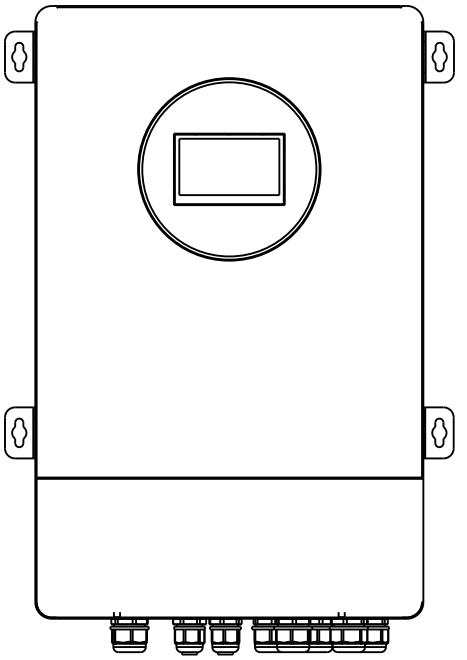
SNADI®

USER MANUAL

Solar Inverter

TS-652048-902-A

Solar inverter



440-836001-00-01

Preface

Attention

The purchased products, services should restrained by commercial contracts of the Company and their terms. Some of the products, services described in this document may not be within the range of procurement. Unless the contract specifies, otherwise, the Company does not make any representation or warranty, expressed or implied regarding the contents of this document.

Proper Keeping of the Manual

The manual is an important part of product, and you may print the electronic document of manual into a paper document as required, and properly keep the paper and electronic document for subsequent reference. All shall operate the equipment in accordance with the requirements in the manual at any time.

Safety Instructions

1. Before using this inverter, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION** - To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. 3. Do not disassemble this equipment. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning Turning off will not reduce this risk.
5. **CAUTION** - Only qualified person can install this device with battery.
6. **NEVER** charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow related specification to select appropriate cable size. It is very important to correctly operate this inverter/charger.
8. **CAUTION** - when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts, which could cause an explosion.
9. Strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
10. Fuse is provided as over-current protection for the battery supply.
11. **GROUNDING INSTRUCTIONS** - This inverter/charger should connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
12. **NEVER** cause AC output and DC input short-circuited. Do not connect to the mains when DC input short circuits.
13. **WARNING!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.

Overview

Prior to installation, operation, and maintenance, please read this Manual carefully. The Manual contains important safety and installation instructions that must be followed during installation and maintenance of the equipment.

Range of Application

The Manual describes the installation, electrical connection, commissioning, maintenance and troubleshooting of TBO series inverter. This series consists of the following models:

TS-652048-902-A

Readers

The Manual intended for professional electrical technicians being responsible for the installation and commissioning of inverters in the photovoltaic power generation system.

Symbols used in the Manual

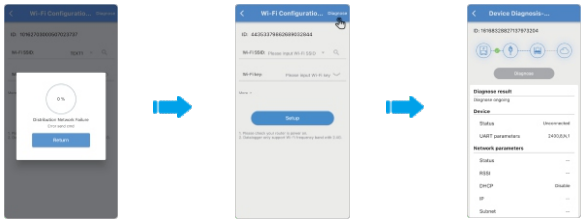
In order to ensure the safety of the users and their property in the process of using grid-connected PV inverters, and ensure the efficient use of this product, the relevant safety operation information are provided in the manual and highlighted with corresponding symbols. Please fully understand and absolutely comply with the highlighted information to avoid personal injury and property loss. The symbols used in the Manual are shown as below:

Hazard	“Hazard” indicates a high potential hazard, which could result in injury or death if not avoided.
Warning	“Warning” indicates a medium potential hazard, which could result in injury or death if not avoided.
Caution	“Caution” indicates a minor potential hazard, which could result in moderate or minor injury if not avoided.
Attention	“Attention” indicates a potential risk, which could make the equipment unable to run or result in property loss if not avoided.
Forbid	Damage may occur if relevant requirements are not followed.
High temp.	Do not touch the base of the inverter, as it will become hot.

8.3 Collector Fault Diagnose And Indicator Light Judgment

8.3-1 Collector Fault Diagnose After the device distribution

1 After the device distribution network is completed or failed, you can make a failure diagnosis by clicking on the upper right "Diagnose".



8.3-2 Collector Indicator Status

PWR (power indicator light):

On: normal power supply
Off: abnormal power supply

COM (serial port transmission Indicator):

Off: Number of data interaction

Off for 0.3 seconds, on for 0.9 seconds: serial output data

Off for 0.3 seconds, on for 0.3 seconds: serial port receiving data

On: Two-way receiving and receivin

Net (network status indicator):

Off for 0.3 seconds, on for 3 seconds:

STA mode connects the upper router

Off for 0.3 seconds, on for 0.3 seconds:

STA is not connected to the upper router

SRV (server connection indicator):

On: Has been connected to the server

Off: Uninterrupted to the server

8.2-2 Add Device

Method 1

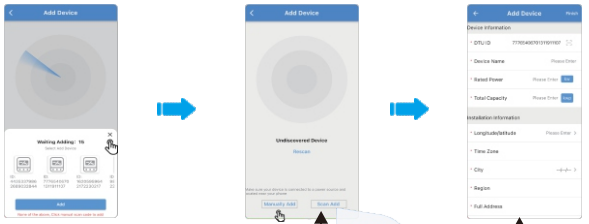
1 Enter the homepage of the APP, click "+" in the upper right corner, enter the device to add the page, close the mobile phone close to the device, and the app scan the device automatically.

2 After scanning to the device, select the ID that is consistent with the ID of the collector tag, and click "Add"

Note: Please confirm the collector ID before scanning. If the ID information is not found on the surface of the machine, you can view the ID on the matching page

Method 2

1 "Manually Add", complete the adding device according to the interface prompt manual output collector ID, name and other information.



Method 3 "Scan Add", scan the QR code ID number of the collector film, and perform the device with the corresponding collector.

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1. Introduction

This is a multi-function inverter/charger, combining functions of inverter, MPPT solar charger and battery charger to offer uninterruptible power support with portable size. This product has waterproof and dustproof characteristics on IP65 level, which can installed outdoors. As it is under no screen design, control method is similar with network camera: after bound to a mobile phone through QR code, user can monitor status of this inverter through WIFI/Bluetooth network, checking real-time solar capacity, battery remaining power, load capacity and daily/weekly/monthly energy statistics data.

Features

- Pure sine wave output.
- Built-in MPPT solar charge controller
- Configurable input voltage range for home appliances
- Configurable battery charging current
- Configurable AC/Solar Charger
- Compatible to mains voltage
- Auto restart while AC is recovering
- Overload/Over temperature/short circuit protection
- Inverter running without battery
- Lithium battery activation function
- Cold start function
- Parallel connection quantity up to 6 units (Battery must be connected)

Basic System Chart

The following figure shows basic application for this inverter/charger. It includes the following devices to have a complete running system.

- 220Vac Grid input (optional)
- 48Vdc Battery(optional)
- PV modules (optional)
- Generator or Utility (Incompatible for inverter directly, a relay box parts shall be installed)

Consult with your system integrator for other possible system chart depending on your requirements.

This inverter can power all kinds of appliances in home or office environment, including motor-typeappliances

8. APP connection

8.1 Wireless Wi-Fi Distribution Network

8.1-1 APP Download

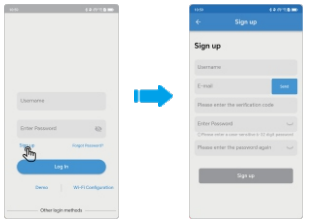
Method 1: Scan the QR code on the right, download the app.

Method 2: Scan the QR code of the film on the collector.

Method 3: Search in the application market to download the APP named "Solar of Things" for download.

8.1-2 Registered Account

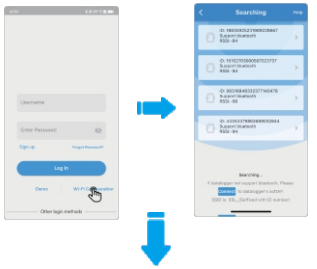
1 On the App home page, click the "Sign Up" button, fill in the relevant information according to the prompt, and complete the Registration.



8.2 Supporting Network And Adding Device

8.2-1 Wi-Fi Collector Connection Router

1 After the PWR indicator on the collector is on, turn on the mobile phone Bluetooth and Solar of Things App, click the "Wi-Fi Configuration" button to enter the "Searching" page, and the page will automatically display the nearby Bluetooth Device.

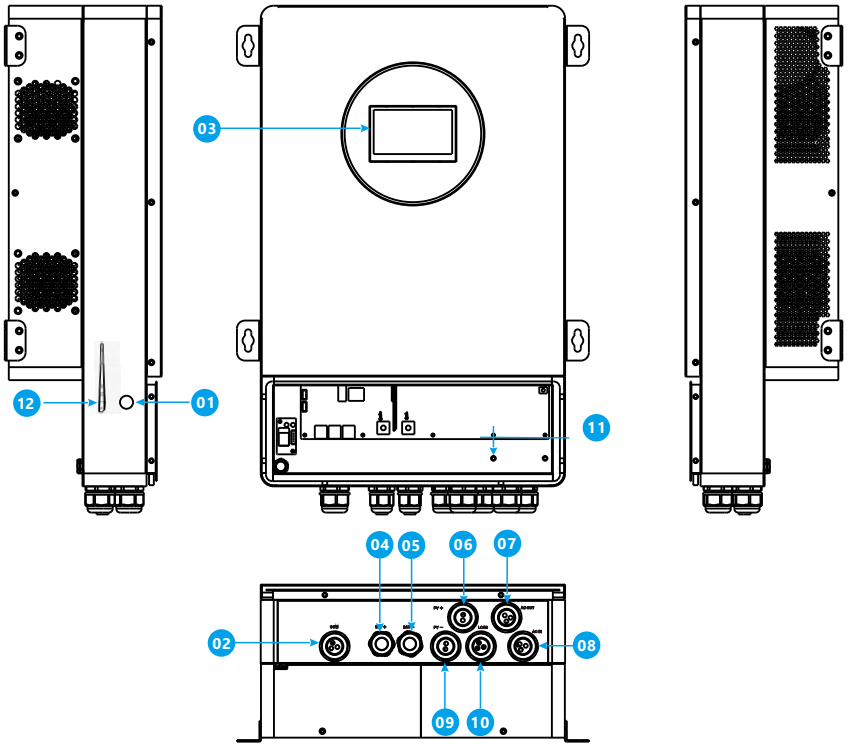


2 Select the collector that needs to be distributed, enter the matching webpage, and click the search icon. You can choose the Wi-Fi hotspot name.

