# **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	.1
1.1 Use	.1
2 System Information Confirmation	.2
2.1 AC Side	.2
2.2 Load Side	.2
2.3 Battery System	.3
2.4 Communications	.4
2.5 Other Wiring and Connection	.4
3 Firmware Upgrade	.6
3.1 WIT Upgrade via Shinebus	.6
3.2 APX Upgrade	.9
3.3 Firmware Version Check	12
4 System Parameters1	14
4.1 Confirm WIT Parameters	14
4.2 Model Number Checking	18
4.3 Communication Address Setting	21

	4.4 Parallel System Communication Restore	23
5	Smart Meter Configuration	25
	5.1 CT Ratio	25
	5.2 Connection Type	25
	5.3 Extras: Communication Address, Speed and Authentication	26
	5.4 Check After Installation	27
61	Monitoring Configuration (Single System)	28
	6.1 Connecting the device to the server using Shinetools	28
	6.2 Setting Up Monitoring Via Web Server	32
71	Monitoring Configuration (Parallel System)	
	7.1 Accessing SEM-X Built-in Page	36
	7.2 Adding Meter	37
	7.3 Adding WIT Inverter	40
	7.4 Adding APX Battery System	42
	7.5 SEM-X Network IP Settings	45
	7.5.1 Connecting SEM-X to Router	45
	7.6 Server Address Setting	48

8 SEM-X Energy Management	50
8.1 Powering On/Off Inverter with SEM-X	50
8.2 Export Limitation Settings with SEM-X	51
8.3 Peak Shaving Settings with SEM-X	52
8.4 Time of Use Settings with SEM-X	53

#### **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:

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

#### Confirm the following other information on AC side:

ltem	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:

ltem	Description	Actual Situation
Connection	3P3W / 3P4W	
Dracker information	Overloading capacity of breaker	
breaker mormation	(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):

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

# 2.3 Battery System

Confirm the following information:

ltem	Description	Actual Situation
Polarity of WIT-to-	Confirm positive cable to positive terminal,	
Battery Cable	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	Mavimum allowed abarging newer (if needed)	
Power	Maximum allowed charging power (if heeded)	
Max. AC Charging	Mavimum allowed sharping newer from	
Power		

#### 2.4 Communications

Confirm the following information:

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

# 2.5 Other Wiring and Connection

Confirm the following information:

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

Check the 24V power supply cable	
connection between WIT and SEM-X (if	
SEM-X is used)	
Check the cable connection between CTs	
and SEM-X (if SEM-X is used)	
Check the cable connection between CTs	
and smart meter (if smart meter is used)	
Check the CT orientation	
Check the AC auxiliary power supply	
cable connection of smart meter inside	
SEM-X	
	Check the 24V power supply cable connection between WIT and SEM-X (if SEM-X is used) Check the cable connection between CTs and SEM-X (if SEM-X is used) Check the cable connection between CTs and smart meter (if smart meter is used) Check the CT orientation 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.



#### 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.





Shinebus V2.3.2		_														- a ×
Port COM13 V Bai	drate: 2600	-								IsOpenInvertor	# •	WIT series	En-中	SysSet Che	ckVer	Stop
Lossiante Description BOCrefo Becretoriono PresenterSofter CustomPara ParameterSetting Setting Setting Setting Setting Setting Setting Setting	Waiting	€ 0.00 ♥ ♥ ♥ 0.00	w	System In PW Veri Com Veri SN: Mode: Modbus 1 Status In Status In Status In Status E Today: Court do E Total: Pout Actin Pout Actin	TO 1.0(TC ZBea-44 PHN2DC S21B00C Ver: /1.51 fo Waitin 0.0 Wirt 15 S342.1 re: 0.0 a 0.0	Das-22178900)-00 ATSVer MBan1 TEST g Pf: 1 E PV total: 3518 PV workmodel: Inc RelxDPorer: 0.0 Warr: 501 (0) Error: wull (0)	119 .6 lependent			Inner Infi Volt(V) ISO(kC): Derate M AC Info Volt(V) Curr(A) STSVolt(V STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V) STSVolt(V)	+8US -8U 0.0 0.0 INV BOC 19.4 19.7 0 det: 7 R 221.7 0.0 220.6 0.3 0.0 50.03	BUS 0 15T Inner1 26.8 222.7 0.0 221.1 0.4 0.0	Inner2 0.0 T 225.7 0.0 222.1 0.4 0.0			
DryConcentratedControl S PW Update SmartDiagnosis WUTongShanMainProject DataExp ^ HistoryEnergyExp	Electric info Eself_today(KWh): Eself_total(KWh): Esys_today(KWh): Eload_today(KWh):	0.0 1524.5 0.0 5479.1 0.0	Eload_total(K Etouser_toda Etouser_total Etogrid_total Etogrid_total	Wh): y(KWh): (KWh): y(KWh): (KWh):	2516.1 0.0 3050.8 0.0 4109.9	Eactoday(KWh): Eac total(KWh): Edlischr_today(KWh): Edlischr_total(KWh): Edlischr_total(KWh):	0.0 3518.6 0.0 0.0 3059.6	Echr.total(KWh): ACCharge(KWh): ACTotalCharge(KWh): ACDischarge(KWh): ACTotalDischarge(KWh):	3485.0 0.0 2427.0 0.0 5342.1							
HistoryDataExp	Battery info BAT_Volt(V):	0.0	BAT_Curr(A):		0.0	SOCI	39.0									
Event log SafetyParamExp FaultRecord	ATS Temp ATS scr(°C): ATS Rly(°C):	20.7 22.1	ATS In(°C):		24.1											
AutoTest     AutoTest     Et Autometed testing of st ModbusR&W ParameterVersion ProtocolDataMatching AutoUpdate GeneralAutomatedTest	PV Info         PV1         P           Volt(V)         0.0         0.0           Power(W,0.0)         0         0           Power(W,0.0)         0         0           Volt(V)         0.0         0           Power(W,0.0)         0         0           Power(W,0.0)         0         0           Power(W,0.0)         0         0           PiD error:         0         0	V2 PV3 0.0 0.0 0.0 0.0 0.0 0.0 V10 PV11 0 0.0 0.0 0.0 0 0.0	PV4 0.0 0.0 0.0 PV12 0.0 0.0 0.0	PV5 P1 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. PID Volt( PID Currenting 1000000000000000000000000000000000000	V6 PV 0 0.0 0 0.0 0 0.0 V14 PV 0 0.0 0 0.0 0 0.0 V): 0.0 (mA): 0.0	7 PV8 0.0 0.0 0.0 15 PV16 0.0 0.0 0.0 0.0				SVG/APF CT_I(A) CT_Q(Ver, CTHAR_I(J COMP_Q COMP HA SVG/APF :	R 0.0 N 0.0 (Var) 0.0 (Var) 0.0 itatus: No	S 0.0 0.0 0.0 0.0 0.0	T 0.0 0.0 0.0 0.0			
SerialPort Communication Status	Communication is Nor	malt									Please se	e the user's	manual for	a more thorou	oh explanation	CurrentUser/Developers

