



WIT 28-55K-US L2 Storage/Hybrid Inverter User Manual

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1 Notes on this manual

1.1 Introduction

This manual is intended to introduce the WIT 28-55K-US L2 Storage/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. "28-55K" refers to the power range. The WIT inverters include both Storage Inverter models and Hybrid Inverter models.

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 www.growatt.com to leave a message, or call our 24-hour service hotline at 866-686-0298.

1.3 Product Range

The WIT 28-55K-US L2 (208V/220V) inverters consist of four models, each offering four power options: 28kW, 35kW, 40kW, and 55kW. In total, there are 16 products available in this series. This manual is valid for the following models:

| WIT 28K-A-US L2 | Three-phase Storage Inverter | WIT 28K-H-US L2 | | |
|------------------|---------------------------------|------------------|--------------------|--|
| WIT 35K-A-US L2 | | WIT 35K-H-US L2 | Three-phase Hybrid | |
| WIT 40K-A-US L2 | | WIT 40K-H-US L2 | Inverter | |
| WIT 55K-A-US L2 | | WIT 55K-H-US L2 | | |
| WIT 28K-AU-US L2 | | WIT 28K-HU-US L2 | | |
| WIT 35K-AU-US L2 | Three-phase Storage | WIT 35K-HU-US L2 | Three-phase Hybrid | |
| WIT 40K-AU-US L2 | function | WIT 40K-HU-US L2 | function | |
| WIT 55K-AU-US L2 | | WIT 55K-HU-US L2 | | |

Table 1.1 WIT 28-55K-US L2 Series Models Product 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 can 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 the 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. |
|---------|---|
| | • 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. |
|---------|--|
| WARNING | 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:

| 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. |
|---------|--|
| WARNING | The maximum PV input voltage cannot exceed 1100V. The battery input voltage cannot exceed 1000V. 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 indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury. | | | |
| WARNING | 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 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 | | |
|--------|-------------------------|---|--|--|
| | 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 front view and the bottom view of all models are identical.

3.1 Overview

Front view:



Fig 3.1 Front view

Bottom view:



Fig 3.2 Bottom view

Left view:



Fig 3.3 Left view of WIT 28-55K-A-US L2 and WIT 28-55K-H-US L2



Fig 3.4 Left view of WIT 28-55K-AU-US L2 and WIT 28-55K-HU-US L2

Right view:



Fig 3.5 Right view of WIT 28-55K-A-US L2, WIT 28-55K-AU-US L2



Fig 3.6 Right view of WIT 28-55K-H-US L2 and WIT 28-55K-HU-US L2

| No. | Description | No. | Description |
|-----|---------------------------------|-----|--------------------------------|
| А | Display | В | AC junction box |
| C | Base | D | Power grid connection terminal |
| E | Load wiring terminal | F | Heat sink |
| G | Nameplate | Н | Fan |
| I | 16-pin terminal(BMS COM) | J | 30-pin terminal(COM2) |
| к | 16-pin terminal(COM1) | L | Network communication port |
| М | DC Switch | Ν | PV terminal |
| 0 | Battery supply terminal(BMS AC) | Ρ | Battery terminal |
| Q | DRMS port | R | Flexible handle(4 groups) |
| S | Fixed handle | Т | Indicator description label |
| U | Communication port(Wifi&4G) | | |

Table 3.1 Component description

3.2 Basic Data

Table 3.2 Dimensions and weight

| | Model | | Size(in) |) | Weight |
|---------------------|---------------------------|--------|----------|-------|-----------------|
| | Model | Height | Width | Depth | (Lb) |
| | WIT 28/35/40/55K-A-US L2 | | | 20.1 | 230/230/230/230 |
| The WIT Inverter | WIT 28/35/40/55K-H-US L2 | 53.2 | 22.5 | | 309/309/324/324 |
| without package | WIT 28/35/40/55K-AU-US L2 | | 55.5 | | 317/317/317/317 |
| | WIT 28/35/40/55K-HU-US L2 | | | | 346/346/346/346 |
| | WIT 28/35/40/55K-A-US L2 | | 38.9 | 28.9 | 456/456/456/456 |
| The WIT Inverter | WIT 28/35/40/55K-H-US L2 | | | | 485/485/500/500 |
| with package | WIT 28/35/40/55K-AU-US L2 | 00.0 | | | 494/494/494/494 |
| | WIT 28/35/40/55K-HU-US L2 | | | | 522/522/540/540 |

Unit: inch



Fig 3.7

3.3 Nameplate

| GROWATT |
|---|
| Grid Support Hybrid Inverter |
| Model: WIT 55K-HU-US L2 |
| MPPT voltage range: 180 - 550 Vdc |
| Max. PV input voltage: 800 Vdc |
| Max. PV input current of the MPP tracker: 32 Adc*10 |
| Max. PV input short circuit current: 40 Adc *10 |
| Battery operting voltage range: 380 - 650 V |
| Max. Battery charging/discharging current: 156/156 A |
| Nominal AC input/output power: 110/55 kW |
| Max. AC input/output power: 110/60.5 kVA |
| Nominal grid voltage: |
| 3Φ/N/PE,3Φ/PE 208 Vac & 220 Vac |
| Panga of arid veltage: |
| |
| |
| Nominal grid frequency: 60 HZ |
| Range of grid frequency: 55 - 65 Hz |
| Max. input/output current: 305.6/168.1 A |
| Output power factor: 0.99 (1 leading~1 lagging) |
| Nominal backup power: 55 kW |
| Default backup voltage: 208 Vac & 220 Vac |
| Enclosure: IP 66/Type 4X |
| Operation ambient temperature: -22 - +140°F (Power derating above 122°F) |
| Inverter type: |
| Grid support utility interactive transformer-less hybrid inverter |
| Conforms to UL STD.1741,1741SA, |
| 1741SB,IEEE STD.1547,1547.1,HECO |
| SRD-IEEE-1547.1,Certified to CSA |
| STD C22.2 NO.107.1 |
| |
| Intertek 4003184 |
| X Made in China |



NOTE: The figure above shows the nameplate of WIT 55K-HU-US L2 as an example. The nameplate figure is for reference only. The actual nameplate prevails. For the specifications, please refer to Section 10 Product Specifications.

3.4 Operating Principle

3.4.1 Operating Principle of WIT 28-55K-A-US L2

- 1> Converts DC power into AC power consistent with the voltage and power quality requirements of the utility grid through an inverter circuit to supply power to the loads and feed power into the grid;
- 2> Converts AC power into DC power through a rectifying circuit to charge the battery.





3.4.2 Operating Principle of WIT 28-55K-H-US L2

- 1> The hybrid inverter receives DC inputs form the PV strings which go through the MPPT routes. The DC power is then converted to AC power through an inverter circuit to power the loads and feed power into the grid;
- 2> The PV strings can put out power to charge the battery through the MPPT routes;
- 3> 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.
- NOTE: WIT 28K-H-US L2 models have 5 MPPT routes. WIT 35K-H-US L2 models have 7 MPPT routes. WIT 40K-H-US L2 have 8 MPPT routes and WIT 55K-H-US L2 models have 10 MPPT routes.



Fig 3.10 WIT 28-55K-H-US L2 Grid-connected conceptual diagram

3.4.3 Operating Principle of WIT 28-55K-AU-US L2

- 1> Converts battery power to AC power to power the loads and export energy to the grid;
- 2> Charges the battery from the grid through a rectifier circuit;
- 3> Converts the battery power into AC power through the inverter circuit to provide power to critical loads connected to the LOAD port.



Fig 3.11 WIT 28-55K-AU-US L2 Grid-connected conceptual diagram

3.4.4 Operating Principle of WIT 28-55K-HU-US L2

- 1> 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 power is fed into the grid;
- 2> The PV strings can supply power to charge the battery through the MPPT routes;
- 3> Can convert battery power to AC power supplies for the loads and feeds into the grid;
- 4> Charges the battery from the grid through a rectifier circuit;
- 5> Converts the DC power from PV strings and the battery power into AC power through the inverter circuit to power critical loads.
- NOTE: WIT 28K-H-US L2 models have 5 MPPT routes. WIT 35K-H-US L2 models have 7 MPPT routes. WIT 40K-H-US L2 have 8 MPPT routes and WIT 55K-H-US L2 models have 10 MPPT routes.



Fig 3.12 WIT 28-55K-HU-US L2 Grid-connected conceptual diagram

3.5 Storing the WIT Inverter

- 1> Place the WIT Inverter in the original package and store it in a dry and wellventilated place.
- 2> Keep the storage temperature from -22°F to +158°F and the humidity from 0%-95% RH.
- 3> A maximum of three WIT Inverters can be stacked. Do not stack the inverters without packaging.
- 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 settings 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 7.1 Commissioning the WIT Inverter.

3.6 Supported Grid Types

Grid connection modes for WIT 28-55K-US L2 Storage/Hybrid Inverters are shown in Fig 3.12.



220V/208V



3.7 AFCI Function

3.7.1 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 an 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 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.

NOTE:

- 1. The AFCI function of the WIT Inverter is enabled by default.
- 2. Do not wire the Maximum Power Point Trackers (MPPTs) on the DC side in parallel as it might trigger the AFCI mistakenly.

3.7.2 Clearing the alarm

In the event that the WIT Inverter reports "Error 200" 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 fails again, please disconnect all power sources and contact Growatt support.

3.8 Anti-PID Function

PID (Potential Induced Degradation) typically occurs in PV systems where there is a voltage potential between the solar cells and the grounded frame or other conductive elements of the system. This potential difference, combined with high humidity and temperature, can lead to leakage currents that degrade the performance of the solar modules over time. The Anti-PID function integrated in Growatt inverters can effectively reverse the PID effect by applying DC voltage to the PV modules during nighttime, enhancing solar energy harvest and performance.

Inspection upon delivery 4

Unpacking and inspection

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

Check the following items:



Fig 4.1 Packing list of WIT 28-55K-A-US L2 and WIT 28-55K-AU-US L2



Fig 4.2 Packing list of WIT 28-55K-H-US L2 and WIT 28-55K-HU-US L2

| NO. | Description | Quantity |
|-----|--------------------------------------|----------|
| А | The WIT Inverter | 1 |
| В | PV+connector, PV-connector | 20/20 |
| С | PV+metal contact, PV-metal contact | 20/20 |
| D | Battery+ terminal, Battery- terminal | 1/1 |
| E | 16-pin terminal | 2 |
| F | 30-pin terminal | 1 |
| G | Antenna | 1 or 2 |
| Н | RJ45 connector protector | 1 or 2 |
| I | BMS power supply terminal | 1 |
| J | User manual | 1 |
| К | Quick installation guide | 1 |
| L | Hoist ring | 2 |
| М | RSD and accessories | 1 |
| N | Expansion bolt | 4 |
| 0 | Housing ground terminal | 1 |

Table 4.1 Packing list

NOTE:

1. For the WIT 28-55K-H-US L2 and WIT 28-55K-HU-US L2 inverters please reference the table below for the list PV terminal equipment and Metal Contacts based on the inverter's size.

| Inverter Model | PV Terminals | Metal Contacts |
|----------------|--------------|----------------|
| 28kW Models | 10 pairs | 10 pairs |
| 35kW Models | 14 pairs | 14 pairs |
| 40kW Models | 16 pairs | 16 pairs |
| 55kW Models | 20 pairs | 20 pairs |

- 2. For remote monitoring, if the WiFi&LAN datalogger is selected, one antenna (WiFi) and two RJ45 connectors are provided; if the WiFi&4G datalogger is selected, two antennas (WiFi and 4G) and one RJ45 connector are provided.
- 3. Models with the RSD function are delivered with the "M" component.
- 4. Sturdy and durable though the packing is, please carry and handle it with caution.

Installation 5

5.1 Basic Installation Requirements

- A. Ensure that the installation surface is solid enough to bear the weight of the WIT Inverter. (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 thermolabile materials.
- D. The WIT Inverter is protected to IP66/Type 4X 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 -13°F to +140°F.
- H. The WIT inverter can only be vertically mounted on a flat ground . Please refer to the following figures:



I. Reserve enough clearance around the WIT Inverter to ensure sufficient space for heat dissipation and operation. Ensure that there are no objects within 40 inches of the left, right and top of the WIT Inverter; In ground-mounted installation, keep the back of the chassis at least 12 inches away from the wall surface to ensure the performance of the WIT Inverter.



Fig 5.2

- 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/Type 4X, do not expose it to direct sunlight, rain and snow. Please refer to the figures below:



Fig 5.3

B. It is recommended an awning be installed over the WIT Inverter to extend its service life and avoid performance de-rating. Ensure that a distance of at least 39.37 inches exists between the frame of the awning and the top of the WIT Inverter and 59.06 inches m between the sides of the awning and the WIT Inverter. Please refer to the figures below.

Unit: inch



Fig 5.4

C. Do not place the WIT Inverter in an enclosed or narrow space.



Fig 5.5

5.3 Moving the WIT Inverter



• To prevent personal injury caused by a falling inverter, keep balance and be careful when moving the WIT Inverter as it is heavy.

Plan 1 Hoisting:

- 1> As shown in Fig 5.6 below, unpack the WIT Inverter (remove the top panel and the support plates). Then piece the support plates together with the bottom panel. Install the hoisting rings and pull out the handles. Grasp the handles to turn the WIT Inverter upright. Run a rope strong enough to bear the inverter through the hoisting rings and hoist the equipment, and then move the inverter to the installation position;
- 2> Keep balance when hoisting and moving the WIT Inverter.



Fig 5.6 Hoisting the WIT Inverter

Plan 2 Forklift handling:

- 1> Unpack the WIT Inverter (remove the top panel and the support plates); turn the equipment upright (place it on a flat ground or a floor support);
- 2> As shown in Fig 5.7, operate the forklift to insert the tines into the pallet openings to lift the inverter and then transport it to the installation position. (The fork width should be smaller than 16.54 inches);
- 3> Keep balance when lifting and moving the WIT Inverter.



Fig 5.7 Moving the WIT Inverter with a forklift

Option 3 Lifting:

- 1> Unpack the WIT Inverter (remove the top panel and the support plates) and pull out the handles, as shown in Fig 5.8 below. It requires four people to lift the WIT Inverter and move it to the installation position;
- 2> Keep balance when lifting and moving the WIT Inverter.



Fig 5.8 Lifting the WIT inverter

5.4 Mounting the WIT Inverter

The WIT 28-55K-US L2 Storage/Hybrid Inverters can be installed on the ground. Determine the hole positions using the marking-off template and drill holes into the ground. Insert nuts (ϕ 12) into the ground, and then place the inverter in the correct position and tighten the screws. The dimensions of the marking-off template are shown in Fig 5.9.

Unit: inch





Dimensions of the marking-off template

Marking-off template



Refer to figure 5.10 for floor-mounting installation.



Fig 5.10 Floor-mounting installation

6 Electrical Connection



Wiring diagram of the system with a single WIT 28-55K-HU-US L2 inverter



Wiring diagram of the system with two WIT 28-55K-HU-US L2 inverters connected in parallel



Wiring diagram of the system with three WIT 28-55K-HU-US L2 inverters connected in parallel

| AT BMS Load Grid Load AC Bypass PV BAT BMS Load Grid Load AC Bypass 1 16 2 2/0 150A 300A 150A 40K 10-12 1 16 1/0 250A 400A 250A 1 16 1 4/0 150A 300A 150A 55K 10-12 1 16 3/0 400 250A 400A 250A 1 16 1 4/0 150A 300A 150A 55K 10-12 1 16 3/0 400 250A 400A 250A 1 16 1 4/0 150A 300A 150A 55K 10-12 1 16 3/0 400A 250A 400A 250A | 35K 10-12 AWG / | 28K 10-12 AWG / | PV | A maximum o 55K model. |
|--|-----------------|--------------------|-------------------|---------------------------|
| BMS Load Grid Load AC Bypass PV BAT BMS Load Grid Load AC Bypass 16 2 2/0 150A 300A 150A 40K 10-12 1 16 1/0 250A 400A 250A 16 1 4/0 AWG AWG 150A 300A 150A 55K 10-12 1 16 3/0 400 250A 400A 250A 16 1 4/0 AWG AWG 150A 150A 55K 10-12 1 16 3/0 400 250A 400A 250A 16 1 4/0 AWG AWG AWG AWG AWG 250A 400A 250A 250A | 1 1 | 1 I | 3AT | f 5 PV |
| Load Ard Ard Ard ArdLoad BreakerAC BreakerBypass BreakerPV PVBATBMS BMSLoad LoadLoad BreakerAC BreakerBypass | 16 AWG | 16 AWG | BMS | string |
| Grid Load AC Bypass PV BAT BMS Load Grid Load AC Bypass 2/0 150A 300A 150A 40K 40K AVG AVG AVG AVG AVG AVG 400A 250A 400A 250A 4/0 150A 300A 150A 55K 10-12 1 16 3/0 400 250A 400A 250A | 1 AWG | 2 AWG | Load | s can b |
| Load BreakerAC BreakerBypass BreakerPVBATBMSLoadGridLoad BreakerAC BreakerBypass Breaker150A300A150A40K10-121 AWG161/0 AWG250A250A400A250A150A300A150A55K10-12 AWG1 AWG16 AWG3/0 AWG400250A400A250A | 4/0 AWG | 2/0 AWG | Grid | e conn |
| AC BreakerBypass BreakerPVBATBMSLoadGridLoad BreakerLoad BreakerAC BreakerBypass BreakerAC | 150A | 150A | Load Breaker | ected to th |
| Bypass BreakerPVBATBMSLoadGridLoad BreakerCoad BreakerAC | 300A | 300A | AC Breaker | ne WIT 28K |
| PVBATBMSLoadGridLoadACBypass40K10-121161/0250A400A250A55K10-121163/0400250A400A250A | 150A | 150A | Bypass Breaker | Hybrid Inver |
| PVBATBMSLoadGridLoadCadACBypass10-121161/0250A400A250A10-121163/0kcmil250A400A250A10-121163/0400250A400A250A | 55K | 40K | | ter; 7 s |
| BATBMSLoadGridLoadACBypass1161/0250BreakerBreakerBreakerBreaker116AWGAWG250A400A250A1163/0400250A400A250A | 10-12 AWG | 10-12 AWG | ΡV | trings to |
| BMSLoadGridLoad BreakerACBypass161/0250A400A250A163/0400250A400A250A | 1 AWG | 1 AWG | BAT | the 35K |
| LoadGridLoadACBypass1/0250BreakerBreakerBreaker3/0400250A400A250A | 16 AWG | 16 AWG | BMS | model; |
| GridLoad BreakerAC BreakerBypass Breaker250250A400A250A400250A400A250A | 3/0 AWG | 1/0 AWG | Load | 8 string |
| Load AC Bypass Breaker Breaker Breaker 250A 400A 250A 250A 400A 250A | 400 kcmil | 250 kcmil | Grid | is to the 4 |
| AC Bypass Breaker Breaker 400A 250A 400A 250A | 250A | 250A | Load Breaker | 10K model |
| Bypass Breaker 250A 250A | 400A | 400A | AC Breaker | and 10 strin |
| | 250A | 250A | Bypass Breaker | gs to the |



Wiring diagram of the system with a single WIT 28-55K-HU-US L2 inverter and two meters

6.1 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 combiner 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 PV modules and the batteries are connected to the same area to achieve equipotential bonding.
- 4. The position of the ground points of the WIT 28-55K-HU-US L2 Storage/Hybrid Inverter is shown in fig 6.1. You can find the ground points after removing the right cover plate.