3. Import of safety regulation parameters	You are required to locate the safety regulation parameters file (named after the corresponding safety regulations) on the website, enter the inverter regulation parameters setting interface and set it by yourself.
4. Set PV Mode	Select PV mode based on the connection method: 1. A set of photovoltaic panel outputs are connected to the inverter in two ways, and the parallel mode is selected. 2. Two sets of photovoltaic panel outputs are connected to the inverter to select independent
5. Set Battery type	1. Using a battery with communication protocol, select Idx1 Idx2 or ... 2. Using lead-acid or no communication protocol, select Custom (see 6.3.1>3.Battery Parameters>1.Battery Type)
6. Setting completed	

Figure : Parameters and Remarks

2. Product overview



Definition of Connectors

01	Power ON/OFF button
02	Communication-485 port1,port 2,BMS
03	LCD Display
04	Battery + connector
05	Battery - connector
06	PV+ connector
07	AC output connector (Main Load)
08	AC input (Grid) connector
09	PV-connector
10	AC output connector (Standby Load)
11	Grounding connector
12	WIFI

3. Installation

Warning marks inform users of conditions that can cause serious physical injury or death, or damage to the device. They

3.1 Precautions

also tell users how to prevent the dangers. The warning marks used in operation manual are as shown:

	● Be sure product package is intact when receiving this product. Contact with logistic company or local distributor if product packaging is opened or been damaged. ● Installation and initial operation must been carried out by professional technicians. This installer shall have electrical certification and thoroughly familiar with all the contents of this manual. ● Forbidden to connect or disconnect any cable (including PV cable, battery cable, AC cable) when power source is running. Before wiring or inspection work, switch of inverter, AC breaker, DC breaker and wait for
	● Ensure there is no strong electromagnetic interference around installation area ● All electrical installation must be satisfied with local/national electrical
	● Do not touch radiator and backside of inverter when it is running, as the
	● Ground with proper technics before operation.
	● Do not disassemble inverter in private. Electronic components of this equipment is electrostatic sensitive. Necessary anti-electrostatic
	● The equipment requires to be grounded.
	● Ensure DC and AC circuit breakers been disconnected. Wait at least 5 minutes before wiring and checking.

7. Trial operation

7.1 Recheck

The inverter is securely bracket mounted on the wall.

- PV+/PV- lines are firmly connected, with correct polarity and the voltage within the accessible range.
- The BAT+/BAT lines are firmly connected, with correct polarity and voltage within the accessible range.
- A DC switch in the disconnected state is correctly connected between the battery and the inverter.
- The power grid/load cable is firmly/correctly connected.
- An AC circuit breaker in a disconnected state is correctly connected between the power grid port of inverter and the power grid.
- An AC circuit breaker in a disconnected state is correctly connected between the load port of inverter and the emergency load.
- Ensure that the communication cable is properly connected for the lithium battery.

7.2 Initial power on (important)

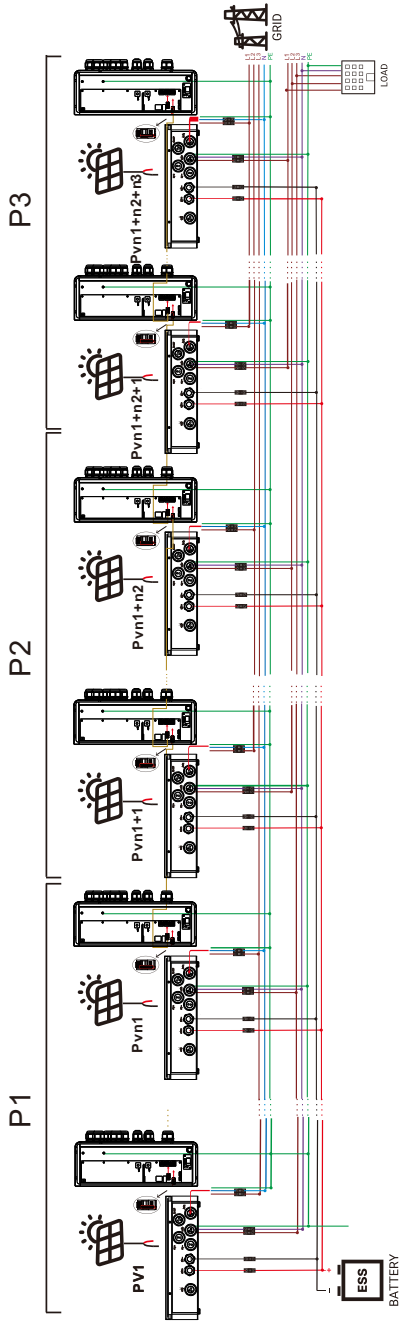
Important note: turn on the inverter by following the steps below.

- Ensure that the phase connected to the inverter does not generate electricity.
- Turn on the DC switch.
- Turn on the battery, and the DC switch between the battery and the inverter.
- Turn on the AC circuit breaker between the power grid port of inverter and the power grid.
- Turn on the AC circuit breaker between the load port of inverter and the emergency load.
- The inverter now starts working.

It is required to set the following parameters before starting the inverter.

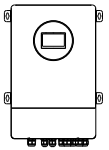
Parameters	Remarks
1. Selection of menu language	English by default.
2. Setting and confirmation of system time	The time should have been calibrated to local time as long as the upper computer such as the collector or mobile APP has been connected.

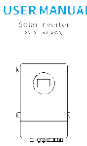
Three Phase Paralleling wiring sequence diagram



3.2 Unpacking and Inspectio

Open the package and take out the inverter. Check if all accessories are complete, placed in an electrostatic bag. In case of any damage to the inverter/accessories, contact with the dealer and no further open the

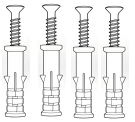

Inverter unit x1



Manual x1


Parallel communication connector x1


Combination M5 screw ×2
(Fixed battery wire)


Expansion bolt x 4


Parallel communication cable x1

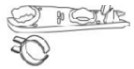

WIFI x1


Combination M4 screw ×1
(Fixed ground wire)

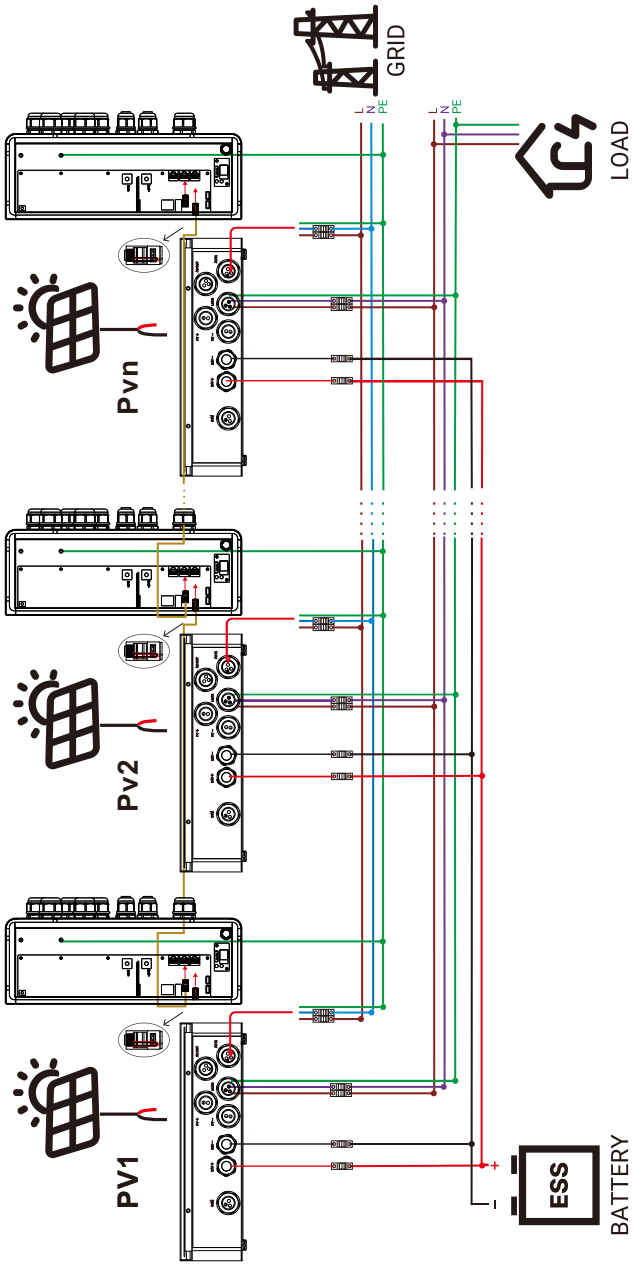

wire×2

3.3 Tools & Safety equipment

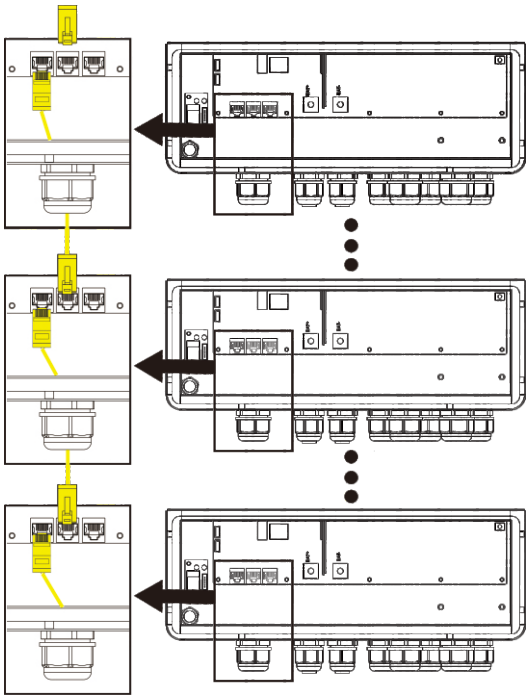
Installer shall prepare the following tools for installation and inspection work:

NO	Tools	Description	Functions
1		Impact drill (6mm drill bit)	Drilling on the wall
2		Slotted screwdriver	Removing, installing screws
3		4mm cross screwdriver	Removing, installing screws
4		Removal tool	Removing PV connector

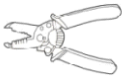
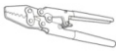
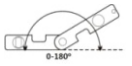
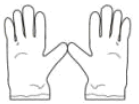
Single Phase Paralleling wiring sequence diagram



Step 2: Connect the communication port between inverters as shown in the diagram, where parallel connectors will beused on the first and last unit.



Step 3: Prepare the AC connection wires according to section 4.7 and complete the wiring between inverters according to the following parallel wiring sequence diagram.

5		Wire stripper	Stripping the wire
6		Wire crimper	Crimping cables connected to the grid and those at the critical load terminal, as well as CT extension cord
7		Multimeter	Check whether the cable wiring, positive and negative battery terminals are correct, and whether the grouding is reliable
8		Wrench (opening ⩾ 32 mm)	Fastening the expansion bolts
9		Marking pen	Mark drilling holes
10		Tape measure	Measuring distance
11		Leveling instrument	Measuring installation posture
12		Protective gloves	Safety
13		Safety goggles	
14		Mask	

3.4 Mount the Inverter

Consider the following points before selecting where to install:

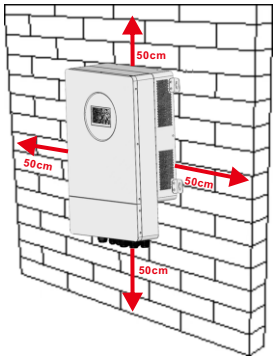
Do not mount the inverter on flammable construction materials.

Mount on a solid surface.

The ambient temperature should be between.10°c and 55°c to ensure optimal operation.

The recommended installation position is to be adhered to the wall vertically.

Be sure to keep other objects and surfaces as shown in the right to guarantee sufficient heat dissipation and



Step 1: Select a wall with sufficient load capacity, place the backboard horizontally against the wall, and mark the positions for drilling with a marker;

Step 2: Drilling holes on the wall with an impact drill (diameter: Φ6mm). When drilling the holes, please keep the impact drill perpendicular to the wall, and drill holes slightly deeper than the length of the screw holder;

Step 3: Slowly tap the screw holders into the drilled holes with a hammer;

Step 4: Position the inverter and align the hanging accessory with the expansion screw holes, screw in M8 self-tapping screws till all 4 expansion screws are locked in place.

Align the backboard with the holes, screw in the M8 self-tapping screws with a tool, till all 4 expansion screws are locked in place;

6. Paralleling Operation

This inverter can be paralleled in two different operation modes.

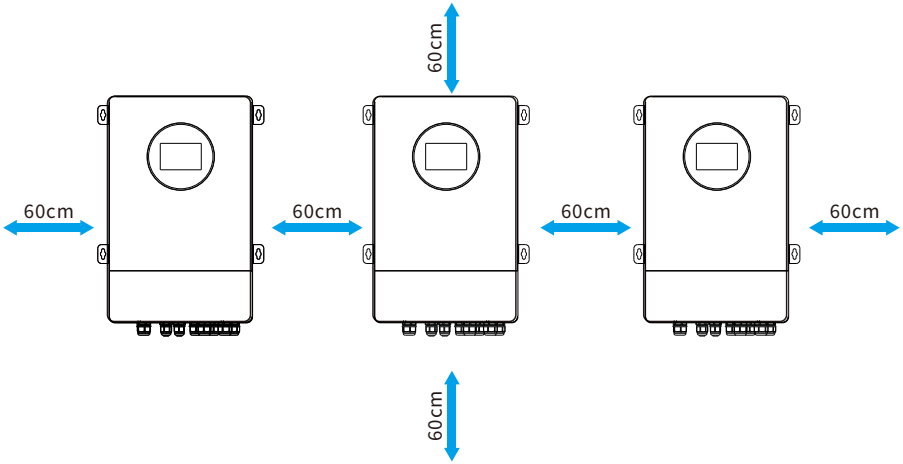
1.Single Phase Paralleling: maximum 6 Unit. Totally39kW/39KVA Single Phase output (L/N/PE);

2.Three Phase Paralleling: maximum 6 Unit. Totally 39Kw/39KVA Three Phase output (L1/L2/L3/N/PE);

Under parallel operation modes, each inverter must be connected with one battery. and all negative (-) wires of battery must be connect together before starting up.

For proper air circulation to dissipate heat, allow a clearance of approx. 60 cm to the side and approx.

60 cm above and below the unit. Be sure to install each unit in the same level



When all inverter are mounted, follow the steps below to complete parallel

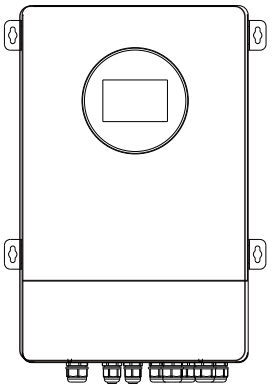
Step 1: Ask your seller to get parallel connector and parallel cable, as this accessory is not a standard configuration.

Other external

ort #4 as shown below is a local communication interface. It is designed for connecting to local power dispatch system, engineering debugs and repair & maintenance use.

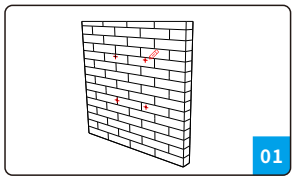
D_485A1 and D-485B1 of RS485 crystal slot of the inverter can be connected to TX+ and TX- of RS485 USB adapter with the RJ45 crystal head, which can also connect USB port of the adapter to the computer.

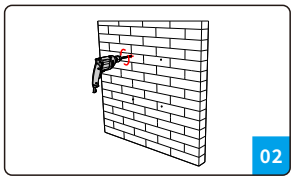
Note: RS485 communication cable shall no longer than 3m.

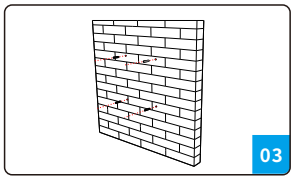


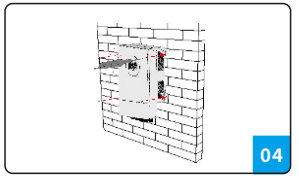
RS485

Network Cable

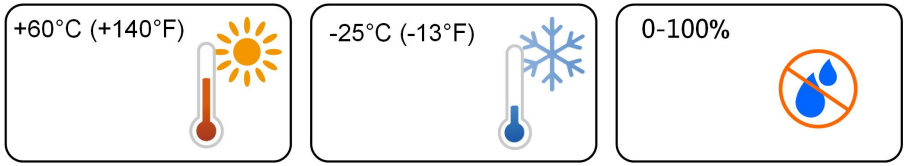








Warning:



*** Avoid direct sunlight, direct rain and snow on the inverter to prolong the service life of the inverter. A location with a cover is a better choice.**

*** It is very important to ensure that the ventilation and heat dissipation of the inverter are unobstructed. Please install the inverter in a ventilated environment.**

*** The inverter will produce some noise during operation, and it is not recommended to install it in living areas.**

3.5 PV connection

CAUTION: Before connecting to PV modules, please install separately a DC circuit breaker between inverter and PV modules.

WARNING! All wiring must be performed by qualified personnel.

WARNING! It is very important for system safety and efficient operation to use appropriate cable for PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Model	Cable Size	Cable(mm)	Torque
TS-652048-902-A	10AWG	6	12Nm

PV Panel Selection:

When selecting proper PV Panels and string solutions, the following point shall be considered and confirmed:

- Open circuit Voltage (Voc) of each string shall not exceeds max. PV array open circuit voltage of inverter.
- Max. power voltage (Vmp) of each string should be during PV array MPPT voltage range.
- Min. power voltage of each string shall no less 85Vdc, otherwise PV Panels may not on work;

Inverter Mode	TS-652048-902-A
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	85-450Vdc

Please follow below steps to finish PV connection work:

Step 1: Select the appropriate cable type and specification according to table above. Remove the cable connectors from the positive and negative connectors.

