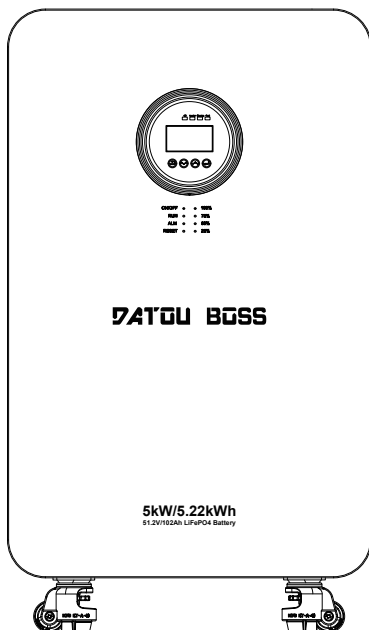


USER MANUAL

All-In-One Home Energy Storage

DT-5052



1. SECURITY INSTRUCTIONS

This device contains critical components such as high-voltage circuits and lithium battery packs. Any operation violating the following warnings may cause serious safety incidents including thermal runaway, fire, explosion, electric shock, or chemical leakage, resulting in personal injury, death, and significant property damage. All operations must strictly adhere to these warnings, the product user manual, and relevant safety standards. If in doubt, immediately cease operation and contact authorized brand professionals.

1.1 Safety Warning

- This equipment contains lethal high-voltage electricity internally. Unauthorized personnel must not disassemble, modify, or open the equipment housing. Even when disconnected from power, internal capacitors may retain charge for a period after power is removed.
- Installation, initial commissioning, maintenance, and repair must be performed exclusively by qualified professional electricians or technicians.
- All electrical connections (grid, PV, grounding) must strictly comply with national and local electrical codes.
- Never place the equipment in flammable, explosive, or corrosive gas-filled environments (e.g., warehouses storing gasoline or chemicals).
- Never expose the equipment to any ventilation openings. Ensure the minimum safety distance specified in the manual is maintained around the equipment to guarantee adequate heat dissipation.
- Never place or spray any liquids on or near the equipment, nor expose it to rain or sprinkler systems (unless the product is explicitly rated for outdoor use and meets the corresponding protection rating).
- The equipment must be placed on a solid, level, waterproof load-bearing wall or floor to prevent tipping.
- This device contains a high-capacity battery. Strictly avoid puncturing, striking, crushing, or short-circuiting the battery module in any manner.
- Never operate or store the device outside its specified temperature range. Extreme temperatures may cause battery performance degradation, leakage, smoke emission, fire, or even explosion.
- If the device emits unusual odors, produces abnormal sounds, emits smoke, or exhibits casing deformation, immediately cease the following operations:
 - a. Disconnect the main power supply and cut off all power inputs (grid and photovoltaic).
 - b. Evacuate personnel promptly and maintain a safe distance.
 - c. Use dry powder or carbon dioxide fire extinguishers to clear the fire scene. Water must not be used for firefighting.
 - d. Contact professionals or the fire department immediately.

Important Notice: This warning clause constitutes a core requirement for safe operation. For any matters not covered herein, please refer to the complete product user manual.

The operator shall bear full responsibility for any safety incidents resulting from violation of this warning.

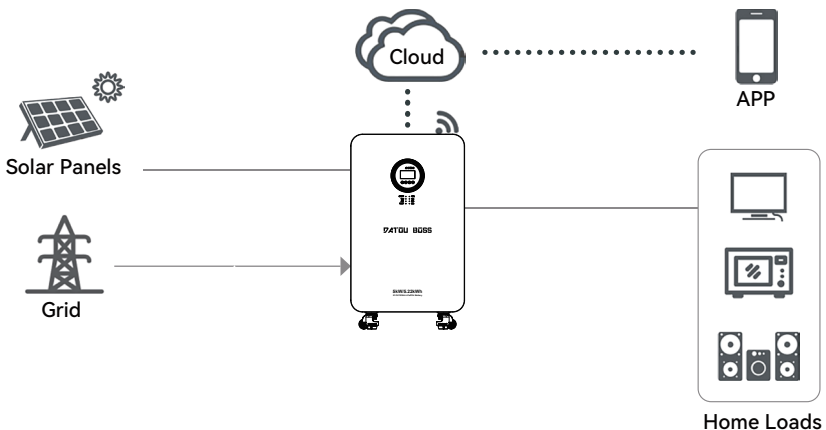
1.2 Operation and Daily Use

- User operations should be limited to those permitted in the manual or by authorized personnel, such as viewing status or setting operating modes via the screen. Any internal disassembly or modification is strictly prohibited.
- The device generates high temperatures during operation, and surfaces may become hot. Do not touch exposed components.
- Before cleaning, disconnect all power sources and wipe only with a dry cloth. Never use chemical solvents or rinse with water.
- Cleaning and maintenance should be performed by qualified personnel.

1.3 Points to Note

- **Disposal of Used Batteries:** Damaged or end-of-life battery modules must be handled by professional recycling agencies. Sort and dispose of them according to environmental regulations. Disposal in open areas is strictly prohibited to prevent soil or water contamination.
- **Extreme Environment Response:** During thunderstorms, ensure lightning protection devices are operational. Manually shut down equipment if necessary. When operating in high-temperature, extreme cold, or high-altitude environments, verify that the equipment meets corresponding environmental adaptability requirements.
- **Regular Inspections:** Conduct monthly visual inspections of equipment, checking for loose terminals or signs of corrosion. Schedule quarterly comprehensive maintenance by qualified personnel, including battery performance testing and circuit insulation checks, to ensure safe operational status.