Fig 6.1 Ground points

NOTE:

- 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 4.34 lbf·ft.

6.2 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 AC 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 an 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 shake the cable terminals after tightening them. Otherwise, the loose connection may cause overheating that will damage the device. Ensure that the terminals are properly connected before starting the WIT Inverter. After connecting the cables, apply the fireproof mud evenly on the waterproof silica gel pad inside the AC junction box to prevent water from entering into the box. |

Preparation:

- 1> Ensure the grid voltage and the grid frequency are within the acceptable range;
- 2> Disconnect the DC switches and the breakers on the AC side and the battery side.

The circuit breaker on the AC side:

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

1. Recommended circuit breaker specifications for WIT 28-55K-A-US L2 and WIT 28-55K-H-US L2 models

| Device type | Rated voltage of the circuit breaker | Rated current of the circuit breaker |
|--------------------|--------------------------------------|--------------------------------------|
| WIT 28K-A/-H-US L2 | 220V | 150A |
| WIT 35K-A/-H-US L2 | 220V | 150A |
| WIT 40K-A/-H-US L2 | 220V | 200A |
| WIT 55K-A/-H-US L2 | 220V | 200A |

2. Recommended circuit breaker specifications for WIT 28-55K-AU-US L2 and WIT 28-55K-HU-US L2 models.

| Device type | Rated voltage of the circuit breaker | Rated current of the circuit breaker on the grid side | Rated current of the circuit breaker on the load side |
|----------------------|---|---|---|
| WIT 28K-AU/-HU-US L2 | 220V | 300A | 150A |
| WIT 35K-AU/-HU-US L2 | 220V | 300A | 150A |
| WIT 40K-AU/-HU-US L2 | 220V | 400A | 200A |
| WIT 55K-AU/-HU-US L2 | 220V | 400A | 200A |

Recommended power cable specifications:

1. Recommended AC power cable specifications forWIT 28-55K-A-US L2 and WIT 28-55K-H-US L2 models.

| Device type | Recommended cable specification |
|--------------------|---------------------------------|
| WIT 28K-A/-H-US L2 | 1AWG |
| WIT 35K-A/-H-US L2 | 1AWG |
| WIT 40K-A/-H-US L2 | 2/0AWG |
| WIT 55K-A/-H-US L2 | 2/0AWG |

2. Recommended AC power cable specifications for WIT 28-55K-AU-US L2 and WIT 28-55K-HU-US L2 models.

| Device type | Recommended cable on the AC side | Recommended cable on the load side |
|----------------------|-------------------------------------|---------------------------------------|
| WIT 28K-AU/-HU-US L2 | 4/0AWG | 1AWG |
| WIT 35K-AU/-HU-US L2 | 4/0AWG | 1AWG |
| WIT 40K-AU/-HU-US L2 | 400kcmil | 2/0AWG |
| WIT 55K-AU/-HU-US L2 | 400kcmil | 2/0AWG |

NOTE: The wires should be tinned and are not frayed or cracked.

AC side connection steps:

- 1. Open the cover of the AC junction box. The position of the cover is shown in Fig 6.2;
- Connect a ground cable to the copper grounding bar in the AC junction box. Fig
 shows the position of the grounding bar inside the AC junction box;
- 3. Connect the main power cables according to the label. Fig 6.2 shows the position of the label and the AC terminals;



Fig 6.2 AC terminal wiring position and diagram

NOTE:

 Determine the stripped length according to the wiring position (recommendation: 0.87-1.03 inches for power cables and 0.87-1.03 inches for ground cables). Remove the protective plugs and install the cable conduits correctly. Then route the cables through the holes at the bottom of the AC junction box, referring to Fig 6.4. After that, connect the cables to the corresponding terminals and secure them with American standard threads.

Unit: inch



Fig 6.3 Crimping a cable
2. WIT 28-55K-AU-US L2 and WIT 28-55K-HU-US L2 models differ from WIT 28-55K-A-US L2 and WIT 28-55K-H-US L2 models with an additional type of terminal in the AC junction box. Therefore, please connect cables according to the label.





Fig 6.4 AC junction box

6.3 Connection on the PV Side

| NOTICE | Only WIT 28-55K-H-US L2 and WIT 28-55K-HU-US L2 models need to be connected 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. |
| WARNING | The maximum open-circuit voltage of each string should not exceed 800Vdc. 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:

- 1. The solar irradiance on the PV modules generates voltage and high voltages presented in the PV strings connected in series could be fatal. Therefore, shield the PV modules from sunlight before connecting the DC input power cable and ensure that the DC switches on the WIT Inverter are OFF.
- 2. The PV modules connected in series should be of the same model.
- 3. The maximum short-circuit current of each PV string must be lower than or equal to 40A.
- 4. The total panel power should not exceed twice the WIT Inverter input power.
- 5. For optimal system configuration, it is recommended to connect two DC inputs with an equal number of PV modules.



Fig 6.5 PV terminals

Procedure for connecting cables on the PV side:

- 1. Open the right cover plate of the WIT inverter, the position of which is shown in Fig 6.1;
- 2. Strip 0.24-0.32 inches of the insulation layer of the DC cables.
- 3. Insert the exposed core wires into the crimping area of the wiring terminal and crimp them using a crimping plier;
- 4. 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;
- 5. Insert the positive and negative connectors of the PV modules to the corresponding terminals of 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 28-55K-H-US L2 | 16A*2 |
| WIT 28-55K-HU-US L2 | 16A*2 |

Table 6.2 Cable specifications on the PV side

| Device type | Recommendation cable specifications |
|---------------------|-------------------------------------|
| WIT 28-55K-H-US L2 | 12AWG |
| WIT 28-55K-HU-US L2 | 12AWG |

NOTE:

- 1. 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.
- 3.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.

6.4 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. |
|---------|---|
| WARNING | If the cable is thick, do not shake the cable after fastening it. Ensure that all cables are securely connected before powering on the WIT Inverter. Loose connection may cause overheating that will damage the device. The battery terminals are protected by a plate. Upon completion of wiring on the battery side, reinstall the protective plate to prevent accidental touch. |

6.4.1 Connecting the Main Power Cable of the Battery

Preparation:

- 1. Check that the battery terminals of the WIT Inverter are intact;
- Disconnect the DC switches on the WIT inverter, the AC breaker and the DC switch on the battery;
- 3. Take out the battery terminals from the accessory kit delivered with the package. See Packing List in Section 4;
- 4. Open the cover plate on the right side of the inverter, the position of which is shown in Fig 6.1.

Procedure for connecting the main battery power:

- 1. Connect the ground cable to the battery power ground bar, as shown in Fig 6.6;
- 2. Strip 0.71-0.79 inches of the insulation layer of the DC cables;
- 3. Crimp the battery cables and the battery terminals using crimping pliers, and then tighten the insulation sleeve;
- 4. Connect the battery cables to the battery terminals on the inverter, as shown in Fig 6.6;
- 5. After connecting the main battery power cables, bind power cables at the reserved position, as shown in Fig 6.6.



Fig 6.6 Position of the battery terminals

NOTE:

- 1. Connect the ground cable before connecting the battery cable; the ground point is shown in Fig 6.6.
- 2. Bind the battery power cables at the designated place after connecting them to the WIT Inverter.
- 3. Lock the right cover plate after connecting the cables.

6.4.2 Connecting the Battery BMS-AC Terminal

NOTE: Perform operations according to on-site requirements.

Procedure for connecting the battery BMS-AC terminal:

- 1. Open the cover plate on the right side of the inverter, the position of which is shown in Fig 6.6;
- 2. Find the corresponding terminals from the accessory kit. Refer to Table 6.3 to connect the terminals;
- 3. Remove the dustproof cover from the BMS-AC terminal, insert the terminals that have been crimped with cables to the BMS-AC terminal, and tighten them.



Threading holes

Fig 6.7 BMS-AC termina

Table 6.3 Definitions of BMS-AC terminal

| BMS-AC terminal port definition | | | |
|---------------------------------|-------|------------|-------------------------|
| Number | Label | Definition | Note |
| 1 | L | L1 | Supply power to the DMC |
| 2 | N | L2 | Supply power to the BMS |
| 3 | PE | PE | Grounding |

NOTE:

- 1. Do not touch or remove the dustproof cover if the BMS-AC terminal is idle.
- 2. The terminal is used only with APX batteries"
- 3. Reinstall the battery protective plate and the right cover plate after the cable connection is completed.

6.5 Connecting Communications Cables

6.5.1 Battery Communication Connection

The BMS-COM terminal of the WIT 28-55K-US L2 Inverter is a 16-pin connector. The matching male terminals are delivered with the package.

- 1. Connect the communication cables to the corresponding terminals as required. For details, see Table 6.4;
- 2. Remove the dustproof cover from the BMS-COM terminal, insert the 16-pin terminal (the client side) to the corresponding position, and ensure that it is tightly connected;



Threading holes

Fig 6.8 BMS-COM communication terminals

Ttable 6.4 Battery communication terminal description

| Definition of battery communication terminal | | | |
|--|----------------------|---|--|
| Number | Definition of signal | Note | |
| 1 | Wakeup+ | | |
| 2 | Wakeup- | Battery wake up signat | |
| 3 | RS485A3 | The PCS communicates with the battery | |
| 4 | RS485B3 | via RS485 | |
| 5 | CANH | | |
| 6 | CANL | The PCS communicates with the battery via CAN | |
| 7 | CAN.GND | | |
| 8 | DI1 | | |
| 9 | D12 | - Battery shutdown input signal | |
| 10 | NA | | |
| 11 | NA | | |
| 12 | NA | | |
| 13 | NA | NA | |
| 14 | NA | | |
| 15 | NA | | |
| 16 | PE | Grounding | |

BMS-COM





6.5.2 External Communication connection

NOTE:

When connecting to external devices, such as the PC, please use isolated communication devices.

The external communication terminal of the WIT 28-55K-US L2 Inverter is a 16-pin connector. The matching terminal is in the accessory kit. The connection procedure is as follows:

- 1. Connect the communication cable to the corresponding terminal as required. For details, see Table 6.5;
- 2. Remove the dustproof cover from the COM1 terminal and insert the 16-pin terminal (the client side) to the corresponding position;



Fig 6.10 External communication terminal

COM1



Fig 6.11 COM1 communication connection

3. The external communication terminals of the WIT 28-55K-US L2 Inverters are described in Table 6.5. Short Pin 5 and pin 10 when the host computer is used.

| Definition of battery communication terminal | | | |
|--|---------------|---------------------------------------|--|
| Number Definition of signal | | Note | |
| 1 | PCS_RS485A_4 | | |
| 2 | PCS_RS485B_4 | K3403_4 | |
| 3 | RS485A1 (IN) | RS485 terminal for external | |
| 4 | RS485B1 (IN) | communication | |
| 5 | Res_RS4851A | RS485 matching resistor | |
| 6 | RS485A2 (IN) | | |
| 7 | RS485B2 (IN) | K5465 input port for the meter | |
| 8 | RS485A2 (OUT) | DS 495 output part for the motor | |
| 9 | RS485B2 (OUT) | K5465 Output port for the meter | |
| 10 | Res_RS4851B | RS485 matching resistor | |
| 11 | PE | Grounding | |
| 12 | REPO1 | The WIT Inverter shutdown input dry | |
| 13 | REPO2 | contact signal | |
| 14 | DO1 | Generator start-up output dry contact | |
| 15 | DO2 | signal | |
| 16 | PE | Grounding | |

Table 6.5 External communication terminal description

6.5.3 Parallel Communication Connection

The parallel signal terminal (COM2) of WIT 28-55K-US L2 Inverters uses a 30-pin terminal. The matching terminal is in the accessary kit. The connection steps are as follows:

- 1. Connect the communication cables to the corresponding terminals as required. For details, see Table 6.6 and Table 6.7;
- 2. Remove the dustproof cover from the COM2 terminal and insert the 30-pin terminal (the client side) to the corresponding position.







Parallel communication wiring diagram (dual PCS)



Parallel communication wiring diagram (three PCS)

Fig 6.13 COM2 communication connection

| Pin definition of the parallel communication terminal (WIT 28-55K-A-US L2 and WIT 28-55K-H-US L2) | | | |
|--|----------------------|--|--|
| Number | Definition of signal | Note | |
| 1 | 24V.S | Output 24)/ signal | |
| 2 | GND.S | Output 24V signat | |
| 3 | CAN1_H (IN) | | |
| 4 | CAN1_L (IN) | Parallel communication CAN1 signal (input) | |
| 5 | GND.S | (| |
| 6 | CAN2_H (IN) | Parallel communication CAN2 signal | |
| 7 | CAN2_L (IN) | (input) | |
| 8 | RS485_1A (IN) | Parallel communication 485-1 signal | |
| 9 | RS485_1B (IN) | (input) | |
| 10 | PE | Grounding | |
| 11 | 24V.S | Output 24V signal | |
| 12 | GND.S | Output 24V signat | |
| 13 | CAN1_H (OUT) | | |
| 14 | CAN1_L (OUT) | Parallel communication CAN1 signal | |
| 15 | GND.S | (output) | |
| 16 | CAN2_H (OUT) | Parallel communication CAN2 signal | |
| 17 | CAN2_L(OUT) | (output) | |
| 18 | RS485_1A (OUT) | Parallel communication 485 signal | |
| 19 | RS485_1B (OUT) | (output) | |
| 20 | PE | Grounding | |
| 21 | RS485_5A (IN) | Low frequency synchronization 485 signal | |
| 22 | RS485_5B (IN) | (input) | |
| 23 | RS485_5A (OUT) | Low frequency synchronization 485 signal | |
| 24 | RS485_5B (OUT) | (output) | |
| 25 | RS485_4A (IN) | Parallel RS4854_4 communication (input) | |
| 26 | RS485_4B (IN) | (PCS) | |
| 27 | RS485_4A (OUT) | Parallel RS4854_4 communication | |
| 28 | RS485_4B (OUT) | (output)(PCS) | |
| 29 | NA | | |
| 30 | NA | | |

Table 6.6 Parallel communication terminal description

| Pin definition of the parallel communication terminal (WIT 28-55K-HU-US L2, WIT 28-55K-AU-US L2) | | | |
|---|----------------------|---|--|
| Number | Definition of signal | Note | |
| 1 | 24V.S | Output 24V signal | |
| 2 | GND.S | | |
| 3 | CAN1_H (IN) | | |
| 4 | CAN1_L (IN) | Parallel communication CAN1 signal (input) | |
| 5 | GND.S | | |
| 6 | CAN2_H (IN) | Parallel communication CAN2 signal | |
| 7 | CAN2_L(IN) | (input) | |
| 8 | RS485_1A (IN) | Parallel communication RS485 signal | |
| 9 | RS485_1B (IN) | (input) | |
| 10 | PE | Grounding | |
| 11 | 24V.S | Output 24V signal | |
| 12 | GND.S | | |
| 13 | CAN1_H (OUT) | | |
| 14 | CAN1_L (OUT) | (output) | |
| 15 | GND.S | | |
| 16 | CAN2_H (OUT) | Parallel communication CAN2 signal | |
| 17 | CAN2_L (OUT) | (output) | |
| 18 | RS485_1A (OUT) | Parallel communication 485 signal (output) | |
| 19 | RS485_1B (OUT) | | |
| 20 | PE | Grounding | |
| 21 | RS485_5A (IN) | Low frequency sync 485 signal (input) | |
| 22 | RS485_5B (IN) | Low nequency sync 405 signat (input) | |
| 23 | RS485_5A (OUT) | Low frequency sync 485 signal (output) | |
| 24 | RS485_5B (OUT) | Low nequency sync 405 signat (output) | |
| 25 | RS485_4A (IN) | Parallel PS4854 4 communication (input) | |
| 26 | RS485_4B (IN) | | |
| 27 | RS485_4A (OUT) | Parallel RS4854_4 communication | |
| 28 | RS485_4B (OUT) | (output) | |
| 29 | CAN3_H | Parallel communication CAN signal | |
| 30 | CAN3_L | | |

Table 6.7 Description of parallel signal terminal interface

6.5.4 Monitoring Device Terminal

The WIT 50-100K-US Storage/Hybrid inverters support remote monitoring when working with the optional WiFi&LAN datalogger or the WiFi&4G datalogger. If the WiFi&LAN datalogger is used, you need to connect a WiFi antenna and a network cable. If the WiFi&4G datalogger is used, you need to connect a WiFi antenna and a 4G antenna. The installation steps are as follows:

For the WiFi & LAN datalogger:

1. Remove the waterproof cover from the ANT1 port, then plug the WiFi antenna into the jack and screw tight. Please ensure that the antenna is correctly and securely connected.

2. Remove the waterproof cover of the LAN port and plug the network cable into the jack.

For the WiFi&4G datalogger:

- 1. Remove the waterproof cover from the ANT1 port then plug the WiFi antenna into the jack and screw tight.
- 2. Remove the waterproof cover from the ANT2 port and plug the 4G antenna into the jack.

Note:

- 1. Please ensure that the WiFi antenna, the 4G antenna and the network cable are connected to the correct port and securely in place. Otherwise, the monitoring function might fail.
- 2. If the monitoring device is removed, please reinstall the waterproof cover to avoid water penetration.