Step 2: Strip the insulation layer of an appropriate length of the positive and negative cables with the wire stripper, and the specific stripping length is shown in ;

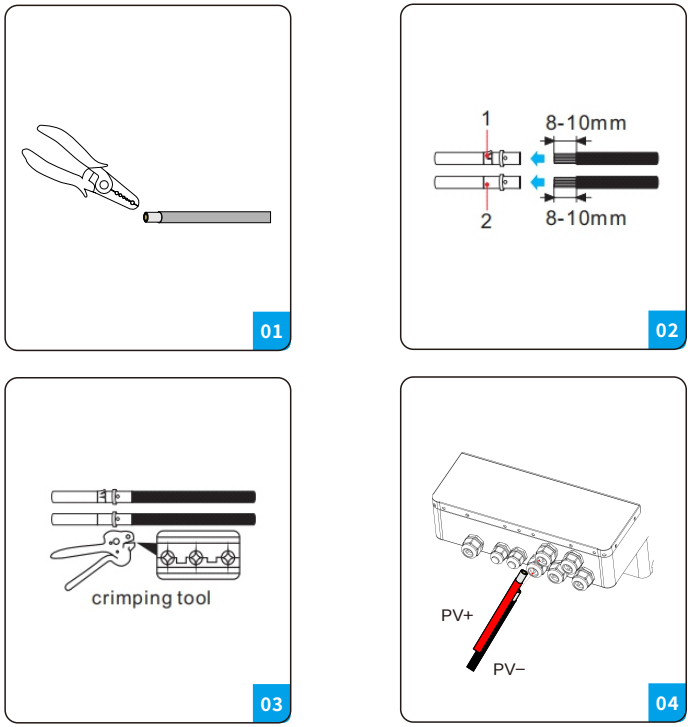
Step 3: Insert the stripped positive and negative cables into the corresponding plastic enclosures，and insert the wire into the positive and negative metal terminals respectively

Step 4: Check the positive and negative terminals with a multimeter, and after confirming their correctness, they can be accordingly inserted into the PV input of the inverter.

Fault Code	introduction
E34	DcDc Soft-Start Failure
E35	Buck-Boost Hardware Overcurrent
E36	LLC Overcurrent
E37	LLC Transformer Fault
E40	PV Overvoltage
E41	PV Short Circuit
E43	PV Input Overcurrent
E50	Fan Stall
E51	PV Side Overtemperature
E52	Inverter Side Overtemperature
E53	LLC Low-Side Overtemperature
E54	LLC High-5ide Overtemperature
E55	LLC Transformer Overtemperature
E60	Parallel Communication Board Fault
E61	Parallel Master-5lave 5ignal Loss
E62	Parallel Synchronization 5ignal Loss
E63	Parallel Version Error
E64	Parallel Output Current Fault
E65	Parallel Output Setting Error
E66	Parallel wiring Error
E99	Bootloader Fault

Fault code introduction

Fault Code	introduction
E1	Bus Overvoltage
E2	Bus Undervoltage
E3	Bus Soft-Start Timeout
E10	Inverter Soft-Start Timeout
E11	Inverter Software Overcurrent
E12	Inverter Hardware Overcurrent
E13	Inverter Undervoltage
E14	Inverter Overvoltage
E15	Inverter Output Short Circuit
E16	Inverter Current Sensor Anomaly
E17	current Feedback Entering Inverter
E20	Overload
E21	Output Current Sensor Anomaly
E22	Current Sharing Sensor Anomaly
E23	Input/output Lines Reversed
E24	Output Relay Anomaly
E30	Battery Overvoltage
E31	Buck-Boost Overcurrent
E32	Buck-Boost Current Sensor Anomaly
E33	Buck-Boost Filter Sensor Anomaly



3.6 Battery Connection

CAUTION: For safety operation and regulation compliance, it's requested to install a separate DC over-current protector or disconnect device between battery and inverter, It may not be requested to have a disconnect device in some applications, however, it's still requested to have over-current protection installed. Please refer to typical amperage in below table as required fuse or breaker size.

WARNING! All wiring must be performed by a qualified personnel.

WARNING! It is very important for system safety and efficient operation to use appropriate cable for battery

Model	Cable Size	Cable(mm²)	Torque
TS-652048-902-A	*2AWG	35	2Nm

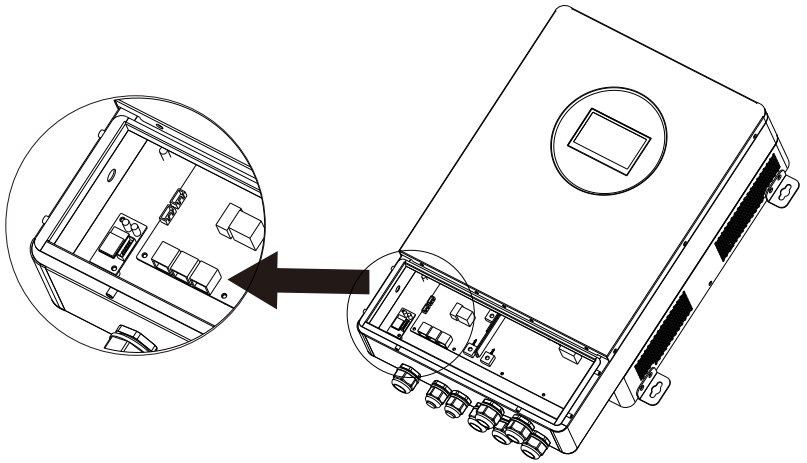
Please follow below steps to finish battery connection work:

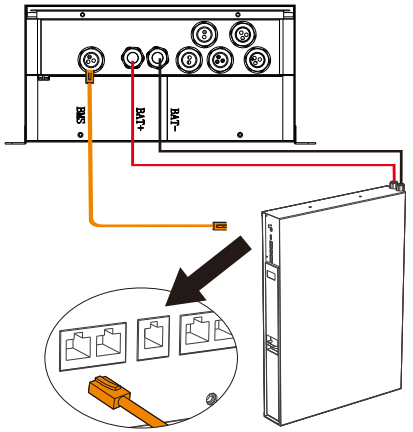
Step 1: Select the appropriate cable type and specification according to table above. If this cable is provided by battery manufacturer, check their user manual to confirm cable specification. Then, remove the cable connectors from the positive and negative connectors as shown in figure 1;

Step 2: Strip the insulation layer of an appropriate length of the positive and negative cables with the wire stripper, and the specific stripping length is shown in Figure 2;

Step 3: Assemble battery ring terminal based on recommended battery cable and terminal size

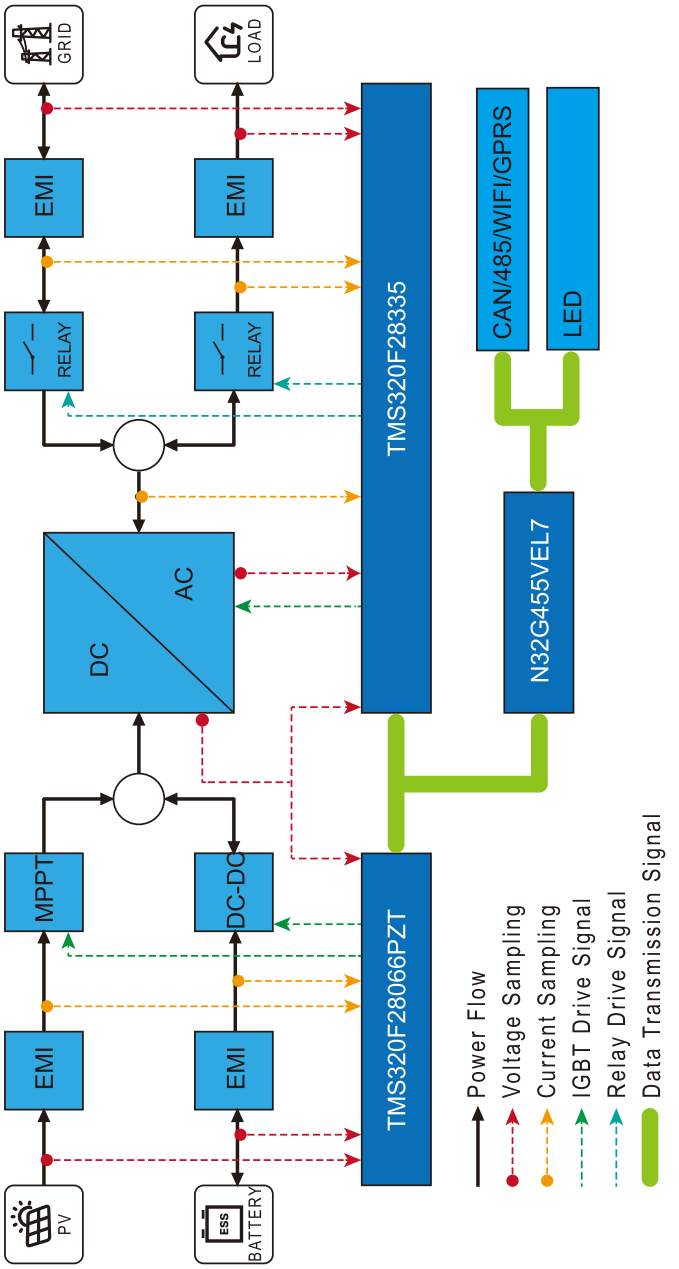
Step 4: Insert the ring terminal of battery cable flatly into battery connector of inverter and make sure the bolts are tightened with torque of 2 Nm. Make sure polarity at both the battery and the inverter/ charge is correctly connected and ring terminals are tightly screwed to the battery terminals.I



