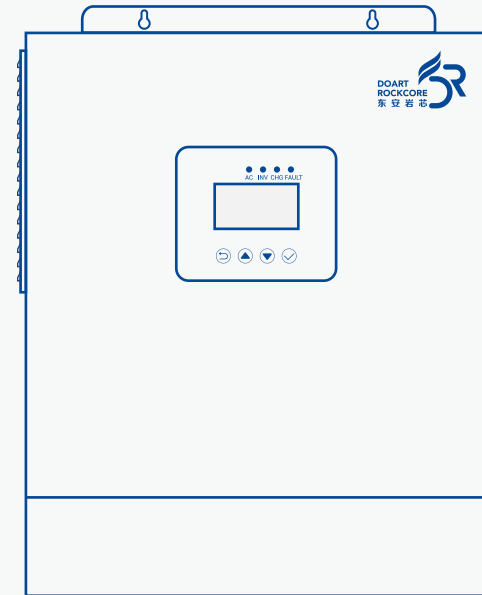




User Operation Manual

Off Grid Inverter

DR-PCS6520N2FL04

Legal Information

Disclaimer

The products, services, and features described in this manual are subject to the actual purchase contract and may not reflect your purchase in whole or in part. Unless otherwise agreed in the contract, the company makes no express or implied representations or warranties regarding the contents of this manual.

This manual contains important safety information regarding the correct use and maintenance of the product to prevent personal injury or property damage. Before using the equipment, carefully read and understand the entire manual and strictly follow the safety precautions stated herein. The company assumes no legal liability for any damage or loss caused by improper operation of the product.

This manual includes instructions on safety, operation, and maintenance. Be sure to read the user manual carefully.

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This manual may be updated based on user feedback.
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Please keep this manual in a safe place.

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1. Manual Description

1.1 Purpose of Manual

This manual covers unit assembly, field installation, commissioning and fault troubleshooting of the hybrid inverter. Read this manual thoroughly prior to installation and commissioning to ensure stable and reliable equipment operation.

1.2 Scope of Application

This document provides standardized safety installation guidelines as well as wiring requirements and tool specifications for field deployment.

2. Safety Precautions



This chapter contains critical safety and operational instructions. Retain this manual for future reference.

1. Read all warning labels and corresponding battery specifications before installation and commissioning.
2. It's recommended to use lithium iron batteries to minimize operational risks; other types of batteries might pose safety hazards.
3. Do not disassemble the unit arbitrarily. All repair work must be handled by authorized after-sales technicians; improper disassembly may cause electric shock or fire hazard.
4. Disconnect all circuit connections before any maintenance work to avoid electric shock risk.
5. Battery installation shall only be completed by qualified professional technicians.
6. Strictly avoid short-circuiting battery terminals.
7. Never charge defective or non-rechargeable batteries.
8. Adopt specified cable gauges as required to maximize unit efficiency and functional performance.
9. Use insulated tools during wiring; metal tools may cause accidental short circuits and safety incidents.

10. Follow specified wiring procedures when disconnecting grid and battery circuits for installation.

11. Built-in fuses provide overcurrent protection for battery circuits.

12. Secure fixed wiring positions and proper equipment grounding as required.

13. Prevent short-circuit between AC output and DC input terminals; never connect DC power when DC side is shorted.

14. Only certified service personnel are authorized for unit maintenance. Contact local distributor or after-sales service if faults persist after following troubleshooting table.

15. This inverter adopts non-isolated topology; only monocrystalline, polycrystalline Grade A and CIGS PV modules are permitted for connection. Grounded PV panels are not permitted as they will induce leakage current and equipment damage. All CIGS modules must be ungrounded.

16. Equip PV strings with surge-protected junction boxes; unprotected PV modules may suffer permanent damage induced by lightning surges.

Warning symbol description:

	Flammability risk.
	Keep the battery away from open flame or ignition sources .
	Danger of high voltages. Risk to life due to high voltages in the energy storage system .
	Danger! Risk of electric shock!
	Do not touch the product for 5 minutes after shutdown.
	CE Certification .
	Please read enclosed documentation carefully before using the product.
	This marking indicates that the product should not be disposed of with other household waste in the EU. To prevent potential harm to the environment or human health from uncontrolled waste disposal, please recycle it responsibly. This will promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can assist with environmentally safe recycling.
	Product is not waterproof.

3. Product Introduction

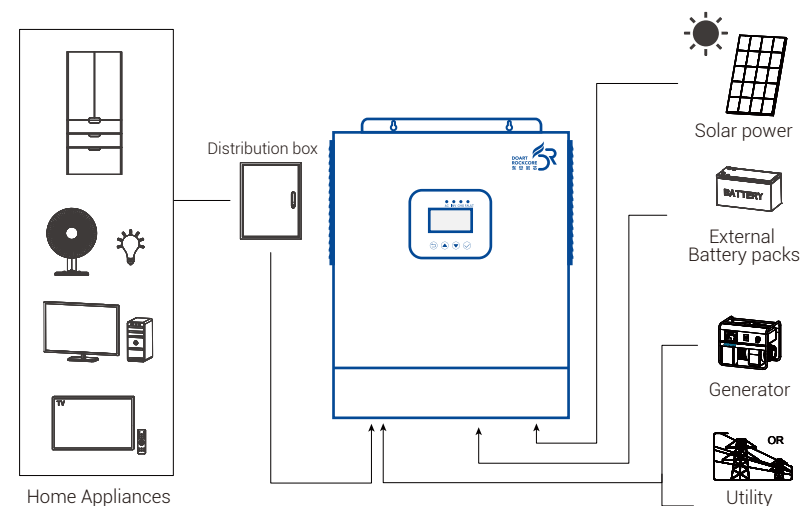
This all-in-one hybrid unit integrates inverter, MPPT solar charger and utility battery charger, delivering stable AC power for household loads. Compact and lightweight design facilitates transportation. Equipped with high-definition LCD and physical buttons for flexible parameter configuration including adjustable charging current, grid/PV supply priority and customized input voltage ranges.

3.1 Functional Features

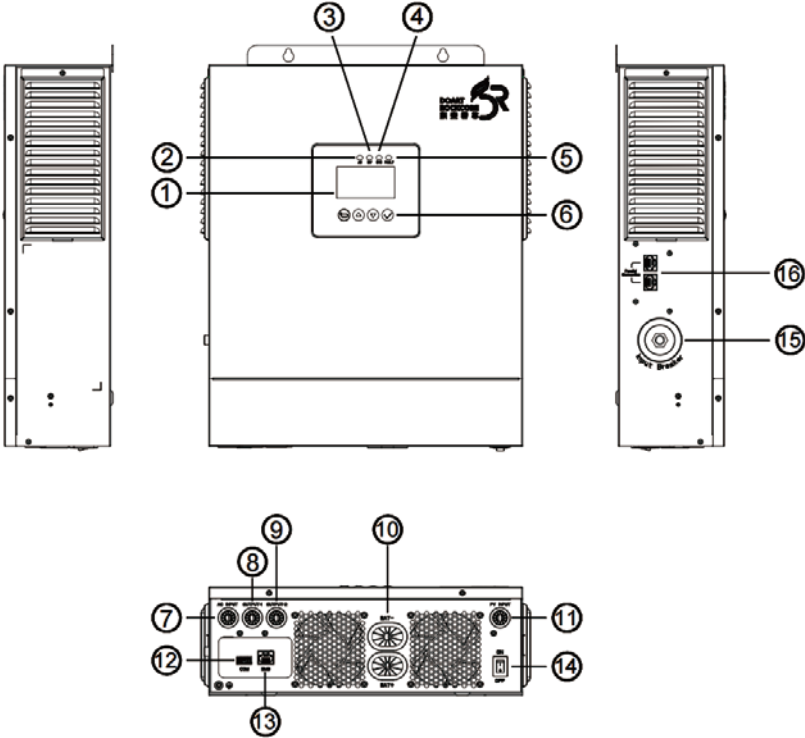
- Pure sine wave AC outputConfigurable grid input voltage range for household/IT load scenarios
- Adjustable battery charging current via LCD menu
- User-definable grid or PV supply priority via display setting
- Compatible with utility grid and diesel generator AC input
- Auto-restart function upon grid recovery
- Comprehensive protection: overload, over-temperature and output short-circuit shutdown
- Intelligent three-stage battery charging for optimized battery lifespan
- Cold-start capability powered solely by battery bank
- Optional WiFi communication: real-time system monitoring and remote parameter modification via iOS & Android mobile APP

3.2 Basic Structure

Complete system configuration consists of grid/generator, PV array and battery pack; consult system integrator for customized layout design. The inverter can power various domestic appliances including fans, lighting, refrigerators and computers.