Fig 6.14 Connecting the monitoring device

6.5.5 DRMS Port

The WIT 28-55K-US L2 Inverters have a DRMS port. Users can choose to connect this terminal if required by local regulations. The connection procedure is as follows:

- 1. Connect the communication cable to the port as required. The DRMS port is a standard RJ45 terminal block, so you can follow the Ethernet cable connection method.
- 2. Remove the dustproof cover from the DRMS port and check whether there is a waterproof silica gel pad. Insert the cable and tighten the rubber ring to prevent loose connection.
- 3. After the cable connection, reinstall the dustproof cover. The position of the DRMS port is shown in Fig 6.15 below.



Fig 6.15 DRMS port

| Table 6.8 Demand R | Response | Modes | (DRMs) |
|--------------------|----------|-------|--------|
|--------------------|----------|-------|--------|

| Mode | Socket asserted by shorting pins | Requirement |
|------|-------------------------------------|--|
| DRMO | 5,6 | Operate the disconnection device |
| DRM1 | 1,6 | Do not consume power |
| DRM2 | 2,6 | Do not consume at more than 50% of rated power |
| DRM3 | 3,6 | Do not consume at more than 75% of rated power AND Source reactive power if capable |
| DRM4 | 4,6 | Increase power consumption (subject to constraints from other active DRMs) |
| DRM5 | 1,5 | Do not generate power |
| DRM6 | 2,5 | Do not generate at more than 50% of rated power |
| DRM7 | 3, 5 | Do not generate at more than 75% of rated power AND Sink reactive power if capable |
| DRM8 | 4, 5 | Increase power generation (subject to constraints from other active DRMs) |

6.5.6 Rapid Shutdown Device (RSD)

The Rapid Shutdown Device (RSD) is used to shut down the WIT 28-55K-US L2 system and stop the PV side from supplying power to the inverter. The RSD is a normally closed (NC) contact. Once the RSD button is pushed, the inverter will be disconnected from the PV side and shut down.



Fig 6.16 Rapid shutdown device (RSD)

Installation:

- 1. Unscrew the four plastic screws assembled on the RSD in the accessory kit using a cross-head screwdriver.
- 2. Drill four holes in the wall using an electrical drill with an M6 drill bit.
- 3. Insert the four green plastic pipes into the holes.
- 4. Align the RSD with the hole positions and screw the 4 self-tapping screws into the pipes

unit: inch



Fig 6.17 Installing the RSD

Connect the cables (18-22 AWG) crimped with the pipe-shaped terminal to Pin 12 and Pin 13 of the 16-pin terminal and insert the terminal into the COM1 port as the figure below shows. Open the cover of the RSD, route the other end of the cables through the hole on the RSD and connect them to the RSD contact. Reinstall the cover and secure it with screws.



Fig 6.18

NOTE:

- 1. Before powering on the WIT, please pull the button up to ensure that the RSD is at the NC contact.
- 2. It's recommended that the RSD be installed in a convenient place for the ease of operation.

6.6 Post-installation Checks

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

| Position | Item | Check item |
|----------|--------------------------------|--|
| | Ground cable | Check the cable specifications; ensure |
| | connected to the | that the cable has been securely |
| | chassis | fastened |
| AC side | Ground cable on the AC side | Check the cable specifications; ensure that the cable has been securely fastened |
| | Grid side (-AU/-HU) | Check the cable specifications; ensure that the cable has been securely fastened |

| Position | Item | Check item | | | | |
|---------------|-------------------------------------|--|--|--|--|--|
| | Load side | Check the cable specifications; ensure that the cable has been securely fastened | | | | |
| AC side | Waterproof silica gel pad | No gap exists; the fireproof mud has been evenly applied | | | | |
| | AC junction box cover | Install the cover after the items on the AC side are checked | | | | |
| | 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 | | | | |
| | Ground cable on the battery side | Check the cable specifications; ensur that the cable has been securely fastened | | | | |
| | BAT+/BAT- | Ensure that the positive and negative terminals are connected correctly and securely; the sealing rubber ring is properly seated into the gland | | | | |
| Battery side | BMS-AC | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland | | | | |
| | Cable bundling | The cables are bundled in the specified position | | | | |
| | Battery terminal protective plate | Ensure that the protective plate is correctly installed and all screws are firmly tightened. | | | | |
| Communication | BMS-COM | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland | | | | |
| terminals | COM1 | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland | | | | |

| Position | Item | Check item |
|----------------------------|---------------------|--|
| | COM2 | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland |
| Communication terminals | WiFi+LAN WiFi+4G | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland |
| | DRMS | Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland |
| Cover plate | Right cover plate | Reinstall the right cover plate after all the items are checked |

Commissioning 7

7.1 Powering on/off the System

- 1. Turn the DC switches on the WIT Inverter to the "ON" position.
- 2. Turn on the breaker between the grid and the inverter.
- 3. Turn on the breaker between the battery and the inverter, then turn on the switch on the battery to power it on.
- 4. Once the start-up requirements of all terminals are fulfilled, the system will be powered on automatically.

To shut down the system, please send a shutdown command on the APP or the webpage prior to performing any operations on the device. Then perform the steps in reverse order as described above.

APP:

| < | Set Inverter On/Off | < | Set Inverter On/Off |
|-------------|---------------------|----------|-----------------------|
| Set Inverte | er On/Off | Set Inve | erter On/Off |
| | Power ON | | Power ON |
| | Complete | | Complete |
| | | | Set Inverter On/Off |
| | | | Power Off Power ON |
| | | | Cancel |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Webpage:

| Setting | | | | | | | | | | |
|-------------------------------|------------|---|--|-------|-------|-----|----|------|--------------|--------|
| ◯ Time Slot 4 | Load First | • | | 00 | 00 |)~ | 00 | 0 | Off | T |
| ◯ Time Slot 5 | Load First | - | | 00 | 00 |)~ | 00 | 0 | Off | T |
| ◯ Time Slot 6 | Load First | | | 00 | 00 | ~ | 00 | : 00 | Off | Ŧ |
| Set Inverter On/Off | | | | Во | ot | | | | Ð | |
| 🔘 Set Time | | | | Во | ot | | | | | |
| O Mode Switch | | | | Sh | ut Do | wn | | | _ | |
| O High Grid Voltage Limit | | | | 438. | 2 | | | | (17.3~762V) | |
| O Low Grid Voltage Limit | | | | 338.6 | | | | | (17.3~762V) | |
| O High Grid Frequency Limit ① | | | | | | | | | | |
| O Low Grid Frequency Limit 0 | | | | | | | | | | |
| ○ Set Enc On /Off | | | | Off | | | | | | |
| Plance Enter Key T | o Save | | | | v | oc. | | | Advanced Set | Cancel |

7.2 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.

7.2.1 Set the Communication Address

After the WIT Inverter is powered on, you can set the communication address of the WIT Inverter via RS485 communication to Wi-Fi 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 to1.

- **NOTE:** The communication address of the WIT Inverter ranges from 1 to 254. By connecting the WIT Inverter to the host computer through RS485 communication, you can change its communication address via ShineBus. This operation should be performed by professional personnel.
- 7.2.2 Set the Time and Date
- 7.2.2.1Set the time and date on the APP

Follow the instructions in Section 6.5.4 to connect the datalogger. 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 July 18, 2023, the password would be "growatt20230718". After that, tap "Yes".

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

| < | Setting time | < | | | Set | ting t | ime | | | |
|-------------|---------------------|---------|-----------|----------|-------|---------|------|----|----|--|
| Setting tin | ne | Setting | g time | | | | | | | |
| | 2023-09-27 01:21:20 | | | | 23-09 | -27 01: | | | | |
| | Complete | | 2023 W | ³ ′ec | 1, 9 | Se | р 2 | 27 | | |
| | | | < | | Septe | ember | 2023 | 5 | > | |
| | | | S | М | Т | W | Т | F | S | |
| | | | | | | | | 1 | 2 | |
| | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | | | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
| | | | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | |
| | | | | | | C | ance | l | ОК | |

7.2.2.2 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.

7.3 Mode of operation

7.3.1 Waiting Mode

When the PV voltage is greater than 180V, 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 195V, the WIT Inverter will be powered on.

7.3.2 Operating Mode

7.3.2.1 Operating Mode of WIT 28-55K-A-US L2, and WIT 28-55K-AU-US L2

Standby mode: The WIT Inverter enters the standby mode when the operating requirements are not met.

Charging mode: Charge the battery from the grid (the AC Charging function should be enabled) You need to set this mode manually and configure the charging period and charging power.

Discharging mode: The battery discharges to supply power to the AC side You should set this mode manually and configure the discharging period and discharging power.

NOTE:

- 1. It is recommended to charge batteries with grid power during off-peak times and discharge battery power during peak hours to lower your electric bills.
- The working modes listed above are applicable to the grid-tied power system. For the off-grid system, the WIT Inverter converts battery power to power the loads.

7.3.2.2 Operating Mode of WIT 28-55K-H-US L2, and WIT 28-55K-HU-US L2

Load First:

When the WIT inverter works in the Load First mode, the WIT storage unit controls the battery to charge and discharge according to the amount of electricity fed into the grid and drawn from the grid. When there is electricity fed into the grid, the WIT inverter adjusts this part of the electricity to charge the battery, reducing the amount of electricity fed into the grid; when there is power from the grid, the WIT inverter adjusts the battery discharge to reduce the amount of electricity drawn from the grid. When the WIT inverter disable the Load First mode, it does not respond to the change of the power fed into the grid and taken from the grid. It will keep the battery power, and enters other priority modes. Battery First:

When the WIT inverter works in this mode, the battery will ignore the forward and reverse current power and give priority to charging the battery. The user needs to set the mode ON and OFF time. If the customer does not enable AC CHG (AC power grid charging function), the WIT will charge the battery through PV power. If the customer enables AC CHG, the WIT will charge the battery through PV panel and the grid.

Grid First:

When the WIT inverter works in the Grid First mode, the load will be powered firstly, then export power to the grid. The user can choose to work in this mode when the electricity rate is high, and the user needs to set the on and off time of the mode.

7.3.3 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.

7.3.4 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 DC input voltage is less than or equal to 180Vdc or the battery voltage is lower than 750V, the WIT Inverter enters the shutdown mode automatically.

7.4 LED and OLED Displays Panel

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



Fig 7.1 Display panel

| Number | Description | Note |
|--------|--------------------------|---|
| А | 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 indicator | Indicates the operation status on the grid side |
| E | Off-grid indicator | Indicates whether the off-grid mode is enabled |
| F | Battery indicator | Indicates the status of the battery |
| G | Communication indicator | Indicates the communication status |
| н | Battery status indicator | Indicates the charging and discharging mode of the battery |
| I | Button | You can switch the information displayed on the OLED by pressing the button |

Table 7.1 Symbol Description



Fig 7.2 User interfaces

| | Status | Meaning | | | | |
|-------|-------------------------------------|--|--|--|--|--|
| | Off | The system is not operating | | | | |
| 1 | Steady green | The system is operating properly | | | | |
| D | Blinking green at long intervals | The system is in standby mode or performing an upgrade | | | | |
| | Steady red | System failure | | | | |
| | Off | The PV voltage is below the operating voltage | | | | |
| | Steady green | The PV voltage reaches the operating voltage | | | | |
| - | Steady red | A fault or alarm occurs on the PV side | | | | |
| • | Off | The grid voltage is below the operating voltage | | | | |
| 奔 | Steady green | Successfully connected to the grid | | | | |
| | Steady red | A fault or alarm is reported on the grid side | | | | |
| | Off | Off-grid mode is disabled | | | | |
| A | 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 | The battery voltage dose not reach the operating voltage | | | | |
| | Steady green | The battery voltage reaches the operating voltage | | | | |
| | Steady red | SOC(state of charge) is low; a fault or alarm of the battery is reported | | | | |
| | Steady green | External communication is normal, such as RS485, Wi-Fi, 4G, 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 | | | | |

| | Status | Meaning | | | | |
|-----------|---|--|--|--|--|--|
| NINIMA IL | Steady white | Battery is in standby mode | | | | |
| GROWATT | Rotates clockwise | Charging mode | | | | |
| | Rotates anticlockwise | Discharging mode | | | | |
| | 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 is displayed. | | | | | |
| | The OLED will wake up v will turn off if there is no | vhen the button is pressed. The OLED o operation for 5 minutes. | | | | |

Monitoring 8

8.1 Remote Monitoring

Growatt WIT 28-55K-US L2 Storage/Hybrid inverters support remote monitoring, which can be enabled by installing a datalogger. The operation and configuration methods are illustrated below.

Scan the following QR code or search for "ShinePhone" 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.

8.1.1 Connect the WIT inverter to the internet on ShineTools

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. oss20230925. Then click "Sign in".



Select "Direct WiFi" > "WIT-A/AU-US" or "WIT-H/HE/HU-US". For the SN (serial number), you can scan the SN barcode on the enclosure or enter it manually. Then tap "Confirm" and it will start searching for Bluetooth devices.

| < | Please select a pr | oduct | | | | < |
|-------------|--------------------|-------|------|---|--|---|
| Please sele | ect a product type | | | | | |
| MIN TL-XH | H-US | | | > | | |
| SPH 10K | TL-X | | | > | | |
| WIT-A/AE | /AU-US | | | > | | |
| WIT-H/HE | HU-US | | | > | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | Q |
| < | Manual | | | | | < |
| | | | | | | |
| | | | | | | |
| | SN:0123456789 | | | | | |
| Serial N | umber | | | | | |
| Please | enter SN | E | Scan | | | |
| | | | | | | |
| | | | | | | |
| | Confirm | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



Click "Connect" after the target Bluetooth device is displayed.

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

When the device is successfully connected, the screen as demonstrated below will appear, ensuring that the communication between the WIT inverter and the mobile phone has been established via Bluetooth.



Then connect the WIT inverter to the WiFi network.

Tap "Quick Setting" > "Network Type" > "WiFi" . Insert the WiFi name and password and tap "Connect to the Internet" , which configures the inverter to the server via the network.



8.1.2 Remote Monitoring on the APP (ShinePhone)

Account Registration on ShinePhone

Run the APP and tap "Create account" 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:



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.

| < Plant list | 实验室设备_刘 | 晶~ | + | < Plant list | 实 | 验室设备_刘 | 晶~ | + | < | DML1234 | 567 |
|--|------------------------------------|--------------------------|---------------------------|---------------------------------|-----------------------|-----------------------|--------------------------|-------------------------------|---------------|---------------------|---------------------------|
| • C | • | Solar Coa | d consumption | ielf-consumptic | in | III SN | DML1234567 | | | | |
| PV capacity 100MWp | | 员 Installatio 2023-08 | n date -11 | | Syste | em production:6 | 3kWh | | Model | WIT 100KTL3-H | All parameters> |
| ÷. Sunny,28.0°C | | | + | 98.89% Self-consu 62.3kWh | Imption | | Export | 1.11% ed to grid 0.7kWh | | | Running state |
| Generation This 945.4kWh | Today(kWh) 63.0 Month | Total 3555.2MV | Vh | 36.8% Self-consu 62.3kWh | Load o | consumption:16 | 9.3kWh Imported | 63.20% from Grid 107kWh | - | Current Power | |
| System status: Runni | ng state | DML123 | 4567 🔻 | | | My device list | > | | - | O.J/ kW | |
| | PPV: 8.57kW | | | GX Activ | LOCKLOO | G_1 On 28 Tota | line Il power: 0 | | Nom | inal Power.65.0kw | 0.0kW Charging Powe |
| <u> </u> | | | \Diamond | Data | alogger:GX | LOCKL00G | | | | ÷ | ÷ |
| Battery percentage: 6 Charging Power: 0.0kV | | Load c | onsumption: 48.14kW | DM Pow | IL123456 er :8486W | 7 Rui Tot | nning state day:63kWh | | | ¢ | |
| | Imports 20 E7IA | | 141.0 | Data | alogger:GX | LOCKLOOG | | | 48 | .14 kW | 39.57 kW |
| | import. 37.57 kv | v | | 6 | | ଟ୍ଟି | | 4 | Cons | umption | Imported from Grid |
| Generation overvie Solar production | w | Toda | //Total(kWh) 63/2137.1 | 3544.6 CO ₂ redu | 6t Iced | 1422.1t Coal saved | 19 Defe | 95537 prestation educed | 🕂 Energy Dise | charged / Day 0.0km | Total E-discharged 0.0kWh |
| Dashboard Plant | GroHome | Service | ß | Dashboard | (🗲 Plant | GroHome | Service | ନ ™e | Events | (Ö) Contro | Edit |

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

| Warning list | | |
|-------------------------|-----------------|--|
| 2023- | -09-04 07:13:01 | |
| DML1234567 | | |
| SN | DML1234567 | |
| Plant name | 实验室设备_刘晶 | |
| (302) No AC Connecti | on | |
| 2023- | -09-01 17:46:37 | |
| DML1234567 | | |
| SN | DML1234567 | |
| Plant name | 实验室设备_刘晶 | |
| (425) AFCI self-test fa | ult | |
| 2023- | -09-01 17:36:37 | |
| DML1234567 | | |
| SN | DML1234567 | |
| Plant name | 实验室设备_刘晶 | |
| (425) AFCI self-test fa | ult | |
| 2023- | -09-01 17:21:30 | |
| DML1234567 | | |
| SN | DML1234567 | |
| Plant name | 实验室设备_刘晶 | |
| (425) AFCI self-test fa | ult | |
| 2023- | -09-01 17:01:22 | |
| | | |

(5) On the "Control" screen, you can configure the WIT Inverter. The password is in the format of "Growatt + the current date", e.g. Growatt20230718.

| < Setting | | < |
|--|---|--------------------|
| Mode Selection and Time Setting | > | Mode Se |
| Set Inverter On/Off | > | Set Inve |
| Setting time | > | Setting f |
| Mode Selection and On/Off Grid Mode Setting | > | Mode Se Mode Se |
| Ongrid parameters setting | > | On |
| Off-grid Setting | > | Off sys |
| Save The Pf Command? | > | Sav |
| AC Charging/Discharging Power | > | AC |
| Storage Parameter Setting | > | Storage |
| Set reactive power | > | Set reac |
| Export Limitation | > | Export L |



> Set Working Modes for Different Time Periods

Tap Control > 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, including Load First, Battery First and Grid First, 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.