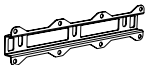
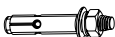
2. SOLAR ENERGY STORAGE SYSTEM



3. INSTALLATION INSTRUCTIONS

3.1 Unpacking and inspection

Inspect the unit before installation. Make sure there is no damage in the package. You should receive the following items in the package:

①		All-In-One Home Energy Storage
②		Wall-Mount Bracket x 1
③		Expansion Screws x 8
④		Wall-Mount Bracket Screws x 3
⑤		Wi-Fi Dongle
⑥		User Manualx1

3.2 Preparatory work (installation in the off state, it is recommended that the installation of equipment to find a professional electrician installation)

Wall-mounted Before selecting a mounting location, consider the following points:

1. Use safety devices and insulated tools in accordance with applicable local and national electrical codes by a qualified person who has fully read, understands, and strictly adheres to all instructions in this manual.
2. In applicable locations and environments:
 - ①. Do not install the product in harsh environments; ambient temperatures should be between 0° C and 55° C to ensure optimum operation.
 - ②. No hazardous/flammable or corrosive chemicals or vapours.
 - ③. There are no nearby heat sources such as radiators, collectors or furnaces to transfer heat to the battery or retain excess heat in the enclosure.

- ④. No children or pets are present or likely to be present.
- ⑤. Do not install the All-in-One on flammable building materials, vertical mounting on a solid wall is recommended.
- ⑥. Ensure that other objects and surfaces shown at right are retained so that there is enough room for heat dissipation and enough room to remove wires.
- ⑦. Mount the MFP at eye level so that the LCD display can be read at all times.
- ⑧. Its properly grounded, twisted, tightened and wired.



WARNING !

Requires the product to be installed with the power off and disconnected.

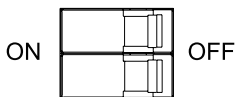
4. SPECIFICATION

OVERALL PARAMETERS	
Product Model	DT-5052
Battery Type	LiFePO4 Battery 102Ah
Battery Capacity	5.22kWh
Dimensions	480x220x830mm
Weight	57.3kg
Nominal Voltage	51.2V
Battery Cycle Life	6000 cycles/70%DOD@25°C
Nominal Capacity	102Ah
Charge Current	50A
Discharge Current	100A
Full Charge Voltage	58.4Vdc
Discharge Cut-Off Voltage	43.2Vdc
Operating Temperature	-10°C~50°C
Storage Temperature	0°C~45°C
Screen Type	LCD
Parallel Function	not have
On-grid Function	not have

Self-Consumption Power Off	≤ 300uA
INVERTER INPUT	
Voltage Range	170~280Vdc (computer equipment)
Frequency Range	40~70Hz, Default
PV Input Voltage Range	120~450Vdc
PV MaximumCharging Current	100A
INVERTER OUTPUT	
Output System	L+N+PE
Output Voltage	208/220/230/240Vac
Output Precision	≤+5%
Power Factor	1
Output Frequency	Utility Mode: Follows utility frequency Battery Mode: 50/60Hz±0.1%
Output Harmonic Distortion	≤ 3% Linear Load ≤ 5% Non-linear load PF=0.7
Switching Time	Computer equipment: line mode to battery mode 10 ms (normal) Household electrical equipment: line mode to battery mode 10 ms (general)
Overload Capability	1min@102%~ 110% Load 10s@110%~ 130% Load 3s@130%~ 150% Load 0.2s@>150% Load
Output Power	5kW
BATTERY	
Charging Mode	AC Charging / PV Charging
Charging Current	50A

5. BASIC OPERATIONS

Air Circuit-Breaker: Protects circuits, equipment, and personnel safety by automatically disconnecting power when circuit abnormalities occur.



To turn on the power, please press the battery switch first, then press the inverter switch.

BATTERY ON/OFF: Press the "Battery Switch Button", the work indicator and power indicator light up.



Inverter ON/OFF: Press the "Inverter Switch Button", the inverter display lights up.

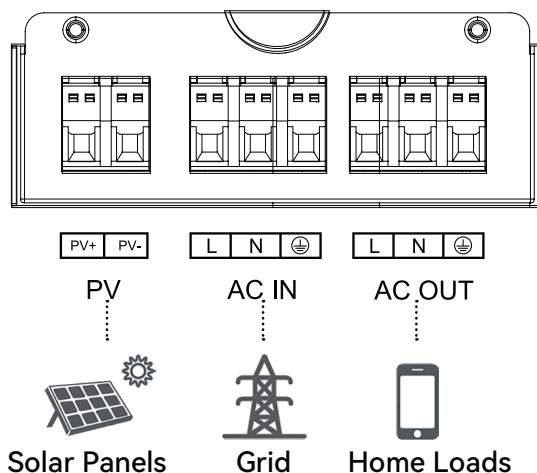


Input Breaker: For system isolation and overcurrent protection. Automatically cuts off power during faults to ensure safety.



6.WIRING HOLE DESCRIPTION

6.1 PV Interface



Port Label		Terminal Name	Description
PV	PV +	Positive Terminal	Connect to the positive (+) output wire from the solar panel(s).
	PV -	Negative Terminal	Connect to the negative (-) output wire from the solar panel(s).
AC IN	L	Phase R (Line 1)	Connect to the Phase R (L1) live wire of the three-phase AC supply.
	N	Neutral	Connect to the neutral wire of the AC supply.
	⏏	Protective Earth (Ground)	Must be securely connected to a proper earth ground for safety.
AC OUT	L	Phase R (Line 1)	Output Phase R (L1) live wire.
	N	Neutral	Output neutral wire.
	⏏	Protective Earth (Ground)	Output protective earth wire. Must be connected to the ground terminal of the load equipment.

Critical Safety Instructions:

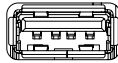
1. Professional Installation Required: Connection of three-phase AC power must be performed by a qualified electrician to ensure correct phase sequence and secure terminations.

