



WIT 50-100K Series Storage Inverter User Manual

Shenzhen Growatt New Energy Co., LTD

4-13F, Building A, Sino-German(Europe) Industrial Park,

Hangcheng Ave, Bao'an District, Shenzhen, China

T: +86 0755 2747 1942

E: service@gStorage Inverter.com

W: www.growatt.com

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1.Introduction

1.1 Overview

This manual is intended to introduce the WIT 50-100K series Storage Inverters manufactured by Shenzhen Growatt New Energy Co.,Ltd. (hereinafter referred to as Growatt) in terms of the installation, operation, commissioning, maintenance and troubleshooting. Please read this manual carefully before using the product, and keep it in a place that is easily accessible to installation, operation and maintenance personnel. The content of these documents is continually reviewed and amended, where necessary. Growatt reserves the right to make changes to the material at any time and without notice.

NOTE:

1. In this manual, the AC-Coupled inverter and Hybrid inverter are collectively referred to as Storage Inverter.
2. The WIT 50-100K-A, WIT 50-100K-H, WIT 50-100K-AE, WIT 50-100K-HE, WIT 50-100K-AU and WIT 50-100K-HU models are hereinafter referred to as WIT 50-100K.

1.2 Intended Audience

Only qualified electrical technicians are allowed to install WIT 50-100K series Storage Inverters. Reading through this manual and observing all the precautions, qualified electrical technicians will be able to properly install, troubleshoot and configure the WIT 50-100K series Storage Inverters. If any questions arise during installation, you can visit www.growatt.com and leave a message. Or you can call our 24-hour service hotline at +86 75527471942.

1.3 Product Description

The WIT 50-100K(380V/400V) series Storage Inverters involve 6 models, totaling 24 products, available in 4 different power capacities: 50KW, 63KW, 75KW, and 100KW. Table 1.1 below shows the product profiles of different models.

Table 1.1 WIT 50-100K series models

WIT 50K-A	AC Coupled Inverter	WIT 50K-H	3-Phase Hybrid Inverter
WIT 63K-A		WIT 63K-H	
WIT 75K-A		WIT 75K-H	
WIT 100K-A		WIT 100K-H	
WIT 50K-AE	AC Coupled Inverter with EPS function	WIT 50K-HE	3-Phase Hybrid Inverter with EPS function
WIT 63K-AE		WIT 63K-HE	
WIT 75K-AE		WIT 75K-HE	
WIT 100K-AE		WIT 100K-HE	
WIT 50K-AU	AC Coupled Inverter with UPS function	WIT 50K-HU	3-Phase Hybrid Inverter with UPS function
WIT 63K-AU		WIT 63K-HU	
WIT 75K-AU		WIT 75K-HU	
WIT 100K-AU		WIT 100K-HU	

2. Safety Precautions

2.1 Safety Instructions

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

Transportation:

	•To prevent personal injury caused by a falling Storage Inverter, be careful when lifting the Storage Inverter because it is heavy.
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Installation:

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

Electrical Connections:

	•Before connecting cables, ensure that the DC switch of the Storage Inverter is OFF, and turn off the switches 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 comply with this manual and local regulations. •High voltage may cause electric shocks and serious injury. Please do not touch a running Storage Inverter. •Do not place inflammable and explosive materials around the Storage Inverter.
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	•Each Storage Inverter must be equipped with an AC circuit breaker. Multiple Storage Inverters cannot connect to the same AC circuit breaker. •Do not connect the load between the Storage 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 Storage Inverter. •Confirm the positive and negative terminals are correctly connected before connecting the PV modules to the Storage Inverter.
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Maintenance and replacement:

	•It must be operated by qualified and trained electrical technicians. Technicians should comply with this manual. •To avoid risks, after turning off the DC and AC switches, wait for at least five minutes before performing any operations. \ •When the LCD screen indicates “PV Isolation low”, do not touch the chassis as a fault may have been detected. •Danger! High Voltage -Electrical Shock Hazard.
	•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:

	•After receiving the Storage Inverter, check that the package is intact. If any damage is found, contact your supplier.
	•The maximum PV input voltage cannot exceed 1100V. The battery input voltage cannot exceed 1000V. •For the Storage 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 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.
	Remind operators to check the instructions before operating or installing the Storage Inverter.

2.3 Label Description

Symbol	Name	Meaning
	High voltage	High voltages exist after the Storage Inverter is powered on. Only qualified and trained electrical technicians are allowed to perform operations.
	Burn warning	Do not touch a running Storage 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 Storage Inverter is powered off. It takes 5 minutes to discharge to the safe voltage.
	Refer to the manual	Remind operators to refer to the manual before installing and operating the Storage Inverter.
	DC	Direct Current.
	AC	Alternating Current.

3. Product Description



In all models, the front view and the bottom view are the same.

3.1 Overview

Front view:

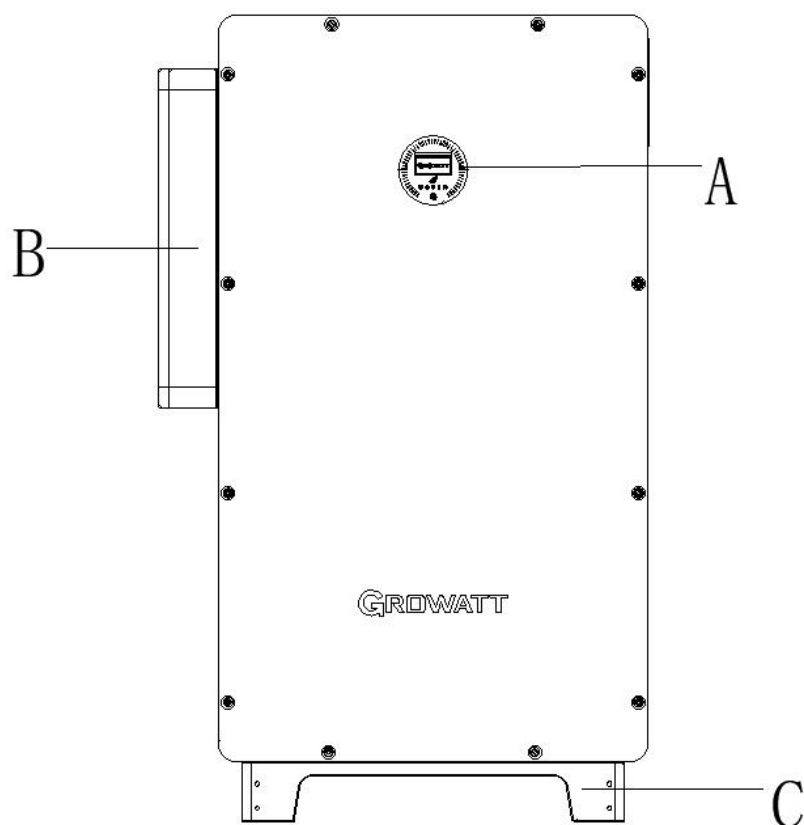


Fig 3.1 Front view

Bottom view:

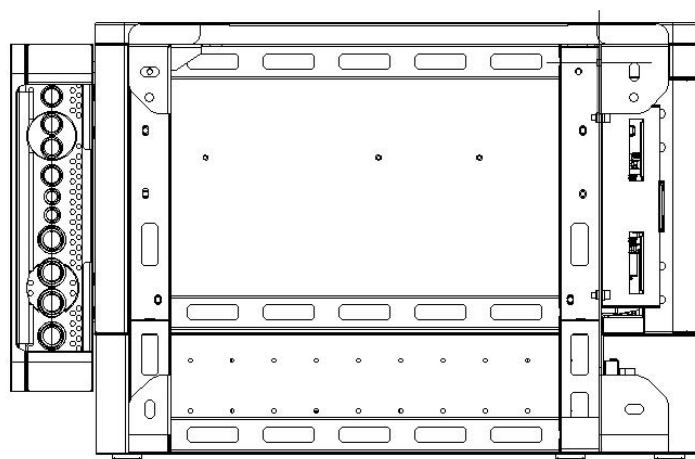


Fig 3.2 Bottom view

Left view:

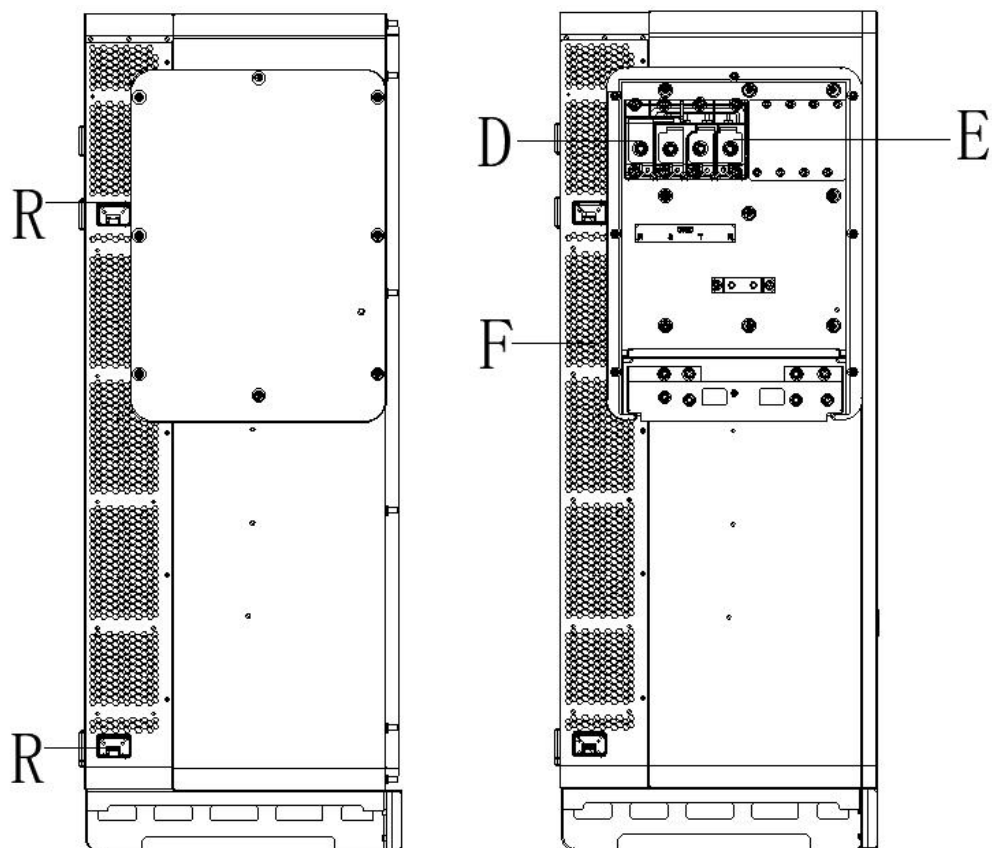


Fig 3.3 WIT 50-100K-A, WIT 50-100K-H Left view

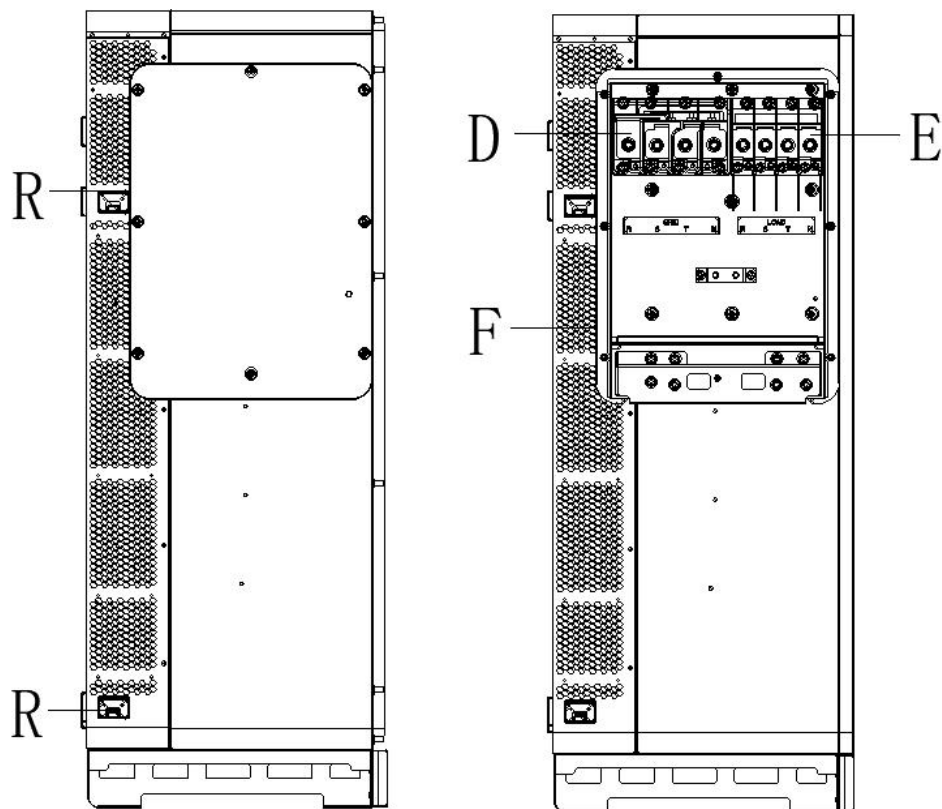


Fig 3.4 WIT 50-100K-AE, WIT 50-100K-AU, WIT 50-100K-HE, WIT 50-100K-HU Left view

Right view:

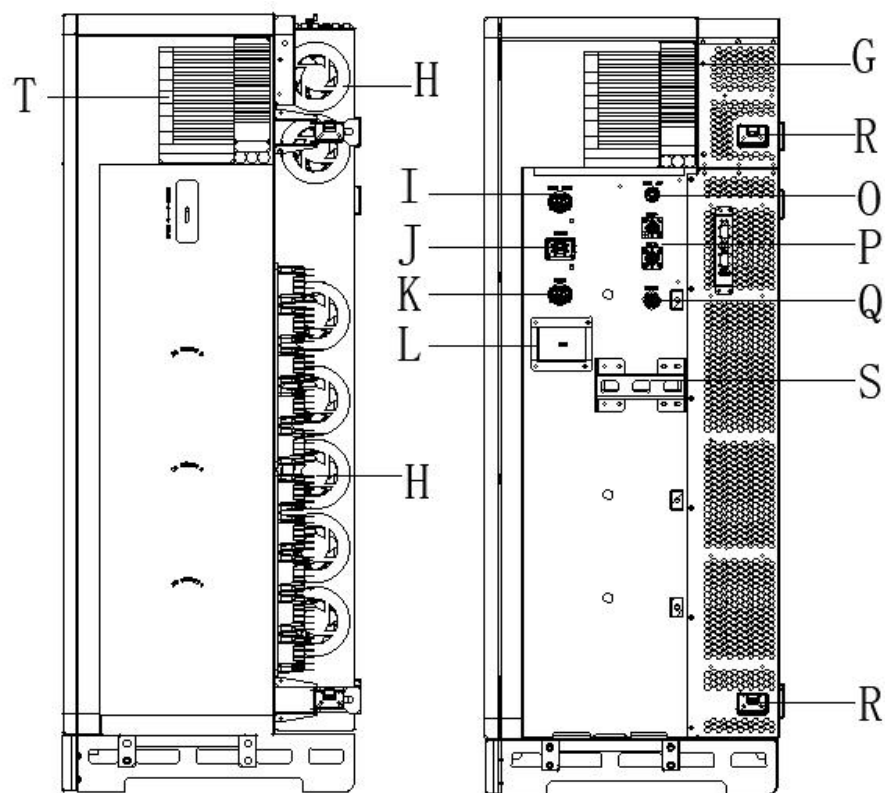


Fig 3.5 WIT 50-100K-A, WIT 50-100K-AE, WIT 50-100K-AU Right view

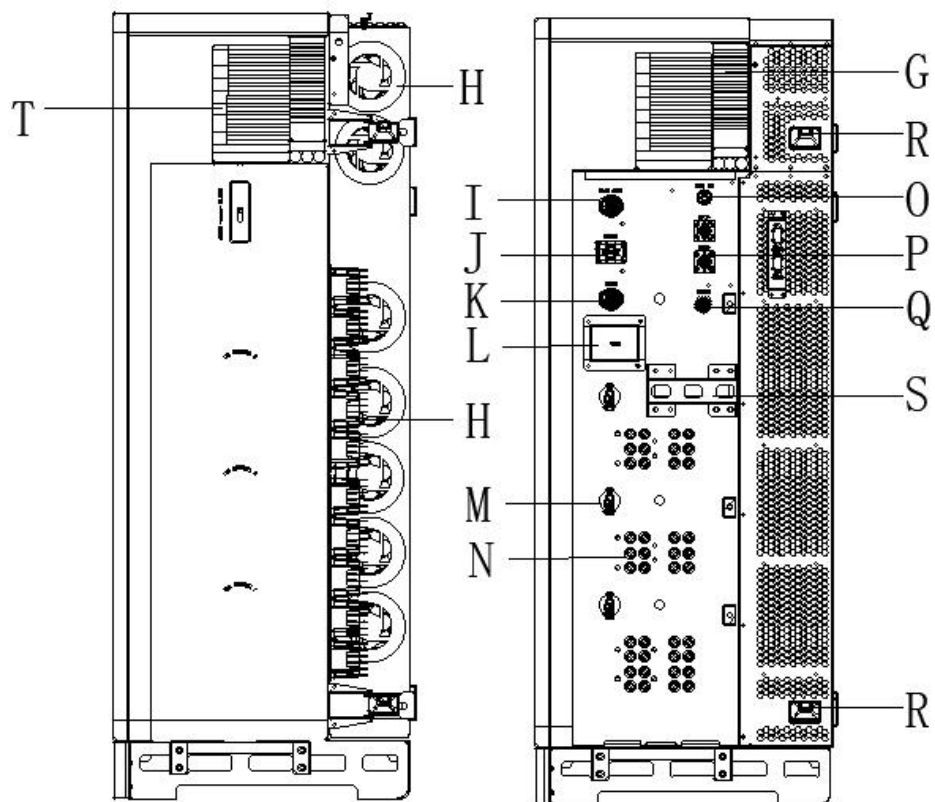


Fig 3.6 WIT 50-100K-H, WIT 50-100K-HE, WIT 50-100K-HU Right view

Table 3.1 Appearance description

No.	Description	No.	Description
A	Display	B	AC junction box
C	Base	D	Power grid connection terminal
E	Load wiring terminal	F	Heat sink
G	Nameplate	H	Fan
I	16-pin terminal (BMS COM)	J	30-pin terminal (COM2)
K	16-pin terminal (COM1)	L	USB interface box
M	DC Switch	N	PV terminal
O	Battery supply terminal (BMS AC)	P	Battery terminal
Q	Network port (DRMS)	R	Flexible handle (4 groups)
S	Fixed handle	T	Display indicating label

3.2 Basic Data

Table 3.2 Dimensions and weight

	Model	Size (mm)			Weight (kg)
		Height	Width	Depth	
Storage Inverters without package	WIT 50/63/75/100K-A	1350	820	510	120/120/120/120
	WIT 50/63/75/100K-H				133/133/140/140
	WIT 50/63/75/100K-AE				130/130/130/130
	WIT 50/63/75/100K-HE				143/143/150/150
	WIT 50/63/75/100K-AU				140/140/140/140
	WIT 50/63/75/100K-HU				153/153/160/160
The Storage Inverters with package	WIT 50/63/75/100K-A	1524	988	733	160/160/160/160
	WIT 50/63/75/100K-H				173/173/180/180
	WIT 50/63/75/100K-AE				170/170/170/170
	WIT 50/63/75/100K-HE				183/183/190/190
	WIT 50/63/75/100K-AU				180/180/180/180
	WIT 50/63/75/100K-HU				193/193/200/200

3.3 Nameplate

 Hybrid Inverter	
Model name	WIT 100K-HE
PV input data	
Max. PV voltage	1100 d.c.V
PV voltage range	180-800 d.c.V
PV Isc	40 d.c.A *10
Max. input current	32 d.c.A *10
AC input/output data	
Nominal input/output power	200/100 kW
Max. input/output apparent power	200/110 kVA
Nominal voltage	3W/N/PE 230/400 a.c.V
Max. input/output current	303/166.7 a.c.A
Nominal frequency	50/60 Hz
Power factor range	1 leading~1 lagging
Stand alone data	
Nominal AC output power	100 kW
Nominal AC output voltage	230/400 a.c.V
Nominal AC output frequency	50/60 Hz
Battery data	
Battery voltage range	600-1000 d.c.V
Max. charging and discharging current	167 d.c.A
Type of battery	Lithium
Others	
Safety level	Class I
Ingress protection	IP66
Operation ambient temperature	-30°C - +60°C
	
 Made in China	

Fig 3.7 Nameplate

NOTE: The nameplates for WIT 50-100K series Storage Inverters have similar content as the nameplate listed above, but the information differs based on different models. For details, see Section 10 Product Specifications.

3.4 Operating Principle

3.4.1 WIT 50-100K-A Operating Principle

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

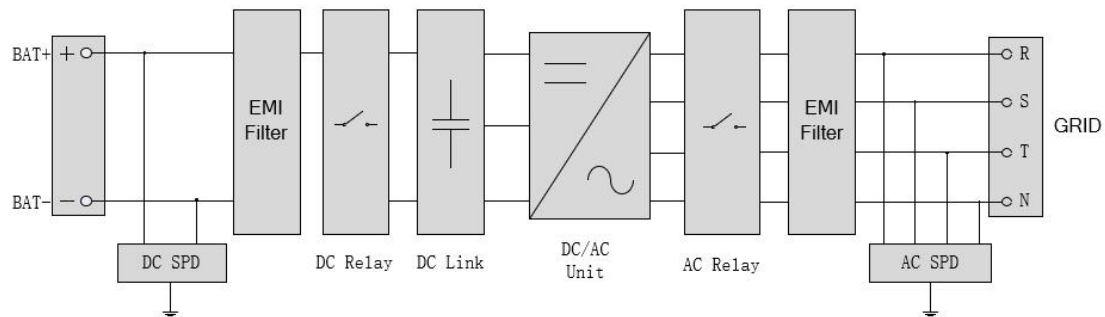


Fig 3.8 WIT 50-100K-A Grid-connected conceptual diagram

3.4.2 WIT 50-100K-H Operating Principle

- 1> The Storage Inverter receives inputs from PV strings which are grouped into 10 MPPT routes. The DC power is then converted into 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 power the loads and export power to the grid;
- 4> Charge the battery from the grid through a rectifier circuit.

NOTE: WIT 50K-H models have 7 MPPT routes, WIT 63K-H models have 8 MPPT routes, WIT 75K-H and WIT 100K-H models have 10 MPPT routes.