Set Inverter On/Off

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



Set the Time of the Inverter

Tap Control > Set Inverter Time; you can set the local time, as the figure shows.

| < | Setting time | < | Setting time |
|-------------|---------------------|-----------|---|
| Setting tim | e | Setting t | time |
| | 2023-07-17 16:00:14 | | |
| | Complete | | 16:00 |
| | | | 55 00 05 50 10 45 15 40 20 35 30 25 |
| | | | |

> Set the Working Mode and the On-/Off-grid mode

Tap Control > Mode selection and On/off grid mode setting. 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-grid or off-grid mode, as the figure shows. The Automatic Mode is recommended.

| < | Mode Selection and On/Off Grid Mode | _ | Mode Selection and On/Off Grid Mode | < | Mode Selection and On/Off Grid Mode | |
|---------|-------------------------------------|---|--|-----------|--|--|
| Mode Se | lected | | ode Selected | Mode Sele | ected | |
| | Automatic mode | | Automatic mode | | Manual mode | |
| | Complete | | Complete | On gird/O | ff grid Mode(Only available in Manual Mode.) On gird | |
| | | | Mode Selected Automatic mode Manual mode | | On gird/Off grid Mode(Only available in Manual Mode.) On gird | |
| | | | Cancel | | Cancel | |
| | | | | | | |

Set the Grid Parameters

Tap Control > Grid parameters, you can set the voltage upper/lower threshold of grid connection and the frequency upper/lower threshold of grid connection, as the figure shows.

| < | Ongrid parameters setting | |
|--|---|----------|
| Over voltage | e. | |
| | 520.0 | (1-600V) |
| Under volta | ge | |
| | 260.0 | (1-600V) |
| Overfrequer | су | |
| | 50.5 | |
| Underfreque | ency | |
| | 47.5 | |
| Grid-conne within 50-5 Grid-conne within 45-4 | ected high grid frequency: 5Hz(50Hz) or 60-65Hz(60Hz) ected low grid frequency: 9Hz(50Hz) or 55-59Hz(60Hz) | |
| | Complete | |
| | | |
| | | |
| | | |

Set the Off-grid Parameters

Tap Control > Off-grid 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.

| < Off-grid Setting | < Off-g | rid Setting | < | Off-grid Setting | |
|--------------------|-------------------|-------------|-------------------|------------------|--|
| Set EPS On/Off | Set EPS On/Off | | Set EPS On/Off | | |
| Disable | D | isable 🔹 | | Disable | |
| Off-Grid Frequncy | Off-Grid Frequncy | | Off-Grid Frequncy | | |
| 50 ▼ Hz | | 50 V Hz | Off. Grid | 50 Voltage | |
| Off-Grid Voltage | Off-Grid Voltage | | on-ond | 220 | |
| 230 V | Off-Gr | id Frequncy | | 230 | |
| Complete | | 50 | | 240 | |
| | | 60 | | 277 | |
| | | Cancel | | 127 | |
| | | | | Cancel | |
| | | | | | |
| | | | | | |
| | | | | | |

> Set Whether to Apply the Following PF Command

Tap Control > Whether to apply the following PF command, you can select whether to apply the following PF command, as the figure shows.

| < | Save The Pf Command? | < Save The Pf Command? |
|----------|----------------------|-----------------------------|
| Save The | Pf Command? | Save The Pf Command? |
| | OFF | OFF |
| | Complete | Complete |
| | | Save The Pf Command? OFF |
| | | ON |
| | | Cancel |
| | | |
| | | |
| | | |
| | | |
> Set AC Charging and Discharging Power

Tap Control > AC Charging and Discharging Power, you can configure the AC charging/discharging power and choose whether to remember your settings, as the figure shows.

| AC Charging/Discharging Power | er | < AC Ch | arging/Discharging Pow |
|--|-------------------------|--------------------------------|------------------------|
| AC Charing Power | | AC Charing Powe | r |
| 10 | (0%-100%) | | 10 |
| No | | | No |
| AC Discharge Power | | AC Discharge Pov | ver |
| 30 | (0%-100%) | | 30 |
| No v | | | Please Select No |
| The AC charging power percentage is equal t actual maximum charging power divided by t theoretical maximum charging power of the b | o the he pattery. | The AC actual n theoreti | Yes |
| power percentage no more than the set value | inging e. | power p | Cancel |
| Complete | | | |
| | | | |
| | | | |

Set the Storage Parameters

Tap Control > Storage Parameter Setting, you can enable/disable the AC charging function (Charge from grid), the charging cutoff SOC (100 is recommended) and the discharging cutoff SOC (10 is recommended), as the figure shows.

| 100 | 0-100(%) | Stop Cha | arging SOC 100 charging SOC 10 | |
|--|--|---|--|---|
| 100 | 0-100(%) | Stop Disc | charging SOC | |
| 10 | 0~100(%) | Stop Disc | charging SOC | |
| 10 | 0~100(%) | | 10 | |
| | | | | |
| | | Ull charg | ge | |
| Disable 🔻 | | | UTI charge | |
| y reaches the prese ttery will stop disch | t stop arging. | When th discharg | Disable | |
| y reaches the prese ry will stop charging By Ac Power From | t stop 9. Gridd | When th charging WIT Can | Enable | |
| Complete | | | Cancel | |
| | y reaches the prese attery will stop disch y reaches the prese ary will stop charging y By Ac Power From Complete | y reaches the preset stop strey will stop discharging, y reaches the preset stop ery will stop charging, y By Ac Power From Gridd Complete | y reaches the preset stop When th titery will stop clickarging. When th yr eaches the preset stop When th yr eaches the preset stop y By Ac Power From Gridd WIT Can Complete | y reaches the preset stop titrey will stop discharging. y reaches the preset stop y reaches the preset stop exp will stop charging. y By Ac Power From Gridd Complete Cancel |

➢ Set the Reactive Power

Tap Control > Set reactive power, you can select the corresponding PF mode and whether to remember your settings, as the figure shows.



Set the Export Limitation Parameters Tap Control > Export Limitation, you can enable/disable the export limitation function according to local regulations. If the Export Limitation function is enabled, you can set the Export power limit, as the figure shows.

| < | Export Limitation | < | Export Limitation | |
|-----------|-------------------|--------------|-------------------|--|
| xport Lim | itation | Export Limit | tation | |
| | OFF | | ON • | |
| | Complete | Export powe | er limit | |
| | Complete | | 0.0 | |
| | | | Complete | |
| | | | Export Limitation | |
| | | | OFF | |
| | | | ON | |
| | | | Cancel | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- > Set the Single-phase Export Limitation
- Tap Control > Single Export, you can enable/disable the single-phase export limitation function, as the figure shows.

| < SingleExport | < SingleExport |
|--------------------------|--------------------------|
| SingleExport | SingleExport |
| ON V | ON v |
| 3P4L System takes effect | 3P4L System takes effect |
| Complete | Complete |
| | SingleExport |
| | OFF |
| | ON |
| | Cancel |
| | |
| | |
| | |
| | |

> Set the Power Factor

Tap Control > Set power factor, you can set the PF value, ranging from -1 to 1, as the figure shows.



- > Set the Maximum Charging/Discharging Current
- Tap Control > Max. Charging/Discharging Current, you can set the maximum charging/discharging current, ranging from 0 to 200A, as the figure shows.

| < | Max. Charging/Dischargi | ng |
|---------|----------------------------|----------|
| Maximu | m charge current | |
| | 15 | (0~200A) |
| The max | ximum discharge current is | |
| | 160 | (0~200A) |
| | | |
| | Complete | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Set the Equalization Voltage

Tap Control > Equalization Voltage, you can set the battery maximum charging voltage, ranging from 380 V to 650V, as the figure shows.

| < | The e | qualiza | ation cha | rging volt | age |
|--------|-------------|-----------|--------------|------------|-------------|
| The ec | qualizatior | ı chargin | g voltage is | | |
| | | | 850.0 | | (600~1000V) |
| Batte | ry stop c | harging | voltage | | |
| | | | Complete | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

> Set the EOD voltage

Tap Control > EOD Voltage, you can set the battery discharge cutoff voltage, ranging from 380 V to 650V, as the figure shows.

/

| < | The EOD voltage | |
|---------|---------------------------|-------------|
| The EOD | voltage | |
| | 650.0 | (600~1000V) |
| Battery | stop discharging voltage. | |
| | Complete | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Set the Customized PF Curve

Tap Control > Custom PF curve, you can set the power percentage and the power factor of each point, as the figure shows.

| < | Customize PF curve | |
|-------------------------------------|----------------------|-----|
| Point1 | | |
| Power percentage | 0 | (%) |
| Power factor point | -1.0 | |
| Point2 | | |
| Power percentage | 0 | (%) |
| Power factor point | -1.0 | |
| Point3 | | |
| Power percentage | 0 | (%) |
| Power factor point | -1.0 | |
| Point4 | | |
| Power percentage | 0 | (%) |
| Power factor point | -1.0 | |
| Power percentag Power factor poi | e(0~100) nt(-1~1) | |
| | Complete | |

(6) Edit: you can change the device name as the figure shows.

| < | Edit | Save |
|-------|--------------|----------------------------|
| Alias | Please enter | device alias \rightarrow |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Delete | |
| | | |

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

| GroHome 🕂 | GroHome | + | < Add | device |
|--|---|----------------------------|-----------------|--------------------|
| 0 0 Photovoltaic linked electricity(Total) : 0.00xwh More >> | 0 Photovoltaic linker electricity(Total) : 0.0 | 회 Add device 와 Add room | Select the devi | ce you want to add |
| Ppv 0.00W Export to Grid 0.00W | р _и олон Рри олони Сладо — Сф. — Сф. — С | Add meter | | •• |
| Photovoltaic power Other load power 0.00W | Photovoltaic power | Other load power 0.00W | EV charger | GroPlug |
| Customize | Customize | | ٢ | 55 ⊽∆0 |
| My device list My room My scene | My device list My room | My scene | Panel switch | GroThermostat |
| No device | No device | | | Portable Power |
| Dashboard Plant GroHome Service Me | Dashboard Plant GroHome | Service Me | Lamp | Station |



4. Support: 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 document.



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 <u>https://server-us.growatt.com/login?lang=en</u> in the address box to access the login page. Click "Register an Account" if you do not have an account.

| GROWATT | Shinedesign Download | Mobile End Language |
|---------|---------------------------------------|---------------------|
| | Monitor/Oss Login | |
| | Username | 8 |
| | 1 Register An Account Forget Pas | sword ? |
| | Demo Account iot vulnerability disclo | sure |
| | | |
| | | |

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.

| User | Installer | Distributor |
|------------------|--|-----------------|
| Country | | • |
| Username | No More Than 30 Characters | • |
| Password ① | Not Less Than 6 Digits | • |
| Password Confirm | Not Less Than 6 Digits | • |
| Language | 中文 | × • |
| Phone Number | | |
| E-Mail | | |
| Installer Code | | |
| ⊘ I 《Pri | have read and agree to the 《 vacy policy》 | Jser Agreement》 |
| | Next | |

| GROWATT | Register | | | |
|---------|----------|------------------------|-----------------------|------------------------|
| | | User | Installer | Distributor |
| | | Country | | |
| | | Inverter Serial Number | | |
| | | Company Name | | |
| | | Company Address | | • |
| | | company website | | |
| | | 🕲 l ha | ive read and agree to | o the (Privacy policy) |
| | | | Register | |

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 |
| | 1 Denorm |
| | Register An Account Forget Password 7 |
| | Demo Account lot vulnerability disclosure |
| | |

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.

| | | | | | | | | | | | | | | 0 达芬奇 |
|---------|------|---------------|-----------------------|------------|------------------------|-------|---|---------------------|-------|---------------------------|--------------|------|---------------|-----------|
| | • Ad | d Plant | | | | | | | | | | × | 21°C | Ç. |
| | ß | Installation | Information | | | | | | | | | | | ud Volume |
| | | Plant Name | Example: David 6.24Wp | Plant | Installation Date | | • | PV Capacity(kWp) | | Installer | | | | |
| Input/ | | Plant Type | Residential Plant | • | | | | | | | | | | |
| | 2 | Location In | formation | | | | | | | | | | | |
| | | Country | Please Choose | • | City | | | Address | | | | | |) |
| | | Time Zone | UTC -12 | • | Longitude 🗿 | | | Latitude | | Plant Image | Click Upload | | Imported From | n Grid |
| | | | | | | | | | | | | | D Today | 61.3 |
| | | | | | | | | | | | | | | 01.0 |
| | | | | | | | | | | | | | | |
| F | ۲ | Set Revenu | ie Formula(Set 1Kwh | As The Con | version Standard | 0 | | | | | | | | |
| - | | Selling | 1.2 RMB(¥) | ~)• | Standard Coal Saved | 0.400 | | Co2 Reduced | 0.997 | Reducing Deforestation | 0.055 | | | |
| 1.00KVV | | Electricity | 1.2 | | Peak Rate | 1.3 | | Standing Rate | 11 | Off-Peak Rate | 1.0 | | Load Consum | ption |
| | | | | | | | | | | | | | O Today | 0.0 |
| | | | | | | | | | | | Yes Can | icel | U kWh | 0.0 |
| | | | | | | | | | | | | | | |

| | Total | | | -sty PV | Capacity | | b Total Reve | nue | |
|---------------------------------|------------------------|-------------------|---------------|---------|------------------------------|------------------------------------|---------------|--------------------------|---|
| | 0.0(kWh) |) | | 0.0(k | (Wp) | | 0(¥) | | |
| ull Plants Resid | lential Plant Commerci | al Plant Ground-M | ounted Plants | | Online • Abnormal • Lost Pon | wer Station Sequencing Current Pow | er Priority 👻 | Please Insert Plant Name | Q |
| e Dav | rinci Test | e Davi | nci Test1 | • 3 | But. | | | | |
| | | | | | | | | | |
| - Charles and the second second | | | | | | | | | |

- 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) Enter the verification code of the datalogger

| ¢ | RO | WATT 实验室设计 | ₩_刘品 ▼ | | | 👕 Swit | ch theme 😝 Add Plant | 🔶 Add Data Logger 🛛 | 爭 Add Optimizer 🚺 达芬奇测试 | G |
|-----|----------|-------------------------|------------|-------|-------------------|-------------|------------------------|---------------------|---------------------------|---|
| Er | nergy | / | | | | Home energy | | ÷ | 1 | |
| Cur | rent Lo | ation: Energy>Plant Man | igement | | Lineigy | nome energy | Log | 19 | | |
| F | Paramete | er Comparison Plant | Management | | | | Plant | Name | Search Add Plant | |
| | No. | Plant Name | Country | City | Installation Date | Time Zone | PV Capacity(kWp) | Total Energy(kWh) | Operating Tools | |
| | 1 | 测试 | China | 西安 | 2022-08-22 | 8 | 8000 | 733.2 | 비 III 이야하는 10 III | |
| | 2 | WIT 應州模玩实验局 | China | 潮州 | 2023-04-14 | 8 | 100 | 0 | 비 III III e을 다 프 | |
| | 3 | 兼容WiFi-X2 | China | 28201 | 2023-05-04 | 8 | 3000 | 0 | 네 Rei et th 프 | |
| | 4 | 深圳湾测试电站 | China | | 2023-06-07 | 8 | 100000 | 0 | 비행 et th 프 | |
| | 5 | 惠州老化专用 | China | 應州 | 2023-06-19 | 8 | 1000 | 4886.3 | 네 Re et 1 프 | |
| | 6 | 实验室设备_刘晶 | China | | 2023-08-11 | 8 | 100000 | 0 | 비 많 •; () 급 | |
| | 7 | 多机需量管理测试 | China | | 2023-08-17 | 8 | 100000 | 0 | 비 많 야 수 집 | |
| | 8 | SEM補調給电站 | China | | 2023-08-19 | 8 | 0 | 0 | 년 전 << () 급 | |

Add Data Logger



×

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 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
- 3. Battery Information

| attery Information | | | | |
|--|-----------------------------------|----------------------------|---|---|
| Addition for the second s | ormation in the last seven days | = | Bettery charge And Uscharge information 400km | - |
| 300kWh | | | 300km | |
| 200kWh | | | 2004mm | |
| 100kWh | | | 1004/86 | |
| 0kWh 2023-09-08 2023-09 | -09 2023-09-10 2023-09-11 2023-09 | 9-12 2023-09-13 2023-09-14 | 0k0m. 09-40 | |
| | Charged Discharged | | Charged Discharged | |

- 1) Battery charged and discharged: display the battery charge and discharge power
- 2) Battery real-time SOC: display 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

| Energy | C/A Dashboard Evergy Home energy Log Setting | |
|---|--|---|
| Current Location: Energy>Parameter Comparison | _ | |
| Parameter Comparison Plant Management | 2 | |
| Search Q (# 2023-09-14 H | ne Day Month Year | Export |
| MAX/MID/MAC(11) GCN0D9C00D (GCN0D9C00D) 120000 U20000 | | = |
| FQN0D6W004 (FQN0D6W004) (TXXX1D810V5) | | • |
| GDN0D7X03A (GDN0D7X03A) (1 X0X1D81000) 80000 | | |
| GGLCD6W09Q (GGLCD6W09Q) (')0X3D810/S) | | |
| FQN0D6W05W (FQN0DeW09W) ([[X0X3D81080) | | |
| GDN0D8107D (GDN0D8107D) 40000 ([[2003D81060] | | |
| UEM4D7501P (UEM4D7501P) 20000 (1) 20000 | | |
| CJP250002336000B (CJP2500023 | | |

- 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.