2. Grounding is Mandatory: The PE (Protective Earth) terminals for both input and output MUST be properly grounded. This is essential to prevent electric shock and ensure operational safety.
3. Power Off Before Wiring: Ensure that ALL AC input power sources are completely disconnected (OFF) before making or modifying any connections.

6.2 Smart Interface

The COM interface connects to the smart communication stick, enabling data exchange between the battery system and the cloud platform.

Insert the smart communication stick vertically into the COM port until it is fully inserted and securely seated.

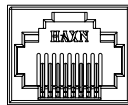


COM

6.3 BMS Interface

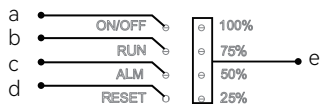
The BMS interface connects to the Battery Management System (BMS) to enable battery status monitoring, control, and communication.

Align the BMS low-voltage wiring harness connector with the port and insert it vertically until you hear the latch engage.



BMS

7. PRODUCT OVERVIEW



- a. Switching Indicator
- b. Operation Indicator
- c. Alarm Indicator
- d. Reset Button
- e. Battery Indicator

Table 1 LED display description

State of system	Event	ON/OFF	RUN	ALARM	Battery Indicator LED				Instruction
		●	●	●	●	●	●	●	
Power Off	Dormant	Off	Off	Off	Off	Off	Off	Off	All LEDs turn off
Static State	Normal	Always On	Flash1	Off	Based on battery indicator				Standby Status
	Alarm	On	Flash1	Flash3					Module Low Voltage
Charging	Normal	On	On	Off	Based on power indication (Power indicator LED flashes up to 2)				Maximum charge LED flashing (flash 2), overcharge alarm ALM not flashing
	Alarm	On	On	Flash3					The over-voltage alarm does not flash
	Overcharge protection	On	On	Off	On	On	On	On	If there is no utility power, the indicator is in standby mode.
	Temperature, overcurrent, failure protection	On	Off	On	Off	Off	Off	Off	Stop charging
Discharging	normal	On	Flash 3	Off	Based on battery indicator				-
	Alarm	On	Flash 3	Flash 3					
	Undervoltage protection	On	Off	Off	Off	Off	Off	Off	Stop discharge
	Temperature, overcurrent, short-circuit, reverse connection, failure protection	On	Off	Off	Off	Off	Off	Off	
Lose Efficacy	-	On	Off	On	Off	Off	Off	Off	Stop charging/ discharging

Table 2 SOC display description

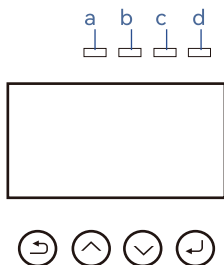
State		Charging				Discharge			
LED		LED4	LED3	LED2	LED1	LED4	LED3	LED2	LED1
		●	●	●	●	●	●	●	●
SOC(%)	0~25%	Off	Off	Off	Flash 2	Off	Off	Off	On
	25~50%	Off	Off	Flash 2	On	Off	Off	On	On
	50~75%	Off	Flash 2	On	On	Off	On	On	On
	75~100%	Flash 2	On	On	On	On	On	On	On
RUN LED ●		On				Flash 3			

Table 3 LED flash description

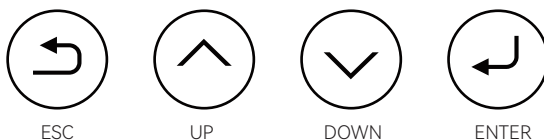
Flash Mode	OFF	ON
Flash 1	0.25S	3.75S
Flash 2	0.5S	0.5S
Flash 3	0.5S	1.5S

8. LCD SCREEN OPERATING INSTRUCTIONS

8.1 Operation And Display Panels



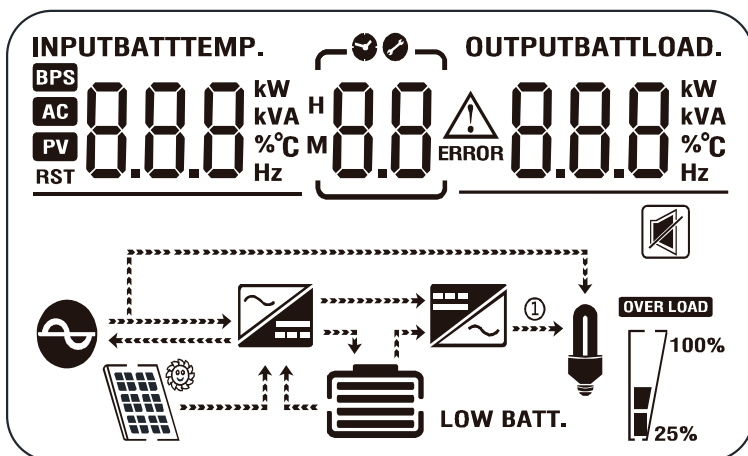
LED Indicator			Messages
a AC	Status indicator (Green)	Solid On	The mains power is normal and enters the mains power operation.
		Flashing	The mains power is normal, but it has not entered mains power operation.
		Off	The mains power is abnormal.
b Inverter	Invert indicator (Yellow)	Solid On	Output is powered by battery or PV in battery mode.
		Off	Other states.
c Charging	Charging indicator (Yellow)	Solid On	The battery is in float charging.
		Flashing	The battery is in constant voltage charging.
		Off	Other states.
d Fault	Fault indicator (Red)	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.
		Off	The inverter is working properly.