3.3 Component Layout Definition



▲ Schematic Diagram of Functional Components

- ① LCD display screen

② AC Input Indicator LED

③ Inverter Status LED

④ Charging Indicator LED

⑤ Fault Alarm LED

⑥ Function Buttons

⑦ Grid AC Input

⑧ AC Output Channel 1
- ⑨ AC Output Channel 2 (Dual AC Output Ports)

⑩ Battery DC Input Terminal

⑪ PV Input Terminal

⑫ RS-232 Communication Port

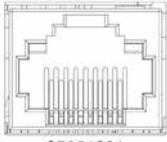
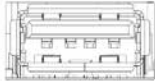
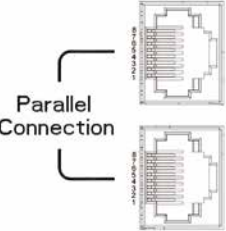
⑬ BMS Communication Port

⑭ Main Power Switch

⑮ Circuit Breaker

⑯ Parallel Communication Port (for parallel operation only)

► Product Ports Function Definition

⑬ BMS Communication Port			
Item	Pin	Definition	Remarks
 87654321 BMS	1	RS485_B	Not for public use
	2	RS485_A	
	4	CAN_H	Not for public use
	5	CAN_L	
	3;6;7;8		
⑫ RS-232 Communication Port			
 1 2 3 4 COM	1	VCC	+5Vdc
	2	TXD	
	3	RXD	
	4	GND	
⑯ Parallel Communication Port (For Parallel Operation Only)			
 Parallel Connection	1	PARA_CAN_H	
	2	PARA_CAN_L	
	3	NC	
	4	NC	
	5	NC	
	6	NC	
	7	SYN+	
	8	SYN-	

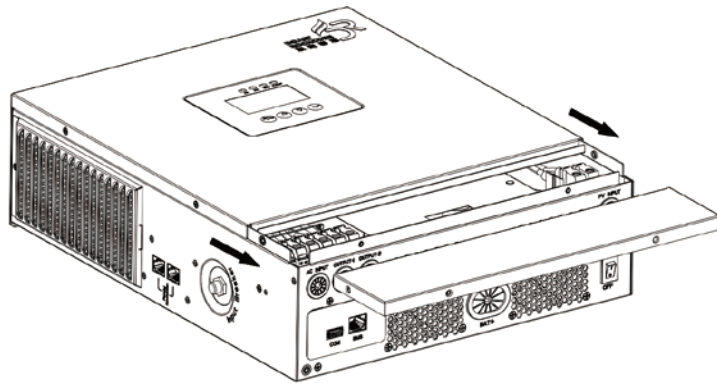
4. Installation

4.1 Unpacking Inspection

Check package integrity before unpacking. Standard packing list: 1×Main Inverter, 1×User Manual, 1×Parallel Cable (only for parallel version), 1×Product Warranty Policy & Warranty Conditions.

4.2 Pre-installation Preparation

Remove four bottom and side screws to detach bottom cover prior to all wiring operations.



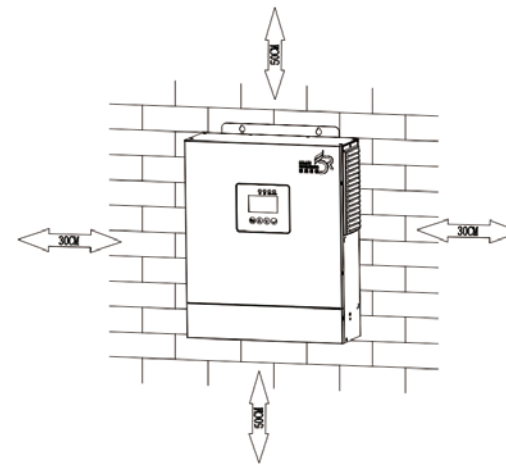
4.3 Unit Mounting Requirements

- Do not mount the unit on flammable construction materials; concrete or non-combustible wall is preferred.
- Install vertically on solid flat wall surface.
- Mount at eye level for convenient LCD status observation.
- Reserve ≥30cm clearance on left and right sides for ventilation and heat dissipation.
- Ambient operating temperature range: -10°C ~ +50°C.
- Keep proper clearance between unit bottom and ground during vertical wall mounting.
- Fasten all wiring terminals tightly to avoid loose connection.
- Confirm correct polarity for PV and battery wiring.
- Install independent circuit breakers on grid, battery and PV input branches.
- One PV string cannot be shared among multiple inverters.

- PV and battery parameters must match unit rated specifications.
- SPD (Surge Protection Device) is recommended for grid and PV input side.
- Do not disconnect battery during live unit operation.
- Regular dust cleaning is required for dusty operating environments to prevent heat dissipation degradation.
- Fix unit onto wall with M4/M5 mounting screws.

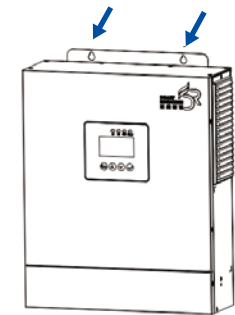


It is suitable for installation on concrete or other non-combustible walls.



▲ Wall Mounting Spacing Schematic

Install the device by tightening two screws; M4 or M5 screws are recommended.



▲ Wall Mounting Fixation Schematic

4.4 Battery Connection



WARNING:

Install independent DC disconnect switch/overcurrent protector between battery bank and inverter for safety isolation and maintenance purposes.

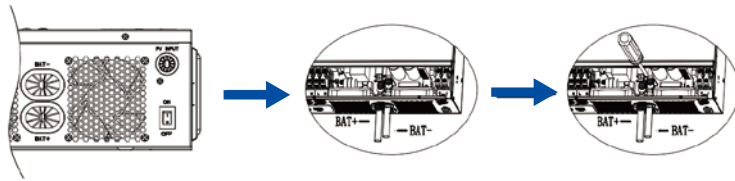


CAUTION:

Use specified gauge cables to maximize safety and efficiency; follow defined stripping length and OT crimp specification.

Rated Power	Max DC Current	Cable AWG	Cross-section (mm ²)	L1(mm)	L2(mm)	Max Torque
6.5kW	137A	1x2AWG	38	3	18	2~3Nm

► Connection Steps:



Step 1: Strip 18mm insulation from battery cable ends.

Step 2: Crimp OT copper terminals firmly onto stripped cable ends.

Step 3: Connect positive and negative poles of battery bank in series/parallel according to the system design.

Step 4: Fasten cable terminals onto inverter BAT+ / BAT- terminals with torque 2~3Nm clockwise; strictly observe polarity matching.

Recommended tool: Cross screwdriver or M6 hex socket wrench.



WARNING:

High DC battery voltage poses shock hazard during installation.



NOTE:

Confirm positive-to-positive, negative-to-negative connection before closing DC breaker.

4.5 AC Input & Output Wiring



WARNING:

Install independent DC disconnect switch/overcurrent protector between battery bank and inverter for safety isolation and maintenance purposes.

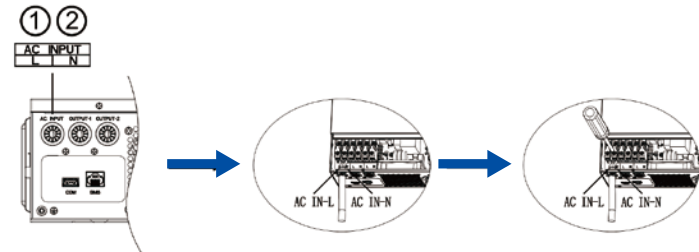
Rated Output	AWG	Cable(mm ²)	Torque Value(max)
6.5kW	10AWG	6	1.2 Nm

► Connection Steps:

Step 1: Cut off DC protection switch before AC wiring.

Step 2: Strip 10mm insulation from each AC conductor.

Step 3: Wire grid power to AC-IN terminal (L:Red/Brown, N:Blue, PE:Green/Yellow earth).



WARNING:

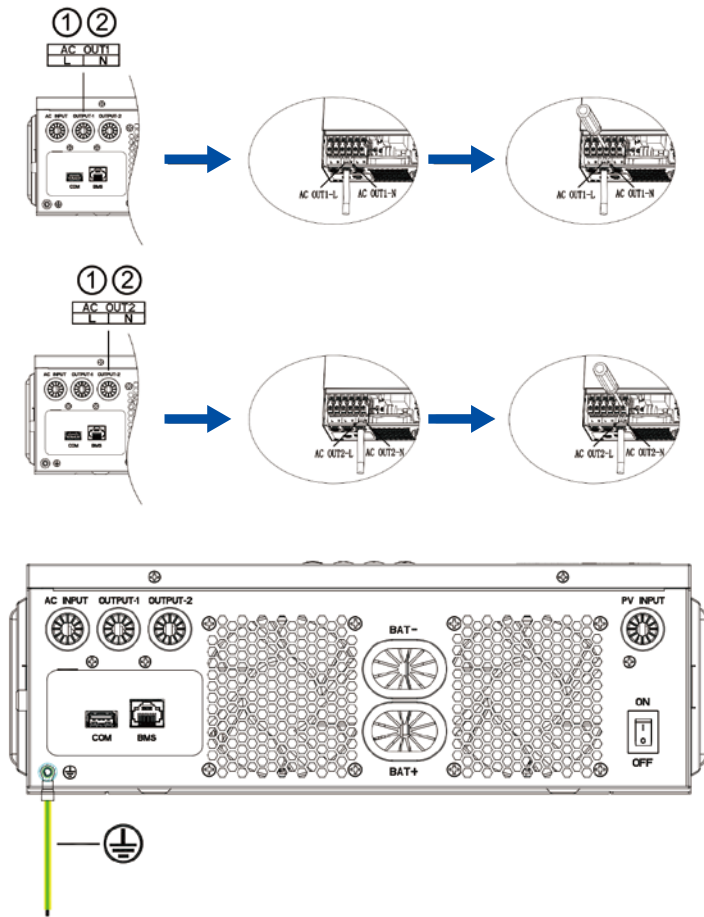
Disconnect mains power prior to hardwiring the equipment.

Step 4: Connect AC-OUT1 for critical loads and AC-OUT2 for non-critical loads; AC-OUT2 can be auto-disabled via battery voltage/SOC/timer setting.

Step 5: Prioritize installation of the PE -protective earth conductor and fasten all wiring terminals securely.

⊕ → PE → Protective Earth (Ground Cable, Yellow or Green)

L → Live Cable (Red or Brown) N – Neutral Cable (Blue)



WARNING:
Incorrect L/N polarity will cause short-circuit risk under parallel operation.



NOTICE:
Air-conditioner loads require 2~3min restart delay after power loss; verify compressor delay setting with manufacturer to avoid inverter overload shutdown upon instant re-power.

4.6 PV Module Wiring



Install an independent DC disconnect switch between the inverter and PV modules before connecting solar panels.