2. Plant Management

| nergy | 🖌 | ent | | Dashboard | Log | Š etting | | |
|----------|--------------------------|---------|------|-------------------|-----------|------------------|-------------------|-------------------|
| Paramete | er Comparison Plant Mana | igement | | | | | Plant Name | Search Add Plant |
| No. | Plant Name | Country | City | Installation Date | Time Zone | PV Capacity(kWp) | Total Energy(kWh) | Operating Tools 2 |
| 1 | Davinci Test | China | | 2023-07-13 | 8 | 0 | ٥ | 비 않는 소수 전 |
| 2 | Davinci Test1 | China | | 2023-07-13 | 8 | 0 | o 3 | 11 11 11 |

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.

| og | | | a | a ale | | 8 | * |
|--|--|-----------------------|-------------|---|-------------------|---|---|
| rrent Location: Log > Fault Lo | | | Dashbo | ard Energy | Home energy | Log | Setting |
| Fault Log | | | | | H 2023-07 | H Day | Month Year Device Serial Number Device Serial Number Search Export |
| Device Serial Number | Allas | Battery serial number | Device Type | Time | Event Sn | Fault Description | Solution |
| | | | | | | | |
| DML1234567 | DML1234567 | | WR | 2023-07-05 18/37/30 | 502 | Battery voltage low | 1/Check battery voltage 2/If the error message still exists, contact manufacturer |
| DML1234567 DML1234567 | DML1234567 DML1234567 | | Wit | 2023-07-05 18:37:30 | 302 | Battery voltage low No AC Connection | 1/Check battery voltage 2/If the error message still exists, contact manufacturer 1/After shutdown,Check AC wiring. 2/If error message still exists,contact manufactures |
| DML1234567 DML1234567 DML1234567 | DML1234567 DML1234567 DML1234567 | | Wit Wit | 2023-07-05 18:37:30 2023-07-05 18:29:02 2023-07-05 17:17:32 | 502 302 302 | Battery voltage low No AC Connection No AC Connection | 1/Check battery-voltage 2/if the error message still exists, contact manufacturee 1.4/her shutdoom,Check AC wiring, 2:if error message till exists,contact manufactures. 1.4/her shutdoom,Check AC wiring, 2:if error message till exists,contact manufactures. |

Setting

1. Account management

| Current Location: Setting > Account Manag | e | Dashboard | Energy | Home energy | Log | Setting | | | |
|---|--------------------------------|-----------------------|--------|-------------|-----|--------------------------------|------------------|-------|---|
| Account Manage Browse Account | Email Set Download | | | | | | | | |
| 1 • Userinfo Modify (Please Impro | ove The Information So That We | Can Better Serve You) | | | | 2 • Change Pa | ssword | | |
| User Name | LIFRRIA | | | | | | User Name | 达芬奇别试 | |
| Company Name | | | | | | | Current Password | | |
| Realy Name | | | | | | | New Password ① | | |
| Email | xisohui.zhong@growstt.com | | | | | | Again | | • |
| Tel Phone | 12365409845 | • | | | | | | Save | |
| Language | 中文 • | | | | | account se | curity ^ | | |
| Installer Id | Installer Id Or Alias | Modify | | | | | | | |
| API key token | api token | Modify | | | | | | | |
| | Save | | | | | | | | |
| | | | | | | | | | |

- 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.

| Settin | g | CA III Dashboard Energy | ff Home energy | Log Sett | 10 | | |
|-------------|--|----------------------------|-------------------|-----------|-----------|-------------|-------------|
| Current Los | ation: Setting>Download | | | | | | |
| Account | Manage Browse Account Email Set Download | | | | | | |
| • Doc | ument | | | | | | |
| | | | | | | | |
| No. | File Name | | | File Type | File Size | Update Time | Download |
| 1 | ShineServer user manual | | | øđ | 4.1MB | 2015-05-21 | 世文 English |
| 2 | Growatt ShineWifi user manual(ShineWifl用户诉册) | | | .pdf | 4.33M8 | 2016-08-18 | 空文 Logish |
| 3 | Growatt_Shine3G_ShineGPRS_user_manual(Shine3G,ShineGPRS用户手册) | | | .pdf | 3.72MB | 2016-08-18 | 中文 EngEsh |
| 4 | Android Growatt APP Module | | | .pdf | 0.2MB | 2016-01-25 | 田文 English |
| 5 | 105 Growatt APP Module | | | .pdf | 0.2MB | 2016-01-25 | 史文 English |
| 6 | Growatt Old WiFi Update Module | | | odf | 0.4MB | 2016-04-25 | 田文 English |
| 7 | Growatt Webbox Update Module | | | .pdf | 0.2MB | 2016-04-25 | 91% English |
| 8 | Growett Webbox Instructions | | | odf | 1.27MB | 2017-07-20 | English |
| 9 | Growatt Datalog WIFI-X8XWIFI-S Instructions | | | odf | 1.85MB | 2020-04-21 | English |
| | | | | | | | |
| | | | | | | | |

Device 1. Datalogger

| Device | | <i>(</i> // | alı - | • | 8 | ø | | | |
|--|---|---|-----------------------------|--|--------------------|-------------------|-----------------------|-------------------------|---------------------------------|
| arrent Location: Dashboard>Photovoltaic Device>E | Data Logger | Dasirouaru | Dielgy | Home energy | toy | setting | | | |
| Photovoltaic Device | | | | | | | | | |
| now a second sec | ır | | ÷ | Generation | | | | light Revenue | |
| 15.2 Current Power(kW) | 63 Rated Power(KW) | 52.5 Today(kWh) | 93 This M | 34.9 Ionth(JWh) | 355522 Total(kW | 21.5 | 63 Today(¥) | 1121.9 This Month(¥) | 4266266 Total(¥) |
| Data Logger Inverter WIT/WIS N | feter | | | | | | 8 Device Serial Num | ber Or Alias | 9 Search Add |
| 1 GXLOCKLOOG ∠ Data Logger: GXL 2 User Name: 15395 In & Port: 20822 | 0CKL00G () 3 Connection 55812 Plant Name 8.8255241 Date Under | n status: Connection e: 实验室设备_刘磊 ite Interval: 5 Minute | Update Time Device Type: | : 2023-09-14 14:43 : ShineWiFi-X2 6 rsion: 3.2.1.2 7 | 55 5 | | | M | tuetooth anagement |
| | 4 | | | 1 | | | т | otal 1 Item Previous 1 | Delete Next To First 1 Page Yes |
| | | Copyright@2019 - 1 | SHENZHEN GROWA | IT NEW ENERGY TECH | NOLOGY Co., Ltd Sh | ineServer-3.6.0.0 | | | |

- 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) Update time;
- 6) Device type;
- 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;

| vice | | C/A Dashboard | LII A | Log Setting | | | 1 |
|---|-------------------------------------|--------------------|---|--------------------------------|----------------|-------------------------|--------------------------|
| nt Location: Dashboard>Photovoltaic Devic | ce>WIT/WIS | | | | | | |
| otovoltaic Device | | | | | | | |
| 🥐 P | ower | | - Generation | 1 | | 🍪 Revenue | |
| 15.2 Current Power(kW) | 63 Rated Power(kW) | 52.5 Today(kWh) | 934.9 This Month(Wh) | 3555221.5 Total(kWh) | 63 Today(¥) | 1121.9 This Month(W) | 4266266 Total(¥) |
| DML1234567∠ | 5 | | | | 1 Device | Serial Number Or Alias: | Sourch |
| (1) 2 Device Model: | : WIT-H/HE/HU Device Serial Number: | DML1234567 () | 6 Connection status: Oper | ting status Update Time: 2023- | 09-14 14:48:03 | | History Data |
| 3 User Name: 2 | 53.8 Total EnerovikWb): 35 | \$5220 | 7 Data Logger: GXL0CKL00 8 Rated Power(kW): 63 | G O G Current Power(kW): | 5.2 | | 10 🛱 |
| 4 Today(kWh): 5 | | | · | | | | Setting |
| 4 Today(kWh): ! | | | · | | 1 | otal 1 Item Previous 1 | Next To First 1 Page Ver |

- 1) Enter the serial number to find the device;
- 2) Device model;
- 3) User name and the PV plant to which the device is connected;
- 4) Daily and monthly energy yield;
- 5) Serial number of the selected device;
- 6) Operating status: operating, standby, disconnected or faulty;
- 7) Serial number of the datalogger connected to the device;
- 8) Rated power;
- 9) Current power;
- 10) Parameter settings.
- 10.1) Set the working mode and the time period

| | In | formati | on | | | | | | | |
|------------------------------|-----------------|---------|------|------|------|-----|------|--------|--------------|--------|
| Device Serial Number: DML123 | 4567 Alias: DML | 1234567 | 7 | | | | | | | |
| Data Logger: GXL0CKL00G | Property: TC | 01.0/TO | aa14 | 1193 | /ZBe | a-0 | 031/ | S21B09 | D00T33P0FU01 | 1M0276 |
| | c | ommar | d | | | | | | | |
| ◯ Time Slot 1 | Load First | | 0 | 00 | 00 |)~ | 00 | 00 | Off | |
| ◯ Time Slot 2 | Load First | • | | 00 | 00 |)~ | 00 | 00 | Off | ~ |
| ◯ Time Slot 3 | Load First | V | | 00 | : 00 |)~ | 00 | 00 | Off | |
| ◯ Time Slot 4 | Load First | • | | 00 | 00 |)~ | 00 | 00 | Off | V |
| ◯ Time Slot 5 | Load First | | | 00 | : 00 |)~ | 00 | 00 | Off | |
| ◯ Time Slot 6 | Load First | • | | 00 | : 00 | ~ | 00 | 00 | Off | |
| Set Inverter On/Off | | | | Во | ot | | | • | | |

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

| Setting | | | | | | | | | | | > |
|-----------------------------|-------------|---|---|------|--------|-----|----|------|-------------|-----|-----|
| ◯ Time Slot 4 | Load First | • | | 00 | 00 | ~ | 00 | : 00 | Off | | • |
| ◯ Time Slot 5 | Load First | • | | 00 | : 00 | ~ | 00 | : 00 | Off | | • |
| ◯ Time Slot 6 | Load First | | | 00 | 00 | ~ | 00 | : 00 | Off | | • |
| Set Inverter On/Off | | | ſ | Bc | ot | | | |) | | |
| 🔿 Set Time | | | | Bo | oot | | | | | | |
| ○ Mode Switch | | | | Sh | iut Do | own | | | | | |
| 🔵 High Grid Voltage Limit | | | | 438. | 2 | | | | (17.3~762V) | | |
| 🔿 Low Grid Voltage Limit | | | | 338. | 6 | | | | (17.3~762V) | | |
| ◯ High Grid Frequency Limit | | | | 50.2 | | | | | | | |
| O Low Grid Frequency Limit | | | | 49.5 | | | | | | | |
| ○ Sat Enc On/Off | | | | Of | f | | | | | | |
| Please Enter I | Key To Save | | | | Y | es | | A | dvanced Set | Can | cel |

10.3) Set the time: you can set the time for the device

| First First | | 0 | 00 00 00 Bo | 00 00 00 01 |)~)~)23- | 00 00 00 00 07-18 | 00 00 00 00 | | Off Off | ~ |
|---|---|------------------------|----------------------|----------------------|------------------|-------------------|----------------------|----------------------------|-----------------|-----------------|
| First | | 0 | 00 00 Bo | 00 00 01 20 |)~ | 00 00 00 007-18 | 00 00 00 | | Off | ~ |
| First | • | 0 | 00 Bo | 00 ot 20 |)~ | 00 | • 17:58 | | Off | ~ |
| | | | Bo | ot 20 |)23- | 07-18 | 17:58 | | | |
| | | | (| 20 |)23- | 07-18 | 17:58 | | | |
| | | | _ | | | | | | | |
| | | | Au | toma | atic | | | | | |
| High Grid Voltage Limit Low Grid Voltage Limit High Grid Frequency Limit ^① | | 438.2 338.6 50.2 | | | | | (17.3- | (17.3~762V) (17.3~762V) | | |
| | | | | | | | (17.3- | | | |
| | | | | | | | | | | |
| | | | 49.5 | | | | | | | |
| | | | | | | | | | | |
| | | | | 50.2 | 50.2 49.5 | 50.2 49.5 | 50.2 (49.5 | 50.2 49.5 | 50.2 49.5 | 50.2 49.5 |

10.4) Mode switch: you can choose to switch the working mode manually or automatically. If "Manual" is selected, you can set the device to operate in on-grid or off-grid mode. Generally, you are advised to select "Automatic" mode switch.

| Setting | | | | | | | | | | × |
|-------------------------------|------------------------------|---|------|---------------|-------|-----|-------|-------|-------------------|----|
| ◯ Time Slot 4 | Load First 🔹 🛈 | | | 00 00 ~ 00 00 | | 00 | Off |) (| | |
| ◯ Time Slot 5 | Load First | • | | 00 | 00 |)~ | 00 | 00 | Off | 0 |
| ◯ Time Slot 6 | Load First | • | | 00 | 00 |)~ | 00 | 00 | Off | 9 |
| O Set Inverter On/Off | | | | Вс | ot | | | • | | |
| 🔘 Set Time | | | | | 20 | 23- | 07-18 | 17:58 | | |
| Mode Switch | | | | AL | toma | tic | | | | |
| O High Grid Voltage Limit | | | | Au | itoma | tic | | | (17.3~762V) | |
| 🔿 Low Grid Voltage Limit | | | | м | anual | | | | (17.3~762V) | |
| ◯ High Grid Frequency Limit ① | | | (| 50.2 | | | | | | |
| 🔵 Low Grid Frequency Limit 🕕 | O Low Grid Frequency Limit ① | | 49.5 | | | | | | | |
| ○ Sat Enc On /Off | | | | Of | f | | | - | | Ŧ |
| Please Enter Key To | Save | | | | Ye | s | | Ac | Ivanced Set Cance | el |

10.5) High grid voltage limit (voltage upper threshold of grid connection)

| Satting | | ~ |
|--|------------------|--------------------|
| Setting | | ^ |
| ◯ Set Inverter On/Off | Boot 💌 | |
| ◯ Set Time | 2023-07-18 17:58 | 3 |
| 🔿 Mode Switch | Automatic |) |
| High Grid Voltage Limit | 438.2 | (17.3~762V) |
| O Low Grid Voltage Limit | 338.6 | (17.3~762V) |
| 🔿 High Grid Frequency Limit 🕛 | 50.2 | |
| \bigcirc Low Grid Frequency Limit $^{\textcircled{0}}$ | 49.5 | |
| ◯ Set Eps On/Off | Off | |
| ○ Set Eps Frequency | 50Hz - | |
| ◯ Set Eps Voltage | 220V 👻 | |
| ○ Set Save Pf Command | Off | |
| Please Enter Key To Save | Yes A | dvanced Set Cancel |

10.6) Low grid voltage limit (voltage lower threshold of grid connection)

| Setting | × |
|--|-------------------------|
| ◯ Set Inverter On/Off | Boot |
| ◯ Set Time | 2023-07-18 17:58 |
| ○ Mode Switch | Automatic |
| ◯ High Grid Voltage Limit | 438.2 (17.3~762V) |
| Low Grid Voltage Limit | 338.6 (17.3~762V) |
| O High Grid Frequency Limit ① | 50.2 |
| \bigcirc Low Grid Frequency Limit $^{\textcircled{0}}$ | 49.5 |
| ○ Set Eps On/Off | Off |
| ○ Set Eps Frequency | 50Hz 💌 |
| ◯ Set Eps Voltage | 220V 💌 |
| ○ Set Save Pf Command | Off |
| Please Enter Key To Save | Yes Advanced Set Cancel |

10.7) High grid frequency limit (frequency upper threshold of grid connection)

| Setting | × |
|-------------------------------|-------------------------|
| O Mode Switch | Automatic |
| ◯ High Grid Voltage Limit | 438.2 (17.3~762V) |
| ○ Low Grid Voltage Limit | 338.6 (17.3~762V) |
| ● High Grid Frequency Limit ① | 50.5 |
| O Low Grid Frequency Limit ① | 47.5 |
| ○ Set Eps On/Off | Off |
| ○ Set Eps Frequency | 50Hz 💌 |
| ○ Set Eps Voltage | 220V 💌 |
| ○ Set Save Pf Command | Off |
| ○ AC Charing Power ① | 0 % Not Memory * |
| Please Enter Key To Save | Yes Advanced Set Cancel |

10.8) Low grid frequency limit (frequency lower threshold of grid connection)

| Setting | × |
|-------------------------------|-------------------------|
| 🔿 Mode Switch | Automatic |
| O High Grid Voltage Limit | 438.2 (17.3~762V) |
| O Low Grid Voltage Limit | 338.6 (17.3~762V) |
| 🔿 High Grid Frequency Limit 🕛 | 50.5 |
| ● Low Grid Frequency Limit ① | 47.5 |
| O Set Eps On/Off | Off |
| ○ Set Eps Frequency | 50Hz 💌 |
| ○ Set Eps Voltage | 220V 💌 |
| ○ Set Save Pf Command | Off 💌 |
| O AC Charing Power ① | 0 % Not Memory 🔻 |
| Please Enter Key To Save | Yes Advanced Set Cancel |

10.9) Set off-grid mode on/off: you can set whether to operate the inverter in the off-grid mode

| Setting | | | × |
|-------------------------------|------|---------------------|---|
| ◯ High Grid Frequency Limit ① | 50.5 | | * |
| 🔿 Low Grid Frequency Limit 🕛 | 47.5 | | |
| Set Eps On/Off | Off | | |
| ○ Set Eps Frequency | On | | |
| ○ Set Eps Voltage | Off | | |
| ○ Set Save Pf Command | Off | - | |
| ○ AC Charing Power ① | 0 | % Not Memory 💌 | |
| ○ Charge Stopped Soc ① | 100 | % | |
| ○ Ac Charge ① | Off | • | |
| ○ AC Discharge Power ① | 100 | % Not Memory 💌 | |
| | (10 | 0/ | * |
| Please Enter Key To Save | Yes | Advanced Set Cancel | |

10.10) Off-grid frequency: two options are available: 50Hz/60Hz

| etting | | |
|---|------|----------------|
| O High Grid Frequency Limit ① | 50.5 | |
| \bigcirc Low Grid Frequency Limit $\textcircled{0}$ | 47.5 | |
| ○ Set Eps On/Off | Off | T |
| Set Eps Frequency | 50Hz | |
| ◯ Set Eps Voltage | 50Hz | |
| O Set Save Pf Command | 60Hz | |
| ○ AC Charing Power ① | 0 | % Not Memory 💌 |
| ○ Charge Stopped Soc ① | 100 | % |
| ○ Ac Charge ① | Off | W |
| ○ AC Discharge Power ① | 100 | % Not Memory 💌 |
| | 10 | 0/ |

10.11) Off-grid voltage: you can set the value to 220V/230V/240V/277V/127V

| Setting | | |
|--|------|--------------|
| ◯ High Grid Frequency Limit ① | 50.5 | |
| \bigcirc Low Grid Frequency Limit $^{(0)}$ | 47.5 | |
| ○ Set Eps On/Off | Off | • |
| ○ Set Eps Frequency | 50Hz | • |
| Set Eps Voltage | 220V | |
| ○ Set Save Pf Command | 220V | |
| ○ AC Charing Power ① | 230V | % Not Memory |
| ○ Charge Stopped Soc ① | 277V | % |
| ◯ Ac Charge ① | 127V | |
| ○ AC Discharge Power ① | 100 | % Not Memory |
| | 10 | 0/ |