Function Buttons

Button	Description
ESC	To exit setting mode
UP	To go to previous selection
DOWN	To go to next selection
ENTER	To confirm the selection in setting mode or enter setting mode

8.1.1 LCD Display Icons



Icon	Description
AC Input Information	
	AC input icon.
	Indicate AC input power, AC input voltage, AC input frequency, AC input current.
PV Input Information	
	PV input icon.
	Indicate PV power, PV voltage, PV current, etc.
Output Information	
	Inverter icon.
	Indicate output voltage, output current, output frequency, inverter temperature.
	Output
Load Information	
	Load icon.
	Indicate power of load, power percentage of load.
	Indicate overload happened.
Battery Information	
	Indicate battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.
	Indicate battery voltage, battery percentage, battery current.
Other Information	
	Indicate alarm code or fault code.
	Indicate a fault is happening.
	Indicate the alarm is disabled.

For Lead-acid battery, detailed description of battery icon as following:
 Note: Voltage showed in following chart stands for 1 battery cell. For battery group, please multiple 4 to calculate.

In battery mode, battery icon will present Battery Capacity		
Load Percentage	Battery Cells Voltage	Display
Load >50%	<11.146V	
	11.146V~ 11.685V	
	11.685V~ 12.224V	
	>12.224V	
50%> Load>20%	<11.795V	
	11.795V~ 12.334V	
	12.334V ~ 12.873V	
	>12.873V	
Load < 20%	< 12.12V	
	12.12V~ 12.659V	
	12.659V~ 13.198V	
	>13.198V	

8.1.2 LCD Setting

After pressing and holding ENTER button for 2 seconds, the unit will enter setting mode. Press 'UP' or 'DOWN' button to select setting programs. Then press 'ENTER' button to confirm the selection or ESC button to exit.

Notes:

Standby mode: Inverter is not allowed to power the load. (Turn output switch to 'OFF' or inverter is abnormal)

Battery mode: Inverter is allowed to power the load with PV / PV+Battery / Battery, and operates without the grid.

Grid mode: Inverter is allowed to power the load with PV/ PV+Grid / Grid, and operates with the grid.

Program	Description	Setting Option	
01	Output voltage	OPV 01 230 ^v	
		230V (default) Adjustable/settable value: 208V, 220V, 230V, 240V	
02	Output frequency	OPF 02 50 _{Hz}	
		50Hz(default) Adjustable/settable frequency: 50Hz, 60Hz	
03	Output source priority	Grid first (default)	OPP 03 GPB
		Grid provides power to the loads as first priority. Solar power will charge the battery. If solar is not sufficient to charge battery, grid will charge the battery at the same time. If grid is absent and solar is sufficient, solar will power the loads. If grid is absent and solar is not sufficient, solar and battery will power the loads. If grid is absent, solar and battery are not sufficient to power loads at the same time, inverter will go to standby and charge battery.	
		Solar first	OPP 03 PCB
		Solar energy provides power to the loads as first priority. If solar energy is sufficient, battery will be charged with solar energy. If solar energy is not sufficient to power all connected loads, Gridwill supply power to the loads at the same time.If grid is absent and solar is not sufficient, solar and battery willpower the loads. If grid is absent, solar and battery are not sufficient to power loadsat the same time, inverter will go to standby and charge battery.	

03	Output source priority	PBG priority	OPP 03 PBG
		Solar energy provides power to the loads as first priority. If solar energy is sufficient, solar will charge the battery. If solar energy is not sufficient, battery will also supply power. If solar and battery energy are not sufficient, grid will supply power to the loads and solar charges the battery. If battery is charged to be sufficient, solar and battery will power the loads instead of grid. If grid is absent, solar and battery are not sufficient to power loads at the same time, inverter will go to standby and charge battery.	
		MKS	OPP 03 nts
		Generator provides power to loads as first priority. When generator, PV, battery all exist, the work mode is as PBG. When generator and battery exist (no PV), the work mode is as GPB. When generator and PV exist (no battery), the work mode is as GPB.	
04	Input mode	APP: Appliance (default)	oOd 04 APP
		Applied to household appliances Typical switching time is 10ms.	
		UPS	oOd 04 UPS
		Applied to computer and other devices. Typical switching time is 10ms.	
		GEN	oOd 04 GEN
05	Charger source priority	PNG: PV and Grid (default)	CHP 05 PNG
		PV and Grid are charged at the same time.	
		OPV: Only PV	CHP 05 OPV
		Only PV charge.	
		PVF: PV first	CHP 05 PVF
		If both grid and PV are available, PV charge. If only PV is available, PV charge. If only grid is available, grid charge.	

06	Grid charging current		
		Set charging current for grid chargers. The default setting is 60A. Available options: 2/10/20/30/40/50/60/70/80/90/100/110/120A	
07	Maximum charging current		
		Set total charging current for solar and grid chargers. The default setting is 100A. Available options: 2/10/20/30/40/50/60/70/80/90/100/110/120A	
08	Menu Default		
		During setting: Set to ON. If the current page is not on the first page and no operation with 1 minute, the system will return to display the first page. Set to OFF. If the current page is not on the first page and no operation with 1 minute, the system will stay on the current page.	
09	Auto restart when overload occurs	ON(default)	
10	Auto restart when over temperature occurs	ON(default)	
11	Main input cut warning		
		Enable/Disable Grid or PV loss alarm. The default setting is ON. If the grid/PV input detected lost, the buzzer will sound for 5 seconds. when set to OFF, after the grid/PV input is lost, the buzzer will not sound.	
12	Energy-saving mode		
		The default setting is OFF. When set to ON, in battery mode, if the load is lower than 25W, the system will stop output for a period then resume. If the load is still lower than 25W, the system will do the loop stop then resume. If the load is higher than 35W, the system will resume continuous normal output.	
13	Overload transfer to bypass		
		The default setting is OFF. When set to ON, in the case of PBG (PV priority) or MKS (generator priority) mode, if there is an overload, the system will immediately transfer to bypass mode (grid power output, also known as bypass mode).	

