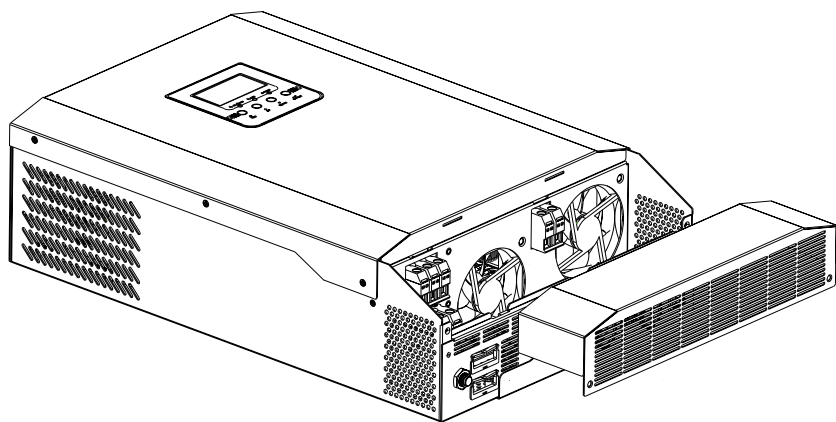# fullwat

professional *solutions*

PDA5500-STATION

pure sine wave

Power DC-AC Inverter
Multi-function INVERTER/CHARGER:
inverter + MPPT solar charger + battery charger

1. INTRODUCTION

This is a multi-function inverter/charger, combining functions of inverter, MPPT solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.

2. FEATURES

- Pure sine wave output.
- Output power factor 1.0 .
- Programmable supply priority for PV ,battery or Grid.
- User-adjustable charge current and voltage.
- Wide PV input range (120Vdc-500Vdc), 110A MPPT SCC.
- Working without batteries in sunny day.
- WiFi monitoring function (optional).
- Anti-dusk kit for harsh environment (optional).
- LCD remote control with 10 meters wire (optional).
- PV and electricity complementary.
- Use with lithium batteries.
- MPPT charging regulation mode.

3. BASIC SYSTEM ARCHITECTURE

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

- Generator or Utility.
- PV modules (option).

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

This inverter can power all kinds of appliances in home ar office environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioner.
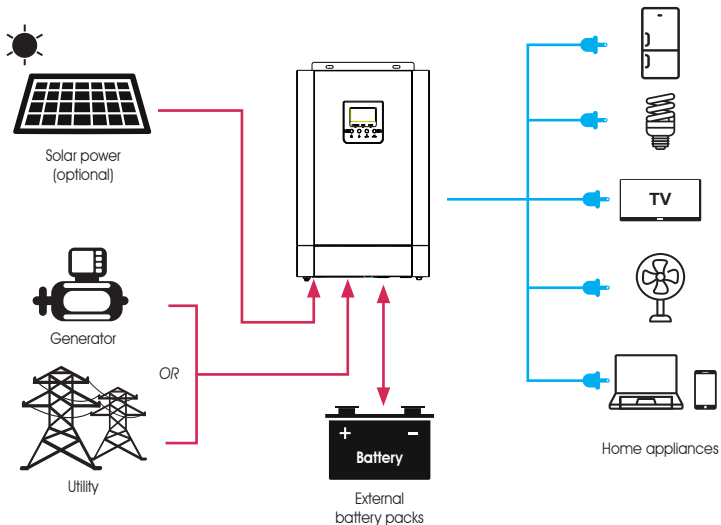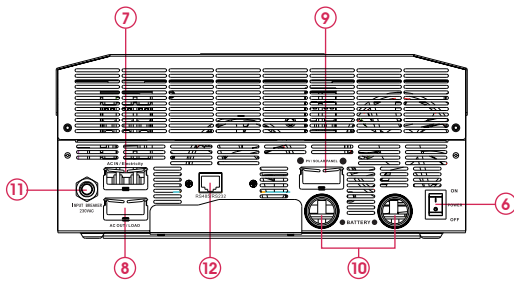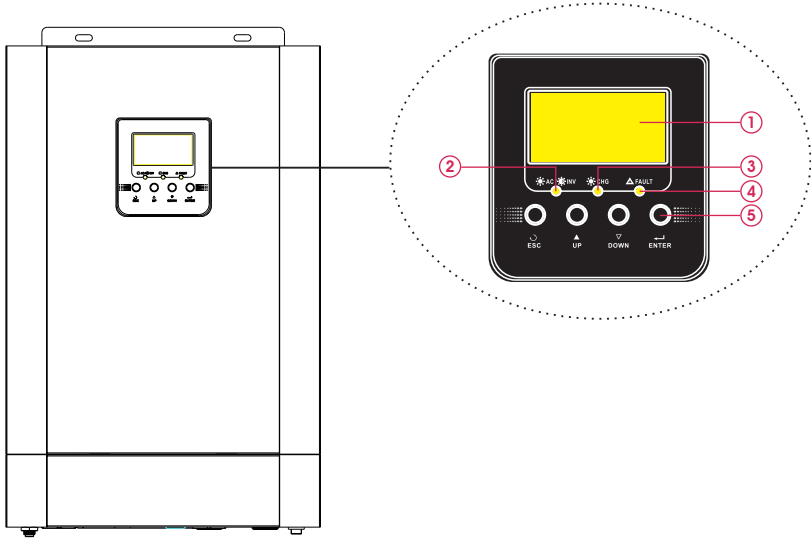