10.12) Save the PF Command: you can set whether to save the PF command setting

| Setting | × |
|--|-------------------------|
| ◯ High Grid Frequency Limit ^① | 50.5 |
| \bigcirc Low Grid Frequency Limit $^{(1)}$ | 47.5 |
| ◯ Set Eps On/Off | Off |
| ○ Set Eps Frequency | 50Hz 💌 |
| ○ Set Eps Voltage | 220V 💌 |
| Set Save Pf Command | Off |
| ○ AC Charing Power ① | On X Not Memory |
| ○ Charge Stopped Soc ① | Off % |
| ◯ Ac Charge ① | Off |
| ○ AC Discharge Power ① | 100 % Not Memory |
| | 10. 0/ |
| Please Enter Key To Save | Yes Advanced Set Cancel |

10.13) AC charging power: you can set the inverter's maximum output power

| etting | | | | |
|----------------------------|----|------------|--------------------------------|-----|
| O Set Eps Frequency | | 50Hz | • | |
| ○ Set Eps Voltage | | 220V | • | |
| O Set Save Pf Command | | Off | • | |
| AC Charing Power ① | | 20 | % Not Memory | |
| ○ Charge Stopped Soc ① | | 100 | % Not Memory | / |
| 🔵 Ac Charge 🕕 | | On | Memory | |
| ○ AC Discharge Power ① | | 10 | % Not Memory | • |
| O Discharge Stopped Soc ① | | 10 | % | |
| ○ Set Reactive Power Ratio | 1 | Pf Fixed 1 | Not Memory | · - |
| ○ Set Exportlimit | On | ▼ 0.0 | Limit Power Rate | (%) |
| ○ SingleExport ① | | Off | - | |

10.14) Charge cutoff SOC: you can set the battery charge cutoff SOC (100 is recommended)

| • 5 | Setting | | | | × |
|-----|----------------------------|------|------------|---------------------|---|
| | ○ Set Eps Frequency | | 50Hz | | - |
| | ○ Set Eps Voltage | | 220V | | |
| | ○ Set Save Pf Command | | Off | | |
| | ○ AC Charing Power ① | | 20 | % Not Memory 💌 | |
| | Charge Stopped Soc ① | | 100 | % | |
| | ○ Ac Charge ① | | On | | |
| | ○ AC Discharge Power ① | | 10 | % Not Memory 🔻 | |
| | ○ Discharge Stopped Soc ① | | 10 | % | |
| | ○ Set Reactive Power Ratio | 1 | Pf Fixed 1 | Not Memory | |
| | ○ Set Exportlimit | On 🔻 | 0.0 | Limit Power Rate(%) | |
| | SingleExport ① | | Off | | ÷ |
| | Please Enter Key To Save | | Yes | Advanced Set Cancel | |

10.15) Enable AC charging:

| • Setting | | × |
|----------------------------|-------------------------|---|
| ○ AC Charing Power ① | 20 % Not Memory 💌 | |
| ○ Charge Stopped Soc ① | 100 % | |
| Ac Charge | On | |
| ○ AC Discharge Power ① | On % Not Memory 💌 | |
| O Discharge Stopped Soc ① | Off | |
| O Set Reactive Power Ratio | Pf Fixed 1 Not Memory | |
| O Set Exportlimit On | 0.0 Limit Power Rate(%) | |
| ◯ SingleExport ① | Off | |
| ◯ Set Pf Value | 1.0 (-1~1) | |
| ○ Charge Max Current | 100.0 (0~200A) | |
| O Discharge Max Current | 100.0 (0~200A) | |
| Please Enter Key To Save | Yes Advanced Set Cancel | |

10.16) AC discharge power: you can set the battery discharge power

| Setting | | | | > |
|----------------------------|------|------------|---|--------------------|
| ○ AC Charing Power ① | | 20 | 9 | Not Memory |
| ○ Charge Stopped Soc ① | | 100 | 9 | 6 |
| 🔿 Ac Charge 🕕 | | On | • | |
| AC Discharge Power ① | | (10 | 9 | Not Memory |
| ◯ Discharge Stopped Soc ① | | 10 | 9 | 6 |
| ◯ Set Reactive Power Ratio | 1 | Pf Fixed 1 | • | Not Memory 💌 |
| ○ Set Exportlimit | On 💌 | 0.0 | L | imit Power Rate(%) |
| ○ SingleExport ① | | Off | • | |
| ○ Set Pf Value | | 1.0 | (| -1~1) |
| ○ Charge Max Current | | 100.0 | (| 0~200A) |
| O Discharge Max Current | | 100.0 | (| 0~200A) |

10.17) Discharge cutoff SOC: you can set the battery discharge cutoff SOC (10 is recommended)

| Setting | × |
|--------------------------|-------------------------|
| ○ AC Charing Power ① | 20 % Not Memory 💌 |
| ○ Charge Stopped Soc ① | 100 % |
| ○ Ac Charge ① | On 💌 |
| ○ AC Discharge Power ① | 10 % Not Memory 💌 |
| Discharge Stopped Soc ① | 10 % |
| Set Reactive Power Ratio | Pf Fixed 1 Not Memory |
| O Set Exportlimit On | 0.0 Limit Power Rate(%) |
| ◯ SingleExport ① | Off |
| ◯ Set Pf Value | 1.0 (-1~1) |
| O Charge Max Current | 100.0 (0~200A) |
| O Discharge Max Current | 100.0 (0~200A) |
| Please Enter Key To Save | Yes Advanced Set Cancel |

10.18) Set Reactive Power: you can set the corresponding PF mode and select whether to save the configured values

| • Setting | | | × |
|---|----|----------------------------|---|
| ○ AC Discharge Power ① | | 10 | 70 Not Memory |
| Discharge Stopped Soc ① Set Reactive Power Ratio | 1 | 10 Pf Fixed 1 | % Not Memory |
| 🔘 Set Exportlimit | On | Pf Fixed 1 | _imit Power Rate(%) |
| ◯ SingleExport ① | | Set Pf Default Pf Lin | e |
| ◯ Set Pf Value | | (Capa)Reactiv | re P Rate (-1~1) |
| 🔿 Charge Max Current | | (Inda)Reactive | e ^{p Rate} (<mark>0</mark> ~200A) |
| O Discharge Max Current | | Qv Model Positive and r | (<mark>0</mark> ~200A) negativ |
| O Equalization Voltage () | | 900.0 | (600~1000V) |
| ◯ EOD Voltage ① | | 600.0 | (600~1000V) |
| | | Point 1 (Powerpercent,P | flinepoint) 0 -1.0 |
| | | Doint 2 /Dowornorcont D | flinonsint) a |
| Please Enter Key To Sav | re | Yes | Advanced Set Cancel |

10.19) Export Limitation: You can enable/disable the export limitation function according to the local applicable regulations and set the export limit power rate if it is enabled

| • tting () AC Discharge Power () | | (10 | 70 Not Memory | τ, |
|--|-----|-------------------------|---------------------|-------|
| O Discharge Stopped Soc ① | | 10 | % | |
| O Set Reactive Power Ratio | 1 | Pf Fixed 1 | Not Memory | • |
| Set Exportlimit | On | A)(0.0 | Limit Power Rate(%) | |
| ○ SingleExport ① | On | Off | • | |
| ◯ Set Pf Value | Off | 1.0 | (-1~1) | |
| 🔿 Charge Max Current | | 160.0 | (0~200A) | |
| O Discharge Max Current | | 160.0 | (0~200A) | |
| O Equalization Voltage ① | | 900.0 | (600~1000V) | |
| 🔵 EOD Voltage 🕕 | | 600.0 | (600~1000V) | |
| | | Point 1 (Powerpercent,P | flinepoint) 0 -1.0 | |
| Please Enter Key To Si | ave | Yes | Advanced Set C | ancel |

10.20) Single-phase Export Limitation

| Setting | | × |
|-----------------------------|----------------------------------|-------------------------|
| ○ AC Discharge Power ① | 10 | Not Memory |
| ○ Discharge Stopped Soc ① | 10 | % |
| O Set Reactive Power Ratio | Pf Fixed 1 | Not Memory 🔻 |
| ○ Set Exportlimit | n 🔻 0.0 | Limit Power Rate(%) |
| ● SingleExport ① | Off | \mathbf{E} |
| ○ Set Pf Value | On | (·1~1) |
| ○ Charge Max Current | Off | (<mark>0</mark> ~200A) |
| O Discharge Max Current | 160.0 | (0~200A) |
| 🔵 Equalization Voltage 🕛 | 900.0 | (600~1000V) |
| ○ EOD Voltage ① | 600.0 | (600~1000V) |
| | Point 1 (Powerpercent,Pflinepoir | nt) 0 -1.0 |
| Please Enter Key To Save | Yes | Advanced Set Cancel |

10.21) Set PF value: you can set the PF value, ranging from -1 to 1.

| • S | etting | | | × |
|-----|----------------------------|---------|-----------------------------|---------------------|
| | () AC Discharge Power () | | 10 | >> Not Memory |
| | ◯ Discharge Stopped Soc ① | | 10 | % |
| | ○ Set Reactive Power Ratio | 1 | Pf Fixed 1 | Not Memory 📼 |
| | ◯ Set Exportlimit | On 🔻 | 0.0 | Limit Power Rate(%) |
| | ◯ SingleExport ① | | Off 🔹 | |
| [| Set Pf Value | | 1.0 | (-1~1) |
| | ○ Charge Max Current | | 160.0 | (0~200A) |
| | O Discharge Max Current | | 160.0 | (0~200A) |
| | O Equalization Voltage 🕕 | | 900.0 | (600~1000V) |
| | ○ EOD Voltage ① | | 600.0 | (600~1000V) |
| | | Point | l (Powerpercent,Pflinepoint | 0 -1.0 |
| | | Doint ' | /Dowornorcont Dflinonoint | 10 10 |
| | Please Enter Key To Save | | Yes A | dvanced Set Cancel |

10.22) Charge Max. Current: you can set the battery maximum charge current

| Setting | | | × |
|----------------------------|---------|---------------------------|---------------------|
| () AC Discharge Power () | | 10 | >> Not Memory |
| O Discharge Stopped Soc ① | | 10 | % |
| O Set Reactive Power Ratio | 1 | Pf Fixed 1 | Not Memory 💌 |
| ○ Set Exportlimit | On 🔻 | 0.0 | Limit Power Rate(%) |
| ○ SingleExport ① | | Off | |
| ○ Set Pf Value | | 1.0 | (-1~1) |
| Charge Max Current | | 160.0 | (0~200A) |
| 🔿 Discharge Max Current | | 160.0 | (0~200A) |
| C Equalization Voltage () | | 900.0 | (600~1000V) |
| ◯ EOD Voltage ① | | 600.0 | (600~1000V) |
| | Point 1 | (Powerpercent,Pflinepoint | 0 -1.0 |
| Please Enter Key To Save | Doint ' | Yes A | dvanced Set Cancel |

10.23) Discharge Max. Current: you can set the battery maximum discharge current

| Set Exportlimit | On | • 0.0 | Limit Pow | er Rate(%) | |
|-------------------------------------|----|-------------------------|----------------------|----------------|----|
| ○ SingleExport ① | | Off | • | | |
| ◯ Set Pf Value | | 1.0 | (-1~1) | | |
| 🔵 Charge Max Current | | 160.0 | (0~200A) | | |
| Discharge Max Current | | 160.0 | (0~200A) | | |
| C Equalization Voltage ① | | 900.0 | (600~100 | 0V) | |
| 🔵 EOD Voltage 🕕 | | 600.0 | (600~100 | (600~1000V) | |
| | Pe | oint 1 (Powerpercent,Pf | linepoint) 0 | -1.0 | |
| | Pe | oint 2 (Powerpercent,Pf | linepoint) 0 | -1.0 | |
| Custom Pf Curve | Po | oint 3 (Powerpercent,Pf | linepoint) 0 | -1.0 | |
| | Po | oint 4 (Powerpercent,Pf | linepoint) 0 | -1.0 | |
| | | Pe | owerpercent (0~100); | Pflinepoint (- | 1~ |

10.24) Equalization voltage: you can set the battery maximum charge voltage

| 0.0 Off | Limit Power Ra (-1~1) | ite(%) |
|-----------------------------|--|---|
| Off • | (-1~1) | |
| 1.0 | (-1~1) | |
| 160.0 | | |
| | (0~200A) | |
| 160.0 | (0~200A) | |
| 950.0 | (600~1000V) | |
| 600.0 | (600~1000V) | |
| (Powerpercent,Pflinepoint) | 0 | -1.0 |
| (Powerpercent, Pflinepoint) | 0 | -1.0 |
| (Powerpercent,Pflinepoint) | 0 | -1.0 |
| (Powerpercent,Pflinepoint) | 0 | -1.0 |
| Powerperc | ent (0~100); Pflin | epoint (-1~ |
| ł | (Powerpercent,Pflinepoint) (Powerpercent,Pflinepoint) Powerperce | (Powerpercent,Pflinepoint) 0 (Powerpercent,Pflinepoint) 0 Powerpercent (0~100); Pflin |

10.25) EOD voltage: you can set the battery discharge cutoff voltage

| ating | | | | |
|--------------------------|-------|------------------------------|--------------------|--------------|
| ○ Set Exportlimit | On 🔻 | 0.0 | Limit Power Ra | ate(%) |
| SingleExport ① | | Off 🔹 | | |
| Set Pf Value | | 1.0 | (-1~1) | |
| O Charge Max Current | | 160.0 | (0~200A) | |
| O Discharge Max Current | | 160.0 | (0~200A) | |
| C Equalization Voltage ① | | 950.0 | (600~1000V) | |
| ● EOD Voltage ① | | 600.0 | (600~1000V) |] |
| | Point | 1 (Powerpercent,Pflinepoint) | 0 | -1.0 |
| | Point | 2 (Powerpercent,Pflinepoint) | 0 | -1.0 |
| Custom Pf Curve | Point | 3 (Powerpercent,Pflinepoint) | 0 | -1.0 |
| | Point | 4 (Powerpercent,Pflinepoint) | 0 | -1.0 |
| | | Powerperce | ent (0~100); Pflir | nepoint (-1- |

10.26) Customized PF curve: you can set the power percentage and the power factor for each point of the PF curve

| Setting | | | × |
|--------------------------|---------|----------------------------|----------------------------------|
| ○ Set Exportlimit | On 💌 | 0.0 | Limit Power Rate(%) |
| ○ SingleExport ① | | Off 💌 | |
| ◯ Set Pf Value | | 1.0 | (-1~1) |
| 🔿 Charge Max Current | | 160.0 | (0~200A) |
| O Discharge Max Current | | 160.0 | (0~200A) |
| ○ Equalization Voltage ① | | 950.0 | (600~1000V) |
| 🔵 EOD Voltage 🕕 | (| 600.0 | (600~1000V) |
| | Point 1 | (Powerpercent,Pflinepoint) | 0 -1.0 |
| | Point 2 | (Powerpercent,Pflinepoint) | 0 -1.0 |
| Custom Pf Curve | Point 3 | (Powerpercent,Pflinepoint) | 0 -1.0 |
| | Point 4 | (Powerpercent,Pflinepoint) | 0 -1.0 |
| | | Powerperce | ent (0~100); Pflinepoint (-1~1); |

Meter

| ice | | Dashboard | Energy Home energy | v Log Setting | | | |
|--|---|---|--|---|----------------|--------------------------------|------------------------------|
| Location: Dashboard>Photovoltaic Device>Meter | | | | | | | |
| ovoltaic Device | | | | | | | |
| Power | | | 💥 Generati | on | | 🗞 Revenue | |
| 15.2 Current Power(HM) | 63 Rated Power(RW) | 52.5 Today(kWh) | 934.9 This Month(kWh) | 3555221.5 Total(KWH) | 63 Today(¥) | 1121.9 This Month(¥) | 4266266 Total(V) |
| | | | | | | | |
| 2 Cutor Turner | | | | | 1 Device | Serial Number Or Alias: | Search |
| 2 CHNT THREE 3 (1) Data Looper: G0LOCKL | 005 Connection status: N | ormai Uodate Time | : 2023-09-14 15:23:39 | Mailina Address: 1 | 1 Device | Serial Number Or Alias: | Search |
| 2 CHNT THREE 3 (1) Data Logger: GXLOCKL | 4 Connection status: N Plant Name: 志知室说 | ormal Update Time 會次編 Raillog: | : 2023-09-14 15:23:39 | Mailing Address: 1 Power Factor: 0.39 | 1 Device | Serial Number Or Alias: | Search |
| 2 CHNT THREE 3 (1) User Name: 125967814 Attive Power(W): -5436 | 4 Connection status: N : Plant Name: 武功変現 5 Reactive Power(Var): - | ormal Update Time 會力編 Ralliog: 22404.0 Apparent Por | : 2023-09-14 15:23:39 wer(VA): 2873.2 | Mailing Address: 1 Power Factor: 0.39 Active Energy(kWh): 12022.2 | 1 Device | Serial Number Or Allas: | Search BE History Data |

- 1) Enter the serial number of the meter or the datatlogger to search for the desired meter
- 2) Meter type
- 3) The datalogger worked in conjunction with the meter
- 4) Status of the meter
- 5) The serial number of the WIT inverter to which the meter is connected

System Maintenance 9

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;
- 2) Check the ventilation and heat dissipation of the equipment regularly. For details, see Section 9.1.2.

9.1.2 Fan Maintenance

| DANGER | Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual local regulations. Before performing any operation, disconnect all power supplies and wait for 5 minutes until the residual voltage is completely discharged. |
|---------|--|
| WARNING | 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 Position of the fan fixing plate

3> Disconnect the fan connector, remove the fan fixing plate with a screwdriver, and remove the fan, as shown in Fig 9.2:



Fig 9.2 Position of the fan

NOTE:

① WIT 28-55K-A-US L2 and WIT 28-55K-H-US L2 models have five external fans;
 ② WIT 28-55K-AU-US L2 and WIT 28-55K-HU-US L2 models have seven external fans;

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 brush 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 cable tie.
- (5) Reinstall the fan, the fan fixing plate, and the WIT Inverter.

