



WIT 4-15K-HU Hybrid Inverter User Manual

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1 Notes on this manual

1.1 Introduction

This manual is intended to introduce the WIT 4-15K-HU Hybrid Inverters manufactured by Shenzhen Growatt New Energy Co., Ltd. (hereinafter referred to as Growatt) in terms of their installation, operation, commissioning, maintenance and troubleshooting. Please read this manual carefully before using the product and keep it in a convenient place for further reference. The content of this manual is continually reviewed and amended, where necessary. Growatt reserves the right to make changes to the material at any time and without notice.

Note:

"WIT" refers to the product name. "4-15K" refers to the power range.

1.2 Target Group

This document is intended for qualified technicians. Only qualified and welltrained technicians are allowed to install and operate the WIT inverter. Should any questions arise during installation, you can visit en.growatt.com to leave a message.

1.3 Product Range

WIT 4-15K-HU (AC 380V/400V) inverters offering seven power options: 4kW, 5kW, 6kW, 8kW, 10kW, 12kW, and 15kW. In total, there are 7 products available in this series. This manual is valid for the following models:

WIT 4K-HU	
WIT 5K-HU	
WIT 6K-HU	
WIT 8K-HU	3-Phase Hybrid Inverter with UPS function
WIT 10K-HU	
WIT 12K-HU	
WIT 15K-HU	

Table 1.1 WIT 4-15K-HU series model introduction

Safety Precautions 2

2.1 Safety Instructions

- 1) Please read this manual carefully before installation. Damages caused by failure to follow the instructions in the manual are beyond the warranty scope.
- 2) Only qualified and trained electrical technicians are allowed to perform operations on the WIT Inverter.
- 3) During installation, please do not touch other parts inside the equipment other than the wiring terminals.
- 4) Ensure that all electrical connections comply with local electrical standards.
- 5) Only designated personnel are permitted to perform maintenance on the inverter.
- 6) Before operating the WIT Inverter in on-grid mode, ensure that you have obtained any permission needed from the local grid operator.

Transportation:

Installation:

NOTICE	 Please read this manual carefully before installation. Damages caused by failure to observe instructions specified in this manual are not covered under any warranty.
DANGER	• Do not connect any cables before installation.
WARNING	 Please observe the installation instructions specified in this manual, including the installation environment and clearance requirements. Install the WIT Inverter in a dry and well-ventilated location; otherwise, performance de-rate may be initiated due to excessive temperature. Please read the installation instructions and safety precautions carefully before installation.

Electrical Connections:

DANGER	 Before connecting cables, ensure that the DC switches of the WIT Inverter are OFF, and turn off the switch and breaker on the AC side and the battery side. Otherwise, high voltages may cause severe injuries. It must be operated by qualified and trained electrical technicians. Technicians should observe instructions in this manual and local regulations. High voltages may cause electric shocks and serious injury. Please do not touch the WIT Inverter in operation. Do not install the inverter in potentially explosive and flammable atmospheres.
	 Each WIT Inverter must be equipped with an AC circuit breaker. Multiple WIT Inverters cannot connect to the same AC circuit breaker. Do not connect the load between the WIT Inverter and the circuit breaker. If the cable is thick, do not shake the cable terminals after tightening them. Otherwise, the loose connection may cause overheating and device damage. Ensure that the terminals are properly connected before starting the WIT Inverter. Ensure the correct polarity of the terminals before connecting the PV array to the WIT Inverter.

Maintenance and replacement:

DANGER	 It must be operated by qualified and trained electrical technicians. Technicians should observe instructions in this manual and local regulations. After turning off the DC switches and the AC breakers, wait for at least five minutes before performing any operations to avoid risks. When the OLED screen indicates "PV Isolation low", do not touch the chassis as a ground fault may have been detected. Beware of high voltages which may cause electric shocks.
	 To ensure good dissipation, clean the fan regularly. Do not use the air pump to clean the fan. Otherwise, the fan may be damaged.

Others:

i	• Upon receiving the product, check if the contents are intact and complete. If any damage is found or any component is missing, please contact your distributor.
	 The maximum PV input voltage cannot exceed 1000V. The battery input voltage cannot exceed 60V. For the WIT Inverter that will not be put into operation in the future, you should properly dispose of them by yourself.

2.2 Symbol Conventions

Symbol	Description
DANGER	DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION indicates a hazard with potential risk which, if not avoided, could result in minor or moderate injury.
NOTICE	NOTICE indicates that under certain circumstances, improper operations could result in property damage.
i	Remind operators to check the instructions before installing or operating the WIT Inverter.

2.3 Label Description

Symbol	Name	Meaning
A	High voltage	High voltages exist after the WIT Inverter is powered on. Only qualified and trained electrical technicians are allowed to perform operations.
	Burn warning	Do not touch a running inverter because it generates high temperatures on the shell.
	Grounding	Indicates the position for connecting the PE cable.
	Delay discharge mark	Residual voltage exists after the WIT Inverter is powered off. It takes 5 minutes to discharge to the safe voltage.
i	Refer to the manual	Remind operators to refer to the manual before installing and operating the WIT Inverter.
	DC	Direct Current.
\sim	AC	Alternating Current.

Product Description 3



The following figure shows the appearance of the WIT 8-15K-HU. The WIT 4-6K-HU has only one MPPT tracker compared to the WIT8-15K-HU, so there is a slight difference in the PV port at the bottom.

3.1 Overview

Front view:





Bottom view:



Fig 3.2 Bottom view

Left view:

Right view:







Ъıд	3.3	Left	view	

Table	31	Component description	
Tuble	5.1	component description	

No.	descriptions	No.	descriptions
A	Top cover plate	В	Display screen
С	Bottom cover plate	D	Network Port Terminal
E	Signalterminal	F	Battery Terminal Blocks
G	Load wiring terminal	Н	Power grid connection terminal
I	Power grid connection terminal	J	PE wiring terminal
к	PV terminal	L	USB interface
м	Battery switch	Ν	PV Switch
0	Nameplate	Р	Indicator description label

3.2 Battery Switch Status Description

When The WIT is connected to the energy storage battery, turn on the switch of the energy storage battery in advance, and press the battery button after 30 seconds, and the button is closed as shown in Fig 3.5 below. When the battery is disabled, close the battery button, as shown in Fig 3.6.

- 1. Before using the battery to wake up The WIT, make sure the battery button is turned on.
- 2. Regardless of whether the battery is connected, the battery button should be turned on when The WIT is operating in any mode.



Fig 3.5 Battery Switch-On



Fig 3.6 Battery Switch-Off

3.3 Basic Data

Table	3.2	Dim	ensions	and	weight
-------	-----	-----	---------	-----	--------

	Model	Size (mm)			Weight
	Model	Height	Width	Depth	(kg)
The WIT Inverter without package	WIT 4-15K-HU	698	475	240	43
The WIT Inverter with package	WIT 4-15K-HU	835	590	403	51

unit: mm



Fig 3.8 Package Dimensions

3.4 Nameplate

The figure below shows the nameplate of WIT 15K-HU as an example. The nameplate figure is for reference only. The actual nameplate prevails. For the specifications, please refer to Section 10 Product Specifications.

GROWAT	т
Hybrid Inverter WIT 15K-HU	
PV Data	
Max. PV voltage	1000d.c.V
PV voltage range	150-850d.c.V
PV Isc	25d.c.A*3
Max. input current	20 d.c.A*3
Grid Data	
Nominal input/output power	30/15 kW
Max. input/output apparent power	33/16.5 kVA
Nominal voltage	3W/N/PE
Max, input/output current	501/25 a c A
Nominal frequency	50/60 Hz
Power factor range 1 lea	ding~1 lagging
GEN Data	
Nominal output power	30 kW
Nominal voltage	3W/N/PE
	380/400 a.c.V
Nominal frequency	50/60 Hz
Load Data	
Nominal AC output power	15 kW
Nominal AC output voltage	230/400 a.c.V
Nominal AC output frequency	50/60 Hz
Power factor range 1 lea	ading~1 lagging
Battery Data	
Battery voltage range	40-60 d.c.V
Max. charging and discharging curren	t 290 d.c.A
Type of battery Lit	hium-ion/VRLA
General Data	
Safety level	Class I
Ingress protection	IP66
Operation ambient temperature	-30°C - +60°C
Integrated with AFCI	íi X
Download Manual	۔ Made in China

Fig 3.9 Nameplate

3.5 WIT 4-15K-HU Operating Principles

- The hybrid inverter receives DC inputs from PV strings which go through the MPPT routes. The DC power is then converted into AC power through the inverter circuit to power the loads and feed power into the grid;
- 2) The PV strings can supply power to charge the battery through the MPPT routes;
- Convert battery power to AC power supplies for the loads and feeding to the grid;
- 4) Charge the battery from the grid through a rectifier circuit;
- 5) Convert the DC power from PV strings and the battery power into AC power through the inverter circuit to power critical loads;
- 6) When the GEN port is connected to the generator and set to the GEN mode, the generator can supply power to the loads or charge the battery;
- 7) When the GEN port is connected to loads and set to "Smart Load" mode; during on-grid operation, it will supply grid power to the loads connected via the GEN port; during off-grid operation, the power supply to smart loads will be cut off when the battery SOC is below 50%.
- 8) When the GEN port is connected to the PV inverter and set to "AC Couple" mode, during on-grid operation, the PV inverter will be connected to the grid and output power; during off-grid operation, the PV inverter will remain connected and generating power together with the WIT inverter.



NOTE: WIT 4-15K-HU models have 2 MPPT routes.

Fig 3.10 WIT 4-15K-HU Grid-connected conceptual diagram

3.6 Storing the WIT Inverter

- 1> Put the WIT Inverter in the original package and place it in a dry and wellventilated place.
- 2> Keep the storage temperature from −40°C to +70°C and the humidity from 0%− 95% RH.
- 3> A maximum of three WIT Inverters can be stacked. Do not stack the inverters without package.
- 4> If the WIT Inverter has been long-term stored, inspections and tests should be conducted by qualified personnel before installation.



Wrong time and date may occur if the WIT Inverter has been stored for over one month. Fix the time and date before connecting the inverter to the grid. For details, see Fig 7.1 Commissioning the WIT Inverter.

3.7 Supported Grid Types

Grid connection modes for WIT 4-15K-HU Hybrid Inverters are shown in Fig 3.11.





3.8 AFCI Function

3.8.1 AFCI function Description

An AFCI, or Arc-Fault Circuit Interrupter, is a solution designed to detect and mitigate the risk of electrical arcing in a photovoltaic (PV) system, supported by intelligent arc detection algorithm. Arcing can occur when there is a high voltage breakdown in the electrical insulation or when conductive materials come into contact with each other. This can pose a fire hazard and damage the system components. The AFCI continuously monitors the system for potential arc faults and, if detected, interrupts the circuit to prevent a fire or other damage. AFCIs are required by the National Electrical Code (NEC) in certain parts of a PV system, such as the DC side of the inverter, to improve safety and reduce the risk of fires.

1. The AFCI Function of the WIT Inverter is disabled by default. If you want to enable the AFCI, please contact Growatt support.

2. Do not connect the Maximum Power Point Trackers (MPPTs) on the DC side in parallel as it might trigger the AFCI mistakenly.

3.8.2 Clearing the Alarm

In the event that the WIT Inverter reports "AFCI Fault" and the PV indicator turns red, an arc fault might have been detected. Please perform the following steps to clear the alarm.

Step 1: Disconnect the WIT inverter from all power sources. Turn off the battery switch and the AC output circuit breaker, then turn the DC switches to the OFF position. Wait until the error message disappears.





Step 2: Troubleshooting. Check if the open-circuit of all PV strings are within the permissible range.

Step 3: After the fault is cleared, restart the inverter. Turn on the battery switch and the AC breaker, and turn the DC switch to the ON position. Wait until the system is working properly.





If the WIT Inverter passes the AFCI self-test, it will work in the normal mode and the PV indicator will be green. If it fails, the inverter will report "Error 425". In this case, please reboot the system and perform Step 1 to Step 3. If it failed again, please disconnect all power sources and contact Growatt support.

4 Inspection upon delivery

Unpacking and inspection

- 1> Before unpacking the WIT Inverter, check the shipping box for any externally visible damage. If any damage is found, contact the shipping company as soon as possible.
- 2> After unpacking the WIT Inverter, check if the scope off delivery is intact and complete. If any damage is found or any component is missing, contact your distributor.

Check the following items:



Fig 4 WIT 4-15K-HU Attachment

No.	Description	Quantity	No.	Description	Quantity
А	The WIT Inverter	1	К	AC Side Rail Crimp Terminals	14
В	Wall mount kit	1	L	RNB8-4S Terminal	1
С	PV+(-) connector	3/3	М	CT (100A/40mA)	3
D	PV+(-) metal contact	3/3	Ν	External lead-acid battery NTC cable	1
E	Battery terminal SC50- 8/SC120-8	4/2	0	Plug/2-Φ12	2
F	SC4-6 terminal	1	Ρ	PV connector disconnect tool	1
G	M8*16 screw	4	Q	ShineWiLan-X2	1
Н	M6*16 screw	2	R	Rj45	7
I	M8*80 screw	4	S	user manual	1
J	Communication Crimp Terminal	14	Т	Quick Guide	1

Table 4.1 Packing list

- 1. Sturdy and durable though the packing carton is, please carry and handle it with caution.
- 2. When connecting 2-channel battery on the battery input side, use the attached rubber plug to ensure reliable sealing;
- 3. Normal use of the machine accessory CT for backflow prevention and other energy flow control, customers do not need to purchase a separate meter and CT, just connect the CT's secondary side wiring to the corresponding terminals of the WIT 4-15K-HU machine.

5 Installation

5.1 Basic Installation Requirements

- A. The installation location must be suitable for WIT's weight for a long period time. (Refer to Table 3.2 for the weight of the WIT Inverter).
- B. Ensure that the installation position is suitable for the dimensions of the WIT Inverter.
- C. Do not install the WIT Inverter in areas with flammable or non heat-resistant materials.
- D. The WIT Inverter is protected to IP66 and can be installed indoors or outdoors.
- E. Do not expose the WIT Inverter to direct sunlight. Otherwise, excessive temperature may lead to power reduction.
- F. Keep the humidity at 0% to 95% RH.
- G. Keep the ambient temperature at -30°C to 60°C.
- H. The WIT inverter can be installed vertically or backward tilted. Please refer to the figures below:





Fig 5.1

I. Reserve enough clearance around the WIT Inverter to ensure sufficient space for heat dissipation and operation. Leave a clearance of 0.6 m on both sides, approximate 0.6 m above and below the WIT Inverter, and 1 m in front of the inverter.



- J. Keep the WIT Inverter away from strong interference sources.
- K. Ensure that the WIT Inverter is not accessible to children.

5.2 Installation Environment Requirements

A. Though the WIT Inverter is protected to IP66, do not expose it to direct sunlight, rain and snow. Please refer to the figures below:



Fig 5.3

B. To reduce the de-rate performance of the inverter and extend inverter's life span, we strongly recommend you install an awning. For the distance between an awning and inverter, please refer to following figure:



Fig 5.4

C. When you install multiple WIT inverters on one surface, inverters should be installed as following drawing. (Choose one of the two options below).





Fig 5.5

D. Do not place the WIT Inverter in an enclosed and narrow space for operation.



Fig 5.6

5.3 Moving the WIT Inverter



- The inverter is heavy, please move it with care and keep balance to avoid personnel injury.
- Do not place the inverter with its wiring and signal terminals at the bottom contacting with floor or any other object because the terminals are not designed to support the weight of inverter.

1>As shown in Fig 5.7, two persons are required to lift the inverter out of the package and transport it to the installation position.

2>When you are moving the inverter, please keep the balance.

Note: There will be front and bottom mark on the package.



Fig 5.7

5.4 Wall Mount Bracket Installation

Before installing the inverter, you need install the wall mount bracket so that the inverter can be securely mounted on the wall.

Wall mount bracket (unit: mm):



Fig 5.8

- **STEP 1:** Use the wall mount plate as a template, drill holes into the wall and insert the expansion bolts as Fig 5.9 show.
- **STEP 2:** Tighten the bolts to attach the wall mount bracket onto the wall securely as illustrated below.



Fig 5.9

Note:

- 1> The wall where the expansion bolts are installed should be a solid concrete or brick wall with a thickness of at least 100 mm.
- 2> Ensure that the bracket has been firmly installed before mounting the inverter onto it.

5.5 Installing the Inverter

After verifying that the wall mount bracket has been firmly installed on the wall, mount the inverter onto the bracket.

- 1> The installer uses both hands to lift the machine as shown in Fig 5.10 below.
- 2> Hang the inverter onto the wall mount bracket and install the bolts. Please keep balance when moving the inverter.
- 3> Check if the inverter has been properly mounted and tighten all screws.



Fig 5.10 Wall-mounted installation



Ensure that the wall meets the load-bearing requirements of the equipment. For details about the weight, see Table 3.2.

6 Electrical Connection



Fig 6.1 Wiring diagram of the system with a single WIT 15K-HU inverter (Gen mode)

1.Connect the signal wires of the generator and the meter to the relevant positions of the CN10 terminal according to Table 6.6.

2. Set the parameters on the client. Take ShinePhone as an example:

Tap Control > Off grid parameter settings > Related settings for grid connection and off grid> Grid connected/off grid setup> Generator; As shown in Fig 8.39; (2) Tap Control > Advanced > Microgrid system> Types of Access for GEN Port Devices>Generator and >Generator Enable>Enable, And set other parameters as required.



Fig 6.2 Wiring diagram of the system with a single WIT 15K-HU inverter and two meters (AC couple mode)

1. Connect the signal wires of the meter to the relevant positions of the CN10 terminal according to Table 6.6.

2. Proform related Settings on the client. Take ShinePhone as an example: Tap Control > Advanced > Microgrid system> Types of Access for GEN Port Devices>Inverter and >AC Couple Enable> Enable, And set other parameters as required.



Fig 6.3 Wiring diagram of the system with single WIT 15K-HU inverters in smart load mode

- 1. Connect the signal wires of the meter to the relevant positions of the CN10 terminal according to Table 6.6.
- Proform related Settings on the client. Take ShinePhone as an example: Tap Control > Advanced > Microgrid system> Types of Access for GEN Port Devices>Smart Load.