7 / 59





#### 3.2 APX Upgrade

NOTE	
1. Th	e AC auxiliary energy source provided by WIT must be connected for the upgrade
to work	( (the BMS-AC cable).
2. Ta	ke care to connect the BMS-AC cable from the CM, as well as the communication
cable b	etween the BMs and the short connector and dust cap on the last BM, otherwise
the upg	grade 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:

FAT32 format	space greate than 256M	er USB2.0 interface	F	ile extension s not hidden
Ge	KINGSTON (E:) Proper	ties 9 Sharing Customize		×
T	ype: USB Drive le system: FAT32	28.933.488.640 bytes	26.9 GB	
	Free space: Capacity:	33,031,454,720 bytes	30.7 GB	
-		Drive E:	Details	
		OK Cancel	Apply	

	Downloads > S	Simulation 😥 Options	
	De û	↑↓ sort ~ 📃 View ~	
Name		Date modified	
∨ Today			
BCONFIG.txt		2024/12/27 17:29	
WBaa_0013_	05.hev	2024/10/29 19:43	
D ZEda-0013.b	i	2024/10/23 15:34	
🗋 QAca-00/3.k	bin	2024/10/23 15:32	
D QBba_0013_0	05.bin	2024/10/20 15:39	
Folder Options			~
Folder Options			~
General View	Search		
Folder views	6		
	You can apply this vie all folders of this type	ew (such as Details or Icons) to	
		-	
	Apply to Folders	Beset Foldern	
	Apply to Folders	Reset Folders	
	Apply to Folders	Reset Folders	
Advanced se	Apply to Folders	e. Reset Folders	
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i	a. Reset Folders ails in folder tips	•
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til po files and folders	alls in folder tips tie bar	^ 
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til m files and folders on't show hidden files, i	alls in folder tips te bar folders, or drives	
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til an files and folders on't show hidden files, folder	alls in folder tips tile bar folders, or drives 's, and drives	•
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til an files and folders on't show hidden files, folder empty drives extensions for known f	alls in folder tips tile bar folders, or drives rs, and drives	
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til on the sand folders on't show hidden files, folder empty drives extensions for known f tolder merge conflicts	alls in folder tips tile bar folders, or drives rs, and drives	Î
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the ti on files and folders on't show hidden files, now hidden files, now hidden files, now hidden files, on the folder merge extensions for known f folder merge conflicts protected operating sy of folder informations	alls in folder tips tile bar folders, or drives s, and drives lile types rstem files (Recommended)	
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til en files and folders on't show hidden files, i oow hidden file	alls in folder tips tie bar folders, or drives s, and drives file types rstem files (Recommended) separate process dows at looon	
Advanced se Displa Displa Hidde Displa Hidde Advanced se Displa Hidde Displa Hidde Hidde Hide Launa Resta Show	Apply to Folders ttings: ay file icon on thumbna ay file size information ia y the full path in the til en files and folders on't show hidden files, now hidden files, folder empty drives extensions for known f folder merge conflicts protected operating sy ch folder windows in a : ore previous folder windows r drive letters	alls in folder tips tile bar folders, or drives s, and drives file types rstem files (Recommended) separate process dows at logon	Î
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til an files and folders on't show hidden files, folder empty drives extensions for known f folder merge conflicts protected operating sy ch folder windows in a ore previous folder windor r drive letters	alls in folder tips tie bar folders, or drives rs, and drives file types rstem files (Recommended) separate process dows at logon	•
Advanced se	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til an files and folders on't show hidden files, folder empty drives extensions for known f folder merge conflicts protected operating sy ch folder windows in a ore previous folder windor drive letters commended of commended	alls in folder tips tie bar folders, or drives 's, and drives file types rstem files (Recommended) separate process dows at logon	
Advanced se Advanced se Displa Displa Hidde Advanced se Displa Hidde Hide	Apply to Folders ttings: ay file icon on thumbna ay file size information i ay the full path in the til n files and folders on't show hidden files, folder empty drives extensions for known f folder merge conflicts protected operating sy ch folder windows in a ore previous folder windows in a to re previo	alls in folder tips tie bar folders, or drives rs, and drives file types istem files (Recommended) separate process dows at logon reced NTEC floe in celor Restore Defaults	

NOTE		
In older has diff	operating system, the setting for file extension might be located elsewhere and erent 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:



#### 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.

Not (2011)       Note:	Shinebus V2.3.2			- 0 X
Interim         Note: Inter         Note: Interim         Note: Interim <td>Port: COM13 ~ Ba</td> <td>irate: 9600 ~</td> <td></td> <td>IsOpenInvertor TO WIT series En-# SysSet CheckVer Start</td>	Port: COM13 ~ Ba	irate: 9600 ~		IsOpenInvertor TO WIT series En-# SysSet CheckVer Start
Bite       Early Ladie       <	Basicinfo     Could info     Bollando     Bollando     Bectriation     ParameterOrder     CustomPara     ParameterSetting     Settings     Correction     Settingsmittent     TimeSetting	Walking C.O.W Walking C.O.W	6         TOLATON=22178000:00           228a-44         ATSVer         MBas1119           PMA2DCTEST         Saliadout2004U1M0388           Verification         Saliadout2004U1M0388           Valiang         Pf:         1           0.0         E.P.Y totak         3318.6           Saliadout2004UL         Saliadout2004UL           Saliadout2004UL         Saliadout2004UL </td <td>Reserved         RUS         BUS           +BUS         BUS         BUS           BVA         BOST         Inversal           BOST         Inversal         Inversal           TomPCPC1         144         137         27.3           Doratel Model         7         25.00         22.1           Doratel Model         7         25.00         22.1           Currely         0.00         0.0         0.0           StrSovery         25.15         22.2         22.1           StrSovery         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         5.003         20.1         22.4</td>	Reserved         RUS         BUS           +BUS         BUS         BUS           BVA         BOST         Inversal           BOST         Inversal         Inversal           TomPCPC1         144         137         27.3           Doratel Model         7         25.00         22.1           Doratel Model         7         25.00         22.1           Currely         0.00         0.0         0.0           StrSovery         25.15         22.2         22.1           StrSovery         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         0.00         0.0         0.0           PreverYUN         5.003         20.1         22.4
Parallecond       ATE NPC0       2 AD       PAT       PAT <td>DryConcentratedControl DryConcentratedControl DryConcentratedControl DrataExp HistoryEnergyExp HistoryEnergyExp Event log SafetyParamExp</td> <td>Electric Info         Electric Info           Exell yoday(XMH)         0.0         Elecal yoday(XMH)           Exell yoday(XMH)         132.45         Elecaret, totday(XMH)           Exell yoday(XMH)         0.0         Elecaret, totday(XMH)           Exell yoday(XMH)         0.0         Elecaret, totday(XMH)           Elecaret, totday(XMH)         0.0         Elecaret, totday(XMH)           All Youlty         0.0         Elecaret, totday           All Youlty         0.0         Elecaret, totday           All Youlty         0.0         Elecaret, totday</td> <td>2516.1         Eartoday/DWb;         0.0         Edv_triatijOMb;         3485.0           0.0         Eartotai/OMb;         3518.6         ACCharge(OMb);         0.0           0.00         Edv_triadiyOMb;         0.0         ACTeabCharge(OMb);         0.0           0.00         Edv_triadiyOMb;         0.0         ACTeabCharge(OMb);         0.0           1499.8         Edsch_triadiyOMb;         3295.6         ACTeabCharge(OMb);         5.4           0.0         SOC.         38.9         ACTeabCharge(OMb);         5.4           24.6          349.8         ACTeabCharge(OMb);         5.4</td> <td></td>	DryConcentratedControl DryConcentratedControl DryConcentratedControl DrataExp HistoryEnergyExp HistoryEnergyExp Event log SafetyParamExp	Electric Info         Electric Info           Exell yoday(XMH)         0.0         Elecal yoday(XMH)           Exell yoday(XMH)         132.45         Elecaret, totday(XMH)           Exell yoday(XMH)         0.0         Elecaret, totday(XMH)           Exell yoday(XMH)         0.0         Elecaret, totday(XMH)           Elecaret, totday(XMH)         0.0         Elecaret, totday(XMH)           All Youlty         0.0         Elecaret, totday           All Youlty         0.0         Elecaret, totday           All Youlty         0.0         Elecaret, totday	2516.1         Eartoday/DWb;         0.0         Edv_triatijOMb;         3485.0           0.0         Eartotai/OMb;         3518.6         ACCharge(OMb);         0.0           0.00         Edv_triadiyOMb;         0.0         ACTeabCharge(OMb);         0.0           0.00         Edv_triadiyOMb;         0.0         ACTeabCharge(OMb);         0.0           1499.8         Edsch_triadiyOMb;         3295.6         ACTeabCharge(OMb);         5.4           0.0         SOC.         38.9         ACTeabCharge(OMb);         5.4           24.6          349.8         ACTeabCharge(OMb);         5.4	
	FaultRecord AutoTest AutoTest EE Automated testing of si ModbusReW ParameterVersion ProtocolDataMatching AutoUpdate GeneralAutomatedTest	Name         Particle         Particle <th< td=""><td>F         PV7         PV8           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           mAb         0.0         0.0</td><td>SVG/APF         R         S         T           CT_[(A)         0.0         0.0         0.0           CT_(AVH)         0.0         0.0         0.0           CTMP_G((Var)         0.0         0.0         0.0           COMP_G((Var)         0.0         0.0         0.0           COMP_G(Var)         0.0         0.0         0.0           SVG(APF Status)         None         SVG(APF Status)         None</td></th<>	F         PV7         PV8           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           0.0         0.0         0.0           mAb         0.0         0.0	SVG/APF         R         S         T           CT_[(A)         0.0         0.0         0.0           CT_(AVH)         0.0         0.0         0.0           CTMP_G((Var)         0.0         0.0         0.0           COMP_G((Var)         0.0         0.0         0.0           COMP_G(Var)         0.0         0.0         0.0           SVG(APF Status)         None         SVG(APF Status)         None

### **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.



Register	Degister Nome	Default	Deteile
Address	Register Name	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 <i>Protected:</i> Set 1 into register 879 before so this register can be changed.
903	Inverter Type	0	0:Hybrid Inverter <i>Protected:</i> Set 1 into register 879 before so this register can be changed.