Fig. 1 - Hybrid power system

4. PRODUCT OVERVIEW

Indication

① LCD Display

② Status indicator

③ Charging indicator

④ Fault indicator

⑤ Function buttons

⑥ Power ON/OFF switch

⑦ AC input

⑧ AC output

⑨ PV Input

⑩ Battery input

⑪ Circuit breaker

⑫ RS485/RS232 communication port

5. INSTALLATION

5.1 Unpacking and Inspection

Befare installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package:

• The unit x 1
• User manual x 1
• Communication cable x 1

5.2 Preparation

Before connecting all wirings, please take off bottom cover by removing two screws as shown below.
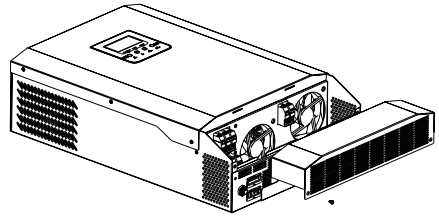
5.3 Mounting the unit

Consider the following points before selecting where to install:

• Do not mount the inverter on flammable construction materials.

• Mount on a solid surface

• Install this inverter at eye level in order to allow the LCD display to be read at all times.

• The ambient temperature should be between 0ºC and 55ºC to ensure optimal operation.

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

• Be sure to keep other objects and surfaces as shown in the right diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.

⚠ SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.

Install the unit by screwing three screws.
It's recommended to use M4 or M5.
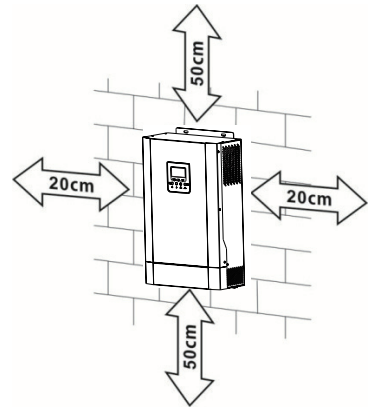
5.4 Battery connection

Caution:

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

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

WARNING! It's very important for system safety and efficient operation to use appropriate cable for battery connection. To reduce risk of injury, please use the proper recommended cable and terminal size as below.
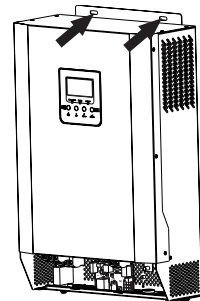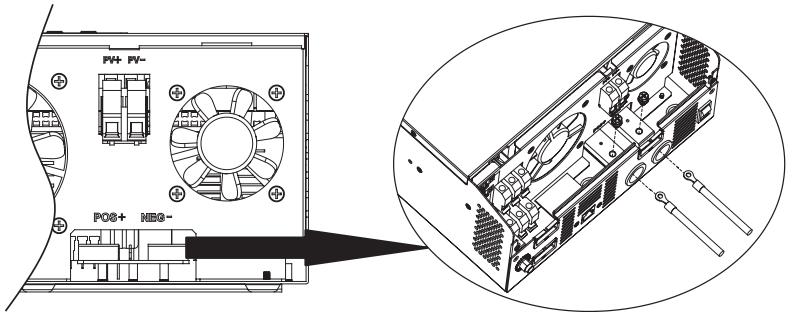
Ring terminal
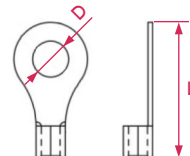
Recommended battery cable and terminal size:

Model	Input voltage	Typical amperage	Battery capacity	Wire size	Ring terminal			Torque value
					Cable mm²	Dimensions		
						D (mm)	L (mm)	
PDA5500-STATION	48V	115A	200AH	1*4AWG	22	6.4	33.2	2~3 Nm
				2*8AWG	14	6.4	29.2	

Please follow below steps to implement battery connection:

1. Assemble battery ring terminal based on recommended battery cable and tenminal size.

2. Connect all battery packs as units requires.

   Note: Please only use sealed lead acid battery or sealed GEL/AGM lead-acid battery.

3. Insert the ring terminal of battery cable flatly into battery connector of inverter and make sure the bolts are tightened with torque of 2-3 Nm. Make sure polarity at both the battery and the inverter/charge is correctly connected and ring terminals are tightly screwed to the battery terminals.

⚠ Warning: Shock Hazard

Installation must be performed with care due to high battery voltage in series.

⚠ **Caution!!** Do not place anything between the flat part of the inverter terminal and the ring tenminal. Otherwise, overheating may occur.

Caution!! Do not apply anti-oxidant substance on the tenminals before terminals are connected tightly.

Caution!! Before making the final DC connection or closing DC breaker/disconnector, be sure positive (+) must be connected to positive (+) and negative (-) must be connected to negative (-).

5.5 AC Input/Output connection

Caution!! Before connecting to AC input power source, please install a **separate** AC breaker between inverter and AC input power source. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of AC input. The recommended spec of AC breaker is 50A for PDA5500-STATION.

Caution!! There are two terminal blocks with "IN" and "OUT" markings. Please do NOT mis-connect input and output connectors.

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

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

Suggested cable requirement for AC wires.

| Model	Gauge	Torque value
PDA5500-STATION	8AWG	1.4~1.6 Nm

Please follow below steps to implement AC input/output connection:

1. Before making AC input/output connection, be sure to open DC protector or disconnector first.

2. Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N 3mm.

3. Insert AC input wires according to polarities indicated on terminal block and tighten the terminal screws. Be sure to connect PE protective conductor (⏚) first.

⏚ ⟶ Ground (yellow-green}

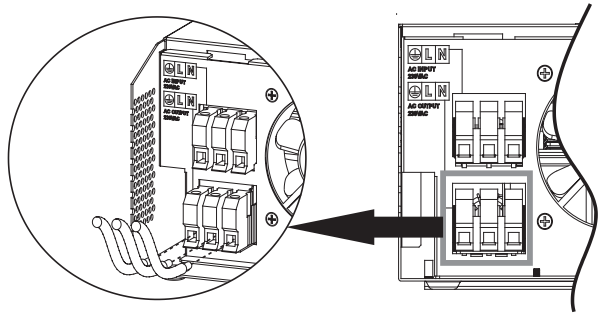L ⟶ LINE (brown or black}

N ⟶ Neutral (blue}

⚠ **Warning:**

Be sure that AC power source is disconnected before attempting
to hardwire it to the unit.
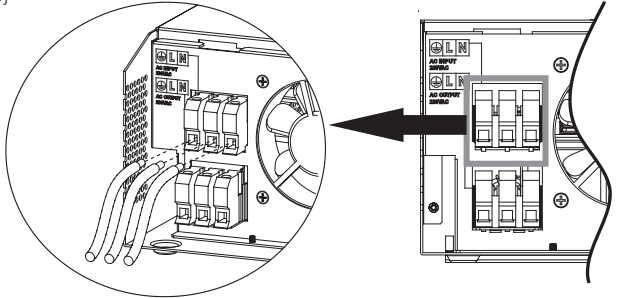
4. Then, insert AC input wires according to polarities indicated on terminal block and tighten terminal screws. Be sure to connect PE protective conductor (⏚) first.

⏚ ⟶ Ground (yellow-green}

L ⟶ LINE (brown or black}

N ⟶ Neutral (blue}

5. Make sure the wires are securely connected.

Caution: Important!!