All wiring operations must be carried out by certified professional technicians



To reduce operational risks, adopt cables conforming to the specifications specified in the following table.



Standalone Mode: The maximum open-circuit voltage per PV string shall not exceed 500 Vdc. Strictly abide by the above requirement; otherwise, fire hazard or inverter damage may happen. The manufacturer assumes no liability for any consequential damage, and such damage is outside the scope of product warranty.

Parallel Mode: The maximum open-circuit voltage per PV string shall not exceed 480 Vdc. Strictly abide by the above requirement; otherwise, fire breakout or inverter damage may happen. The manufacturer assumes no liability for any consequential damage, and such damage is outside the scope of product warranty.

Max PV Array Power	Wire Size	Cable(mm ²)	Torque Value(max)
9kW	1*12 AWG	4	1.2 Nm

Refer to the following criteria before selecting suitable PV modules:

- The open-circuit voltage (Voc) of solar modules must not exceed the maximum allowable PV open-circuit voltage.
- The maximum power point voltage (Vmp) of solar modules shall be higher than the minimum PV startup open-circuit voltage.

Standalone Operation Mode

Parameter	Rating
Maximum PV Open-circuit Voltage	500Vdc
MPPT Operating Voltage Range	60Vdc ~ 450Vdc
Minimum PV Startup Open-circuit Voltage	80V

Parallel Operation Mode

Parameter	Rating
Maximum PV Open-circuit Voltage	480Vdc

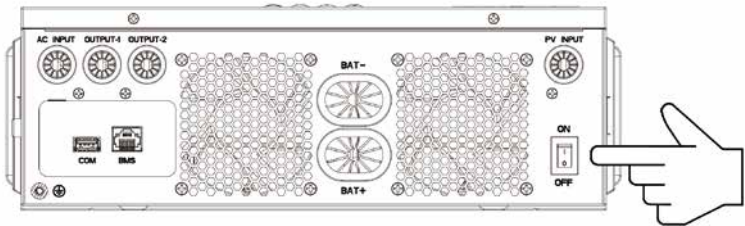
Below are typical PV array configuration examples. Recommended configurations complying with the above two electrical parameters are listed in the table below:

PV Module Electrical Parameters	Module Connection Mode	Required Module Quantity	Total Output Power
-580Wp -Vmp:42.6Vdc -Imp:13.6A Voc:51.5Vdc -Isc:14.4A	Series range: 6~8 modules per string	Quantity	Rated Output
	6 modules wired in series	6	3480W
	8 modules wired in series	8	4640W
	9 modules wired in series	9	5220W
	6-series × 2-parallel (6S2P)	12	6960W
	8-series × 2-parallel (8S2P)	16	9000W

▲ Equipment Assembly Schematic Diagram

5.Unit Operation

5.1 Power Switch

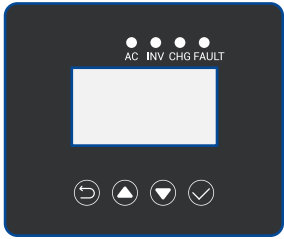


▲ Bottom view

Main power button is located on unit bottom; Power on the unit only after all battery, PV and AC wiring has been completed.

5.2 Operation & Display Panel

Panel includes 4 status LEDs, 4 physical buttons and LCD screen for real-time parameter display.

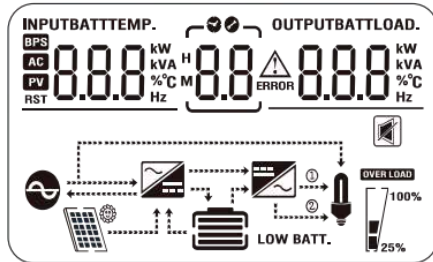


LCD Screen

Function Key	
	Exit Setup Mode
	Choose the previous item
	Choose the next item
	Confirm to select or enter the setting mode in the setting mode

LED pilot lamp			Deictic information
AC	Green	Solid	Load powered by grid
		Blink	Load powered by PV/battery inverter
		Off	Grid abnormal/disconnected
INV	Yellow	Solid	Inverter output active(PV/Battery supply)
		Off	Inverter standby
CHG	Yellow	Solid	Battery float charging
		Blink	Battery constant-voltage absorption charging
		Off	No ongoing charging
FAULT	RED	Solid	Hardware critical fault
		Blink	Non-critical warning alert
		Off	Normal running status

5.3 LCD Icon Descriptions



Item	Icon	Functional Description
AC Input Information		Indicates the device is connected to utility power.
		Indicate AC input power, AC input voltage, AC input frequency, AC input current.
PV Input Information		Indicates the device is connected to PV modules.
		Indicate PV power, PV voltage, PV current, etc.
Output Information		Indicates the DC/AC inverter circuit is operating
		Indicate output voltage, output current, output frequency, inverter temperature.
		Dual output (output1 and output2)
Load Information		Load icon.
		Indicate power of load, power percentage of load.
		Indicates load capacity: 0~24%, 25~50%, 50%~75%, 75%~100%
		Indicate overload happened.

Item	Icon	Functional Description
Battery Information		Indicates battery level in battery mode: 0-24%, 25-49%, 50-74%, 75-100%, and charging status in utility 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 voltage	LCD Display
Load > 50%	< 44.584V	
	44.584V ~ 46.74V	
	46.74V ~ 48.896V	
	> 48.896V	
50% > Load > 20%	< 47.18V	
	47.18V ~ 49.336V	
	49.336V ~ 51.492V	
	> 51.492V	
Load < 20%	< 48.48V	
	48.48V ~ 50.636V	
	50.636V ~ 52.792V	
	> 52.792V	

5.4 LCD Settings

LCD display information switching is achieved by pressing the UP ▲ or Down ▼ keys. The optional information switching commands are as follows:

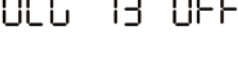
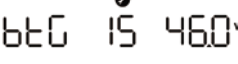
Hold down the key ☺ for 3 seconds, and the device enters the Settings mode. Press either the UP ▲ or Down ▼ keys to select the Settings items.

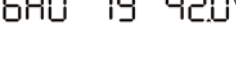
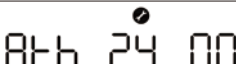
Then press ENTER ☺ to confirm the selection or press ESC ☹ to exit.

Set items:

Program	Description	Option	
01	Output voltage	OPU 01 230 ^v	230V (Default) Adjustable / settable values: 208V, 220V, 230V, 240V 240V
02	Output frequency	OPF 02 50 ^{Hz}	50 Hz (default) adjustable frequency: 50 Hz, 60 Hz
03	Output source priority	Utility priority (Default)	OPP 03 GPB
		Utility priority supplies the load, and PV power is used to charge the battery; if PV power is insufficient, utility also charges the battery; if utility power is insufficient to support all loads, PV power assists; if both PV and utility are insufficient, the battery assists; if none can meet the load demand, an overload occurs and the system enters fault mode.	
		PV priority	OPP 03 PGB
		PV has priority to supply the load; if PV power is sufficient, excess power charges the battery; if PV power is insufficient, utility assists and excess power charges the battery; if both PV and utility are insufficient, the battery assists; if none can meet the load demand, the inverter enters standby mode and charges the battery.	
		PBG priority	OPP 03 PBG
		PV has priority to supply the load. If PV power is sufficient, it charges the battery; if PV power is insufficient, the battery assists in supplying the load; if both PV and battery power are insufficient, utility assists; if none can meet the load demand, the inverter enters standby mode and charges the battery.	
		MKS	OPP 03 nts
		Generator priority supplies the load; when generator, PV, and battery are all present, the operating mode is the same as PBG; when only generator and battery are present (no PV), the operating mode is GPB (utility - PV - battery); when only generator and PV are present (no battery), the operating mode is GPB.	

04	Input mode	APP: Appliances (Default)	n0d 04 APP
		Suitable for household appliances. Typical transfer time: 10 ms.	
		UPS	n0d 04 UPS
		Suitable for equipment such as computers. Typical transfer time: 10 ms.	
		GEN	n0d 04 GEN
		Suitable for connecting a generator through the AC IN port, typical transfer time 20 ms	
05	Charger power source priority	PNG: PV and utility (Default)	CHP 05 PNG
		PV and utility charge simultaneously	
		OPV: Only PV	CHP 05 OPV
		PV charging only	
		PVF: PV priority	CHP 05 PVF
		If both utility and PV are available, charge via PV first; if only PV is available, charge via PV; if only utility is available, charge via utility	
06	Utility Charging current	100 06 60 ^A	Sets the charging current of the utility charger; default 60A; optional values: 10/20/30/40/50/60/70/80/90/100/110/120A
07	Maximum charging current	n00 07 100 ^A	Sets the total charging current of the PV and utility chargers; default 100A; optional values: 10/20/30/40/50/60/70/80/90/100/110/120A
08	Menu default setting	n0F 08 0N	When setting is ON: if the current page is not the home page and there is no operation for 1 minute, the system returns to the home page display; when setting is OFF: if the current page is not the home page and there is no operation for 1 minute, the system keeps the current page.
09	Auto restart on overload	115 09 0N	ON (Default)
10	Auto restart on over-temperature	115 10 0N	ON (Default)