Fig 6.4 Wiring diagram of the system with three WIT 15K-HU inverters connected in parallel

- 1. Proform related Settings on the client. Take ShinePhone as an example: Tap Control > Parallel parameter setting > Parallel enable> Enable.
- 2. The wiring methods for different regions are shown in Fig 6.5 below, please select the wiring method according to the local safety regulations.



Fig 6.5 N-PE Wiring in Different Areas



Fig 6.6 Communication network port Detailed information





6.1 Shell Connecting The Ground Cables

- 1) It is essential to connect the ground cable to the WIT inverter before connecting other cables to prevent personal injury or device damage.
- 2) All non-current-carrying metal parts and the enclosures of the devices of the energy storage system, including the rack and the enclosures of the combing box, the distribution panel, the inverter and the battery should be properly grounded.
- 3) For a single WIT inverter, connect a ground cable to the ground point on the chassis shell. For a system with multiple WIT inverters connected in parallel ensure that the enclosures of the WIT Inverters, the metal racks of the modules and the batteries should be connected to the same area to achieve equipotential bonding.
- 4) The position of the ground points of the WIT 4-15K-HU Hybrid Inverter is shown in Fig 6.6.



Fig 6.8 Protective earthing position

Attention:

- 1. Keep the lightning protection grounding at the greatest possible distance from the protective grounding.
- 2. Protect the terminals of the ground cables against rain and do not expose the them to open air.
- 3. Tighten the screws to a torque of 50 kgf·cm.

6.2 Internal Connecting The Ground Cables

DANGER	 Before connecting cables, ensure that the DC switches on the WIT Inverter are OFF. Turn off the switches and breakers on the GRID side, GEN side and the battery side. Otherwise, the high voltages of the WIT Inverter may result in electric shocks. Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. Do not place inflammable and explosive materials around the WIT Inverter.
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The Internal Ground Cables connection steps:

1) Open the lower cover and the cover position is shown in Fig 6.9;



Fig 6.9 Right cover

2) Connect a ground cable to the copper grounding bar. Fig 6.10 shows the position of the grounding bar inside the right cover plate;



Fig 6.10 Grounding Schematic

6.3 Connection on the AC Side

DANGER	 Before connecting cables, ensure that the DC switches on the WIT Inverter are OFF. Turn off the switches and breakers on the GRID side, GEN side and the battery side. Otherwise, the high voltages of the WIT Inverter may result in electric shocks. Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. Do not place inflammable and explosive materials around the WIT Inverter.
WARNING	 Each WIT Inverter must be equipped with a separate AC circuit breaker. Multiple WIT Inverters cannot connect to the same AC circuit breaker (not applicable to off-grid mode). Please do not connect loads between the WIT Inverter and the circuit breaker. If the cable is thick, do not wiggle the cable after tightening the cable terminals. Otherwise, the loose connection may cause overheating that will damage the device. Ensure that the terminals are properly connected before starting the WIT Inverter. Upon completion of the AC wiring, remember to seal the waterproof silicone mat with the fireproof mud in order to ensure good waterproof performance.
Preparation:

1> Ensure the grid voltage and the grid frequency are within the acceptable range;

2> Disconnect the DC switches and the AC breakers on the grid side, generator side and the battery side.

The circuit breaker on the AC side:

AC circuit breaker needs to be installed on the grid side, ensuring a safe disconnection between the WIT Inverter and the upstream input when an exception occurs.

1. Recommended AC breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	32A
WIT 8/10/12/15K-HU	400V	63A

2. Recommended load breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	25A
WIT 8/10/12/15K-HU	400V	50A

3. Recommended bypass breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	25A
WIT 8/10/12/15K-HU	400V	50A

4. Recommended Gen breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	32A
WIT 8/10/12/15K-HU	400V	63A

NOTE:

For the PCS to operate in Smart Load mode, select the appropriate AC breaker based on the smart load power.

Recommended power cable specifications:

Recommended AC power cables for WIT 4-15K-HU models

Device type	GRID Recommended cable specification	LOAD Recommended cable specification	GEN Recommended cable specification
WIT 4-15K-HU	10mm²	10mm²	10mm²

Note: The wire should be well tinned and free from splits and breaks.

AC side connection method:

Connect the main power cables according to the label. Fig 6.11 shows the position of the label and the AC terminals.



Fig 6.11 AC Terminal Wiring Locations and Schematics

Note:

1. Determine the stripped length based on the wiring terminal specifications (recommended length: 11-13 mm). Crimp the cable and terminal using a crimper as shown below. Loosen the PG type cable gland and route the cables through it. Then connect the cables to the corresponding terminals. Secure the cables by tightening the screws.



- (1) OT terminal
- (4) Heat shrink tubing
- (5) Hydraulic pilers
- (3) Cable
- (6) Heat gun

Fig 6.12 Schematic diagram of cable crimp terminals

2. Cold-pressed terminals are delivered with the package. Select terminals based on the cable specifications;



• Any device damage caused by failure to seal the output terminal gaps as instructed is beyond the scope of warranty and Growatt shall not be liable for the damage.

6.4 Connection on the PV Side

DANGER	 Before connecting cables, ensure that the DC switches of the WIT Inverter are OFF, and turn off the breakers on the AC side and the battery side. Otherwise, the high voltages of the WIT Inverter may cause electric shocks. Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. Check the positive and negative terminals before connecting the PV module to the WIT Inverter. High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. Please do not place inflammable and explosive materials around the WIT Inverter.
	 The maximum open-circuit voltage of each string should not exceed 1000Vdc. Ensure that the following conditions are met; Otherwise, fire hazard or inverter damage may occur. Growatt is not liable for the consequence and it is beyond the warranty scope.

NOTE:

- When exposed to sunlight, PV modules will generate voltage. High voltages presented in the PV strings connected in series could be fatal. Therefore, shield the PV modules from sunlight before connecting the DO input power cable and ensure that the DC switches on the WIT Inverter are OFF.
- The PV modules connected in series should be of the same model. The maximum short-circuit current of each PV string must be lower than or equal to 50A.
- 3. The total panel power should not exceed twice the WIT inverter input power. For optimal system configuration, it is recommended to connect two DC inputs with an equal number of PV modules.





Fig 6.13 PV Terminal

Procedure for connecting cables on the PV side:

- 1. Strip 6-8 mm of the insulation layer of the PV cables;
- 2. Insert the exposed core wires into the crimping area of the wiring terminal and crimp them using a crimping plier;
- 3. Route the cable through the cable sealing sleeve and insert the insulation sleeve until it snaps. Slightly pull the cable back to ensure that it is securely connected. Then tighten the locking nut;
- 4. Insert the positive and negative connectors of the PV modules to the corresponding terminals on the inverter. For the maximum input current of different models, please see Table 6.1. For the cable specifications, please see Table 6.2.

Table 6.1 Maximum current of a single MPPT route

Device type	Max. current of a single MPPT route
WIT 4-15K-HU	40A

Table 6.2 Cable specifications on the PV side

Device type	Recommendation cable specifications
WIT 4-15K-HU	4-6mm ²

NOTE:

- For a single WIT Inverter, connect the ground cable of the inverter. For a system with multiple WIT Inverters connected in parallel, connect the ground cables of all inverters and the metal racks of the PV modules to the same area to ensure equipotential bonding. Before connecting the PV cables, ensure that the ground cables on the PV side are properly connected.
- 2) Use male and female connectors in pair. Ensure the correct polarity before connecting the PV string to the inverter.
- The total current of all strings cannot exceed the WIT Inverter's maximum input current;
- 4) Do not touch the solar panels in operation;
- 5) The wires should be tinned and are not frayed or cracked.

6.5 Connection on the Battery Side

DANGER	 Before connecting cables, ensure that the DC switches of the WIT Inverter are OFF, and turn off the breakers on the AC side and the battery side. Otherwise, the high voltages of the WIT Inverter may cause electric shocks. Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. Please do not place inflammable and explosive materials around the WIT Inverter.
	• Ensure that all cables are securely connected before powering on the WIT Inverter. Loose connection may cause overheating that will damage the device.

NOTE:

Recommended battery voltage 51.2V.

Table 6.3 Cable specifications on the Battery side

Device type	Recommended Cable Specifications
WIT 4K-HU	50mm²
WIT 5K-HU	50mm²
WIT 6K-HU	50mm²
WIT 8K-HU	50mm ² /120mm ²
WIT 10K-HU	50mm ² /120mm ²
WIT 12K-HU	50mm ² /120mm ²
WIT 15K-HU	50mm ² /120mm ²

6.5.1 Connecting the Main Power Cable of the Battery

Preparation:

- 1. Turn off the DC switch, AC side switch and battery side switch of The WIT;
- 2. Find the battery OT terminal from the delivery accessories. See Accessories Diagram in Chapter 4 for the terminal picture.

Procedure for connecting the main battery power:

- 1. Strip the insulation layer of the DC cable, Select an appropriate cable stripping length based on the OT terminal。
- 2. Use crimping pliers to crimp the battery cable on the battery terminal, and then cover the heat shrink tube for insulation protection;
- 3. Connect the crimping terminal of the battery cable to the battery input terminal and lock it using M8 screws, as shown in Fig 6.14.



Fig 6.14 Step-by-step diagram of battery terminal wiring

NOTE:

- 1> Connect the ground cable before connecting the battery cable; the ground point is shown in Fig 6.10.
- 2> The length of the battery cable is recommended to be no more than 10m

6.6 Connecting Communications Cables

6.6.1 COM1/COM2 Connection

WIT 4-15K-HU Inverter includes 8 RJ45 ports. It is used for parallel connection via PARA-IN and PARA-OUT communication terminals, battery communication via BMS1 terminals, and external equipment communication via RS485 and DRMS function Connect the communication cables to the corresponding terminals as required. For details, see Table 6.5.

Procedure for connecting the terminal:





- 1> Unscrew the PG head to remove the rubber plugs according to the number of communication cables, keep the rubber plugs with unused holes, and then pass the communication cables through the PG head. The steps are shown in Step1-4;
- 2>Crimp the communication cables as shown below.



- 3> Connect the communication cable terminals according to the single board silkscreen as shown in Fig 6.17.
- 4> Tighten the PG head after connecting.

Detailed information of COM1



Fig 6.17 Communication network port

Definition of battery communication terminal			
Silk screen	Pin	Definition of signal	Function and Note
	1	BAT RS485_B	
	2	BAT RS485_A	
	3	BAT1 DI_1	
DMC1	4	BAT1 CAN_H	Communication of battery1
BM21	5	BAT1 CAN_L	(mandatory)
	6	BAT1 DI_2	
	7	BAT1 WAKE-	
	8	BAT1 WAKE+	
	1	١	
	2	١	Disabled
	3	λ.	
DMCD	4	Υ.	
BM22	5	Υ.	
	6	Υ.	
	7	١	
	8	١	
	1	RS485_1B	
	2	GND.S	
RS485-1	3	١	
	4	RS485_1B	RS485-1: CT/ShineBus/
	5	RS485_1A	RS485-3: EMS/VPP (7/8)
	6	λ.	
	7	RS485_3B	
	8	RS485_3A	

Table 6.5 Communication network port terminal description

Definition of battery communication terminal			
Silk screen	Pin	Definition of signal	Function and Note
	1	RS485_1B	
	2	GND.S	
	3	Υ.	RS485-1: CT/ShineBus/
	4	RS485_1B	
K5485-2	5	RS485_1A	RS485-3: EMS/VPP (7/8)
	6	\	
	7	RS485_3B	
	8	RS485_3A	
	1	RS485_2B	
	2	GND.S	
	3	Υ.	RS485_2: METER1 output (export limitation meter wiring port for a single inverter)
METER	4	λ.	
METER	5	RS485_2A	
	6	\	
	7	\	
	8	\	-
	1	DRM1/5	
	2	DRM2/6	
	3	DRM3/7	
DI	4	DRM4/8	
	5	REF	
	6	СОМ	
	7	\	
	8	\	

Definition of battery communication terminal				
Silk screen	Pin	Definition of signal	Function and Note	
	1	\		
	2	GND.S		
	3	Sc_A/H		
	4	PL_CANH		
PARA-IN	5	PL_CANL	Parallel Input	
	6	Sc_B/L		
	7	GND.S		
	8	Master_CAN		
	1	Υ.		
	2	GND.S		
	3	Sc_A/H		
	4	PL_CANH	Develleleuteut	
PARA-UUT	5	PL_CANL		
	6	Sc_B/L		
	7	Slave_CAN		
	8	GND.S		

6.6.2 COM3/COM4 Connection (Connecting the signal terminals)

This terminals is used for oiler start/stop, machine emergency stop, battery temperature rise and external CT access signals.

Terminal Connection Procedure.

- 1) Strip the outer wire skin of the cable by 5~7mm, and then use crimping pliers to crimp the wire and tubular terminal;
- 2) Unscrew the corresponding PG head and remove the rubber bar under the corresponding hole, keep the rubber plug for the unused hole;
- 3) Pass the cable through the PG header and snap it into the corresponding terminal holes of the veneer as shown in Fig 6.18.



Fig 6.18 Signal terminal connections

4) Install the Bottom cover plate after completing all the above steps.



Fig 6.19 Install the Bottom cover plate

Detailed information:



Fig 6.20 Signal Terminal

Signal Terminal Interface Definition Description					
silkscreen	Pin	Signal Definition	Features and Remarks		
	1	REPO.WIT	Emorgonov chutdown input		
COM2(CM20)	2	GND.S	Emergency shatdown input		
	3	DG_START+	Oilor start signal		
	4	DG_START-	oner start signat		
	5	NTC.BAT1 OUT			
	6	NTC.BAT1 OUT.G	Battery i temperature		
	7	λ.	N N		
	8	١	Υ.		
	9	CT_R+ (White)			
COM4(CN10)	10	CT_R-(Black)	CT Phase A		
	11	CT_S+ (White)	CT Dbaco B		
	12	CT_S-(Black)	CT Pliase B		
	13	CT_T+ (White)	CT Phase C		
	14	CT_T-(Black)			

6.6.3 USB connection

The WIT-XHU series inverter is equipped with a USB interface as standard, which can be connected to a USB to WiLAN-X2 monitoring module for remote monitoring. In addition, you can also quickly upgrade the inverter software through the U disk. Steps to install the monitoring module:

1> Loosen the waterproof cover of the USB interface and remove it.

- 2> As shown in Fig 6.21, insert the WiLAN-X2 module into the USB interface, and the LED indicator of the WiLAN-X2 module will be on.
- 3> As shown in Fig 6.21, make sure that the is facing frontwards as the inverter has been wall-mounted, insert the monitoring module into the USB interface, and tighten the lock.

Note:

 $1. \mbox{If a USB to WiLAN-X2} module is installed, please take the module and the data cable away, and tighten the waterproof cover when the operator leaves to prevent water from entering the interface.$

2.System upgrades will cause power outages on load ports of the WIT.



Fig.6.21 USB Connection

6.7 Post-installation Checks

The following table lists the post-installation items to be checked:

Position	Item	Check item
housings	Ground cable connected to the chassis	Check the cable specifications; ensure that the cable has been securely fastened
	Ground cable on the PV side	Check the cable specifications; ensure that the cable has been securely fastened
PV side	PV+, PV-	Check the cable specifications; ensure that the cable has been securely fastened; confirm that the number of PV modules matches the rated power

Position	Item	Check item
Detterveide	Ground cable on the battery side	Check the cable specifications; ensure that the cable has been securely fastened
Battery side	BAT+, BAT-	Check the cable specifications; ensure that the cable has been securely fastened
	Ground cable on the AC side	Check the cable specifications; ensure that the cable has been securely fastened
AC Side	Grid side	Check the cable specifications; ensure that the cable has been securely fastened
	Load side	Check the cable specifications; ensure that the cable has been securely fastened
	GEN side	Check the cable specifications; ensure that the cable has been securely fastened
	Right cover plate	Re-install the cover and secure it with screws after checking all items on the AC side
	Network Port Terminal	Connections are correctly made without loosening and are locked
Communication terminals	signal terminal	Connections are correctly made without loosening and are locked
	USB	No loosening of the correct insertion, no gaps in the sealing ring
bottom cover	bottom cover	Please make sure that the wiring is correct and then cover the lower cover of the machine and lock it tightly

Note:

After the wiring is completed, please make sure to check that the lower cover plate is installed reliably to ensure that the protection level of the machine is not affected by installation problems.

Commissioning 7

7.1 Commissioning the WIT Inverter

• The WIT Inverter might show wrong time and date if it has been stored for over a month. You need to set the correct time and date before connecting the WIT Inverter to the grid.
 When The WIT is only connected to the battery, the battery switch must be pressed until the battery is fully awakened.

7.1.1 Set the Communication Address

After the WIT Inverter is powered on, you can set the communication address of the WIT Inverter via RS485 communication or the USB to WiLAN-X2 module. When multiple inverters are connected in parallel with RS485 hand-in-hand communication, each inverter should be set to different communication addresses. For a single inverter, the default communication address is set to 1.

NOTE:

The communication address of the WIT Inverter ranges from 1 to 254. By connecting the WIT Inverter to the host computer through RS458 communication, you can change its communication address via Shinebus. This operation should be performed by professional personnel.

7.1.2 Set the Time and Date

7.1.2.1 Set the time and date on the APP (Shinephone/Shinetools)

Follow the instructions in Section 6.5.3 to connect the datalogger. Take Shinephone APP as an example, When the inverter is powered in, you can set inverter time and date referring to Section 8.1.1.Tap Control > Set Inverter Time, then enter the password "growatt+date".For

instance, if the date is Feb. 28, 2024, the password would be "growatt20240228". After that, tap "Yes".

1. Set the correct date, then tap "OK". Proceed to set the time, and tap "OK".



7.1.2.2 Set the Date & Time Automatically

Connect the WIT Inverter to the server following the procedure specified in Section 8.1.2 when the inverter is powered on, then the WIT Inverter will update its date and time automatically.

7.2 Mode of operation

7.2.1 Waiting Mode

When the PV voltage is greater than 150V, the WIT Inverter will be powered on and enters the waiting mode.