		1	1:DCDC
904	Connected		For APX battery system this should be 1.
	Battery Type	I	<b>Protected:</b> Set 1 into register 879 before so this register can be
			changed.
	Operation		0:Load First
1044	Mada	0	1:Battery First
	Mode		2:Battery First
0/0	AC Charge	1	0: Disable
949	Enable	I	1: Enable
	AC Charge		
905	905 Acceptable	100	Value: 0~100
Percentage (%)			
			If you need to save the parameter, you need to set 1 to register
2	Active Power(%)	100	2 and then set the parameter; otherwise, the setting will take
3			effect only this time, and the default parameter will be restored
			after the system is switched off and powered down.;
051	Charge Stop	100	
901	SOC(%)	100	
050	Discharge Stop	10	
952	SOC(%)	10	
	Off-Grid Stop	10	
998	SOC(%)	10	
	Charge Stop	000	
906	Voltage (V)	800	
007	Discharge Stop	(50	
907	Voltage (V)	650	
000	On-Grid		0:3P3W
908	Connection Type		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.
			<b>Protected:</b> Set 1 into register 879 before so this register can be
			changed.
			0: 3P3W
			1: 3P4W
			Configured according to actual site conditions:
909	Ott-Grid		If off-grid operation is involved, '3P4W' should be set.
	Connection Type		908 and 909 should be set as the same.
			<b>Protected:</b> Set 1 into register 879 before so this register can be
			changed.
010	On/Off-Grid	0	0: Automatically
912	Switching	0	1: Manually
010	On/Off-Grid		0: On-Grid
913	Mode	0	1: Off-Grid
	Off-Grid	-	0: Disable
950	Enable	1	1: Enable
			(Phase Voltage)
			0:220V
			1:230V
			2:240V
936	Off-Grid Voltage		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.
			<b>Precondition:</b> power off the inverter to change this register.
			0:50Hz
937	Off-Grid		1:60Hz
	Frequency		<b>Precondition:</b> power off the inverter to change this register.
			0: Disable
		_	1: Enable
972	BMS Enable	1	Set to '0' if there's no battery system connected or the
			connected battery system has no BMS.
	Battery		
974 Charging Power Limit (kW)	0	0: Unlimited	
	Battery		
	Discharging		
975	Power Limit	0	0: Unlimited
	(kW)		
	Percentage Of		
	Battery		
3036	Discharge Power	106	
	(%)		
	Percentage Of		
3047	Battery Charge	100	
	Power (%))		
	Export		0: Disable
122	Limitation	0	1: Enable

			Should be disabled in paralleled system.	
222	N-Wire		0: N wire connected	
232	Connection		1: No N wire connection	
399	PV Input Mode	0	0: Independent MPPT Mode	
			0: Disable	
973	Parallel System	1	1: Enable	
			<b>`Precondition:</b> power off the inverter to change this register.	
1	Soft Start		Vary based on grid code	
	Enable			
	Maximum			
010	Battery	140		
710	Charging	140		
	Current (A)			
	Maximum			
011	Battery	174		
7	Discharging	140		
	Current (A)			

# 4.2 Model Number Checking

Follow these steps to check the model number.



Shirebus V232	- 0 ×
Pert COM13 v Baudrate 200 v IsOperinvertor	₩IT series En-中 SysSet CheckVer
Bailedin     Active     Device Info     Device Info     Excel/onfo     Excel/onfo     Mode: \$2100000712090/01M0188     Sit: PHR20C1857	
(P) Producing      Producting      Produc	
27 Pr/Updete 10 Senteflaymin 12 Wr/Torg/Davhda/Project 20 Dauhyp	
Mitophengdop Nisophengdop Event byg Safarijavandop	
(a) Astrine A Astrine I E Astrinet settinger u Modulation Modulation ProtocoDesMathing Astrijsten	
SenalPert Communication Status: Communication is Normal	Please see the user's manual for a more thorough explanation CurrentUser/Developers

S Shinebus V23.2	- 0 X
Pore COM13 V Baudrate: 2000 V	IsOpenInvertor 班 WiT series En-甲 SysSet CheckVer
Autor     Note: Index       Bashing     Autor       Bashing     Autor <tr< td=""><td>Woverhombr</td></tr<>	Woverhombr
Commandationstand trait	Please see the user's manual for a more thorough explanation. CurrentUser/Developers

Shinebus V2.3.2			- 0	×
Port: COM13 - Baudrate:			IsOpeninvertor 7 Wit series En-7 SysSet CheckVer	
	Mudie (2100000113709U01M038) Mudie (2100000113709U01M038) Aduat mode ScreenAll	54 PRODUST Inge St: PRODUST Anal St: PRODUST St: Real	- α Nggentineetor	
ProtocolDataMatching AutoUpdate				
GeneralAutomatedTest				
SeriaPort Communication Status: Communication	n is Normall		Please see the user's manual for a more thorough explanation. CurrentUsenD	evelopers