11	Main input disconnection warning		Enable / disable utility or PV disconnection alarm, default ON; when enabled, if utility / PV input disconnection is detected, the buzzer sounds for 5 seconds; when disabled, the buzzer does not sound.
12	Power saving mode		Default OFF; when ON, in battery mode if the load is below 25 W, the system will pause output for a period and then recover; if the load is still below 25 W, the pause-recover cycle repeats; if the load is above 35 W, the system resumes continuous normal output.
13	Overload switches to bypass		Default OFF; when ON, if overload occurs in PBG (PV priority) or MGS (generator priority) mode, the system immediately switches to bypass mode (utility-powered output, also called bypass mode).
14	Mute mode settings		Enable / disable buzzer sound, default OFF; when ON, the buzzer does not sound under any alarm or fault condition (this setting applies to all modes; key sounds are not affected).
15	Battery-to-Utility Transfer Voltage		When the battery is set to AGM (lead-acid) or FLD (flooded lead-acid) mode, default 46V, adjustable range [44,52V].
			When the battery is set to LIT (ternary lithium battery) mode, default 47.6V, adjustable range [40,50V]; when set to FEL (lithium iron phosphate battery) mode, default 49.6V, adjustable range [40,50V].
			When the battery is set to CUS (user-defined) mode, default 47.6V, adjustable range [40,50V].
16	Switch back-to-battery voltage point		After the battery shuts down due to low voltage, it must reach a specific voltage before it can restart into battery mode. The setting can be "FUL (full charge)" or a specific voltage value; when set to FUL, the battery must be fully charged before it can restart into battery mode.
			When the battery is set to AGM/FLD mode: default 52V, adjustable range [48,58V].
			When the battery is set to LIT/CUS mode: default 54.4V, adjustable range [46,58V]; when the battery is set to FEL mode: default 53.2V, adjustable range [46,58V].
17	Battery type		AGM (Default)
			Flooded (flooded lead-acid battery)

17	Battery type		Lithium (ternary lithium battery)
			FEL (lithium iron phosphate battery)
			User-defined
18	Battery low-voltage		Battery low-voltage alarm setting: LIT/CUS mode: default 47.6V, adjustable range [41.2,50V]; FEL mode: default 48V, adjustable range [41.2,50V]. AGM/FLD mode: not manually adjustable, default 44V.
19	Battery shutdown voltage point		LIT/CUS mode: default 46V, adjustable range [40,48V]; FEL mode: default 42V, adjustable range [40,48V]. AGM/FLD mode: not manually adjustable, default 42V.
20	Bulk/Absorption Charging Voltage		AGM mode: default 56.4V, not manually adjustable; FLD mode: default 58V, not manually adjustable; CUS mode: default 56.4V, adjustable range [48,60V]. Note: the constant-voltage setting voltage must be higher than the float-charge setting voltage. LIT mode: default 56.4V, adjustable range [48,60V]; FEL mode: default 55.2V, adjustable range [48,60V]. Note: ensure the constant-voltage setting voltage is higher than the float-charge setting voltage.
21	Float mode voltage setting		AGM/FLD mode: default 54V, not manually adjustable; CUS mode: default 55.2V, adjustable range [50,58V]; LIT mode: default 55.2V, adjustable range [50,58V]; FEL mode: default 54.4V, adjustable range [50,58V]; note: the constant-voltage setting voltage must always be higher than the float-charge setting voltage.
22	Utility low-voltage point setting		When input mode is APP/GEN: adjustable range [90V,154V], default 154V; when input mode is UPS: adjustable range [170V,200V], default 185V.
23	Utility high-voltage point setting		When input mode is APP/GEN: adjustable range [264V,280V], default 264V; when input mode is UPS: fixed at 264V, not adjustable.
24	Auto backlight off		Default ON; when ON, the backlight turns off after 1 minute without key operation.

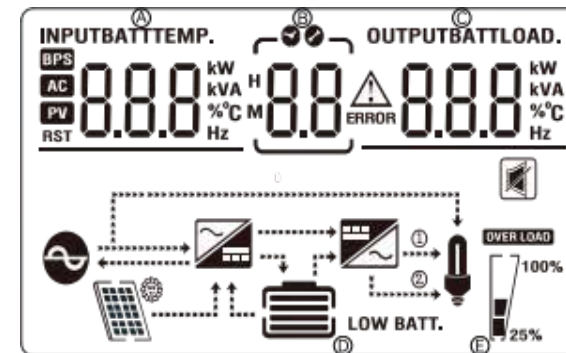
25	Inverter soft-start setting		Default OFF; when ON, inverter output voltage rises gradually from 0 to the target value; when OFF, inverter output voltage rises directly from 0 to the target value; setting condition: adjustable only in standalone mode.
26	Restore factory settings		Restore all settings to factory defaults; before setting, display OFF; when set to ON, the system restores defaults and then automatically displays OFF; applicable modes: utility mode and standby mode take effect immediately, but it cannot be set in battery mode.
27	Parallel mode setting		Set the parallel operation mode. It can be set in grid mode and standby mode, cannot set in battery mode. The default setting is SIG (single mode). When set to PAR (parallel mode), it is single-phase parallel working mode. When set to 3P1 (R phase), 3P2 (S phase) or 3P3 (T phase), it works as one phase of 3 phases system. Before using parallel system, system should be connected correctly then set the parallel mode of each unit. If some inverter in parallel system set as SIG, fault 24 will occur. If using as 3 phases system, all units should be set as one of 3P1, 3P2 or 3P3. For each phase (3P1, 3P2 or 3P3), there is at least one inverter set as. Otherwise, fault 24 will occur.
28	Parallel identity code		The default setting is ATO (auto mode). Besides ATO, it also can be set as 1-9 number. If set as 1-9, each inverter in one parallel system must have a unique ID from 1-9. If ID repeat, fault 19 will occur.
29	Battery disconnection alarm		Enable / disable battery disconnection alarm, default OFF; when OFF, no alarm is triggered for battery disconnection.
30	Parallel PV only operation mode		Set if inverter can work during parallel 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		FEL mode: Default 56V, Adjustable range [48,60V]; AGM/FLD/LIT /CUS mode: Default 58.4V, Adjustable range [48,60V]
32	Equalization charging time setting		The controller charges the battery as much as possible until the battery voltage rises to the equalization voltage, then it is OFF or enabled; when enabled, the controller uses constant-voltage regulation during the equalization stage to maintain that voltage until the set equalization time is reached; adjustable range [5,900] minutes, step 5 minutes, default OFF.

33	Equalization delay time setting		Can be set to OFF or enabled; when enabled, if the equalization time ends but battery voltage has not reached the equalization voltage, the charging controller extends the equalization time until the voltage meets the target; if the voltage still does not meet the target after the set delay time, the controller stops equalization and returns to the float-charge stage; default 120 minutes, adjustable range [5,900] minutes, step 5 minutes.
34	Equalization interval time setting		When the float-charge stage detects that the battery is connected and equalization mode is ON, the controller enters the equalization stage after the set equalization interval time is reached; default 30 days, adjustable range [1,90] days, step 1 day.
35	Enable equalization immediately		Default OFF; when ON, if the float-charge stage detects that the battery is connected and equalization mode is ON, equalization charging starts immediately and the controller enters the equalization stage.
36	Grid-tie inverter function		Sets whether the inverter is allowed to generate power to the grid; when set to INT, the inverter connects to the grid according to different output source priorities: - In PGB mode when battery level is sufficient: while utility is connected, PV feeds as much as possible into the utility grid, and excess power charges the battery; - In PGB mode when battery level is insufficient: PV charges the battery first, and excess power feeds to the utility grid; - In GPB/PBG mode: while utility is connected, PV charges the battery first, and excess power feeds to the utility grid; - In MKS mode: the inverter does not generate power to the grid.
37	Maximum grid export power		Sets the maximum power exported to the utility grid, default 6.5 kW, adjustable range [0,6.5] kW, step 0.5 kW.
38	Battery dual-output low-voltage		When enabled, the inverter secondary output is ON by default; in battery mode, the secondary output turns off when battery voltage is below the set value and turns on when battery voltage is higher than the set value plus 1 V per battery cell; default 48V, adjustable range [44,60] V; if the set value is higher than the constant-voltage charging (CV) point minus 1 V per cell, the recovery voltage is set to the constant-voltage charging point.
39	Battery dual-output duration		When enabled, the inverter secondary output is ON by default; in battery mode, the secondary output turns off when the battery discharge time reaches the set value; default OFF (function not enabled), adjustable range [5,900] minutes; when set to FUL, the secondary output has no time limit.

40	Dual-output battery mode cutoff SOC	dbS 40 20	When enabled, the inverter secondary output is ON by default; in battery mode, the secondary output turns off when battery state of charge (SOC) is below the set value; the secondary output turns on when battery voltage is 5% above the set value; default 20, adjustable range [5,90] or OFF.
44	BMS communication function	bns 44 OFF	Default OFF; when ON, a specific BMS protocol must be selected. The inverter communicates with the lithium battery BMS through the central control board to obtain battery information. If communication is abnormal, alarm 56 is triggered and the inverter no longer determines operating logic based on BMS information. Optional protocols: 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	bni 45 At0	Set the BMS ID number for communication, optional "Auto" or a value [0,15] (A-F represent 10-15); default Auto; automatically polls BMS IDs from low to high, locks the first correctly responding ID, and communicates only with that BMS ID.
46	Low SOC shutdown	bSU 46 20	Default 20%; adjustable range 5%-50% or OFF; in battery mode, when lithium battery state of charge is below this value, the device shuts down and alarm 68 is triggered; when state of charge is 5% above this value, the alarm clears; in standby mode, only when state of charge is 10% above this value can the device switch to battery mode, otherwise alarm 69 is triggered; after it is enabled, if communication is abnormal, operation no longer depends on state of charge and related alarms are cleared.
47	High SOC switch to battery mode	Stb 47 90	Default 90%; adjustable range 10%-100% or OFF; in PV battery priority mode while operating on utility power, when state of charge is above this value and battery voltage is above the return voltage, switch to battery mode; after it is enabled, if communication is abnormal, operation no longer depends on state of charge and related alarms are cleared.
48	Low SOC switch to utility mode	StC 48 50	Default 50%; adjustable range 10%-90% or OFF; in PV battery priority mode while operating on battery, when state of charge is below this value or battery voltage is below the return voltage, switch to utility mode; after it is enabled, if communication is abnormal, operation no longer depends on state of charge and related alarms are cleared; when the set value is higher than the standby voltage point, the standby and utility-switch voltage points become invalid.