In waiting mode, the WIT Inverter performs self-check. If the system is normal and the voltage is greater than or equals to 165V, the WIT Inverter will be powered on.

7.2.2 Operating Mode

7.2.2.1 Operating Mode of WIT 4-15K-HU

Load First:

In Load First mode, the WIT inverter prioritizes supplying the solar power and battery energy to the loads. If Export Limitation is disabled, the surplus solar power can be fed to the grid, but the battery energy will not be exported to the grid; if Export Limitation is enabled, neither solar power nor battery energy would be sent to the grid.

Priority of power supplied to the loads:

- 1. Solar panels;
- 2. Batteries;
- 3. Grid.

NOTE: In Load First mode, a meter is required.

Battery First:

In Battery First mode, the solar power is prioritized towards charging the battery until the battery SOC (state of charge) reaches the preset upper threshold. Then it will supply power to the loads. The further excess solar power, if any, can be fed to the grid (Export Limitation disabled). In case that the solar power is insufficient, the WIT inverter will draw power from the grid to charge the battery or supply the loads.

Priority of power directed to charge the battery:

- 1. Solar panels;
- 2. Grid.

Grid First:

In Grid First mode, the WIT inverter prioritizes supplying the solar power to the loads, exports the excess solar power to the grid, and sends the further surplus power to charge the power. If the solar power is insufficient to support the loads, the battery will discharge to supply power to the loads and the surplus battery power will be sent to the grid for revenue.

Priority of power supplied to the loads:

- 1. Solar panels;
- 2. Batteries;
- 3. Grid.

Zero export to meter:

With Export Limitation enabled, no solar power or battery energy will be fed to the grid in this mode. The inverter output is only supplied to the loads connected before the external meter connection point. A meter is required. For the meter wiring mode, please refer to Fig 6.6 in Chapter 6. The external meter will detect power flowing to the grid and regulate the generated power so that only so much energy is generated as is currently consumed by the primary loads, secondary loads and charging the battery.

NOTE: The arrow at the bottom of the CT should point to The WIT.



Zero export to GRID:

In this mode, there is no output at the inverter's GRID port. The solar and battery power can only by supplied to Primary Loads via the LOAD port. The meter is not required.



Smart Load:

Smart loads are connected to the GEN port and the Smart Load mode is set: during on-grid operation, it will supply grid power to smart loads; during off-grid operations, the power supply to smart loads is cut off when the battery SOC is below 50%. The wiring method is shown in Chapter 6 Fig 6.3.

AC couple:

The grid-tied inverter is connected to the GEN port and the AC Couple mode is set: during on-grid operation, the grid-tied inverter will be connected to the grid and generate electricity via the GEN port; during off-grid operation, the grid-tied inverter remains connected to the WIT inverter and generating power. The wiring method is shown in Chapter 6 Fig 6.2.

7.2.2.2 System Operating Strategies of WIT 4-15K-HU

TOU (Time of use):

Configure the system to work in the preset mode during different time segments based on the peak-valley periods and electricity price. Setting items include: the operating mode, enable/disable AC Charging function (charge from grid). During the time not specifically configured, it will operate according to the system settings.

• Setting						×
Advanced Setting						^
O Maximum spontaneous self use		Disable	Ŧ			
Equipment mode selection and time	e setting 🔺					
Time Slot 1	Load First	• •	17 43	~ 17	46	
	10	% 🛈	Enable	Ŧ		
◯ Time Slot 2	Load First	• •	17 20	~ 17	21	L.
	80	% 🛈	Disable	Ţ		L
◯ Time Slot 3	Load First	• •	17 28	~ 17	31	
	-55	% 🛈	Disable	v		
◯ Time Slot 4	Load First	• •	17 32	~ 17	33	
	0	96 🕕	Fnable	Ŧ		-
Please Enter Password			Yes	Advance	d Setting Cancel	

Self-consumption:

The WIT inverter prioritizes supplying the solar power and battery energy to the loads. If Export Limitation is disabled, the surplus solar power can be fed to the grid, but the battery energy will not be exported to the grid; if Export Limitation is enabled, neither solar power nor battery energy would be sent to the grid. In case that the solar power is insufficient, the battery will discharge to power the loads. Priority of power supplied to the loads:

- 1. Solar panels;
- 2. Batteries;
- 3. Grids.

NOTE: In Load First mode, a meter is required.

Battery settings 👻			
Off grid parameter settings 🐨			
Set Exportlimit 🔺			
Set Exportlimit	On	*	
Export Limitation Power	20.0		[-100.0,100.0]%
○ Active power percentage	-0.1		[0.0,100.0]%
O Export Limitation Failure Time	120		[1,5000]s
○ Single phase anti backflow enable ①	On	•	
Parallel parameter setting 👻			

Grid Peak Shaving:

Set the forward power flow threshold A: once the load power on the external meter is greater than this value, the inverter will reduce charging power and boost power out until it reaches the maximum operating power of the WIT inverter. Set the reverse power flow threshold B: once the grid feed-in power on the external meter is greater than this value, the inverter will reduce output power and boost charging power until it reaches the maximum operating power of the WIT inverter.

	100	% ① Di	sable	*	
Demand Management/Pe	ak Shaving 🔺				
Demand Managem	ent Setting	Disable	•		
O Peak Shaving Back	up SOC Enable	Disable	-		
Safety function control	Value				
Please Select				Read	
Please Select Start Address	End Address			Read Advanced Read	

Note: The priority of system operation modes should be:Demand management >TOU(Time of use)>Parameter settings.

Micro-grid (PV-ESS-DG Power System):

A generator is connected to the GEN port:

If the grid power is normal, the WIT inverter will work in the grid-tied mode:

1. If the power generated by the grid-tied inverter is sufficient to support the loads, the surplus power will be used to charge the battery;

2. If the power generated by the grid-tied inverter is sufficient, the WIT inverter will supply the solar power to the loads, and direct the surplus power to charge the battery;

3. If the solar power of the WIT inverter is in sufficient, the battery will discharge to power the loads;

4. The battery will stop discharging when the SOC is lower than the cutoff threshold and it will draw the grid power to support the loads;

If the grid power is abnormal, the WIT inverter will work in the off-grid mode: 1. The solar power of the WIT inverter is supplied to the loads first, and the surplus

power is sent to charge the battery.

2. If the solar power of the WIT inverter is insufficient, thee battery will discharge to power the loads.

3. When the battery SOC is lower than the preset diesel generator startup threshold, the GEN will start automatically to generate power

4. If charging from the GEN is enabled, the GEN will charge the battery.

5. When the battery SOC is higher than the preset diesel generator shutdown threshold, it will disconnect the GEN, and shut down the GEN



User-defined dry contact:

After enabling the user-defined DI port and inputting the DI signal, it will carry out the AC active power and power factor according to the corresponding DI instructions.

Note:

- 1. The User-defined dry contact and DRMS share the same port.
- 2. Only one DI signal can be input at the same time.

7.2.3 Fault Mode

The intelligent control system of the WIT Inverter monitors and adjusts the system status in real time. When the WIT Inverter detects an alarm, the corresponding status light will turn red and the OLED will display the alarm. When the WIT Inverter detects a fault, the system status indicator and the corresponding status light will turn red and the OLED will display the fault. After the fault or alarm is cleared, the system recovers and all status indicators will be steady green.

NOTE: For details about faults and alarms, please see 9.2 Troubleshooting.

7.2.4 Shutdown Mode

When the battery SOC is lower than the discharge cutoff SOC and the PV string output power does not meet the requirements for grid-tied power generation, the WIT Inverter will automatically shut down. In shutdown mode, the inverter still consumes a bit energy (PV>Grid>Battery) to wait to start up again when the operating requirements are met.

NOTE:

When the PV input voltage is less than 150V or the battery input voltage is less than 40V, the WIT inverter will automatically shut down.

7.3 LED and OLED Displays Panel

The LED and OLED display panel demonstrating the running status of the WIT Inverter is shown in the Fig 7.6. The symbol description is shown in Table 7.1; The user interfaces are shown in Fig 7.7, and the LED indicator description is shown in Table 7.2.



Fig 7.1 Display panel

Table	7.1	Svmbol	Description
iabic	· · ·	2,111201	Description

Position	Description	Note
A	OLED screen	Displays the main system information
В	System indicator	Displays the system status
С	PV indicator	Indicates the operation status on the PV side
D	Grid/GEN indicator	indicates the operation status on the grid side and the GEN port status
E	Off-grid indicator	Indicates whether the off-grid mode is enabled
F	Battery indicator	Indicates the status of the battery
G	Communication	Indicates the communication status and other system faults
н	Battery status indicator	Indicates the charging and discharging mode of the battery
	Button	You can switch the information displayed on the OLED by pressing the button



Fig 7.2 User interfaces

	Status	Meaning		
	Off	The system is not operating		
	Steady green	The system is operating properly		
\square	Blinking green at long intervals	The system is in standby mode or performing an upgrade		
	Steady red	System failure		
	Off	The PV voltage dose not reach the operating voltage		
-	Steady green	The PV voltage reaches the operating voltage		
	Steady red	A fault or alarm is reported on the PV side		
	Off	The grid voltage does not reach the operating voltage or the GEN is nomal		
	Steady green	Successfully connected to the grid		
	Blinking red at long intervals	A fault or alarm is reported on the GEN side		
	Steady red	A fault or alarm is reported on the grid side		

	Status	Meaning					
	Off	Off-grid mode is disabled					
	Steady green	Off-grid mode is enabled and has no faults or alarms					
	Steady red	Off-grid mode is enabled and a fault or alarm is reported on the AC side					
	Off	Battery voltage is below the operating voltage					
	Steady green	The SOCs connected to the battery are all sufficient and there are no faults or alarms					
	Blinking green at long intervals	Low battery SOC					
	Steady red	A fault or alarm is reported on the battery side					
	Steady green	External communication is normal, such as RS485, WiLAN, etc.					
((•))	Blinking green at long intervals	The WIT Inverter is upgrading or the USB interface is reading and writing data					
	Steady red	External communication fails, or a system fault occurs, or the GEN port fails					
11111111111111111111111111111111111111	Steady white	Battery is in standby mode					
GROWATT	Rotates clockwise	Charging mode					
	Rotates anticlockwise	Discharging mode					
GROWATT ® * * * * * *	Displays critical system information. Users can call up and switch the interface by tapping the button. When a fault or alarm occurs in the system, the fault or alarm will be displayed.						
GROWATT	The OLED will be activated when the button is pressed. The OLED will turn off if there is no operation for 5 minutes.						

8 Monitoring

8.1 Remote Monitoring

Growatt WIT 4-15K-HU Hybrid inverters support Bluetooth/remote monitoring, which can be enabled by installing a datalogger. For more information on operation and configuration methods, see the following link.

Compatible Datalogger	Installation & Operation Guide Linkage
ShineWiLAN-X2	https://oss- eu.growatt.com/common/knowledgeShareH5No?lang=en &type=159

Scan the following QR code or search for "ShinePhone" and "Shinetools" in Google/Apple Store to download and install the mobile APP.



NOTE:

(1) Download and install the latest version of ShinePhone.

(2) See https://server-us.growatt.com/?lang=en for details.

(3)Shinephone and Server accounts are universal.

8.1.1 Bluetooth Monitoring on the APP (Shinetools)

1.Open the ShineTools APP. On the login screen, tap "End User" and enter the password, which is in the format of "oss + the current date". E.g. oss20241225. Then tap "Sign in".

You can tap "Automatic log-in" to select whether to Log in automatically. as the figure shows.

	English 🗸
ShineTo	ools
End User	O&M User
in please enter the initial	password 🕬
Automatic Log-in	Forgot password
Sign i	n
I have read and agree <u>Agreement</u> <u>Agreement</u> <u>Poli</u>	ee «ShineTools User ShineTools Privacy cy»

正式环境

2.Tap "ShineWiLan-X2", View connection guide, as the fig shows.

	Please select a debugging tool	≡	< Connection tutorial	Jump over
0	Only supports datalogger with version 3.0.0.2 / 3.1.0.2 or above	>	Please confirm your collect	or type
•	Direct WiFi/Bluetooth (MIN TL-XH-US , SPH 10000TL-HU- US , WIT-H/HE/HU-US)	>	Built-in Bluetoath collect placed inside the inverter	r
0	Microinverter	>	External Bluetooth collect Independently inserted into the inverter col	or lector entrance
*	ShineWiFi-X2	>		
8	ShineMaster-X	>	Built-in collector connection Step 1/3 Find the location of the serial number on the d is applicable to 5 Pth e1000T1-401.04.5 SPH 101	tutorial evice. This tutorial 100TL-HU models.
9	ShineWiLan-X2	>	and SPH 10000TL-HU (AU) mod	lets.
	ShineUART- BT	>		
	当前版本 3.4.8.0(34726)		Please sci. Next step enter the collector SN located below th	manually e barcode.

<	Connection tutorial	Jump over	<	Connection tutorial	Jump over
Please scan ti enter	Step 2/3 ne barcode of the collector SN numb the collector SN located below the b	per, or manually parcode.		C mathematic	
	Collector SN				
	Bluetooth m	odule SN			
			Exte	rnal collector connection to	utorial
ShineTools v Bluetooth. If select the Blu	Step 3/3 ill automatically search and connec ShineTools searches for multiple Bit etooth that is consistent with the Sh collector to connect.	t the collector intooth, please inumber of the	Please make (the blue ligh	Step 1/2 sure that the Bluetooth of the collect it is always on), if not, please short p to turn on the Bluetooth.	tor is turned on ress the button
	to star C subtrant			.0	
	1000 (1000)			Step 2/2	
			5	ican the code to connect to the devi	ce.
Exte	rnal collector connection to	utorial		0	
Please make : (the blue ligh	Step 1/2 aure that the Bluetooth of the collect t is always on), if not, please short p to turn on the Bluetooth.	tor is turned on ress the button			
	Next step			Next step	

3. After confirming that the Bluetooth of the Datalogger is enabled, scan the twodimensional code of the Datalogger for connection, as the figure shows.



4. tap "Connect" after the target Bluetooth device is displayed. After successful connection, the screen is shown in the figure.

<	Bluetooth se	arch	<	Device List	Rea
	(*		•	OPCR00ZD1YCF0010 mailing address: 1	
Bluetooth availa Please connect wit	ble nearby(3) the Bluetooth w th the SN from th	hose name is consistent he list below			
PZNOC	07M008	Not connected			
R QWLSE	EMTX09	Not connected			
JKNOE	8T01G	Connecting			
Se	arch for bluetoo	th devices			

5.When the device is successfully connected, tap the Device you want to check in the Device List to view the relevant status information and set relevant parameters as required. the screen as demonstrated below will appear, ensuring that the communication between the WIT inverter and the mobile phone has been established via Bluetooth.

<	WIT 8-	15K-HU/18- Fault	25K-HU	Refresh	<	WI	Fault	5K-HU Refree
3	Generation (kWh)	0 Today	2 Total		0	Capacitor using time (h)		0
0	Battery Char ging(Module 1) (kWh)	0 Today	0.5 Total		Battery Power	Charging Module 1)	Battery Charging Power(Module 2)	Battery Charging Power(Module 3) OW
Ð	Battery Disch arging(Module 1) (kWh)	O Today	1.8 Total		Battery I Power	Discharging (Module 1)	Battery Discharging Power(Module 2)	Battery Discharging Power(Module 3)
Ð	Battery Char ging(Module 2) (kWh)	0 Today	0 Totat		O. System pr	.0W m output ower	0.0W Gen Port Power	0.0W
Э	Battery Disch arging(Module 2) (kWh)	O Today	0 Total		Import	DW t & Export Po	OW wer OW	
Ð	Battery Char ging(Module 3) (kWh)	0 Today	0 Total			Fault	430(0)	Warning 219(2)
Э	Battery Disch arging(Module 3) (kWh)	0 Today	0 Total		Quic	E) k Setting	System Configuration	Hit Basic Settings
8	Import from Grid (kWh)	O Today	0 Total			ö	4.	=6
8	Export to Grid (kWh)	0 Today	1.7 Total		Gri	id Code	EMS	Peak Shaving
0	Consumption (kWh)	0 Today	0 Total		E	Device		

Tap Quick Setting, set time, language, etc., as the figure shows.

<	Quick Setting	Read	<			Quic	k Se	tting			Read	<	Quick Setting	Read
Time		2024-12-23 23:28:24 >	Time								-12-23 >	Time		2024-12-23 23:28:24 >
Language		English >	Languag	je							English >	Language		English >
AFCI		>	AFCI	202 Tu	₄ Je,	, D	ec	: 24	4		,	AFCI	Please select	· · ·
Export Limitatio	n Setting	>	Export	,		Dece	mher	2024		`	>	Export	Italiana	>
						Dece	moer	2024		í			English	_
				S	М	т	W	т	F	S			German	
				1	2	3	4	5	6	7			Spanish	
				8	9	10	11	12	13	14			French	
				15	16	17	18	19	20	21			Chinese	- 11
				29	30	31	20	20	21	20			Polski	_
							(Cance	L	ОК			Cancel	

Tap System Configuration, you can turn on/off the inverter, set the percentage of active power, etc., as the figure shows.

< System Configuration	ion Read	< .	Active Powe
er Power Off/On		Active I	Power
ve Power %	10% >	Memor	y Enable
rid Enable	•		
e Detection between N to PE	()>		
SVG function at night	()2		Active Pow
fode	Continual >	- 8	Range Value:0~100
On/Off	()P	- 8	Cancel
Voltage Selection	5000V >		
Frid Soft StartEnable			
110.0.0	20-2		

Tap on the Basic Settings, you can set the baud rate, view the network communication protocol version, as the figure shows.

<	Basic Settings	Read	
Baud Rate Se	election	9600bps >	
Modbus Vers	ion	V3.08	
COM Addres	S	1>	
Clear Historic	al	())	
Factor Reset		>	
Restart		>	



Tap Grid Code, you can set power factor related parameters, Frequency/Watt, etc., as the figure shows.