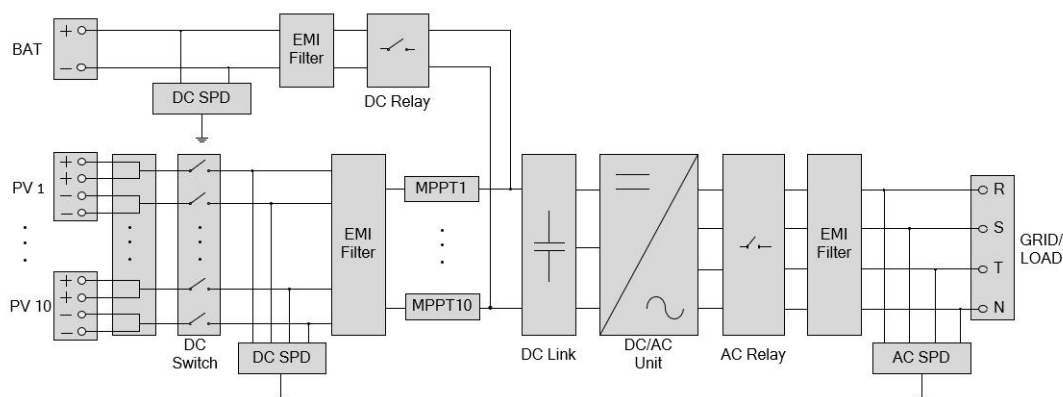


Fig 3.9 WIT 50-100K-H Grid connection system

3.4.3 WIT 50-100K-AE, WIT 50-100K-AU Operating Principle

- 1> Convert battery power to AC power to power the loads and export energy to the grid;
- 2> Charge the battery from the grid through a rectifier circuit;
- 3> Convert the battery power into AC power through the inverter circuit to provide power to critical loads.

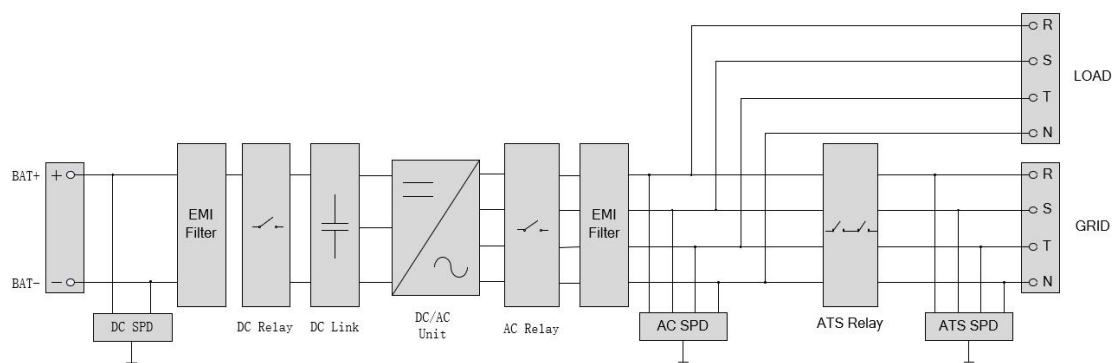


Fig 3.10 WIT 50-100K-AE, WIT 50-100K-AU Grid-connected conceptual diagram

3.4.4 WIT 50-100K-HE, WIT 50-100K-HU Operating Principle

- 1> The Storage Inverter receives inputs from PV strings which are grouped into 10 MPPT routes. The DC power is then converted into AC power through the inverter circuit to power the loads and feed power into the grid;
- 2> The PV strings can supply power to charge the battery through the MPPT routes;
- 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;
- 5> Convert DC input from PV strings and stored charge in the battery into AC power through the three-phase inverter circuit to power critical loads.

NOTE: WIT 50K-HE/-HU models have 7 MPPT routes; WIT 63K-HE/-HU models have 8 MPPT routes; WIT 75K-HE/-HU and WIT 100K-HE/-HU models have 10 MPPT routes.

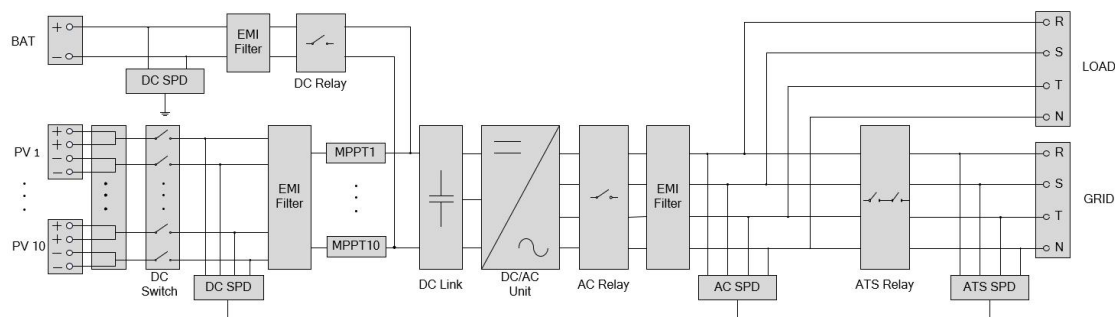


Fig 3.11 WIT 50-100K-HE, WIT 50-100K-HU Grid-connected conceptual diagram

3.5 Storing of the Storage Inverter

- 1> Put the Storage Inverter in the original package and place it in a dry and well-ventilated place.
- 2> Keep the storage temperature from -30°C to $+70^{\circ}\text{C}$ and the humidity from 0%–95% RH.
- 3> A maximum of three Storage Inverters can be stacked. Do not stack the Storage Inverters without package.
- 4> If the Storage Inverter has been long-term stored, inspections and tests should be conducted by qualified personnel before installation.



Wrong time and date may occur if the Storage Inverter has been stored for over one month. Fix the time and date before connecting the Storage Inverter to the grid. For details, see 7.1.2 (Setting the Time and Address of a Storage Inverter).

3.6 Grid Types

Grid connection modes for WIT 50-100K series Storage Inverters, as shown in Figure 3.12.

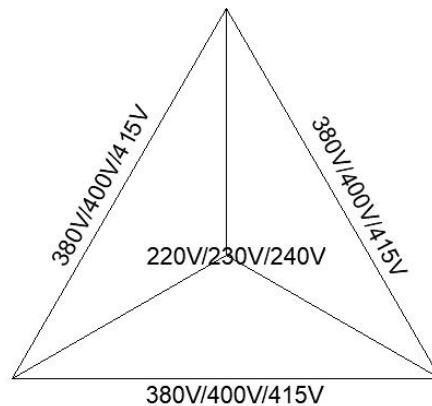


Fig3.12 380V /400V system (type Y/Δ)

3.7 AFCI Detection Function

AFCI (Arc Fault Circuit Interrupter) is a circuit breaker designed to prevent fires by interrupting the circuit when it detects arcs faults. Arc-faults can be a result of loose connection, mechanic damage and aging, and humid environment. The AFCI function of the WIT 50-100K series Storage Inverter is optional, and the detection equipment is assembled inside the Storage Inverter. When an arc-drawing condition is detected on the PV input side, the arc current could be detected by the CT assembled on the PV input-side wire. Then the Storage Inverter will shut down. Meanwhile, the Storage Inverter will display the corresponding fault message and the buzzer will be activated, which could help to avoid harm and economic loss to the user.

NOTE: AFCI function is optional.

3.8 Anti-PID Function

PID stands for Potential Induced Degradation. Due to the PID effect, a large amount of charge could accumulate on the surface of the photovoltaic module, which makes the surface passivation of the module worse. Eventually, the fill factor, open circuit voltage, and short-circuit current of the module are reduced, and the power of the photovoltaic module is attenuated. The Anti-PID function uses the principle of reversible PID changes. WIT 50-100K series Storage Inverters rectify AC voltage or battery voltage at night and boost it to generate a DC voltage. The DC voltage is connected to PV + and the ground respectively. When a positive bias voltage is added to the module to make the PID effect reverse, the Anti-PID function could repair the photovoltaic modules at night and prolong the service life of photovoltaic modules.

NOTE: Anti-PID function is optional.

4. Inspection upon delivery

Unpacking and inspection

1> Before unpacking the Storage Inverter, check the outer packing materials for damage. If any damage is found, contact the shipping company as soon as possible.

2> After unpacking the inverter, check that the contents are intact and complete. If any damage is found or any component is missing, contact your supplier.

Package contents:

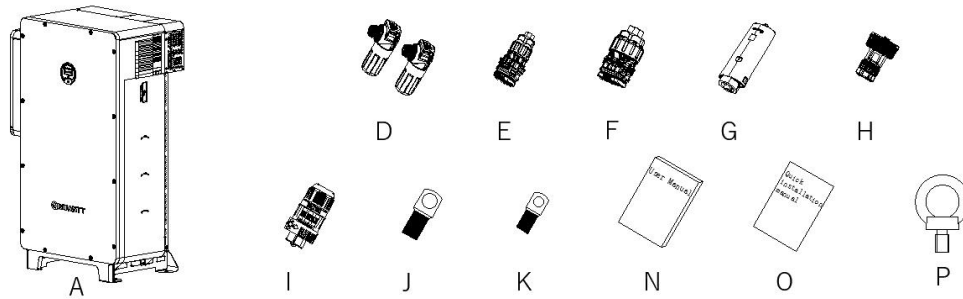


Fig 4.1 WIT 50-100K-A Scope of Delivery

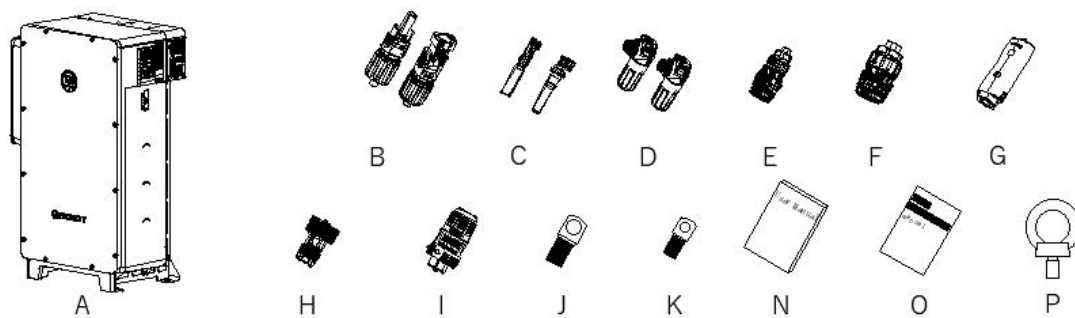


Fig 4.2 WIT 50-100K-H Scope of Delivery

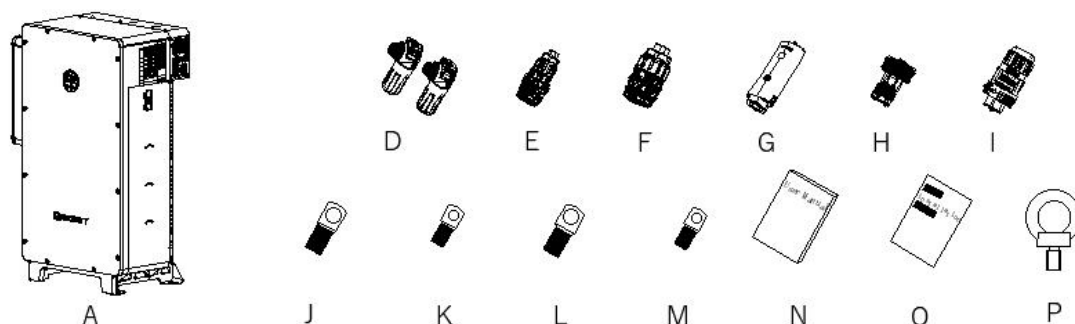


Fig 4.3 WIT 50-100K-AE, WIT 50-100K-AU Scope of Delivery

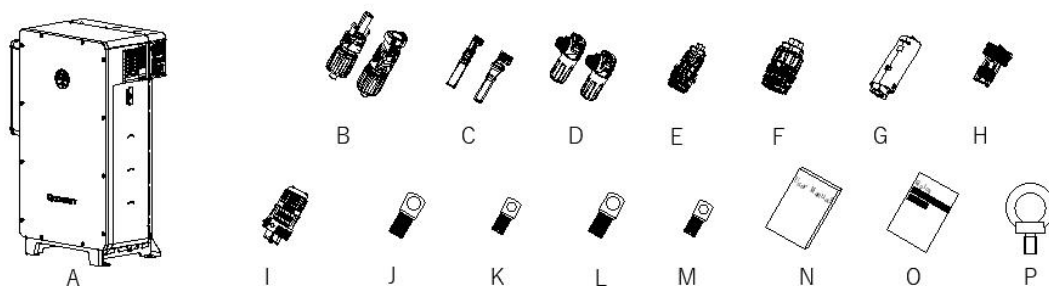


Fig 4.4 WIT 50-100K-HE, WIT 50-100K-HU Scope of Delivery

Table 4.1 Packing list

No.	Description	Quantity
A	Storage Inverter	1
B	PV+ terminal , PV - terminal	20/20
C	PV+ metal terminal, PV- metal terminal	20/20
D	Battery + terminal, battery - terminal	1/1
E	16-pin terminal	2
F	30-pin terminal	1
G	Data logger	1
H	RJ45connector cover	1
I	BMS power supply terminal	1
J	SC70-12	4
K	SC50-8	1
L	SC120-12	4
M	SC70-8	1
N	User manual	1
O	Quick Installation guide	1
P	ring	2

NOTE:

1. Among WIT 50-100K-H, WIT 50-100K-HE, WIT 50-100K-HU models, 14 pairs of PV terminals and 14 pairs of metal contacts are delivered with 50KW models; 16 pairs of PV terminals and 16 pairs of metal contacts are delivered with 63KW models; 20 pairs of PV terminals and 20 pairs of metal contacts are delivered with 75KW and 100KW models.
2. Sturdy and durable though the packing carton is, please carry and handle it with caution.

5.Installation

5.1 Basic Installation Requirements

- A. Ensure that the installation surface is solid enough to bear the weight of the Storage Inverter. (Refer to Table 3.2 for the weight of the Storage Inverter)
- B. Reserve enough clearance around the Storage Inverter to ensure sufficient space for installation.
- C. Do not install the Storage Inverter in areas with flammable or thermolabile materials.
- D. The Storage Inverter is protected to IP66 and can be installed indoors or outdoors.
- E. Do not expose the Storage Inverter to direct sunlight. Otherwise, performance de-rate may be initiated due to additional temperature rise.
- F. Keep the humidity at 0% to 95% RH.
- G. Keep the ambient temperature at -30°C to 60°C.
- H. Storage Inverters can only be vertically mounted on a flat ground or a vertical wall. Please refer to the following figures:

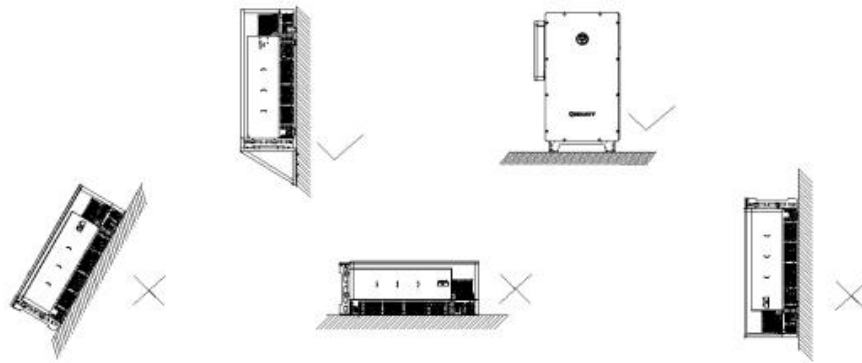


Fig 5.1

- I. Reserve enough clearance around the Storage Inverter to ensure sufficient space for heat dissipation and operation. Ensure that there are no objects within 1 m of the left, right and top of the inverter; In ground-mounting installation, keep the back of the chassis at least 0.1 m away from the wall surface to ensure the operational stability of the Storage Inverter.

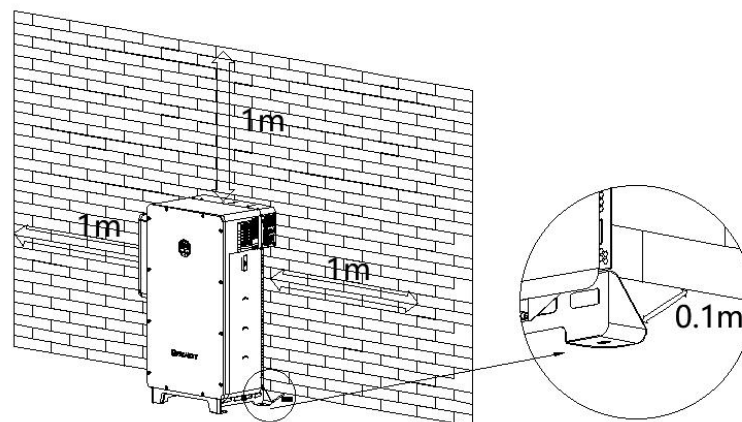


Fig 5.2

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

5.2 Installation Environment Requirements

- A. Though the Storage Inverter is protected to IP66, do not expose it to direct sunlight, rain and snow in order to extend its service life. Refer to the figures below.

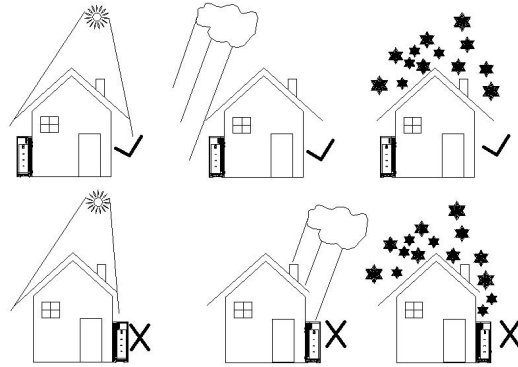


Fig 5.3

- B. it is recommended an awning be installed over the Storage Inverter to extend its service life and avoid performance de-rate. Ensure that a distance of at least 1m exists between the frame of the awning and the top of the Storage Inverter and 1.5m between the sides of the awning and the Storage Inverter. Please refer to the figure below.

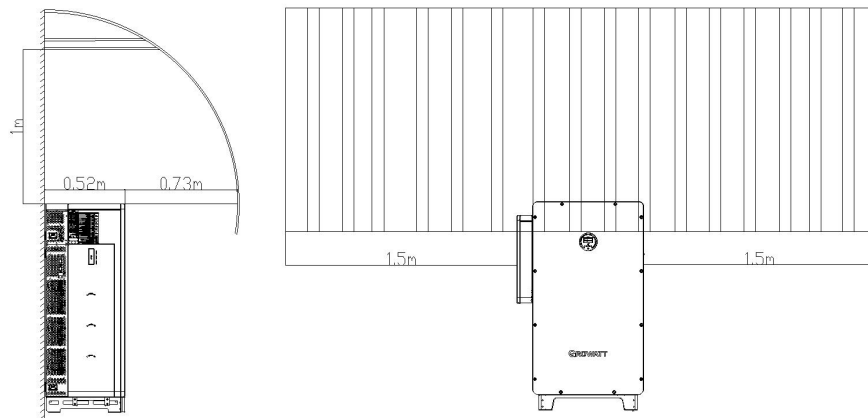


Fig 5.4

- C. Do not place the Storage Inverter in an enclosed and narrow space for operation.

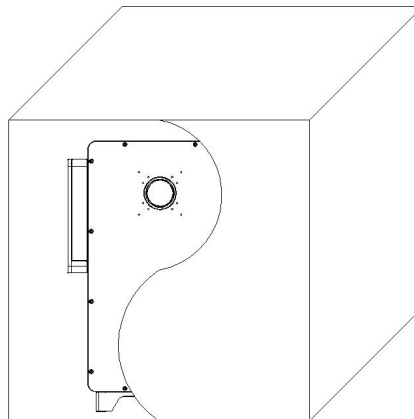


Fig 5.5

5.3 Moving the Storage Inverter



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

Plan 1 (hoisting):

- 1> As shown in Figure 5.6 below, unpack the inverter (remove the roof 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 inverter upright. Run a rope strong enough to bear the Storage Inverter through the hoisting rings and hoist the equipment, and then move the Storage Inverter to the installation position;
- 2> Keep balance when hoisting and moving the Storage Inverter.

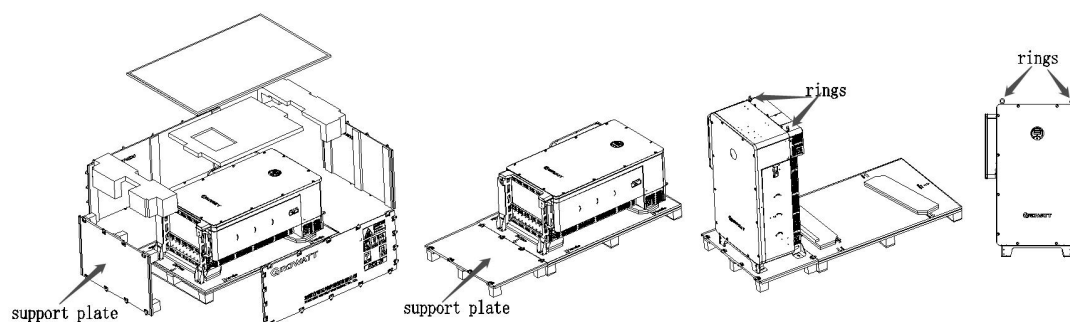


Fig 5.6 Hoisting a Storage Inverter

Plan 2 (forklift handling):

- 1> Unpack the inverter (remove the roof panel and the support plates); turn the equipment upright (place it on a flat ground or a floor support);
- 2> As shown in Figure 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 0.42m);
- 3> Keep balance when lifting and moving the Storage Inverter.