61	Battery maximum Discharge current	ndC 61 OFF	Default OFF; when OFF, if current exceeds 140 A for 1 minute, fault 14 is triggered; after enabling, the setting range is 10-140 A in 5 A steps; if discharge current exceeds the limit, alarm 60 is triggered, and if it lasts for 5 seconds, fault 14 is triggered.
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.

Press the up or down key to switch LCD display pages. Display content includes voltage, frequency, current, power, firmware version, and more.



After enabling the battery management system (BMS), the functions on pages 12-17 will be activated and accessible.

LCD display	Information
INPUT OUTPUT 219 V P1 219 V	AC input voltage / Output voltage
INPUT OUTPUT 50.0 Hz P2 50.0 Hz	AC input frequency / Output frequency
BATT BATT 49.6 V P3 28.0 A	Battery voltage Charging current
0 V P4 0 A	PV voltage PV charging current
0 V P5 0 W	PV voltage PV power
OUTPUT LOAD. 220 V P6 1.1 kW	Output voltage Active output power
OUTPUT LOAD. 220 V P7 1.2 kVA	Output voltage Apparent output power
OUTPUT LOAD. 220 V P8 81 %	Output voltage Load percentage
41 P9 1	Firmware version information
150 kWh 10 2.2 kWh	Total generation / Daily generation
51.6 11 51.6	Parallel operating status
MODE 12 51.6	Mode SIG (constant): the battery bank operates as a single group; PAR (constant): the battery bank operates with multiple series and parallel groups; PAR (Flash): the battery bank is establishing multiple series and parallel battery groups.
BATT BATT 50.0 V 13 0.0 A	Display battery voltage from BMS. Display battery current from BMS. When BMS communication fails, ERR flashes on both the upper-left and upper-right displays.
27.0 °C 14 57 %	Display battery temperature from BMS. Display battery SOC from BMS. When BMS communication fails, ERR flashes on both the upper-left and upper-right displays.
BATT BATT 100 15 57.7	Display battery rated capacity. Display battery available capacity. When BMS communication fails, ERR flashes on both the upper-left and upper-right displays.
CU 16 600 V	Display fixed letters. Display BMS constant-voltage charging point. When BMS communication fails, ERR flashes on the upper-right display.
0 17 0	Display BMS alarm information. Display BMS fault information. When BMS communication fails, ERR flashes on both the upper-left and upper-right displays.

5.5 Fault Code Reference



Fault display rules:

When an alarm occurs, the fault indicator flashes and the buzzer sounds once per second for 1 minute, then stops. When a fault occurs, the fault indicator stays on and the buzzer sounds for 10 seconds, then stops.

The system will automatically attempt to restart. If six consecutive restart attempts fail, the device and LCD screen will continuously display the fault status. At this point, completely power off the device (turn off the screen) or wait 30 minutes before restarting it. In fault mode, the fault icon stays on; in alarm status, the alarm icon flashes. Users should contact the manufacturer based on the fault information to troubleshoot the abnormal condition.

Fault status: the inverter enters fault mode, the red indicator stays on, and the LCD displays the fault code.

Fault Reference Code				
Fault Code	Fault Description	System Action	Trigger Condition	Recovery Condition
1	Bus boost failure	Turn fault mode	During utility soft start, the bus voltage does not reach the set value	Voltage reaches the set value and remains for 15 seconds
2	Bus over-voltage	Turn fault mode	Bus voltage is above the set value	Voltage reaches the set value and remains for 15 seconds
3	Bus under-voltage	Turn fault mode	Bus voltage is below the set value	Cannot automatically recover
4	Battery over current	Turn fault mode	Battery current is above the set value	Cannot automatically recover
5	System over temperature	Turn fault mode	The power factor correction module temperature is too high or the fan is not connected	The temperature drops to the set value and the fan connection is normal; remain for 15 minutes
6	battery overvoltage	Turn fault mode	Battery voltage is above the set value	Voltage reaches the set value and remains for 15 seconds
7	Bus soft-start failure	Turn fault mode	During battery soft start, the bus voltage does not reach the set value	Voltage reaches the set value and remains for 15 seconds
8	Bus short circuit	Turn fault mode	Bus voltage is below the set value	Cannot automatically recover
9	Inverter soft-start failure	Turn fault mode	During inverter soft start, the voltage does not reach the set value	Voltage reaches the set value and remains for 15 seconds

Fault Code	Fault meaning	System action	Trigger condition	Recovery condition
11	Inverter under-voltage	Turn fault mode	In battery mode, the inverter voltage is below the set value	Voltage reaches the set value and remains for 15 seconds
12	Inverter short circuit	Turn fault mode	Inverter voltage is below the set value and current is above the set value	Voltage and current reach the set values and remain for 15 seconds
13	Inverter negative power	Turn fault mode	Inverter power is negative and exceeds the set value for a period of time	Power reaches the set value and remains for 15 seconds
14	Overload	Turn fault mode	Load current is above the set value	Current reaches the set value and remains for 15 seconds
17	Program updating	Turn fault mode	The inverter is updating firmware or performing an OTA upgrade	Automatically recover after the firmware update is complete
18	PV reverse connection	Turn fault mode	PV positive and negative wiring reversed	After wiring is corrected, keep for 15 seconds
19	Parallel Same ID	Turn fault mode	Same parallel ID in system	Restore when there is no identical ID
20	Parallel Communication Fault	Turn fault mode	When communication abnormalities occur, the number of parallel devices decrease to 1	Restore after re-establishing parallel mode or adjusting to single machine mode
21	Parallel Battery Differ	Turn fault mode	In parallel mode, the battery voltage difference between different machines is too large	Restore after the battery voltage of each inverter under parallel operation is consistent
22	Parallel Grid Voltage Differ	Turn fault mode	In parallel mode, the input voltage difference between different machines is too large	Restore after the grid voltage of each inverter under parallel operation is consistent
23	Parallel Grid Frequency Differ	Turn fault mode	In parallel mode, the input frequency difference between different machines is too large	Restore after the grid frequency of each inverter under parallel operation is consistent
24	Parallel Configuration Differ	Turn fault mode	In three-phase parallel mode, different machine parallel mode settings may have phase loss, or both three-phase and single phase parallel modes may exist, or there may be single machine mode.	Restore after set to single machine operation and disconnect parallel communication, or parallel operation condition recover.
25	Parallel Sync Loss	Turn fault mode	In parallel mode, the output voltage detection loses synchronization.	Cannot restore in parallel mode or restore after change to single mode.
26	BMS fault	Turn fault mode	The battery management system message contains an error code	Recovers after the BMS fault is cleared
29	Inverter load abnormal	Turn fault mode	Inverter load abnormality causes voltage abnormality	Voltage returns to normal and remains for 15 seconds
30	PV over voltage	Turn fault mode	PV voltage exceeds the device's maximum allowable voltage	Voltage falls below the maximum allowable voltage and remains for 15 seconds

5.6 Alarm Code Reference

ALA 51

Alarm Status Description: When an alarm is triggered, the inverter will not switch to fault mode; the red LED indicator blinks and the LCD screen shows the corresponding alarm code.

Alarm Reference Code				
Fault Code	Fault Description	System Action	Trigger Condition	Recovery Condition
50	Battery Open Circuit	Alarm activated	Battery disconnected within 10min	Recover after battery connected & charged for 2min
51	Battery Under voltage	Alarm low-voltage shutdown / power-on failure	Battery voltage below shutdown threshold	Recover when voltage rises 2V above shutdown threshold
52	Battery Low Voltage	Alarm activated	Battery voltage below low-voltage alarm	Recover when voltage rises 2V above alarm threshold
53	Battery Charging Short-circuit	Alarm charging stop	Voltage < 24V with charging current present	Max. 1min recovery after short-circuit removed
56	BMS Communication Loss	Alarm activated	Communication failure after BMS function enabled	Recover by disabling communication or restoring link
58	Fan Malfunction	Alarm full-speed fan operation	No fan speed feedback signal detected	Recover once fan speed signal is received
59	EEPROM	Alarm activated	Abnormal read/write of EEPROM	No automatic recovery
60	Overload	Alarm activated	Grid input current / battery discharge current / load power exceeds rated value	Recover after current & power drop below rated specification
62	Insufficient PV Power	Alarm triggered; PV supply to load cut off, PV charging function reserved	Bus voltage below preset value when no battery connected	Recover by connecting battery/grid or waiting for 10 minutes
64	Parallel Configuration Differ	Alarm, turn to standby mode	Standby mode, there is an incompatible mode setting while parallel operation	Restore after setting the parallel operation mode correctly
67	Parallel utility phase Error	Alarm, utility supply not accessible	In non-utility mode, if there is a continuous utility phase-locking abnormality, or the utility voltage error exceeds 20V, or the utility frequency difference exceeds 0.5Hz.	Restore after all trigger conditions are eliminated

Fault Code	Fault Description	System Action	Trigger Condition	Recovery Condition
68	Low-SOC Battery Shutdown	Alarm triggered & system switch to standby mode	BMS reports SOC lower than shutdown threshold	Recover under any one condition:1.Disable low-SOC shutdown function2.Turn off BMS communication3.SOC rises 5%above threshold
69	Low-SOC Battery Alarm	Alarm triggered; keep standby status under standby mode	For lithium battery:SOC<5% in grid/battery mode; SOC<10% in standby mode	Recover under any one condition:1.Disable low-SOC shutdown function2.Turn off BMS communication3.SOC rises 10% above threshold
70	Parallel battery under voltage	Alarm, turn to standby mode	In the parallel system, some units determine to shut down due to low battery voltage or low SOC.	Restore after all trigger conditions are eliminated
72	Battery Startup Failure	Alarm activated	Battery voltage below minimum startup voltage under standby status	Recover once battery voltage exceeds startup threshold
76	External measure equipment error	Alarm, stop power to utility side	Utility load function is on, utility power is connected, CT/electric meter direction is set to ATO, metering device is set not as INT, communication error with the devices	Restore after not meeting the alarm conditions
77	Unstable Grid Voltage	Alarm triggered	Grid power failure occurs 3 times within 5 minutes	Recover after 5-minute waiting period