<	Grid Code	Read	<	PF Setting	Read	<	Frequency/Watt	Read
PF Setting		>	Set PF as 1		۰	Derating Point f	or Over Frequency	50.2Hz >
Frequency/Watt		>	Default PF Curve			Delaytime OF d	erating	0ms >
Voltage/Var		>	Inductive Reactive F	Power %	>	OF Derate Reco	ver Point	53.0Hz >
Normal Gradient		>	Capacitive Reactive	Power %	>	UnderF Upload	Point	49.8Hz >
AC Voltage Protection	n	>	Set power factor		>	UnderF Upload	DelayTime	0ms >
AC Frequency Protect	tion	>	PF Curve In/Out Va	c	>	UnderF Upload	RateEE	50 >
Synchornization Rang	ge	>	Limit Point of PF Lo	ad %	>	UnderF Upload	Response Time	0ms >
Protection Value of 10	Omin Avg Vac	438.1V >	Limit Point of Powe	r Factor	>			

Tap EMS, you can set the use time, AC charging enable and other related information.as the figure shows.

<	EMS Read	<	Time of Use Setting Read
		power	100% >
Time of Use Setting	>	Time Period 4	4
Enable AC Charge		00:00-00:00	> 11:30-18:00
Charge Power Ratio %	10% >	Load First	Load First Enable
Battery Charge Stop SC	DC 100% >	power	100% >
		Time Period !	5
Discharge Power Ratio	% 100% >	00:00~00:00	> 18:00-23:00
Stop Discharging SOC	10% >	Load First	Grid First Enable
Battery	>	power	100% >
		Time Period	6
		00:00~00:00	> 23:00-23:59
		Load First	Load First Enable
		power	100% /
			Yes

Tap Peak Shaving to Enable/disable Demand management Enable and set Demand Mange Charge Power Limit as the figure shows.



Tap Device Information, and then select the section you want to know, you can view the relevant content on the screen, as the figure shows.

<	Device Information	Read	<	Device Ir	formation	Rea
PV Voltage/C	Current/Power	~	PV Voltage/0	Current/Power		
AC Voltage/F Power	Frequency/Current/	~		PV1	PV2	
Battery Para	meter	~	Voltage(V)	598.8	108.4	
GEN voltage	/power	~				
temperature		~	Current(A)	0.0	0.0	
Anti-reverse	CT current	~	AC Voltage/F Power	Frequency/Current	1	
nternal Para	meter	~	AC Powe	er(W)		
out Inverte	D.r.	~	PF			
about invente			AC Freq	uency(Hz)		49.9
			R Phase	Voltage(V)		
			R Phase	Power(W)		
			R Phase	Current(A)		
			S Phase	Voltage(V)		0
			S Phase	Power(W)		
			S Phase	Current(A)		
			T Phase	Voltage(V)		1
			T Phase	Power(W)		
			T Phase	Current(A)		
			Battery Para	meter		

8.1.2 Remote Monitoring on the APP (ShinePhone)

NOTE:

- (1) Download and install the latest version of ShinePhone.
- (2) See https://server.growatt.com/?lang=en for details.
- (3) Shinephone and Server accounts are universal.

Account Registration on ShinePhone

Run the APP and tap "Register" on the login page. Fill in the information as required. Fields marked with * are mandatory. Tick the checkbox to agree to the Privacy Policy. Once the account is successfully registered, you can log in to the home screen. The registration page is shown below:

2			0	Demo >
		urrent server audress.	GROWATT	
• 0	Country or region	Please select a country or region		
**	Username	Enter username	6 Please select a country or region UnitedStates	
× * 🖻	Password	Enter password	4 Username	
• @	Repeat password	Repeat password	Enter username	×
	Phone number	Enter phone number without country c_	Password Enter password	
* 🖬	Email address	Enter email		
	Verification code	Enter verification co Send verification code	Remember password	
Register	Installer code	Input installer code	Sign ir	
141			Forgot password	Register
cal Debugging	I have rea	ad and agree Shine Smart Services reementand Shine Smart Services	Toolbox	
		Privacy Policy		TH
4		Register	Configure WiFi datalogger	Local Debugging
t <u>Services</u> ces Privacy			Click to followde	arn more Shine Smart Service
	x + a + a + a + a + a + a + a + a + a + a	x Username A Bepeat Password Phone number Services Services Phone Number A Bepeat Phone number Code Installer code A Services Services	region region	x region Please Select a country of region x Username Enter username x Password Enter password x Password Enter password x Password Enter password x Phone number Enter password x Installer code Input installer code y Installer code Input installer cod

Add Plant

After logging in to ShinePhone, tap on "Plant" and follow the steps shown, Fill in the information as required. Fields marked with * are mandatory.

	Plant list	1 +	Add Plant
== Q S	earch	Parameters	* Plant name Enter the Plant name
All (5)	Online (0) Offline (5)	Add Plant 2 _{Fault (0)}	Installation date Select the installation date
Plant name	Current Power I PV capacity	Daily Power Gen	Plant address
C. Contra	test		S Automatic Manual
18 A	-& Current Power:0kW		* Other V * City V
///●西安	Installation date PV capacity	2024-04-09 0.1kWp	Please enter the full address
//	Daily Power Generation	0.0kWh	Longitude Latitude
	WIT XHU		* Time zone +08 🗸
	Installation date	2024-09-03	
1	Daily Power Generation	0.0kWh	* PV capacity(W) PV capacity
Real	Victor, 300kW Plant		* Plant type
	- Current Power:0kW		Ground-
	Installation date	2024-09-09	Residential plant Plant mounted
	Daily Power Generation	0.0kWh	pairies
Real	Test2		Temperature type
- mil	- Current Power:0kW		Centigrade(°C) Fahrenheit(°F)
	Installation date	2024-11-07	
今河北省保定市	PV capacity	OkWp	(Conversion is based on 1 KWh power generation)
	Daily Power Generation	0.0kWh	Fund Revenue USD 🗸
			PV Plant picture Please select an image to upload (+)
65		0	4 Install Add Plant 🕥
Dashboard	Plant Grahlome Service	C 3	· · · · · · · · · · · · · · · · · · ·

Connect the Datalogger to the network on shinephone Perform operations according to the steps shown in the figure. Note that the Bluetooth of the Datalogger must be enabled, that is, the blue light of the Datalogger is on.




Home Screen of ShinePhone

1.Dashboard: displays the critical information of all power plants under the account, such as the total yield, the total revenue and the status of the device. Please refer to the figures below:



2. Plant: displays the plant list and the basic information about each PV plant, as shown in the figure below. You can select your target plant to view detailed information.



Detail Page of the WIT Inverter:

To access details about the WIT Inverter or related devices:

(1) Tap "Plant" and the "Plant List" will be displayed. Select your target plant, then you can access the real-time data and history record of the power plant;
(2) Select the WIT Inverter marked with its SN from "My device list". The figures below show QWL0DC3008 as an example;

(3) On the Detail Page, you can view information about the inverter and related devices. Three sections - "Events", "Control" and "Edit", are available at the bottom.



(4) On the "Events" screen, you can view the fault/warning message and suggested trouble-shooting measures.

SN	12345678
Plant name	te
(419) DSP soft	ware version and Hardware version unmatch
	2024-09-30 17:05:47
SN	12345678
Plant name	te
	2024-09-30 15:57:49
SN	12345678*
Plant name	te
(419) DSP soft	ware version and Hardware version unmatch
	2024-09-15 08:50:19
SN	12345678
	te
Plant name	
(444)	

(5) On the "Control" screen, you can configure the WIT Inverter. The password is in the format of "growatt + the current date", e.g. growatt20240228.

<	1234567891	Read
Safety param	eter setting	>
General setti	ngs	>
Battery Setti	ng	>
Off grid para	meter settings	>
Single machi	ne anti backflow setting	>
Advanced		>
Parallel parar	neter setting	>



Set lower frequency limit

Tap Control >Safety parameter setting >UV1/UV2/UV3 Frequency; You can set the lower frequency limit of The WIT.

	UV1/UV2/UV3 Freque	ency
UV1 Free	quency	
	47.5	Hz [45.00,50 00]
UV2 Fre	quency	
	47.5	Hz [45.00,50 00]
UV3 Fre	quency	
	47.5	Hz [45.00,50
	z	
	z	
	z	
	z	
	z	

Set frequency Upper limits

Tap Control > Safety parameter setting >OV1/OV2/OV3 Frequency; You can set the upper frequency limit of The WIT.

<	OV1/OV2/OV3 Frequ	lency
OV1 Free	quency	
	50.5	Hz [50.00,55. 00]
OV2 Fre	quency	
	50.5	Hz [50.00,55 00]
OV3 Fre	quency	
When the p 15Hz~50H 15Hz~60H	50.5 power grid is 50Hz, the range c z, and when it is 60Hz, the rang z	Hz [50.00.55 00] an be set to ge can be set to
When the p 15Hz-50H 55Hz-60H	50.5 power grid is 50Hz, the range c z, and when it is 60Hz, the rang z	Hz (50.00.55 00) an be set to ge can be set to
When the p 15Hz-50H 55Hz-60H	50.5 bower grid is 50Hz, the range c z, and when it is 60Hz, the rang z	Hz (50.00.55 00) an be set to ge can be set to
When the ; ISHz-50H; ISHz-60H;	50.5 power grid is 50Hz, the range c z, and when it is 60Hz, the rang z	He (500055 00) an be set to pe can be set to
When the p 15Hz-50H 55Hz-60H	50.5 power grid is 50Hz, the range c z, and when it is 60Hz, the rang z	He (50.00.55 or (50.00.55 pe can be set to
When the p 15Hz-5OH 55Hz-6OH	50.5 power grid is 50Hz, the range c , and when it is 60Hz, the rang z	He 150.00.55 And be set to pe can be set to

Set lower voltage limit

Tap Control >Safety parameter setting>UV1/UV2/UV3 Voltage; You can set the lower voltage limit of The WIT.

UV1 Voltage UV2 Voltage UV3 Voltage	v (173,762.0)
358.6 UV2 Voltage 1993 UV3 Voltage	V [173,762.0]
UV2 Voltage	V [17.3,762.0]
1993 UV3 Voltage 1993	V [17.3,762.0]
UV3 Voltage	
1993	
	V [17.3,762.0]
Done	

Set upper voltage limit

Tap control >Safety parameter setting >OV1/OV2/OV3 Voltage; You can set the upper voltage limit of The WIT.

<	OV1/OV2/OV3 Voltage	
OV1 Voltage	2	
	438.2	V [17.3,762.0]
OV2 Voltage	e	
	537.8	V [17.3,762.0]
OV3 Voltage	e	
	537.8	V [17.3,762.0]
	Done	

Grid related settings

Tap Control >Safety parameter setting> Grid related settings, you can set the voltage Over/lower threshold of grid connection and the frequency Over/lower threshold of grid connection, as the figure shows.

<	Grid related settings	
Over volta	ge	
	438.2	V [17.3,762.0]
Under volt	age	
	338.6	V [17.3,762.0]
Overfreque	ency	
	50.2	Hz [50.00,55. 00]
Underfreq	uency	
	49.5	Hz [45.00,50. 00]
Grid-connect within 50-551 Grid-connect within 45-501	ed high grid frequency: ISON 20 not-Stratoshth) ed low grid frequency: et/SOHz) or 55-60Hz(60Hz)	
(Done	

> Loading, restarting, and unloading rates

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; you can set Loading, restarting, and unloading rates.

<	Loading, restarting, and unlo rates	ading
Norma	I Ramp Rate	
	500.0	% [1.0.6000.0]
Soft St	tart Ramp Rate	
	500.0	% [1.0,6000.0]
Load r	eduction rate	
	-0.1	% [0.0,100.0]
	Done	

Settings related to OF derating

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; You can set OF derating.

<	Settings n	elated to OF de	rating
OF Dera	iting Start Po	int	
		50.3	Hz [0.00,66.50]
OF Dera	ating Rate		
		50	[0,2000]
OF Dera	iting Start De	elay Time	
		0.0	s [0.0,20.0]
OF Dera	ting Respons	se Time	
		0.0	s [0.0,40.0]
		Done	

Settings related to UF increasing

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; You can set UF derating.

g Enable Enable g Start Point 49.8 g Rate	¥ Hz [0.00,66	
Enable g Start Point 49.8 g Rate	+ Hz [0.00,66	
g Start Point 49.8 g Rate	Hz [0.00,66	
49.8 g Rate	Hz [0.00,66	
g Rate		.50]
400	[20,400]	
g StartDelay Time		
0.0	s [0.0,2.0	0]
g Response Time		
0.0	s (0.0,40	0.0]
	g StartDelay Time 0.0 g Response Time 0.0	g StartDelay Time 0.0 s too.27 g Response Time 0.0 s too.40

➢ Grid Reconn Wait Time

Tap Control > Safety parameter setting > Grid Reconn Wait Time; You can set Grid Reconn Wait Time.



> Frequency change rate enable

Tap Control > Safety parameter setting > Frequency change rate enable; You can set Frequency change rate enable.

<	Frequency change rate enable	
Frequency	v change rate enable	
	Disable +	
	in an	
F	requency change rate enable	
	Enable	
	Disable	
	Cancel Done	

Set Inverter On/Off

Tap Control > General settings > Set Inverter On/Off; you can power on/off the inverter, as the figure shows.



Set the Time of the Inverter

Tap Control > General settings > Setting Time; you can set the local time, as the figure shows.



> System Mode

Tap Control > General settings > System Mode; you can set the System Mode, as the figure shows.



Set Reactive Power

Tap Control>General settings> Set reactive power. You can set different reactive power modes; as the figure shows.



> Enable the grid side electricity meter

Tap Control > General settings > Enable the grid side electricity meter, you can Enable/Disable grid side electricity meter.

<	Enable the grid side electricity meter		<	Enable the grid side electricity meter	
Enable	the arid side electricity meter		Enable th	e grid side electricity meter	
	Disable 👻			Disable	
			Ena	ble the grid side electricity mete	er
				Enable	
				Disable	
				Cancel Done	
	Done	1			

Settings related to AC charging

Tap Control > General settings > Settings related to AC charging, You can set the parameters related to AC charging.

<	Settings rel	ated to AC	charging	
AC Charg	ge enable			
		Enable	٠	
AC charg	jing power pe	rcentage		
				% [0,100]
AC disch	arge power p	ercentage		
		3		% [0.100]
AC stop	charging SOC			
				% [0.100]
	AC CI	narge ena	ble	
		Enable		
		Disable		
	Cancel		Done	

Set the Battery Enable

Tap Control > Battery Setting > BMS1/BMS2/BMS3 Enabled, you can enable/disable Battery_1, Battery_2 and Battery_3, as the figure shows.

Battery Setting		BMS1/BMS2/BMS3 Enabled	BMS1/BMS2/BMS3 Enabled
BMS1/BMS2/BMS3 Enabled	>	BMS1 Enabled	BMS1 Enabled
Battery 1 related settings	>	Disable 👻	Disable *
Battery 2 related settings	>	BMS2 Enabled	BMS2 Enabled
Battery 3 related settings	>	Disable 👻	Disable *
		BMS3 Enabled	BMS3 Enabled
		Disable 👻	Disable
		When a single or multiple clusters of batteries are connected in parallel, only lattery. I is enabled. When accessing independently, set the enable bit according to the actual access situation.	More a unge of multiple clusters of buttoms are connected in samale, or the buttom is the state but according to the actual access cluster. BMS1 Enabled
			Enable
			Disable
		Done	Cancel Done

Note:

BMS is unnecessary for lead-acid betteries but mandatory for lithium batteries.

Set the Battery

Tap Control > Battery Setting > Battery 1 related settings, you can set the Battery related parameters (the battery capacity, ranging from 0 to 290Ah; the maximum charging/discharging power, ranging from 0 to 15kw; the maximum charging/discharging current, ranging from 0 to 200A; the battery maximum charging voltage, ranging from 40 V to 60V; the battery discharge cutoff voltage, ranging from 0 V to 40V), as the figure shows.

<	Battery 1 related settings	
Battery 1 Er	abled	
	Enable	•
Capacity		
	100	Ah [0,2000]
Maximum C	harging Power	
	1	KW [0.0,200.0]
Maximum D	ischarge Power	
	15	KW [0.0,200.0]
Maximum C	harging Current	
	300	A [0.0,350.0]
Maximum D	vischarge Current	
	300	A [0.0,350.0]
Maximum cl	harging voltage of battery	
	60	V [20.0.80.0]

> Set the Off grid parameter settings

Tap Control > Off grid parameter settings > Related settings for grid connection and off grid. Two options are available: Automatic mode and Manual mode. If the Manual mode is selected, you can set the inverter to work in the on-/offgrid, or generator mode, as the figure shows. The Automatic Mode is recommended.as the figure shows.

<	Off grid parameter settings	
Relat	ed settings for grid connection and off	>
Off g	rid related settings	>
_		
<	Related settings for grid connection and off grid	
Off gri	d manual/automatic switching	
	Manual	
Grid co	onnected/off grid setup	
	On Gird	
C	Off grid manual/automatic switching	
	Automatic	
	Manual	
	mandat	
	Cancel Done	
		-

> Set the Off grid related settings

Tap Control > Off grid parameter settings > Off grid Related Setting, you can enable/disable the off-grid mode, set the off-grid frequency (50Hz/60Hz) and the off-grid voltage (220V/230V/240V/277V/127V), complying with the safety regulations.as the figure shows.