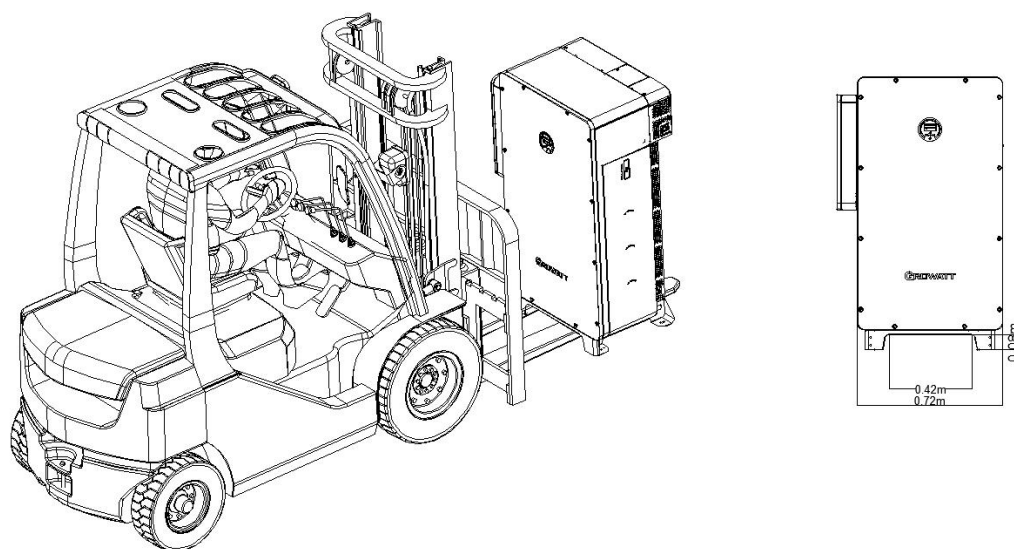


Fig 5.7 Moving a Storage Inverter with a forklift

Plan 3 (lifting):

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

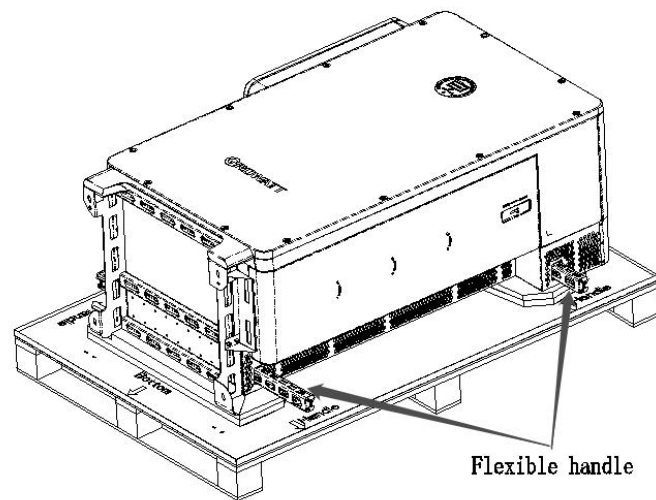


Fig 5.8 Lifting diagram

5.4 Mounting the Storage Inverter

5.4.1 Ground-mounting Installation

WIT 50-100K series Storage Inverters can be installed on the ground. Determine the hole positions using the marking-off template and drill holes into the ground. Insert nuts ($\phi 12$) into the ground, and then place the Storage Inverter in the correct position and tighten the screws. The dimensions of the marking-off template are shown in Figure 5.9.

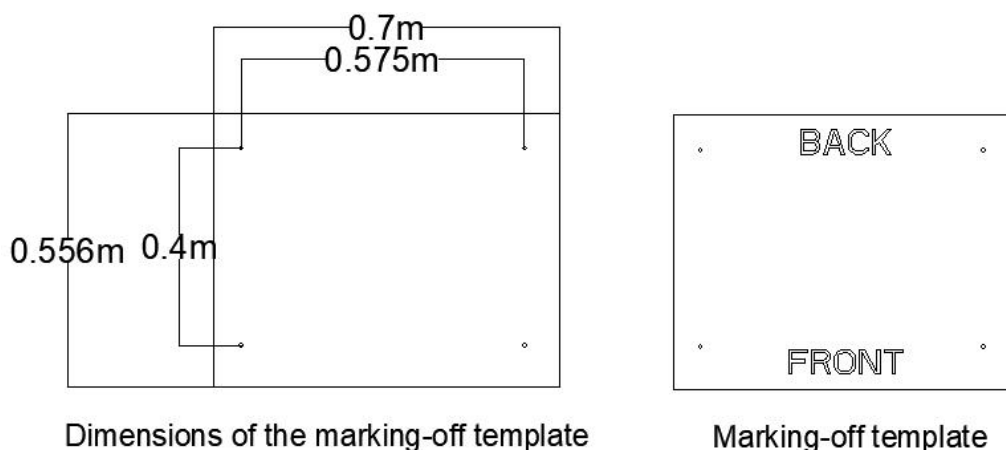


Fig 5.9 Floor-mounting installation hole positions

Refer to figure 5.10 for floor-mounting installation.

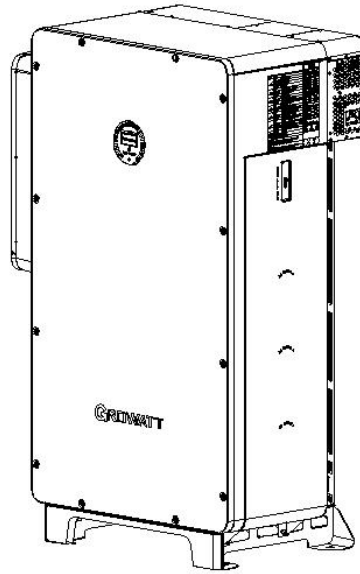


Fig 5.10 Floor-mounting installation

5.4.2 Wall-mounting Installation

WIT 50-100K series Storage Inverters can be mounted on the wall. For wall-mounting installation, you need to purchase the mounting bracket for the equipment from Growatt. Determine the hole positions for installing the mounting bracket using the marking-off template and drill holes. Align the mounting bracket with the hole positions and insert nuts ($\phi 12$) into the holes. Secure the mounting bracket and tighten the screws. Then install the Storage Inverter on the bracket and secure it to the wall. Figure 5.11 shows the marking-off template dimensions, and Figure 5.12 shows the marking-off template.

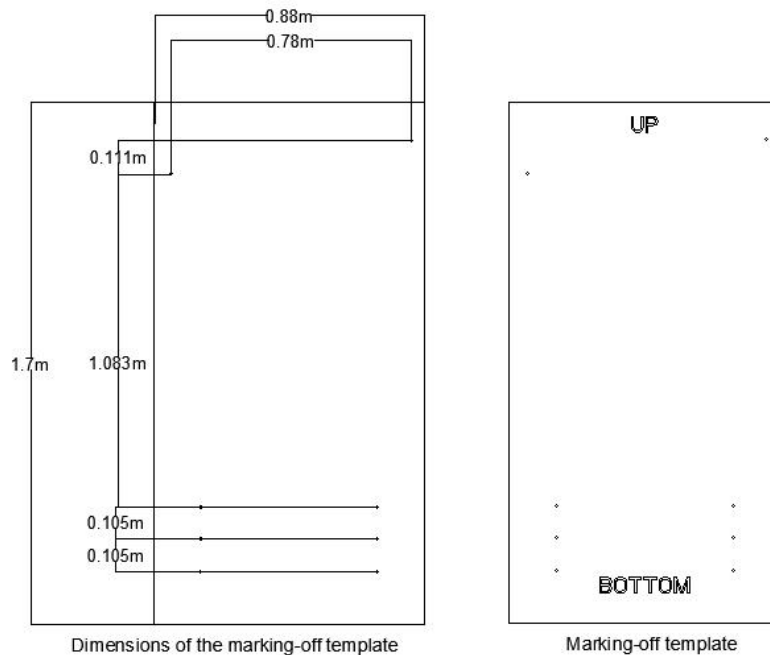


Fig 5.11 Marking-off template for wall-mounting installation

NOTE: The marking-off template and mounting bracket are optional accessories. Customers who purchase the mounting bracket will have a marking-off template delivered with the bracket.

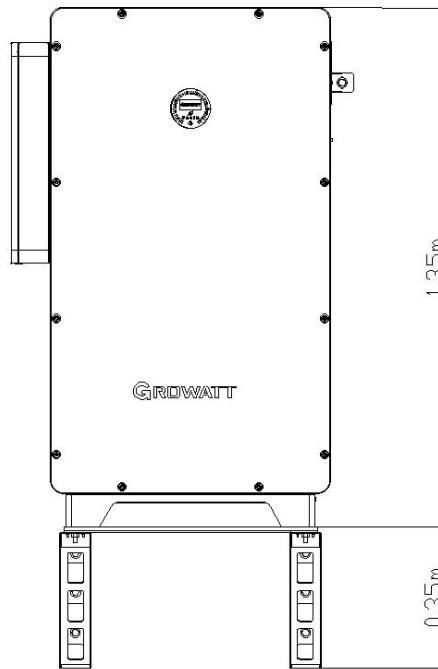
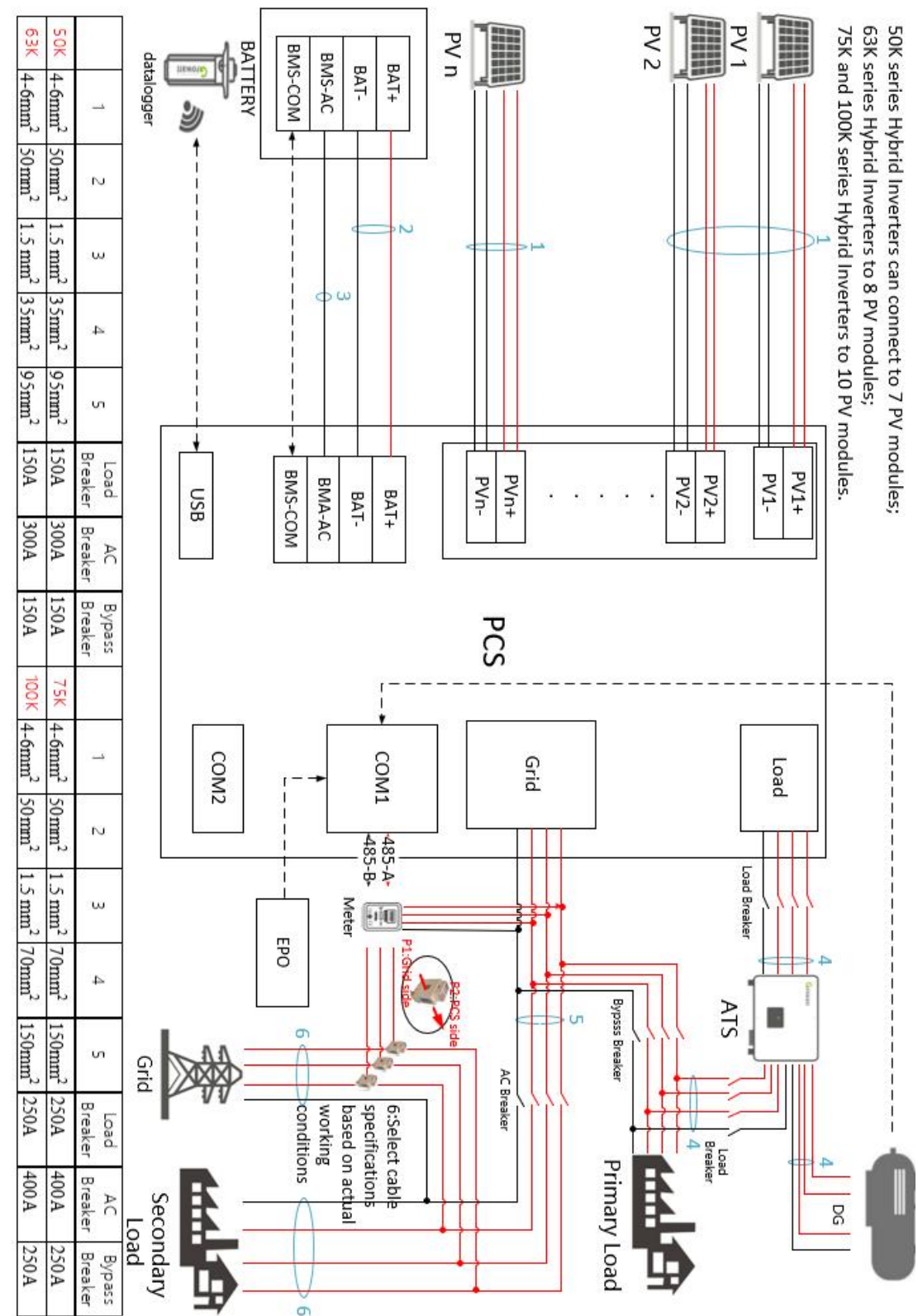


Fig 5.12 Wall-mounting installation



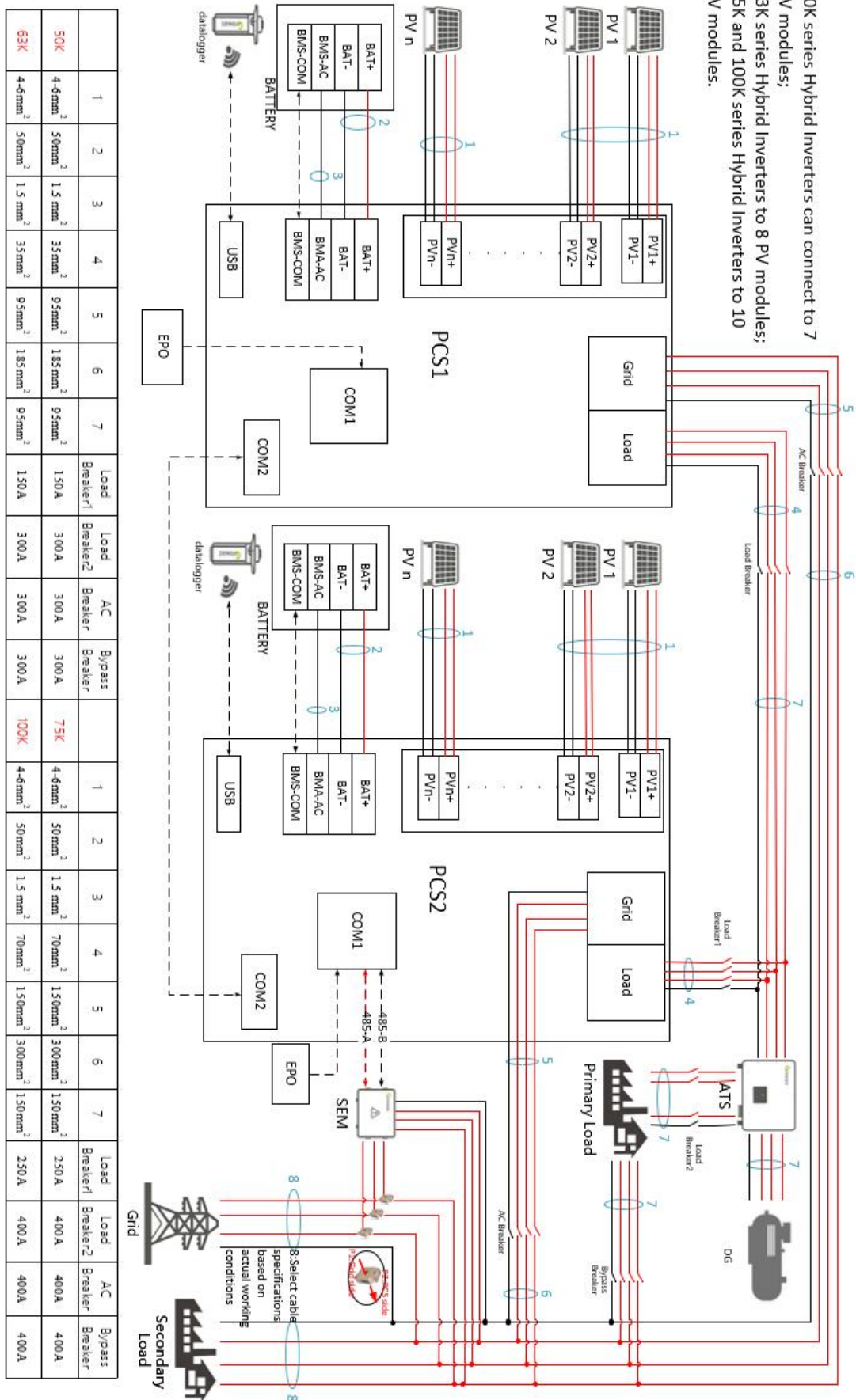
Ensure that the wall meets the load-bearing requirements of the equipment. For details about the weight, see 3.2.

6. Electrical Connections

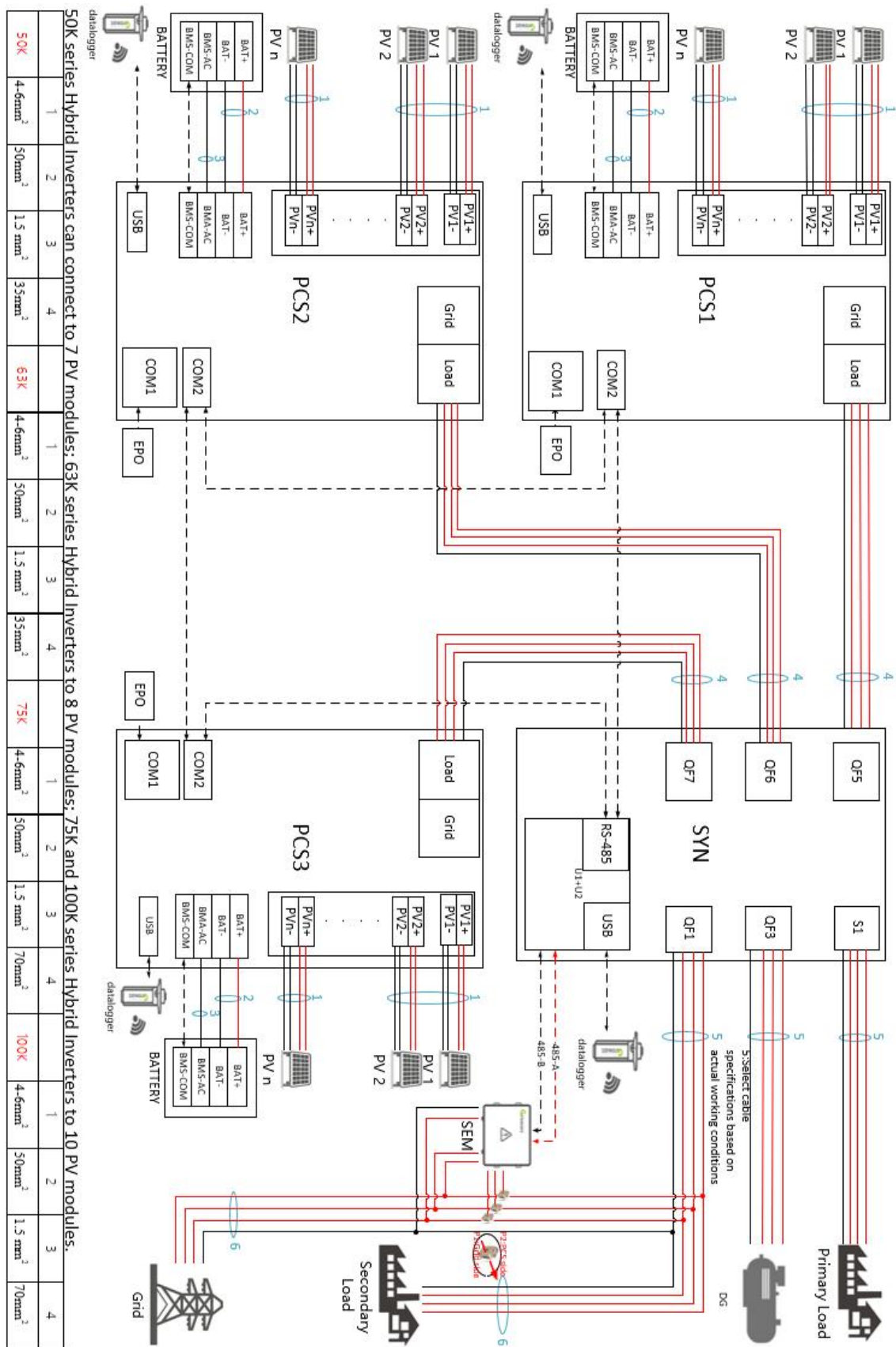


Wiring diagram of the system with a single WIT 50-100K-HU inverter

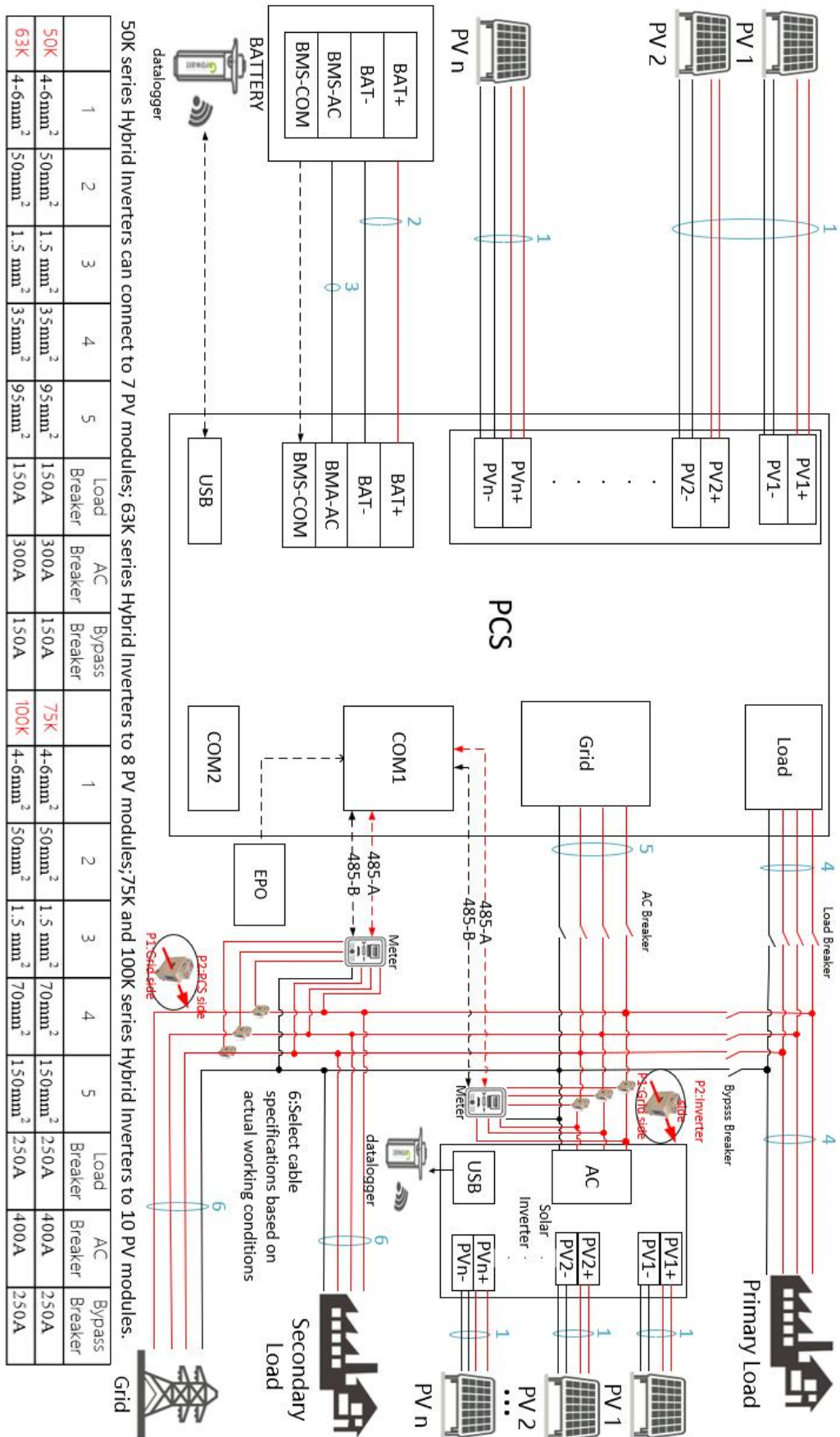
50K series Hybrid Inverters can connect to 7 PV modules;
63K series Hybrid Inverters to 8 PV modules;
75K and 100K series Hybrid Inverters to 10 PV modules.



