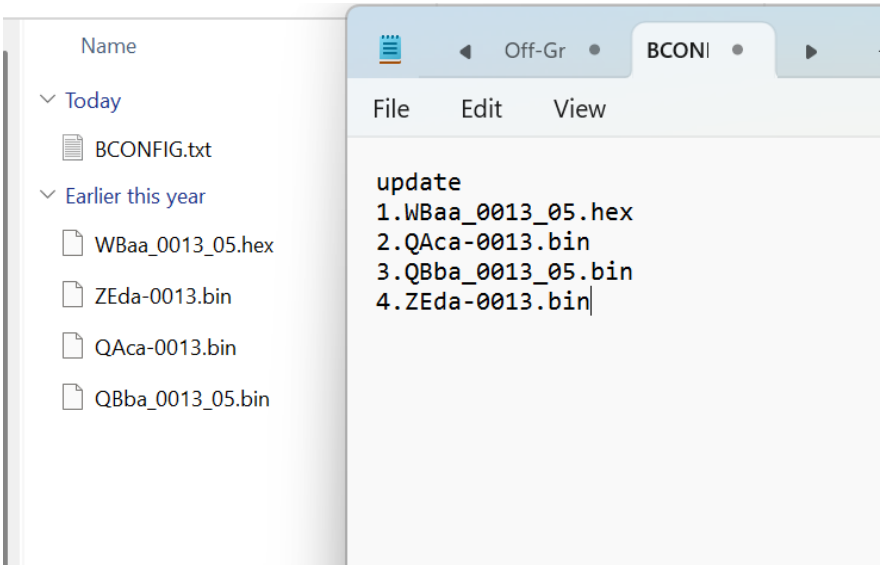
In older operating system, the setting for file extension might be located elsewhere and has different description from what is shown here.

Step 1: file preparation:

When upgrading with a USB flash drive, put all the firmware files to be upgraded into the root directory of the USB flash drive and create a BCONFIG.txt

file in the root directory ('.txt' file extension can't be hidden) and fill in the following text in it:





NOTE

1. The full name of the file must include the file extension and be exactly the same as the actual name of the file.

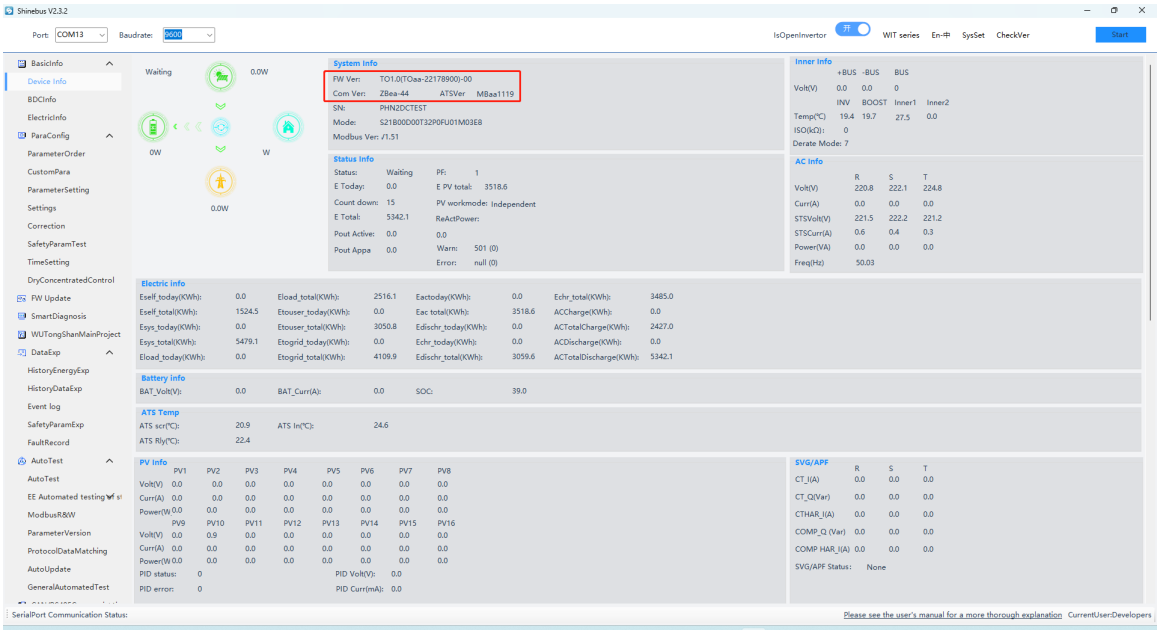
2. The file name should not be too long, if the file name is too long, you can rename the file before and then create this .txt file.

Step 2: upgrade using USB

After preparing the USB stick, insert it into the USB port on the Control Module (CM) of the APX battery, the upgrade can be started, and the LED interface of the CM will show the progress indication of the upgrade.

3.3 Firmware Version Check

Through the ‘Device Info’ or ‘BDC Info’ page on the Shinebus, check whether the WIT or APX firmware version number is updated, and if the version number of a particular firmware does not match the version number of the upgraded firmware, then simply upgrade that firmware individually by following the steps in the previous section.


Shinebus V2.3.2
Port: COM13
Baudrate: 9600
IsOpenInvertor
WIT series
En-中
SysSet
CheckVer
Start
BasicInfo
Device Info
BDCInfo
ElectricInfo
ParaConfig
ParameterOrder
CustomPara
ParameterSetting
Settings
Correction
SafetyParamTest
TimeSetting
DryConcentratedControl
FW Update
SmartDiagnosis
WUTongShanMainProject
DataExp
HistoryEnergyExp
HistoryDataExp
Event log
SafetyParamExp
FaultRecord
AutoTest
AutoTest
EE Automated testing
ModbusR&W
ParameterVersion
ProtocolDataMatching
AutoUpdate
GeneralAutomatedTest
Waiting
0.0W
0W
W
0.0W
System Info
FW Ver: TO1.0(TOaa-22178900)-00
Com Ver: ZBea-44 ATSVer MBaa1119
SN: PHN2DCTEST
Mode: S21B00D00T32P0FU01M03E8
Modbus Ver: /1.51
Status Info
Status: Waiting PF: 1
E Today: 0.0 E PV total: 3518.6
Count down: 15 PV workmode: Independent
E Total: 5342.1 ReActPower:
Pout Active: 0.0 0.0
Pout Appa 0.0 Warn: 501 (0)
Error: null (0)
Inner info
+BUS -BUS BUS
Volt(V) 0.0 0.0 0
INV BOOST Inner1 Inner2
Temp(℃) 19.4 19.7 27.5 0.0
ISO(kΩ): 0
Derate Mode: 7
AC Info
R S T
Volt(V) 220.8 222.1 224.8
Curr(A) 0.0 0.0 0.0
STSVolt(V) 221.5 222.2 221.2
STSCurr(A) 0.6 0.4 0.3
Power(VA) 0.0 0.0 0.0
Freq(Hz) 50.03
Electric info
Eself_today(KWh): 0.0 Eload_total(KWh): 2516.1 Eactoday(KWh): 0.0 Echr_total(KWh): 3485.0
Eself_total(KWh): 1524.5 Etouser_today(KWh): 0.0 Eac total(KWh): 3518.6 ACCharge(KWh): 0.0
Esys_today(KWh): 0.0 Etouser_total(KWh): 3050.8 Edischr_today(KWh): 0.0 ACTotalCharge(KWh): 2427.0
Esys_total(KWh): 5479.1 Etogrid_today(KWh): 0.0 Echr_today(KWh): 0.0 ACDischarge(KWh): 0.0
Eload_today(KWh): 0.0 Etogrid_total(KWh): 4109.9 Edischr_total(KWh): 3059.6 ACTotalDischarge(KWh): 5342.1
Battery info
BAT_Volt(V): 0.0 BAT_Curr(A): 0.0 SOC: 39.0
ATS Temp
ATS scr(℃): 20.9 ATS In(℃): 24.6
ATS Rly(℃): 22.4
PV Info
PV1 PV2 PV3 PV4 PV5 PV6 PV7 PV8
Volt(V) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Curr(A) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Power(W) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
PV9 PV10 PV11 PV12 PV13 PV14 PV15 PV16
Volt(V) 0.0 0.9 0.0 0.0 0.0 0.0 0.0 0.0
Curr(A) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Power(W) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
PID status: 0 PID Volt(V): 0.0
PID error: 0 PID Curr(mA): 0.0
SVG/APF
R S T
CT_I(A) 0.0 0.0 0.0
CT_Q(Var) 0.0 0.0 0.0
CTHAR_I(A) 0.0 0.0 0.0
COMP_Q (Var) 0.0 0.0 0.0
COMP HAR_I(A) 0.0 0.0 0.0
SVG/APF Status: None
SerialPort Communication Status:
Please see the user's manual for a more thorough explanation
CurrentUser:Developers

4 System Parameters

4.1 Confirm WIT Parameters

Confirm the following parameters of the WIT inverter in the 'Parameters' page of the Shinebus. Some of the parameters (marked with boxes) should be left at their default values and do not need to be changed within WIT+APX solution; some should be modified according to the site conditions.

NOTE

- **After modifying a parameter, read the parameter to make sure the setting is successful.**

Register Address	Register Name	Default Value	Details
30	COM Address	1	This setting is for use in parallel systems, after setting to a value other than 1, the inverter will lose communication with the Shinebus, in which case the communication address of the Shinebus software needs to be set to the new address of the inverter.
902	Mode Switching Type	2	2:Fast switching ***Protected:*** *Set 1 into register 879 before so this register can be changed.*
903	Inverter Type	0	0:Hybrid Inverter ***Protected:*** *Set 1 into register 879 before so this register can be changed.*

904	Connected Battery Type	1	1:DCDC For APX battery system this should be 1. ***Protected:*** *Set 1 into register 879 before so this register can be changed.*
1044	Operation Mode	0	0:Load First 1:Battery First 2:Battery First
949	AC Charge Enable	1	0: Disable 1: Enable
905	AC Charge Acceptable Percentage (%)	100	Value: 0~100
3	Active Power(%)	100	If you need to save the parameter, you need to set 1 to register 2 and then set the parameter; otherwise, the setting will take effect only this time, and the default parameter will be restored after the system is switched off and powered down.;
951	Charge Stop SOC(%)	100	
952	Discharge Stop SOC(%)	10	
998	Off-Grid Stop SOC(%)	10	
906	Charge Stop Voltage (V)	800	
907	Discharge Stop Voltage (V)	650	
908	On-Grid Connection Type		0:3P3W 1:3P4W

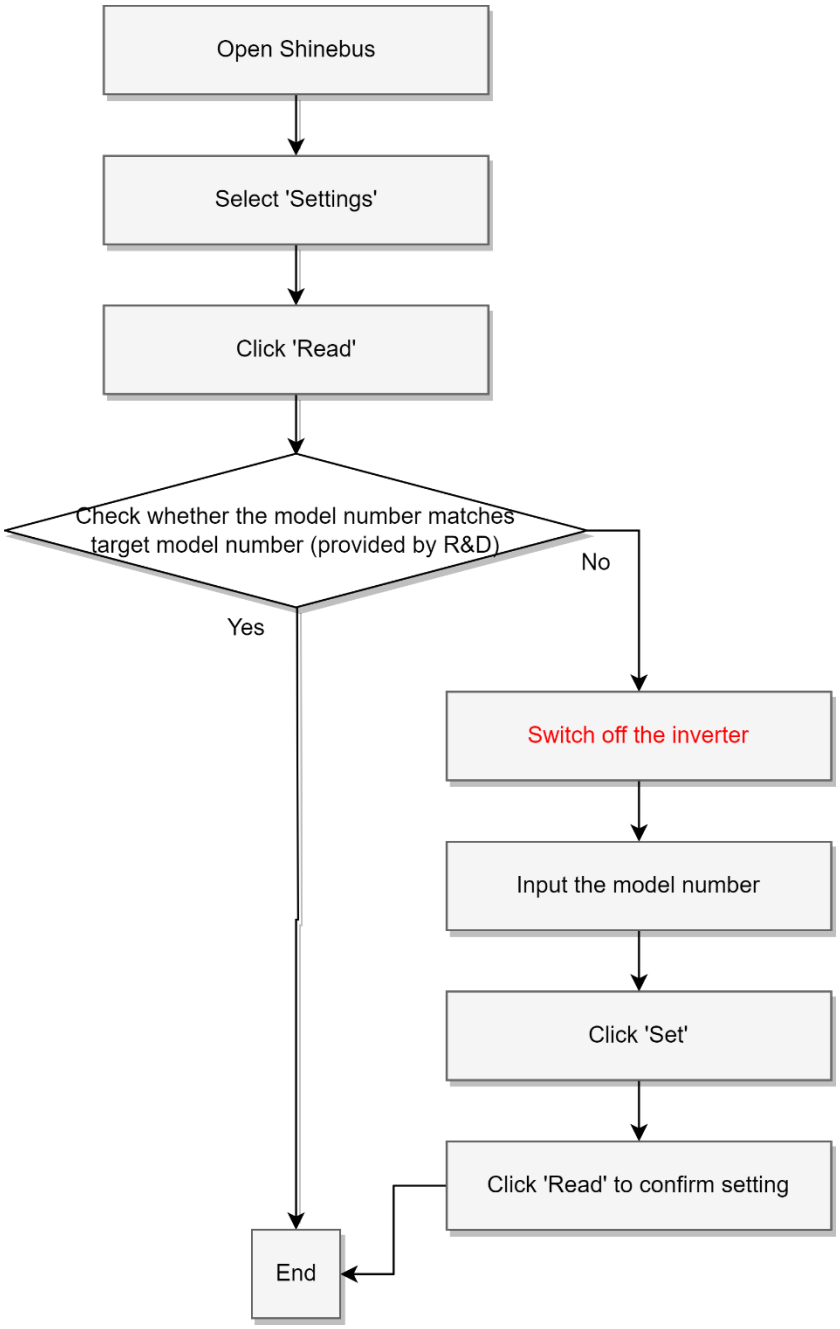
			Configured according to actual site conditions: If the system is to be operated only in grid-connected condition, it is recommended that the grid connection be set to ‘3P3W’; If off-grid operation is involved, ‘3P4W’ should be set. 908 and 909 should be set as the same. ***Protected:*** *Set 1 into register 879 before so this register can be changed.*
909	Off-Grid Connection Type		0: 3P3W 1: 3P4W Configured according to actual site conditions: If off-grid operation is involved, ‘3P4W’ should be set. 908 and 909 should be set as the same. ***Protected:*** *Set 1 into register 879 before so this register can be changed.*
912	On/Off-Grid Switching	0	0: Automatically 1: Manually
913	On/Off-Grid Mode	0	0: On-Grid 1: Off-Grid
950	Off-Grid Enable	1	0: Disable 1: Enable
936	Off-Grid Voltage		(Phase Voltage) 0:220V 1:230V 2:240V 3:277V 4:127V 5:120V 6:117V 7:254V