14	Silent mode setting	nUt 14 OFF	
		Enable/disable buzzer sound. The default setting is OFF. When set to ON, in any situation such as alarms or faults, the buzzer will not sound. This setting can be applied to all modes. Button sound is not effected.	
15	Battery return to grid voltage point	bEt 15 46.0 ^v	
		When the battery is set to the AGM (Lead Acid Battery Type) or FLD (Flooded Battery Type) mode. The default setting is 46V, and it can be adjusted within a range of [44, 52V].	
		When the battery is set to LIB (Ternary lithium battery). The default setting is 47.6V. It can be adjusted within a range of [40, 50V]. When the battery is set to FEL (Lithium iron battery), the default setting is 49.6V. It can be adjusted within a range of [40, 50V].	
		When the battery is set to the CUS (Customer Setting Type) mode. The adjustable range is [40, 50V]. The default setting is 47.6V, and it can be adjusted within a range of [40, 50V].	
16	Switching back to battery mode voltage points	bEt 16 52.0 ^v	
		When the battery is set to AGM (Absorbent Glass Mat) or FLD (Flooded) mode, The default setting is 52V. It can be adjusted within a range of [48, 58V].	
		When the battery is set to LIB (Ternary lithium battery). The default setting is 54.4V. It can be adjusted within a range of [46, 58V]. When the battery is set to FEL (Lithium iron battery), the default setting is 53.2V. It can be adjusted within a range of [46, 58V].	
		When the battery is set to CUS (Customer Set Type) mode, The default setting is 54.4V, The voltage range is [46, 58V].	
17	Battery type	AGM(default)	bAt 17 AGM
		Flooded	bAt 17 FLD
		Lithium (Ternary Lithium Battery)	bAt 17 LIB
		FEL(Lithium iron)	bAt 17 FEL
		User-Defined	bAt 17 CUS

18	Battery low voltage point	
		Battery low voltage alarm setting. When the battery type is set to LIB, the default setting is 47.6V. The adjustable range for the voltage is [41.2, 50V]. Initial settings for CUS are the same as for LIB. When the battery type is set to FEL, the default setting is 48V. The adjustable range for the voltage is [41.2, 50V].
		The voltage cannot be set if the battery mode is AGM or FLD. The default setting is 44V.
19	Battery shutdown voltage point	
		The battery low voltage shutdown point setting function cannot be adjusted when the battery is defined as AGM or FLD mode. The default setting is 42V.
		When the battery type is set to LIB, the battery shutdown point can be modified. The default setting is 46V, and the adjustable range is [40, 48V]. Initial settings for CUS are the same as for LIB. When the battery type is set to FEL, the battery shutdown point can be modified. The default setting is 42V, and the adjustable range is [40,48V].
20	Constant voltage mode voltage point setting	
		When the battery is defined in AGM or FLD mode, the voltage set point cannot be configured. The default setting for AGM mode is 56.4V, for FLD mode is 58V. When the battery type is CUS, It can be set within the range of [48, 60V] for the constant voltage charging set point. The default setting is 56.4V. It is important to note that the constant voltage set point voltage needs to be higher than the float charge set point voltage.
		When the battery type is set to LIB, the default setting is 56.4V, and it can be adjusted within the range of [48, 60V]. When the battery type is set to FEL, the default setting is 55.2V, and it can be adjusted within the range of [48, 60V]. It is important to ensure that the constant voltage set point voltage is higher than the float charge set point voltage.

21	Floating charge mode voltage point setting	bFL 21 54.0 ^v
		If battery type is AGM or FLD mode, the voltage set point cannot be configured. The default setting is 54V. If the battery type is CUS, the default setting is 55.2V. The setting range is [50, 58V]. If the battery type is LIB, the default setting is 55.2V. The setting range is [50, 58V]. If the battery type is FEL, the default setting is 54.4V. The setting range is [50, 58V]. It is important to note that the constant voltage point voltage should always be set higher than the floating charge point voltage.
22	Grid low voltage point setting	LLV 22 154 ^v
		If input mode is APP/GEN, Grid low voltage point can be set within a range of 90V to 154V. The default setting is 154V. If input mode is UPS, Grid low voltage point can be set within a range of 170V to 200V. The default setting is 185V.
23	Grid high voltage point setting	LHV 23 264 ^v
		If input mode is APP/GEN, Grid high voltage point can be set within a range of 264V to 280V. The default setting is 264V. If input mode is UPS, Grid high voltage point is set as 264V.
24	Automatic turn off backlight	Atb 24 00
		The default setting is ON. If ON, the backlight will turn off after 1minutes of no button operation.
25	Inverter soft start setting	StE 25 OFF
		The default setting is OFF. If ON, the inverter output gradually increases from 0 to the target voltage value. If OFF, the inverter output directly increases from 0 to the target voltage value. Setting Condition: It can be set in single-machine operation mode.

26	Reset factory setting	
		Restore all settings to factory default values. Before the setting, this interface is displayed as OFF. When set to ON, the system will restore to default settings. After the setting is completed, this interface will display OFF again. The setting can be applied immediately in mains and standby modes, but cannot be set in battery mode.
29	Battery Disconnection Alarm	
		Enable/Disable battery disconnection alarm. OFF(default). When set to OFF, there will be no battery disconnection alarm when the battery is disconnected.
30	Parallel PV only operation mode	
		Set if inverter can work during parallell operation without battery. The default setting is OFF. When the system is in parallel mode and without a battery, the PV (photovoltaic) and battery cannot operate; it can only run when connected to the grid.