### 4.3 Communication Address Setting





Shinebus V2.3.2													- 0 ×
Port: COM13 ~ Bau	drate: 9600 ~								IsOpenInvertor	<b>(</b> <del>,</del>	O WIT series En-=	Þ SysSet CheckVer	
BasicInfo A Device Info	🔿 SafetyInfo 🛛 Sys	stemPara 🔘 ControlPara 💿 Other	Para Read All									ReadSuccess!	
BDCInfo ElectricInfo	Search:	Q Country: 无			ReadSafetyPar Save	Del SelectAll/Revers	eSelect(Print)						
🔯 ParaConfig 🔨 🔨													
ParameterOrder	Paramater List												
CustomPara	First Menu	Parameter Name	Actual	•	SetValue(canInput) 📀	SetValue(canSelect) 💠	AutoBegin 🔹	ь.	读取	•	RegisterValue 📀 💀	Remarks 📀	IsPrint 📀
DecemeterCetting		LCD language	1				0	- 1	C Read		1	Address:15	0
Parametersetting		Com Address	2				0	- 1	🗙 Read		2	Address:30	0
Settings		wSelectBaudrate	0					- 1	Read		0	Address:22	
Correction		Sys Year	2024-12-3 3:38:13					- 1	Read		2024	Address:45	0
SafetyParamTest		VpV start	180				0	- 1	Read		1800	Address: 17	0
TimeSetting	OtherSelfing	Reset to factory	0				0	- 6	Read		0	Address 32	0
		AustraliaRegion	0				0	-	Read		0	Address 3083	0
DryConcentratedControl		PowerSetOnDCSourceMode	0				0		Read		0	Address:534	0
E FW Update		SafetySetPassword	0				0		Read		0	Address:540	0
SmartDiagnosis		SvgApfMode	0						🔁 Read		0	Address:300	0
WUTongShanMainProject		BdewLvrtKFactor	20						🔁 Read		20	Address:301	
Distance of		E2PROM	8224						Read		8224	Address:34	0
al batacip		Reactive P ValueL	0					- 1	Read Read		0	Address:137	0
HistoryEnergyExp	Reaction	Reactive P Value (Ratio)	0					_	Read		0	Address:139	0
HistoryDataExp	The second	ReactivePerStableTime	100				0	_	Read		100	Address:315	0
Event log		ReactivePowerAdjustFailureRe	120				0		💐 Read		120	Address:313	0
Safati-DaramEvo													
- in i													
FaultRecord													
🙆 AutoTest 🛛 🔨													
AutoTest													
EE Automated testing of st													
Modbur R8W													
modbumeet													
ParameterVersion													
ProtocolDataMatching													
AutoUpdate													
GeneralAutomatedTest													
• • • • • • • • • • • • • • •													
SerialPort Communication Status:										Plea	se see the user's manual	for a more thorough explan	tion CurrentUser:Developers

anebus V2.3.2										- 0
Port: COM13 ~ Bau	drate: 9600 ~						IsOpenInvertor	# WIT series En-	⊕ SysSet CheckVer	
BasicInfo ^	🔾 SafetyInfo 🔾 Sy	stemPara 🔘 ControlPara 🗿 Oth	nerPara Read All						ReadSuccess!	
BDCInfo										
FlectricInfo	Search:	Q Country: 无		✓ ReadSafetyPar Save De	SelectAll/ReverseSelect(Prin	)				
ParaConfin A					1					
	Paramater List			/						
arameterOrder	First Menu	Parameter Name      •	Actual 💀	SetValue(caninput) Set	Value(canSelect) 💀 Auto	Begin 👳	注取 ・	RegisterValue 🗠	Remarks 👳	IsPrint
ustomPara		L CD Janguage	1			0	Read	1	Address:15	0
arameterSetting		Com Address	1	2			📿 Read	1	Address:30	0
ttings		wSelectBaudrate	0			)	📿 Read	0	Address:22	
vraction		Sys Year	2024-12-3 3:42:4				📿 Read	2024	Address:45	
		Vpv start	180			)	📿 Read	1800	Address:17	
fetyParamTest		Reset User Info	0			0	Read	0	Address:32	0
neSetting	OtherSetting	Reset to factory	0				Read	0	Address:33	
yConcentratedControl		AustraliaRegion	0			)	Read	0	Address:3083	
// Undate		PowerSetOnDCSourceMode	0				Read	0	Address:534	0
		Safet/SetPassword	0				Read	0	Address:540	0
martDiagnosis		SvgApfMode	0				Read	0	Address:300	0
/UTongShanMainProject		BdewLvrtKFactor	20				Read	20	Address:301	
ataExp		E2PROM	8224				Read	8224	Address:34	
ston Francisco		Reactive P ValueL	0				Read	0	Address:137	
norychergycxp	Reactive	Reactive P Value (Ratio)	0				Read	0	Address:139	
itoryDataExp		ReactivePerStableTime	100			-	C Read	100	Address:315	
ent log		ReactivePowerAdjustPailure	120			5	C Read	120	Address:313	
fetyParamExp										
dePresent										
Achecord										
itoTest ^										
toTest										
Automated testing wf st										
-										
-										
ameterVersion										
otocolDataMatching										
itoUpdate										
eneralAutomatedTest										

NOTE	
	to a setting COM Address to a value other them 1, the investor will leave
· Af	mmunication with the Shinebus, in which case the communication address of
th	e Shinebus software needs to be set to the new address of the inverter. $ onumber V$