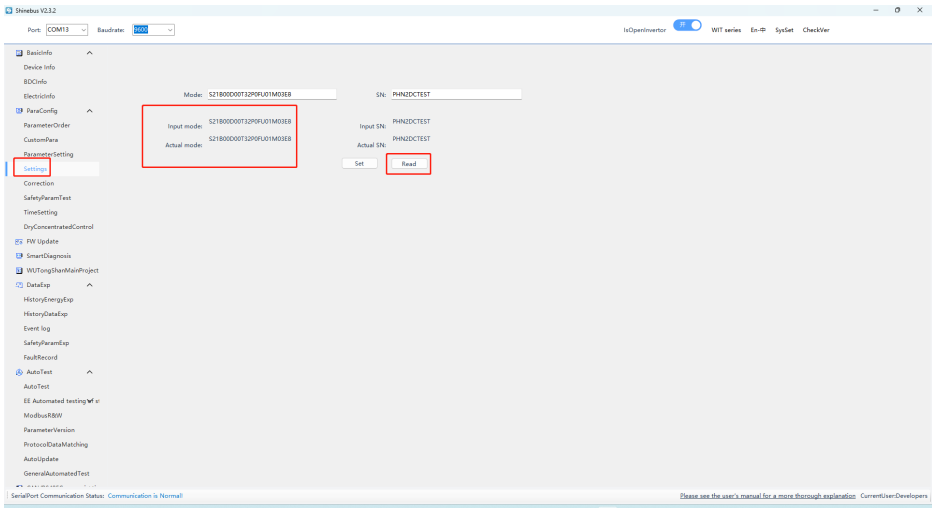
			In most cases, this value is the same as the grid-connected voltage; unless the system is off-grid only and not grid-connected, then this needs to be set according to the load characteristics. ***Precondition:*** *power off the inverter to change this register.*
937	Off-Grid Frequency		0:50Hz 1:60Hz ***Precondition:*** *power off the inverter to change this register.*
972	BMS Enable	1	0: Disable 1: Enable Set to '0' if there's no battery system connected or the connected battery system has no BMS.
974	Battery Charging Power Limit (kW)	0	0: Unlimited
975	Battery Discharging Power Limit (kW)	0	0: Unlimited
3036	Percentage Of Battery Discharge Power (%)	106	
3047	Percentage Of Battery Charge Power (%))	100	
122	Export Limitation	0	0: Disable 1: Enable

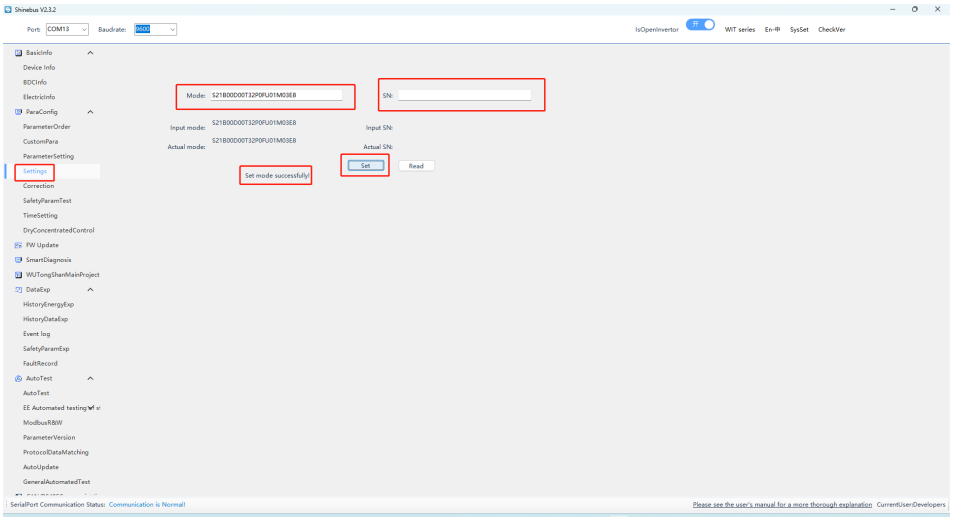
			Should be disabled in paralleled system.
232	N-Wire Connection		0: N wire connected 1: No N wire connection
399	PV Input Mode	0	0: Independent MPPT Mode
973	Parallel System	1	0: Disable 1: Enable *'**Precondition:** power off the inverter to change this register.*
1	Soft Start Enable		Vary based on grid code
910	Maximum Battery Charging Current (A)	140	
911	Maximum Battery Discharging Current (A)	146	

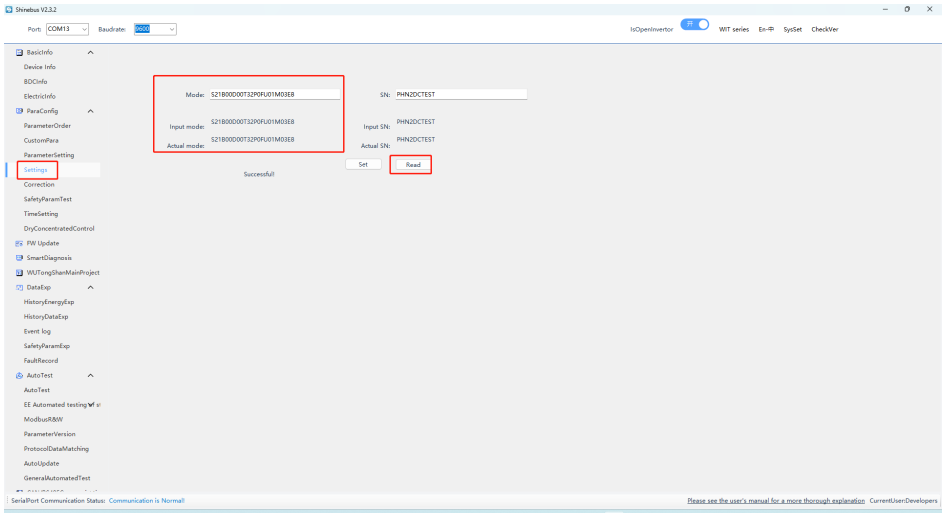
4.2 Model Number Checking

Follow these steps to check the model number.


Open Shinebus
Select 'Settings'
Click 'Read'
Check whether the model number matches target model number (provided by R&D)
No
Yes
Switch off the inverter
Input the model number
Click 'Set'
Click 'Read' to confirm setting
End


Shinebus V2.3.2
Port: COM13
Baudrate: 9600
IsOpenInvertor
WIT series
En-中
SysSet
CheckVer
BasicInfo
Device Info
BDCInfo
ElectricInfo
ParaConfig
ParameterOrder
CustomPara
ParameterSetting
Settings
Correction
SafetyParamTest
TimeSetting
DryConcentratedControl
FW Update
SmartDiagnosis
WUTongShanMainProject
DataExp
HistoryEnergyExp
HistoryDataExp
Event log
SafetyParamExp
FaultRecord
AutoTest
AutoTest
EE Automated testing
ModbusRtuRW
ParameterVersion
ProtocolDataMatching
AutoUpdate
GeneralAutomatedTest
Mode: S21B00D00T32P0FU01M03EB
SN: PHN2DCTEST
Input mode: S21B00D00T32P0FU01M03EB
Actual mode: S21B00D00T32P0FU01M03EB
Input SN: PHN2DCTEST
Actual SN: PHN2DCTEST
Set
Read
SerialPort Communication Status: Communication is Normal!
Please see the user's manual for a more thorough explanation
CurrentUser:Developers

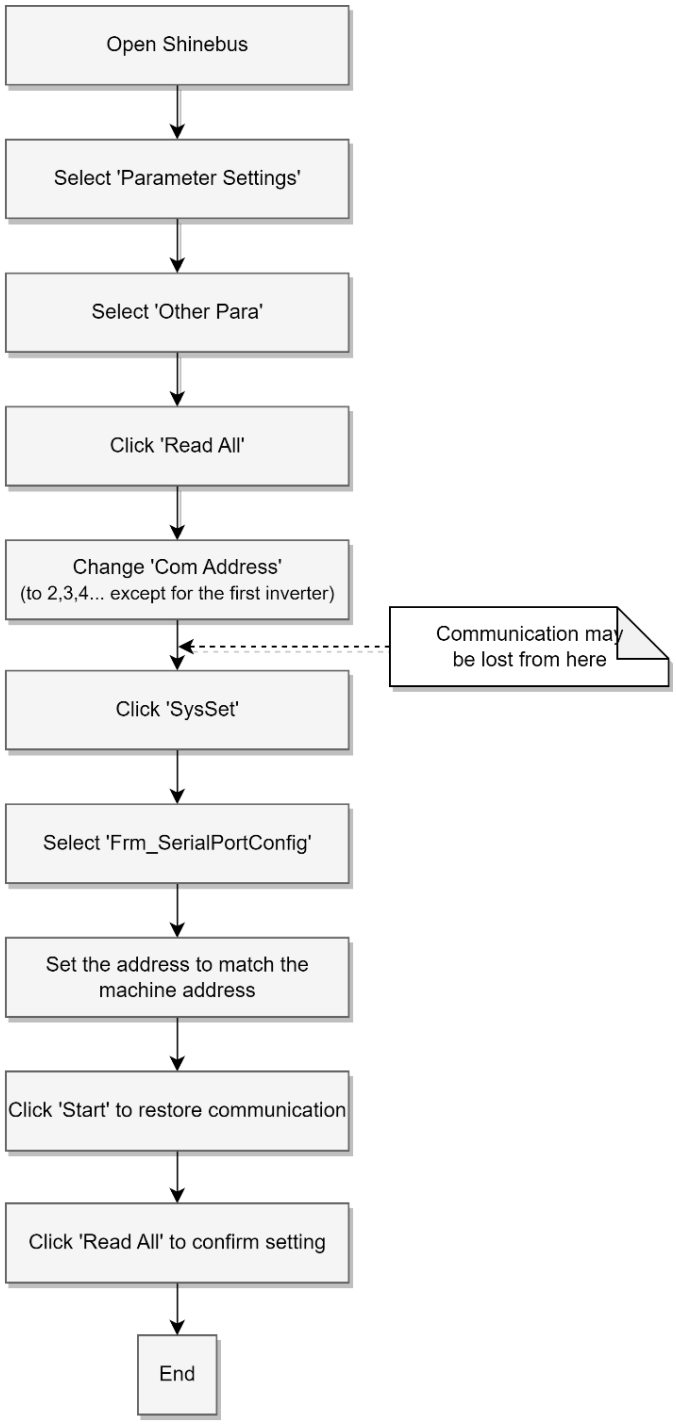

Shinebus V2.3.2
Port: COM13
Baudrate: 9600
IsOpenInvertor
WIT series
En-中
SysSet
CheckVer
Mode: S21B00D00T32P0FU01M03EB
SN:
Input mode: S21B00D00T32P0FU01M03EB
Actual mode: S21B00D00T32P0FU01M03EB
Input SN:
Actual SN:
Set mode successfully!
Set
Read
SerialPort Communication Status: Communication is Normal!
Please see the user's manual for a more thorough explanation
CurrentUser:Developers

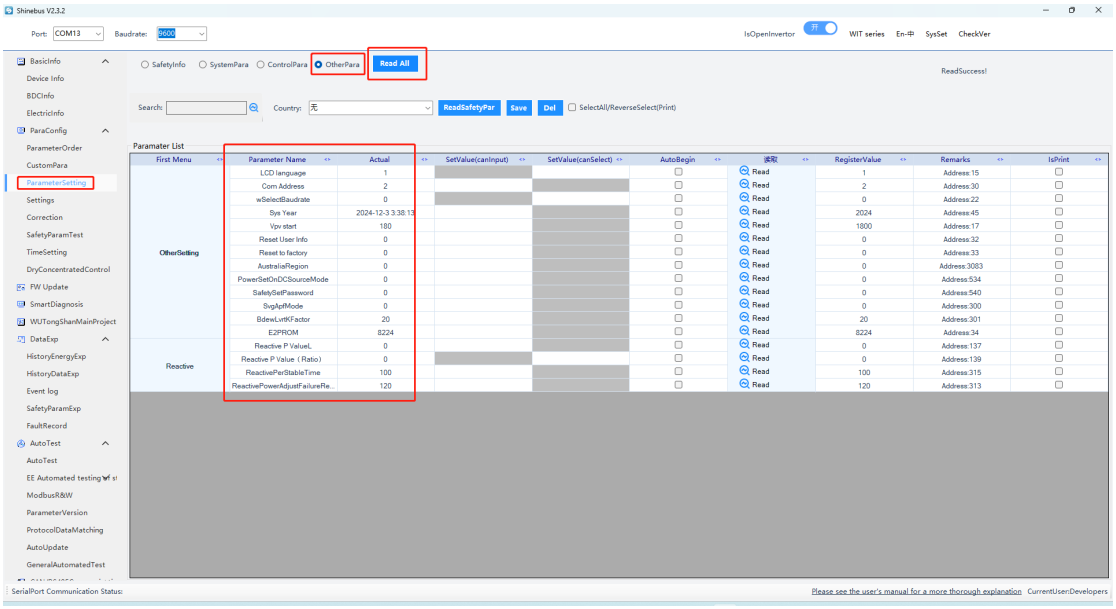

Shinebus V2.3.2
Port: COM13
Baudrate: 9600
IsOpenInvertor
WIT series
En-中
SysSet
CheckVer
Mode: S21B00D00T32P0FU01M03EB
SN: PHN2DCTEST
Input mode: S21B00D00T32P0FU01M03EB
Actual mode: S21B00D00T32P0FU01M03EB
Input SN: PHN2DCTEST
Actual SN: PHN2DCTEST
Successfull
Set
Read
SerialPort Communication Status: Communication is Normal!
Please see the user's manual for a more thorough explanation
CurrentUser:Developers

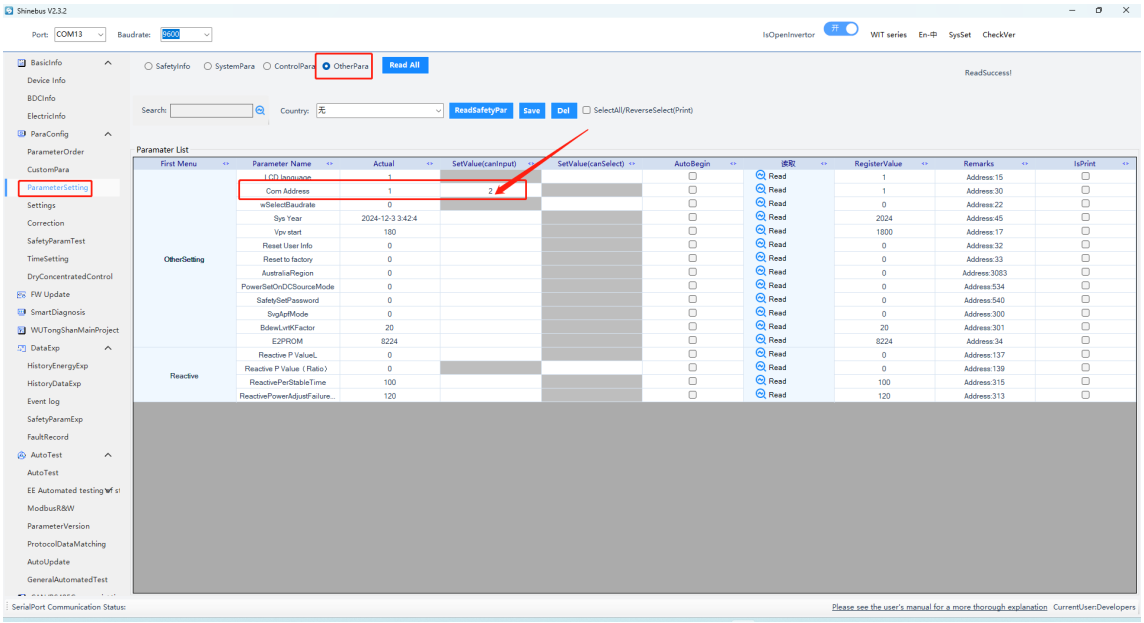
4.3 Communication Address Setting

NOTE

- **This setting is only used for parallel operation, skip this part if the system is single-unit operation.**