31	Equalization Voltage Point Setting	EQV 31 58.4V
		The default setting for FEL battery type is 56V, setting range is [48, 60V]. The default setting for AGM/FLD/LIB/CUS battery type is 58.4V, with a configurable range of [48, 60V].
32	Equalization Charging Time Setting	EQE 32 OFF
		The function can be set as 'OFF' or active. During the equalization stage, the controller will charge the battery as much as possible until the battery voltage rises to the battery equalization voltage. Then, it will adopt constant voltage regulation to maintain the battery voltage. The battery will remain in the equalization stage until the set battery equalization time is reached. The setting range is [5, 900] with 5 minutes for every step. The default setting is OFF.
33	Equalization Delay Time Setting	EQD 33 120
		The function can be set as 'OFF' or active. During the equalization stage, if the battery equalization time expires and the battery voltage has not risen to the battery equalization voltage point, the charging controller will extend the battery equalization time until the battery voltage reaches the battery equalization voltage. When the battery equalization delay setting is completed and the battery voltage is still below the battery equalization voltage, the charging controller will stop equalization and return to the floating stage. The default setting is 120 minutes, with a configurable range of [5,900], and an increment of 5 minutes for each setting.
34	Equalization Interval Time Setting	EQI 34 30d
		When the battery connection is detected during the float phase with the equalization mode turned on, the controller will start to enter the equalization phase when the set equalization interval (cellequalization period) is reached.The default setting is 30 days, the settable range is[1,90], and the increment of each setting is 1 day.

35	Enable Equalization Immediately	E90 35 OFF
		The default setting is OFF, and the function is not turned on. If it is set to ON, in the float charging stage when the equalization mode is turned on and the battery connection is detected. The equalization charging is activated immediately, and the controller will start to enter the equalization stage.
36	Grid-tie inverter function	061 36 OFF
		Set whether the inverter can feed to grid or not. If the value is 'INT', the inverter can feed to grid according to different output source priority. In PGB mode when battery level is sufficient, as long as grid is connected, PV can feed energy to grid as much as possible and surplus energy of PV charges the battery. In PGB mode when battery level is NOT sufficient, PV charges battery as much as possible and surplus energy of PV feeds to grid. In GPB mode and PBG mode, as long as grid is connected, PV charges battery as much as possible and surplus energy of PV feeds to grid. In MKS mode, inverter does not feed to grid.
37	Max Grid Tie Power	06P 37 6.0 ^{kW}
		Setting the output power value to grid. The default setting is 6.0kW. The setting range is [0, 6.0]kW. Every setting step is 0.5kW.

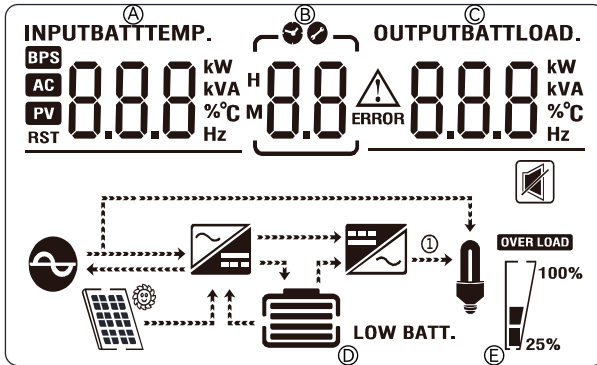
44	BMS Communication Function	
		The default setting is OFF, and the function is not enabled. When set to a specific BMS protocol, the inverter communicates with the lithium battery BMS through the centralized control board and obtains battery information. If the communication is abnormal after the function is enabled, alarm 56 is generated, and the inverter does not determine the running logic based on the BMS information. CVT: CVTE protocol (485) PYL: PYLON protocol (485 and CAN) GRO: GROWATT protocol (485 and CAN) VOL: VOLTRONIC protocol (485) IRF: China Tower protocol (485) PAC: PACE RTU protocol (485)
45	BMS ID	
		Setting BMS ID number to communication with. The setting value is AtO or numerical value [0, 15]. Among them, A-F represents 10-15 respectively. The default value is auto (AtO). When set to auto (AtO), system will automatically poll the BMS ID from small to large. When system poll for the first ID with a correct response, it locks the ID and only asks the BMS with that ID.

46	Low SOC Shutdown	Set the inverter to shut down when the State of Charge (SOC) of the battery is low. The default setting is 20, with a configurable range of [5, 50]. When the lithium battery SOC reaches the set value in battery mode, the inverter shuts down and generates alarm 68. The alarm 68 is cleared when the SOC returns to the set value + 5%. In standby mode, the inverter can switch to battery mode only when the SOC reaches the set value + 10%. If it does not reach this threshold, alarm 69 is generated. Once the function is enabled, alarm 69 is triggered when the lithium battery SOC reaches the set value + 5%, and it is cleared when it returns to the set value + 10%. It can be set to OFF, in which case the inverter no longer performs shutdown, startup, or alarm operations based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms.
47	High SOC to Battery	Set the SOC value for the inverter to switch to battery mode. The default setting is 90, with a configurable range of [10, 100]. In PBG priority mode, when the lithium battery SOC reaches the set value in normal grid mode, the inverter switches to battery mode. Once enabled, the inverter will only switch to battery mode when the SOC is above the set point and the battery voltage is higher than the voltage point to switch back to battery mode. It can be set to OFF, in which case the inverter no longer switches from grid mode to battery mode based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms.