Wiring diagram of the system with two WIT 50-100K-HU inverters connected in parallel



Wiring diagram of the system with three WIT 50-100K-HU inverters connected in parallel



Wiring diagram of the system with a single WIT 50-100K-HU inverter and two meters

6.1 Connecting the Ground Cables

1. It is essential to connect the ground cable to the Storage Inverter first to prevent personal injury or device damage.
2. All non-current-carrying metal parts, including the associated housings, enclosures, and supporting structures, shall be properly grounded.
3. For a single Storage Inverter, connect a ground cable to the ground point on the chassis shell. For a system with multiple Storage Inverters connected in parallel, ensure that the enclosures of the inverters, the metal racks of the PV modules and the batteries are connected to the same ground potential to achieve equipotential bonding.
4. The ground points of the WIT 50-100K series Storage Inverter are shown in figure 6.1. You can find the ground points after removing the right cover plate.

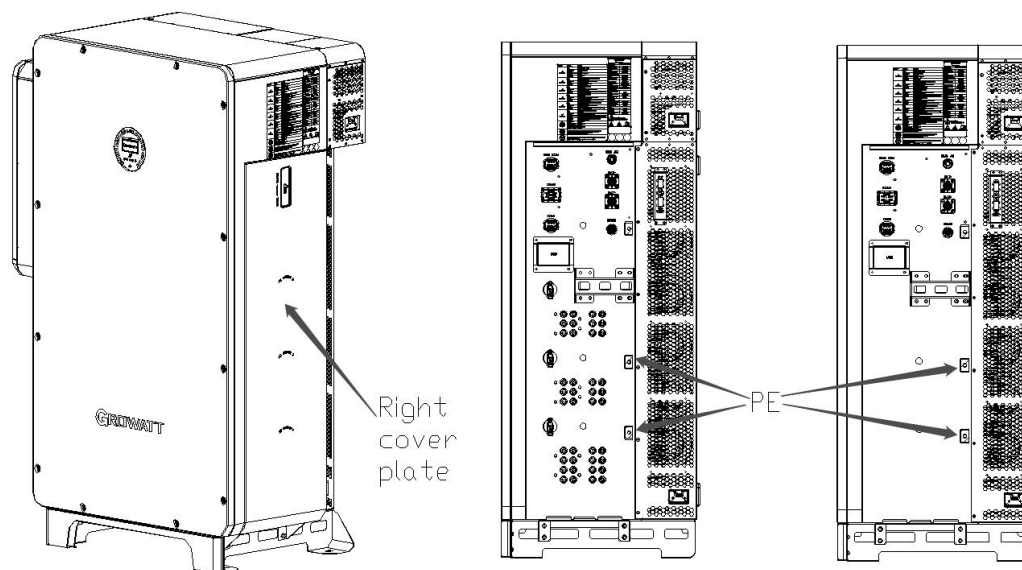


Fig 6.1 Ground points

NOTE:

1. Keep the lightning protection system and the grounding system separate and as far apart as possible.
2. Protect the terminals of the ground cables against rain. Do not expose them to open air.
3. Tighten the screws to a torque of 60kgf·cm.

6.2 Connection on the AC Side

	•Before connecting cables, ensure that the DC switches on the inverter are OFF. Turn off the switches on the AC side and the battery side. Otherwise, the high voltages of the inverter may result in electric shocks. •Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe this manual and comply with local regulations. •High voltages may cause electric shocks and serious injury. Please do not touch a running Storage Inverter. •Do not place inflammable and explosive materials around the Storage Inverter.
	•Each Storage Inverter must be equipped with an AC circuit breaker. Multiple Storage Inverters cannot connect to the same AC circuit breaker (not applicable to off-grid inverters).

	•Please do not connect loads between the Storage 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 Storage Inverter. •After connecting the cables, apply the fireproof mud evenly on the waterproof rubber 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> Turn off the DC switch and the switches 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 that a safe disconnection between the Storage Inverter and the upstream input when an exception occurs.

1.Recommended circuit breaker specifications for WIT 50-100K-A and WIT 50-100K-H models

Storage Inverter model	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 50K-A/-H	400V	150A
WIT 63K-A/-H	400V	150A
WIT 75K-A/-H	400V	200A
WIT 100K-A/-H	400V	200A

2.Recommended circuit breaker specifications for WIT 50-100K-AE, WIT 50-100K-AU, WIT 50-100K-HE and WIT 50-100K-HU models

Storage Inverter model	Rated voltage of the circuit breaker	Rated current of the circuit breaker on the load side	Rated current of the circuit breaker on the grid side
WIT 50K-AE/-AU/-HE/-HU	400V	150A	300A
WIT 63K-AE/-AU/-HE/-HU	400V	150A	300A
WIT 75K-AE/-AU/-HE/-HU	400V	200A	400A
WIT 100K-AE/-AU/-HE/-HU	400V	200A	400A

Recommended power cable specifications:

1.Recommended AC power cable specifications for WIT 50-100K-A and WIT 50-100K-H models

Storage Inverter model	Recommended cable specification
WIT 50K-A/-H	35mm ²
WIT 63K-A/-H	35mm ²
WIT 75K-A/-H	50mm ²
WIT 100K-A/-H	70mm ²

3. Recommended AC power cable specifications for WIT 50-100K-AE, WIT 50-100K-AU, WIT 50-100K-HE, WIT 50-100K-HU models

Storage Inverter model	Recommended cable on the AC side	Recommended cable on the load side
WIT 50K-AE/-AU/-HE/-HU	95mm ²	35mm ²
WIT 63K-AE/-AU/-HE/-HU	95mm ²	35mm ²
WIT 75K-AE/-AU/-HE/-HU	150mm ²	70mm ²
WIT 100K-AE/-AU/-HE/-HU	150mm ²	70mm ²

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

AC side connection steps:

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

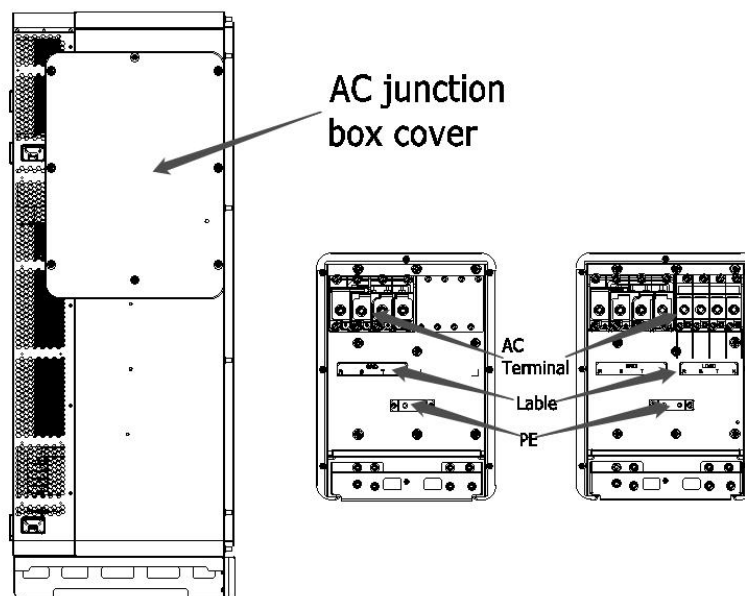


Fig 6.2 AC terminal wiring position and diagram

NOTE:

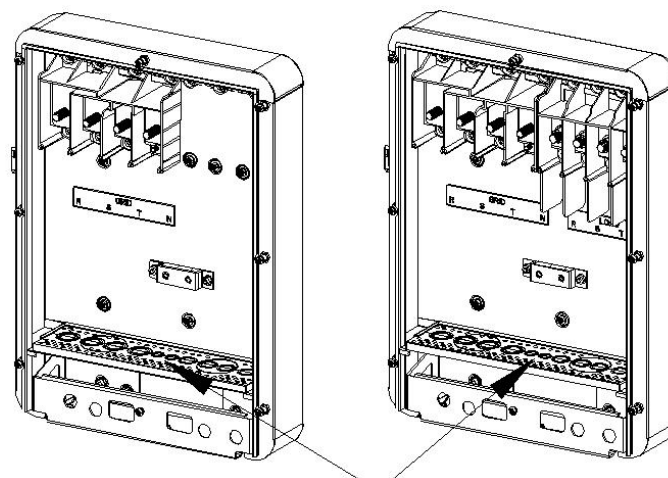
1. The waterproof silicone pad is used to protect the lower side of a terminal box. Cut holes in the pad according to the outer diameter of the cables to route them through. After routing through the cables, determine the cable stripped length based on the specifications of the terminals (18-22mm is recommended). Crimp the cables and the terminals. See Figure 6.3 for crimping a cable;



Fig 6.3 Crimping a cable

2. Cold-pressed terminals are delivered with the package, select terminals based on the cable specifications;
3. WIT 50-100K-AE, WIT 50-100K-HE, WIT 50-100K-AU and WIT 50-100K-HU models have an additional type of terminal in the AC junction box compared with WIT 50-100K-A and WIT 50-100K-H models. Connect cables according to the label;

4. After connecting the cables, apply fireproof mud to the waterproof silicone mat at the inlet side. Lock the cover of the AC junction box after the fireproof mud is applied. See Figure 6.4 below.



Fireproof mud
Fig 6.4 Applying fireproof mud

6.3 Connection on the PV Side

 NOTICE	• Only WIT 50-100K-H , WIT 50-100K-HE and WIT 50-100K-HU models need to be connected on the PV side.
 DANGER	• Before connecting the cables, ensure that the DC switch of the Storage Inverter is OFF, and turn off the switches on the AC side and the battery side. Otherwise, the high voltages of the Storage Inverter may cause electric shocks. • Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe this manual and comply with local regulations. • Check the positive and negative terminals before connecting the PV module to the Storage Inverter. • High voltages may cause electric shocks and serious injury. Please do not touch a running Storage Inverter. • Please do not place inflammable and explosive materials around the Storage Inverter.
 WARNING	• Each string's maximum open circuit voltage should not exceed 1100Vdc. • 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 high voltage generated by solar irradiance in the PV strings could be life-threatening. Therefore, shield the PV modules from sunlight before connecting the DC input power cable and ensure that the DC switch of the Storage Inverter is OFF to avoid personal injury.
2. PV modules connected in series in each PV string 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 Storage Inverter input power.
5. For optimal system configuration, it is recommended to connect two DC inputs with an equal number of PV modules.

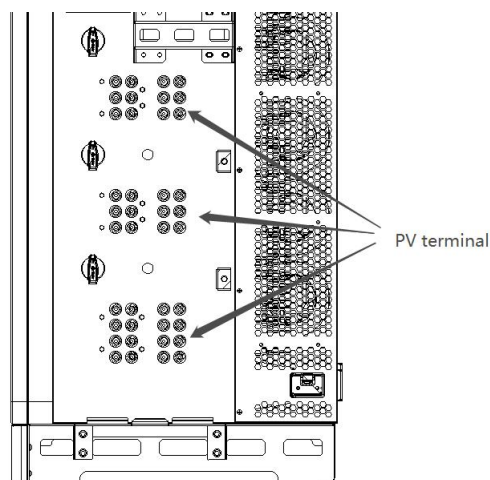


Fig 6.5 PV terminal

Procedure for connecting cables on the PV side:

1. Open the protective cover on the right side of the machine, as shown in Figure 6.1;
2. Strip off the insulation layer of the DC cable. The stripped length is 6-8mm;
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 is fastened. Gently 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 Storage Inverter. For the maximum input current of different models, see Table 6.1. For the cable specifications, see Table 6.2.

Table 6.1 Maximum current of a single MPPT route

Storage Inverter model	Max. current of a single MPPT route
WIT 50-100K-H	16A*2
WIT 50-100K-HE	16A*2
WIT 50-100K-HU	16A*2

Table 6.2 Cable specifications on the PV side

Storage Inverter model	Recommendation cable specifications
WIT 50-100K-H	4-6mm ²
WIT 50-100K-HE	4-6mm ²
WIT 50-100K-HU	4-6mm ²

NOTE:

1. For a single Storage Inverter, connect the ground point to the ground cable. For a system with multiple Storage Inverters connected in parallel, connect the ground points of all inverters and the metal racks of the PV modules to ensure equipotential connections to ground cables. Before connecting the cables, ensure that the PV module is properly grounded.

2. Connect the male terminals and female terminals correspondingly; the positive and negative connectors of the PV modules must be correctly connected to the positive and negative DC input terminals of the inverter;
3. Under any circumstance, the total current of all strings cannot exceed the Storage Inverter's maximum input current;
4. Do not touch the solar panels that are in the operation mode;
5. The wire should be tinned and do not use frayed or cracked wires.

6.4 Connection on the Battery Side

	• Before connecting the cables, ensure that the DC switch of the Storage Inverter is OFF, and turn off the AC side switch and the battery side switch. Otherwise, the high voltage of the Storage Inverter may cause electric shocks. • Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe this manual and comply with local regulations. • High voltage may cause electric shocks and serious injury. Please do not touch a running Storage Inverter. • Please do not place inflammable and explosive materials around the Storage Inverter.
	• If the cable is thick, do not shake the cable after fastening it. Ensure that the cable is securely connected before powering on the Storage Inverter. Loose connection may cause overheating that will damage the device. • The battery of the machine is protected by a structural shield on the terminal. After connecting the battery side, restore the removed structural parts and avoid human hands from touching them.

6.4.1 Connecting the Main Power Cable of the Battery

Preparation:

1. Check that the battery terminals of the inverter are intact;
2. Disconnect the DC switch, AC side switch and battery side switch;
3. Find the battery terminals delivered with the package. See Packing List in Section 4;
4. Open the protective cover on the right side of the machine (Figure 6.1);

Procedure for connecting the main battery power:

1. Connect the ground cable to the battery power ground bar, as shown in Figure 6.6;
2. Strip off the insulation layer of the DC cable and the stripped length is 18-20mm;
3. Crimp the battery cables and the battery terminals using crimping pliers, and then tighten the insulation sleeve;
4. Connect the battery cable to the battery terminals of the machine, as shown in Figure 6.6;
5. After connecting the main battery power cables, bind power cables at the reserved position, as shown in Figure 6.6.

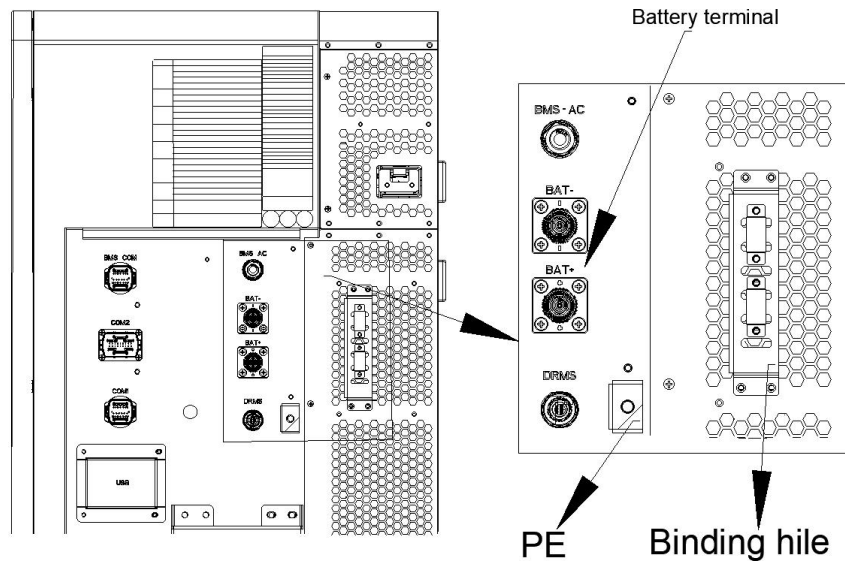


Fig 6.6 Position of the battery terminals

NOTE:

1. Connect the ground cable before connecting the battery cable; the ground point is shown in Figure 6.6.
2. Bind the battery power cables at the designated place after connecting them to the inverter;
3. Lock the protective cover on the right side after connecting the cables.

6.4.2 Connecting the Battery BMS-AC Terminal

NOTE: Perform operations based on site requirements.

Procedure for connecting the battery BMS-AC terminal:

1. Open the protective cover on the right side of the machine, as shown in Figure 6.1;
2. The BMS-AC terminal is a female terminal, as shown in Figure 6.7. The matching male terminals are in the accessory bag. Refer to Table 6.3 to connect the terminals;
3. Remove the dustproof cover from the BMS-AC terminal, insert the male terminals that have been crimped with cables to the BMS-AC terminal, and tighten them.

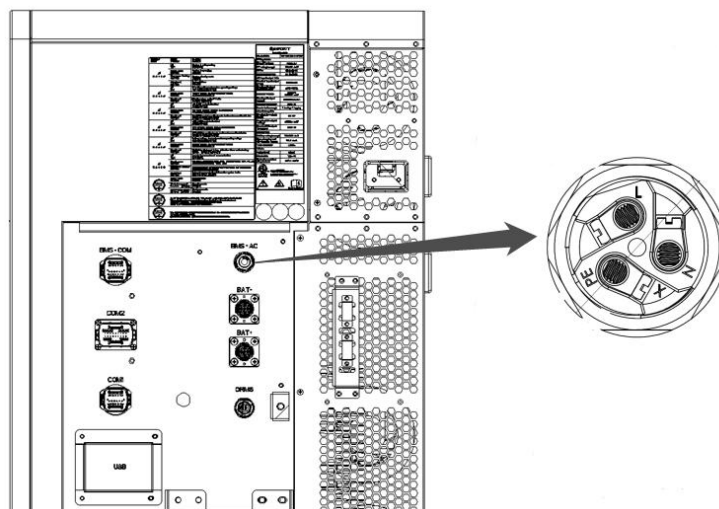


Fig 6.7 BMS-AC terminal

Table 6.3 Definitions of BMS-AC terminal

BMS-AC terminal port definition		
Number	Definition of signal	Note
1	L	Supply power to the BMS
2	N	
3	PE	Grounding point

NOTE:

1. Do not touch or remove the dustproof cover of the BMS-AC terminal if the terminal does not need to be connected;
2. Install the battery protection box and the right protective cover after the cable connection is complete.

6.5 Connecting Communications Cables

6.5.1 Battery Communication Connection

The BMS-COM terminal of the WIT 50-100K series Storage 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 (client) to the corresponding position, and ensure that it is tightly connected;

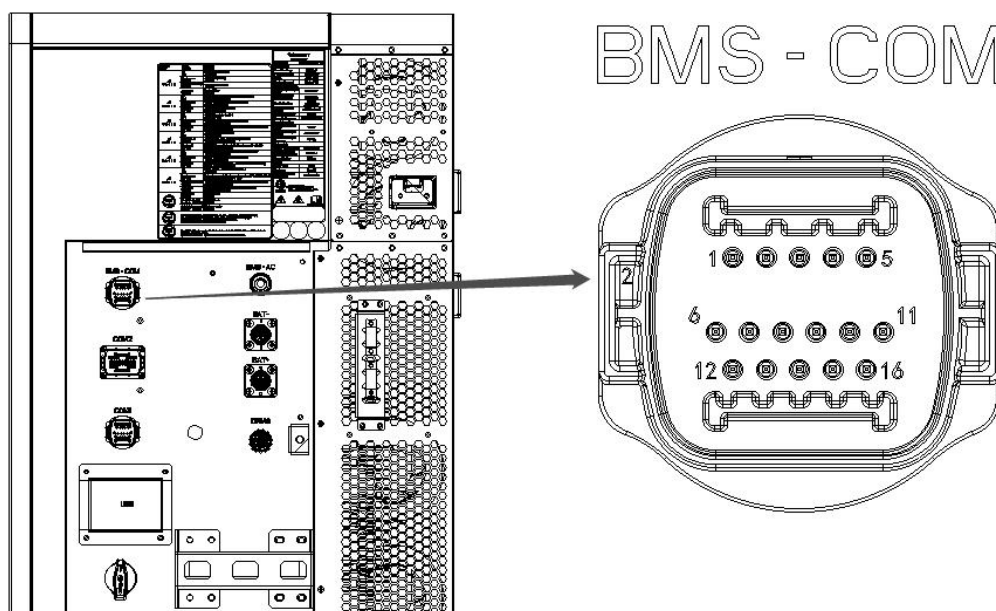


Fig 6.8 BMS-COM communication terminals

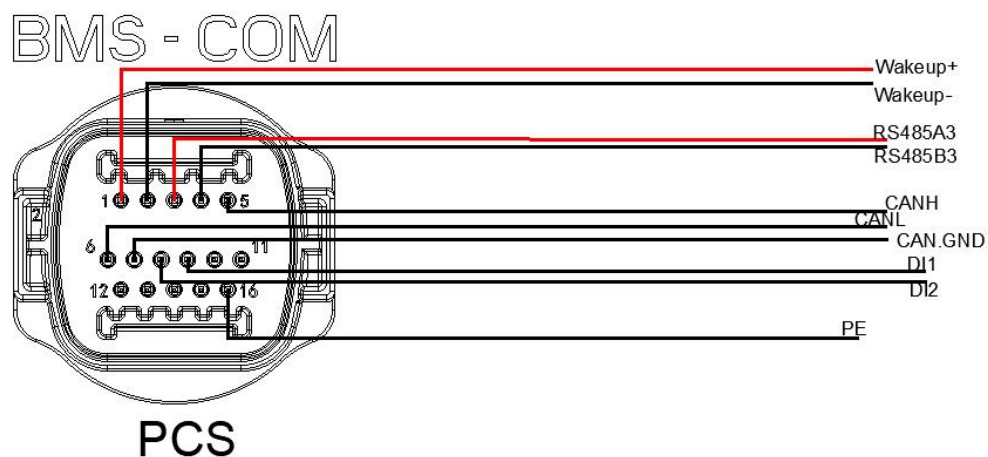


Fig 6.9 BMS-COM communication connection

Table 6.4 Battery communication interface definition

Definition of battery communication interface		
Serial number	Definition of signal	Remark
1	Wakeup+	Battery wake up signal
2	Wakeup-	
3	RS485A3	The PCS communicates with the battery via RS485
4	RS485B3	
5	CANH	The PCS communicates with the battery via CAN
6	CANL	
7	CAN.GND	
8	DI1	Battery shutdown input signal
9	DI2	
10	NA	NA
11	NA	
12	NA	
13	NA	
14	NA	
15	NA	
16	PE	Grounding