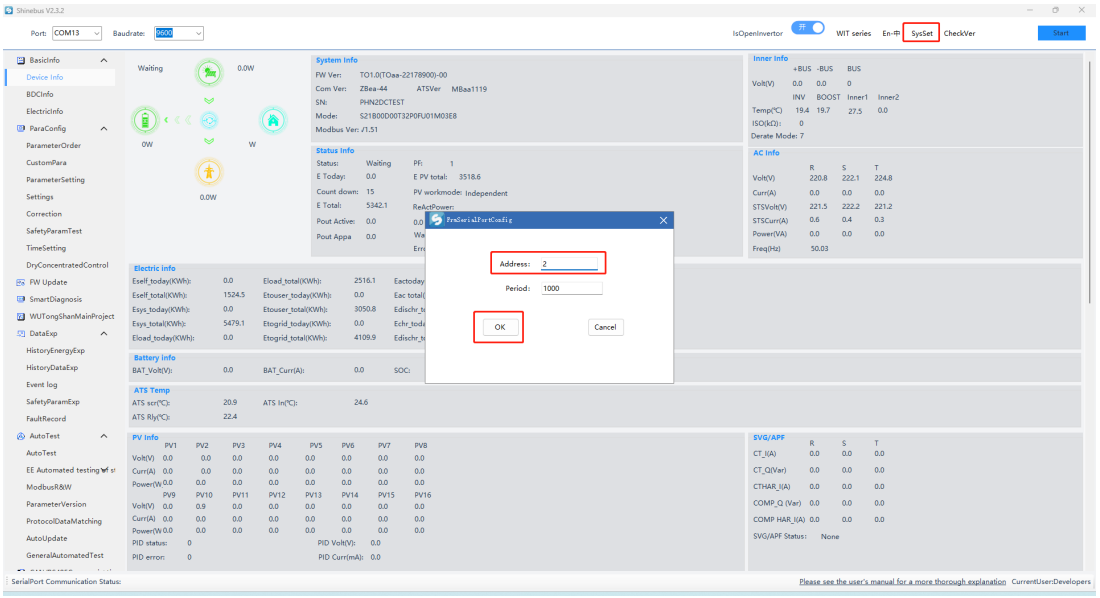


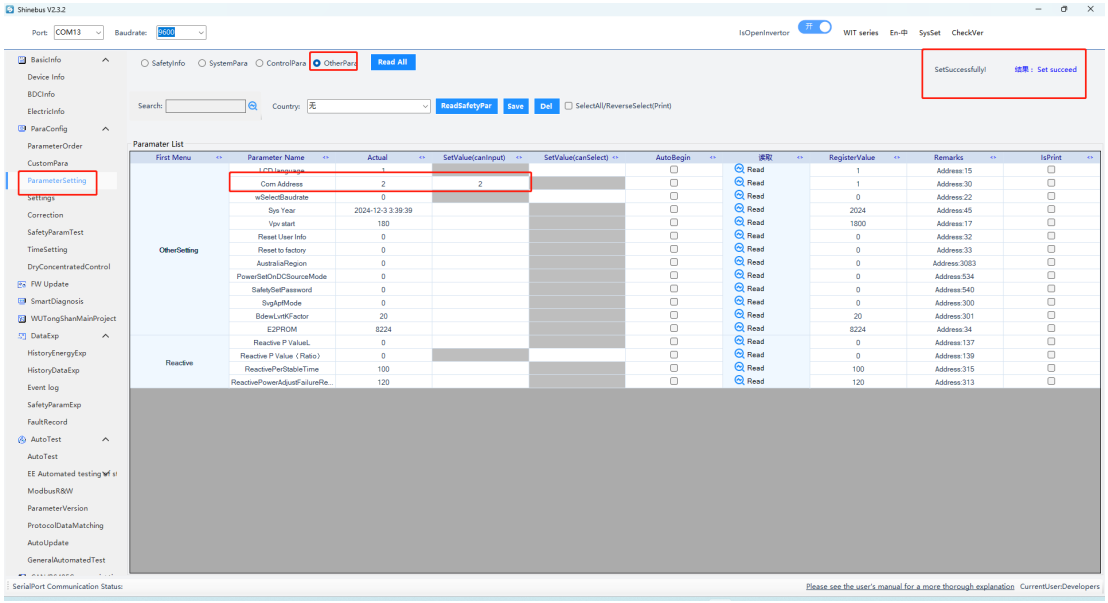




NOTE

- **After setting COM Address to a value other than 1, the inverter will lose communication with the Shinebus, in which case the communication address of the Shinebus software needs to be set to the new address of the inverter.**





4.4 Parallel System Communication Restore

NOTE

- **This is only necessary in parallel operation, skip this part if the system is single-unit operation.**

After using Shinebus to set the communication address of WIT, restore the parallel communication line (COM2) between WIT devices; remove the USB-485 connection line of COM1 port;

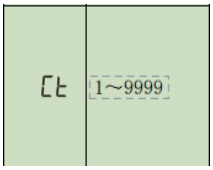
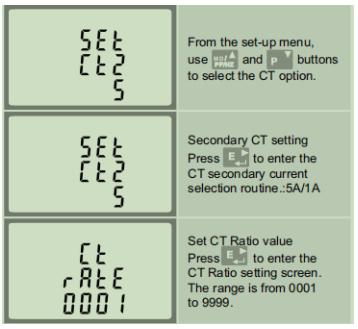
Restore WIT communication connection with SEM-X.

5 Smart Meter Configuration

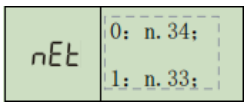
NOTE

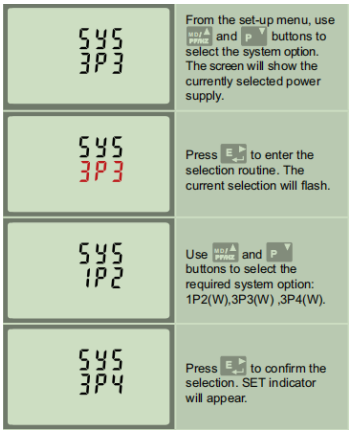
- **This step is only necessary if our smart meter is applied, which usually appears in single-unit operation.**

5.1 CT Ratio

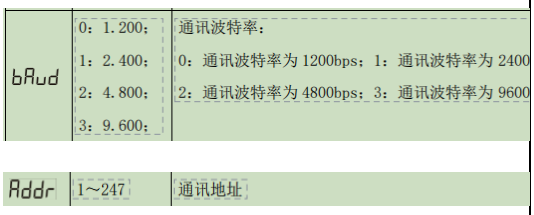
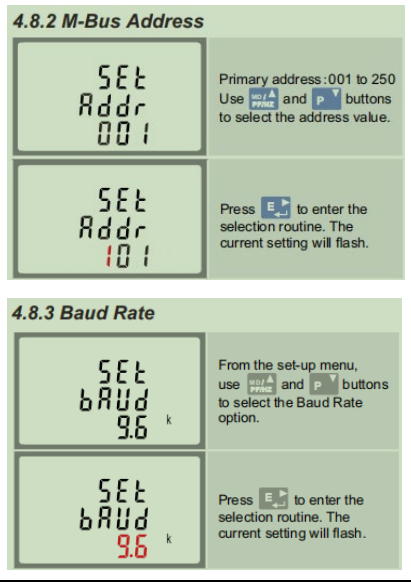
Meter	Setting Item	Illustration
CHINT	Set value equal to CT ratio. For example: 250/5A CT → Set as 50. For more detailed setting please refer to meter quick guide.	
EASTRON		

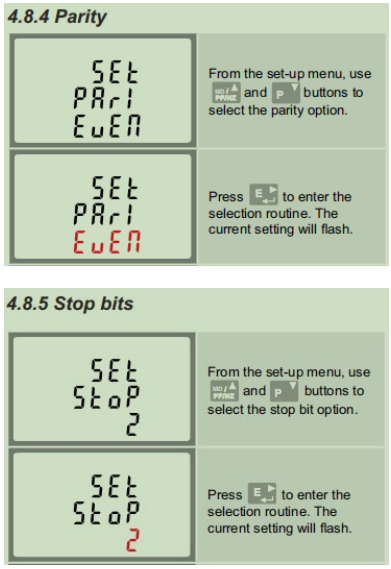
5.2 Connection Type

Meter	Setting Item	Illustration
CHINT	0:n.34 → 3P3W 1:n.33 → 3P3W Default(0:n.34) 3P4W, modify connection type according to real situation.	

EASTRON	Default 3P4W, modify connection type according to real situation.	

5.3 Extras: Communication Address, Speed and Authentication

Meter	Address	Speed (bps)	Data Bit / Stop Bit/ Authentication	Illustration
CHINT	4	9600	8/1/none	
EASTRON	2	9600	8/1/none	

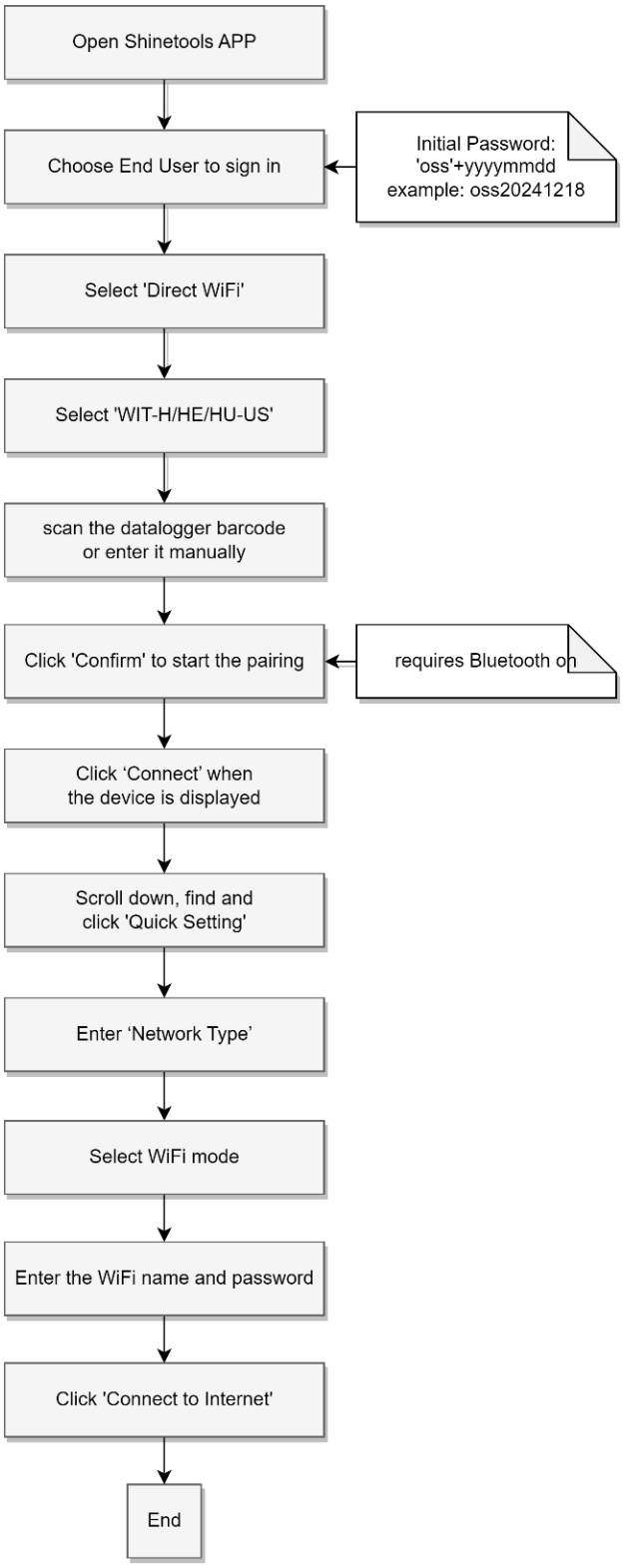
				

5.4 Check After Installation

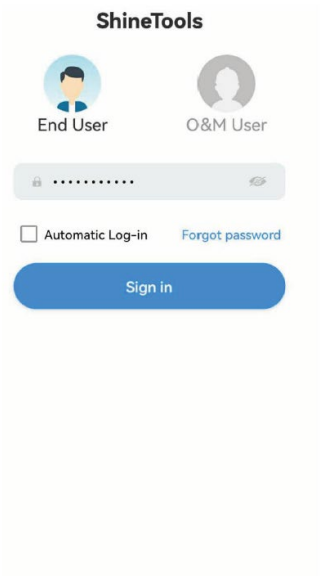
Item	Description
Meter Power Orientation	Positive power value means importing from the grid, negative power value means exporting. Check if the meter matches the description.
Three Phase (RST) Power Consistency	Check if the power of the three phases are all positive or negative.
Current Data Accuracy	Use clamp meter to check if the current data shown on the meter matches the current measured.

6 Monitoring Configuration (Single System)

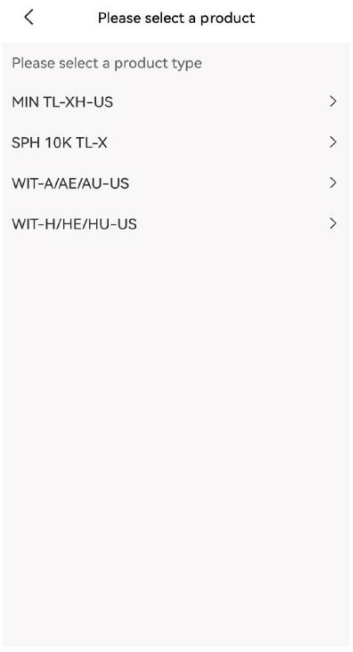
6.1 Connecting the device to the server using Shinetools



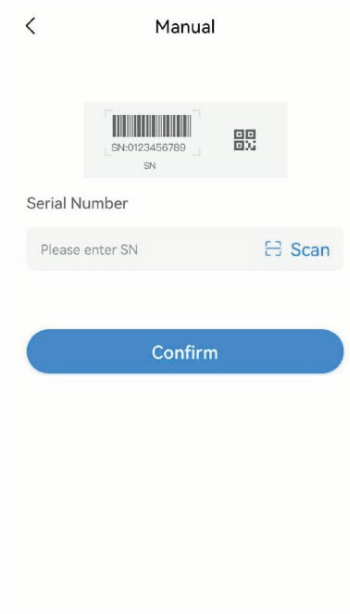
Download Shinetools APP, use the end-user or O&M user account to log in. The initial password of the end user is oss+'yyyymmdd', for example oss20241218. After entering, select 'Direct WiFi' mode.