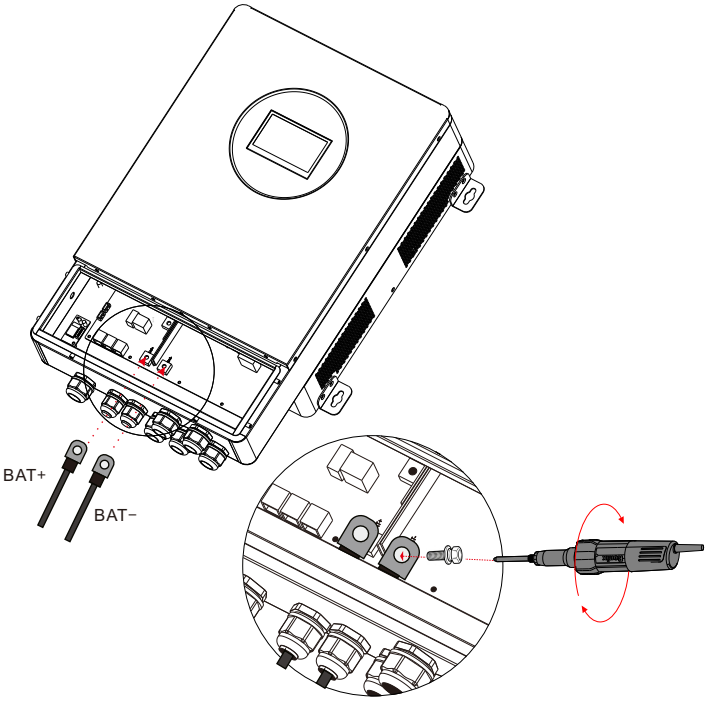


*Battery communication

Electrical block diagram



Inverter Mode Specifcations	
Model	TS-652048-902A
Rated Output Power	6500VA
	6500W
Nominal DC Input Voitage	48V
DC Max, Charging / Discharging Current	120A/125A
Output Voltage Waveform	Pure sine wave
Nominal Output Voitage	230Vac±5%
Nominal Output Frequency (Hz)	50±0.3Hz/60±0.3Hz(Adfustable)
Parallel capability	Yes,up to 6 units
Peak Effciency	93%
Over-Load Protection (SMPS load)	5s@2150%ad;10s@105%~150%load
Surge Rating	2* rated power for 5s
Capable of Starting Electric	Yes
Output Short Circuit Protection	Yes
Cold start Voltage	46V
Low DC Input Shut-down Load<50%/@Load 2 50%	43V/42V
High Dc Input Alarm & Fault	62V±0.4V
High DC Input Recovery	60V±0.4V
Battery Voltage Limitation (Vbat/bat1/v.bat2) When battery voitage is lower than "Vbat1"output power wll be derated. The minimum AC output volage is 180.	42V/50V/62V
Temperature Limitation (Td) When ambient tempe ature is higher than40'°C: M5 '°C,output power wil be derated. The minimum AC output voltege is180V.	45℃
General Specifications	
Operating Temperature	-10℃~55℃
Range Storage Temperature	-15℃~60℃
Product Size(D*w*H)	632 mm*440mm*196mm
Package Dimension(D*W*H)	715 mm*485mm*270mm



*If the battery terminal is too large, you can replace the wire ear.

3.7 AC Connection (Grid & AC OUT, LOAD)

CAUTION!! Before connecting to AC input power source, please install a separate AC breaker between inverter and AC input power source. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input. The recommended specification of AC breaker is 50A for 6.5kVA Type.

CAUTION!! There are three connector blocks with "AC OUT", "LOAD" and "Grid" markings, Please do NOT mis-connect input and output connectors.

WARNING!! All wiring must be carried out by qualified personnel.

WARNING!! It is very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

CAUTION!! Be sure to connect AC wires with correct polarity. If L and N wires are connected reversely, it may cause utility short-circuited when these inverters are worked in parallel operation.

CAUTION!! Appliances such as air conditioner are required at least 2~3 minutes to restart because it's required to have enough time to balance refrigerant gas inside of circuits, if a power shortage occurs and recovers in a short time, it will cause damage to your connected appliances. To prevent this kind of damage, please check manufacturer of air conditioner if it's equipped with time-delay function before installation. Otherwise, this inverter/charger will trig overload fault and cut off output to protect your appliance but

Recommended AC cable size:

Model	Cable Size	Cable(mm^2)	Torque
TS-652048-902-A	8AWG	10	1.4~1.6Nm

Recommended circuit breaker type for AC input:

Model	Maximum bypass	Recommended circuit breaker
TS-652048-902-A	50A	2P-50A

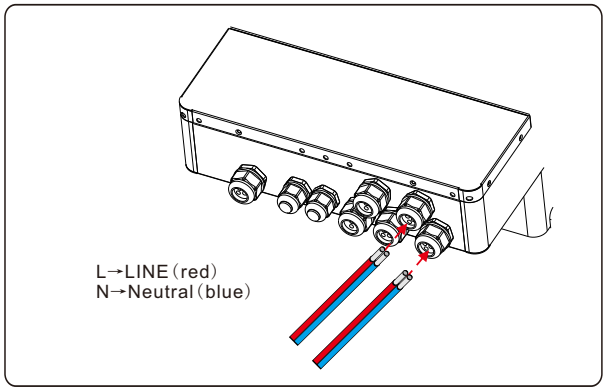
Please follow below steps to finish battery connection work:

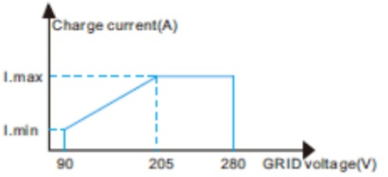
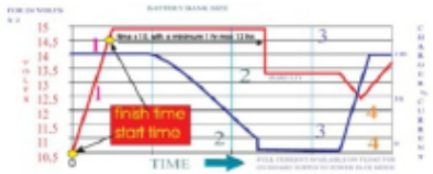
Step 1: Select the appropriate cable type and specification according to table above. Remove the cable connectors from the positive and negative connectors.

Step 2: Strip the insulation layer of an appropriate length of the positive and negative cables with the wire stripper, and the specific stripping length is shown in ;

Step 3: Insert the stripped positive and negative cables into the corresponding plastic enclosures，and insert the wire into the positive and negative metal terminals respectively

Step 4: Check the positive and negative terminals with a multimeter, and after confirming their correctness, they can be accordingly inserted into the AC input of the inverter.



Utility Charge Mode Specifications	
Model	TS-652048-902-A
Nominal Input Voltage	230Vac
Input Voltage Range	90-280vac
Nominal Output Voltage	Dependent on battery type
Max, Grid Charge Current	120A
Charge Current Regulation	10A-Max. Grd Charge Curent (Adjustableunit is 1A)
Over Charge Protection	Yes
Grid charging Current （L.max/1.min）	120A/30A
Relationship between batterycharging current and grid voltage.	
Solar Charging & Grid Charging	
Max, py Open Circuit Voltage	500V
PV voltage range	85V-450V
Max. Input Power	9000W
Max. Solar Charging Current	120A
Max. Charging Current(PV+Grid)	120A
Max. Input Current	27A
Min. Startup Voltage	75V
Charge Algorithm	
Algorithm	**Three stage:** Boost CC (Constant current stage)-> Boost CV (Constant voltage stage)-> Foat Fv (Constant voltage stage)
Charging Curve	
Battery Type Setting	Boost CC/CV
	28.2V156.4V
	29.2V158.4V
	Adjustable, up to 30V/60V

5. Speciations

Electric speciation

Line Mode Specifications	
Model	TS-652048-902-A
Rated Output Power	6500VA
	6500W
Nominal DC Input Voltage	48V
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voitage	230Vac
Low Line Voltage DisconnectLow	90Vac±3V(For Home Appliances)170Vac±3V(For Computers)
Loss Voltage Re-connect	100Vac±3V (For Home Appliances)180Vac±3V (For Computers)
High Line Voltage Disconnect	280Vac±3V
High Line Voltage Re-connect	270Vac±3V
Max AC Input Voltage	280Vac±3V
Nominal Input Frequency	50Hz /60Hz (Auto detection)
Low Line Frequency Disconnect	40±1Hz
Low Line Frequency Re-connect	42±1Hz
High Line Frequency Disconnect	65±1Hz
High Line Frequency Re-connect	63±1Hz
Output Voltage Waveform	As same as input waveform
Output Short Circuit Protection	Line mode: Circuit Breaker Battery mode: Electronic Circuits
Effciency(Line Mode)	>95% (Rated R load, battery full charged)
Transfer Time (Single unit)	10ms typical (UPS); 20ms typical (Appliances)
Transfer Time (Parallel)	50ms typical
Pass Through Without Battery	Yes
Max. Bypass Overioad Current	40A
Max, Bypass Input Current	50A
Max, Inverter/Rectifer Current	27.3A/6000W

3.8 Grounding Connection

Recommended Grounding Cable size:

Model	Cable Size	Cable(mm^2)	Torque
TS-652048-902-A	8AWG	10	1.4~1.6Nm

Please follow below steps to finish grounding connection work:

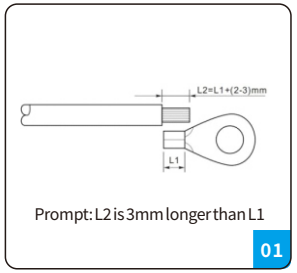
Step 1: Strip the insulation layer of an appropriate length of the earthing cable with the wire stripper;

Step 2: Thread the stripped wire core into the conductor crimp area of the OT terminal, and crimp it with a crimper.(It is recommended to use the OT terminal: OTM6);

Step 3: Fix the OT terminal with M5 screws in the position, with the recommended locking torque of 2N.m.

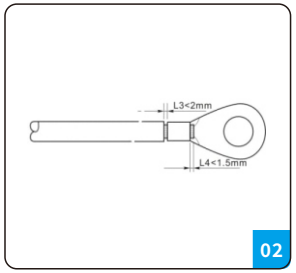
Note 1: L3 is the distance between the insulated terminal face of the cable and the rear section of the terminal conductor crimp area; L4 is the length of the cable conductor protruding from the terminal conductor crimp area.

Note 2: The cavity formed by crimping the conductor crimp sheet shall completely enclose the cable conductor, and the conductor shall be tightly bonded to the terminal.