Shinebus V2.3.2		- 0 X
Port: COM13 v Bau	frate: 6500 v	IsOpenInvertor # WIT series En-+ SysSet CheckVer Start
BasicInfo     Device Info     BDCInfo     ElectricInfo     IP ParaConfig     A	Walding         D/W         System Inflg           PV Ver:         T01/01/08-22178000-00           Com Ver:         2584-44         ATSVer           Model         Ster-44         ATSVer	Interest Influe
ParameterOrder CustomPara ParameterSetting Settings Correction SafetyParamTest TimeSetting	OW         W         Extract info           Status:         Walding         Pf.         1           £ Today:         0.0         E PV total:         5318.6           0.0W         Court down:         13         PV vorkmode:         totagendote:           E Total:         S21.21         ReadPowert         Total:         Total:         X           Poot Active:         0.0         O         O         Total:         X         Poot Active:         X           Poot Active:         0.0         W         Error         Error	Act India         R         S         T           Velit(Y)         220.8         222.1         224.8           Curr/A)         0.0         0.0         0.0           STSVelit(Y)         221.2         222.1         225.1           STSVerit(Y)         0.6         0.4         0.3           Powert(YA)         0.0         0.0         0.0           Frequency         50.01         40.01
DryConcentratedControl PryConcentratedControl SmartDiagnosis WUTongShanMainProject DataExp HistoryEnergyExp HistoryDataExp	Extent info         Address:         2           Exel (sody(KMh):         0.0         Exed (sod)(KMh):         2516.1         Exetoral           Exel (sody(KMh):         1524.5         Execore (sody)(KMh):         0.0         Exectoral           Exel (sody(KMh):         0.0         Exectoral         Period:         1000           Exel (sody(KMh):         0.0         Exectoral         Period:         1000           Exectoral         Exel (sody (SMh):         0.0         Exel (sody (SMh):         0.0         Center           Exectoral         Exectoral         OK         Center         Center           Exectoral         Exectoral         OK         Center           Exectoral         Exectoral         OK         Center	
Event log SafetyParamExp FaultRecord	ATS Intro; 20.9 ATS Int;C): 24.6 ATS uni;C: 20.9 ATS Int;C): 24.6	
AutoTest     AutoTest     AutoTest     E. Automated testing will si     Modbusn8WW     ParameterVersion     ProtocolDataMatching     AutoUpdate     Genera/AutomatedTest	PM Internet         PV2         PV3         PV4         PV5         PV5         PV7         PV8           VeN/N         00         0.00         0.00         0.00         0.00         0.00         0.00           VeN/N         00         0.00         0.00         0.00         0.00         0.00         0.00           PV0         PV1         PV2         PV1         PV1         PV1         PV1         PV1           PV1	DVG/APF         R         S         T           CT_(A)         0.0         0.0         0.0           CT_(A)VW)         0.0         0.0         0.0           CTHAR_(IA)         0.0         0.0         0.0           CTHAR_VA         0.0         0.0         0.0           COMP (Ag (WW)         0.0         0.0         0.0           COMP HAR_(VA)         0.0         0.0         0.0           SVG(APF Status:         Nome         V
SerialPort Communication Status:		Please see the user's manual for a more thorough explanation CurrentUser:Developer



#### 4.4 Parallel System Communication Restore



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



# 5.1 CT Ratio

Meter	Setting Item			Illus	tration
CHINT				٤٤	[1~9999]
EASTRON	Set value equal to CT ratio. For example: 250/5A CT → Set as 50. For more detailed setting please refer to meter quick guide.		6	SEE CES SEE CES REE DO 1	From the set-up menu, use and b buttons to select the CT option. Secondary CT setting Press to enter the CT secondary current selection routine.:5A/1A Set CT Ratio value Press to enter the CT Ratio setting screen. The range is from 0001 to 9999.

#### 5.2 Connection Type

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

		545 383	From the set-up menu, use and p b buttons to select the system option. The screen will show the currently selected power supply.
FASTRON	Default 3P4W, modify connection type according	545 323	Press to enter the selection routine. The current selection will flash.
EASTRON	to real situation.	5¥5 122	Use <b>HIL</b> and <b>P</b> buttons to select the required system option: 1P2(W),3P3(W) ,3P4(W).
		535 324	Press 🚯 to confirm the selection. SET indicator will appear.

# 5.3 Extras: Communication Address, Speed and Authentication

Mator	Address	Speed	Data Bit / Stop Bit/	Illustration						
Meter	Address	(bps)	Authentication							
CHINT	4	9600	8/1/none	bRud         0: 1. 200; 1: 2. 400; 2: 4. 800; 3: 9. 600;         通讯波特率为 1200bps; 1: 通讯波特率为 2400           2: 通讯波特率为 4800bps; 3: 通讯波特率为 9600           7           Addr           1~247						
EASTRON	2	9600	8/1/none	4.8.2 M-Bus Address         SEE       Primary address: 001 to 250         UB I       Use is and point buttons         SEE       Press is bother the address value.         SEE       Press is bother the selection routine. The current setting will flash.         A.8.3 Baud Rate       From the set-up menu, use is and point.         SEE       SEE         SEE       From the set-up menu, use is and point.         SEE       SEE         SEE       From the set-up menu, use is and point.         SEE       SEE         SEE       SEE						

		4.8.4 Parity		
		582 PR71 8080	From the set-up menu, use and by buttons to select the parity option.	
		SEE PRci <mark>EuEN</mark>	Press to enter the selection routine. The current setting will flash.	
		4.8.5 Stop bits		
		588 580P 2	From the set-up menu, use	
		582 5202 2	Press to enter the selection routine. The current setting will flash.	

### 5.4 Check After Installation

ltem	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.

Please select a product		<	Configure datal	ogger
Please select a product type				
MIN TL-XH-US	>	1 C		
SPH 10K TL-X	>		ω <u> </u>	T
WIT-A/AE/AU-US	>		ž=	ž
WIT-H/HE/HU-US	>	1	CENOE	200.01
				58700
			Can not find the number?	serial Made
		QR code	e/Bar code	Manual

Click 'Confirm' and Bluetooth will start pairing with the device.



Click 'Connect' when the device is displayed.

< Searching for Bluetooth	< Searching for Bluetooth
	Bluetooth available nearby(1) Please connect the Bluetooth whose name is consistent with the SN from the list below
Bluetooth available nearby(1) Please connect the Bluetooth whose name is consistent with the SN from the list below	Connecting
QWL0DC3005 Not connected	
Search for bluetooth devices	Search for bluetooth devices

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.