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

Caution:

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

5.6 PV CONNECTION

Caution:

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

Warning!

All wiring must be performed by a qualified personnel.

Warning!

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

Model	Wire size	Cable (mm²)	Torque value (max)
PDA5500-STATION	1*12AWG	4	1.2Nm

PV Module selection:

When selecting proper PV modules, please be sure to consider below parameters:

1. Open circuit Voltage (Voc) of PV modules not exceeds max. PV array open circuit voltage of inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than min. battery voltage.

Inverter model	PDA5500-STATION
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	120Vdc~450Vdc

Take 250Wp PV module as an example. After considering above two parameters, the recommended module configrurations are listed as below table.

	Solar Input (Min in serial: 6 pcs, max. in serial: 13 pcs)	Q'ty of panels	Total input power
Solar Panel Spec. (reference) - 250Wp - Vmp: 30.IVdc - Imp: 8.3A - Voc: 37.7Vdc - Isc: 8.4A - Cells: 60	6 pcs in serial	6 pcs	1500W
	8 pcs in serial	8 pcs	2000W
	12 pcs in serial	12 pcs	3000W
	13 pcs in serial	13 pcs	3250W
	8 pieces in serial and 2 sets in parallel	16 pcs	4000W
	10 pieces in serial and 2 sets in parallel	20 pcs	5000W

Please follow below steps to implement PV module connection:

1. Remove insulation sleeve 10mm for positive and negative conductors.

2. Check correct polarity of connection cable from PV modules an PV input connectors. Then, connect positive pole (+) of conncection cable to positive pole (+) of PV input connector. Connect negative pole (-) of connection cable to negative pole (-) of PV input connector.
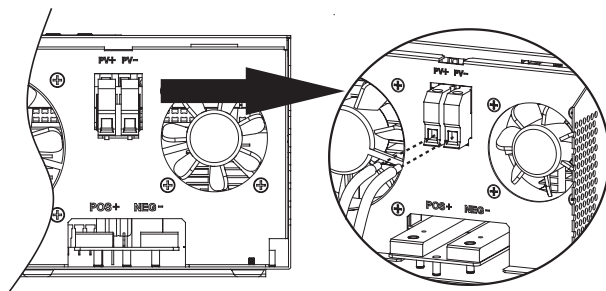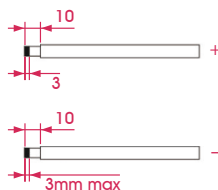
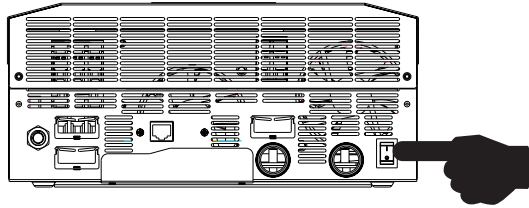3. Make sure the wires are securely connected.

5.7. Final Assembly

After connecting all wirings, please put bottom cover back by screwing two screws as shown below.
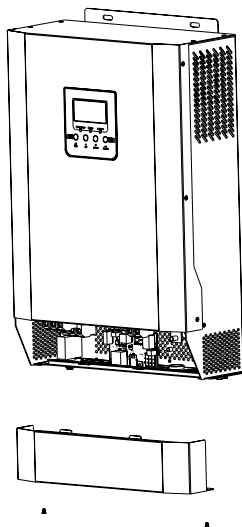
6. OPERATION

6.1 Power ON/OFF

Once the unit has been properly installed and the batteries are connected well, simply press ON/OFF switch (located on the button of the case) to turn on the unit.

6.2 Operation and Display panel

The operation and display panel, shown in below chart, is on the front panel of the inverter. It includes three indicators, four function keys and a LCD display, indicating the operating status and input/output power information.
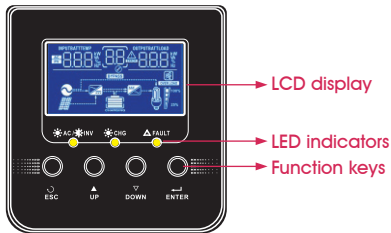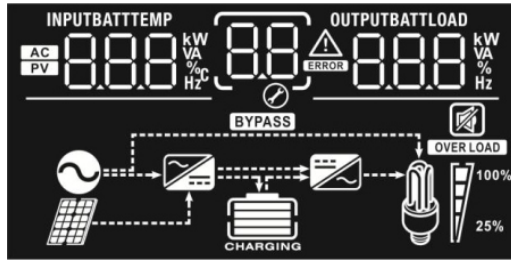