6.5.2 External Communication connection

NOTE:

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

The external communication terminal of the WIT 50-100K series Storage Inverter is a 16-pin connector. The matching terminals are included in the accessory bag. The connection procedure is as follows:

1. Connect the communication cable to the corresponding terminal position as required. For details, see Table 6.5 and Table 6.6;
2. Remove the dustproof cover from the COM1 terminal and insert the 16-pin terminal (client) to the corresponding position;

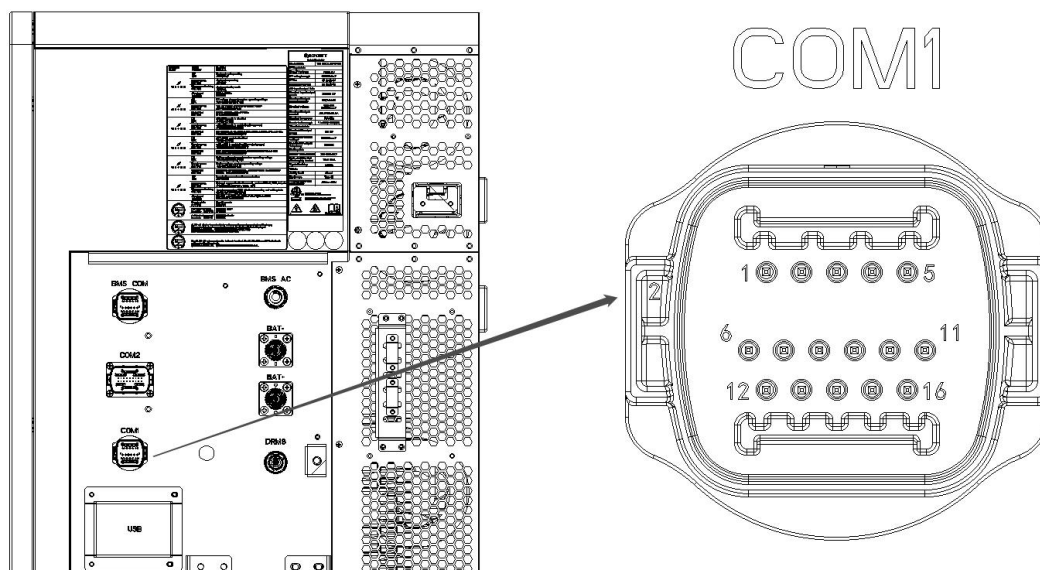


Fig 6.10 External communication terminal

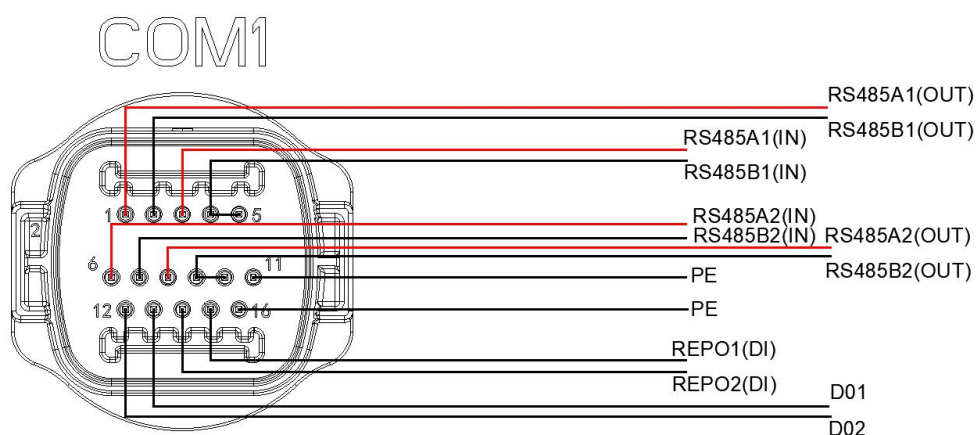


Fig 6.11 COM1 communication connection

3. The external communication terminals of the WIT 50-100K series Storage Inverters are described in Table 6.5. Short Pin 5 and pin 10 when the host computer is used.

Table 6.5 External communication interface description

Definition of battery communication interface		
Serial number	Definition of signal	remark
1	PCS_RS485A_4	RS485_4
2	PCS_RS485B_4	
3	RS485A1	The RS485 communication interface with the PC
4	RS485B1	
5	Res_RS4851A	RS485 matching resistor
6	RS485A2	RS485 input port for the meter
7	RS485B2	
8	RS485A2	RS485 output port for the meter
9	RS485B2	
10	Res_RS4851B	RS485 matching resistor
11	PE	Grounding
12	REPO1	Storage Inverter shutdown input dry contact signal
13	REPO2	
14	DO1	Generator start-up output dry contact signal
15	DO2	
16	PE	Grounding

6.5.3 Parallel Communication Connection

In WIT 50-100K series Storage Inverters, the signal terminal COM2 uses a 30pin terminal, and the matching terminals are in the accessory bag; 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 (client) to the corresponding position.

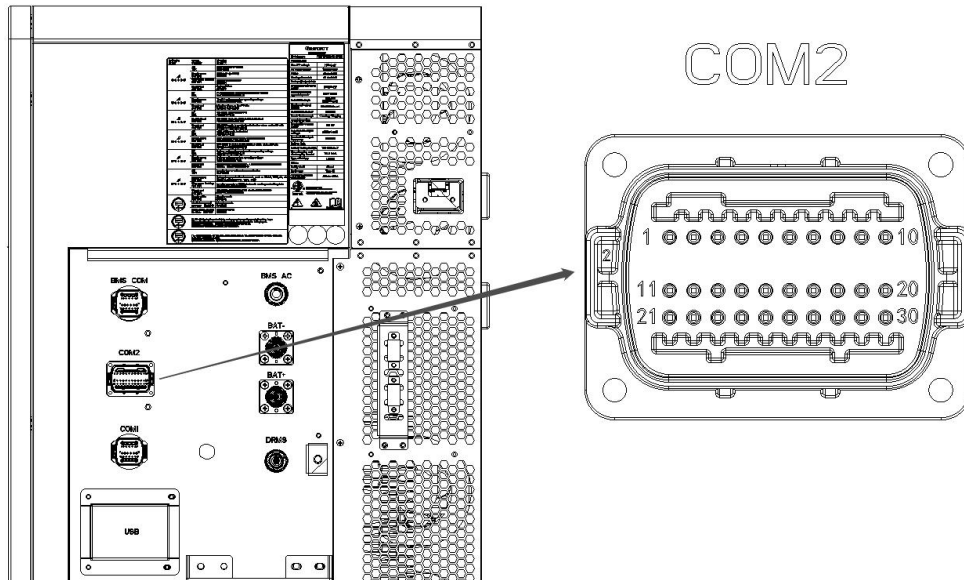
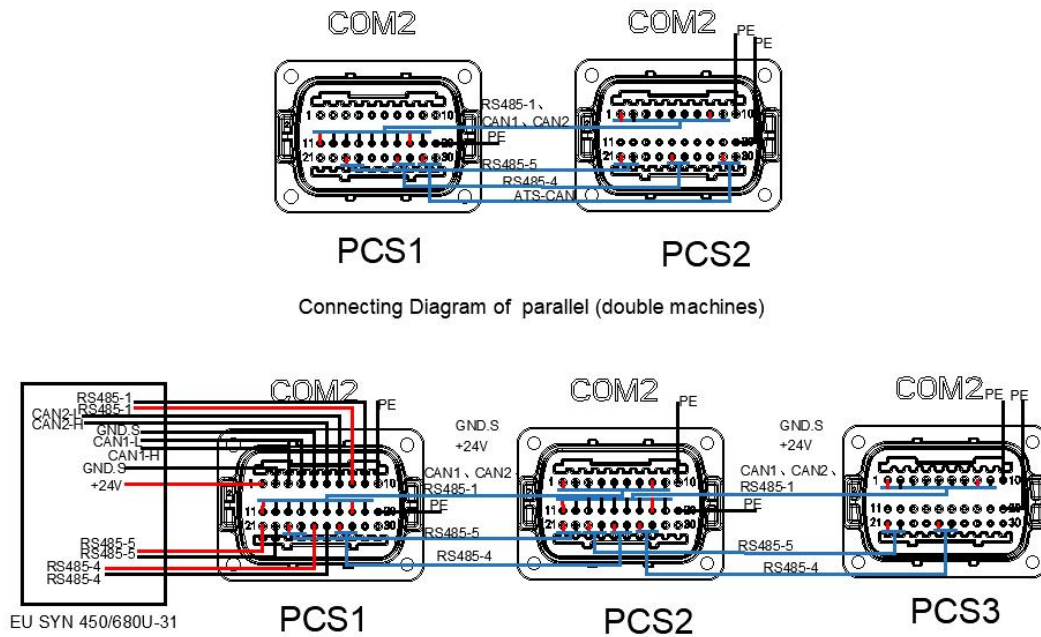


Fig 6.12 Communication terminal for inverters connected in parallel



Connecting Diagram of parallel (three machines)

Fig 6.13 COM2 communication connection

Table 6.6 Description of parallel communication interface

Definition of parallel communication interface (WIT 50-100K-A and WIT 50-100K-H)		
Serial number	Definition of signal	remark
1	24V.S	Output 24V signal
2	GND.S	
3	CAN1_H	Parallel communication CAN1 signal (input)
4	CAN1_L	
5	GND.S	
6	CAN2_H	Parallel communication CAN2 signal (input)
7	CAN2_L	
8	RS485_1A	Parallel communication 485 signal (input)
9	RS485_1B	
10	PE	Grounding
11	24V.S	Output 24V signal
12	GND.S	
13	CAN1_H	Parallel communication CAN1 signal (output)
14	CAN1_L	
15	GND.S	
16	CAN2_H	Parallel communication CAN2 signal (output)
17	CAN2_L	
18	RS485_1A	Parallel communication 485 signal (output)
19	RS485_1B	
20	PE	Grounding
21	RS485_5A	Low frequency synchronization 485 signal(input)
22	RS485_5B	
23	RS485_5A	Low frequency synchronization 485 signal (output)
24	RS485_5B	
25	RS485_4A	Parallel RS485_4 communication (input) (PCS)
26	RS485_4B	
27	RS485_4A	Parallel RS485_4 communication (output) (PCS)
28	RS485_4B	
29	NA	NA
30	NA	

Table 6.8 Description of parallel signal terminal interface

Definition of parallel signal terminal interface (WIT 50-100K-HE, WIT 50-100K-HU, WIT 50-100K-AE, WIT 50-100K-AU)		
Serial number	Definition of signal	remark
1	24V.S	External output 24V signal
2	GND.S	
3	CAN1_H	Parallel communication CAN1 signal (input)
4	CAN1_L	
5	GND.S	
6	CAN2_H	Parallel communication CAN2 signal (input)
7	CAN2_L	
8	RS485_1A	Parallel communication 485 signal (input)
9	RS485_1B	
10	PE	Grounding
11	24V.S	Output 24V signal
12	GND.S	
13	CAN1_H	Parallel communication CAN1 signal (output)
14	CAN1_L	
15	GND.S	
16	CAN2_H	Parallel communication CAN2 signal (output)
17	CAN2_L	
18	RS485_1A	Parallel communication 485 signal (output)
19	RS485_1B	
20	PE	Grounding
21	RS485_5A	Low frequency synchronization 485 signal(input)
22	RS485_5B	
23	RS485_5A	Low frequency synchronization 485 signal (output)
24	RS485_5B	
25	RS485_4A	Parallel RS485_4 communication(input)
26	RS485_4B	
27	RS485_4A	Parallel RS485_4 communication (output)
28	RS485_4B	
29	ATS-CAN205_H	Parallel communication CAN signal
30	ATS-CAN205_L	

6.5.4 Monitoring Device Terminal

WIT 50-100K series Storage Inverters are equipped with the USB port, which can be connected to optional monitoring modules such as USB to Wi-Fi module, ShineWIFI-X, Shine4G-X and ShineLan-X for monitoring. In addition, software can be quickly updated via a USB flash drive.

The procedure for installing a monitoring device is as follows:

1. Loosen the waterproof cover of the USB port and remove it;
2. As shown in Figure 6.14, insert the USB to Wi-Fi module into the USB port (make sure that ▲ is facing upwards) and tighten the screw, then the LED of the USB to WIFI module will light up.

NOTE: Before you leave, please ensure that the monitoring device is removed and the protective cover should be reinstalled to avoid any water damage.

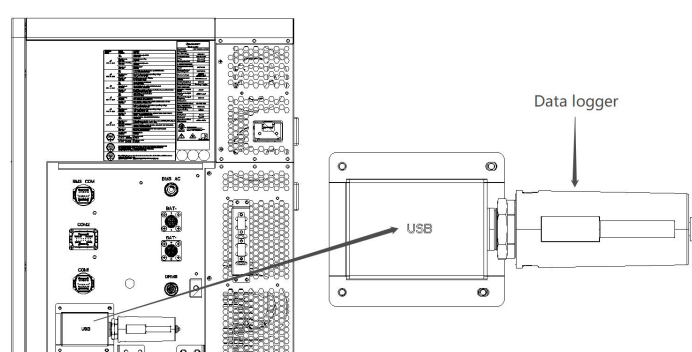


Fig 6.14 USB connection diagram

6.5.5 DRMS Terminal

The WIT 50-100K series Storage Inverters have an optional DRMS interface; The connection procedure is as follows:

1. Connect the communication cable to the terminal as required. DRMS port is a standard Ethernet cable connector, so you can follow the normal Ethernet cable wiring for the connections.
2. Remove the dustproof cover from the DRMS terminal, check whether there is a waterproof rubber pad. Insert the cable and tighten the rubber ring to prevent loose connection.
3. After connection, reinstall the dust-proof cover. The position of the DRMS terminal is shown in Figure 6.15 below.

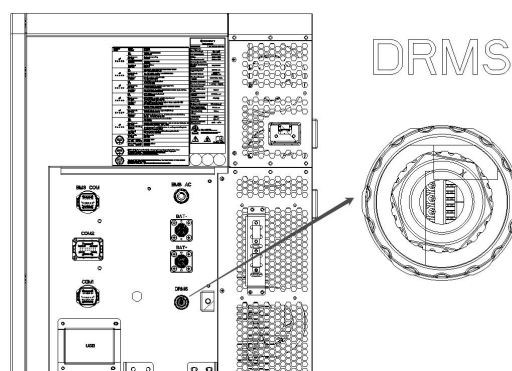


Fig 6.15 DRMS interface

6.6 Post-installation Checks

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

Position	Item	Check item
	Ground cable connected to the chassis	Check the cable specifications; ensure that the cable has been securely fastened
AC side	Ground cable on the AC side	Check the cable specifications; ensure that the cable has been securely fastened
	Grid side (-AE\ -AU\ -HE\ -HU)	Check the cable specifications; ensure that the cable has been securely fastened
	Load side	Check the cable specifications; ensure that the cable has been securely fastened
	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
PV side	Ground cable on the PV side	Check the cable specifications; ensure that the cable has been securely fastened
	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
Battery side	Ground cable on the battery side	Check the cable specifications; ensure 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
	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
Communication terminals	BMS-COM	Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland
	COM1	Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland
	COM2	Ensure that the connection is correct and secured; the sealing rubber ring is properly seated into the gland
	USB	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
Baffle	Baffle on the right	Install the right baffle after all the items are checked.

7. Commissioning

7.1 Commissioning the Storage Inverter



•The Storage Inverter might show wrong time and date if it has been stored for over a month. You need to set user parameters based on the current time and date before connecting the inverter to the grid.

7.1.1 Set the Communication Address

After the Storage Inverter is powered on, you can set the communication address of the Storage Inverter using RS485 communication or the USB to Wi-Fi module. When multiple inverters are connected in parallel over an RS485 communication cable, each Storage Inverter should be set to different communication addresses. For a single inverter, the default communication address is set to 1.

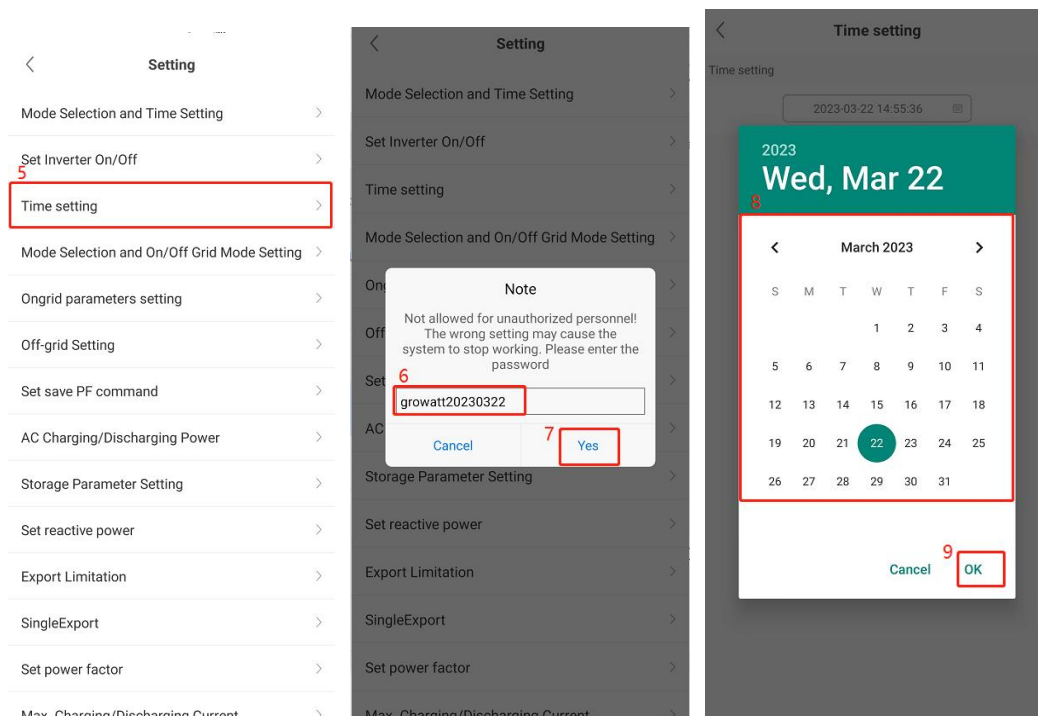
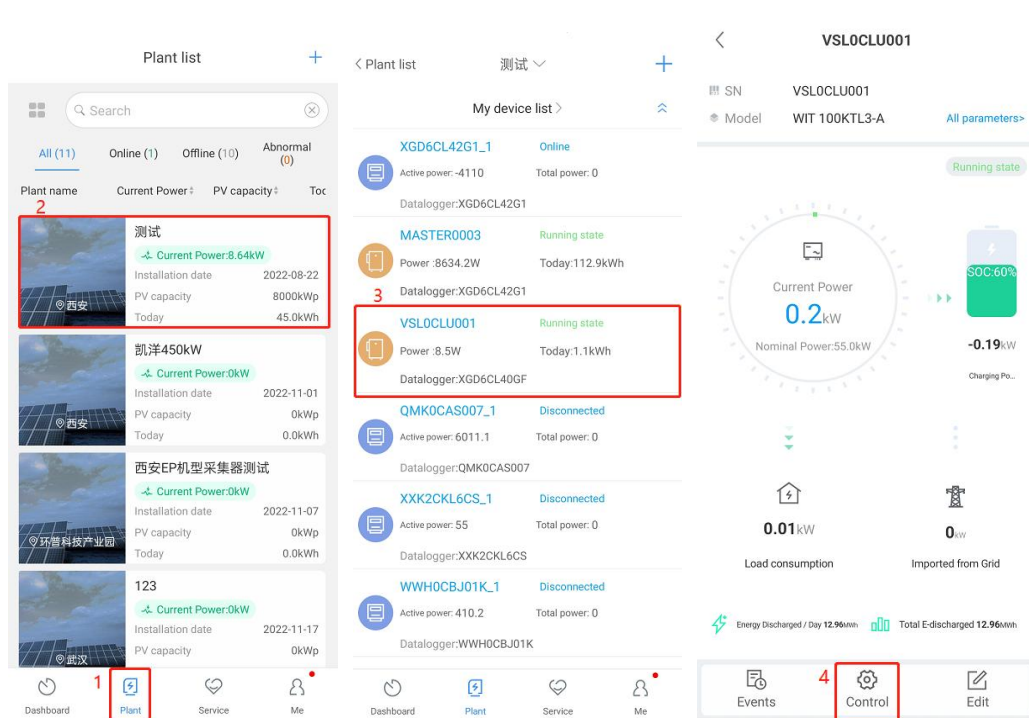
NOTE: The communication address of the Storage Inverter ranges from 1 to 254.

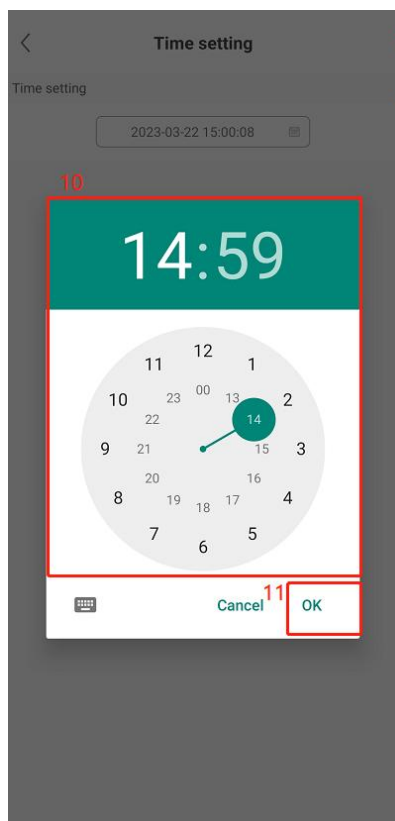
By connecting the Storage Inverter to the host computer through RS485 communication, you can change its communication address on the Shinebus APP. This operation should be performed by professional personnel.

7.1.2 Set the Time and Date

7.1.2.1 Set the Date & Time manually

1. Select the plant on the plant list
2. Scroll down to select the device based on the serial number of the inverter
3. Click “Control”
4. Select Time Settings and enter the password, which is growatt***** (the last eight digitals are set as the current date). For instance, if the date is March 22, 2023, the password would be growatt20230322. Then click “Yes”
5. Set the date using a calendar and then click “OK”; when the Time Settings screen is displayed, set the right value and click “OK”
6. Check the date & time after you finish setup





7.1.2.2 Set the Date & Time automatically

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

7.2 Mode of operation

7.2.1 Standby Mode

When the PV voltage is greater than 180V, the Storage Inverter will be powered on and enters the standby mode.

In standby mode, the Storage Inverter performs self-check. If the system is normal and the voltage is greater than or equals to 195V, the Storage Inverter will start to operate in on-grid mode.