1	Off gri	d related set	tings	
Set Back	up On/Off			
		Enable	*	
Off-Grid	Frequncy			
		50Hz	*	
Off-Grid	Voltage			
		230V	*	
		Done		
	_			
1		2 20 2 2		
<	Off gri	d related set	tings	
Set Back	up On/Off			
		Enable	*	
Off-Grid				
	Frequncy			
	Frequncy		•	
Off-Grid	Frequncy Voltage		•	
Off-Grid	Frequncy Voltage		•	
Off-Grid	Frequncy Voltage		•	
Off-Grid	Frequncy Voltage		•	
Off-Grid	Voltage Off-	50Hz 230V Grid Frequr	* *	
Off-Grid	Voltage	50Hz 230V Grid Frequr	* *	
Off-Grid	Voltage	50Hz 230V Grid Freque	* Trey	
Off-Grid	Voitage	50Hz 230V Grid Frequr 50Hz	* *	
Off-Grid	Voltage	SOHz 250V Grid Freque 50Hz 60Hz	* *	
Off-Grid	Voltage	SOHz 230V Grid Freque 50Hz 60Hz	• •	
Off-Grid	Off-	50Hz 230V Grid Frequr 50Hz 60Hz	*) *)	

<	Off grid	d related se	ttings	
Set Back	up On/Off			
		Enable		
Off-Grid	Frequncy			
		60Hz	•	
Off-Grid	Voltage			
		230V	٠	
	Set B	ackup On	/Off	
		Enable		
		Disable		
	Cancel			
<	Off grid	d related se	ttings	
< Set Back	Off grid	d related se	ttings	
< Set Back	Off grid	d related se Enable	ettings *	
Set Back	Off grid	d related se Enable	ttings +	
Set Back	Off grid tup On/Off Frequncy	Enable	ttings +	
Set Back	Off grid up On/Off Frequncy Voltage	d related se Enable 50Hz	ttings •	
 Set Back Off-Grid Off-Grid 	Off grid	enable 50Hz 230V	ttings + +	
Coff-Grid	Off grid	d related se Enable 50Hz 230V	ttings *	
< Set Back	Off grid	Enable 50Hz 230V	ttings • • • • • • • • • • • • • • • • • • •	
< Set Back Off-Grid	Off grid	Enable 50Hz 230V	ttings + + + + + + + + + + + + +	
< Set Back Off-Grid	Off grid	d related se Enable 50Hz 230V	ttings *	
< Set Back Off-Grid	Off grid	Enable 50Hz 230V Grid Volta 220V 230V	ttings * * *	
< Set Back	Off grid	Enable 50Hz 230V Control Contr	ttings • • nge	
< Set Back	Off grid	Enable Solitz So	ttings • •	

> Single machine anti backflow setting

Tap Control > Single machine anti backflow setting > Single machine anti backflow related settings, You can Enable/Disable the Single machine anti backflow function.



> Set the Single phase Export Limitation

Tap Control > Single machine anti backflow setting > Single phase anti backflow enable, you can enable/disable the Single phase anti backflow function, as the figure shows.



Set the Maximum spontaneous self use

Tap Control > Advanced > Maximum spontaneous self use, you can enable/disable the Maximum spontaneous self use function, as the figure shows.



> Equipment mode selection and time setting

Tap Control > Advanced> Equipment mode selection and time setting; 6 time segments are configurable. You can set the start and end time of each period, the corresponding working mode, ncluding Load First, Battery First and Grid First, solar only backup、IDLE/Charge From Clipped Solar、PTO and ECO., and whether to enable/disable the selected working mode. Choose the appropriate working mode considering the corresponding electricity rates and power consumption during the specific time period.

< Equipr	nent mode selection a setting	nd time	< Equipm	ent mode selection setting	and time	< Equipme	ent mode selection setting	and time
Time:1 00 : 00	- 00 ; 00		Time:1 00 : 00			Time:1 00 : 00 ~		
Mode	Load First	•	Hote		•	Mode		•
AC charge&discharge power	0	[dot,001-] 20	AC charge&discharger	0	16 [-100,100]	AC charge&ducharge power	0	
Enable/Olixable	Disable	•	Enable Disable		•	Enable Disable		•
Time:2 00 : 00	~ 00 : 00		Time:2 00 : 00			Time:2 00 : 00 -		
Mode	Load First	•	Mote		•	Mode		•
AC charge&discharge power	0	% [-100,100]	AC this gelicitic harge	0	56 1-100.1000	AC thirge&discharge	0	
Enable/Disable	Disable	•	Erubis Double		•	Ersable Disable		•
Time:3 00 : 00	~ 00 : 00		Time:3 00 : 00	- 00 ; 00		Time:3 00 : 00 -	00 : 00	
Mode	Load First	•		Mode			Enable/Disable	
AC charge&discharge power	0	56 [-100,100]						
Enable/Disable	Disable	•						
Time:4 00 : 00	~ 00 : 00			Load First			Disable	
Mode	Load First	•		Bat first			Enable	
AC charge&discharge power	0	96 [-100,100]		Grid first				
	Done		Cano	cel	Done	Canc	el	Done

> Demand Management/Peak Shaving

Tap Control > Advanced > Demand Management/Peak Shaving, you can enable/disable the Demand Management Enablement

Function、Peak Shaving Backup SOC Enable Function and setting PeakinShaving Backup SOC, as the figure shows.

C Demand Management/Peak Shaving	C Demand Management/Peak Shaving	C Demand Management/Peak Shaving
Demand Management Enablement	Demand Management Enablement	Demand Management Enablement
Disable •	Disable *	Disable *
Peak Shaving Backup SOC Enable	Peak Shaving Backup SOC Enable	Peak Shaving Backup SOC Enable
Enable •	Enable	Enable
Peak Shaving Backup SOC	Peak Shaving Backup SOC	Peak Shaving Backup SOC
50 % [0,100]	50 % [0.100]	50 % (0.000)
	Demand Management Enablement	Peak Shaving Backup SOC Enable
	Enable	
	Disable	Enable
		Disable
Done	Cancel Done	Cancel Done

> Microgrid system

Tap Control > Advanced > Microgrid system, you can select Types of Access for GEN Port Devices, include "Generator", "PV inverter" and "Smart Load"; Enable/Disable Generator Enable; Generator Rating, ranging from 0 to 1000kW; Off grid oil engine startup SOC, ranging from 0 to 100%; Off grid oil engine stops SOC. ranging from 0 to 100%; Heat up time, ranging from 0 to 3600s; Power limit for oil engine charging, ranging from 0 to 1000kW;

Note:

The type of equipment connected to the GEN port and whether it is enabled need to be configured while the inverter is in standby mode.

<	Microgrid system		
Types of Acce	ess for GEN Port Devices		
	Generator	*	
Generator En	able		
	Disable	*	
Generator Ra	ting		
	50.0		kW [0.0,1000.0]
Off grid oil e	ngine startup SOC		
	48		% [0,100]
Off grid oil e	ngine stops SOC		
	60		% [0,100]
Heat up time			
	-1		s [0,3600]
Power limit fe	or oil engine charging		
	-01		kW

< .	Microgrid system	
	-1	s [0,3600]
Power lin	nit for oil engine charging	
	-0.1	kW [0.0,1000.0]
Electricity	y Meter 2 Enable	
	Disable	*
AC Coupl	leEnable	
	Enable	*
AC Coupl	e Charging Start SOC	
	-1	% [0,100]
AC Coupl	e Charging Stop SOC	
	-1	% [0,100]
SOC und	er secondary load	
	-1	% [0,100]
	Done	

<	Microgrid system	
Types of Access	s for GEN Port Devices	
	Generator	•
Generator Enab	ole	
	Disable	*
Generator Ratin	ng	
Off grid oil engi	ine startup SOC	
	48	% [0,100]
Types of J	48 Access for GEN Port	× (0.000) Devices
Types of <i>i</i>	48 Access for GEN Port Generator	* (pape) Devices
Types of <i>i</i>	48 Access for GEN Port Generator PV Inverter	x (2300) Devices
Types of <i>i</i>	48 Access for GEN Port Generator PV Inverter Smart Load	% (0.000) Devices

.

<	Microgrid system		
Types of A	Access for GEN Port Devices		
	Generator	٠	
Generato	r Enable		
	Disable	٠	
Generato	r Rating		
Off grid o	il engine startup SOC		
	48		% [0,100]
	48 Generator Enable		% [0.100]
	48 Generator Enable Enable		% [0.100]
	48 Generator Enable Enable Disable		\$ [0.00]
	48 Generator Enable Enable Disable		1000.0

Safety function control

Tap Control > Advanced > Safety function control, you can Enable/Disable Low voltage crossing etc.

<	Safety function cont	rol
Low voltage	e crossing enable	
	Disable	*
DRMS/RCR	reuse mode/custom dry	contact point
	DRMS	-
DRMS enab	lement	
	Disable	*
	Done	





<	Safety function co	ntrol
Low voltage	crossing enable	
	Disable	
DRMS/RCR r	euse mode/custom d	Iry contact point 🗌
	DRMS	•
DRMS enable	ement	
	Disable	•
	DRMS enablem	lent
	Enable	
	Disable	
G	ancel	Done

Parallel parameter setting

Tap Control > Advanced > Parallel parameter setting, you can Enable/Disable Parallel parameter setting.



(6) On the "Edit" screen, you can change the device name as the figure shows.



3. GroHome: displays the home energy system, including four sections: "PV linkage", "My device list", "My room" and "My scene

			-		GroHomo		-		Grallama		
PV linkage	GroHome	Mar	PV linkag	le	GIOHOME		More >>	PV linkage	Gronome	More	>>
Ð			Ð					Ð			
Customize			Customize					Customize			
My device list	My room	My scene	a My devi	ce list	My room	My	scene	My device lis	t My room	My scene	
			Kitchen	/ Parlor	/ Bedroom					More	>>
	No device									<u> </u>	
Dashboard Plant	Grafforne	Service N	3 O	(9) Plant	Gretome	Service	ß	© Databased	I Di	Service Me	

4.Service: includes the common faults and troubleshooting suggestions, as shown in the figure below. Should you encounter any problem about our product, you can contact the Growatt after-sales support or refer to the related documents



5. Me: You can check the account information, configure the datalogger or view notifications, as shown in the figure below.



- 8.1.3 Remote Monitoring on the ShineServer Webpage
- 1. Open the browser, then enter https://server.growatt.com/login?lang=en in the address box to access the login page. Click "Register an Account" if you do not have an account.



2. After the Registration Page is displayed, fill in the information as required and click to agree to the Privacy Policy. Fields marked with the "·" icon are mandatory. Click next, it will bring you to the "Add Plant" page. Then click "Back to Login" on the top right corner.

GROWATT	Register		Back to Login
		User Installer Distributor	
		Country •	
		User Name No More than 30 Characters	
		Password ① Not less than 6 Digits	
		Comfirm Password Not less than 6 Digits	
		Language English 🗸 •	
		Phone Number	
		E-Mail	
		Installer Code	
		3 () have read and agree to the (Privacy Policy)	
		4 Next	
GROWATT	Register		5 Back to Login
		Please Fill in the Plant Information Skip	
		Residential Plant Conveniencial Plant	
		Plant Type Ground-Mounted Plants	
		Plant Name	
		Installation Date	
		Time Zone UTC +8 ~	
		recent resistion ratio Information Flease Inter The Full Address	
		PV Total Capacity(KWp)	
		Setting Price RMB(4) ~	
		Ned	

3. On the Login screen, enter the username and the password to log in to the home screen.

GROWATT	Shinedesign Download Mobile End Language
	Monitor/Oss Login
	Uner Name
	Password 8 Register an Account Forget Password
	Login Demo Account iof Vulnerability Disclosure
	Contraction of the second

4. After accessing the home screen, the "Add Plant" window will pop up. Fill in the information as required (marked with "·") and click "Yes". If the plant has been created, you can select the target plant on the home screen.

Type	Residential Flant		Date	Centiorade(°C)	Capacity(kWp)		Instanci		
Plant Name	Example: David 6.24W	Ip Plant	Temperature type	Fahrenheit(°F)					
Location	n Information								
Country	Please Select	•	City		Address				
Time Zone	UTC -12	•	Longitude ()		Latitude 🕕				
Plant Image	(\pm)				Microinverter Installation Map	(\pm)			
	Only support JPG, PM	NG, JPEG, BMP	, the size of no	more than 5M		Only support JPG, P than 5M	NG, JPEG, BMP, th	he size of no more	
Set Reve	enue Formula(Set 1Kv	vh As The Cou	nversion Stand	jard)				Yes	Cancel
Set Reve	enue Formula(Set 1Kv	wh As The Coi	nversion Stanc	jard)				Yes	Cancel
Set Reve	enue Formula(Set TKv	wh As The Cor	nversion Stand	dard) ∰Priteda	Capacity		Son Total Re	Ves	Cancel
Set Reve	enue Formula(Set 1Kv Total Generation 1.7 (MWh)	wh As The Cor	nversion Stand	dard)	Capacity Vp)		🇞 Total Re 1714	Ves Norrice (¥)	Cancel
Set Revo	enue Formula(Set TKv Total Generation 1.7 (MWh) Restentid Plent Comments	wh As The Con n) IPart Ground 8	nversion Stand	dard) Pr total 0.0(kW • Server	Capacity Vp) • Alound • Office	Power Station Sequencing 1	See Total Re 1714	Ves Netture (¥)	Cancel

- 5. Click the target plant and the detailed page will be displayed, click "Add Data Logger" on the upper right corner to add the datalogger connected to the inverter.
- 1)Enter the serial number (SN) of the datalogger.
- 2)Select the target power plant. You might need to enter the verification code of the datalogger as prompted.



Data Logger SN	•
Data Logger Check Code	•
Assigned Plant	WIT 15K Test 🔹 •
	Yes Cancel

6. After adding the datalogger successfully, you can click Dashboard to view details about related devices.



Dashboard:

1. Running status and energy display



- 1) Plant List: select the target plant from the drop-down list
- 2) Device Type: Select the device from the drop-down list
- 3) Input/Search Number: Upon the initial search, enter the serial number of the specific device; If you have searched for it before, you can select the device from the drop-down list
- 4) Data Sources: displays the data source of the selected device: Load First, Battery First and Grid first.
- 5) System Status: displays the running status of the selected device: operating, faulty, standby and off-line
- 6) System Running Graph: displays the power flow between the PV modules, the battery, the generator and the AC side
- 7) Energy: displays today's/total PV generation, power imported from grid, power exported to the grid and the load consumption

2. Energy Trend

- 1) System Production: displays the power for self-consumption and the power exported to the grid
- 2) Date: select a specific date, you can view the energy data in a specific period, day, month or year
- 3) Load Consumption: displays the power for self-consumption and the power drawn from the grid
- 4) Display options: to show/hide the content by clicking the corresponding color circle. By placing the cursor on the specific color circle for a long period, it will display the energy trend of the selected item only

4 5.000	Energy Trend © 1 © System Proc © 2 Self Consumption © OkWh	Suction 04Wh			3	2024-12-05 K Hour © Load Consu 025 Self-Consumption © 2KWh	Day Month Year mption OkWh
1 2004 1 5004 1 5004 2 1004 2 100	4 0.036W						=
	0.025WW						
	0.015WW						
AD 40 07-05 04-10 06-15 04-20 10-25 12-10 14-25 16-40	0.005kW	0.45 04.16	0010 0010	10.35	12-10	14.55	1640

3. Battery Information

0.005kW							
00.00	02.05	0410 0615	08.20 10.2	5 Innected From Cold	12:30	14.35	16:40
	- appent mout	un Vinnerunas outpas			• Charging • Discharging	,	
ttery Inform	ation						
attery Charged And	Discharged		2 Battery SOC				
		=					
ah							
0h							
2024-11-23	2024-11-30 2024-12-01 2024-12	12 2014-12-03 2014-12-04 2014-12-03					
2024-11-29	2024-11-50 2024-12-60 2024-12- Charging © Dia	12 2014-12-03 2014-12-04 2014-12-05 hunging					
2024-11-23	2024-11-00 2024-12-01 2024-13- Outgring Dis	12 2010-17-05 2010-17-04 2010-17-05 Swylig					
2024-11-29 y Photovoltai	2024-11-01 2024-12-01 2024-12-01 Charging © Dis ic Devices	12 201-17-05 201-17-04 201-17-05 hunging					All Devices -
2024-11-29 y Photovoltai	2024-11-01 2024-12-01 2024-13-01 © Charging © Dis ic Devices	or 2012-12-05 2012-12-04 2012-12-05 Abanjag					Al Devices -
2024-11-29 2024-11-29 y Photovoltai	2004-11-00 2004-12-00 2004-12-00 2004-12-00 2004-00-00-00-00-00-00-00-00-00-00-00-00-	17 204-12-05 203-12-04 203-12-05 Anging Davide Gold Number: 9020107819080.	0 Country Mail	us: Office	lindue Time: 204-11	246 16381	Al Devices -

- 1) Battery charge and discharge information over the last seven days: it can display the charge and discharge history of the battery clusters over the past seven days.
- 2) Battery rack daily SOC information: displays the battery SOC.

4. My PV devices

This section displays all devices involved in the selected PV plant (online devices are shown first, followed by offline devices).

Energy

1. Parameter comparison

nergy Diskower Comparison Permeter Comparison						
Number Company Number	ergy	C/s Dashboard	Log	禁 Setting		
Milling K ZMM-V 20 K Day More Leport WID10 (1) <t< th=""><th>ameter Comparison Plant Management</th><th>2</th><th></th><th></th><th></th><th></th></t<>	ameter Comparison Plant Management	2				
MID1: MID2: MID2: () NOCESTING () NOCEST	irench Q (+ 2024-12-05 4)	Hour Day Month Year			Export	
([] JORGENT2) AVANON28 LERIZORI - UNIVERSITY	MR001 MR020 () ANCTING () ANCTING					
ADV001) © David TextPower: M)	86F0001) (UXM056F700U)		Davinci Test	t(Power: W)		

- 1) Device type: Select the device type for comparison, such as the WIT inverter or the meter.
- 2) Date: select a specific date, you can view the energy data in a specific period, day, month or year.
- 3) Power curve:Show the power curve of the machine operation.

2. Plant Management

nerg	/				CA Dashboard Ener	ay Log Setting		
rent Loi arameti	ration: Energy>Plan	Plant Management					Plant Name	Search Add Plant
No.	Plant Name	Country	City	Installation Date	Time Zone	PV Total Capacity(kWp)	Total Power Generation(kWh)	Operations
1	Davinci Test	China		2023-07-13	8	0		비미
2	Davinci Test 1	China		2023-07-13	8	0	٥	비며
3	R0	Andorra		2023-10-16	1	0	0	비 명 et 47 명 네 명1 2
4	WIT SOK TEST	Thailand		2024-12-06	-12	0	1336.5	비미 (1 년 (1

Click Plant Management and you can view all PV plants associated with the current account.