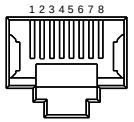
Prompt: L2 is 3mm longer than L1

01

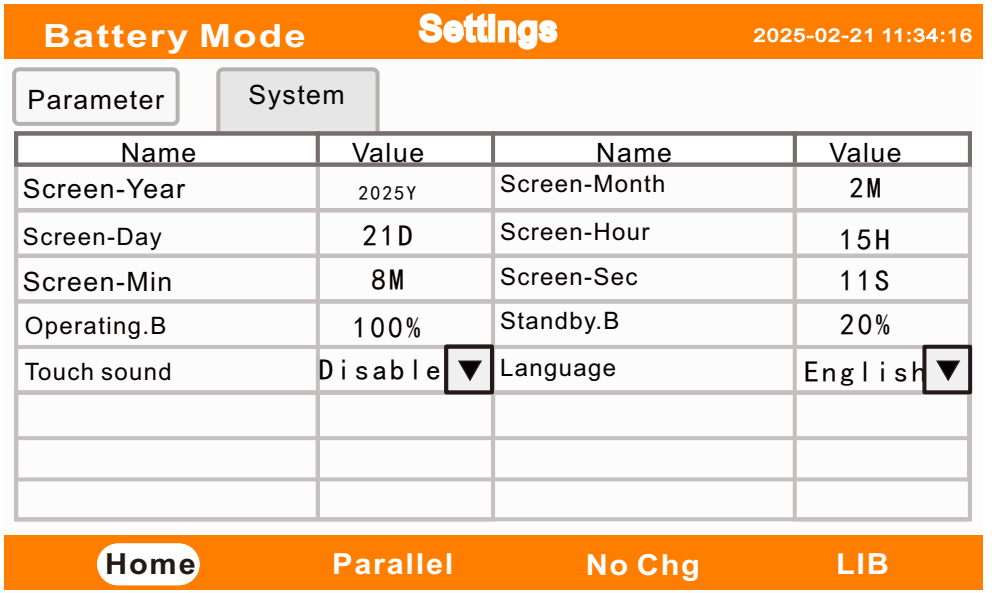


02

Definition of communication port pin

Port	02
Printing Sign	BMS
PIN Number	
PIN1	RS485-B
PIN2	RS485-A
PIN3	
PIN4	CAN1.H
PIN5	CAN1.L
PIN6	
PIN7	RS485-A
PIN8	RS485-B

Screen setting



Name	Options can be set
Screen-Sec	0~59S
Screen-Year	2000-2099Y
Screen-Month	1~12M
Screen-Day	1~max
Screen-Hour	0~23H
Screen-Min	0~59M
Operating.B	0~100%
Standby.B	0~100%
Language	English/España
Touch sound	Enable/Disable

Name	Selectable option
Chg Enable SOC	The setting range is from 5-95% In SUB priority mains normal battery mode, switch to mains mode when the lithium battery SOC reaches the set value.
Batt Return Volt.	The setting range is from 48.0-60.0V When the battery is powered off at low voltage, only when the battery voltage reaches a certain value， inverter can restart the battery mode .
Batt Return SOC	The setting range is from 10-100% In SUB priority mains normal mains mode, switch to battery mode when the lithium battery SOC reaches the set value.
Output Mode	Muilti
	Mains and standby mode can be set and take effect immediately, battery mode cannot be set. After the setting and merging are successful, a single device cannot be turned on, and it can be turned on only after undoing the parallel
	3P1/3P2/3P3
	When using the parallel function, connect the parallel system in the correct way, and then set the parallel mode of each device correctly. If there is a device set to Muilti in the parallel system, the device reports fault A66. If there are devices set to 3P1, 3P2, or 3P3 in the parallel system, all devices must be set to one of these three modes, and at least one device exists in each mode, otherwise all devices set to these three modes report error A66.
Buzzer	Enable/Disable
Over Temp Rest	Enable/Disable
AC Input Range	APL mode:acceptable AC input voltage range: 90-280VAC.Used for household appliances. UPS mode:acceptable AC input voltage range: 170-280VAC.Used for equipment such as computers.
Overload Bypass	Enable/Disable
Overload Rest	Enable/Disable

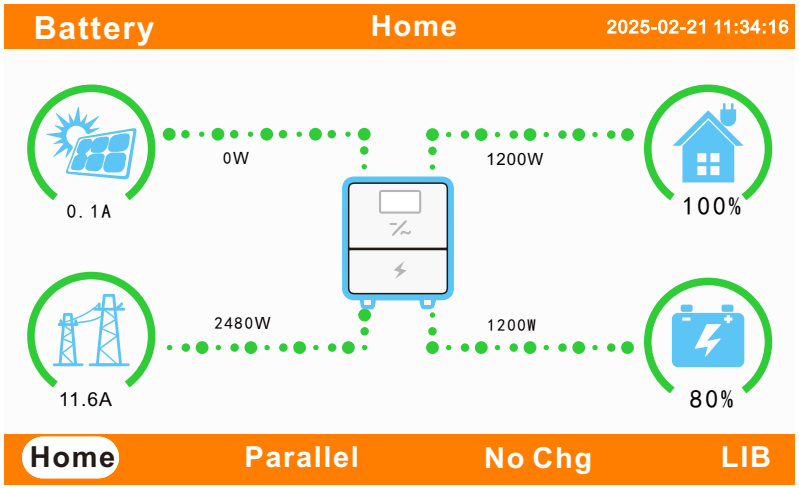
4. LCD display graphical representation instruction

LCD Icon instruction

Number	Name	Function description
①	Home	Click to enter the home page
②	Data	Click to view device data
③	Alerts	Click to view warning alarm records
④	Settings	Click to enter the parameter setting interface
⑤	Li-ion	Click to view the battery data
⑥	ON	Click to open the load output
⑦	OFF	Click to turn off the load output

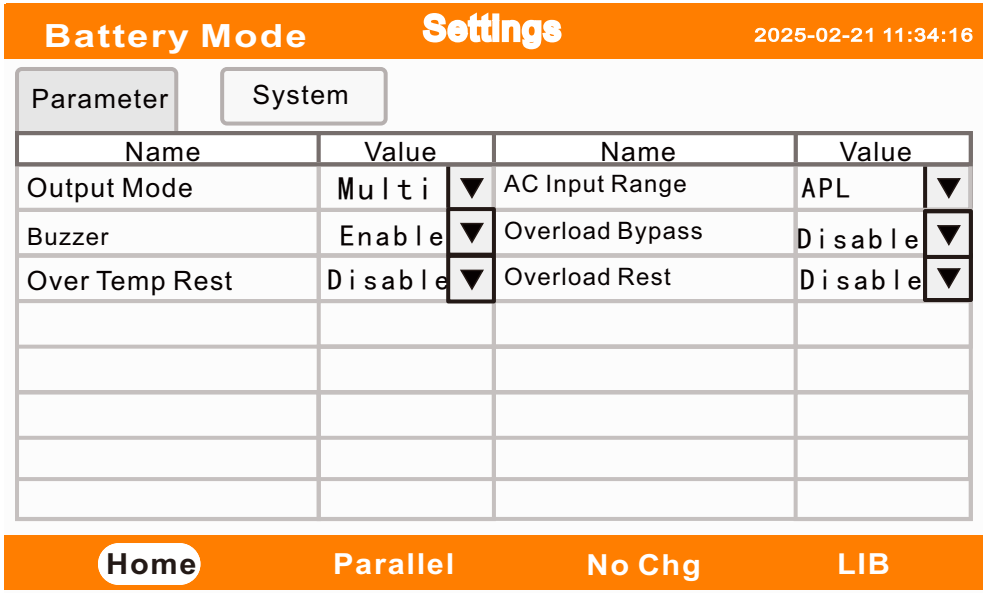
The display screen is operated by clicking and touching.
Please do not use sharp objects to poke the screen to avoid damage!!!

Home display instruction



Icon	Instructions
	Total PV input current
	Total load output power (AC Output+Load)
	Utility input current
	Battery capacity percentage

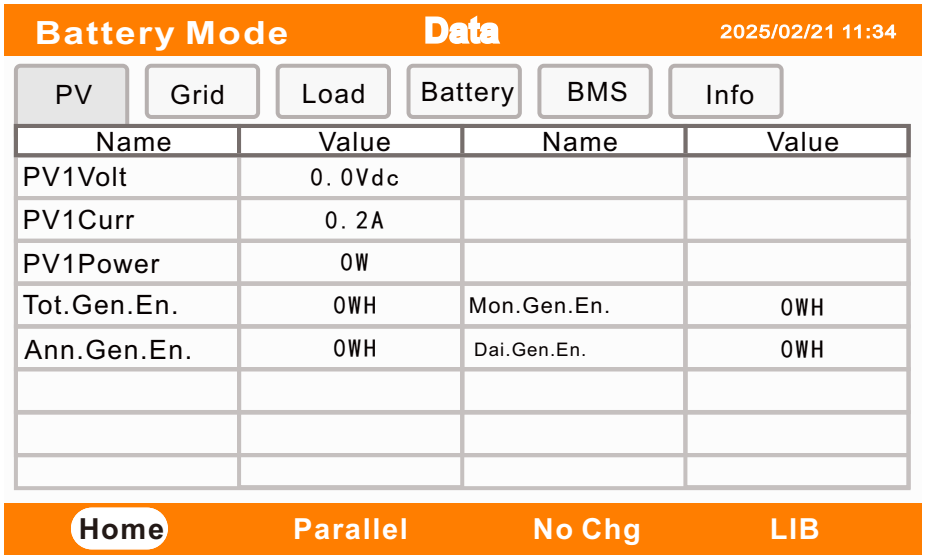
Name	Selectable option
Charging Priority	SOF priority/SUN priority/OSO priority When the inverter is operating in battery mode or energy saving mode, only the photovoltaic module charges the battery, and the battery is charged only when the photovoltaic module is fully powered.
	SOF priority The photovoltaic module is preferred to charge the battery, and the lack of charging energy is made up by the mains electricity.
	SUN priority Solar energy will charge battery as first priority .Utility will charge battery only when solar energy is not available.
	OSO priority Solar energy will be the only charger source no matter utility is available or not.
Batt Chg Curr	The setting range is from 1-120A.
AC Chg Curr	100A(default)： The setting range is from 1-120A. If setting value in Batt Chg Curr is smaller than AC Chg Curr, the inverter will apply charging current from Batt Chg Curr for utility charger.
C.V. Voltage	56.4Vac(default)： The setting range is from 48.0-60.0V If self-defined is selected in Batt. type, this program can be set up. Setting range is from 48.0V to 60.0V . Increment of each click is 0.1V.
Float Voltage	54.0Vac(default)： The setting range is from 48.0-60.0V If self-defined is selected in Batt. type, this program can be set up. Setting range is from 48.0V to 60.0V . Increment of each click is 0.1V.
Cut Off Volt.	42.0Vac(default) The setting range is from 42.0-54.0V
Cut Off SOC	The setting range is from 0-90% In battery mode, when the lithium battery SOC reaches the set value.
Chg Enable Volt.	46. 0Vac The setting range is from 44.0-54.0V When the battery and the mains exist at the same time the battery will be transferred to the mains at a certain voltage to ensure that the battery will not empty.