7.2.2 Operating Mode

7.2.2.1 WIT 50-100K-A,WIT 50-100K-AE,WIT 50-100K-AU Operating Mode

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

Charging mode: Charge the battery from the grid

You should set this mode manually, configuring the charging period and charging power (AC charging should be enabled)

Discharging mode: The battery discharges to supply power to the AC side

You should set this mode manually, configuring the discharging period and discharging power (

If the export limitation is enabled, it only supplies power to the loads; if disabled, it can also export power to the grid.

NOTE:

1. It is recommended that users allow the grid to charge batteries in low electricity price periods and discharge batteries during high electricity price periods, saving electricity fee
2. The working modes listed above are applicable to the grid-tied solar power system. For the off-grid system, the inverter converts DC power from batteries to power the loads.

7.2.2.2 WIT 50-100K-H, WIT 50-100K-HE, WIT 50-100K-HU Operating Mode

Load first: Priority: Load > Battery > Grid. The solar power is prioritized towards supplying the loads, and any surplus will go towards the batteries and the grid. If the solar energy is insufficient, the battery will discharge to power the loads. When the export limitation function is enabled, the Storage Inverter controls the charging and discharging based on the load power detected by the power meter to maximize the self-consumption rate and reduce interaction with the grid. The self-consumption rate is related to the load power, the battery power and the PV panel capacity.

Battery first: The power from the PV string and the grid is prioritized to charge the battery.

Set the mode manually and configure the user parameters, including the charging period and the charging power. The surplus PV power can be used to supply power to the loads. The power cannot be fed to the grid when the export limitation is enabled.

Grid first: The power from the PV string and the batteries is prioritized towards the grid (the export limitation should be disabled)

Set the mode manually and configure the user parameters, including the time segment and the discharging power. The power from the PV strings and the batteries is prioritized towards the AC side, and surplus PV energy will be stored in batteries

NOTE:

1. It is recommended that users set the battery first mode during off-peak hours, and the grid first mode during on-peak hours to cut the electricity fee.
2. The operating modes listed above are applicable to grid-tied solar systems and do not apply to off-grid solar systems, in which the solar power is prioritized towards the AC side.

7.2.3 Fault Mode

The intelligent control system of the Storage Inverter monitors and adjusts the system status in real time. When the Storage Inverter detects an alarm, the corresponding status light will turn red and the OLED will display the alarm. When the Storage 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, see 9.2 Troubleshooting.

7.2.4 Shutdown Mode

The grid-connected application system enables export limitation and off-grid application system. 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 electricity generation, the Storage Inverter will automatically shut down. In shutdown mode, the equipment still consumes some energy (PV>Grid>Battery). The Storage Inverter will start up again when the operating requirements are met.

NOTE: When the DC voltage of the PV strings is too low ($\leq 150\text{Vdc}$) and the battery voltage is lower than 600V, the Storage Inverter enters the shutdown mode.

7.3 LED and OLED Displays

The operating state of the Storage Inverter is clearly shown on the LED and OLED displays. The diagram of the display panel is shown in Figure 7.1, and the symbol description is shown in Table 7.1; The user interfaces are shown in Figure 7.2, and the LED indicator description is shown in Table 7.2.

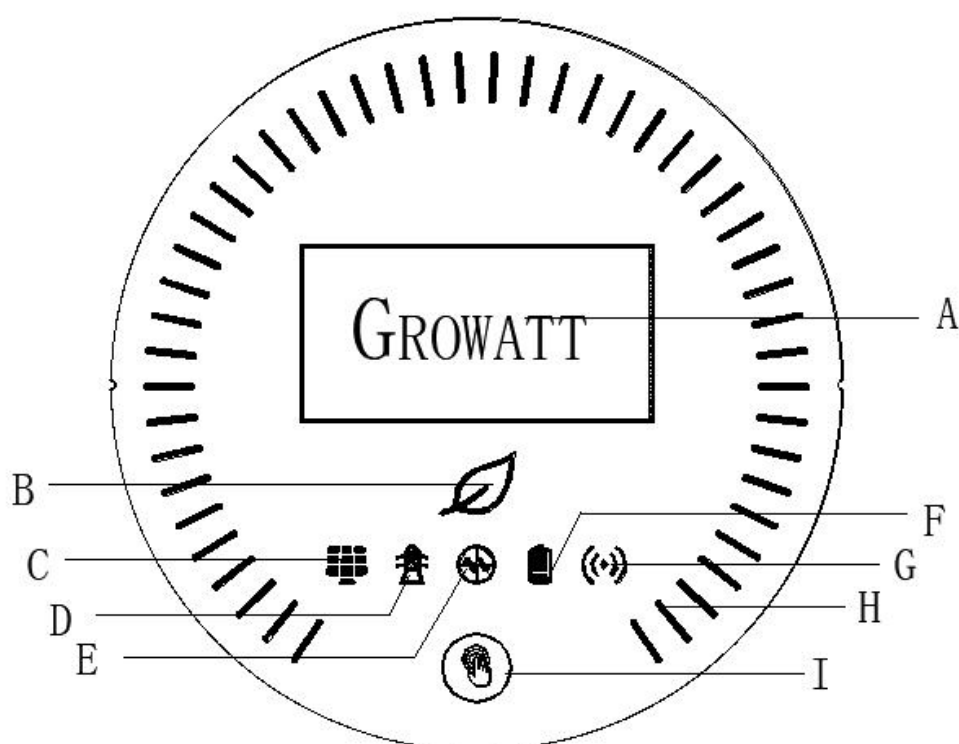


Fig 7.1 Display panel

Table 7.1 Symbol Description

Number	Description	Note
A	OLED screen	Displays the main system information
B	System indicator	Displays the system status
C	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
H	Battery status indicator	Indicates the charging and discharging mode of the battery
I	Button	The OLED display page can be switched by pressing the button

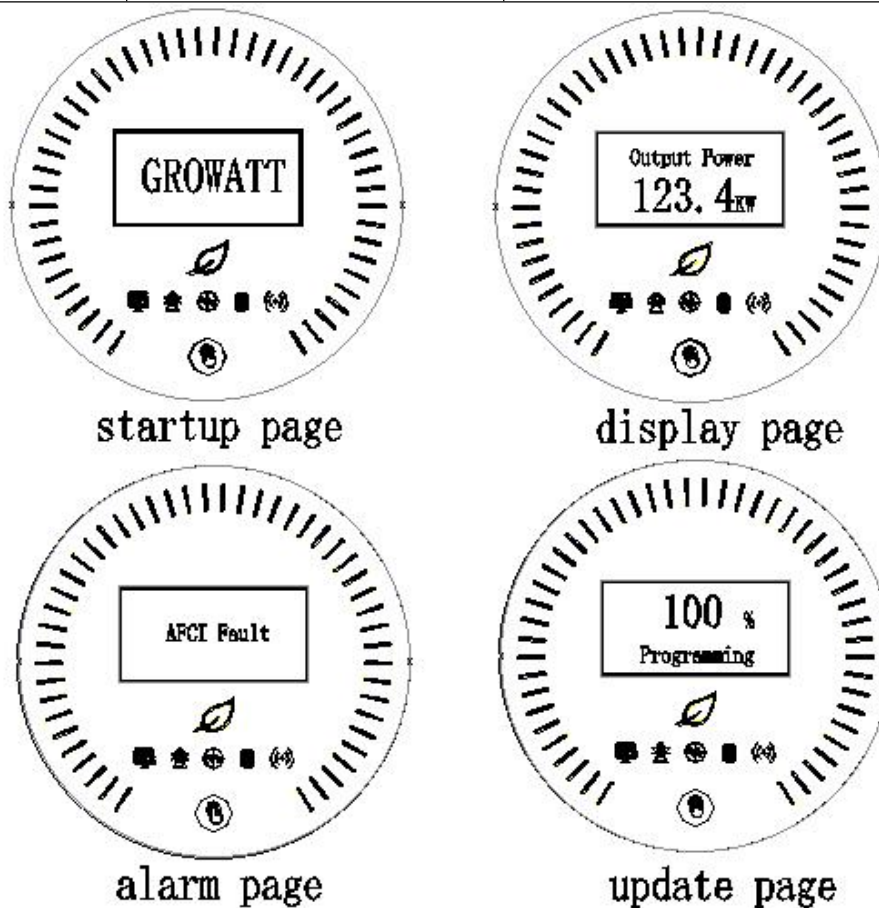


Fig 7.2 User interfaces

Table 7.2 Indicator description

	Status	Meaning
	Off	The system is not operating
	Steady green	The system is operating properly
	Blinking green at long intervals	The system is in standby mode or performing an upgrade
	Steady red	System failure
	Off	The PV voltage dose not reach the operating voltage
	Steady green	The PV voltage reaches the operating voltage
	Steady red	A fault or alarm is reported on the PV side
	Off	The grid voltage does not reach the operating voltage
	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
	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	Storage Inverter is upgrading or the USB interface is reading and writing data
	Steady red	External communication fails or a system fault occurs
	Steady white	Battery is in standby mode
	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 when the button is pressed. The OLED will turn off if there is no operation for 5 minutes.	

8. Monitoring

8.1 Remote Data Monitoring

WIT 50-100K series Storage Inverters support remote monitoring on the mobile app or via the webpage on the PC. The USB to WIFI module enables these two monitoring methods.

8.1.1 Remote Monitoring with Mobile App (ShinePhone)

1. Download and install the App

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



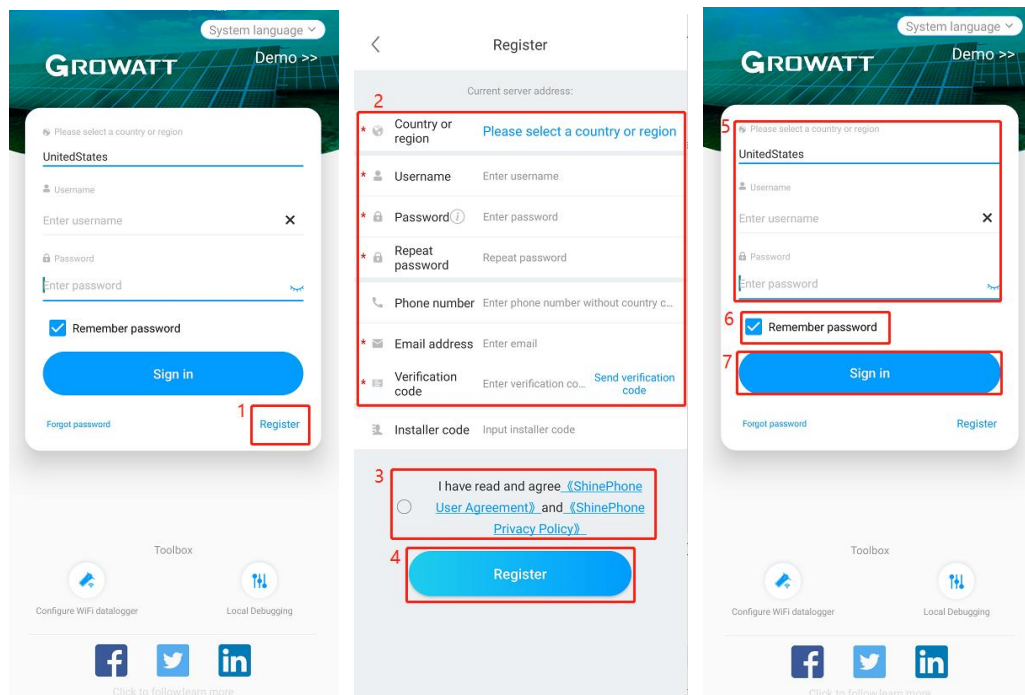
NOTE:(1). Download and install the latest version.

(2) Visit <https://server-cn.growatt.com> for details.

2. Register an account:

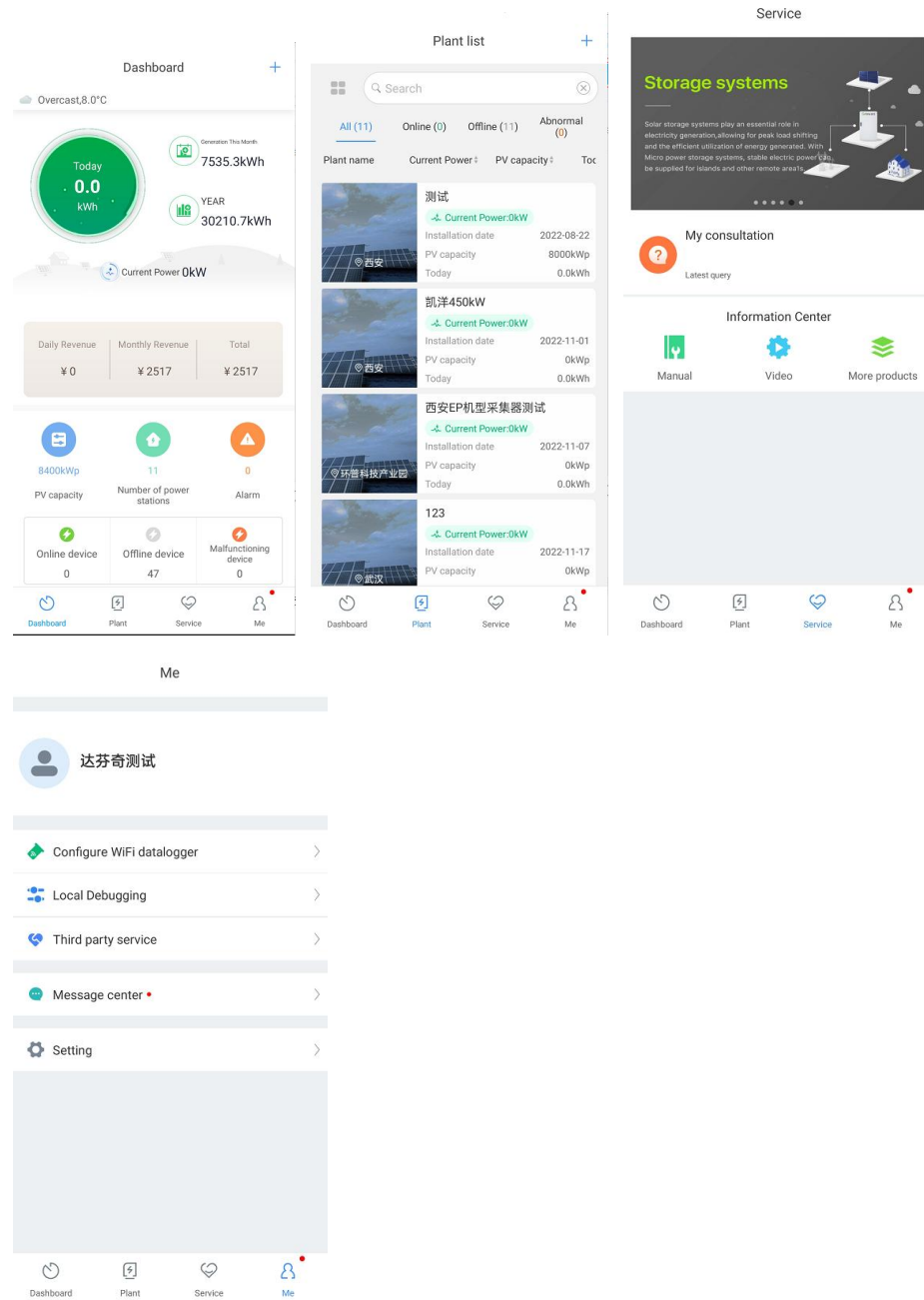
Click "Register" on the login page.

Fill in the required information. The asterisk marks required fields. Click to accept the Agreement and Privacy Policy. After registration, you can log in to ShinePhone. The registration page and the home page are shown as follows:



ShineTools home screen:

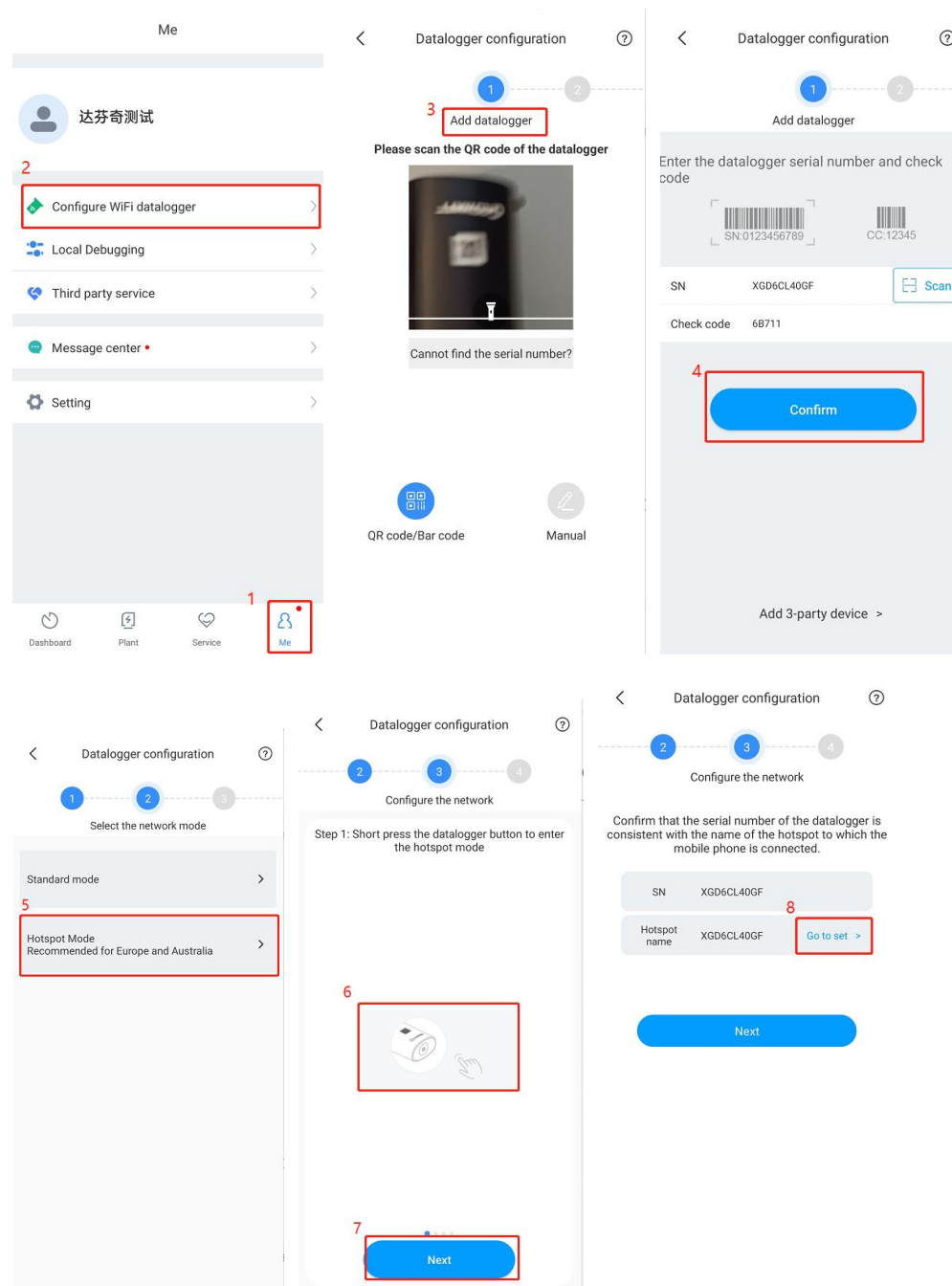
1. Dashboard: Display a real-time view of information including the power output, yield, status of equipment, etc.
2. Plant: Keep trace of information about each plant.
3. Service: View common issues and troubleshooting guide; contact customer service and refer to documentation.
4. Me: View your account information; configure the data logger and check the message.