- 1) Edit: Click the "Edit" icon (indicated in the figure above) to modify the PV plant information
- 2) Delete: Click the "Delete" icon (indicated in the figure above) to delete the selected PV plant
- 3) Data: Click the "Data" icon (indicated in the figure above) to view the energy yield and power of the selected plant

Log

On the Log page, you can view the error code and the fault description.

GRC	WATT Daving	i Test 🔻						aristi (🖀 Switch theme 😋 Add Plant 🔶 Add Data Logger 🚯 Davinci Test
og						Ch.	di i	8	
rrent Lo	scation: Log>Fault Log					Leshboard	Energy	Log	
Fault Lo	49						P 2	024-12-05 4 Day Month V	bar Device Serial Number Device Serial Number Search Export
No.	Device Serial Number	Device Type	Device Model	Fault Status	Time	Recovery time	Event Number	Fault Description	Solution
1	0KDQ10ZR13/NF0001	WR	WIT SDK-XHU		2024-12-05 15:38:11		500	SPH failed to communication with Ethium battery	1,Check the lithium Battery is open or not. 2.1F error message still exists,contact manufactures.
2	0KDQ102R130NF0001	Wit	WIT SDK-XHU		2024-12-05 15:35:10		500	SPH failed to communication with lithium battery	1.Check the lithium Battery is open or not. 2.If error message still exists,contact manufacturer.
	047001078130450001	WR	WIT SDK-XHU		2024-12-05 15:32:11		500	SPH failed to communication with Sthium battery	1.Check the lithium Battery is open or not. 2.If error message still exists,contact manufactures.
3									
3	0KDQ10ZR1XNF0001	WR	WIT SDK-XHU		2024-12-05 15:29:11		500	SPH failed to communication with Sthium battery	1.Check the lithium Battery is open or not. 2.If error message still exists,contact manufactures.
3 4 5	0KDQ10ZR1X0NF0001 0KDQ10ZR1X0NF0001	WR WR	WIT SDK-XHU WIT SDK-XHU		2024-12-05 15:29:11 2024-12-05 15:20:11		500 500	SPH failed to communication with Sthium battery SPH failed to communication with Sthium battery	1.Check the lithium Battery is open or not. 2.If error message still exists,contact manufactures. 1.Check the lithium Battery is open or not. 2.If error message still exists,contact manufactures.

Setting

1. Account management

GROWATT Davinci Tes			👕 Switch theme 💿 Add Plant 🏕 Add Data Logger 🚯 Davinci Test
etting		Dashboard Energy Log	Control of the second s
vent Location: Setting>Account Mana	gement		
Account Management Visitor Ac 1 • Userinfo Modify Please deve	count list E-mail Setting Download	Monitor Settings er serve you.)	Modify Password
User Name	Davindi Test		User Name Davind Test
Company Name			Current Password •
Real Name			New Password 💿 🔹
E-mail	2251922706@qq.com		Confirm Password
Phone Number			Eave
Language	· *文 ·		Account Security
Agent Code	Agent Code or Alias © M	odiły	
API Secret Key token	opitalen 0 M	odily	
	See		

1) Modify your account information

2) Change the password: you can change the password on this page

2. Download

A range of documents are available for download.

GROWATT Davinci Test -			🐨 Switch then	ne 🗿 Add Plant 🏕 Add Da	ita Logger 😝 Davinci Test
Setting	in all	8			
Current Location: Setting>Download	Dashboard Energy	Log Setting			
Account Management Visitor Account list E-mail Setting	wnload Monitor Settings				
Document Download					
No. File Name		File Type	File Size	Update Time	Download
1 ShineServer user manual		pdf	4.1M8	2015-05-21	史文 English
2 Growatt ShineWifi user manual(ShineWifi隐作手册)		pdf	4.33MB	2016-08-18	<u>⊕\$.English</u>
3 Growatt, Shine3G, ShineGPRS_user_manual(Shine3G, ShineGPRS型件序图)		pdf	3.72M8	2016-08-18	9.2.English
4 Android Growatt APP Module		pdf	0.2MB	2016-01-25	主义 English
5 IOS Growatt APP Module		pdf	0.2MB	2014-01-25	主文 Inuliah
6 Growatt Old WIFF Update Module		pdf	0.4MB	2016-04-25	形文 English
7 Grossatt Webbox Update Module		pdf	0.2MB	2014-04-25	1932 English
8 Growatt Webbox Instructions		pdf	1.27M8	2017-07-20	English
9 Growatt Datalog WIFI-X8/WFI-S Instrctions		pdf	1.85M8	2020-04-21	English
10 Microinverter Installation Map		od	442KB	2023-11-13	English

Device 1. Datalogger

DWATT Davinci Test -					Twitch theme	🕒 Add Plant 🏕 Add	
e		Dashboard	Linergy Log	- 🌣 Setting			
ocation: Dashboard>Photovoltaic Dev	ice>Data Logger						
voltaic Device							
8	Yower		- Generation			Revenue	
O Current Power(kM)	1355 Rated Power(kW)	290.7 Generation Today(kith)	336.1 This Month/Rithip	598358.5 Total Generation(kWh)	348.84 Today(%)	403.32 This Month(X)	718030.25
a Logger Inverter WIT S	mart meter list Battery				8 Device Serial Number	or Alias	9 Sewith Add
CPG00BJ1FG / (1) Data Logger 2 Ger Name: P & Port: 21	ancobering Battery ancobering 3 Comp Davied Text Part 9,14538,114,31505 4 Davie	ection Status: Office Updat Name: Davind Text Device Update Interval: 5 Minute Firmw	e Time: 2024-07-31 201800 Tippe: ShiheLan-X 6 are Version: 3.6.0.2 7) s	8 Device Serial Number	or Allas	9 Seach Add 10 Datalogger Setti Delete

- 1) Serial number: each datalogger has a specific SN, which can be used to search for the device;
- 2) User name and the PV plant to which the datalogger is connected;
- 3) Connection status: connected or disconnected;
- 4) Data update interval;
- 5) Device type;
- 6) Type of equipment;
- 7) Firmware version;
- 8) Enter the serial number to search for the target datalogger;
- 9) Add a datalogger: enter the serial number to add the datalogger;
- 10) Datalogger settings: you can set the update time for the datalogger.

2. WIT



1) Enter the serial number to find the device;

2) Device model;

3) User name and the PV plant to which the device is coinnected;

4) Daily and monthly energy yield;

5) Serial number of the selected device;

6) Operating status: operating, standby, disconnectedor faulty;

7) Serial number of the datalogger connected to thedevice;

8) Rated power;

9) Current power;

10) Parameter settings.

10.1) Setting of safety parameters, including 1st, 2nd and 3rd order underfrequency point, overfrequency point, undervoltage point and overvoltage point.

• Setting			×				
Data Logger: JKN0E8T01G	Property: YE1.0/YEaa050499/ZDda- 0006/S21B0CD00T33P0FU01M0096						
Command Read							
Regulation parameter setting 🔺							
UV1/UV2/UV3 Frequency 🔺							
O UV1 Frequency 0	47.5	[45.00,50.00]Hz					
O UV2 Frequency ()	47.5	[45.00,50.00]Hz					
O UV3 Frequency ()	47.5	[45.00,50.00]Hz					
OV1/OV2/OV3 Frequency 🛸							
○ OV1 Frequency ①	50.5	[50.00,55.00]Hz					
OV2 Frequency 0	50.5	[50.00,55.00]Hz					
-			*				
Please Enter Password	Yes	Advanced Setting	Cancel				

○ UV3 Frequency ①	47.0	[45.00,50.00]Hz
/OV2/OV3 Frequency 🔺		
OV1 Frequency 0	52.0	[50.00,55.00]Hz
OV2 Frequency 0	52.0	[50.00,55.00]Hz
OV3 Frequency	52.0	[50.00,55.00]Hz
I/UV1/UV1 Voltage 🔺		
○ UV1 Voltage	338.6	[17.3,762.0]V
○ UV2 Voltage	79.7	[17.3,762.0]V
🔿 UV3 Voltage	79.7	[17.3,762.0]V

Setting			×
🔿 UV1 Voltage	338.6	[17.3,762.0]V	[^]
○ UV2 Voltage	79.7	[17.3,762.0]V	
🔿 UV3 Voltage	79.7	[17.3,762.0]V	
OV1/OV2/OV3 Voltage			
○ OV1 Voltage	438.2	[17.3,762.0]V	
OV2 Voltage	458.1	[17.3,762.0]V	
OV3 Voltage	517.9	[17.3,762.0]V	
Grid related settings 🔺			
◯ High Grid Voltage Limit	438.2	[17.3,762.0]V	
O Low Grid Voltage Limit	338.6	[17.3,762.0]V	
-			
Please Enter Password	Yes	Advanced Setting	Cancel

Setting		×
OV3 Voltage	517.9	[17.3,762.0]V
Grid related settings		
High Grid Voltage Limit	438.2	[17.3,762.0]V
O Low Grid Voltage Limit	338.6	[17.3,762.0]V
◯ High Grid Frequency Limit ①	50.1	[50.00,55.00]Hz
\bigcirc Low Grid Frequency Limit $@$	49.5	[45.00,50.00]Hz
Loading, restarting, and unloading rates		
O Loading rate	300.0	[1.0,6000.0]%
O Restart loading rate	300.0	[1.0,6000.0]%
○ Load reduction rate	-0.1	[1.0,6000.0]%
Please Enter Password	Yes	Advanced Setting Cancel

10.2) High grid voltage limit (voltage upper threshold of grid connection).

10.3) Low grid voltage limit (voltage lower threshold of grid connection).

• Setting		×
OV3 Voltage	517.9	[17.3,762.0]V
Grid related settings 🛸		
◯ High Grid Voltage Limit	438.2	[17.3,762.0]V
Low Grid Voltage Limit	338.6	[17.3,762.0]V
◯ High Grid Frequency Limit ①	50.1	[50.00,55.00]Hz
🔿 Low Grid Frequency Limit 🕚	49.5	[45.00,50.00]Hz
Loading, restarting, and unloading rates 🔺		
○ Loading rate	300.0	[1.0,6000.0]%
○ Restart loading rate	300.0	[1.0,6000.0]%
O Load reduction rate	-0.1	[1.0,6000.0]%
		•
Please Enter Password	Yes	Advanced Setting Cancel

10.4) High grid frequency limit (frequency upper threshold of grid connection) .

		×
517.9	[17.3,762.0]V	
438.2	[17.3,762.0]V	
338.6	[17.3,762.0]V	
50.1	[50.00,55.00]Hz	
49.5	[45.00,50.00]Hz	
300.0	[1.0,6000.0]%	
300.0	[1.0,6000.0]%	
-0.1	[1.0,6000.0]%	
	517.9 438.2 338.6 50.1 49.5 300.0 300.0 -0.1	517.9 [17.3,762.0]V 438.2 [17.3,762.0]V 338.6 [17.3,762.0]V 50.1 [50.00,55.00]Hz 49.5 [45.00,50.00]Hz 300.0 [1.0,6000.0]% 300.0 [1.0,6000.0]% -0.1 [1.0,6000.0]%

10.5) Low grid frequency limit (frequency lower threshold of grid connection).

Setting		×	¢
OV3 Voltage	517.9	[17.3,762.0]V	•
Grid related settings			
O High Grid Voltage Limit	438.2	[17.3,762.0]V	
O Low Grid Voltage Limit	338.6	[17.3,762.0]V	
\bigcirc High Grid Frequency Limit $@$	50.1	[50.00,55.00]Hz	I
● Low Grid Frequency Limit ①	49.5	[45.00,50.00]Hz	l
Loading, restarting, and unloading rates			1
○ Loading rate	300.0	[1.0,6000.0]%	
 Restart loading rate 	300.0	[1.0,6000.0]%	
○ Load reduction rate	-0.1	[1.0,6000.0]%	
Coad reduction rate	-0.1	[1.0,6000.0]%	¥

10.6)	Load,	restart	load,	and	down	load	rate	settings.
-------	-------	---------	-------	-----	------	------	------	-----------

ing		
◯ High Grid Frequency Limit ①	50.1	[50.00,55.00]Hz
🔵 Low Grid Frequency Limit 🕚	49.5	[45.00,50.00]Hz
Loading, restarting, and unloading rates 🔺		
Loading rate	300.0	[1.0,6000.0]%
○ Restart loading rate	300.0	[1.0,6000.0]%
O Load reduction rate	-0.1	[1.0,6000.0]%
Settings related to OF derating		
O Derating Start point(f)	50.2	[0.00,66.50]Hz
O Derating Gradient(f)	50	[0,2000]
Over-frequency load reduction delay time	0.0	[0.0,20.0]s
-		

10.7) Setting the start point of overfrequency load shedding: Load shedding after higher than the set frequency.

Derating Start point(f)	50.2	[0.00,66.50]Hz
O Derating Gradient(f)	50	[0,2000]
Over-frequency load reduction delay time	0.0	[0.0,20.0]s
Over-frequency load reduction response time	0.0	[0.0,40.0]s
ttings related to UF increasing A		
O UF Increasing Enable	On	•
○ UF Increasing Start Point	49.8	[0.00,66.50]Hz
O Under-frequency loading slope	50	[20,400]
O Under-frequency loading delay time	0.0	[0.0,2.0]s
10.8) Set underfrequency loading enable: you can set whether to allow the underfrequency loading function to be enabled.

Setting			×
Over-frequency load reduction response time	0.0	[0.0,40.0]s	*
Settings related to UF increasing			
UF Increasing Enable	On 🔺		
O UF Increasing Start Point	On	[0.00,66.50]Hz	
O Under-frequency loading slope	Disable	[20,400]	
O Under-frequency loading delay time	0.0	[0.0,2.0]s	
O Under-frequency loading response time	0.0	[0.0,40.0]s	
○ Grid recovery reconnection wait time	0	[0,3600]s	1
○ Frequency change rate enable	On 👻		l
Common Set 💌			1
			*
Please Enter Password	Yes	Advanced Setting Cancel	

10.9) Set the frequency rate of change enable.

Setting			
O UF Increasing Enable	On	Y	
O UF Increasing Start Point	49.8	[0.00,66.50]Hz	
O Under-frequency loading slope	50	[20,400]	
O Under-frequency loading delay time	0.0	[0.0,2.0]s	
O Under-frequency loading response time	0.0	[0.0,40.0]s	
○ Grid recovery reconnection wait time	0	[0,3600]s	
Frequency change rate enable	On		
Common Set 💌	On		
Battery settings 💌	Disable		
Off grid parameter settings 💌			
Set Evportlimit 🐨			
Please Enter Password	Yes	Advanced Setting	Cance

10.10) Powering on/off the device: you can power on/off the device remotely.

Setting		>
O Under-frequency loading response time	0.0 [0.0,40.0]s	
◯ Grid recovery reconnection wait time	0 [0,3600]s	
O Frequency change rate enable	On 💌	
Common Set 🔺		
Set Inverter On/Off	Shut Down	
◯ Set Time	Turn On	
○ System Mode	Shut Down	
○ Set Reactive Power Ratio	PF Fixed 1	
○ Enable the grid side electricity meter	Disable	
Settings related to AC charging 🔺		
○ AC Charging Enable	On v	
Please Enter Password	Yes Advanced Setting Ca	ancel

10.11) Set the time: you can set the time for the device.

etting	
O Under-frequency loading response time	0.0 [0.0,40.0]s
○ Grid recovery reconnection wait time	0 [0,3600]s
O Frequency change rate enable	On 💌
Common Set 🔺	
O Set Inverter On/Off	Shut Down
Set Time	2025-01-02 20:31
○ System Mode	Battery First
O Set Reactive Power Ratio	PF Fixed 1
O Enable the grid side electricity meter	Disable
Settings related to AC charging 🔺	
○ AC Charging Enable	On v
Please Enter Password	Yes Advanced Setting Cancel

10.12) Setting the default working mode of the system: selecting the working mode according to the customer's needs, the working modes are Load Priority, Battery Priority, Grid Priority, Pure PV Energy Storage, Idle Grid Priority for Energy Storage, PTO, Grid Priority (ECO).

• Setting		×
○ Set Inverter On/Off	Shut Down 💌	^
⊖ Set Time	2025-01-02 20:31	
System Mode	Battery First	
O Set Reactive Power Ratio	Load First	
◯ Enable the grid side electricity meter	Battery First	
Settings related to AC charging	Grid First Solar Only Backup	
◯ AC Charging Enable	C Idle/Charge From Cli	
○ AC charging power percentage ①	0,100]% Grid First(ECO)	ł
○ AC discharge power percentage ①	0,100]%	
○ AC stop charging SOC ①	0 [0,100]%	
Rattery settings 🔍		-
Please Enter Password	Yes Advanced Setting Cancel	

10.13) Setting the reactive power: The corresponding PF mode can be set.

• Setting	×
○ Set Inverter On/Off	Shut Down 👻
◯ Set Time	2025-01-02 20:31
◯ System Mode	Battery First
Set Reactive Power Ratio	PF Fixed 1
O Enable the grid side electricity meter	PF Fixed 1
Settings related to AC charging 🔺	Set PF
O AC Charging Enable	C (Capa)Reactive P
○ AC charging power percentage ①	3) (Inda)Reactive P [D, 100]%
O AC discharge power percentage 0	Qv Model Positive and Neg.
○ AC stop charging SOC ①	0 10,100]%
Rattery cettings 👻	
Please Enter Password	Yes Advanced Setting Cancel

10.14) Setting the network side meter enable: you can choose whether to enable the network side meter function or not.

Shut Down	
2025-01-02 20:31	
Battery First 🔍	
PF Fixed 1	
Disable	
On	
c Disable	
30 [0,100]%	
10 [0,100]%	
0 [0,100]%	
	2025-01-02 20:31 Battery First PF Fixed 1 Disable 0 [0,100]% 0 [0,100]%

10.15) AC charging: you can set whether to enable the mains charging function or not.