LED Indicator

Led indicator			Messages
☀ AC / ☀ INV	Green	Solid ON	Output is powered by utility in Line mode.
		Flashing	Output is powered by battery or PV in battery mode.
☀ CHG	Green	Solid ON	Battery is fully charged.
		Flashing	Battery is charging.
⚠ FAULT	Red	Solid ON	Fault occurs in the inverter .
		Flashing	Warning condition occurs in the inverter.

Function KEYs

Function Key	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.

6.3 LCD Display Icons

Icon	Function description
Input source information	
AC	Indicates the AC input.
PV	Indicates the PV input.
INPUTBATT	Indicate input voltage, input frequency, PV voltage, battery voltage and charger current.
Configuration program and fault information	
88	Indicates the setting programs.
88	Indicates the warning and fault codes. **Warning:** flashing with warning code. **Fault:** lighting with fault code.
Output information	
OUTPUTBATTLOAD	Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.
Battey information	
CHARGING	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.

In AC mode, it will present battery charging status.		
Status	Battery voltage	LCD Display
Constant current mode / Constant voltage mode	<2V/cell	4 bars will flash in turns.
	2 ~ 2.083V/cell	Bottom bar will be on and the other three bars will flash in turns.
	2.083 ~ 2.167V/cell	Bottom two bars will be on and the other two bars will flash in turns.
	2.167V/cell	Bottom three bars will be on and the top bar will flash.
Floating mode. Batteries are fully charged.		4 bars will be on.

In battery mode, it will present battery capacity.		
Load percentage	Battery voltage	LCD Display
Load>50%	<1.717V/cell	
	1.717V/cell ~ 1.8V/cell	
	1.8 ~ 1.883V /cell	
	>1.883 V /cell	
50%>Load >20%	<1.817V/cell	
	1.817V/cell ~ 1.9V/cell	
	1.9 ~ 1.983V/cell	
	>1.983	
Load<20%	<1.867V /cell	
	1.867V/cell ~ 1.95V/cell	
	1.95 ~ 2.033V/cell	
	>2.033	

Load information

OVER LOAD	Indicates overload.			
	Indicates the load level by 0-24%, 25-50%, 50-74% and 75-100%.			
	0%~25%	25%~50%	50%~75%	75%~100%

Mode operation information

	Indicates unit connects to the mains.
	Indicates unit connects to the PV panel.
BYPASS	Indicates load is supplied by utility power.
	Indicates the utility charger circuit is working.
	Indicates the DC/AC inverter circuit is working.

Mute operation

	Indicates unit alarm is disabled.

6.4 LCD Settings

After pressing and holding ENTER button far 3 seconds, the unit will enter setting mode. Press "UP" or "DOWN" button to select setting programs. And then, press "ENTER" button to confirm the selection or ESC button to exit.

Setting Programs		
Program	**Description**	**Selectable option**
00	Exit setting mode	Escape `00 ESC`
01	Output source priority: To configure load power source priority	`01 SUb` Solar energy provides power to the loads as frist priority. If solar energy is out sufficient to power all connected loads, utility energy will supply power to the loads at the same time.
		`01 SbU` Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when battery voltage drops to either low-level warning voltage or the setting point in program 12.
02	Maximum charging current To configure total charging current for solar and utility chargers. (Max. charging current = utility charging current + solar charging current)	10A `02 10ᴬ` — 20A `02 20ᴬ` — 30A `02 30ᴬ` 40A `02 40ᴬ` — 50A `02 50ᴬ` — 60A (default) `02 60ᴬ` 70A `02 70ᴬ` — 80A `02 80ᴬ` — 90A `02 90ᴬ` 100A `02 100ᴬ` — 110A `02 110ᴬ`
03	AC input voltage range	Appliances (default) `03 APL` If selected, acceptable AC input voltage range will be within 90-280VAC.
		UPS `03 UPS` If selected, acceptable AC input voltage range will be within 170-280VAC.
04	Power saving mode enable/disable	Saving mode disable (default) `04 SdS` If disabled, no matter connected load is low or high, the on/off status of inverter output will not be effected.
		Saving mode enable `04 SEn` If enabled, the output of inverter will be off when connected load is pretty low or not detected.