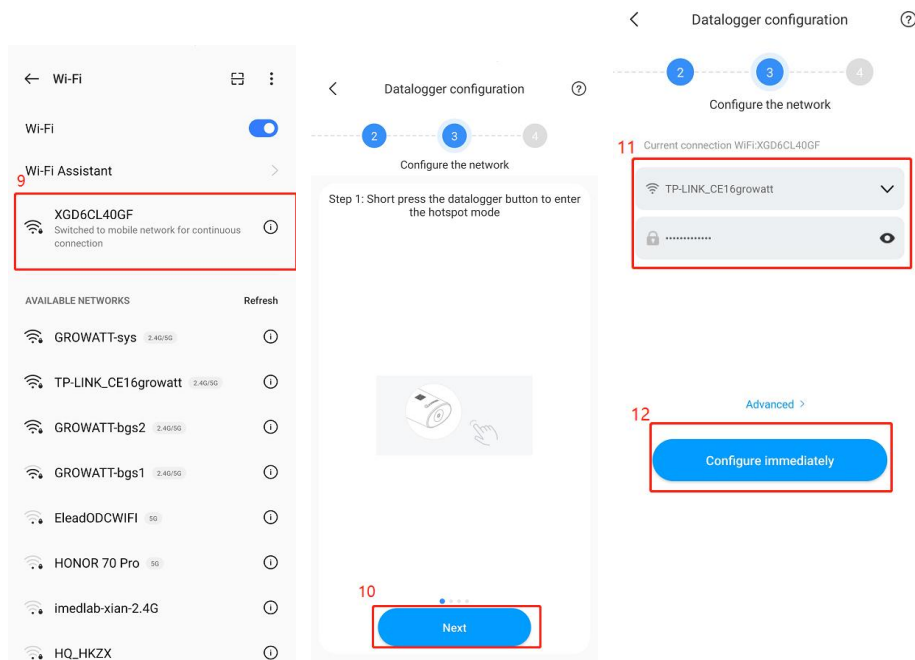


Add a datalogger:

1. Tap “Me” on the home screen and select “Configure Wi-Fi datalogger”
2. Scan the QR code on the datalogger or enter the serial number and verification code manually, then tap “confirm”
3. Select Hotspot Mode (Recommended for European and Australian models)

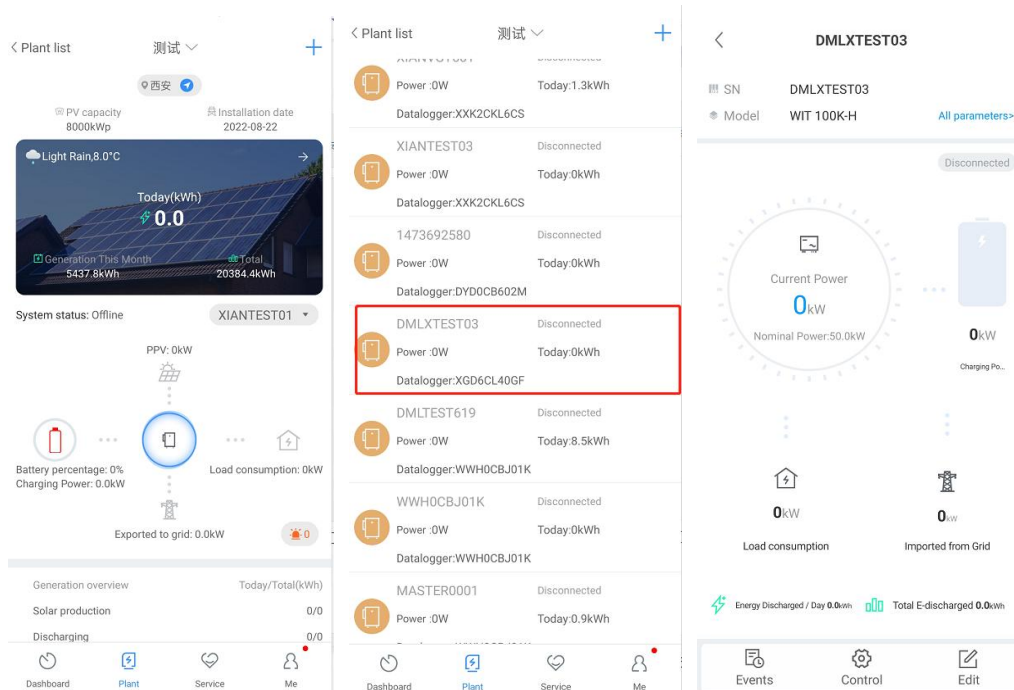
4. Connect to the hotspot (shown as the serial number of the datalogger). The initial password is 12345678, and click “Next”
5. After connecting to the hotspot, tap “Configure immediately”

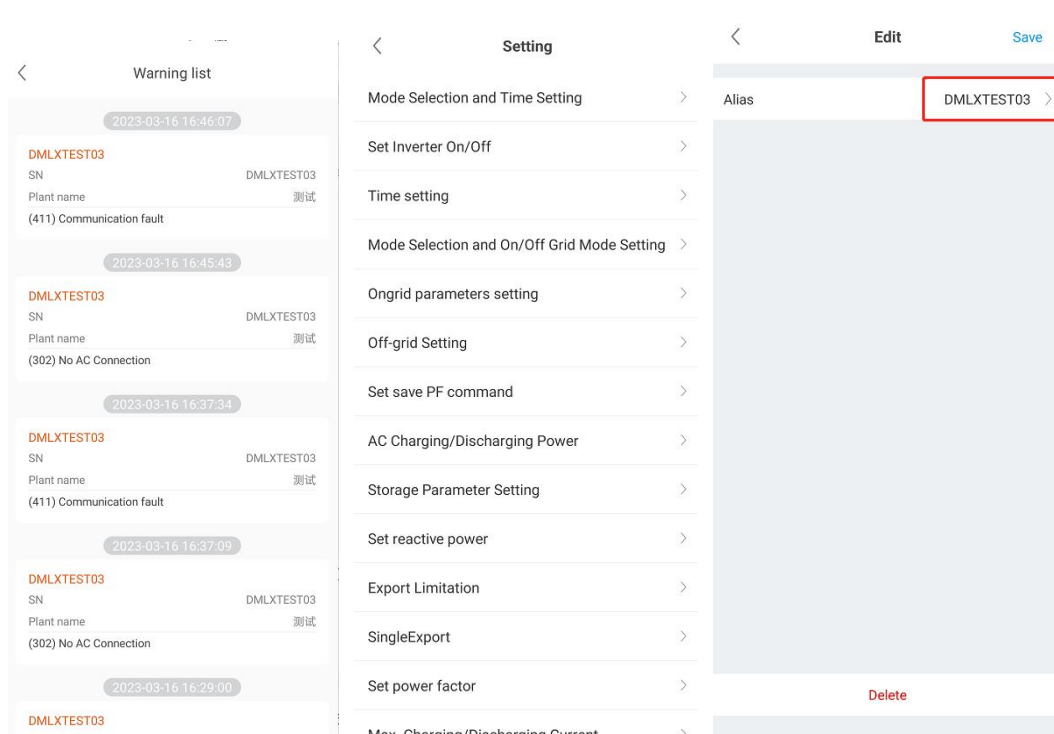




Details Page:

1. Select the target plant on the plant list, then you can view the real-time data and historical records
2. Select the Storage Inverter with its serial number and access the inverter screen
3. Information about the inverter and other equipment is available
4. Tap “Log” to view alarm reports and troubleshooting guide
5. Tap “Control” to set user parameters
5. Tap “Edit” to alter the name of the Storage Inverter

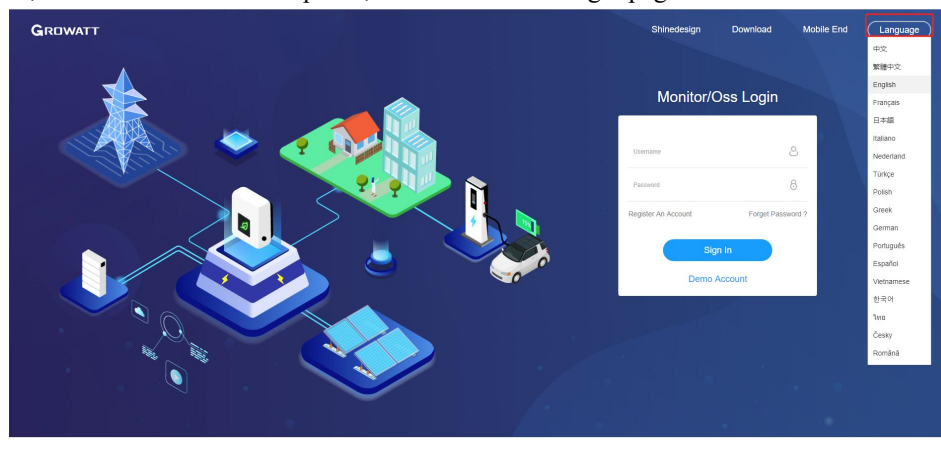


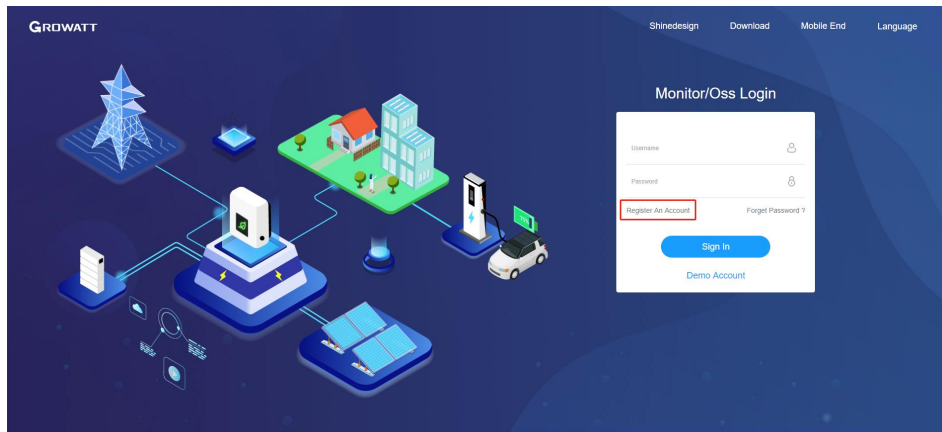


8.1.2 Remote Monitoring via the Server WEB Page

1. Register an account

Open the browser, enter <http://server-cn.growatt.com> in the address bar. You can select the language by clicking "Language" on the upper right corner. After the language is successfully set, click "Register an Account", enter the information required, then return to the login page.





GROWATT Register Back To Login

User Installer Distributor

Country *

Username No More Than 30 Characters *

Password Not Less Than 6 Digits *

Password Confirm Not Less Than 6 Digits *

Language English *

Phone Number

E-Mail

Allow remote operation & maintenance ☒ Installer ☒ Distributor (Detailed description)

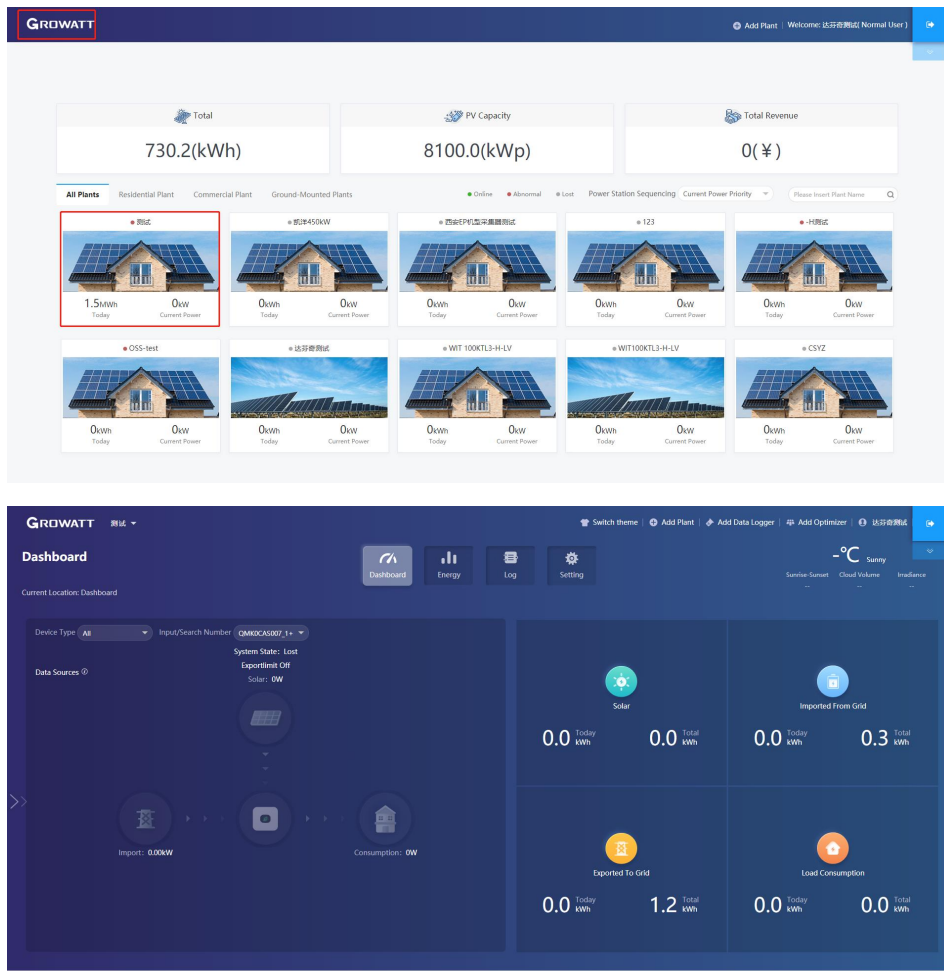
Installer Code

☒ I have read and agree to the: [\(User Agreement\)](#) [\(Privacy policy\)](#)

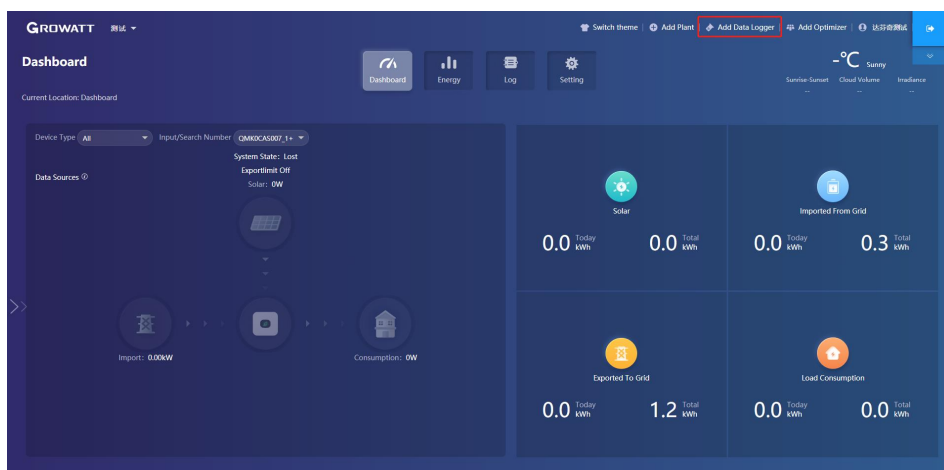
Next

2. After logging in successfully, click "Add Plant", complete the information (the asterisk marks required fields) and confirm. If the PV plant has been created, skip this step.

3. Click the PV plant or the "GROWATT" icon to access the home screen of the PV plant.



4. On the dashboard page of the power station, click Add Data Logger, enter the SN and verification code, and save the settings. The Storage Inverter and Data Logger will be online within 5 minutes after the Storage Inverter is powered on. (Users need to add the datalogger to enable the remote monitoring of the Storage Inverter).



Add Data Logger

Data Logger Sn

Check Code

Assigned Plant

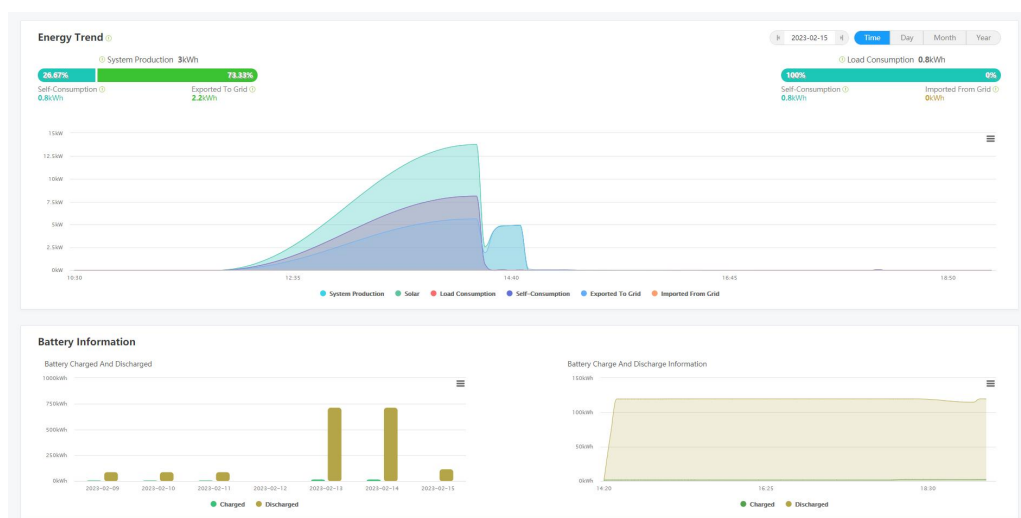
采集器

Third Party Device

Yes

Cancel

5. On the dashboard screen, you can scroll down to view the Energy Trend and Battery Information. The Energy Trend graph displays information including system output and consumption. The time range can be changed in the upper right corner. The Battery Information chart displays the daily charging and discharging status of the battery and its real-time status.



9.System Maintenance

9.1 Routine Maintenance

9.1.1 Clean the Inverter Chassis

	•Before performing any operations, disconnect the AC and DC power supply and wait for 5 minutes after the system is powered off. •Wipe the dust off the chassis and clean the chassis with a moistened cloth in 5 minutes after the system is powered off.
---	--

- 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 9.1.2.

9.1.2 Fan Maintenance

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

Ventilation and heat dissipation is essential to protect the Storage Inverter from initiating performance de-rate due to excess heat. The fan in the inverter is activated 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 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 Storage Inverter installation position 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 Figure 9.1:

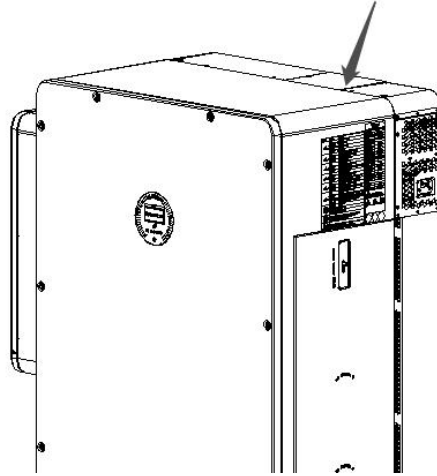


Fig 9.1 Position of the baffle

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

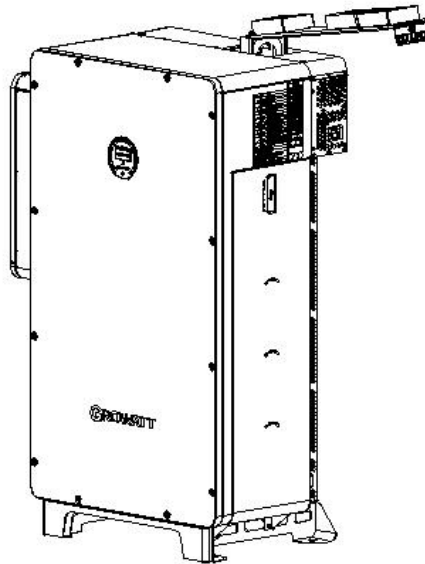


Fig 9.2 Position of the fan

NOTE:

- ① WIT 50-100K-A, WIT 50-100K-H, WIT 50-100K-AE, WIT 50-100K-HE models have five external fans;
- ② WIT 50-100K-AU, WIT 50-100K-HU 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 Storage Inverter.

9.2 Troubleshooting

	•It must be operated by trained and professional electrical technicians. Technicians must observe this manual and comply with local regulations. •If the inverter reports a low insulation resistance alarm, do not touch the equipment as a ground fault might have occurred. •Beware of high voltages which can cause electric shock.
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9.2.1 Warning

Warnings indicate abnormal situations of WIT 50-100K series Storage Inverters, leading to a reduction in the output power. The warning sign will disappear once the fault is rectified by restarting the inverter, resetting the system or self-correction. The warning codes are shown in Table 9.1:

Table 9.1 Storage Inverter warning codes

Warning	Description	Suggestion
Warning 200	PV Panel access failure	1. After shutdown, check whether the panel is normal. 2. If the fault persists, contact Growatt.
Warning 201	PV array/PID quick-connect terminal abnormal	1. After shutdown, check the string terminal wiring. 2. If the fault persists, contact Growatt.
DC SPD Warning	DC SPD function abnormal	1. After shutdown, check the DC SPD. 2. If the fault persists, contact Growatt.
Warning 203	Short circuit occurs in PV modules	1. Check whether the PV1 or PV2 wiring is short-circuited. 2. If the fault persists, contact Growatt.
Boost Warning	The boost drive is abnormal	1. Restart the Storage Inverter. 2. If the fault persists, contact Growatt.
AC SPD Warning	AC SPD function abnormal	1. After shutdown, check the AC SPD. 2. If the fault persists, contact Growatt.
Warning 208	DC Fuse blows	1. Power off the system and check the fuse. 2. If the fault persists, contact Growatt.
Warning 209	The DC input voltage exceeds the maximum value of the inverter MPPT voltage	1. Immediately disconnect the DC switch and check the PV array configuration. 2. If the fault persists, contact Growatt.
PV Reversed	PV terminals reversed	1. Check whether the PV string is reversely connected to the inverter. If so, correct the PV string connection. 2. If the fault persists, contact Growatt.
Warning 219	PID function abnormal	1. Restart the Storage Inverter. 2. If the fault persists, contact Growatt.

Warning 220	The PV array is not connected	1.Check whether the PV array is properly connected. 2.If the fault persists, contact Growatt.
Warning 221	The PV array current is unbalanced	1.Check whether the PV array is normal. 2.If the fault persists, contact Growatt.
Warning 300	No mains connection	1. Please check whether the power grid goes down. 2.If the fault persists, contact Growatt.
Warning 301	Grid voltage outrange	1.Check if the AC voltage is within the acceptable range. 2. If the fault persists, contact Growatt.
Warning 302	Grid frequency outrange	1.Check if the frequency is within the acceptable range. 2.If the fault persists, contact Growatt.
Warning 303	EPS mode, overload	1.Please reduce the load of EPS output. 2.If the fault persists, contact Growatt.
Warning 308	The meter is disconnected	1.Check whether the meter is properly connected. 2.If the fault persists, contact Growatt.
Warning 309	The meter is reversely connected	1.Check whether the L line and N line of the meter is reversely connected. 2.If the fault persists, contact Growatt.
Warning 310	NE abnormal	1.Check whether the PE cable is securely connected 2.If the fault persists, contact Growatt.
Warning 311	Sequence Error	No operation is required. The PCS will automatically adjust the phase sequence.
Warning 400	Fan function abnormal	1.After shutdown, check the connection of the fan. 2. Replace the fan. 3.If the fault persists, contact Growatt.
Warning 401	Meter abnormal	1.Check if the meter is on. 2.Check whether the meter is correctly and securely connected to the Storage Inverter.
Warning 402	Communication between the optimizer and the Storage Inverter is abnormal	1.Check if the optimizer is on. 2.Check whether the optimizer is correctly and securely connected to the Storage Inverter.
Warning 407	Over-temperature	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Warning 408	NTC broken	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Warning 411	Synchronization signal anomaly	1.Check if the synchronizing signal is abnormal. 2.If the fault persists, contact Growatt.

Warning 412	The grid-connected startup condition of the Storage Inverter is not met	1.Check whether the grid voltage is out of range or whether the grid-connected voltage setting of the Storage Inverter is correct. 2.Check whether the PV voltage is too high or too low. 3.Restart the Storage Inverter. If the fault persists, contact Growatt.
Warning 500	WIT failed to communicate with the lithium battery	1.Check whether the lithium Battery is on or not. 2.Check the connection between the lithium battery and the Storage Inverter.
Warning 501	Battery terminal disconnected	1.Check if the battery is connected. 2.If the fault persists, contact Growatt.
Warning 502	Battery voltage high	1.Check whether the voltage of the battery is within the specified range. 2.Check whether the battery is correctly connected. 3.If the fault persists, contact Growatt.
Warning 503	Battery voltage low	1.Check whether the voltage of the battery is within the specified range. 2.Check whether the battery is correctly connected. 3.If the fault persists, contact Growatt.
Warning 504	Battery terminals reversed	1.Check whether the positive and negative terminals of the battery is reversely connected or not. 2.If the fault persists, contact Growatt.
Warning 505	Battery temperature sensor was not connected	1.Check if the battery temperature sensor is installed or not. 2.Check if the battery temperature sensor is securely connected or not. 3.If the fault persists, contact Growatt.
Warning 506	Battery temperature outrange	1.Check whether the environment temperature is within the acceptable range. 2.If the fault persists, contact Growatt.
Warning 507	BMS failure and neither charge nor discharge is allowed	1.If a battery fault is reported, the battery cannot charge or discharge. 2.If the fault persists, contact Growatt.
Warning 508	Battery overload protection	1.Check if the load power is greater than battery's rated discharging power. 2.If the fault persists, contact Growatt.
Warning 509	BMS information abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Warning 510	BAT SPD function abnormal	1.After shutdown, check the BAT SPD. 2.If the fault persists, contact Growatt.

Warning 601	The DC component of the output voltage is too high	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Warning 605	The off-grid Bus voltage is too low	1.Check whether the load exceeds the specified upper threshold. 2.Restart the Storage Inverter. If the fault persists, contact Growatt.
Warning 609	Balance circuit overload	1.Reduce unbalanced loads. 2.If the fault persists, contact Growatt.