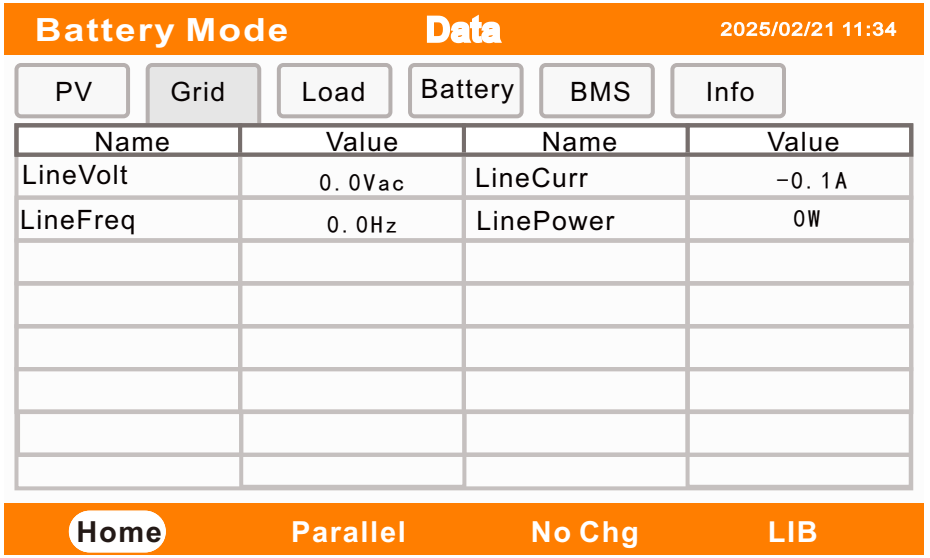
Name	Selectable option
Batt. type	LIB/FID/CUS/AGM
Li-ion Proto	Pylon/Gospower
OutputVolt	230.0Vac
OutputFreq	50Hz/60Hz
Output Priority	SUB priority/USB priority/SBU priority
	SUB priority (default): Solar->Utility->Battery Solar energy is charged first and then power to the loads.If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
	USB priority: Utility-> Solar > Battery Utility will provide power to the loads as first priority .Solar and battery energy will provide power to the loads only when utility power is not available.
	SBU priority: Solar-> Battery -> Utility Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time.