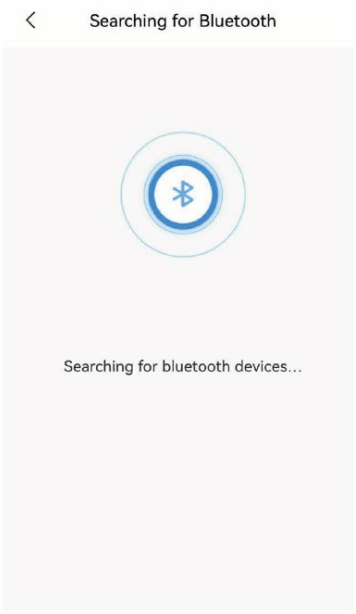


Select 'WIT-H/HE/HU-US' and then scan the collector barcode on the machine or enter it manually.

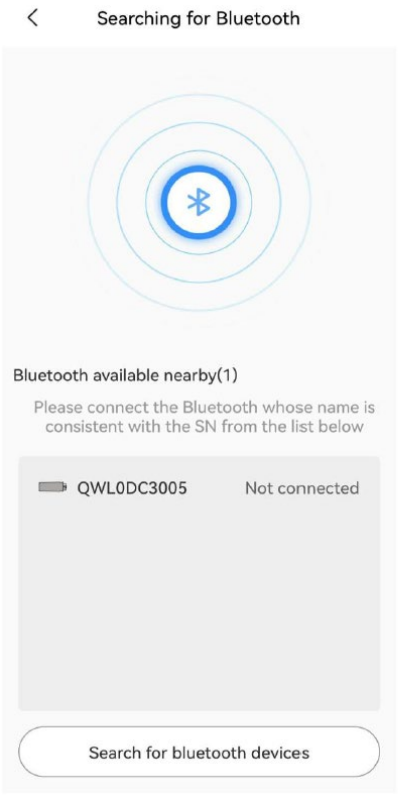


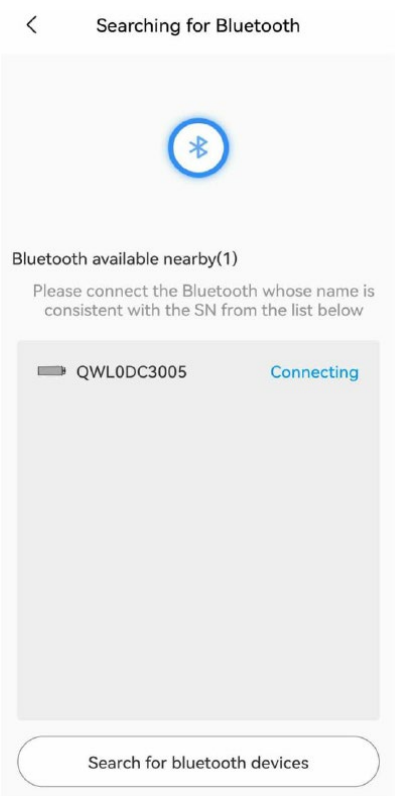
Click ‘Confirm’ and Bluetooth will start pairing with the device.





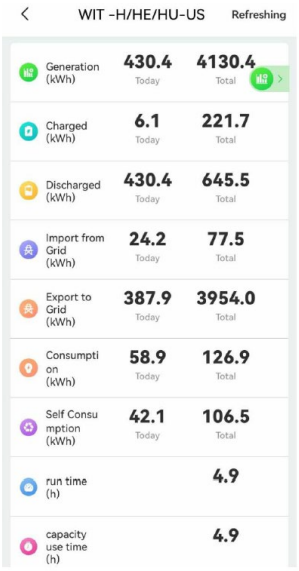
Click ‘Connect’ when the device is displayed.



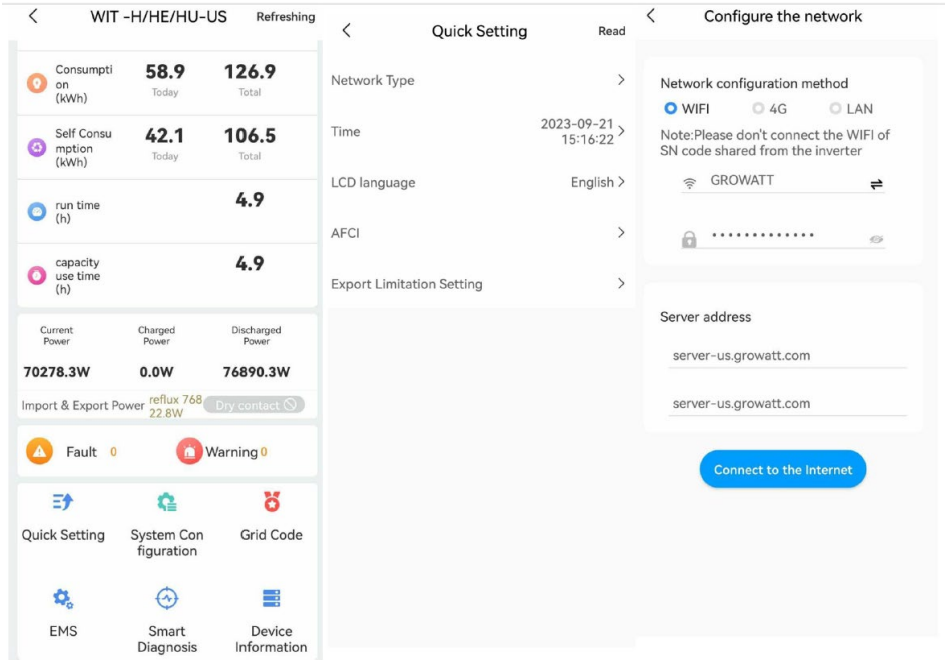


After successful connection, you will enter the device information interface

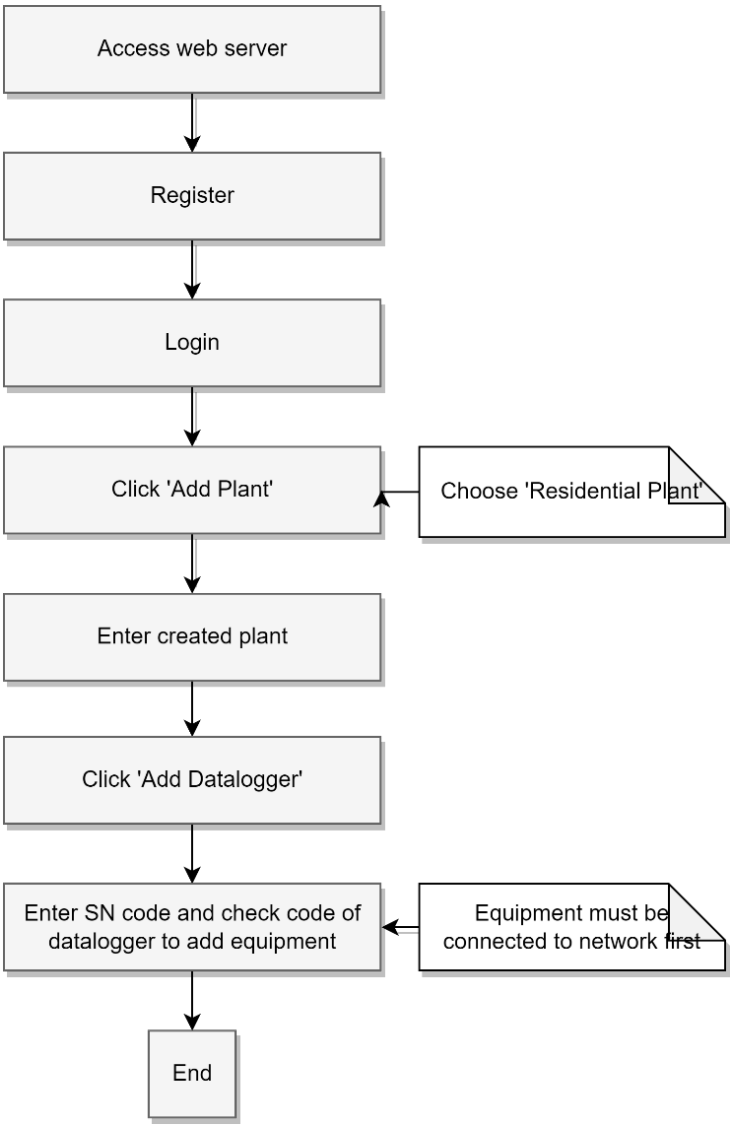
(as shown below).



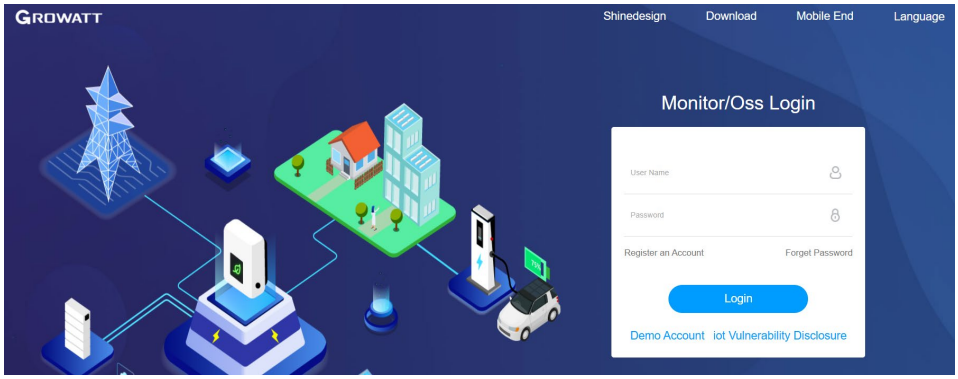
Scroll down, find and click 'Quick Setting' below, enter ‘Network Type’, select WiFi mode, enter the WiFi name and password to connect your device to the WiFi network.

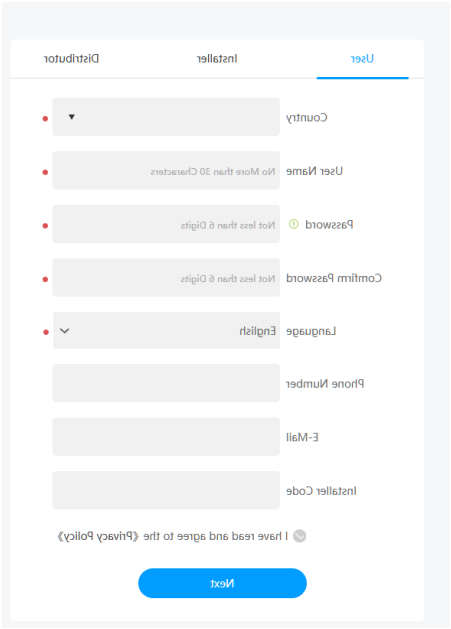


6.2 Setting Up Monitoring Via Web Server

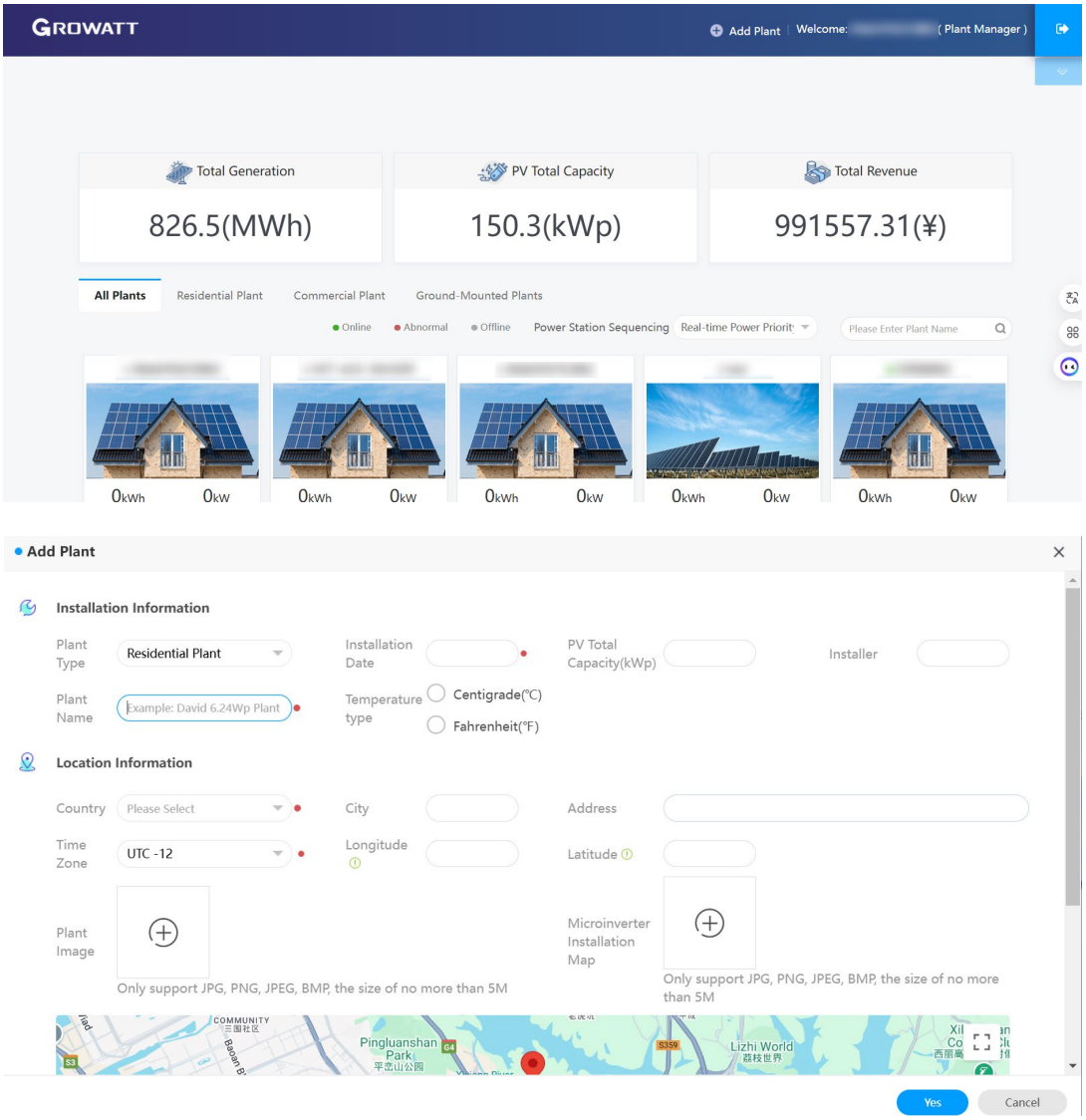


Go to the Server platform at https://server-us.growatt.com and register for an account.