48	Low SOC to Grid	STC 48 50
		Set the SOC value for the inverter to switch to grid mode. The default setting is 50, with a configurable range of [10, 90]. In PBG priority mode, when the lithium battery SOC reaches the set value in battery mode, the inverter switches to grid mode. Once enabled, the inverter will switch to grid mode when the SOC is below the set point or the battery voltage is lower than the voltage point to switch back to grid mode. It can be set to OFF, in which case the inverter no longer switches from battery mode to grid mode based on the SOC condition. Once the function is enabled, if a communication abnormality occurs, the inverter no longer operates based on the SOC information and clears the related alarms. When this setting is higher than the STB point, STB and STG will no longer take effect after the next activation.
61	Battery Max. Discharge Current	ndC 61 OFF
		The default setting is OFF. If the current is higher than 140A and the over-current time reaches 1 min, fault 14 will occur and inverter goes into fault mode. When set to a numerical value, it indicates the limitation current value. The setting range is [10, 140A] with a setting step of 5A. If the discharging current is over the limitation, alarm 60 will occur. If the continuous over-current time reaches 5 seconds, fault 14 will occur and inverter goes into fault mode.
63	Enable battery disconnection detection	bte 63 ON
		The default setting is ON with automatic battery disconnection detection/lithium battery activation. When it is set to OFF, the inverter maintains the battery disconnected state and no longer performs detection/lithium battery activation during operation.
64	Immediate battery detection/ lithium battery activation	bti 64 OFF
		The default setting is OFF. When it is set to ON, the inverter will immediately perform battery disconnection detection/lithium battery activation when the execution conditions are met, then the settings will return to OFF.

8.3 Display Information

The LCD display information will be switched in turns by pressing 'UP' or 'DOWN' key. The selectable information is switched as below order: voltage, frequency, current, power, firmware version.



- Ⓐ See table
- Ⓑ Page number
- Ⓒ See table
- Ⓓ Battery capacity
- Ⓔ Load percentage

After enabling BMS, Page 12/13/14/15/16/17 will be available.

The selectable information is switched as below.

LCD display	Information
INPUT OUTPUT AC 219 V P1 219 V	Ⓐ AC input voltage Ⓒ Output voltage
INPUT OUTPUT AC 50.0 Hz P2 50.0 Hz	Ⓐ AC input frequency Ⓒ Output frequency
BATT BATT 49.6 V P3 28.0 A	Ⓐ Battery voltage Ⓒ Charge current
PV BATT 0 V P4 0 A	Ⓐ PV voltage Ⓒ PV charging current
PV BATT 0 V P5 0 W	Ⓐ PV voltage Ⓒ PV power
OUTPUT LOAD. 220 V P6 1.1 kW	Ⓐ Output voltage Ⓒ Active power output
OUTPUT LOAD. 220 V P7 1.2 kVA	Ⓐ Output voltage Ⓒ Apparent power output
OUTPUT LOAD. 220 V P8 81%	Ⓐ Output voltage Ⓒ Load percentage
V1 P9 1	Display software version

150 ^{kw} 10 2.2 ^{kw}	Ⓐ Total power generation Ⓒ Daily power generation
51.6 51.6	Parallel operation status
n0d 12 51.6	Ⓐ Mode Ⓒ SIG(constant): battery pack is operating as a single group; PAR(constant): battery pack is operating in multiple groups in series and parallel; PAR(Flash): battery pack is establishing a state of multiple groups in series and parallel battery
BATT 50.0 ^v 13 BATT 0.0 ^A	Ⓐ Display battery voltage from BMS Ⓒ Display battery current from BMS. When BMS communication fails, both the upper left and upper right displays will flash ERR.
27.0 ^{°C} 14 BATT 57 [%]	Ⓐ Display battery temperature from BMS Ⓒ Display battery SOC from BMS. When BMS communication fails, both the upper left and upper right displays will flash ERR.
BATT 100 15 BATT 57.7	Ⓐ Display battery rated capacity Ⓒ Display battery current capacity. When BMS communication fails, both the upper left and upper right displays will flash ERR.
C ^U 16 BATT 60.0 ^v	Ⓐ Display the fixed letter CV Ⓒ Display the BMS constant voltage charging point. When BMS communication fails, the upper right display will flash ERR.
0 17 0	Ⓐ Display BMS alarm information Ⓒ Display BMS fault information. When BMS communication fails, both the upper left and upper right displays will flash ERR.

9. FAULT REFERENCE CODE

Fault display:



Function description: If alarm occurs, Fault indicator flashes and buzzer sounds every one second for 1 minute, then stop. If fault occurs, the fault indicator is always on, the buzzer sounds 10 seconds then stops. System will try restart automatically. If the machine does not work after six times' restart, the machine and LCD display will always in the fault status. You need to completely power off (off the screen) or wait for 30 minutes to restart the machine. The fault LCD display is shown in the figure above. In fault mode fault icon is bright, in alarm state alarm icon is flashing, and contact the manufacturer to troubleshoot the abnormal situation according to the fault information.

Fault: The inverter enters fault mode, with a constant red LED light and LCD displaying a fault code.

Fault code sheet

Fault code	Meaning	Relevant action	Trigger conditions	Resume conditions
1	Bus boost fail	Turn fault mode	Grid soft start process starts but bus voltage does not reach set value	Restore after reaching the set voltage for 15 seconds
2	Bus over voltage	Turn fault mode	Bus voltage is higher than set value	Restore after reaching the set voltage for 15 seconds
3	Bus below voltage	Turn fault mode	Bus voltage is lower than set value	Cannot restore
4	Battery over current	Turn fault mode	Battery current is higher than set value	Cannot restore
5	System over temperature	Turn fault mode	PFC temperature is higher than set value or fan is not connected	Restore after temperature lower than set value and fan connected for 15 minutes
6	Battery over voltage	Turn fault mode	Battery voltage is higher than set value	Restore after reaching the set voltage for 15 seconds