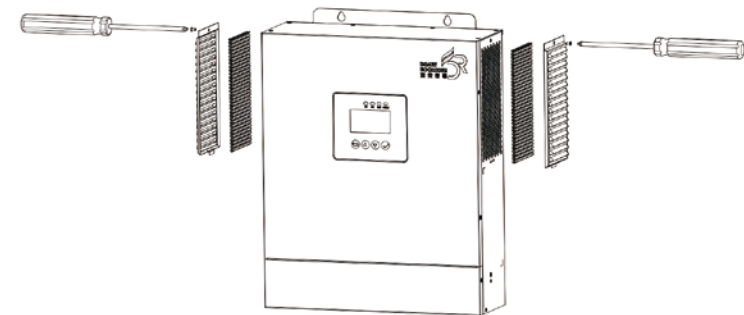
6 . Cleaning & Maintenance of Dust Filter Cotton

6.1 Overview

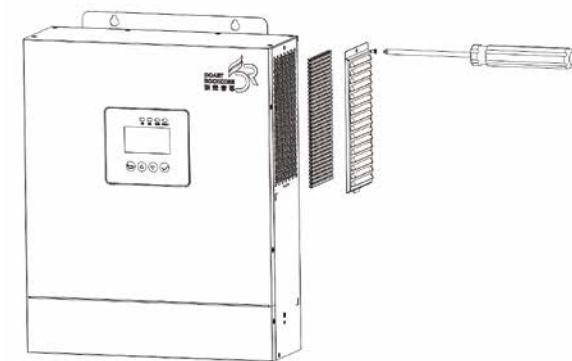
Dust filter cotton is equipped as standard for all inverters. It protects the inverter and enhances operational safety and reliability under severe ambient conditions.(Filter specification: 162×82×5mm, Density: 20PPI)

6.2 Maintenance Steps

Step 1: Unscrew the fixing bolts counterclockwise on the top of the inverter.



Step 2: Remove the outer filter cover per schematic drawing, then take out the air filter cotton.



Step 3: Clean the filter cotton thoroughly, then reassemble and install it back to the inverter.

Note: The filter cotton is recommended to be cleaned once every 3 months.

7. Battery Equalization Description

The charge controller comes with built-in battery equalization function to eliminate battery electrolyte stratification, which refers to the phenomenon that electrolyte density at the bottom of the cell is higher than that at the top. This function also removes lead sulfate crystals attached to battery plates. Left untreated over a long period, sulfate crystal buildup will lead to battery capacity degradation, so regular equalization charging is recommended.

Note: DO NOT enable equalization function for lithium batteries.

Equalization Activation Methods

Two ways to turn on equalization function:

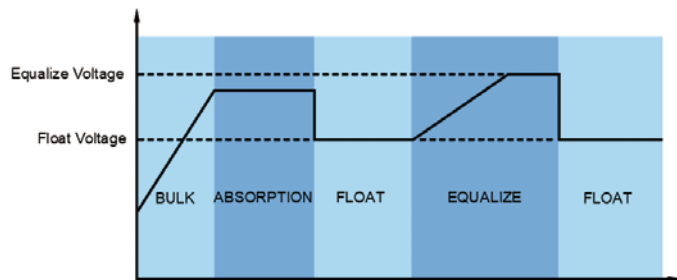
- Set equalization runtime via Program 32 on LCD parameter menu;
- Select manual equalization under Program 35.

After activation, configure below parameters:

- Program 31: Set equalization target voltage
- Program 32: Set equalization operation duration
- Program 33: Set equalization delay time
- Program 34: Set equalization interval cycle
- Program 35: Enable instant equalization mode

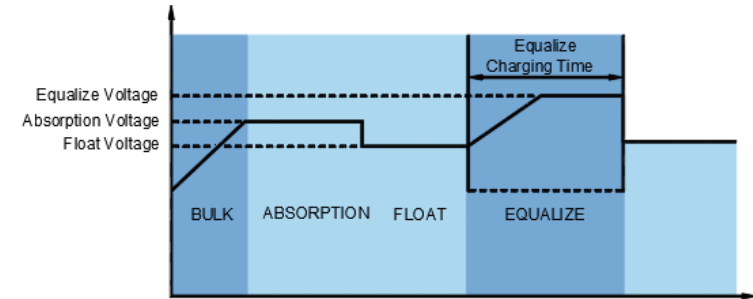
Equalization Trigger Condition

The controller starts equalization charging automatically when battery enters float stage and reaches preset equalization interval, or after manual activation.

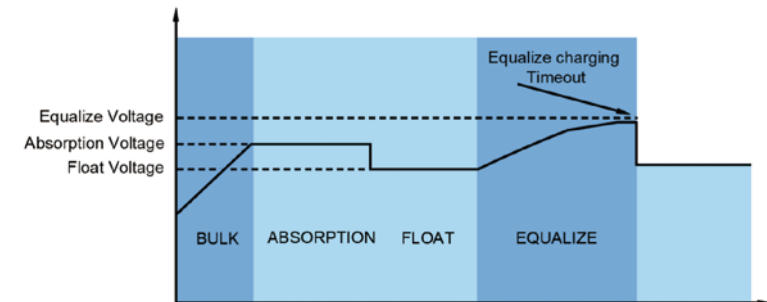


Equalization Charging & Overtime Control

During equalization phase, the controller boosts battery voltage up to predefined equalization voltage as much as possible, then maintains constant equalization voltage with floating regulation till full equalization duration expires.



If cell voltage fails to rise to equalization threshold after preset equalization period, controller extends equalization duration continuously until target voltage is hit. If voltage is still below threshold after overtime, the controller terminates equalization and returns to float charging mode.

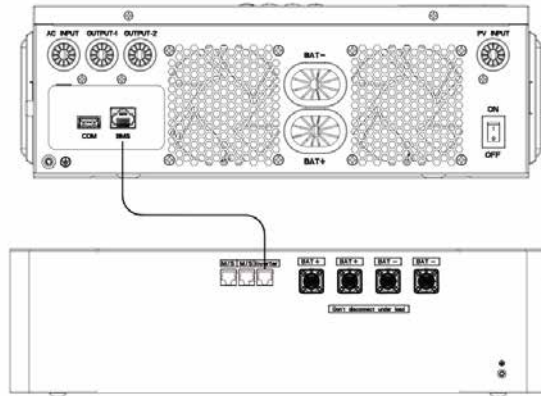


8. Lithium Battery Wiring & Configuration

8.1 Lithium Battery Connection

Before selecting lithium battery type, confirm compatibility between battery and inverter, then follow steps:

1. Route high-power cables between battery and inverter;
2. Plug in communication wire between battery BMS and inverter.



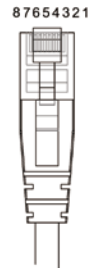
When powered by lithium battery, ensure stable communication link between inverter and BMS for data exchange, covering:

- Inverter parameter reset: max charging voltage, low-cut discharge voltage & maximum charging current according to lithium cell specs;
- Inverter charge/discharge enable/disable controlled by real-time battery status & alarm signals from BMS

8.2 Definition of Battery Communication Cable Port

Ensure the pin assignment of RJ45 communication port between battery and inverter is consistent, detailed port definition as follows:

Pin	Function Definition
PIN1	RS485-B
PIN2	RS485-A
PIN3	NC
PIN4	CAN-H
PIN5	CAN-L
PIN6\7\8	NC



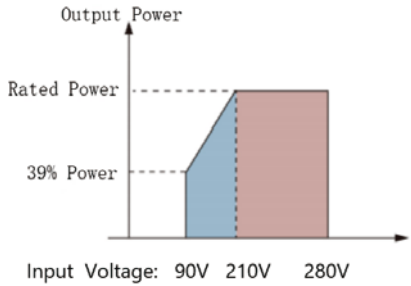
8.3 LCD Parameter Configuration

After completing wiring between inverter and lithium battery, configure corresponding parameters on LCD screen.

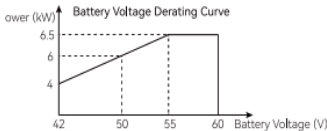
	Program	Description	Option
17	Battery type	bAt 17 AGn	AGM(default)
		bAt 17 FLd	Flooded
		bAt 17 LI t	Lithium Battery
		bAt 17 FEL	FEL (lithium iron phosphate battery)
		bAt 17 CUS	User-defined
44	Commu- nication Protocol	b nS 44 C4t	CVT: CVTE protocol (485)
		b nS 44 PYL	PYL: PYLON protocol (485 and CAN)
		b nS 44 GfO	GRO: GROWATT protocol (485 and CAN)
		b nS 44 uOL	VOL: VOLTRONIC protocol (485)
		b nS 44 I tF	IRF: China Tower protocol (485)
		b nS 44 PAC	PAC: PACE RTU protocol (485)
		b nS 44 OFF	Default OFF; when enabled, select specified
45	BMS ID	b nI 45 A tO	Configure BMS ID for communication: select either "Auto" or numeric value ranging from 0 to 15 (A-F stands for 10~15). Default setting is Auto; the inverter automatically polls BMS ID from minimum to maximum value, locks the first valid responding ID and communicates exclusively with the BMS of this ID.