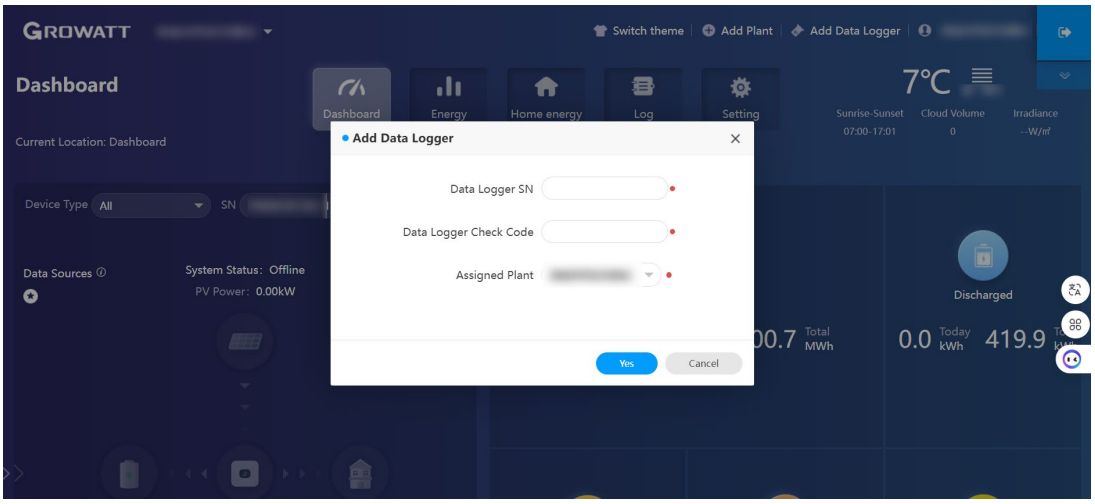




Enter your account password to log in to the platform, select ‘Add Plant’ in the upper right corner, and note that you need to choose ‘Residential Plant’ when creating the plant, as major monitoring features are only available in Residential Plant right now.

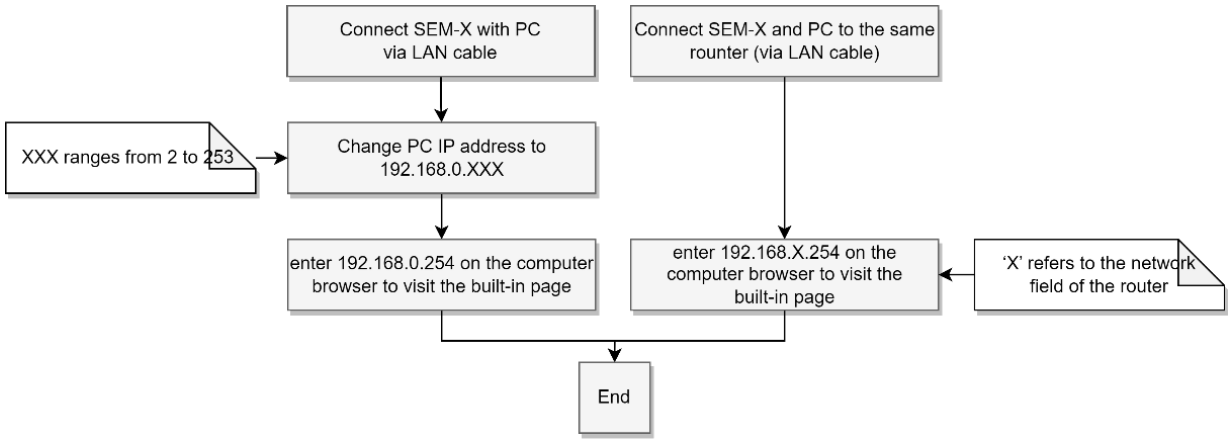


After creating the plant, enter the main page of the plant and select 'Add Datalogger' in the upper right corner. Enter the SN and Check Code of the datalogger to add the equipment which has been connected to the network into the power plant.


GROWATT
Switch theme
Add Plant
Add Data Logger
Dashboard
Dashboard
Energy
Home energy
Log
Setting
7°C
Sunrise-Sunset
07:00-17:01
Cloud Volume
0
Irradiance
--W/㎡
Current Location: Dashboard
Device Type
All
SN
Data Sources
System Status: Offline
PV Power: 0.00kW
Add Data Logger
Data Logger SN
Data Logger Check Code
Assigned Plant
Yes
Cancel
Discharged
Total
MWh
0.0
Today
kWh
419.9

7 Monitoring Configuration (Parallel System)

7.1 Accessing SEM-X Built-in Page



Method 1: Connect PC and SEM-X directly through network cable. Change the computer IP to 192.168.0.XXX (XXX ranges from 2 to 253). The default IP of SEM-X is:192.168.0.254, enter 192.168.0.254 on the computer browser to visit the built-in page of SEM-X. The computer IP setting can refer to the figure below:

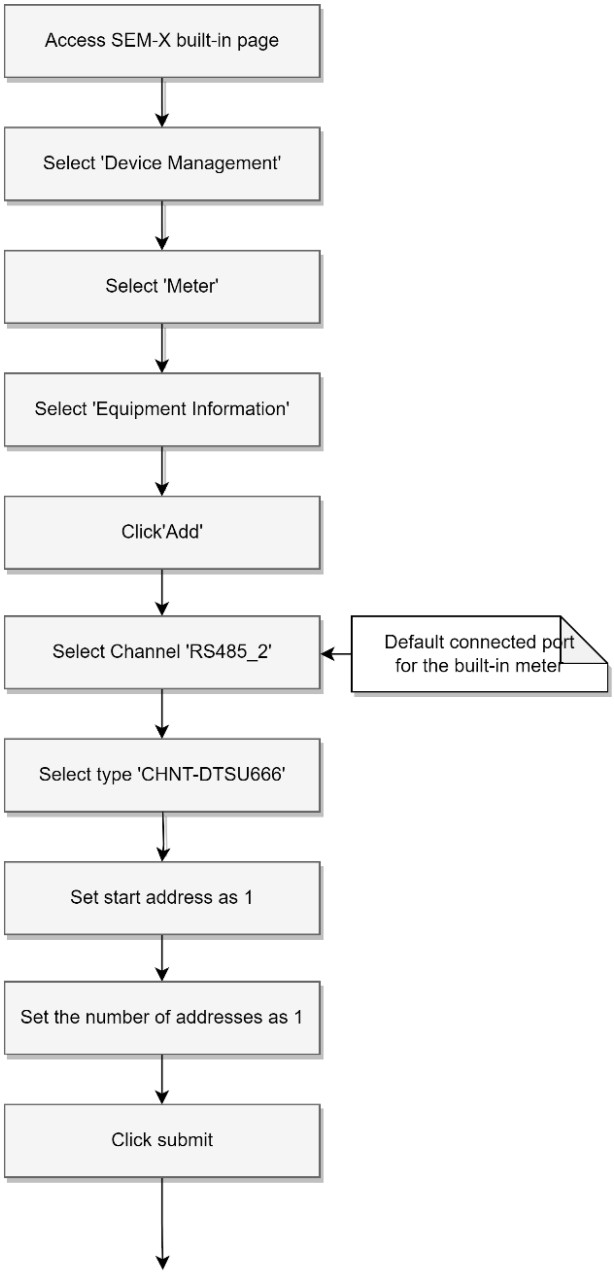
Method 2 (Recommended): Use two network cables to connect to the same router from the network port of SEM-X and the network port of your computer, and then use your computer browser to access the web page 192.168.X.254,

where‘X’refers to the network field of the router.

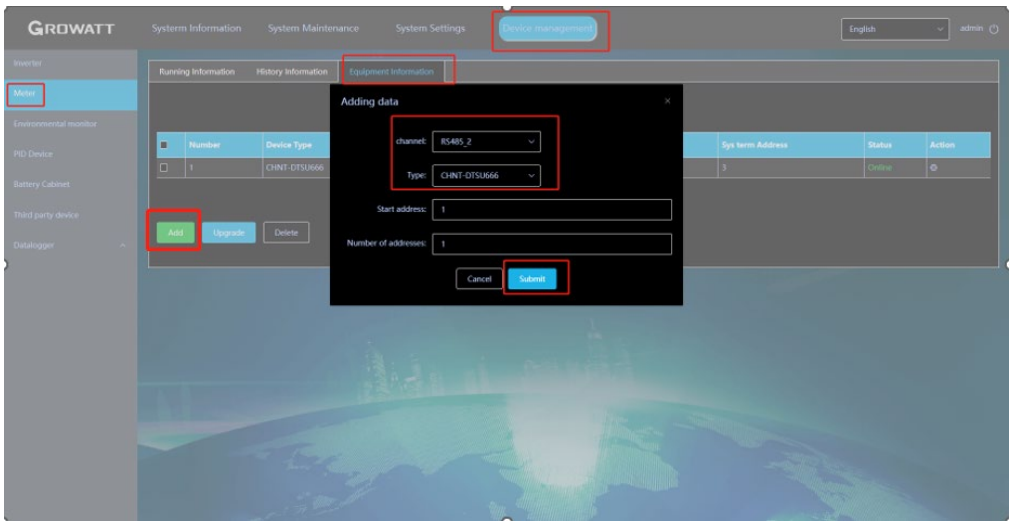
NOTE

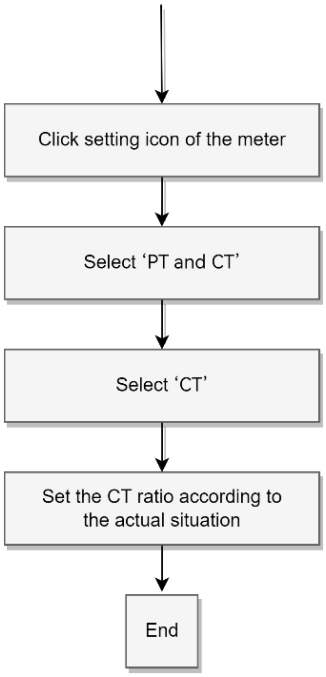
- When connecting to the SEM-X, do not use Shinebus at the same time, (and vice versa), otherwise there will be communication interference.

7.2 Adding Meter

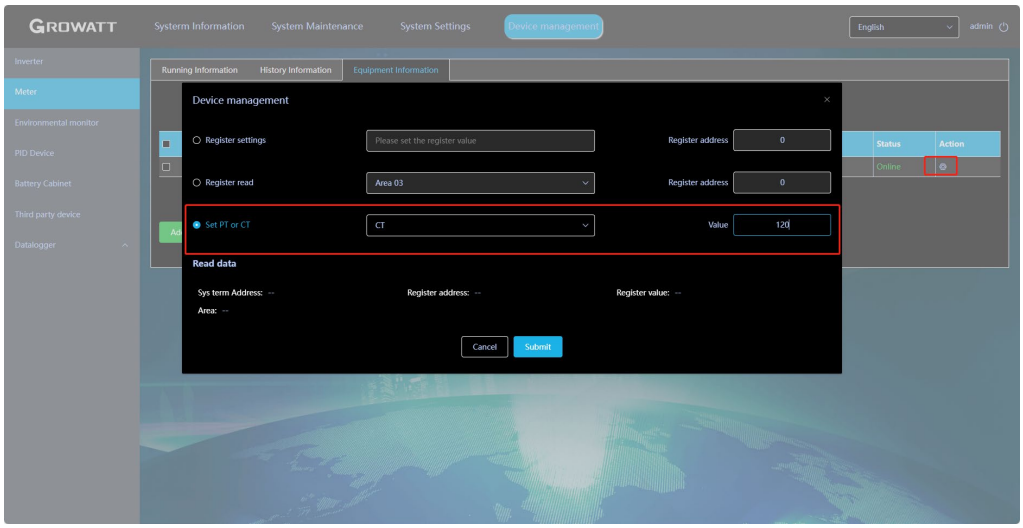


Connect to RS485 port 2, select ‘Meter’, click ‘Add’, in the pop-up window as shown in the figure, select RS485_2, select type ‘CHNT-DTSU666’, set start address as 1, set the number of addresses as 1, (the address cannot be repeated in the same channel, if there is already a device with address 1, then the number of addresses should be set as 2, and so on and so forth) click submit to add successfully.

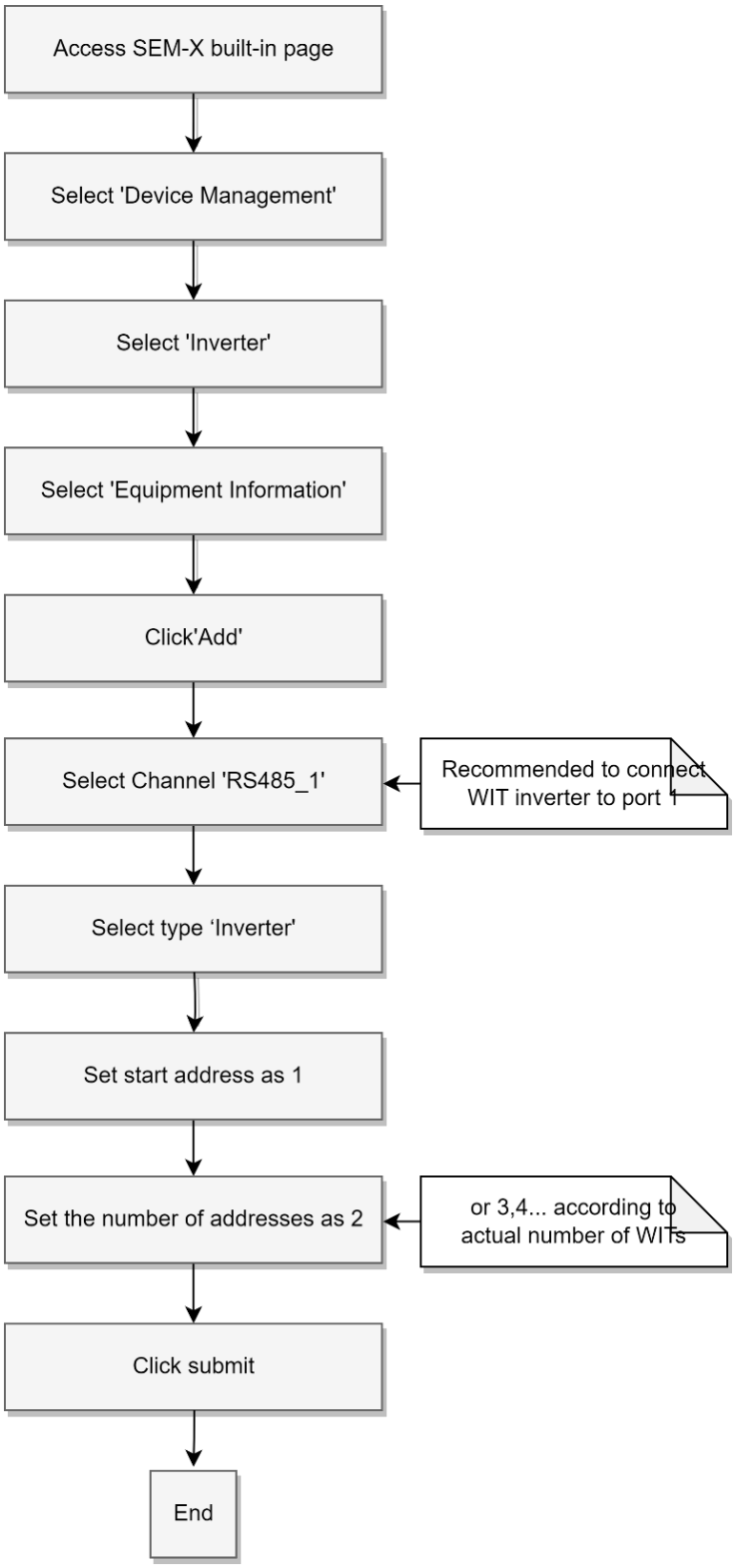




After adding the meter, you need to follow the following operation: select ‘Device Management’ above--->select ‘Meter’ on the left side--->select ‘Equipment Information’--> Select channel ‘485-2’ and wait for the meter status to change to online. Click the setting Icon--->Select ‘PT and CT’-->Select ‘CT’--->Set the CT ratio according to the actual situation.