9.2 Troubleshooting

| | It must be operated by trained and professional electrical |
|----------|--|
| ^ | technicians. Technicians must observe instructions in this |
| | manual and local regulations. |
| | • If the WIT Inverter reports the "PV Isolation low" alarm, do not |
| | touch the equipment as a ground fault might have occurred. |
| DANGER | • Beware of high voltages which can cause electric shocks. |

9.2.1 Warning

Warnings indicate abnormal situations of WIT 28-55K-US L2 Storage/Hybrid Inverters, leading to a reduction in the output power. The warning sign will disappear once the fault is rectified by restarting the inverter or reconfiguring 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 | Check the wiring of the string terminals after shutdown. If the error message persists, contact Growatt support. |
| Warning 202 | 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. |
| Warning 204 | Dryconnect function abnormal | 1.After shutdown,Check the dry Dryconnect wiring. 2.If the error message still exists, contact Growatt support. |
| Warning 205 | PV Boost driver abnormal | 1. Restart the inverter. 2. If the error message persists, contact Growatt support. |

Table 9.1Warning codes

| Warning | Description | Suggestion |
|-------------|--|--|
| Warning 206 | AC SPD function abnormal | 1. After shutdown, check the AC SPD. 2. If the fault persists, contact Growatt. |
| Warning 207 | U disk over-current protection | 1.unplug the U disk. 2.Re-access U disk after shutdown. 3.If the error message still exists, contact Growatt support. |
| Warning 208 | DC fuse blows | Power off the system and check the fuse. If the fault persists, contact Growatt. |
| 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. |
| Warning 210 | PV string is reversely connected | Check the polarity of the PV terminals. If the error message persists, contact Growatt support. |
| Warning 217 | BDC Abnormal | 1.Restart inverter. 2.If error message still exists,contact Growatt support. |
| Warning 218 | BDC Bus DisConnect | 1.Restart inverter. 2.If error message still exists,contact Growatt support. |
| Warning 219 | PID function abnormal | Restart the inverter. 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 | Description | Suggestion |
|-------------|---|---|
| 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 | Check if the grid is down. 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 304 | CT Open or Wrong | 1.Check if AC current sensor is connected well 2.If the error message still exists,contact Growatt support. |
| Warning 305 | CT line reversed or Ground fail | Check the L line and N line of SP-CT is reversed or not. 2.If the error message still exists,contact Growatt support. |
| Warning 306 | Communication fault, M3 didn't receive SP-CT data | 1.Check communication wire 2.If error message still exists,contact Growatt support. |
| Warning 307 | Communication fault | 1.Check communication wire 2.If error message still exists,contact Growatt support. |

| Warning | Description | Suggestion |
|-------------|--|---|
| Warning 308 | Meter disconnected | Check if the meter is properly connected. If the error message persists, contact Growatt support. |
| 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 403 | String communication | 1.After shutdown,Check the string panel wiring. 2.If the error message still exists, contact Growatt support. |
| Warning 404 | EEPROM abnormal | 1.Restart inverter. 2.If the error message still exists,contact Growatt support. |
| Warning 405 | DSP and COM firmware version unmatch | 1.Check the firmware version. 2.If the error message still exists,contact Growatt support |
| Warning 406 | Boost module error | 1.Restart inverter. 2.If the error message still exists, contact Growatt support. |

| Warning | Description | Suggestion |
|-------------|---|---|
| Warning 407 | Over-temperature | Restart the inverter. If the error message persists, contact Growatt support. |
| Warning 408 | NTC temperature sensor is broken | Restart the inverter. If the error message persists, contact Growatt support. |
| Warning 409 | Reactive power scheduling No response warning | 1.Check if shinemaster is open. 2.If the error message still exists, contact Growatt support. |
| Warning 410 | CPU Run abnormal | 1. Restart inverter. 2. If the error message still exists, contact Growatt support. |
| Warning 411 | Sync signal abnormal | Check if the sync cable is abnormal. If the error message persists, contact Growatt support. |
| 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 | Description | Suggestion |
|-------------|---|--|
| 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 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 | Restart the inverter. 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 | Description | Suggestion |
|-------------|--|---|
| Warning 600 | DCI bias abnormal | 1.Restart inverter. 2.If the error message still exists,contact Growatt support. |
| Warning 601 | DC component over high in output voltage | Restart the inverter. If the error message persists, contact Growatt support. |
| Warning 602 | Off-grid output voltage is too low | 1.Restart inverter. 2.If the error message still exists, contact Growatt support. |
| Warning 603 | The off-grid output voltage is too high | 1.Restart inverter. 2.If the error message still exists, contact Growatt support. |
| Warning 604 | The off-grid output current is overcurrent | 1.Check whether the load exceeds the inverter specification. 2.Restart inverter,If the error message still exists,contact Growatt support. |
| 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 | The off-grid output is overloaded | Check whether the load exceeds the inverter specification. Restart inverter, If the error message still exists, contact Growatt support. |
| Warning 607 | Abnormal communication alarm with off-grid box | Check and off-grid box communication wiring after shutdown. If the error message still exists,contact Growatt support. |
| Warning 608 | Off-grid box abnormal alarm | Restart inverter. If the error message still exists, contact Growatt support. |

| Warning | Description | Suggestion |
|-------------|--|---|
| Warning 609 | Balanced circuit abnormal | Restart the inverter. If the error message persists, contact Growatt support. |
| Warning 700 | The off-grid box fan is faulty | Check the fan wiring after powering it down. If the error message still exists, contact Growatt support. |
| Warning 701 | The generator started abnormally | Check the generator and wiring after shutdown. If the error message still exists, contact Growatt support. |
| Warning 800 | The ambient temperature /SPS temperature is too high | Check whether the fan is abnormal. Check whether the PID box is properly installed. Check whether the air inlet and outlet of the PID box are unblocked. If the error message persists, contact Growatt support. |
| Warning 801 | PID Boost input overvoltage | Shutdown and restart. If the error message still exists, contact Growatt support. |
| Warning 802 | Fan Abnormal Alarm | Shut down the device and check whether the fan is blocked. If the error messaget 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.

| Error Code | Description | Suggestion |
|------------|---|--|
| Error 200 | 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. |
| Error 201 | An excessively high leakage current has been detected | Restart the inverter. If the error message persists, please contact Growatt support. |
| Error 202 | 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 203 | PV panels have low insulation resistance | Check if the PV strings are properly grounded. If the error message persists, please contact Growatt support. |
| Error 204 | 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. |
| Error 300 | Grid voltage is beyond the permissible range | Check the grid voltage. If the grid voltage is within the permissible range and the error message persists, please contact Growatt support. |
| Error 301 | AC terminals reversed | 1.Check AC terminals 2.If the error message still exists,contact Growatt support. |

Table 9.2 Error codes

| Error Code | Description | Suggestion |
|------------|---|---|
| Error 302 | No utility grid connected or utility grid power failure | After shutdown, check the AC wiring. If the error message persists, please contact Growatt support. |
| Error 303 | 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. |
| Error 304 | 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 305 | Over Load Fault | 1.Check whether output load over range; If load too large, please reduce load 2.If the error message still exists, contact Growatt support. |
| Error 306 | CT LN Reversed | After shutdown, Check the SP-CT connection. If the error message still exists, contact Growatt support. |
| Error 307 | Communication fault, M3 didn't receive SP-CT data | 1.Check communication wire 2.If the error message still exists,contact Growatt support. |
| Error 308 | Communication fault;Pairing time too long | 1.Restart pairing 2.If the error message still exists,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. |
| Error 310 | 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 Code | Description | Suggestion |
|------------|--|--|
| 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 400 | DCI bias abnormal | Restart the inverter. If the error message persists, contact Growatt support. |
| Error 401 | DC Voltage High Fault | 1.Restart inverter. 2.If the error message still exists,contact Growatt support. |
| Error 402 | High DC component in output current | Restart the inverter. If the error message persists, contact Growatt support. |
| Error 403 | Output current unbalance | After shutdown, Check the output current is not balanced. If the error message still exists, 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 406 | Init model fault | 1.Reset mode 2.If the error message still exists,contact Growatt support. |
| Error 407 | AutoTest failure | 1.Restart inverter. 2.If the error message still exists,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 Code | Description | Suggestion |
|------------|---|---|
| Error 410 | Communication board and control panel sampling battery voltage is inconsistent | 1.Restart inverter 2.If the error message still exists, 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 if the temperature sensor module is properly connected. If the error message persists, please 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 417 | Communication protocol mismatch | Restart the inverter. If the error message persists, please contact Growatt support. |
| Error 418 | DSP and COM firmware version mismatch | Check the firmware version. If the error message persists, please contact Growatt support. |
| Error 419 | DSP software and hardware version mismatch | Check the firmware version. If the error message persists, please contact Growatt support. |
| Error 420 | GFCI Module damage | After shutdown, Check the leakage current module. If the error message still exists, contact Growatt support. |
| Error 421 | CPLD abnormal | Restart the inverter. If the error message persists, please contact Growatt support. |

| Error Code | Description | Suggestion |
|------------|---|--|
| 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 424 | INV current abnormal | 1.Restart inverter. 2.If the error message still exists,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 | Restart the inverter. 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 428 | Boost Short Out | 1.contact Growatt support. |
| Error 429 | Bus voltage softstart fail | 1.Restart inverter 2.If the error message still exists, 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 432 | The system battery model is not compatible | 1.Replacing the System Battery Model 2.If the error message still exists, contact Growatt support. |
| Error 433 | The system battery software is not compatible | 1.Update the System Battery Software 2.If the error message still exists, contact Growatt support. |
| Error 434 | High frequency synchronization fault | Check High frequency synchronization cable after shutdown. If the error message still exists,contact Growatt support. |

| Error Code | Description | Suggestion |
|------------|---|--|
| Error 435 | System config fault | 1.Check system config after shutdown 2.If the error message still exists,contact Growatt support. |
| 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 | 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 502 | 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. |
| Error 504 | The battery temperature is beyond the range for charging/discharging | Check the temperature of the battery. If the error message persists, please contact Growatt support. |
| Error 505 | 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 Code | Description | Suggestion |
|------------|--|--|
| 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 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. |
| Error 512 | Off-grid output short- circuited | Restart the inverter. If the error message persists, please contact Growatt support. |
| Error 600 | Off-grid output short circuited | 1.Restart the inverter. 2.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 Code | Description | Suggestion |
|------------|---|---|
| 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. |
| Error 607 | Off-grid output overload | Restart the inverter. 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. |
| Error 609 | The off-grid box is not detected | 1.Check the off-grid box after shutdown to identify the signal wiring 2.If the error message still exists,contact Growatt support. |
| Error 610 | The off grid split phase voltage is abnormal | Powering off the System, Check whether the control relay of off-grid box split phase transformer is abnormal Restart the system. If the fault persists, contact Growatt support. |
| Error 700 | Abnormal communication with the inverter | Check and communicate with the inverter after shutdown If the error message still exists, contact Growatt support. |
| Error 701 | Off-grid box grid-side relay failure | 1.Restart the off-grid box 2.If the error message still exists,contact Growatt support. |
| Error 702 | Off-grid box generator access relay fault | 1.Restart the off-grid box 2.If the error message still exists,contact Growatt support. |

| Error Code | Description | Suggestion |
|------------|--|--|
| Error 703 | Off-grid boxes are overloaded | 1.Restart the off-grid box 2.If the error message still exists,contact Growatt support. |
| Error 704 | Off-grid boxes are overloaded off-grid split-phase | 1.Reduce the load 2.If the error message still exists,contact Growatt support. |
| Error 705 | Overheat inside the off-grid box | 1.Restart the off-grid box 2If the error message still exists,contact Growatt support. |
| Error 800 | PID communication fault | After shutdown, adjust the communication sequence between Master2.0; Check the configurations of Master2.0 port 485. If the error message still exists, contact Growatt support. |
| Error 801 | PID output overcurrent | Check whether PID output is short circuit after shutdown. If the fault information still exists, contact Growatt support. |
| Error 802 | PID output overvoltage | 1.Turn off the AC switch immediately and check whether the PID connection is abnormal. 2.After the restart, if the fault persists, contact Growatt support. |
| Error 803 | SPS Input overvoltage | Check the power grid voltage. If the power grid voltage is restored to the permissible range and the fault persists, contact Growatt support. |
| Error 804 | AC overvoltage/AC undervoltage | Check the power grid voltage. If the power grid voltage is restored to the permissible range and the fault persists, contact Growatt support. |

10 Product Specifications

Table 10.1 WIT 28/35/40/55K-A-US L2 Specification

| Model | WIT 28K-A-US L2 | WIT 35K-A-US L2 | WIT 40K-A-US L2 | WIT 55K-A-US L2 |
|--|---------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Battery data(DC) | | <u> </u> | | |
| Continuous charging / discharging power | 31700W | 39700W | 45300W | 62300W |
| Battery voltage range | | 380\ | /-650V | |
| Max. charging / discharging current | 79A | 99A | 113A | 156A |
| BMS communication | RS485/CAN | | | |
| Types of Battery | | Lithi | um-ion | |
| Input/Output data (AC) | | | | |
| Rated AC input/output power Max.input/output | 28000W/ 28000W 30800VA/ | 35000W/ 35000W 38500VA/ | 40000W/ 40000W 44000VA/ | 55000W/ 55000W 60500VA/ |
| apparent power | 33600VA 42000VA 48000VA 66000VA | | | |
| Rated AC voltage | | 208 | V/220V | |
| AC voltage range | | -15% | ~+10% | |
| Rated AC voltage range | | 50/ | 60 Hz | |
| AC grid frequency range | | 45~55H; | z/55-65 Hz | |
| Rated input/output | 77.8A@208V | 97.2A@208V | 111.1A@208V | 152.8A@208V |
| Current Max_input/output | 73.5A@220V | 91.9A@220V | 105A@220V | 144.4A@220V |
| current | 80.8A@220V | 101A@220V | 115.5A@220V | 158.8A@220V |
| Power factor (@nominal power) | | > | 0.99 | |
| Adjustable power factor | | 1 leading | g ~ 1 lagging | |
| THDi | | < | 3% | |
| AC grid connection type | 3P+PE/3P+N+PE | | | |
| Stand alone (AC power) | | | | |
| Rated AC output power | 28000W | 35000W | 40000W | 55000W |
| Max. AC apparent power | 33600VA | 42000VA | 48000VA | 66000VA |
| Rated AC output voltage | | 120V/1 208V/2 | 27V(L-N) 220V(L-L) | |

| Model | WIT 28K-A-US L2 | WIT 35K-A-US L2 | WIT 40K-A-US L2 | WIT 55K-A-US L2 |
|-------------------------------------|---|--------------------------|--------------------------|----------------------------|
| Rated AC output | 50/60 Hz | | | |
| Max. output current | 93.3A@208V 88.2A@220V | 116.7A@208V 110A@220V | 133.3A@208V 126A@220V | 183.3A@208V 173.2A@220V |
| Voltage accuracy | | 1 | % | |
| Frequency accuracy | | 0.1 | Hz | |
| THDV | | < 3% (Lin | ear load) | |
| Unbalanced load | 1 | 00% three-pha | ase unbalance | d |
| Overload capacity | ≤110%, continuous; 110% ~ 120%:10min >120%, 200ms | | | |
| Efficiency | | | | |
| Max. efficiency | 98.20% | 98.20% | 98.20% | 98.20% |
| Protection devices | | | | |
| Battery reverse protection | Yes | | | |
| AC/DC surge protection | | Yes (C | lass II) | |
| Insulation resistance monitoring | | Ye | 25 | |
| Residual-current monitoring unit | | Ye | 25 | |
| AC short-circuit protection | | Ye | 25 | |
| Anti-islanding protection | | Ye | 25 | |
| Ground fault monitoring | | Ye | 25 | |
| Grid monitoring | | Ye | es | |
| Display and communicati | on | | | |
| Display | | OLED+LED | /WiFi+APP | |
| RS485 | Yes | | | |
| LAN | | Opti | onal | |
| 4G | | Opti | onal | |
| WIFI | | Opti | onal | |

| Model | WIT | WIT | WIT | WIT |
|------------------------------|---|------------------------------|-----------------------------|-------------|
| Specifications | 28K-A-US L2 | 35K-A-US L2 | 40K-A-US L2 | 55K-A-US L2 |
| General data | | | | |
| Dimensions (W /H / D) | 33.5/53.1/20.1 inch (850/1350/510mm) | | | |
| Weight | | 230 |)lb | |
| Operating temperature range | -22°F~+140°F >122°F, derating | | | |
| Noise emission (typical) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) |
| Relative humidity | 0~100% | | | |
| Altitude | ≤13123ft (4000m) | | | |
| Nighttime power consumption | 20W | | | |
| Standby power consumption | | 25 | 0W | |
| Тороlоду | | Transfor | merless | |
| Cooling | | Smart ai | r cooling | |
| Protection degree | | IP66/T | ype 4X | |
| Warranty | | 5/10 years | (Optional) | |
| Standard compliance | | | | |
| Safety | UL 1 | 741:2021, CSA | 22.2 NO107.1-2 | 2016 |
| ЕМС | FCC Part 15 | | | |
| Grid connection standards | IEEE 1547 | 2018, IEEE154: UL 1741 SA | 47.1:2020, HEC A/SB:2020 | O Rule 14, |