Setting Programs		
Program	**Description**	**Selectable option**

Program	Description	Selectable option		
05	Battery type	AGM (default) `05 AGn`	Flooded `05 FLd`	
		User-Defined `05 USE`	If "User-Defined" is selected, battery charge voltage and low DC cut-off voltage can be set up in program 26, 27 and 29.	
06	Auto restart when overload occurs	Restart disable (default) `06 Lŧd`	Restart enable `06 LŧE`	
07	Auto restart when over temperature occurs	Restart disable (default) `07 tŧd`	Restart enable `07 tŧE`	
09	Output frequency	50Hz (default) `09 50Hz`	60Hz `09 60Hz`	
11	Maximum utility charging current.	2A `11 2A`	10A `11 10A`	20A `11 20A`
		30A (default) `11 30A`	40A `11 40A`	50A `11 50A`
		60A `11 60A`	70A `11 70A`	80A `11 80A`
12	Setting voltage point back to utility source when selecting "SBU priority".	44V `12 BATT 44v`	45V `12 BATT 45v`	46V (default) `12 BATT 46v`
		47V `12 BATT 47v`	48V `12 BATT 48v`	49V `12 BATT 49v`
		50V `12 BATT 50v`	51V `12 BATT 51v`	

Program	Description	Selectable option		
13	Setting voltage point back to battery mode when selecting "SBU priority".	Battery fully charged — `13 FUL` BATT	48V — `13 48.0v` BATT	49V — `13 49.0v` BATT
		50V — `13 50.0v` BATT	51V — `13 51.0v` BATT	52V — `13 52.0v` BATT
		53V — `13 53.0v` BATT	54V (default) — `13 54.0v` BATT	55V — `13 55.0v` BATT
		56V — `13 56.0v` BATT	57 — `13 57.0v` BATT	58V — `13 58.0v` BATT
16	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Stand by or Fault mode, charger source can be programmed as below:		
		Solar first — `16 CSO`	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.	
		Solar and Utility — `16 SNU`	Solar energy and utility will charge battery at the same time.	
		Only Solar — `16 OSO`	Solar energy will be the only charger source no matter utility is available or not.	
		If this inverter/charger is working in Battery mode or Power saving mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.		
18	Alarm control	Alarm on (default) — `18 bON`	Alarm off — `18 bOF`	
19	Auto return to default display screen	Return to default display screen (default) — `19 ESP`	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage / output voltage) after no button is pressed for 1 minute.	
		Stay at latest screen — `19 ⊢EP`	If selected, the display screen will stay at latest screen user finally switches.	

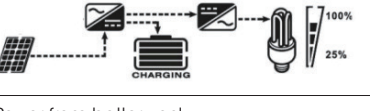| Setting Programs		
Program	Description	Selectable option
20	Backlight control	**Backlight on (default)** 20 LON **Backlight off** 20 LOF
22	Beeps while primary source is i nterrupted	**Alarm on (default)** 22 AON **Alarm off** 22 AOF
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	**Bypass disable (default)** 23 byd **Bypass enable** 23 byE
25	Record fault code	**Record enable** 25 FEN **Record disable (default)** 25 FdS
26	Bulk charging voltage (C.V voltage)	Default setting: 56.4V CV 26 56.4 v BATT If self-defined is selected in program 5, this program can be set up. Setting range is from 48.0V to 58.4V. Increment of each click is 0.1V.
27	Floating charging voltage	Default setting: 54.0V FLV 27 54.0 v BATT If self-defined is selected in program 5, this program can be set up. Setting range is from 48.0V to 58.4V. Increment of each click is 0.1V.
29	Low DC cut-off voltage	Default setting: 42.0V COV 29 42.0 v BATT If self-defined is selected in program 5, this program can be set up. Setting range is from 40.0V to 48.0V. Increment of each click is 0.1V. Low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.
31	Solar power balance: When enabled, solar input power will be automatically adjusted according to connected load power	Solar power balance: enable (default): 31 SbE	If selected, solar input power will be automatically adjusted according to the following formula: Max. input solar power = Max. battery charging power + Connected load power.