< wi	T -H/HE/HU-U	JS Refreshing	< Quick Settin	n <b>g</b> Read	< Configure the network
O Consumpt on (kWh)	i <b>58.9</b> Today	<b>126.9</b> Total	Network Type	>	Network configuration method
Self Consu mption (kWh)	<b>42.1</b> Today	<b>106.5</b> Total	Time	2023-09-21 > 15:16:22 >	Note:Please don't connect the WIFI of SN code shared from the inverter
👩 run time		4.9	LCD language	English >	GROWATT
💛 (h)			AFCI	>	<u>ø</u>
<ul> <li>capacity use time (h)</li> </ul>		4.9	Export Limitation Setting	>	
Current	Charged Power	Discharged Power			Server address
70278.3W	0.0W	76890.3W			server-us.growatt.com
mport & Export	Power reflux 768	Dry contact 🛇			server-us.growatt.com
🛆 Fault	o 🙆 v	Varning <mark>0</mark>			Connect to the Internet
E)	G	ö			
Quick Setting	System Con figuration	Grid Code			
<b>Ø</b> .	$\odot$				
EMS	Smart Diagnosis	Device Information			

#### 6.2 Setting Up Monitoring Via Web Server



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

GROWATT			Shinedesign	Download	Mobile End	Language
			Мо	nitor/Oss L	₋ogin	
- 🔶 🗢 🍕			User Name		ු	
		<b>~</b> Ì	Password Register an Acco	punt	8 Forget Password	
				Login		
			Demo Acco	unt iot Vulnerabi	ility Disclosure	
١	Distributo	Installer	User			
	•		Country			
	cters	No More than 30 Charac	User Name			
		Not less than 6 Digits	Password ①			
		Not less than 6 Digits	Comfirm Password			
	~	English	Language			
			Phone Number			
			E-Mail			
			Installer Code			
	o the 《Privacy Policy》	nave read and agree t	0			
		Next				

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.

GRO	TTAWE		🔂 Add Plant   Welcome: (Plant Manager)	۵
			1	*
	🧼 Total Generation	🛷 PV Total Capacity	So Total Revenue	
	826.5(MWh)	150.3(kWp)	991557.31(¥)	
	All Plants Residential Plant Commercial	Plant Ground-Mounted Plants	Real Name Descriptions	ŝà
	- Onl	e Abnormal Offline Power Station Sequencing R	Real-time Power Priorit  Please Enter Plant Name Q	*
• Add Pla	ant			×
🕜 Inst	tallation Information			*
Plar Tvp	nt Residential Plant Da	tallation PV Total capacity(kWp)	Installer	
Plar Nar	nt Example: David 6.24Wp Plant • Te	mperature Centigrade(°C)		
😟 Loc	cation Information	0.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		
Cou	untry Please Select  Ci	y Address		
Tim Zor	ne UTC -12 • Lo	Latitude ①		
Plar Ima	nt age	Microinverter Installation Map On!	ly support JPG, PNG, JPEG, BMP, the size of no more	
53		that Park Park Toulusin	In 5M Lizhi World 高振電符	

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.

APX+WIT+SEM System	1 Commissioning Guide
--------------------	-----------------------

GROWATT	*		👕 Switch theme   🕒 Add Pl	ant   💣 Add Data Logg	er   O
Dashboard		Ch II A	E 🌣		<b>7°C ≡ </b> set Cloud Volume Irradiance
Current Location: Dashboard		Add Data Logger	×		1 0W/m²
Device Type All		Data Logger SN	•		
Data Sources 🕖	System Status: Offline PV Power: 0.00kW	Data Logger Check Code	)•		Discharged
			Yes Cancel	D0.7 <sup>Total</sup> MWh	0.0 <sup>Today</sup> 419.9
»> (D)					

### 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.



### 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.

GROWATT	System Information System Maintenance System Settings	idee management
Inverter	Running Information History Information Equipment Information	
Meter	Device management	×
Environmental monitor	O Register settings     Please set the register value	Register address 0 Action
Battery Cabinet	C Register read	Register address
Third party device Datalogger ^	Set PT or CT  CT  CT	
	Read data	
	Sys term Address: Register address: Area:	Register value:
	Cancel	Submit

#### 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 40 / 59 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.



GROWATT			enance System Settings Device management		English	v admin ()
Inverter			Equipment Information			
			Adding data ×			
	Number	Device Type	channel: RS485_1 ~	Sys term Address	Status	Action
		inverter	Type: inverter V	1		
		inverter		2		
			Start address: 1			
	Add Upgra	de Delete	Number of addresses: 2			
			Cancel			

#### 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 popup 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.

GROWATT		System Settings		English v admin 🖑
Inverter	Running Information History Information Equipme	L Information		
Meter	Adding	ata ×		
Environmental monitor	Number Device Type	channel: RS485_3 v	Sys term Address	Status Action
Battery Cabinet		Type: GRT-Battery cabinet $\checkmark$		
Third party device	Add Upgrade Delete	art address: 1 Ø		
Datalogger ^	Number	l addresses: 1 Ø		
		Cancel		
	_	4		

GROWATT	System Information System Maintenance System Settings Device management English 🗸 admin 🖑
Inverter	Running Information History Information Equipment Information
Meter	Adding data ×
Environmental monitor	Avent BERE 2
PID Device	Number Device Type Countries (1993) Countries Status Action
Battery Cabinet	Type: GRI-Battery cabinet V
Third party device	Add Upgnde Delete Start address 21 O
Datalogger ^	Number of addresses: 1 0
	Canot Salamit

NOTE		
· If th batt	ere are already existing battery systems in the SEM-X, when adding new ery system, the start address should be 21, 41 according to how many	
batt	ery systems are already existing.	



After adding battery, select 'Datalogger', select 'RS485', select Port 'RS485\_3',

set Baudrate as 38400 and click submit.



NOTE		
· If t col	he device is not online, check whether the communication line of the responding device is connected to the SEM communication port, whether 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.

GROWATT	System Information System Maintenance System Settings Device management	English v admin (b)
Inverter	Wired communication	·
Meter		
Environmental monitor		
PID Device	IP Addr: 192.166.78.79	
Battery Cabinet	Subnet Mask: 255,255,0	
Third party device	Default Gateway: 192.168.78.1	
Datalogger V	DNS Server: 114.114.114.114	
Wired Communication	MAC: 001497544dt9	
4G Communication		
RS485	Suomi	
CAN		





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.