7.3 Adding WIT Inverter

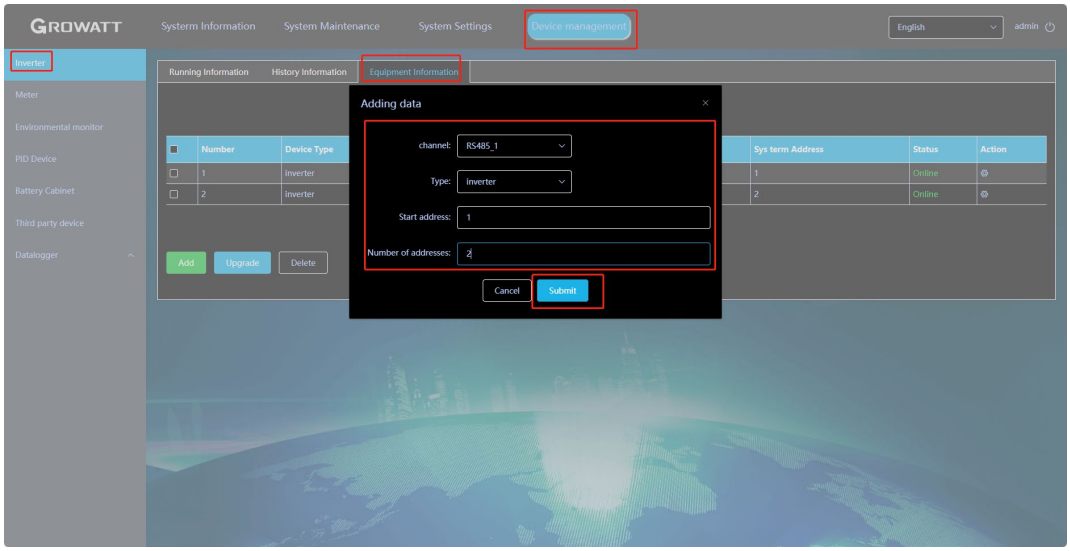


Connect WIT inverters to RS485 port 1. Select 'Device Management', select ‘Inverter’, select 'Equipment Information', click ‘Add’, in the pop-up window as

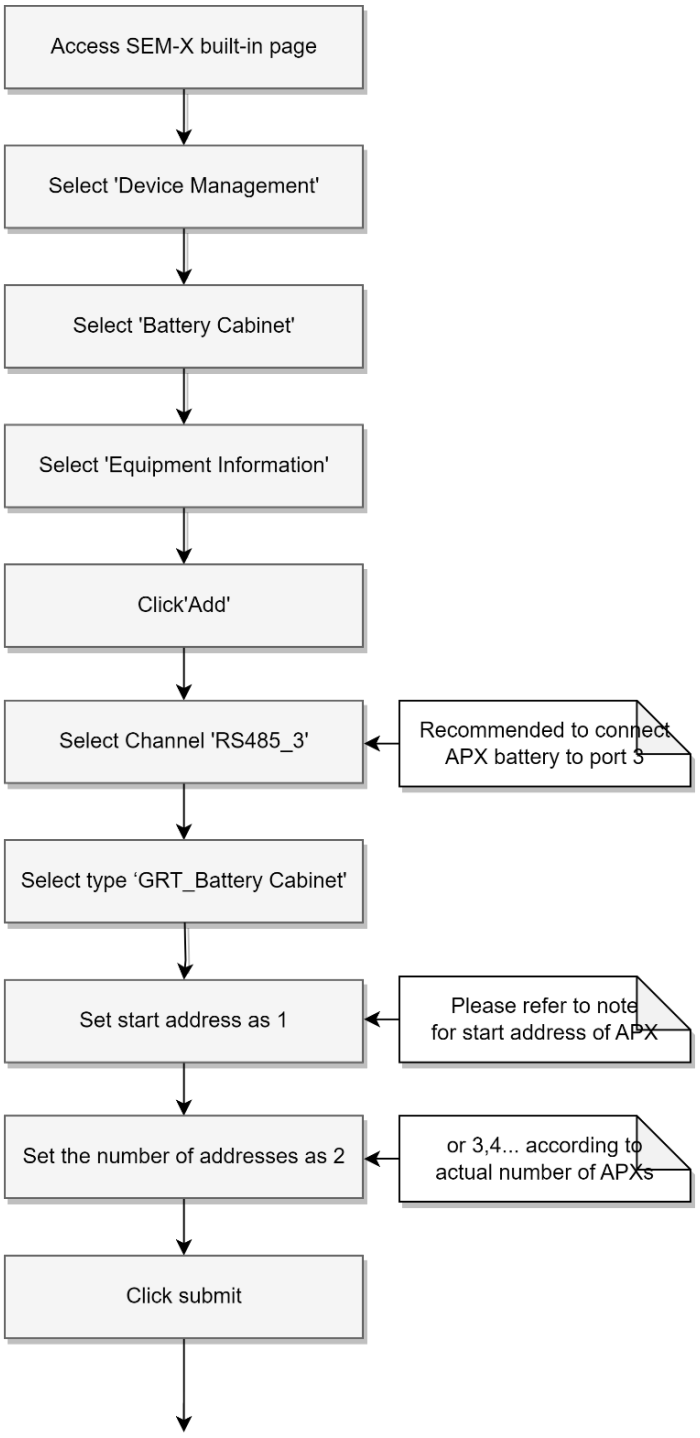
shown, select channel 'RS485_1', select type ‘Inverter', start address setting 1, address number setting 2, (corresponds to our WIT address 1, 2) click submit to add successfully.

NOTE

- **After adding the inverters, it takes a while before reading its data normally.**

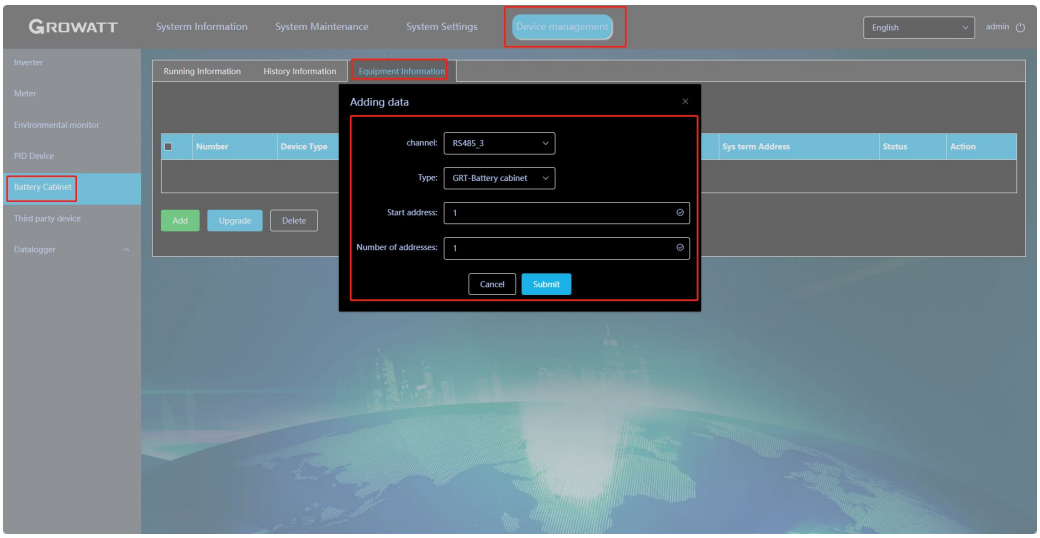


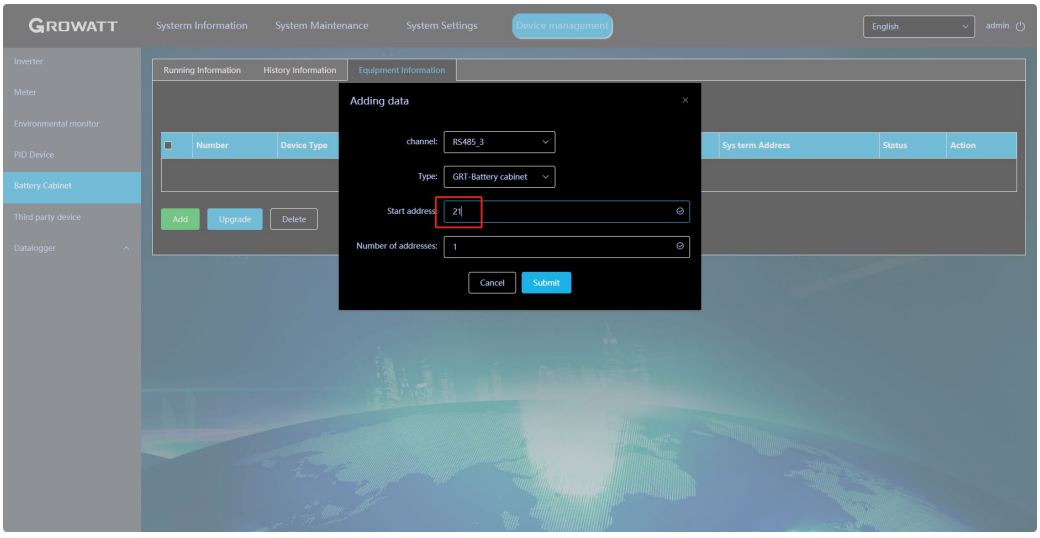
7.4 Adding APX Battery System



Connect APX battery system to RS485 port 3. Select 'Device Management', select ‘Battery Cabinet’, select 'Equipment Information', click ‘Add’, in the pop-up window as shown, select channel 'RS485_3', select type ‘GRT-Battery cabinet

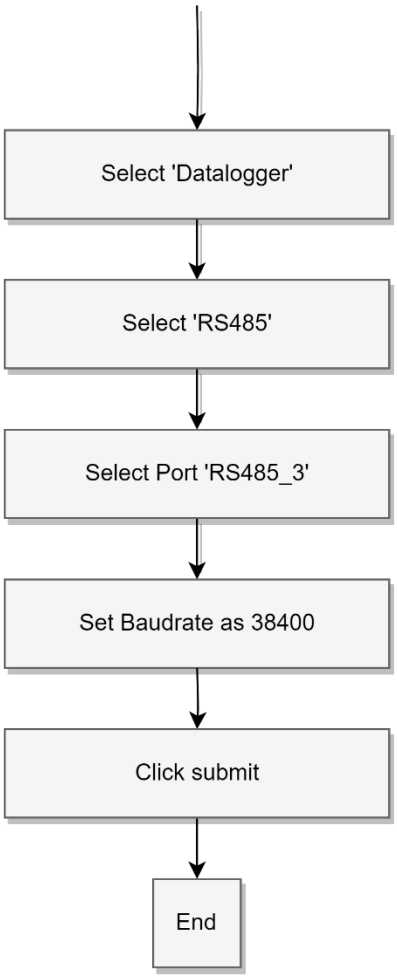
', start address setting 1, address number setting 2, (corresponds to our WIT address 1, 2) click submit to add successfully.



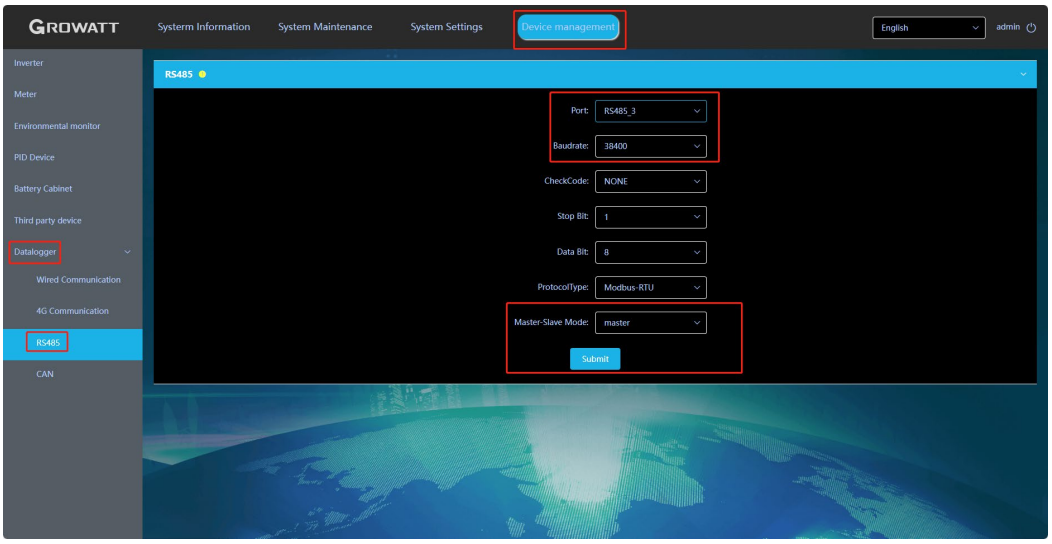


NOTE

- **If there are already existing battery systems in the SEM-X, when adding new battery system, the start address should be 21, 41... according to how many battery systems are already existing.**



After adding battery, select 'Datalogger', select 'RS485', select Port 'RS485_3', set Baudrate as 38400 and click submit.