6.5 Display Settings
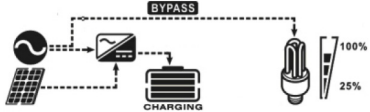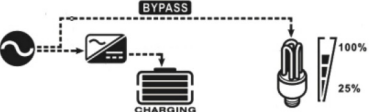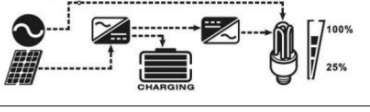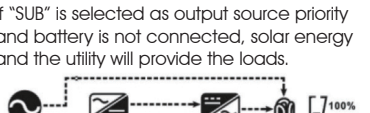
The LCD display information will be switched in turns by pressing "UP" or "DOWN" key. The selectable information is switched as below order: input voltage, input frequency, PV voltage, MPPT charging current, MPPT charging power, battery voltage, output voltage, output frequency, load percentage, load in Watt, load in VA, load in Watt, DC discharging current, main CPU Version and second CPU Version.

Selectable information	LCD display
Input voltage/Output voltage (Default Display Screen)	Input Voltage=230V, output voltage=230V
Input frequency	Input frequency=50Hz
PV voltage	PV voltage=360V
MPPT Charging current	Current≧10 Current<10
MPPT Charging power	MPPT charging power=500W
Battery voltage/DC discharging current	Battery voltage=25.5V, discharging current=1A

Selectable information	LCD display
Output frequency	Output frequency=50Hz BATT **25.5** v OUTPUT **50.0** Hz BYPASS CHARGING 100% 25%
Load percentage	Load percent=70% BATT **25.5** v LOAD **70** % BYPASS CHARGING 100% 25%
Load in VA	When connected load is lower than 1kVA, load in VA will present xxxVA like below chart. INPUT AC **230** v LOAD **350** VA BYPASS CHARGING 100% 25% When load is larger than 1kVA, load in VA will present x.xkVA like below chart. INPUT AC **230** v LOAD **1.50** kVA BYPASS CHARGING 100% 25%
Load in Watt	When load is lower than 1kW, load in W will present xxxW like below chart. INPUT AC **230** v LOAD **270** W BYPASS CHARGING 100% 25% When load is larger than 1kW(≥1kW), load in W will present x.xkW like below chart. INPUT AC **230** v LOAD **1.20** kW BYPASS CHARGING 100% 25%
Main CPU version checking	Main CPU version 00014.04. **U1 14 04** BYPASS CHARGING 100% 25%

6.6 Operating mode descritption

| Operation mode	Description	LCD display
Standby mode / Power saving mode **Note:** * **Standby mode:** The inverter is not turned on yet but at this time, the inverter can charge battery without AC output. * **Power saving mode:** If enabled, the output of inverter will be off when connected load is pretty low or not detected.	No output is supplied by the unit but it still can charge batteries.	Charging by utility and PV energy. Charging by utility. Charging by PV energy. No charging.
Fault mode **Note:** * **Fault mode:** Errors are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	PV energy and utility can charge batteries.	Charging by utility and PV energy. Charging by utility. Charging by PV energy. No charging

Operation mode	Description	LCD display
Line Mode	The unit will provide output power from the mains. It will also charge the battery at line mode.	Charging by utility and PV energy. Charging by utility If "SUB" is selected as output source priority and solar energy is not sufficient to provide the load, solar energy and the utility will provide the loads and charge the battery at the same time. If "SUB" is selected as output source priority and battery is not connected, solar energy and the utility will provide the loads. Power from utility.
Battery mode	The unit will provide output power from battery and PV power.	Power from battery and PV energy. PV energy will supply power to the loads and charge battery at the same time. Power from battery only. Power from PV energy only.