Fault code	Meaning	Relevant action	Trigger conditions	Resume conditions
7	Bus soft start failed	Turn fault mode	Battery soft start process starts but the bus voltage has not reached set value	Restore after reaching the set voltage for 15 seconds
8	Bus short circuit	Turn fault mode	Bus voltage is lower than set value	Cannot restore
9	Inverter soft start failed	Turn fault mode	Inverter soft start process starts but the inverter voltage has not reached set value	Restore after reaching the set voltage for 15 seconds
11	Inverter under voltage	Turn fault mode	The inverter voltage is lower than the set value in battery mode	Restore after reaching the set voltage for 15 seconds
12	Inverter short circuit	Turn fault mode	Inverter voltage is less than the set value and current is higher than the set value	Restore after reaching the set value for 15 seconds
14	Over load	Turn fault mode	The load current is higher than the set value	Restore after reaching the set value for 15 seconds
17	Programming	Turn fault mode	Inverter updating or OTA	Restore after updating
18	Panel Reverse	Turn fault mode	PV reverse connection	Restore after connecting correctly for 15 seconds
26	BMS Fault	Turn fault mode	Error code in BMS message	Restore after BMS fault resolved

10. ALARM REFERENCE CODE

Alarm: the inverter does not enter the fault mode, LED red light flashing, LCD displays the Alarm code.

ALA 51

Alarm code sheet

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions
50	Battery open	Alarm	Battery disconnected for no more than 10 minutes	Restore after battery connected and charging for 2 minutes
51	Battery under voltage	Alarm, battery low voltage shutdown or cannot power on	Battery voltage is lower than BAU set value	Restore after the battery voltage exceeding the BAU set value by 2V
52	Battery low voltage	Alarm	Battery voltage is lower than BAL set value	Restore after the battery voltage exceeding the BAL set value by 2V
53	Battery charge short circuit	Alarm, battery does not charge	Battery voltage is less than 24V and the charging current exists.	Restore after a maximum of 1 minute when the short circuit is eliminated.
56	BMS loss	Alarm	Communication failure after BMS communication function is enabled	Restore after communication function disabled or communication success
58	Fan error	Alarm, fan operation in full speed	No fan speed signal detected	Restore after fan speed signal detected
59	EEPROM error	Alarm	EEPROM read/write exception	Can not restore

Alarm code	Meaning	Relevant action	Trigger conditions	Resume conditions
60	Overload	Alarm	The mains current/ battery discharge current/ load power is higher than the rated value.	Restore after the mains current/battery discharge current/load power is less than the rated value.
62	PV energy weak	Alarm, Turn off the PV output to the load, but keep the PV charging the battery	When the battery is not connected, the bus voltage is lower than the set value	Restore after battery connected or grid connected, or 10 minutes later.
68	Battery under SOC shutdown	Alarm, turn to standby mode	BMS reports SOC lower than BSU set value	Restore after meeting one of the following three conditions: 1. Disable low SOC shutdown function 2. Disable BMS communication function 3. SOC is higher than the set value by 5%
69	Battery below SOC warning	Alarm, if it is in standby mode, it will remain in standby mode.	Lithium battery SOC is lower than set value+5% (grid mode or battery mode), lower than set value+10% (standby mode)	Restore after meeting one of the following three conditions: 1. Disable low SOC shutdown function 2. Disable BMS communication function 3. SOC is higher than the set value by 10%
72	Battery can not startup	Alarm	During standby, battery voltage is lower than the allowed startup voltage	Restore after the battery voltage is higher than the allowed startup voltage
77	Grid power is unstable	Alarm	Lost of grid power three times within 5 minutes	Restore after 5 mins

11. TROUBLE SHOOTING

Problem	Fault Event	Trigger conditions	What to do
LED screen display fault code 5	Over temperature	1.PFC temperature exceeds the protection threshold for more than 20 seconds. 2.Alarm58 lasts for 5 seconds.	Please check if the fan is not connected or if there are loose wiring issues. If the fan is not connected for more than 5 minutes, the machine will report fault code 5.
LED screen display fault code 12	Inverter short circuit	In battery mode or standby mode, if the inverter voltage is lower than 80V and the inverter current is greater than 30A, it should respond within 100-120ms.	1.Check if there is a short circuit at the output terminals (such as a screw piercing through the locking terminal causing a LN short circuit). 2.Verify if the inverter voltage and inverter current meet the triggering conditions.
LED screen display fault code 58	Fan malfunction	Any of the fans rotating less than 8 times within 2 seconds.	1.Check if the fan is not connected properly or if there are any loose connections. 2.If the fan is properly connected: a) Check if there is any issue with the fan detection circuit, usually caused by excessive soldering underneath the control board socket. b) Check if the fan itself is damaged.
Unable to start	Battery	Due to the need for a voltage of >11.5V/ N to start the machine in battery mode, common reasons for failure to start include improper calibration or insufficient battery voltage.	1.Check if the battery voltage sampling is functioning properly and if the battery voltage has been calibrated. 2.Use a multimeter to measure the voltage at the battery terminals (using a DC power supply or a real battery) to see if it reaches the minimum voltage of 11.5V per cell for startup. Note: It is crucial to configure the battery voltage according to the machine model. Connecting the wrong battery voltage can cause capacitor explosion.

Problem	Fault Event	Trigger conditions	What to do
Unable to start	Utility power		1.Check for any short circuits at the mains terminal (such as a screw piercing through and causing a short circuit between the live and neutral terminals). 2.Check if there are any wiring errors, such as mistakenly connecting the mains input to the output terminals.
	PV		1.Check if the PV input voltage is too close to the critical threshold. 2.For low voltage versions of the machine, check if the software version numbers of the main control is compatible. If the software versions differ significantly, the machine may not be activated.
PV not charging			Connecting the wrong battery voltage can result in damage to the auxiliary power supply on the PV side, causing a loss of power and inability to communicate with the main control.