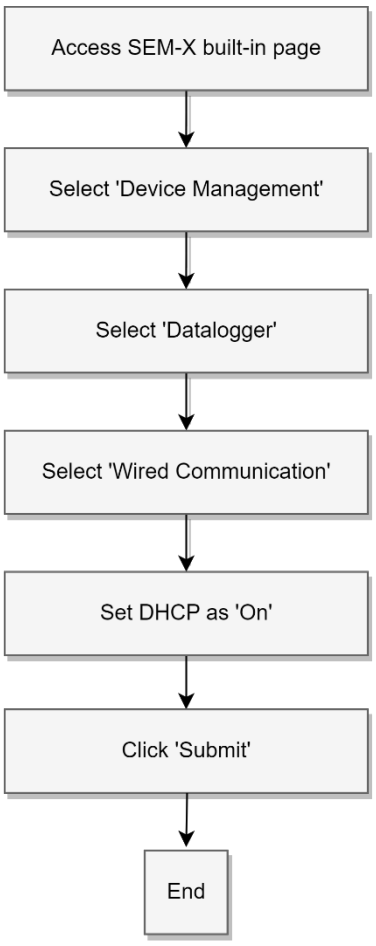


NOTE

- **If the device is not online, check whether the communication line of the corresponding device is connected to the SEM communication port, whether the baudrate is set, and whether the A/B of RS485 or H/L of CAN is reversed.**

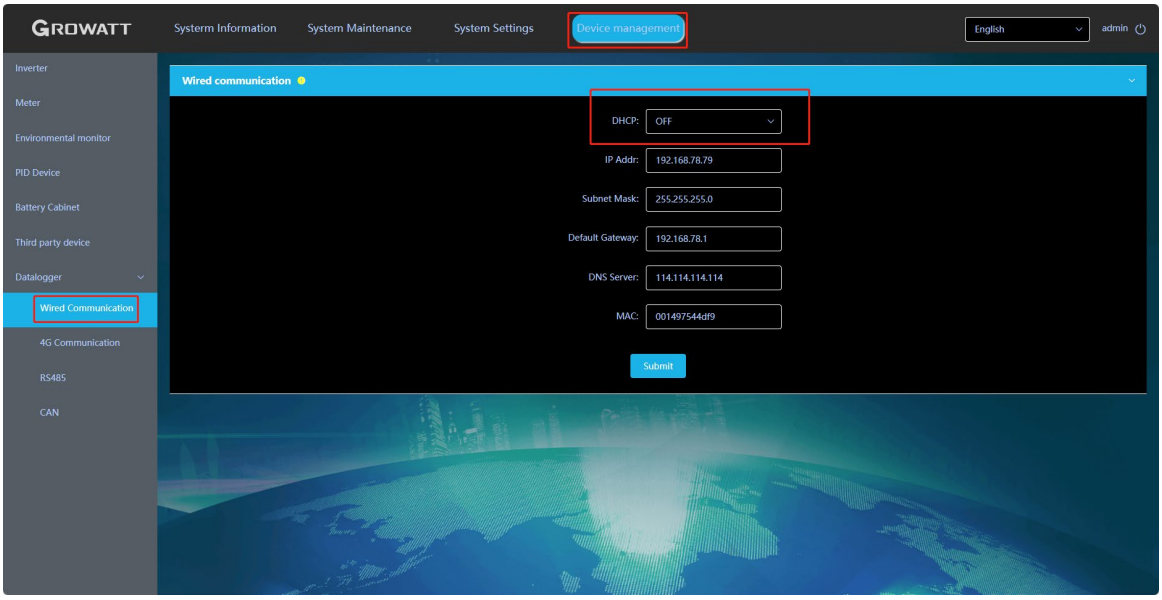
7.5 SEM-X Network IP Settings

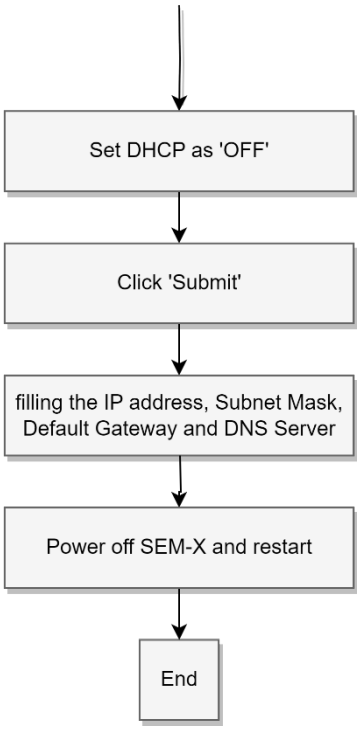
7.5.1 Connecting SEM-X to Router



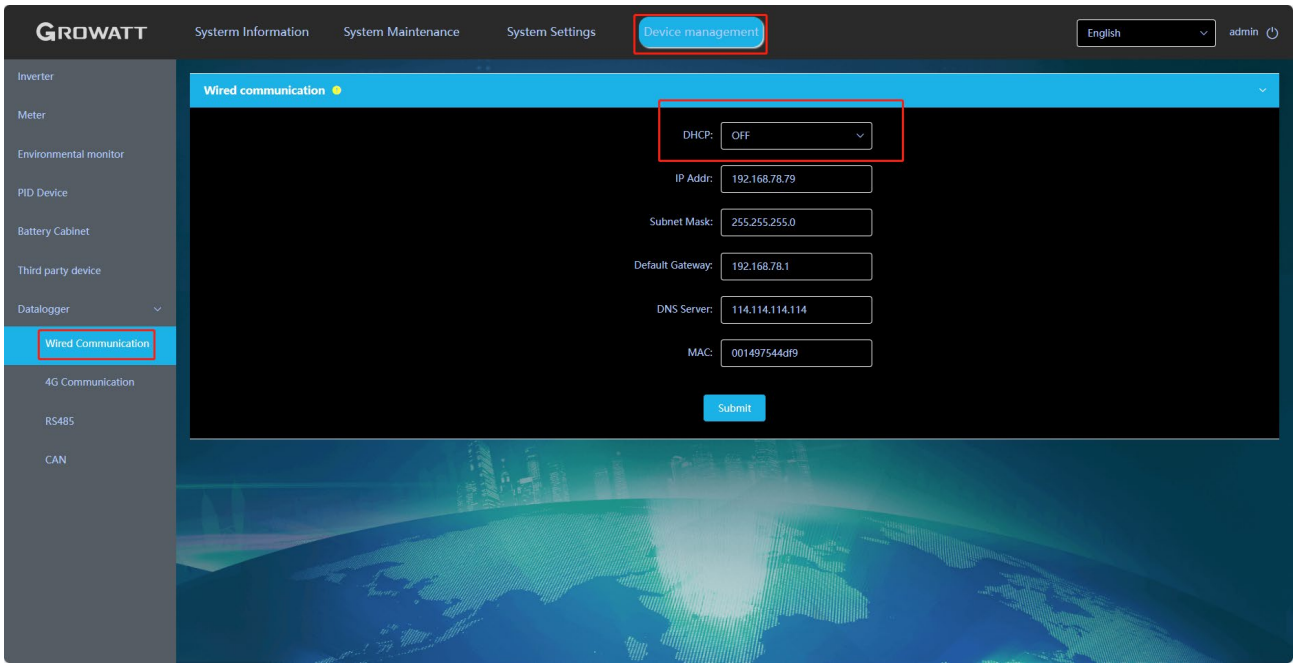
Check whether SEM-X opens DHCP function. Login to the built-in page, select “Wired Communication” in “Datalogger” in the left list of ‘Device Management’. Set

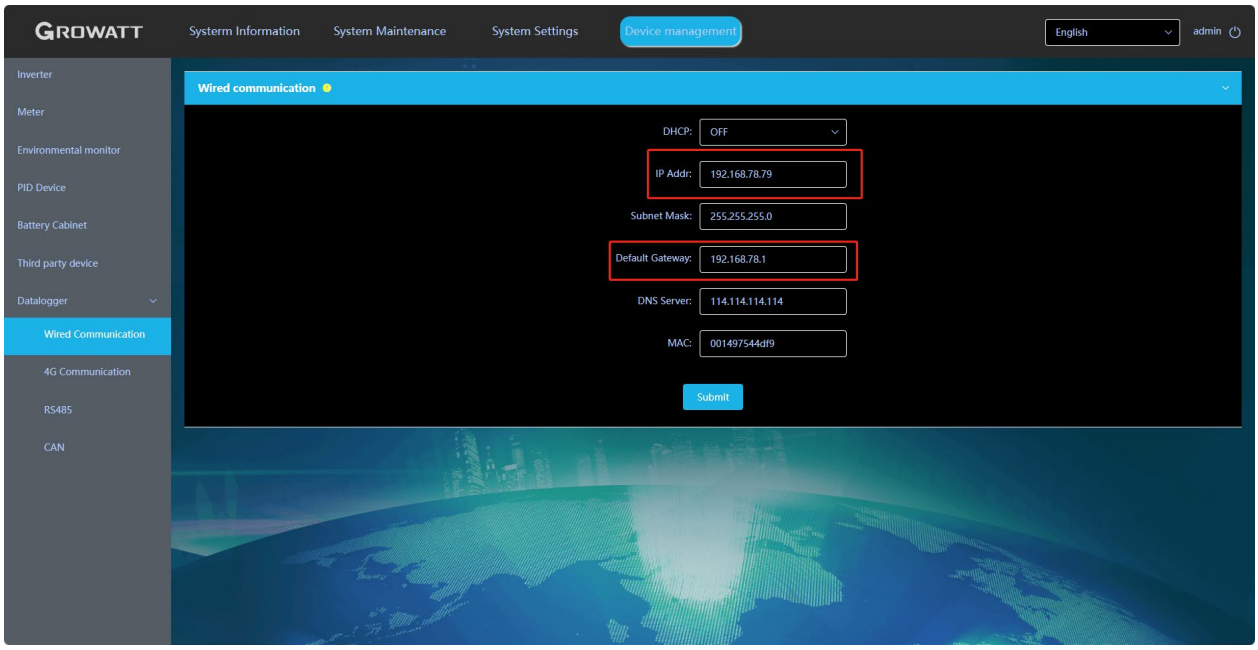
DHCP as ‘On’, then router should automatically allocate IP address to SEM-X. Click ‘Submit’. Power off SEM-X and restart it to apply the changes.



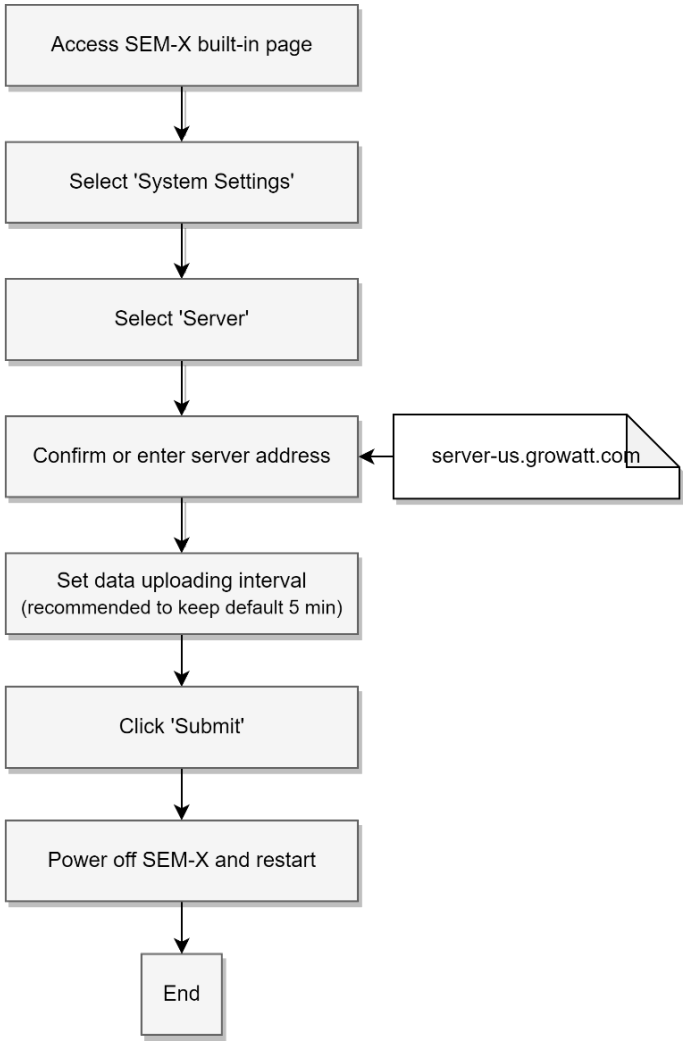


Network can be manually configured by setting DHCP as ‘OFF’ and filling the IP address, Subnet Mask, Default Gateway and DNS Server. Click ‘Submit’. Power off SEM-X and restart it to apply the changes.

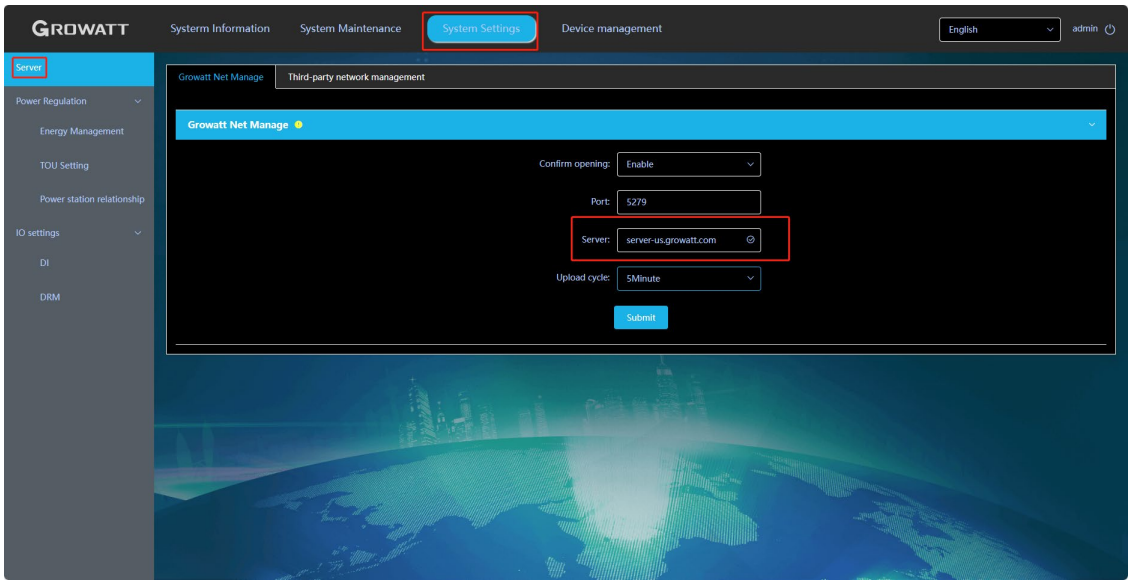




7.6 Server Address Setting

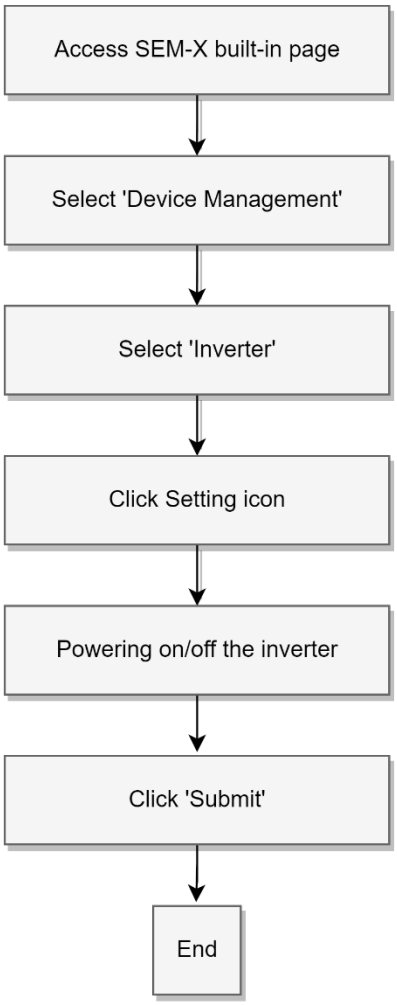


Access built-in page of SEM-X, select 'System Settings', select 'Server', confirm or enter server address (for U.S. server: server-us.growatt.com), click 'Submit', power off SEM-X and restart to connect SEM-X to the server.