GROWATT	Systerm Information	System Maintenance	System Settings	Device manag	gement	English v admin ()
Inverter	Wired communication	•				· · · · · · · · · · · · · · · · · · ·
Meter				DUC		
Environmental monitor				DHCF.	Urr V	
PID Device				IP Addr:	192.168.78.79	
Battery Cabinet				Subnet Mask:	255.255.255.0	
Third party device				Default Gateway:	192.168.78.1	
Datalogger v				DNS Server:	114.114.114.114	
Wired Communication				MAC:	001497544df9	
4G Communication						
R5485					Submit	
CAN						
		Tomore all all all all all all all all all al		1990 - 19900 - 19900 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -		and the second sec

### 7.6 Server Address Setting

![](_page_52_Figure_3.jpeg)

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.

GROWATT	System Information System Maintenance System Settings Device management English admin (*)
Server	Growatt Net Manage Third-party network management
Power Regulation v	Growatt Net Manage 🗧 🗸 🗸
TOU Setting	Confirm opening: Enable v
Power station relationship	Port 5279
IO settings 🛛 🗸	Server: serve-us.growatt.com O
DI	Upload cycle: 5//inute v
DRM	Submit

### 8 SEM-X Energy Management

#### 8.1 Powering On/Off Inverter with SEM-X

![](_page_54_Figure_3.jpeg)

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

GROWATT	System	n Information System Maintenance	System Settings	ent			English	ب admin (۲)
Inverter		ng Information History Information	uipment Information					
Meter		Device management				×		
Environmental monitor PID Device		Devices power on and off		Power on		~	Status	Action
Battery Cabinet		O Register settings	Please set the register value		Register address	0		
Third party device		O Register read	Area 03	/	Register address	0		
Wired Communication	Ad	Read data						
4G Communication		Sys term Address:	Register address:	Register	<i>r</i> alue:			
RS485			Cancel					
CAN								

# 8.2 Export Limitation Settings with SEM-X

![](_page_55_Figure_3.jpeg)

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

GROWATT	System Information System Maintenance System Settings Device management English admin (*)
Server	1, Meter Configuration     2, Power control     3, Advanced settings
Power Regulation  V Energy Management	Export power parameters
TOU Setting	Enable:
Power station relationship	Export power: 50.0 KW (0X:Export, -XX:Import)
IO settings V	Demand management parameters
DI	Enuble:
	Grid Power: 50 (0-5000)KW
	Demand Preparation SOC: 10 [10-100]%
	Phase adjustment management parameters
	Regulation Mode: ned adjustment
	Adjust failure parameter Combined adjustment Small phase
	Fallback activated power: Single-Phase adjustment
	Fallback activates after: 60 (5.5000)5

#### 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	l	٦
· Plea the t pow safe	se specify the power overload capacity of the grid connection point and prevent too large charging or discharging power causing circuit breaker disconnection, er line burn, short circuit and other risks. Import power, export power and fail- power limits cannot exceed the overload capacity of the connection point.	

GROWATT	System Information System Maintenance System Settings Device management English admin (*)
Server	1, Meter Configuration 2, Power control 3, Advanced settings
Power Regulation ~	Export power parameters
TOU Setting	Enable: 💽
Power station relationship	Export power: 50.0 KW (00%Export, -30%Import)
IO settings	Demand management parameters
	Enable:
	Grid Power: 50 [0-5000]KW
	Demand Preparation SOC: 10 [10-100]%
	Phase adjustment management parameters
	Regulation Mode: Combined adju ~
	Adjust failure parameter
	Fallback activated power: 20 [0-100]%
	Fallback activates after: 60 (5-5000)S

### 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')

![](_page_57_Figure_5.jpeg)

GROWATT	Systerm Information System Ma	aintenance System S	ettings Device management		English	v admin 🖑
Server Power Regulation ~ Energy Management	Default Mode: Self-consumption (Load firs TimeSetting Adding da	it) ~ Mode Selection: Wee	ek pattern	ite: Open .		
TOU Setting	StartTime	StartTime:	◎ 00:00	day/Cu	ustom Whe	ther to enable
Power station relationship	Add Delete	* EndingTime:	© 23:59			
IO settings		* 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			
		-		Martin		
			. w			

GROWATT	Systerm I	nformation	System Maintena	ance System Settings	Device management		English	<u> </u>	admin 🕐
Server Power Regulation ~ Energy Management	Default Mod	le: Self-consumpt	ion (Load first) 🗸	Mode Selection: Week pattern	✓ ● Current Mode State: Open ●				~
TOU Setting		StartTime	EndingTime	Mode	Power Parameter	Weekend/Weekday/Custom		Whether to enable	•
Power station relationship	0	© 00.00	© 17:10	Self-consumption (Load first) v	Discharge Power:	Custom Monday Tuesday Wednesday T Thursday Friday Saturday S Sunday S	× ×		
	0	© 17:11	© 17:20	TOU-discharging (Grid first) ~	Discharge Power: 30 KW Requirement SOC: 10 %	Working day           Monday         Tuesday         Wednesday           Thursday         Friday         Friday	~		
	•	© 17:21	© 17:30	Self-consumption (Load first) >	Discharge Power:	Working day           Monday         Tuesday         Wednesday           Thursday         Friday	~ ~		
	•	© 17:31	© 17:40	TOU-charging (Battert first) ~	Charging Power: 50 KW Charging Deadline 100 %	Working day Monday Tuesday Wednesday Thursday Friday	~		
	0	© 17:41	© 23:59	Idle-mode V		Working day Monday Tuesday Wednesday Thursday Friday	<b>~</b>		