9.2.2 Error

The error code indicates that the device is damaged or the settings are abnormal. Only qualified and trained electrical technicians are allowed to perform operations on the equipment. The alarm signal will disappear after the fault is rectified. If the problem cannot be fixed, please contact Growatt.

Table 9.2 Storage Inverter error codes

Error Code	Description	Suggestion
AFCI Fault	AFCI Fault	1.After shutdown, check the connection of the panel terminals. 2.Restart the Storage Inverter. 3.If the fault persists, contact Growatt.
GFCI High	Leakage current is too high	1.Restart the Storage Inverter 2.If the fault persists, contact Growatt.
PV Voltage High	The DC input voltage exceeds the upper threshold	1.Immediately disconnect the DC switch and check the voltage. 2.If the fault code still exists after the voltage is within the specified range, contact Growatt.
PV Isolation Low	The insulation resistance of the panel is low	1.Check whether the panel shell is grounded reliably after shutdown. 2.If the fault information still exists, contact Growatt.
PV Reversed	PV terminals reversed	1.After shutdown, check the connection of the inverter terminals. 2.Restart the Storage Inverter. 3.If the fault persists, contact Growatt.
AC V Outrange	The mains voltage is abnormal	1.Check the grid voltage. 2.If the error message still exists despite the grid voltage is within the acceptable range, contact Growatt.
No AC	No mains connection	1.After shutdown, check the AC wiring. 2.If the fault persists, contact Growatt.
PE Abnormal	NE abnormal	1.Check the PE cable to ensure that it is reliably connected 2.If the fault persists, contact Growatt.
AC F Out range	The mains frequency is out of range	1.Check the grid frequency and restart the Storage Inverter.

		2.If the fault persists, contact Growatt.
Error 309	The change rate of the mains is abnormal	1.Check the grid frequency and restart the Storage Inverter. 2.If the fault persists, contact Growatt.
NE Fault	NE Fault	1.Check whether the N line at the inverter side with PV negative grounding is short circuited with the ground wire, and whether the output side is isolated with a transformer. 2.If the fault persists, contact Growatt.
Error 311	Failure of counter-current protection	1.After shutdown, check the connection of the CT or the meter. 2.If the fault persists, contact Growatt.
Error 400	The DC component is biased abnormally	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 402	The DC component of the output current is too high	1.Restart the Storage Inverter 2.If the fault persists, contact Growatt.
Error 404	The bus voltage sampling is abnormal	1.Restart the Storage Inverter 2.If the fault persists, contact Growatt.
Error 405	Relay fault	1.Restart the Storage Inverter 2.If the fault persists, contact Growatt.
Error 408	Over-temperature	1.After shutdown, check the temperature. Restart the Storage Inverter after it cools down. 2.If the fault persists, contact Growatt.
Error 409	The bus voltage is abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 411	Communication fault	1.After shutdown, check the communication board wiring. 2.If error message still exists, contact Growatt.
Error 412	The temperature sensor is improperly connected	1.After shutdown, check whether the temperature sampling module is connected properly. 2.If the fault persists, contact Growatt.
Error 413	IGBT drive fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 414	EEPROM fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 415	Auxiliary power supply abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 416	Over current protection	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 417	System communication protocol does not match	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 418	DSP and COM firmware version unmatched	1.Check the firmware version. 2.If the fault persists, contact Growatt.

Error 419	DSP software version and Hardware version mismatch	1.Check the firmware version. 2.If the fault persists, contact Growatt.
Error 421	CPLD is abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 422	Redundant sampling is inconsistent	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 423	Storage Inverter PWM pass-through protection is faulty	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 425	AFCI self-test fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 426	PV current sampling anomaly	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 427	AC current sampling anomaly	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 430	EPO Fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 431	Monitoring chip BOOT verification failed	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 500	BMS communication failure	1.Restart the entire system. 2.If the fault persists, contact Growatt.
Error 501	Battery error	1.BMS failure and neither charge nor discharge is allowed. Figure out the cause based on the BMS error code. 2.If the fault persists, contact Growatt.
Bat Voltage Low	Battery voltage low	1.Check whether the battery voltage is too low; if the battery works properly, please restart the inverter; if not, please replace the battery. 2.If the fault persists, contact Growatt.
Error 503	Battery voltage high	1.Check whether the battery voltage is too high; if the battery works properly, please restart the inverter; if not, please replace the battery. 2.If the fault persists, contact Growatt.
Error 504	The battery temperature exceeds the range	1.Check the battery temperature. 2.If the fault persists, contact Growatt.
Bat Reversed	Battery polarity reversed	1.Check battery terminals. 2.If the fault persists, contact Growatt.
Error 506	Battery terminals disconnected	1.Check battery terminals. 2.If the fault persists, contact Growatt.
Error 507	Battery overload protection	1.Check whether the load power is greater than the battery rated power. 2.If the fault persists, contact Growatt.

Error 508	BUS2 Volt abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 509	The battery over-current fault during charging	1.Check whether the PV voltage is over configured. 2.If the fault persists, contact Growatt.
Error 510	The battery over-current fault during discharging	1.Check whether the battery discharge current is properly set. 2.If the fault persists, contact Growatt.
Error 511	The battery soft start is faulty	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
EPS Output Short	EPS OP Short Fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 601	Bus voltage low	1.Check whether the battery works properly. 2.If the fault persists, contact Growatt.
Error 602	AC port volt abnormal	1.Check whether the AC port has voltage. 2.If the fault persists, contact Growatt.
Error 603	Soft-start failure	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 604	Off-grid output voltage is abnormal	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 605	Balance circuit fault	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 606	The DC component of the output voltage is too high	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
EPS Overload	EPS output overload	1.Restart the Storage Inverter. 2.If the fault persists, contact Growatt.
Error 608	Off-grid parallel signal is abnormal	1.Check offline parallel signal. 2.If the fault persists, contact Growatt.

10.Product Specifications

Table 10.1 WIT 50/63/75/100K-A Specification

Model	WIT 50K-A	WIT 63K-A	WIT 75K-A	WIT100K-A
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			
Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data(AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	55000VA	69300VA	82500VA	110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	75.6A@220V 72.5A@230V	95.5A@220V 91.3A@230V	113.6A@220V 108.7A@230V	151.5A@220V 144.9A@230V
Max. output current	83.3A@220V 79.7A@230V	105A@220V 100.4A@230V	125A@220V 119.6A@230V	166.7A@220V 159.4A@230V
Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power(AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	60000VA	75600VA	90000VA	120000VA
Rated AC output voltage	220V/230V/240V/380V/400V/415V			
Nominal AC output frequency	50/60 Hz			
Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			

Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	$\leq 110\%$, continuous; $110\% \sim 120\%$: 10min $> 120\%$, 200ms			
Efficiency				
Max. battery charge/discharge efficiency	98.20%	98.20%	98.20%	98.20%
Protection devices				
PV reverse polarity protection	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes
RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
Display and communication				
Display	OLED+LED/APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W / H / D) in mm	820*1350*510mm			
Weight	120kg	120kg	120kg	120kg
Operating temperature range	$-30^{\circ}\text{C} \dots +60^{\circ}\text{C}$ ($> 50^{\circ}\text{C}$, derating)			
Noise emission (typical)	$\leq 53\text{dB(A)}$	$\leq 53\text{dB(A)}$	$\leq 65\text{dB(A)}$	$\leq 65\text{dB(A)}$
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless

Cooling	Smart air cooling	Smart air cooling	Smart air cooling	Smart air cooling
Protection degree	IP66	IP66	IP66	IP656
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPIREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

Table 10.2 WIT 50/63/75/100K-H Specification

Model	WIT 50K-H	WIT 63K-H	WIT 75K-H	WIT100K-H
Input data(DC)				
Max. recommended PV power (for module STC)	109200W	124800W	156000W	156000W
Max. input voltage	1100V	1100V	1100V	1100V
Start voltage	195V	195V	195V	195V
Nominal voltage	550V	550V	550V	550V
MPP voltage range	180V-800V	180V-800V	180V-800V	180V-800V
Full power MPPT voltage range	520V-800V	520V-800V	520V-800V	520V-800V
Max. input current per MPP tracker	32A	32A	32A	32A
Max. short-circuit current per MPP tracker	40A	40A	40A	40A
No. of MPP trackers	7	8	10	10
No. of PV strings per MPP tracker	2	2	2	2
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			
Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data(AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	55000VA	69300VA	82500VA	110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	75.6A@220V 72.5A@230V	95.5A@220V 91.3A@230V	113.6A@220V 108.7A@230V	151.5A@220V 144.9A@230V
Max. output current	83.3A@220V 79.7A@230V	105A@220V 100.4A@230V	125A@220V 119.6A@230V	166.7A@220V 159.4A@230V

Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power(AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	60000VA	75600VA	90000VA	120000VA
Rated output voltage	220V/230V/240V/380V/400V/415V			
Nominal AC frequency	50/60 Hz			
Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			
Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	≤110%, continuous; 110% ~ 120%: 10min >120%, 200ms			
Efficiency				
Max. efficiency	98.00%	98.00%	98.00%	98.00%
Max. battery charge/discharge 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	Yes	Yes	Yes
PV input DC switch	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes
RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
String monitoring	Yes	Yes	Yes	Yes
Anti-PID function	Optional	Optional	Optional	Optional
AFCI protection	Optional	Optional	Optional	Optional

Display and communication				
Display	OLED+LED/APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W /H / D) in mm	820*1350*510mm			
Weight	133kg	133kg	140kg	140kg
Operating temperature range	-30°C ... +60°C (> 50°C derating)			
Noise emission (typical)	≤53dB(A)	≤53dB(A)	≤65dB(A)	≤65dB(A)
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling	Smart air cooling	Smart air cooling	Smart air cooling	Smart air cooling
Protection degree	IP66	IP66	IP66	IP66
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPiREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

Table 10.3 WIT 50/63/75/100K-AE Specification

Model	WIT 50K-AE	WIT 63K-AE	WIT 75K-AE	WIT100K-AE
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			

Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data (AC)				
Rated AC output power	100000W/50000W	126000W/63000W	150000W/75000W	200000W/100000W
Max. AC apparent power	100000VA/ 55000VA	126000VA/ 69300VA	150000VA/ 82500VA	200000VA/ 110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	151.5A/75.6A @220V 144.9A/72.5A @230V	190.9A/95.5A @220V 182.6A/91.3A @230V	227.3A/113.6A @220V 217.4A/108.7A @230V	303A/151.5A @220V 289.9A/144.9A @230V
Max. output current	151.5A/83.3A @220V 144.9A/79.7A @230V	190.9A/105A @220V 182.6A/100.4A @230V	227.3A/125A @220V 217.4A/119.6A @230V	303A/166.7A @220V 289.9A/159.4A @230V
Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power (AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	60000VA	75600VA	90000VA	120000VA
Rated AC output voltage	220V/230V/240V/380V/400V/415V			
Rated AC output frequency	50/60 Hz			
Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			
Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	≤110%, continuous; 110% ~ 120%: 10min >120%, 200ms			

Switching time from on-grid to off-grid	< 200ms			
Switching time from off-grid to on-grid	0ms			
Efficiency				
Max. battery charge/discharge efficiency	98.20%	98.20%	98.20%	98.20%
Protection devices				
Battery reverse protection	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes
RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
Display and communication				
Display	OLED+LED/APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W / H / D) in mm	820*1350*510mm			
Weight	130kg	130kg	130kg	130kg
Operating temperature range	-30°C ... +60°C (> 50°C, derating)			
Noise emission (typical)	≤53dB(A)	≤53dB(A)	≤65dB(A)	≤65dB(A)
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling	Smart air cooling	Smart air cooling	Smart air cooling	Smart air cooling

Protection degree	IP66	IP66	IP66	IP66
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPiREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

Table 10.4 WIT 50/63/75/100K-HE Specification

Model	WIT 50K-HE	WIT 63K-HE	WIT 75K-HE	WIT100K-HE
Input data (DC)				
Max. recommended PV power (for module STC)	109200W	124800W	156000W	156000W
Max. input voltage	1100V	1100V	1100V	1100V
Start voltage	195V	195V	195V	195V
Nominal voltage	550V	550V	550V	550V
MPP voltage range	180V-800V	180V-800V	180V-800V	180V-800V
Full power MPPT voltage range	520V-800V	520V-800V	520V-800V	520V-800V
Max. input current per MPP tracker	32A	32A	32A	32A
Max. short-circuit current per MPP tracker	40A	40A	40A	40A
No. of MPP trackers	7	8	10	10
No. of PV strings per MPP tracker	2	2	2	2
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			
Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data(AC)				
Rated AC output power	100000W/50000W	126000W/63000W	150000W/75000W	200000W/100000W
Max. AC apparent power	100000VA/ 55000VA	126000VA/ 69300VA	150000VA/ 82500VA	200000VA/ 110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	151.5A/75.6A @220V 144.9A/72.5A	190.9A/95.5A @220V 182.6A/91.3A	227.3A/113.6A @220V 217.4A/108.7A	303A/151.5A @220V 289.9A/144.9A

	@230V	@230V	@230V	@230V
Max. output current	151.5A/83.3A @220V 144.9A/79.7A @230V	190.9A/105A @220V 182.6A/100.4A @230V	227.3A/125A @220V 217.4A/119.6A @230V	303A/166.7A @220V 289.9A/159.4A @230V
Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power (AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	60000VA	75600VA	90000VA	120000VA
Rated AC output voltage	220V/230V/240V/380V/400V/415V			
Nominal AC output frequency	50/60 Hz			
Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			
Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	≤110%, continuous; 110% ~ 120%: 10min >120%, 200ms			
Switching time from on-grid to off-grid	< 200ms			
Switching time from off-grid to on-grid	0ms			
Efficiency				
Max. efficiency	98.00%	98.00%	98.00%	98.00%
Max. battery charge/discharge efficiency	98.20%	98.20%	98.20%	98.20%
MPPT efficiency	99.90%	99.90%	99.90%	99.90%
Protection devices				
Battery reverse protection	Yes	Yes	Yes	Yes
PV input DC switch	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes

RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
String monitoring	Yes	Yes	Yes	Yes
Anti-PID function	Optional	Optional	Optional	Optional
AFCI protection	Optional	Optional	Optional	Optional
Display and communication				
Display	OLED+LED/WIFI+APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W / H / D) in mm	820*1350*510mm			
Weight	143kg	143kg	150kg	150kg
Operating temperature range	-30°C ... +60°C (> 50°C, derating)			
Noise emission (typical)	≤53dB(A)	≤53dB(A)	≤65dB(A)	≤65dB(A)
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling	Smart air cooling	Smart air cooling	Smart air cooling	Smart air cooling
Protection degree	IP66	IP66	IP66	IP66
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPIREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

Table 10.5 WIT 50/63/75/100K-AU Specification

Model	WIT 50K-AU	WIT 63K-AU	WIT 75K-AU	WIT100K-AU
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			
Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data(AC)				
Rated AC output power	100000W/50000W	126000W/63000W	150000W/75000W	200000W/100000W
Max. AC apparent power	100000VA/ 55000VA	126000VA/ 69300VA	150000VA/ 82500VA	200000VA/ 110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	151.5A/75.6A @220V 144.9A/72.5A @230V	190.9A/95.5A @220V 182.6A/91.3A @230V	227.3A/113.6A @220V 217.4A/108.7A @230V	303A/151.5A @220V 289.9A/144.9A @230V
Max. output current	151.5A/83.3A @220V 144.9A/79.7A @230V	190.9A/105A @220V 182.6A/100.4A @230V	227.3A/125A @220V 217.4A/119.6A @230V	303A/166.7A @220V 289.9A/159.4A @230V
Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power (AC)				
Rated power	50000W	63000W	75000W	100000W
Max. apparent power	60000VA	75600VA	90000VA	120000VA
Rated Output Voltage	220V/230V/240V/380V/400V/415V			
Rated frequency	50/60 Hz			

Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			
Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	≤110%, continuous; 110% ~ 120%: 10min >120%, 200ms			
Switching time from on-grid to off-grid	< 20ms			
Switching time from off-grid to on-grid	0ms			
Efficiency				
Max. battery charge/discharge efficiency	98.20%	98.20%	98.20%	98.20%
Protection devices				
Battery reverse protection	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes
RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
Display and communication				
Display	OLED+LED/APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W / H / D) in mm	820*1350*510mm			
Weight	140kg	140kg	140kg	140kg
Operating temperature range	-30°C ... +60°C (> 50°C, derating)			

Noise emission (typical)	≤78dB(A)	≤78dB(A)	≤78dB(A)	≤78dB(A)
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling	Smart air cooling	Smart air cooling	Smart air cooling	Smart air cooling
Protection degree	IP66	IP66	IP66	IP66
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPiREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

Table 10.6 WIT 50/63/75/100K-HU Specification

Model	WIT 50K-HU	WIT 63K-HU	WIT 75K-HU	WIT100K-HU
Input data(DC)				
Max. recommended PV power (for module STC)	109200W	124800W	156000W	156000W
Max. input voltage	1100V	1100V	1100V	1100V
Start voltage	195V	195V	195V	195V
Nominal voltage	550V	550V	550V	550V
MPP voltage range	180V-800V	180V-800V	180V-800V	180V-800V
Full power MPPT voltage range	520V-800V	520V-800V	520V-800V	520V-800V
Max. input current per MPP tracker	32A	32A	32A	32A
Max. short-circuit current per MPP tracker	40A	40A	40A	40A
No. of MPP trackers	7	8	10	10
No. of PV strings per MPP tracker	2	2	2	2
Battery data (DC)				
Continuous charging / discharging power	56700W	71400W	85100W	113500W
Battery voltage range	600-1000V (for 3P3W) / 680-1000V (for 3P4W)			
Recommended battery voltage	768V			
Max. charging and discharging current	83.3A	105A	125A	167A
BMS communication	RS485/CAN			
Output data(AC)				
Rated AC output power	100000W/50000W	126000W/63000W	150000W/75000W	200000W/100000W
Max. AC apparent power	100000VA/ 55000VA	126000VA/ 69300VA	150000VA/ 82500VA	200000VA/ 110000VA
Nominal AC voltage	220V/230V/240V (L-N) 380V/400V/415V (L-L)			
AC voltage range	-15% ~ +10%			
AC grid frequency	50/60 Hz			
AC grid frequency range	45~55Hz/55-65 Hz			
Rated output current	151.5A/75.6A @220V 144.9A/72.5A	190.9A/95.5A @220V 182.6A/91.3A	227.3A/113.6A @220V 217.4A/108.7A	303A/151.5A @220V 289.9A/144.9A

	@230V	@230V	@230V	@230V
Max. output current	151.5A/83.3A @220V 144.9A/79.7A @230V	190.9A/105A @220V 182.6A/100.4A @230V	227.3A/125A @220V 217.4A/119.6A @230V	303A/166.7A @220V 289.9A/159.4A @230V
Power factor (@nominal power)	>0.99			
Adjustable power factor	(1 leading ~ 1 lagging)			
THDi	<3%	<3%	<3%	<3%
AC grid connection type	3P+PE/3P+N+PE			
Backup power (AC)				
Rated AC output power	50000W	63000W	75000W	100000W
Max. AC apparent power	60000VA	75600VA	90000VA	120000VA
Rated AC output voltage	220V/230V/240V/380V/400V/415V			
Nominal AC output frequency	50/60 Hz			
Max. output current	90.9A@220V 87A@230V	114.5A@220V 109.6A@230V	136.4A@220V 130.4A@230V	181.8A@220V 173.9A@230V
Voltage accuracy	1%			
Frequency accuracy	0.1Hz			
THDv	3%			
Unbalanced load	100% three-phase unbalanced			
Overload capacity	≤110%, continuous; 110% ~ 120%: 10min >120%, 200ms			
Switching time from on-grid to off-grid	< 20ms			
Switching time from off-grid to on-grid	0ms			
Efficiency				
Max. efficiency	98.00%	98.00%	98.00%	98.00%
Max. battery charge/discharge efficiency	98.20%	98.20%	98.20%	98.20%
MPPT efficiency	99.90%	99.90%	99.90%	99.90%
Protection devices				
Battery reverse protection	Yes	Yes	Yes	Yes
PV input DC switch	Yes	Yes	Yes	Yes
DC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Insulation resistance monitoring	Yes	Yes	Yes	Yes

RCD detection	Yes	Yes	Yes	Yes
AC short-circuit protection	Yes	Yes	Yes	Yes
AC surge protection	Yes (Type II)	Yes (Type II)	Yes (Type II)	Yes (Type II)
Ground fault monitoring	Yes	Yes	Yes	Yes
Grid monitoring	Yes	Yes	Yes	Yes
String monitoring	Yes	Yes	Yes	Yes
Anti-PID function	Optional	Optional	Optional	Optional
AFCI protection	Optional	Optional	Optional	Optional
Display and communication				
Display	OLED+LED/APP			
USB	Yes	Yes	Yes	Yes
RS485	Yes	Yes	Yes	Yes
4G	Optional	Optional	Optional	Optional
Wi-Fi	Optional	Optional	Optional	Optional
General data				
Dimensions (W / H / D) in mm	820*1350*510mm			
Weight	153kg	153kg	160kg	160kg
Operating temperature range	-30°C ... +60°C (> 50°C, derating)			
Noise emission (typical)	≤53dB(A)	≤53dB(A)	≤65dB(A)	≤65dB(A)
Relative humidity	0~100%			
Altitude	4000m	4000m	4000m	4000m
Nighttime power consumption	20W	20W	20W	20W
Standby power consumption	250W	250W	250W	250W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling	Fan cool	Fan cool	Fan cool	Fan cool
Protection degree	IP66	IP66	IP66	IP66
Warranty	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)	5/10 years(Optional)
Standard compliance				
Safety	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN62477-1			
EMC	EN 62920-2017			
Grid connection standards	EN50549-1, NRS 097-2-1, G99:2020, UKCA, VDE 4105, VDE4110, CEI 0-21:2019+V1:2020, CEI 0-16:2019+V1:2020, TOR Type A, VDE 0126, NC RFG, PSE-2018, PTPiREE-2021, C10/C11:2021, UNE 217001-2020, UNE 217002-2020, RD647:2020, NTS Type B			

11. Decommissioning the Storage Inverter

Handle the Storage 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 Storage Inverter from the bracket.
- 8> Dispose of the Storage Inverter according to local disposal rules.

12. Quality Assurance

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

12.1 Conditions

1. 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 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 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 inverter.
5. Unauthorized modifications or improper maintenance on the Storage 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.

13. Contact Us

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

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

Shenzhen Growatt New Energy Co., LTD
4-13F, Building A, Sino-German (Europe) Industrial Park,
Hangcheng Ave, Bao'an District, Shenzhen, China
T: +86 0755 2747 1942
E: service@gStorage Inverter.com
W: www.growatt.com