Table 10.2 WIT 28/35/40/55K-H-US L2 Specification

| Model | WIT 28K-H-US L2 | WIT 35K-H-US L2 | WIT 40K-H-US L2 | WIT 55K-H-US L2 |
|---|--|--|--|---|
| | | | | |
| Input data (DC) | | | | |
| Max. recommended PV power | 54000W | 75600W | 86400W | 108000W |
| Max. PV voltage | | 8 | 00V | |
| Start-up voltage | | 1 | 95V | |
| Rated voltage | 360V | | | |
| MPP voltage range | | 180\ | /-550V | |
| Full power MPPT voltage range | | 360\ | /-550V | |
| Max. input current per MPP tracker | 32A | | | |
| Max. short-circuit current per MPP tracker | 40A | | | |
| No. of MPP trackers | 5 | 7 | 8 | 10 |
| No. of PV strings per MPP tracker | | | 2 | |
| Battery data (DC) | | | | |
| Continuous charging / discharging power | 31700W | 39700W | 45300W | 62300W |
| Battery voltage range | | 380\ | /-650V | |
| Max. charging / discharging current | 79A | 99A | 113A | 156A |
| BMS communication | | RS48 | 5/CAN | |
| Types of Battery | | Lithi | um-ion | |
| Input/Output data (AC) | | _ | | |
| Rated AC input/output power | 28000W/ 56000W 28000W/ 30800W | 35000W/ 70000W 35000W/ 38500W | 40000W/ 80000W 40000W/ 44000W | 55000W/ 110000W 55000W/ 60500W |
| Max.input/output apparent power | 30800VA/ 56000VA 30800VA | 38500VA/ 70000VA 38500VA | 44000VA/ 80000VA 44000VA | 60500VA/ 110000VA 60500VA |
| Rated AC voltage | | 208\ | //220V | |
| Rated AC voltage range | | -15% ~ +10% | | |

| Model | WIT 28K-H-US L2 | WIT 35K-H-US L2 | WIT 40K-H-US L2 | WIT 55K-H-US L2 |
|--------------------------------|--|--|--|--|
| AC grid frequency | | 50/ | 60 Hz | |
| AC grid frequency range | | 45~55Hz | :/55-65 Hz | |
| Rated input/output current | 77.8A/155.6 A@208V 73.5A/147A @220V 77.8A@208V 73.5A@220V | 97.2A/194.4A @208V 91.9/183.7A @220V 97.2A@208V 91.9A@220V | 111.1A/222.2 A@208V 105A/210A @220V 111.1A@208V 105A@220V | 152.8A/305.6A @208V 144.4A/288.7A @220V 152.8A@208V 144.4A@220V |
| Max. input/output current | 85.6A/155.6 A@208V 80.8A/147A @220V 85.6A@208V 80.8A@220V | 106.9A/194.4 A@208V 101A/183.7A @220V 106.9A@208V 101A@220V | 122.2A/222.2 A@208V 115.5A/210A @220V 122.2A@208V 115.5A@220V | 1681A/305.6A @208V 158.8A/288.7A @220V 168.1A@208V 158.8A@220V |
| Power factor (@Rated power) | | >(|).99 | |
| Adjustable power factor | | 1 leading | ~ 1 lagging | |
| THDi | | < | 3% | |
| AC grid connection type | | 3P+PE/ | 3P+N+PE | |
| Stand alone (AC power) | 1 | | | |
| Rated AC output power | 28000W | 35000W | 40000W | 55000W |
| Max. AC apparent power | 33600VA | 42000VA | 48000VA | 66000VA |
| Rated AC output voltage | | 120V/1 208W/2 | 27V(L-N) 220V(L-L) | |
| Rated AC output frequency | | 50/ | 60 Hz | |
| Max. output current | 93.3A@208V 88.2A@220V | 116.7A@208V 110A@220V | 133.3A@208V 126A@220V | 183.3A@208V 173.2A@220V |
| Voltage accuracy | | | 1% | |
| Frequency accuracy | | 0. | 1Hz | |
| THDV | | <3% (Lir | near load) | |
| Unbalanced load | | 100% three-ph | ase unbalance | ed |

| Model | WIT 28K-H-US L2 | WIT 35K-H-US L2 | WIT 40K-H-US L2 | WIT 55K-H-US L2 |
|-------------------------------------|---|------------------------|------------------------|--------------------|
| Overload capacity | ≤110%, continuous; 110% ~ 120%:10min >120%, 200ms | | | |
| Efficiency | | | | |
| Max. efficiency | 98.20% | 98.20% | 98.20% | 98.20% |
| MPPT efficiency | 99.90% | 99.90% | 99.90% | 99.90% |
| Protection devices | | | | |
| PV reverse polarity protection | Yes | | | |
| Battery reverse protection | | Ye | 25 | |
| AC/DC surge protection | Yes(Class II) | | | |
| Insulation resistance monitoring | Yes | | | |
| Residual-current monitoring unit | Yes | | | |
| AC short-circuit protection | Yes | | | |
| Anti-islanding protection | | Ye | 25 | |
| Ground fault monitoring | | Ye | 25 | |
| Grid monitoring | | Ye | 25 | |
| String monitoring | | Ye | 25 | |
| Anti-PID function | | Ye | 25 | |
| AFCI protection | | Opti | onal | |
| Display and communicati | on | | | |
| Display | | OLED+LED | /WiFi+APP | |
| RS485 | Yes | | | |
| LAN | | Opti | onal | |
| 4G | Optional | | | |
| WIFI | Optional | | | |
| General data | | | | |
| Dimensions (W /H / D) | | 33.5/53.1 (850/1350 | /20.1 inch)/510mm) | |

| Model | WIT 28K-H-US L2 | WIT 35K-H-US L2 | WIT 40K-H-US L2 | WIT 55K-H-US L2 |
|------------------------------|----------------------------------|--------------------------|------------------------|--------------------|
| Weight | 309 lb | 309 lb | 324 lb | 324 lb |
| Operating temperature range | -22°F~+140°F >122°F, derating | | | |
| Noise emission (typical) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) |
| Relative humidity | | 0~1 | 00% | • |
| Altitude | ≤13123ft (4000m) | | | |
| Nighttime power consumption | 20W | | | |
| Standby power consumption | 250W | | | |
| Тороlоду | | Transfo | rmerless | |
| Cooling | | Smart ai | r cooling | |
| Protection degree | | IP66/T | ype 4X | |
| Warranty | | 5/10 years | (Optional) | |
| Standard compliance | • | | | |
| Safety | UL 1 | 741:2021, CSA | 22.2 NO107.1-2 | 2016 |
| EMC | FCC Part 15 | | | |
| Grid connection standards | IEEE 1547:20 | 18, IEEE1547.1: SA/SB | 2020, HECO Rul 2020 | le 14, UL 1741 |

Table 10.3 WIT 28/35/40/55K-AU-US L2 Specification

| Model | WIT 28K-AU-US L2 | WIT 35K-AU-US L2 | WIT 40K-AU-US L2 | WIT 55K-AU-US L2 | |
|--|--|--|--|--|--|
| Battery data (DC) | | | | | |
| Continuous charging / discharging power | 31700W | 39700W | 45300W | 62300W | |
| Battery voltage range | | 380V-650V | | | |
| Max. charging / discharging current | 79A | 99A | 113A | 156A | |
| BMS communication | | RS48 | 5/CAN | | |
| Types of Battery | | Lithiu | um-ion | | |
| Input/Output data (AC | kc) | | | | |
| Rated AC input/output power | 28000W/ 56000W | 35000W/ 70000W | 40000W/ 80000W | 55000W/ 110000W | |
| Max.input/output apparent power | 30800VA/ 56000VA 30800VA | 38500VA/ 70000VA 38500VA | 44000VA/ 80000VA 44000VA | 60500VA/ 110000VA 60500VA | |
| Rated AC voltage | | 208 | V/220V | | |
| Rated AC voltage range | | -15% | ~+10% | | |
| AC voltage frequency | | 50/ | 60 Hz | | |
| AC voltage frequency range | | 45~55Hz | z/55-65 Hz | | |
| Rated input/output current | 77.8A/155.6A @208V 73.5A/147A @220V 77.8A@208V 73.5A@220V | 97.2A/194.4A @208V 91.9/183.7A @220V 97.2A@208V 91.9A@220V | 111.1A/222.2 A@208V 105A/210A @220V 111.2A@208V 105A@220V | 152.8A/305.6A @208V 144.4A/288.7A @220V 152.8A@208V 144.4A@220V | |
| Max. input/output current | 85.6A/155.6A @208V 80.8A/147A @220V 85.6A@208V 80.8A@220V | 106.9A/194.4 A@208V 101A/183.7A @220V 106.9A@208V 101A@220V | 122.2A/222.2 A@208V 115.5A/210A @220V 122.2A@208V 115.5A@220V | 1681A/305.6A @208V 158.8A/288.7A @220V 168.1A@208V 158.8A@220V | |
| Power factor (@Rated power) | | >0.99 | | | |
| Adjustable power factor | | 1 leading | ı~1 lagging | | |

| Model | WIT 28K-AU-US L2 | WIT 35K-AU-US L2 | WIT 40K-AU-US L2 | WIT 55K-AU-US L2 |
|--|--|--------------------------|--------------------------|----------------------------|
| THDI | <3% | | | |
| AC grid connection type | 3P+PE/3P+N+PE | | | |
| Backup power (AC) | | | | |
| Rated AC output power | 28000W | 35000W | 40000W | 55000W |
| Max. AC apparent power | 33600VA | 42000VA | 48000VA | 66000VA |
| Rated AC output voltage | | 208V/ | 220V | |
| Rated AC output frequency | 50/60 Hz | | | |
| Max. output current | 93.3A@208V 88.2A@220V | 116.7A@208V 110A@220V | 133.3A@208V 126A@220V | 183.3A@208V 173.2A@220V |
| Voltage accuracy | 1% | | | |
| Frequency accuracy | | 0.1 | Ηz | |
| THDV | | <3% (Line | arload) | |
| Unbalanced load | 100% three-phase unbalanced | | | |
| Overload capacity | ≤110%, continuous; 110%~120%:10min >120%_200ms | | | |
| Switch time from on- grid to off-grid | | ≤16. | 5ms | |
| Switch time from off- grid to on-grid | | 0n | 15 | |
| Efficiency | | | | |
| Max. efficiency | 98.20% | 98.20% | 98.20% | 98.20% |
| Protection devices | | | | |
| Battery reverse protection | Yes | | | |
| AC/DC surge | Yes (Class II) | | | |
| Insulation resistance monitoring | Yes | | | |
| Residual-current | | Ye | S | |
| AC short-circuit protection | | Ye | S | |

| Model Specifications | WIT 28K-AU-US L2 | WIT 35K-AU-US L2 | WIT 40K-AU-US L2 | WIT 55K-AU-US L2 | |
|--------------------------------|----------------------------------|--------------------------|-------------------------|---------------------|--|
| Display and communic | ation | | | | |
| Display | | OLED+LED | /WiFi+APP | | |
| Rs485 | | Y | es | | |
| LAN | | Opti | onal | | |
| 4G | | Opti | onal | | |
| WIFI | | Opti | onal | | |
| General data | | | | | |
| Dimensions (W /H / D) | | 33.5/53.1 (850/1350 | /20.1 inch)/510mm) | | |
| Weight | | 317 | 7 lb | | |
| Operating temperature range | -22°F~+140°F >122°F, derating | | | | |
| Noise emission (typical) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | |
| Relative humidity | | 0~100% | | | |
| Altitude | ≤13123ft (4000m) | | | | |
| Nighttime power consumption | 20W | | | | |
| Standby power consumption | | 25 | 0W | | |
| Topology | | Transfor | merless | | |
| Cooling | | Smart ai | r cooling | | |
| Protection degree | | IP66/T | ype 4X | | |
| Warranty | | 5/10 years | (Optional) | | |
| Standard compliance | | | | | |
| Safety | UL 1 | 741:2021, CSA | 22.2 NO107.1-2 | .016 | |
| ЕМС | | FCC P | art 15 | | |
| Anti-islanding protection | Yes | | | | |
| Ground fault monitoring | Yes | | | | |
| Grid monitoring | | Ye | es | | |
| Grid connection standards | EEE 1547:201 | 8, IEEE1547.1:2 SA/SB | 2020, HECO Rul 22020 | e 14, UL 1741 | |

Table 10.4 WIT 28/35/40/55K-HU-US L2 Specification

| Model | WIT 28K-HU-US L2 | WIT 35K-HU-US L2 | WIT 40K-HU-US L2 | WIT 55K-HU-US L2 |
|--|---------------------|---------------------|---------------------|---------------------|
| | | | | |
| Input data (DC) | | | | |
| Max. recommended PV power | 54000W | 75600W | 86400W | 108000W |
| Max. PV voltage | | 80 | 0V | |
| Start-up voltage | 195V | | | |
| Rated voltage | | 36 | 0V | |
| MPP voltage range | | 180V- | -550V | |
| Full power MPPT voltage range | | 360V- | -550V | |
| Max. input current per MPP tracker | | 32 | 2A | |
| Max. short-circuit current per MPP tracker | 40A | | | |
| No. of MPP trackers | 5 | 7 | 8 | 10 |
| No. of PV strings per MPP tracker | | 2 | 2 | |
| Battery data (DC) | | | | |
| Continuous charging / discharging power | 31700W | 39700W | 45300W | 62300W |
| Battery voltage range | | 380V- | -650V | |
| Max. charging / discharging current | 79A | 99A | 113A | 156A |
| BMS communication | | RS48 | 5/CAN | |
| Types of Battery | | Lithiu | m-ion | |
| Input/Output data (AC) |) | | | |
| Rated AC input/output | 28000W/ | 35000W/ | 40000W/ | 55000W/ |
| power | 56000W | 70000W | 80000W | 110000W |
| Max.input/output | 30800VA/ | 38500VA/ | 44000VA/ | 60500VA/ |
| apparent power | 30800VA | 38500VA | 44000VA 44000VA | 60500VA |
| Rated AC voltage | | 208V/ | /220V | |
| Rated AC voltage range | | -15% ~ | +10% | |
| AC voltage frequency | | 50/6 | 0 Hz | |

| Model | WIT 28K-HU-US L2 | WIT 35K-HU-US L2 | WIT 40K-HU-US L2 | WIT 55K-HU-US L2 |
|-------------------------------|--|--|--|--|
| AC voltage frequency range | 45~55Hz/55-65 Hz | | | |
| Rated input/output current | 77.8A/155.6A @208V 73.5A/147A @220V 77.8A@208V 73.5A@220V | 97.2A/194.4A @208V 91.9/183.7A @220V 97.2A@208V 91.9A@220V | 111.1A/222.2 A@208V 105A/210A @220V 111.2A@208V 105A@220V | 152.8A/305.6 A@208V 144.4A/288.7 A@220V 152.8A@208V 144.4A@220V |
| Max. input/output current | 85.6A/155.6A @208V 80.8A/147A @220V 85.6A@208V 80.8A@220V | 106.9A/194.4 A@208V 101A/183.7A @220V 106.9A@208V 101A@220V | 122.2A/222.2 A@208V 115.5A/210A @220V 122.2A@208V 115.5A@220V | 168.1A/305.6A @208V 158.8A/288.7 A@220V 168.1A@208V 158.8A@220V |
| Power factor(@Rated power) | | >0 | .99 | |
| Adjustable power factor | 1 leading ~ 1 lagging | | | |
| THDi | | <3 | 8% | |
| AC grid connection type | | 3P+PE/3 | P+N+PE | |
| Backup power (AC) | | | | |
| Rated AC output power | 28000W | 35000W | 40000W | 55000W |
| Max. AC apparent power | 33600VA | 42000VA | 48000VA | 66000VA |
| Rated AC output voltage | | 208V/ | /220V | |
| Rated AC output frequency | | 50/6 | 0 Hz | |
| Max. output current | 93.3A@208V 88.2A@220V | 116.7A@208V 110A@220V | 133.3A@208V 126A@220V | 183.3A@208V 173.2A@220V |
| Voltage accuracy | | 1 | % | |
| Frequency accuracy | | 0.1 | Hz | |
| THDV | | <3%(Line | earload) | |
| Unbalanced load | 1 | 00% three-pha | ase unbalance | d |

| Model Specifications | WIT 28K-HU-US L2 | WIT 35K-HU-US L2 | WIT 40K-HU-US L2 | WIT 55K-HU-US L2 | | |
|--|---|---------------------|---------------------|---------------------|--|--|
| Overload capacity | ≤110%, continuous; 110% ~ 120%:10min >120%, 200ms | | | | | |
| Switch time from on- grid to off-grid | ≤16.6ms | | | | | |
| Switch time from off- grid to on-grid | Oms | | | | | |
| Efficiency | | | | | | |
| Max. efficiency | 98.20% | 98.20% | 98.20% | 98.20% | | |
| MPPT efficiency | 99.90% | 99.90% | 99.90% | 99.90% | | |
| Protection devices | | 4 | | | | |
| PV reverse polarity protection | Yes | | | | | |
| Battery reverse protection | Yes | | | | | |
| AC/DC surge protection | Yes (Class II) | | | | | |
| Insulation resistance monitoring | Yes | | | | | |
| Residual-current monitoring unit | Yes | | | | | |
| AC short-circuit protection | Yes | | | | | |
| Anti-islanding protection | Yes | | | | | |
| Ground fault monitoring | Yes | | | | | |
| Grid monitoring | Yes | | | | | |
| String monitoring | Yes | | | | | |
| AFCI protection | Optional | | | | | |
| Anti-PID function | Yes | | | | | |
| Display and communication | | | | | | |
| Display | OLED+LED/WiFi+APP | | | | | |
| RS485 | Yes | | | | | |
| 4G | Optional | | | | | |

| Model | WIT | WIT | WIT | WIT | |
|--------------------------------|--|--------------|--------------|--------------|--|
| Specifications | 28K-HU-US L2 | 35K-HU-US L2 | 40K-HU-US L2 | 55K-HU-US L2 | |
| LAN | Optional | | | | |
| WIFI | Optional | | | | |
| General data | 1 | | | | |
| Dimensions (W /H / D) | 33.5/53.1/20.1 inch (850/1350/510mm) | | | | |
| Weight | 346 lb | | | | |
| Operating temperature range | -22°F~+140°F >122°F, derating | | | | |
| Noise emission (typical) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | ≤65dB(A) | |
| Relative humidity | 0~100% | | | | |
| Altitude | ≤13123ft (4000m) | | | | |
| Nighttime power consumption | 20W | | | | |
| Standby power consumption | 250W | | | | |
| Topology | Transformerless | | | | |
| Cooling | Smart air cooling | | | | |
| Protection degree | IP66/Type 4X | | | | |
| Warranty | 5/10 years (Optional) | | | | |
| Standard compliance | | | | | |
| Safety | UL 1741:2021, CSA22.2 NO107.1-2016 | | | | |
| EMC | FCC Part 15 | | | | |
| Grid connection standards | IEEE 1547:2018, IEEE1547.1:2020, HECO Rule 14, UL 1741 SA/SB:2020 | | | | |

11 Decommissioning the WIT 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 upstream battery circuit breaker.
- 4> Wait at least 5 minutes before performing operations on it.
- 5> Disconnect the AC output power cables.
- 6> Disconnect the DC input power cables.
- 7> Remove the inverter from the bracket.
- 8> Dispose of the inverter according to local disposal rules.

Warranty 12

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

12.1 Conditions

- Before maintaining the equipment, you will be required to fill in a form to provide information about the product including the date of purchase and installation, the serial number of the WIT Inverter, fault description and other information.
- 2. Return the defective product 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. 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.n provide paid maintenance services after conducting a fault diagnosis if required.

13 Contact Us

If you have technical problems with our products, please contact Growatt for technical support. We require the following information in order to provide you with the necessary assistance:

- 1. Model number of the WIT Inverter
- 2. Serial number of the WIT Inverter
- 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

Growatt USA, Inc.

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