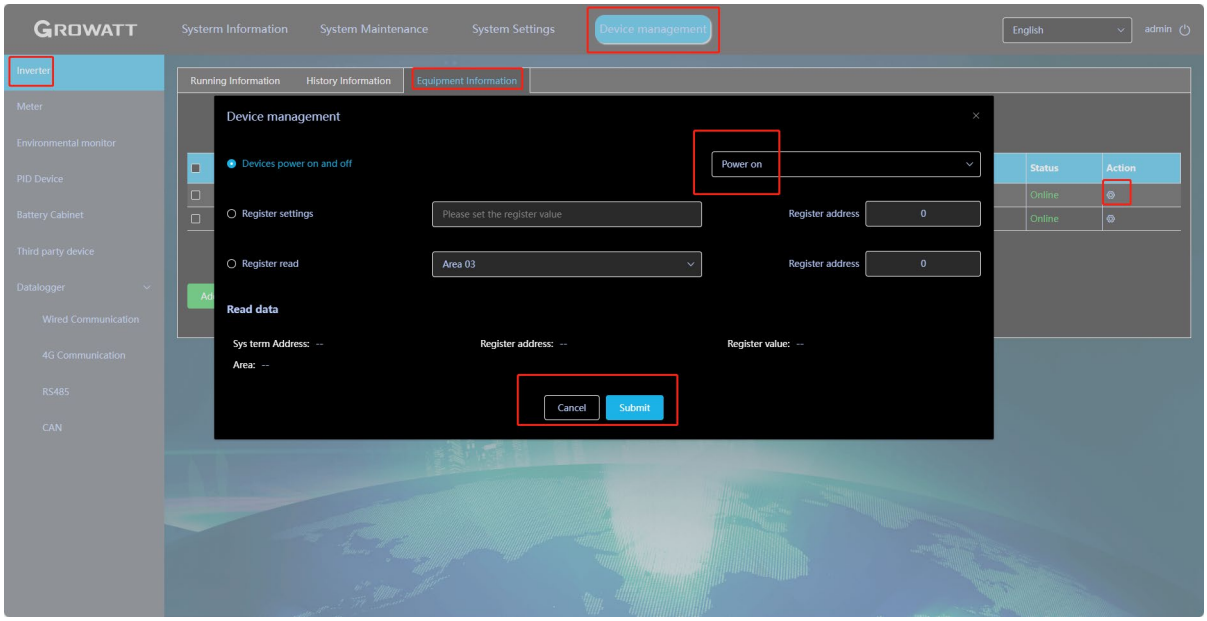


8 SEM-X Energy Management

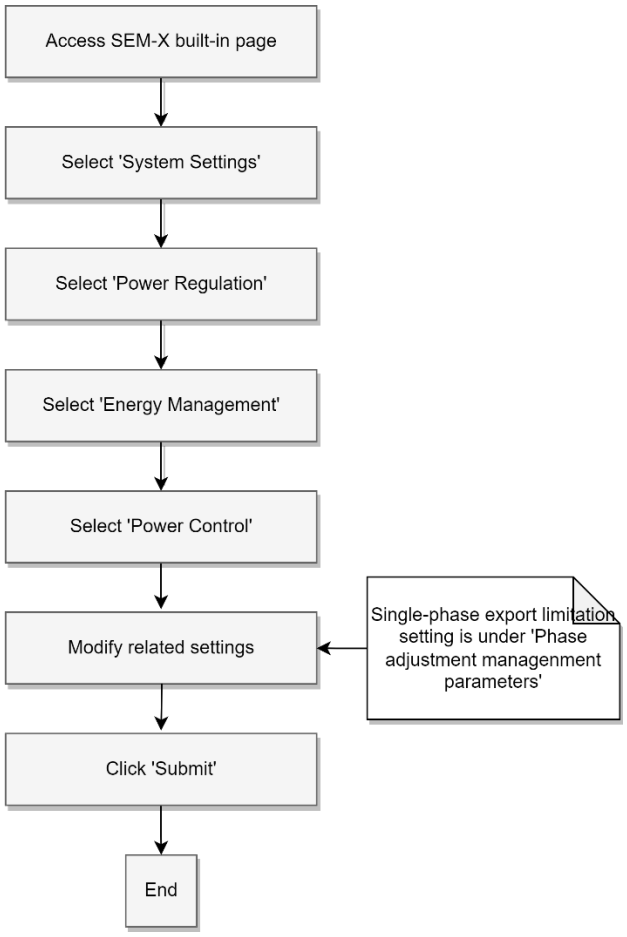
8.1 Powering On/Off Inverter with SEM-X



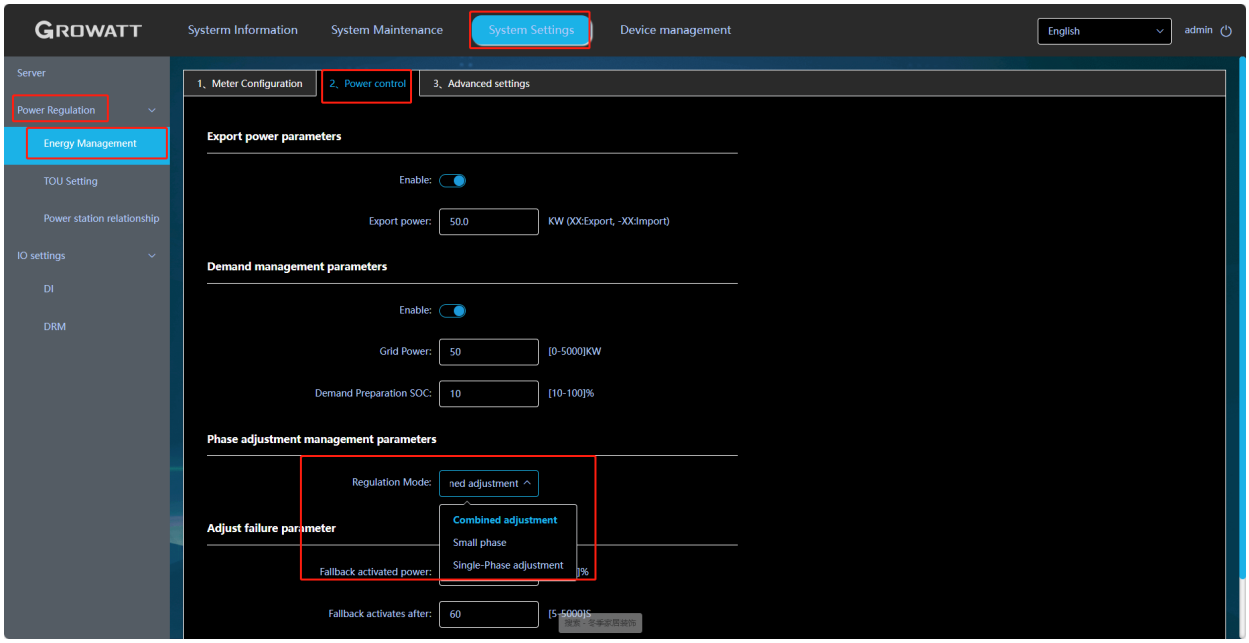
Access SEM-X built-in page, select 'Device Management', select 'Inverter', click Setting icon, powering on/off the inverter, click 'Submit' to confirm.



8.2 Export Limitation Settings with SEM-X



Access SEM-X built-in page, select 'System Settings', select 'Power Regulation', select 'Energy Management', select 'Power Control', modify related settings, click 'Submit'.

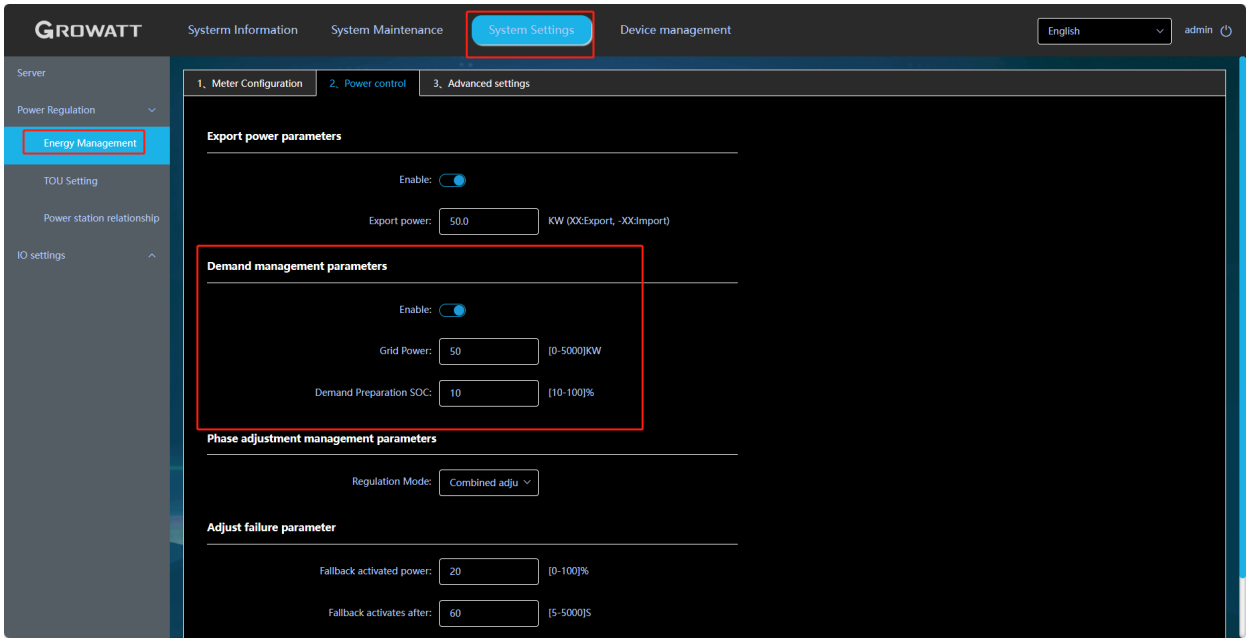


8.3 Peak Shaving Settings with SEM-X

Modify settings related to peak shaving function in the same interface instructed above, under ‘Demand management parameters’. Combine with ‘export power parameters for management of power flow.

NOTE

- Please specify the power overload capacity of the grid connection point and prevent the too large charging or discharging power causing circuit breaker disconnection, power line burn, short circuit and other risks. Import power, export power and fail-safe power limits cannot exceed the overload capacity of the connection point.

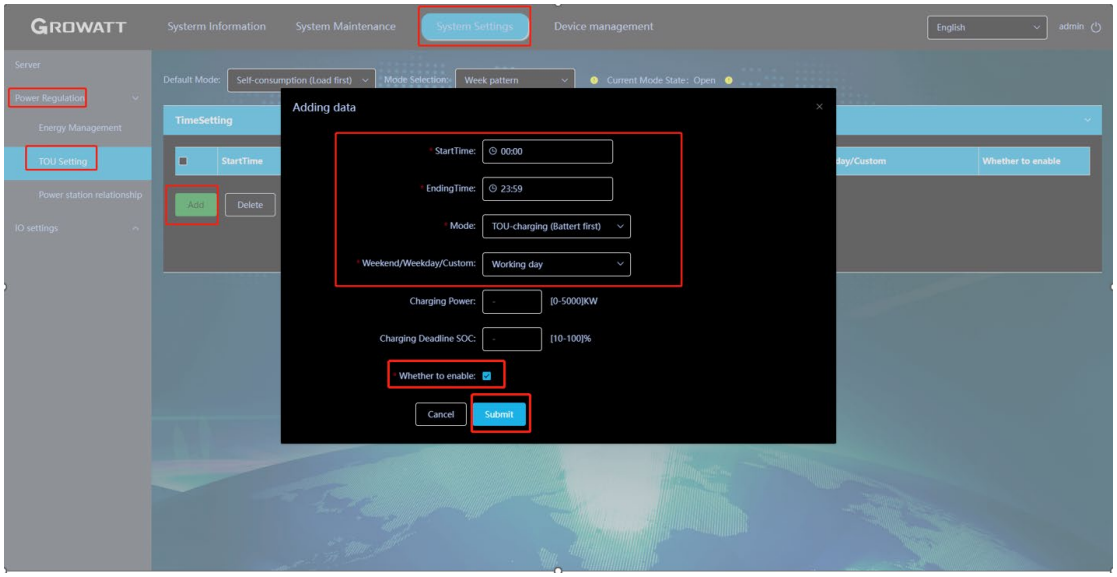


8.4 Time of Use Settings with SEM-X

Modify settings related to Time of Use function in the TOU Setting interface (next to 'Energy Management')

NOTE

- TOU can set up to 9 time slots. Time overlap between time slots is not allowed, e.g. if the previous time slot is set to run until 10:00, the next time slot must be set from 10:01.


GROWATT
Systerm Information
System Maintenance
System Settings
Device management
English
admin
Server
Power Regulation
Energy Management
TOU Setting
Power station relationship
IO settings
Default Mode:
Self-consumption (Load first)
Mode Selection:
Week pattern
Current Mode State: Open
TimeSetting
StartTime
Whether to enable
Add
Delete
Adding data
StartTime:
00:00
EndingTime:
23:59
Mode:
TOU-charging (Battert first)
Weekend/Weekday/Custom:
Working day
Charging Power:
[0-5000]KW
Charging Deadline SOC:
[10-100]%
Whether to enable:
Cancel
Submit


GROWATT
Systerm Information
System Maintenance
System Settings
Device management
English
admin
Server
Power Regulation
Energy Management
TOU Setting
Power station relationship
IO settings
Default Mode:
Self-consumption (Load first)
Mode Selection:
Week pattern
Current Mode State: Open
TimeSetting
StartTime
EndingTime
Mode
Power Parameter
Weekend/Weekday/Custom
Whether to enable
00:00
17:10
Self-consumption (Load first)
Discharge Power:
Requirement SOC:
Custom
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
17:11
17:20
TOU-discharging (Grid first)
30
10
Working day
17:21
17:30
Self-consumption (Load first)
17:31
17:40
TOU-charging (Battert first)
Charging Power:
Charging Deadline
50
100
17:41
23:59
Idle-mode