Date display instruction

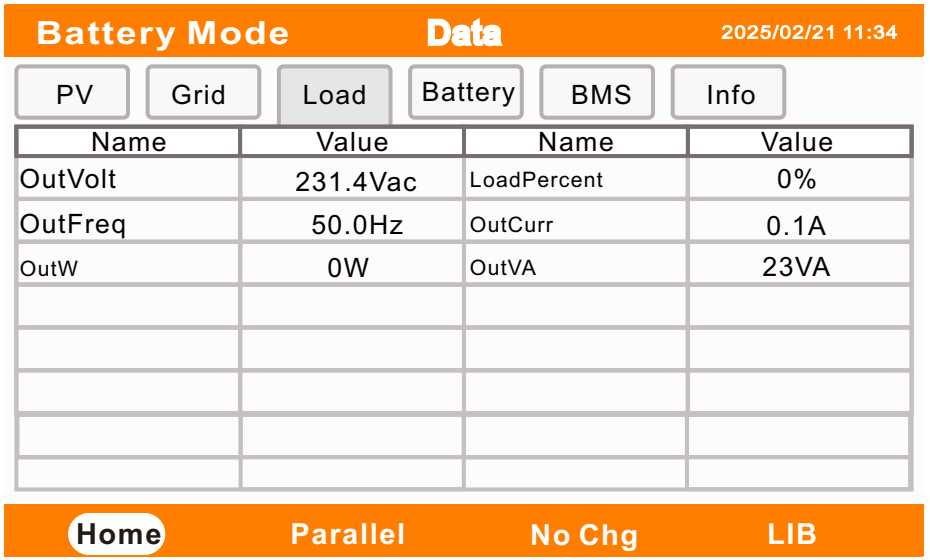
PV data display



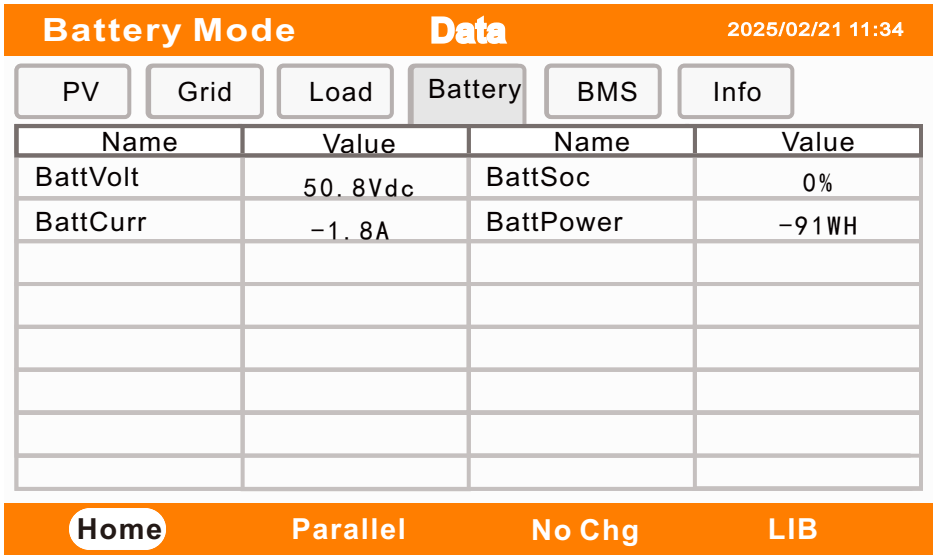
Grid data display

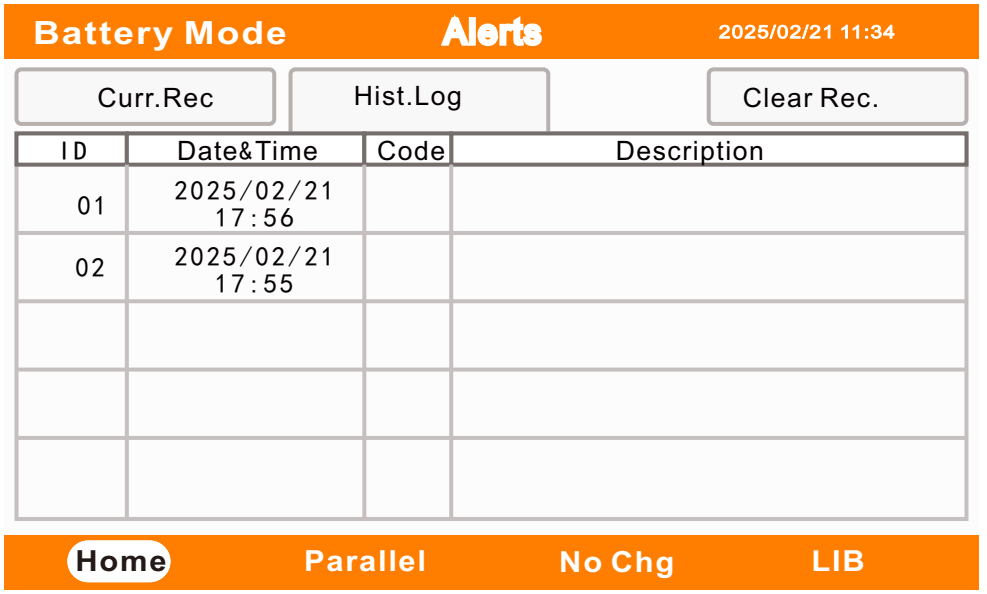


Load data display

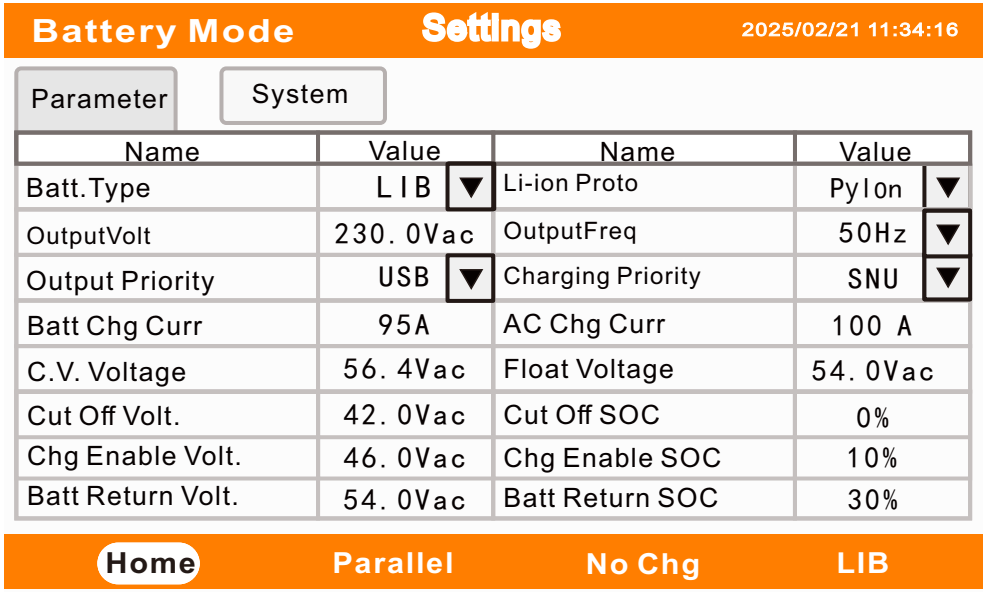


Battery data display

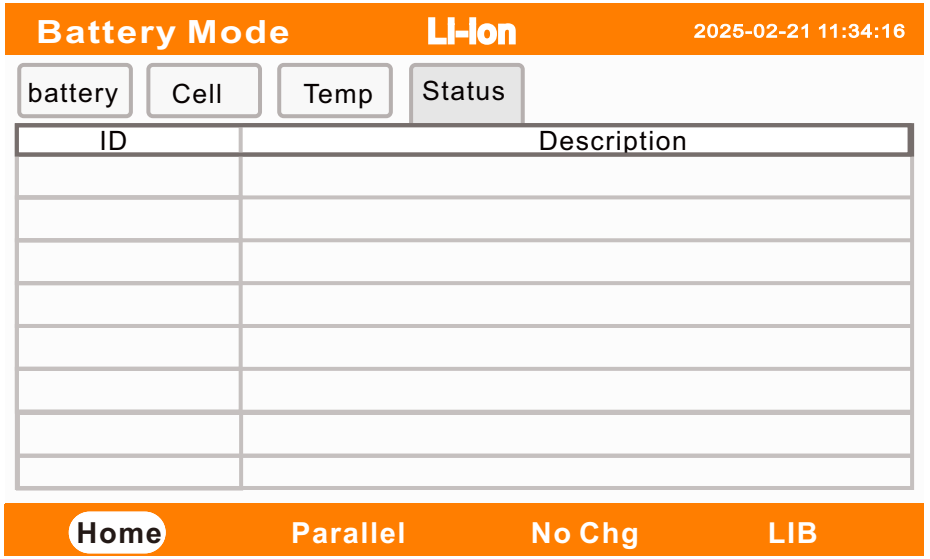




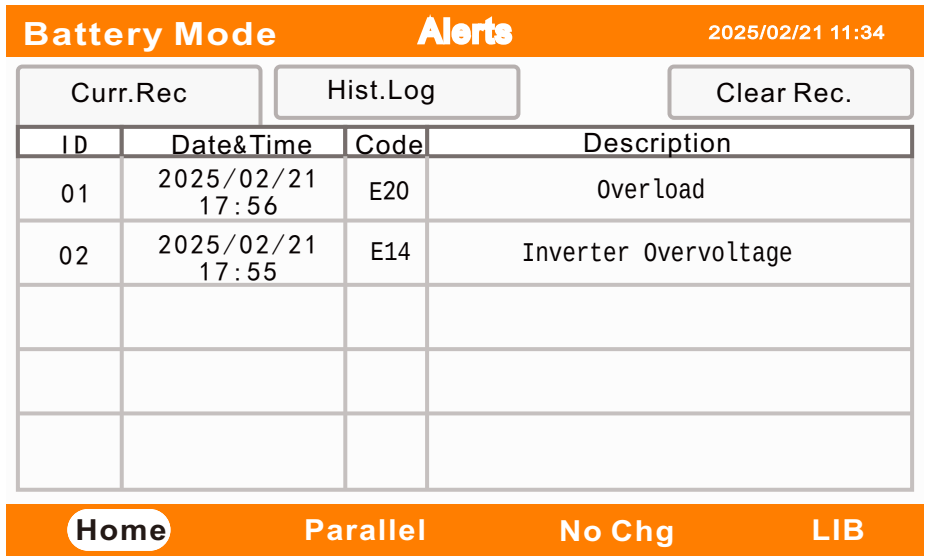
- Display Setting instruction
- Setting parameters



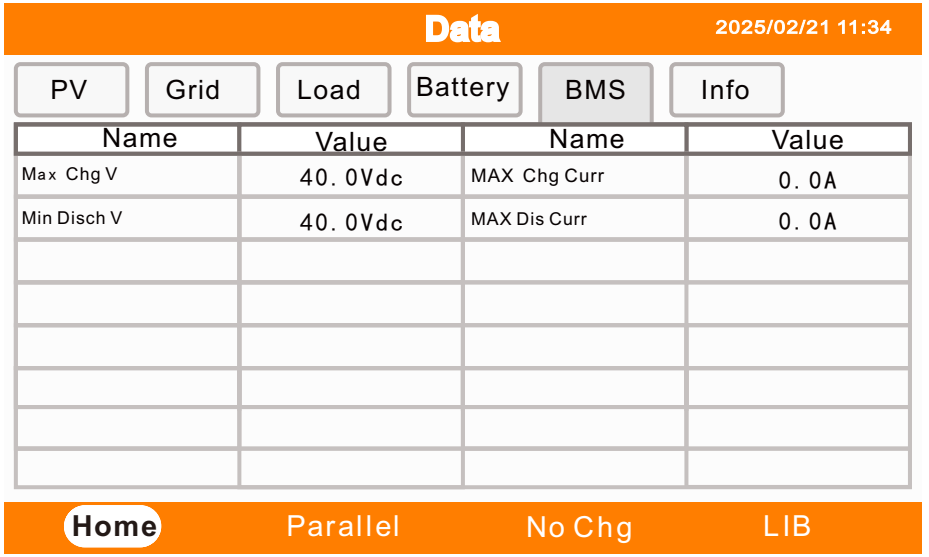
Status data display



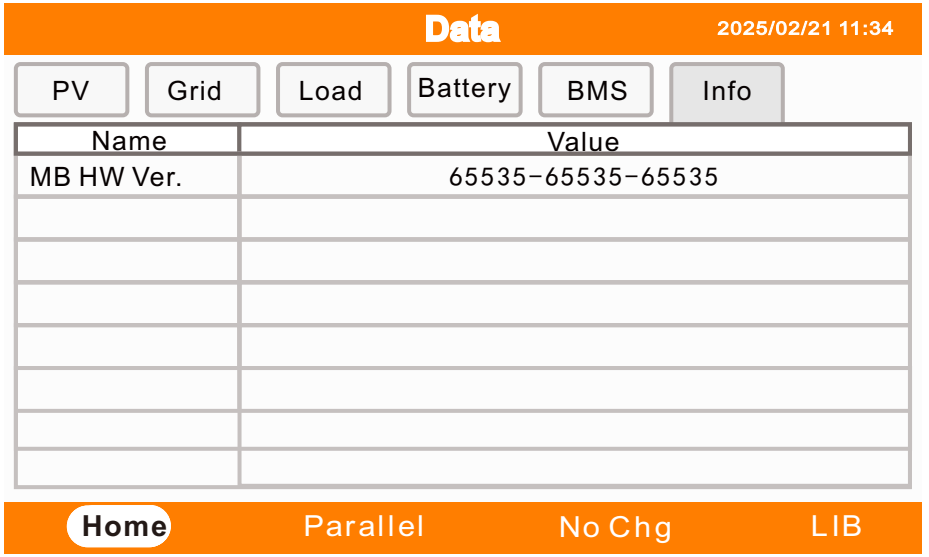
Records display instruction



BMS data display



Product information data display



battery data display

LI-Ion 2025-02-21 11:34:16

battery | Cell | Temp | Status

Name	Value	Name	Value
Flag Bit	0	Address	0
Max Chg V	0.0Vdc	Min Disch V	0.0Vdc
Max Chg Curr	0.0A	Max Dis Curr	0.0A
Voltage	0.0Vac	Current	0.0A
Avg.Cycles	0	Max Cycles	0
Avg. SOH	0%	Min SOH	0%
SOC	0%		

Home | Parallel | No Chg | LIB

Cell data display

LI-Ion 2025-02-21 11:34:16

battery | Cell | Temp | Status

Name	Value	Name	Value
Max Cell V	0.000Vdc	Mod.Loc.	0-0
Min Cell V	0.000Vdc	Mod.Loc.	0-0

Home | Parallel | No Chg | LIB

Temp data display

Battery Mode LI-Ion 2025-02-21 11:34:16

battery | Cell | Temp | Status

Name	Value	Name	Value
Avg.Cell Temp	0.0℃		
Max Cell Temp	0.0℃	Mod.Loc.	0-0
Min Cell Temp	0.0℃	Mod.Loc.	0-0
Avg.Mos Temp	0.0℃		
Max.Mos Temp	0.0℃	Mod.Loc.	0-0
Min.Mos Temp	0.0℃	Mod.Loc.	0-0
Avg.BMS Temp	0.0℃		
Max.BMS Temp	0.0℃	Mod.Loc.	0-0

Home | Parallel | No Chg | LIB

Battery Mode LI-Ion 2025-02-21 11:34:16

battery | Cell | Temp | Status

Name	Value	Name	Value
Min.BMS Temp	0.0℃	Mod.Loc.	0-0

Home | Parallel | No Chg | LIB