9 . Operation Mode Specification

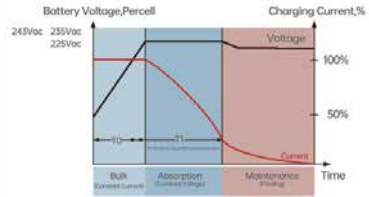
9.1 Table1 Grid Mode Spec

Item	Data
Input voltage waveform	Sine wave (Grid/Generator)
Rated input voltage	230Vac
Input Under voltage	170Vac±7V(UPS);90 Vac ± 7V (electrical appliance)
Input Under voltage Recovery	180Vac±7V(UPS);100 Vac ± 7V (electrical appliance)
Input over voltage	280Vac±5V
Input over voltage recovery	275Vac±5V
Maximum AC input voltage	280Vac
Rated input frequency	50Hz / 60Hz (Auto detection)
Under Frequency protection	40±1Hz
Under frequency protection recovery	42±1Hz
Over frequency protection	65±1Hz
Over frequency protection recovery	63±1Hz
Transfer Time	<10ms
Output Derating Note: Output power derates when AC input drops to 210V±5V	

9.2 Table2 Inverter Mode Spec

Item	Data	
Rated Output Power	6.5KW	
Output Waveform	Pure Sine Wave	
Rated Output Voltage	208/220/230/240Vac±5%	
Output Frequency	50Hz	
Power Factor	≥0.99 (0.8 lead ~ 0.8 lag adjustable)	
Peak Efficiency @ Battery Invert	94%	
Peak Efficiency @ PV Invert	96%	
Overload Protection	1min@102% ~ 120%Load;10s@120% ~ 200%Load	
Surge Capacity	2×rated power for 10s	
Battery Voltage Range	42 ~ 61Vdc	
Rated DC Input Voltage	48.0Vdc	
Max Discharge Current	130A	
Battery Derating Curve		
Cold Start Voltage	46.0Vdc	
Low DC warning voltage	Load <50%	46.0Vdc
	Load ≥ 50%	44.0Vdc
Low DC warning return voltage	Load <50%	47.0Vdc
	Load ≥ 50%	46.0Vdc
Low DC cut-off voltage	Load <50%	43.0Vdc
	Load ≥ 50%	42.0Vdc
High DC recovery voltage	62.0Vdc	
High DC cut-off voltage	63.0Vdc	
No-load power consumption	<40W	

9.3 Table 3 Charging Mode Specifications

AC (Grid) Charging Mode		
Charging mode		3-stage
Max AC Charging Current		120Amp(@VI/P=230Vac)
Charging Voltage	Flooded Battery	58.4Vdc
	AGM / Gel battery	56.4Vdc
Float charging voltage		54.0Vdc
Charging curve		
MPPT PV Charging Mode		
Max PV Array Power		9000W
Max PV Open-circuit Voltage		500VDC
Rated Operating Voltage		390VDC
MPPT Operating Voltage Range		60~450VDC
Startup Voltage		80VDC
Max PV Input Current		27A
Short-circuit Current		33A
Max Solar Charging Current		120A

9.4 Table 4 General Specifications

Item	Data
Certification Standard	IEC 61000, IEC 61683, IEC 62109
Operating Temperature Range	-10 °C ~ 50 °C
Storage Temperature	-15 °C ~ 60 °C
Relative Humidity	5% ~ 95% RH (Non-condensing)

9.5 Troubleshooting

Fault/Issue	LCD / LED buzzer	Cause	Solution
The unit shuts down automatically during startup	LCD, LED and buzzer work for 3 seconds then turn off	Battery voltage is excessively low (less than 1.91V per cell)	1. Recharge the battery fully 2. Replace the defective battery
No response after power-on	No any indicator output	1. Battery voltage is excessively low (less than 1.4V per cell) 2. Positive and negative poles of battery are reversely connected	1. Check the connection status of battery cables 2. Recharge the battery 3. Replace the battery or contact after-sales service
Mains power is available, but the unit runs under battery mode	Input voltage shows 0 on LCD and green LED flashes	Input protection circuit is triggered	1. Check whether the mains power switch is switched on 2. Verify the tightness of AC cable connection
	Green LED flashes	Poor input AC quality when powered by generator	1. Check if AC cable is undersized or overly long 2. Inspect generator running status and confirm the configured input voltage range for UPS and appliance mode
	Green LED flashes	Output priority is set to Solar First	Change the output priority setting to Utility First
Internal relay cycles pull-in and drop-out repeatedly after powering on	LCD lights up and LED blinks	Battery cable is disconnected	Check and secure battery wiring connection
Buzzer keeps sounding and red LED	Fault Code 14 displayed	Overload fault; load exceeds 110% rated power and overload duration exceeds limit	Cut down connected load and switch off partial electrical equipment
	Fault Code 12 displayed	Output short circuit	Inspect cable connection and remove abnormal loads
	Fault Code 05 displayed	Check cable connections Remove abnormal load	1. Improve ventilation around the equipment 2. Reduce the connected load
	Fault Code 06 displayed	Battery voltage too high	Check if the actual battery specification conforms to required parameter
	Fault Code 58 displayed	Cooling fan failure	Replace the faulty cooling fan
	Fault Code 02 displayed	Excessive Bus Voltage	Restart the unit and inspect the connection of parallel cables. Contact after-sales service if the fault recurs repeatedly.

	Fault Code 07,08,09 displayed	Internal Component Failure	Restart the unit. Contact after-sales service if the fault appears again.
	Fault Code 04 displayed	Overcurrent or Surge	Restart the unit. Contact after-sales service if the fault occurs repeatedly.
	Fault Code 03 displayed	Undervoltage on Bus	
	Fault Code 11 displayed	Unbalanced Output Voltage	
	Fault Code 26 displayed	Abnormal Communication	Check the connection of parallel cables and restart the unit. Get in touch with after-sales service if the fault persists.

10. Parallel Connection

10.1 Precautions for Parallel Operation

- The parallel system supports a maximum of 9 inverters in parallel connection.
- All paralleled inverters shall share one common battery bank.
- Each inverter must be independently wired to solar panels; PV modules cannot be shared among units.
- Cables connected to each inverter should adopt consistent length to avoid adverse impact on current sharing of paralleled inverters.
- Set respective parameters (including output mode) for every single inverter. When working under parallel mode, all paralleled inverters must be configured with identical operation mode and output frequency.

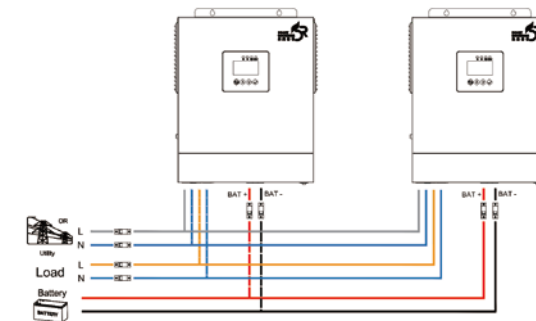


WARNING:

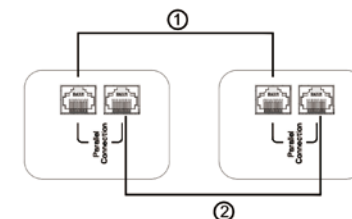
Diagrams below are for schematic reference only. Actual cabinet appearance may differ from drawings due to product structural upgrade.

10.2 Single-phase Parallel Wiring

► 2 Units Parallel:

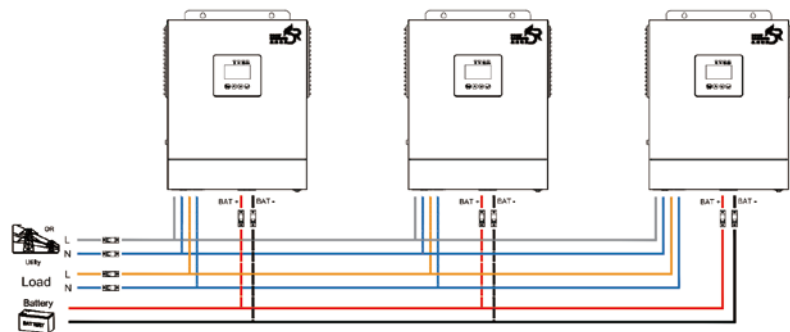


▲ Power Connection

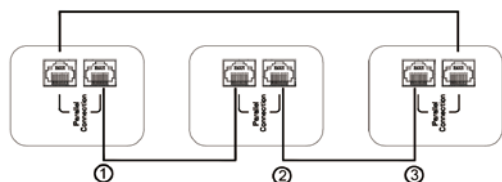


▲ Communication Connection

► 3 Units Parallel

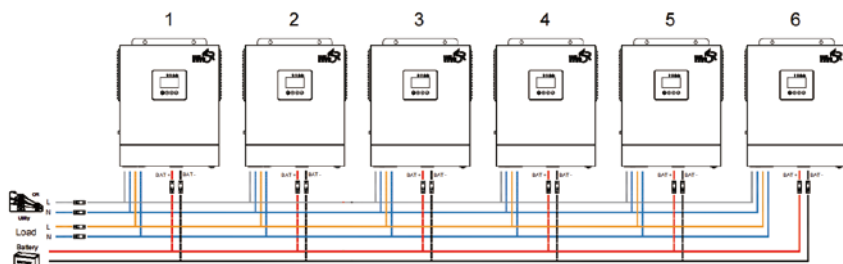


▲ Power Connection

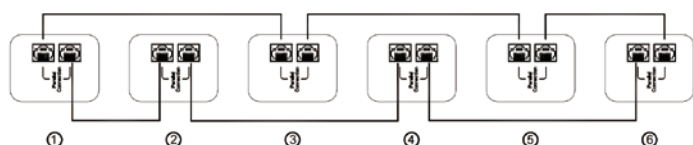


▲ Communication Connection

► 6 Units Parallel

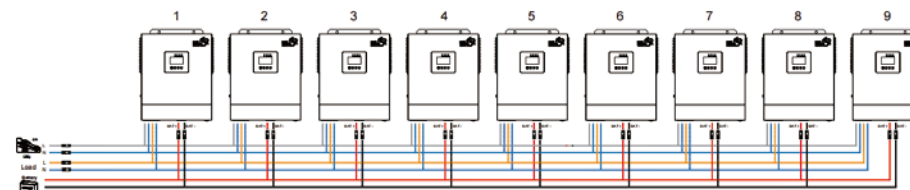


▲ Power Connection

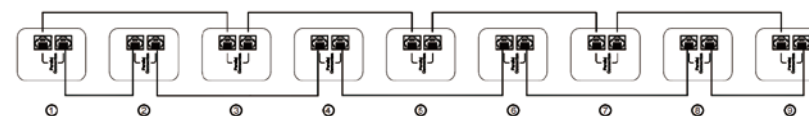


▲ Communication Connection

► 9 Units Parallel



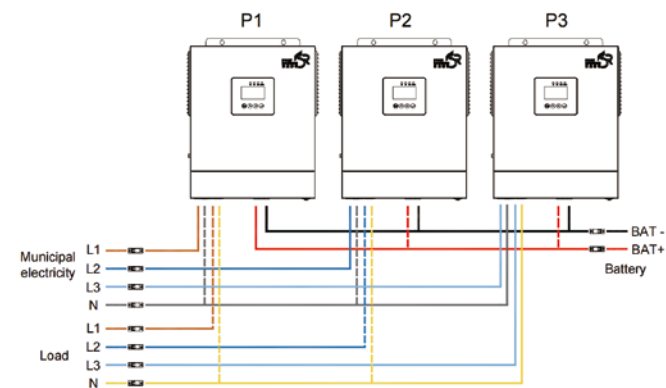
▲ Power Connection



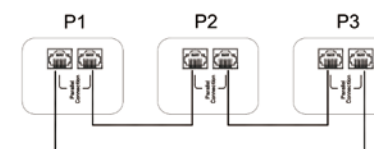
▲ Communication Connection

Note: $N_{max}=9$, maximum support for 9 parallel units.

► 3 units in three-phase parallel:

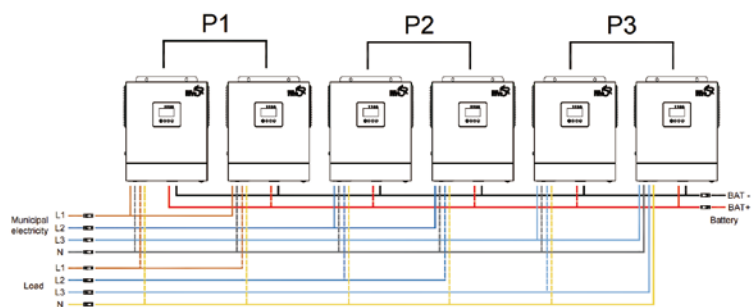


▲ Power Connection

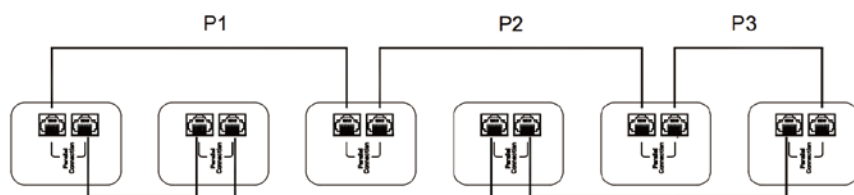


▲ Communication Connection

► 6 Units in three-phase parallel:

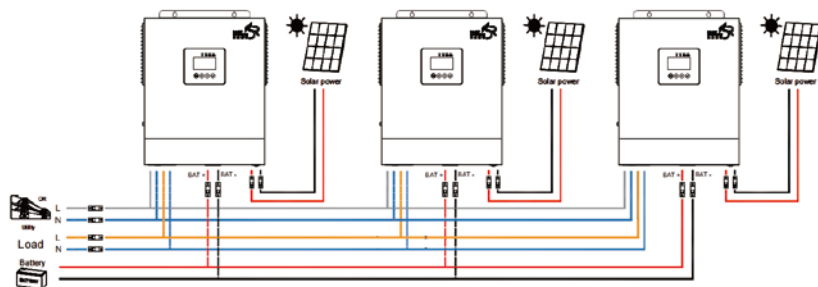


▲ Power Connection



▲ Communication Connection

10.3 PV Connecting



Note: Each inverter needs to be connected to the photovoltaic panel separately.

10.4 System Setting for Parallel

To perform the system setting, please refer to section 4.2.2 Program 27 and 28 first.

Single phase setting

- Step 1:** Before setting, please check if the wiring is correct. Ensure that all circuit breakers(PV, AC input, AC output battery breaker) are disconnected and that each neutral line of the inverter is connected together.
- Step 2:** Switch 'ON/OFF' switch to OFF and make sure all inverters switched to OFF. Connect battery breaker to power the inverters.
- Step 3:** If there is grid in parallel system, skip directly to step 4. If there is no grid in parallel system, switch 'ON/OFF' switch to ON on inverter, wait until the LCD display is on. Then switch 'ON/OFF' switch to OFF and LCD display will last for a while.

Step 4: Set "PAR" in program 27 on the LCD.

Step 5: Follow step 3&4 to set all the parallel inverter.

Step 6: Switch 'ON/OFF' switch to ON on inverter. then connect all the breakers.

- Note:**
1. When setting the LCD program, the ON/OFF switch must be OFF. Otherwise, it cannot be set up.
 2. The primary and slave devices are generated by competition within the system.
 3. After parallel setting, when the parameters of one inverter (unrelated to parallel operation) are changed, other inverters will automatically synchronize the parameters.

Three phase setting

Follow the steps of Single phase setting.

Most of the steps are the same except 2 points: The first difference is when set in Program 27, it should be 3P1 for first phase, 3P2 for second phase and 3P3 for third phase.

The second difference is to verify whether the three-phase input has the correct phase sequence.

The inverter needs to be set to UPS mode. If the screen displays that the power grid cannot be connected to the system, the AC phase sequence of the system input needs to be adjusted. After the power grid is connected normally, the APP or UPS mode can be set according to actual needs.

11. APP Download

Method 1: Download and install the APP by searching.

Open the App Store or Google Play, enter "doart" on the search page and click the "search" button. The search result will be displayed on the page. Click the download button to download the mobile APP.

Method 2: Download and install the APP by scanning the QR code.

Open the mobile browser, click the scan/photo icon on the right of the search input box, scan the QR code corresponding to your mobile device type, and download the installation file.



Android users can scan the "Android" or "Google store" to download and Apple user can scan the "IOS" QR code search from "App store" to download.

After the software is downloaded, locate the downloaded installation package on the Download page and click Install.

After the installation is complete, click the "Finish" button. The app icon will then appear on your phone's home screen.

Next, you can go to WWW.DOART-ENERGY.COM to check the APP operation guide.

12. Specification

Model	DR-PCS6520N2FL04
Rated Output Power	6500VA/6500W
AC INPUT (GRID)	
Rated Voltage	230VAC
Optional Voltage Range	170-280 VAC (PC) 90-280 VAC (Household Appliances)
Frequency Range	50Hz / 60Hz (Adaptive)
MAX AC Input Current	40A
AC OUTPUT (EPS)	
Rated Output Voltage	230VAC±5%
Output Voltage Range	208 ~ 240VAC
Rated Output Frequency	50/60Hz
Rated Output Current	230VAC@28.2A
Surge Power	13KVA
Peak Efficiency @ Battery Inverter	94%
Peak Efficiency @PV Inverter	96%
Transfer Time	≤10ms
Waveform	Pure Sine Wave
Overload Capacity	1min@102% ~120%Load 10s@120% ~200%Load >200% Load: Cut off output immediately
Battery	
Battery Type	Lead Acid + Lithium Battery
Battery Voltage Range	42 ~ 61VDC
Charging Curve	Three-Stage
Lithium-battery Charging Strategy	Adaptive to Lithium Batteries
Max. PV Charging Current	120A
Max. AC Charging Current	120A
Max. Discharge Current	130A

PV INPUT	
PV Input String Quantity	1 String
Max. PV Array Power	9000W
MPPT Efficiency	99.5%
Max. PV Open-circuit Voltage	500VDC
MPPT Operating Voltage Range	60 ~ 450VDC
Min. Operating Voltage	60VDC
Startup Voltage	80VDC
Max. PV Input Current	27A
Short-circuit Current	33A
Protection Feature	
Ingress Protection Grade	IP54
AC Input Protection	Over/Under Voltage, Over/Under Frequency, Input Derating Alarm
PV Input Protection	PV Over/Under Voltage, Reverse Polarity Protection
EPS Output Protection	Short-circuit & Overload Protection
Battery Protection	Over/Under Voltage & Low Voltage Alarm; Note: No short-circuit protection for battery, battery short-circuit will damage the unit
Other Protection	Over-temperature Protection & Pre-alarm for Thermal Derating
General Parameters	
Unit Dimension	416*325*112.5mm±2mm
Packing Dimension	487*395*185mm±3mm (Fixed Spec)
Net Weight	8.8±0.2kg
Gross Weight	10.2±0.2kg
Communication Interface	RS232/RS485 /WIFI
Relative Humidity	5% ~ 95%RH(Non-condensing)
Operating Temperature	-10℃ ~ 50℃
Storage Temperature	-15℃ ~ 60℃
Max. Operating Altitude	≤2000m
Cooling Method	Forced Air Cooling

Warranty Card	
Product Name	Production Date
Product Bar Code	
Dealer Name	Sales Date
Dealer Address	
Customer Information	
Customer Name	Purchase Date
Customer Tel.	Customer Fax
Customer Address	