• Setting			×
O Enable the grid side electricity meter	Disable		^
Settings related to AC charging A			
AC Charging Enable	On		
○ AC charging power percentage ①	On	[0,100]%	
○ AC discharge power percentage ①	Disable	[0,100]%	
○ AC stop charging SOC ①	0	[0,100]%	
Battery settings 📼			
Off grid parameter settings 🐨			
Set Exportlimit 🐨			- 1
Parallel parameter setting 🐨			
Please Enter Password	Yes	Advanced Setting Ca	ncel

10.16) AC charge power: you can set the AC charge power.

• Setting					×
O Enable the grid side electricity meter	Disable				^
Settings related to AC charging 🛸					
O AC Charging Enable	On	•			
AC charging power percentage ①	30		[0,100]%		
○ AC discharge power percentage ③	10		[0,100]%		
○ AC stop charging SOC ①	0		[0,100]%		
Battery settings 🐨					
Off grid parameter settings 📼					
Set Exportlimit 📼					1
Parallel parameter setting 💌					v
Please Enter Password	Ye	s	Advanced Setting	Cance	

10.17) AC discharging power: you can set the AC discharge power.

Setting			×
○ Enable the grid side electricity meter	Disable		
Settings related to AC charging 🔺			
O AC Charging Enable	On 💌		
\bigcirc AC charging power percentage \bigcirc	30	[0,100]%	
AC discharge power percentage	(10	[0,100]%	
○ AC stop charging SOC ①	0	[0,100]%	
Battery settings 📼			
Off grid parameter settings 📼			
Set Exportlimit 📼			
Parallel parameter setting 📼			
Please Enter Password	Yes	Advanced Setting	Cancel

10.18) AC stop charging SOC: the battery charge cut-off SOC can be set (100 recommended).

• Setting				×
O Enable the grid side electricity meter	Disable			-
Settings related to AC charging 🔺				
○ AC Charging Enable	On	-		
○ AC charging power percentage 0	30		[0,100]%	
○ AC discharge power percentage ①	10		[0,100]%	
AC stop charging SOC	0		[0,100]%	
Battery settings				
Off grid parameter settings 🐨				
Set Exportlimit 🐨				
Parallel parameter setting 👻				
Please Enter Password	Yes	A	Advanced Setting	Cancel

10.19) Discharge stop SOC: you can set the battery discharge cut-off SOC (recommended 10), the discharge cut-off SOC is divided into gridconnected discharge stop SOC and off-grid discharge stop SOC.

• Setting			×
Battery 1 related settings			^
○ Capacity	100	[0,2000]Ah	
O Maximum Charging Power	60.0	[0.0,200.0]kW	
O Maximum Discharge Power	60.0	[0.0, 200.0]kW	- 1
◯ Charge Max Current	165.0	[0.0, 200.0]A	
🔿 Max Discharge	165.0	[0.0, 200.0]A	- 1
O Maximum charging voltage of battery 🛈	900.0	[200.0,900.0]V	
O Discharge cut-off voltage ()	200.0	[200.0,900.0]V	
\bigcirc Stop SOC when charging the battery \bigcirc	100	[0,100]%	
O Discharge Stopped Soc 🕚	10	[0,99]%	
○ Off grid cut-off SOC ①	0	[0,99]%	-
Please Enter Password	Yes	Advanced Setting	Cancel

ry settings 🔺		
BMS1On 🛈	On	*
BMS2On ①	Disable	~
BMS3On ①	Disable	~
) Battery1On	On	*
Battery2On	Disable	*
Battery3On	Disable	T
attery 1 related settings 🛸		
○ Capacity	100	[0,2000]Ah
O Maximum Charging Power	15.0	[0.0,200.0]kW
Maximum Discharge Dower	15.0	10 0 200 01kW

10.21) Battery Settings: Battery related parameters can be set, including battery capacity, maximum charging/ discharging power, maximum charging/ discharging current, maximum battery charging voltage, battery charging cut-off voltage, battery discharging cut-off voltage, off-grid cut-off voltage.

○ Capacity	100	[0,2000]Ah
O Maximum Charging Power	15.0	[0.0,200.0]kW
O Maximum Discharge Power	15.0	[0.0, 200.0]kW
○ Charge Max Current	300.0	[0.0, 350.0]A
O Max Discharge	300.0	[0.0, 350.0]A
O Maximum charging voltage of battery ()	60.0	[20.0,80.0]V
○ Discharge cut-off voltage ③	40.0	[20.0,80.0]V
○ Stop SOC when charging the battery ③	100	[0,100]%
Discharge Stopped Soc ①	10	%[99]

10.22) Mode switching: You can choose to switch the operating mode manually or automatically. In general, it is recommended that you select the "Auto" mode switch.

• Setting			×
○ Discharge Stopped Soc ①	10	[0,99]%	^
Off grid cut-off SOC ()	10	[0,99]%	
Off grid parameter settings 🔺			
Grid related settings			
Off grid manual/automatic switching	Automatic		
Off grid related settings			
○ Set Eps On/Off	On	Ŧ	
○ Set Eps Voltage	230V	v	
○ Set Eps Frequency	50Hz	T	- 1
Set Exportlimit 🔺			- 1
○ Set Exportlimit	Disable	Ŧ	-
Please Enter Password	Yes	Advanced Setting	Cancel

10.23) Setting off-grid enable: you can set whether or not the inverter operates in off-grid mode.

• Setting			×
Battery settings 🔍			*
Off grid parameter settings 🔺			
Grid related settings			
Off grid manual/automatic switching	Automatic	v	
Off grid related settings			
Set Eps On/Off	On	$\overline{}$	
○ Set Eps Voltage	230V	*	
○ Set Eps Frequency	50Hz	T	
Set Exportlimit 📼			
Parallel parameter setting 🐨			ļ
Please Enter Password	Yes	Advanced Setting	Cancel

10.24) Off-grid voltage: 220V/230V can be set.

• Setting		×
Off grid manual/automatic switching	Automatic 👻	-
Off grid related settings 🔺		
○ Set Eps On/Off	On 💌	
Set Eps Voltage	230V 🔺]
◯ Set Eps Frequency	220V	
Set Exportlimit 👻	230V	
Parallel parameter setting 🐨	240V 277V	
	127V	
	120V	
	117V	
	254V	
Please Enter Password	Yes	Advanced Setting Cancel

10.25) Off-grid frequency: two options: 50Hz/60Hz.

• Setting		×
Battery settings 📼		^
Off grid parameter settings		
Grid related settings 🔺		
Off grid manual/automatic switching	Automatic	
Off grid related settings 🛸		
◯ Set Eps On/Off	On 💌	
○ Set Eps Voltage	230V 💌	
Set Eps Frequency	50Hz 🔺	
Set Exportlimit 📼	50Hz	
Parallel parameter setting 🐨	60Hz	Ţ
Please Enter Password	Yes Advanced Setting Canc	el

10.26) Anti-reverse flow settings: You can enable/disable the anti-reverse flow feature in accordance with applicable local regulations and set the anti-reverse flow power when the feature is enabled.

• :	Setting				×
	Common Set 💌				^
	Battery settings 📼				
	Off grid parameter settings 🐨				
ſ	Set Exportlimit 🔺				
	Set Exportlimit	On	•		
	Export Limitation Power	20.0		[-100.0,100.0]%	
	○ Active power percentage	-0.1		[0.0,100.0]%	
	O Export Limitation Failure Time	120		[1,5000]s	
	○ Single phase anti backflow enable ①	On	T		
	Parallel parameter setting 🔻				- 1
					÷
	Please Enter Password	N N	es A	dvanced Setting Car	icel

10.27) Set Parallel Enable: you can set whether to enable the parallel function or not.

Setting			×
Device Serial Number: 0HUR00ZD1YRF0010	Alias:		1
Data Logger: JKN0E7Q05E	Property: YE1.0/YEaa050499/ZDda- 0005/S27B08D00T33P0FU01M0096		1
	Command	Read	
Regulation parameter setting 👻			
Common Set 💌			
Battery settings 🐨			
Off grid parameter settings 📼			
Set Exportlimit 📼			
Parallel parameter setting 🔺			
O Parallel enable	Disable		- 1
		_	
Please Enter Password	Yes	Advanced Setting Cance	ł

• Setting			:	×
Advanced Setting 🛸				
Maximum spontaneous self use		On	T	
Equipment mode selection and time	setting 🔺			
○ Time Slot 1	Load First	- € 2	00 00 ~ 00 00	ł
	100	% 0	Disable 🚽 3	I
◯ Time Slot 2	Load First	• •	00 00 ~ 00 00	I
	100	% 🕕	Disable 👻	ł
◯ Time Slot 3	Load First	• 0	00 00 ~ 00 00	
	100	% 🕕	Disable 🔻	
O Time Slot 4	Load First	• 0	00 00 ~ 00 00	
	100	%	Dicable	*
Please Enter Password			Yes Advanced Setting Cancel	

10.28) Setting the working mode and time period

10.29) Disable/Enable Demand Management/Peak Shaving

	100	% 🕕 Dis	sable	-	
Demand Management/Peak Sha	wing 🔺				
Demand Management Set	etting	Disable	-		
O Peak Shaving Backup SO	C Enable	Disable	-		
Microgrid system					
Safety function control					
○ Register	Value				
O Please Select 💌				Read	
O Start Address Er	d Address			Advanced Read	
				Event Record	

10.30) GEN port access device type: can be set as generator/PV inverter/smart load.

• Setting			×
Microgrid system 🔺			^
Device Type of GEN Port	Generator		
O Generator Enable	Generator		
○ Rated power of oil engine	PV Inverter	[0.0~1000.0]kW	
O Electricity Meter 2 Enable	No		
○ AC Couple Enable	Disable	•	
O SOC under secondary load	-1	[0, 100]%	
Safety function control			1
O Register Value			
O Please Select		Read	
⊂ Start ∆ddress Fnd Address		Advanced Read	
Please Enter Password	Yes	Advanced Setting Cancel	

10.31) Generator Enable: Option to enable or disable the GEN.

Setting		
Microgrid system A		
O Device Type of GEN Port	Generator	
Generator Enable	Disable	
Rated power of oil engine	On [0.0~1000.0]kW	
O Electricity Meter 2 Enable	Disable	
O AC Couple Enable	Disable	
○ SOC under secondary load	-1 [0, 100]%	
Safety function control 🔍		
O Register Value		
O Please Select 💌	Read	
⊖ Start ∆ddress Fnd Address	Advanced Read	
Please Enter Password	Yes Advanced Setting	Cancel

Microgrid system h			
O Device Type of GEN Port	Generator	Ŧ	
O Generator Enable	Disable	*	
Rated power of oil engine	50.0		[0.0~1000.0]kW
O Electricity Meter 2 Enable	No	•	
O AC Couple Enable	Disable	-	
○ SOC under secondary load	-1		[0, 100]%
Safety function control 🔍			
) Register Value			
Please Select			Read
Start Address End Address			Advanced Read

10.32) Tanker power: Tanker power can be set.

10.33) Enable/Disable Electricity Meter 2

• Setting			×
Microgrid system 🔺			^
O Device Type of GEN Port	Generator	•	
O Generator Enable	Disable	•	
O Rated power of oil engine	50.0	[0.0~1000.0]kW	
Electricity Meter 2 Enable	No		
O AC Couple Enable	Yes		
○ SOC under secondary load	No	[0, 100]%	
Safety function control 👘			
O Register Value			
O Please Select		Read	
⊖ Start ∆ridress Find Aridress		Advanced Read	*
Please Enter Password	Yes	Advanced Setting Cancel	

10.34) AC Couple Enable: you can set whether to enable the AC Couple function.

• Setting		×
Microgrid system		
O Device Type of GEN Port	Generator	
O Generator Enable	Disable	•
O Rated power of oil engine	50.0	[0.0~1000.0]kW
O Electricity Meter 2 Enable	No	
AC Couple Enable	Disable	\mathbf{E}
○ SOC under secondary load	Disable	[0, 100]%
Safety function control	On	
O Register Value		
O Please Select 💌		Read
C Start ∆ddress Find Address		Advanced Read
Please Enter Password	Yes	Advanced Setting Cancel

Wattmeter

crice		Da	shboard Energy	Log	Setting				
rent Location: Dashboard	>Photovoltaic Device>Data Logger								
	🧼 Power			Generation			a Rev	venue	
0 Current Pov	er(kM) Rated Powe	n(00) Generatio	O on Today(kitth) Th	0 his Month(kth)	0 Total Generation(kWh)	0 Today(#)	0 This Month(#)	70	0 stal Revenue(#)
0	Data Logger: JKN0E6C0TA () User Name: Davinci Test	Connection Status: Offline Plant Name: Davinci Test 1	Update Time: 2 Device Type: St	024-12-13 15:35:00 nineWiLan-X2				Device List	Datalogger Settin
	IP & Port: 10.10.0.103342326	Data Update Interval: 5 Mi	inute Firmware Versio	n: 7.6.1.2		1	al 1 here. Province	1 Next To f	Delete
		Copyrig	ghe@2019 - SHENZHEN GRO	WATT NEW INERGY Co.	Ltd ShineServer-3.6.0.0				

Enter the serial number of the meter or Datalogger to search for the desired meter Once the search is complete, the type of meter, the model of the Datalogger working with the device, the status of the meter, and the serial number of the WIT inverter to which the meter is connected are displayed.

9 System Maintenance

9.1 Routine Maintenance

9.1.1 Clean the Chassis



- 1) Check periodically that the humidity is within the acceptable range and keep it away from dust;
- Check the ventilation and heat dissipation of the equipment regularly. For details, see Section 9.1.2.

9.1.2 Fan Maintenance

 Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and comply with local regulations. Before performing any operation, disconnect all power supplies and wait for 5 minutes until the residual voltage is completely discharged.
 Do not use the air pump to clean the fan. Otherwise, the fan may be damaged.

Ventilation and heat dissipation is essential to protect the WIT Inverter from performance de-rate due to excess heat. The fan in the WIT Inverter works to cool the components and the heat sink when the temperature is too high. Check the following possible causes and measures when an exception occurs:

- 1> The fan is stuck with foreign objects or there is dust accumulation on the heat sink; clean the fan cover, fan blades and the heat sink.
- 2> The fan is damaged and needs to be replaced.
- 3> The installation position of the WIT Inverter is not well-ventilated. Select an appropriate installation position that meets the basic installation requirements.

Cleaning and replacing the fan:

- 1> Before cleaning or replacing a fan, disconnect the DC and AC power supply and wait for at least 5 minutes.
- 2> Remove the fan fixing plate using a cross-head screwdriver, as shown in Fig 9.1:



Fig 9.1



Fig 9.2 Position of the fan fixing plate

- 3> Disconnect the fan connector, remove the fan fixirng plate with a screwdriver, and remove the fan.
- 4> Clean the fan cover, fan blades, and the heat sink, or replace the fan.
- (1) Use an air pump to clean the heat sink, and use a bru:sh or wet cloth to clean the fan and the its cover;
- (2) Remove the fan for cleaning if necessary;
- (3) Remove the fan that needs to be replaced using a cross-head screwdriver and install a new fan.
- (4) Bind the cables and fix them with a cabletie.
- (5) Reinstall the fan, the fan fixing plate, and the WIT linverter.

9.2 Troubleshooting

Г		
		• It must be operated by trained and professional elecctrical
l	•	technicians. Technicians must observe instructions in this
		manual and local regulations.
		• If the WIT Inverter reports the "PV Isolation lovw" alarm, do not
	DANGER	touch the equipment as a ground fault might have cccurred.
		• Beware of high voltages which can cause electric shnocks.

9.2.1 Warning

Warnings indicate abnormal situations of WIT 4-15K-HU Hybrid Inverters, leading to a reduction in the output power. The warning ssign will disappear once the fault is rectified by restarting the inverter or recorfiguring the system. The warning codes are shown in Table 9.1:

Warning	Description	Suggestion
Warning 200	String fault	 Check if the PV panels are normal after shutdown. If the error message persists, contact Growatt support.
Warning 201	PV string/PID quick- connect terminals abnormal	1. Check the wiring of the string terminals after shutdown. 2. If the error message persists, contact Growatt support.
DC SPD Warning	DC SPD function abnormal	 Check the DC SPD after shutdown. If the error message persists, contact Growatt support.
Warning 203	PV1 or PV2 short circuited	 Check if PV1 or PV2 is short circuited. If the error message persists, contact Growatt support.
Boost Warning	PV Boost driver abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
AC SPD Warning	AC SPD function abnormal	 Power off the system and check the fuse. If the fault persists, contact Growatt.
Warning 208	DC fuse blows	 Power off the system and check the fuse. If the fault persists, contact Growatt.

Table 9.1 Warning codes

Warning	Description	Suggestion
Warning 209	DC input voltage exceeds the upper threshold	 Turn off the DC switch immediately and check the DC voltage. If the DC voltage is within the specified range and the error message persists, contact Growatt support.
PV Reversed	PV string is reversely connected	 Check the polarity of the PV terminals. If the error message persists, contact Growatt support.
Warning 219	PID function abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 220	PV string disconnected	 Check if the PV string is properly connected. If the error message persists, contact Growatt support.
Warning 221	PV string current unbalanced	 Check if the PV panels of the corresponding string are normal. If the error message persists, contact Growatt support.
Warning 300	No utility grid connected or utility grid power failure	1. Check if the grid is down. 2. If the error message persists, contact Growatt support.
Warning 301	Grid voltage is beyond the permissible range	 Check if the grid voltage is within the specified range. If the error message persists, contact Growatt support.
Warning 302	Grid frequency is beyond the permissible range	 Check if the grid frequency is within the specified range. If the error message persists, contact Growatt support.
Warning 303	Overload	 Please reduce the load connected to the EPS output terminal. If the error message persists, contact Growatt support.
Warning 308	Meter disconnected	 Check if the meter is properly connected. If the error message persists, contact Growatt support.

Warning	Description	Suggestion
Warning 309	Meter is reversely connected	 Check if the L line and the N line of the meter are reversely connected. If the error message persists, contact Growatt support.
Warning 310	The voltage difference between the N line and the PE cable is abnormal	 Check if the PE cable is reliably connected after shutdown. If the error message persists, contact Growatt support.
Warning 311	Phase sequence error	No operation is required. The PCS will automatically adjust the phase sequence.
Warning 400	Fan failure	 Check if the fan is properly connected after shutdown. If the error message persists, contact Growatt support.
Warning 401	Meter abnormal	 Check if the meter is turned on. If the meter is correctly connected to the inverter.
Warning 402	Communication between the optimizer and the inverter is abnormal	 Check if the optimizer is turned on. If the optimizer is correctly connected to the inverter.
Warning 407	Over-temperature	 Restart the inverter. If the error message persists, contact Growatt support.
Warning 407	overtemperature alarm	 Restart the inverter If the fault message persists, contact the manufacturer
Warning 408	NTC temperature sensor is broken	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 411	Sync signal abnormal	 Check if the sync cable is abnormal. If the error message persists, contact Growatt support.

Warning	Description	Suggestion
Warning 412	Startup requirements of grid connection are not met	 Check if the grid voltage is within the specified range and check if the grid- connection startup voltage configuration is correct. Check if the PV voltage is within the specified range. Restart the inverter. If the error message persists, contact Growatt support.
Warning 500	The inverter failed to communicate with the battery	 Check if the battery is turned on. Check if the battery is correctly and securely connected to the inverter.
Warning 501	Battery disconnected	 Check if the battery is properly connected. If the error message persists, contact Growatt support.
Warning 502	Battery voltage too high	 Check if the battery voltage is within the permissible range. Check if the battery is correctly connected. If the error message persists, contact Growatt support.
Warning 503	Battery voltage too low	 Check if the battery voltage is within the permissible range. Check if the battery is correctly connected. If the error message persists, contact Growatt support.
Warning 504	Battery terminals are reversely connected	 Check if the positive and negative terminals of the battery are reversely connected. If the error message persists, contact Growatt support.
Warning 505	Temperature sensor of the lead-acid battery is disconnected	 Check if the temperature sensor of the lead-acid battery is installed or not. Check if the temperature sensor is well-connected. If the error message persists, contact Growatt support.

Warning	Description	Suggestion
Warning 506	Battery temperature is out of range	 Check if the ambient temperature of the battery is within the specified range. If the error message persists, contact Growatt support.
Warning 507	BMS reported a fault; both charging and discharging failed	 Figure out the cause according to the BMS error code. If the error message persists, contact Growatt support.
Warning 508	Lithium battery overload protection	 Check if the power of the load exceeds the BAT rated discharge power. If the error message persists, contact Growatt support.
Warning 509	BMS communication abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 510	BAT SPD function abnormal	 Check the BAT SPD after powering off the device. If the error message persists, contact Growatt support.
Warning 600	Output DC component bias abnormality	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 601	DC component over high in output voltage	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 602	Off-grid output voltage too low	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 603	Off-grid output voltage too high	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 604	Off-grid output current overcurrent	 Detect whether the load is out of specification Restart the inverter, if the fault message still exists, contact the manufacturer

Warning	Description	Suggestion
Warning 605	Off-grid bus voltage too low	 Check if the load power exceeds the upper limit. Restart the inverter. If the error message persists, contact Growatt support.
Warning 606	Off-grid output overload	 Detect whether the load is out of specification Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 609	Balanced circuit abnormal	 Restart the inverter. If the error message persists, contact Growatt support.

9.2.2 Error

The error code indicates that the device is damaged or the configurations are abnormal. Only qualified and trained electrical technicians are allowed to rectify the faults. The error message will disappear after the fault is rectified. If the problem persists, please contact Growatt.

Table 9.2 Error codes

Error Code	Description	Suggestion
AFCI Fault	An arc fault has been detected	 After shutdown, check the connection of the PV string. Restart the inverter. If the error message persists, please contact Growatt support.
GFCI High	An excessively high leakage current has been detected	 Restart the inverter. If the error message persists, please contact Growatt support.
PV Voltage High	DC input voltage exceeds the upper threshold	 Disconnect the DC switch immediately and check the voltage. If the DC input voltage is within the permissible range and the error message persists, please contact Growatt support.

Error Code	Description	Suggestion				
PV Isolation Low	PV panels have low insulation resistance	 Check if the PV strings are properly grounded. If the error message persists, please contact Growatt support. 				
PV Reversed	PV string reversely connected	 After shutdown, check if the PV string is reversely connected to the inverter. Restart the inverter. If the error message persists, please contact Growatt support. 				
AC V Outrange AC V Outrange permissible range No utility grid connected or utility		 Check the grid voltage. If the grid voltage is within the permissible range and the error message persists, please contact Growatt support. 				
No AC	No utility grid connected or utility grid power failure	 After shutdown, check the AC wiring. If the error message persists, please contact Growatt support. 				
PE Abnormal	The voltage difference between the N line and the PE cable is abnormal	 After shutdown, check if the ground cable is reliably connected. If the error message persists, please contact Growatt support. 				
AC F Outrange	Grid frequency is beyond the permissible range	 Check the grid frequency and restart the inverter. If the error message persists, please contact Growatt support. 				
Error 309	Grid ROCOF (Rated of Change of Frequency) abnormal	 Check the grid frequency and restart the inverter. If the error message persists, please contact Growatt support. 				
NE Fault Neutral-to-Ground voltage is too low		 Check whether the N line on the inverter side with PV negative grounding is short-circuited with the ground cable and whether the output side is isolated with a transformer. If the error message persists, please contact Growatt support. 				
Error 311	Export limitation fail-safe	 After shutdown, check the connection of the CT and the meter. If the error message persists, please contact Growatt support. 				

Error Code	Description	Suggestion				
Error 400	DCI bias abnormal	 Restart the inverter. If the error message persists, contact Growatt support. 				
Error 402	High DC component in output current	 Restart the inverter. If the error message persists, contact Growatt support. 				
Error 404	Bus voltage sampling abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 405	Relay fault	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 408	Over-temperature	 After shutdown, check the temperature of the inverter and restart the inverter after the temperature is within the acceptable range. If the error message persists, please contact Growatt support. 				
Error 409	Bus voltage abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 411	Internal communication failure	 Check the wiring of the communication board after shutdown. If the error message persists, please contact Growatt support. 				
Error 412	Temperature sensor disconnected	 Check the wiring of the communication board after shutdowr If the error message persists, pleas contact Growatt support. 				
Error 413	IGBT drive fault	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 414	EEPROM error	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 415	Auxiliary power supply abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 416	DC/AC overcurrent protection	 Restart the inverter. If the error message persists, please contact Growatt support. 				

Error Code	Description	Suggestion				
Error 417	Communication protocol mismatch	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 418	DSP and COM firmware version mismatch	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 419	DSP software and hardware version mismatch	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 421	CPLD abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 422	Redundancy sampling inconsistent	 Restart the inverter. If the error message persists, please contact Growatt support 				
Error 423	PWM pass-through signal failure	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 425	AFCI self-test failure	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 426	PV current sampling abnormal	 g 1. Restart the inverter. 2. If the error message persists, please contact Growatt support. 				
Error 427	AC current sampling abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 429	BUS softboot failure	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 430	EPO fault	 Restart the inverter. If the error message persists, please contact Growatt support. 				
Error 431	Monitoring chip BOOT verification failed	 Restart the inverter. If the error message persists, please contact Growatt support. 				

Error Code	Description	Suggestion				
Error 500	BMS failed to communicate with the inverter	 Check the connection of the RS485 cable between the inverter and the battery. Check if the battery is in the sleep mode. If the error message persists, please contact Growatt support. 				
Error 501	The BMS reports that the battery failed to charge/discharge	 Figure out the fault based on the BMS error code. If the error message persists, please contact Growatt support. 				
Bat Voltage Low	The battery voltage is below the lower threshold	 Check the battery voltage. If the error message persists, please contact Growatt support. 				
Error 503	The battery voltage exceeds upper threshold	 Check the battery voltage. If it is within the permissible range, please restart the inverter. If not, please replace the battery. If the error message persists, please contact Growatt support. 				
The battery temperature is Error 504 beyond the range for charging / discharging		1. Check the temperature of the batter 2. If the error message persists, please contact Growatt support.				
Bat Reversed	Battery terminals reversed	 Check if the battery terminals are reversely connected. If the error message persists, please contact Growatt support. 				
Error 506	Battery open- circuited	 Check the wiring of the battery terminals. If the error message persists, please contact Growatt support. 				
Error 507 Battery overload protection		 Check if the power of the load exceeds the battery rated discharge power. If the error message persists, please contact Growatt support. 				
Error 508	BUS2 Volt Abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 				

Error Code	Description	Suggestion					
Error 509	BAT Charge OCP (Overcurrent Protection)	 Check if the PV voltage is oversized. If the error message persists, please contact Growatt support. 					
Error 510	BAT Discharge OCP (Overcurrent Protection)	 Check if the battery discharge current configuration is proper. If the error message persists, please contact Growatt support. 					
Error 511	BAT soft start failed	 Restart the inverter. If the error message persists, please contact Growatt support. 					
EPS Output Short	Off-grid output short-circuited	 Restart the inverter. If the error message persists, please contact Growatt support. 					
Error 601	Off-grid BUS Volt Low	 Check if the battery is working properly or the battery experiences capacity loss. If the error message persists, please contact Growatt support. 					
Error 602	Abnormal Volt at the off-grid terminal	 Check if a voltage is present at the AC port. If the error message persists, please contact Growatt support. 					
Error 603	Soft start failed	 Restart the inverter. If the error message persists, please contact Growatt support. 					
Error 604	Off-grid output voltage abnormal	 Restart the inverter. If the error message persists, please contact Growatt support. 					
Error 605	Balanced circuit self-test failed	 Restart the inverter. If the error message persists, please contact Growatt support. 					
Error 606	High DC component in output voltage	 Restart the inverter. If the error message persists, please contact Growatt support. 					
OverLoad	Off-grid output overload	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.					
Error 608	Off-grid parallel signal abnormal	 Check if the communication cables are properly connected. If the error message persists, please contact Growatt support. 					

Product Specifications 10

Table 10.1 WIT 4/5/6/8/10/12/15K-HU Specifications

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10K-HU	WIT 12K-HU	WIT 15K-HU	
Input data(PV)								
Max. recommended PV power(for module STC)	6.4kW	8kW	9.6kW	12.8kW	16kW	19.2kW	24kW	
Max. DC voltage				1000V				
Start voltage				180V				
Nominal voltage				600V				
MPP voltage range			1	50V-850	V			
Full Load DC Voltage Range	200V- 750V	200V- 750V	240V- 750V	320V- 750V	400V- 750V	320V- 750V	400V- 750V	
No. of MPP trackers		1			2	2		
No. of PV strings per MPP tracker	2 1+1 2+1				·1			
Max. input current per MPP tracker		40A			20A+20A		40A+20A	
Max. short-circuit current per MPP tracker	50A			25A/25A		50A/25A		
Battery data (DC)								
Battery voltage range				40-60V				
Full load battery voltage range	40-60V	42-60V	42-60V	42.6- 60V	48.4- 60V	51.6- 60V	55-60V	
Recommended battery voltage				51.2V				
No. of battery input				1				
Max. charging / discharging current	110A	125A	150A	200A	220A	250A	290A	
BMS communication	RS485/CAN							
AC Input/Output (GR	ID)							
AC input/output	8kW/	10kW/	12kW/	16kW/	20kW/	24kW/	30kW/	
nominal power	4kW	5kW	6kW	8kW	10KW	12kW	15kW	
Max. AC input/output apparent power	8.8kVA /4.4kVA	11kVA /5.5kVA	13.2kVA/ 6.6kVA	17.6kVA/ 8.8kVA	22kVA/ 11kVA	26.4kVA/ 13.2kVA	33kVA/ 16.5kVA	

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10К-НU	WIT 12K-HU	WIT 15К-НU
Nominal AC voltage/range	220V/230V L-N, 380V/400V L-L, -15% ~ 10%						
Nominal AC grid frequency/range			45~5	5 Hz/55~	65 Hz		
Max.input/output current	13.4A/ 6.7A@ 220V	16.7A/ 8.4A@ 220V	20.0A/ 10.0A@ 220V	26.6A/ 13.3A@ 220V	33.3A/ 16.7A@ 220V	40A/ 20A@ 220V	50.1A/ 25A@ 220V
Max. Continuous AC Passthrough				50.1A		•	
Power factor (@nominal power)				>0.99			
Adjustable power factor				-1+1			
тноі			<	3 per cer	nt		
AC grid connection type	3P3W+PE/3P4W+PE						
Input/Output Genera	ator (GEN)						
AC nominal power	8kW	10kW	16kW	16kW	20kW	24kW	30kW
Max.input current(GEN/AC Couple)	12.2A/ 11.6A	15.2A/ 14.4A	18.2A/ 17.4A	24.2A/ 23.2A	30.4A/ 29A	36.4A/ 34.8A	45.4A/ 43.4A
Max.Continuous AC Passthrough				50.1A			
Nominal AC voltage		22	0V/230V	L-N, 380	V/400VI	L	
Nominal AC grid frequency			5	0Hz/60H	z		
AC connection type			3P3W	+PE/3P4	W+PE		
Stand alone(Back up)						
AC nominal output power	4kW	5kW	6kW	8kW	10kW	12kW	15kW
Max. AC apparent power	4kW	5kW	6kW	8kW	10kW	12kW	15kW
Nominal AC voltage	220V/230V(L-N) 380V/400V(L-L)						
Nominal AC frequency				50/60HZ			
Max. output current	12.2A	15.2A	18.2A	24.2A	30.2A	36.4A	45.5A

Model	WIT	WIT	WIT	WIT	WIT	WIT	WIT		
Specifications	4K-HU	5K-HU	6K-HU	8K-HU	TUK-HU	IZK-HU	15K-HU		
Overload		2x rated power, 10 S							
Capability									
THDV			<3% (L	inear ful	lload)				
Switch time*				≤10ms					
Efficiency									
Max. efficiency				97.60%					
European				97 00%					
efficiency				57.00%					
MPPT efficiency				99.90 %					
Protection devices									
DC reverse polarity				adiuvant	ŀ				
protection									
Battery reverse				adiuvant	t				
protection				, ,	-				
Insulation									
resistance		adjuvant							
nrotection		Туре II							
AC short-circuit									
protection				adjuvant	t				
Ground fault									
monitoring				adjuvant	t				
Grid monitoring				adjuvant	t				
String monitoring				adjuvant	t				
Anti-islanding				adiuvant	÷				
protection				aujuvan	L				
Residual-current				adiuvant	t				
monitoring unit				, ,	-				
PID function			S	electabl	e				
AFCI protection		selectable							
General data									
Dimensions (W / H / D)			475	/698/240)mm				
Weight				43kg					
Operating temperature range			30°C - 60'	°C (>45°C	, derateo	(k			

Model	WIT	WIT	WIT	WIT	WIT	WIT	WIT
Specifications	4K-HU	5K-HU	6K-HU	8K-HU	10K-HU	12K-HU	15K-HU
Noise emission				≤50dB			
(typical)							
Altitude				3000m			
Topology			Trar	nsformer	less		
Cooling			Sma	rt air coo	oling		
Protection degree				IP66			
Relative humidity				0~95%			
PV connection				MC2			
AC connection		Cable glands +terminals					
Battery connection	OT terminal						
Interfaces							
Display			OLE	ED+LED//	APP		
RS485/CAN/USB			RS4	85/CAN/	USB		
WIFI/4G/LAN			,	WIFI/LAN	1		
Warranty: 5 / 10 years	Yes/Opt.						
Certificates and approvals							
Grid regulation	IEC 61727, IEC 62116, IEC 61683, IEC 60068,EN 50549-10/1, VDE 4105, NC RfG						9-10/1,
EMC	IE	EC/EN 61	000-6-1/	/2/3/4, E	N 55011,	EN 6292	.0
Safety		IEC	/EN6210	9-1, IEC,	/EN6210	9-2	

*After enabling high/low voltage ride-through function, the switching time between on-grid and off-grid modes will increase, which may lead to load power loss during abnormal grid conditions.

Decommissioning the WIT 11 Inverter

Handle the WIT Inverter that will not be operated in the future properly.

- 1> Disconnect the external AC circuit breaker and prevent accidental reconnection due to improper operation.
- 2> Set the DC switches to the OFF position.
- 3> Disconnect the battery side switch.
- 4> Disconnect the upstream battery circuit breaker..
- 5> Wait at least 5 minutes before performing operations on it..
- 6> Disconnect the AC output power cables.
- 7> Disconnect the DC input power cables.
- 8> Remove the inverter from the bracket.
- 9> Dispose of the inverter according to local disposal rules.

12 Warranty

Growatt guarantees maintenance and replacement of the defective product under warranty.

12.1 Conditions

- 1. Growatt will ask users to provide product information by filling a form before making warranty repairs, including the date of purchase and installation, the erial number of the WIT Inverter, fault description and other information.
- 2. The defected product shall be returned to Growatt for recycling and disposal.

12.2 Disclaimer

Growatt shall not be liable for any consequences of the following circumstances:

- 1. Unauthorized removal of the product, such as removing the tamper-proof label and the upper cover of the WIT Inverter.
- 2. Damage caused during transportation.
- 3. Improper operations during installation and commissioning.
- 4. Failure to observe the operation instructions regarding the installation, operation and storage of the WIT Inverter.
- 5. Unauthorized modifications or improper maintenance on the WIT Inverter.
- 6. Improper use and operation.
- 7. Damage caused by storage conditions that do not meet the requirements specified in this manual.
- 8. Failure to follow the safety precautions and applicable laws and regulations due to customer's negligence.
- 9. Damage due to force majeure, such as lightning, floods, storms, fire.
- 10. Power off the PCS before upgrading the firmware; otherwise it will shut down automatically during the upgrade process and supply no power to the loads.

In the event of a product malfunction or failure caused by the circumstance mentioned above, Growatt can provide paid maintenance services after conducting a fault diagnosis if required.

Contact Us 13

If you have technical problems with our products, please contact Growatt for technical support. To provide you with the necessary assistance, please have the following information ready:

- 1. Model number of the WIT Inverter
- 2. Serial number of the WIT Inverte
- 3. Error code of the WIT Inverter
- 4. Information indicated on the LED display
- 5. DC input voltage and AC output voltage of the WIT Inverter
- 6. Communication method of the WIT Inverter

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For local customer support, please visit https://en.growatt.com/support/contact







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