6.7 Fault reference code

Fault code	Fault Event	Icon on
01	Fan is locked when inverter is off.	$\overline{0}$ $\overline{|}$
02	Over temperature.	$\overline{02}$
03	Battery voltage is tooo high.	$\overline{03}$
04	Battery voltage is too low.	$\overline{04}$
05	Output short circuited ar over temperature is detected by internal converter components.	$\overline{05}$
06	Outout voltage is too high.	$\overline{06}$
07	Overload time out.	$\overline{07}$
08	Bus voltage is tooo high.	$\overline{08}$
09	Bus soft start failed.	$\overline{09}$
11	Main relay failed.	11
51	Over current or surge.	51
52	Bus voltage is too low.	52
53	Inverter soft start failed.	53
55	Over DC voltage in AC output.	55
56	Battery connection is open	56
57	Current sensor failed.	57
58	Output voltage is too low.	58

6.8 Warning indicator

Warning code	Warning event	Audible alarm	Icon flashing
01	Fan is locked when inverter is ON.	Beep three times every second.	
03	Battery is over-charged.	Beep once every second.	
04	Low battery.	Beep once every second.	
07	Overload.	Beep once every 0.5 second.	
10	Output power derating.	Beep twice every 3 seconds.	
12	Solar charger stops due to low battery.		
13	Solar charger stops due to high PV voltage.		
14	Solar charger stops due to overload.		
15	PV is weak		
19	Battery is not connected		

7. SPECIFICATIONS

Table 1 - Line mode specifications

Inverter model	PDA5500-STATION
Input voltage waveform	Sinusoidal (utility or generator)
Nominal input voltage	230Vac
Low loss voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)
Low loss return voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)
High loss voltage	280Vac±7V
High loss return voltage	270Vac±7V
Max AC input voltage	300Vac
Nominal input frequency	50Hz / 60Hz (Auto detection)
Low loss frequency	40±1Hz
Low loss return frequency	42±1Hz
High loss frequency	65±1Hz
High loss return frequency	63±1Hz
Output short circuit protection	Line mode: Circuit breaker Battery mode: Electronic circuits
Efficiency (Line mode)	95% (Rated R load, battery full charged)
Transfer time	10ms typical (UPS); 20ms typical (Appliances)
Output power derating: When AC input voltage drops 170V, the output power will be derated.	

Table 2 - Inverter mode specifications

Inverter model	PDA5500-STATION
Rated output power	5.5KVA/5.5KW
Output voltage waveform	Pure Sine Wave
Output voltage regulation	230Vac±5%
Output frequency	60Hz or 50Hz
Peak efficiency	94%
Overload protection	5s@≥150% load; 10s@110%~150% load
Surge capacity	2* rated power for 5 seconds
Nominal DC input voltage	48.0Vdc
Cold start voltage	46.0Vdc
Low DC Warning voltage	
@load<20%	44.0Vdc
@20%≤load<50%	42.8Vdc
@load≥50%	40.4Vdc
Low DC Warning return voltage	
@load<20%	42.0Vdc
@20%≤load<50%	40.8Vdc
@load≥50%	38.4Vdc
High DC recovery voltage	58.0Vdc
High DC cut-off voltage	62Vdc
No load power consumption	<50W
Saving mode power consumption	<15W

Table 3 - Inverter mode specifications

Inverter model		PDA5500-STATION
Charging Current (UPS) @ Nominal Input Voltage		80A
Bulk charging voltage	Flooded battery	58.4
	AGM / Gel battery	56.4
Floating charging voltage		54Vdc
Charging algorithm		3-step
Charging curve		

Solar Charging Mode	
Rated power	6000W
PV charge current	110A
Efficiency	98.0% max.
Max. PV Array open circuit voltage	500Vdc
PV Array MPPT voltage range	120-450Vdc
Standby power consumption	2W
Battery voltage accuracy	+/-0.3%
PV voltage accuracy	+/-2V
Charging algorithm	3-step

Table 4 - General specifications

Inverter model	PDA5500-STATION
Safety certification	CE
Operating temperature range	0ºC to 55ºC
Storage temperature	-15ºC~60ºC
Dimension (D*W*H), mm	472*297*133
Net weight, kg	10.7

8. TROUBLE SHOOTING

Problem	LCD / LED / Buzzer	Explanation /Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Battery polarity is connected reversed.	1. Check if batteries and the wiring are connected well. 2. Re-charge battery. 3. Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped .	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator).	1. Check if AC wires are too thin and/or too long. 2 Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS ➔ Appliance)
	Green LED is flashing.	Set "Solar First" as the priority of outout source.	Change output source priority to Utility first.
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing.	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07.	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 05.	Output short circuited.	Check if wiring is connected well an remove abnormal load.
		Temperature of internal converter component is over 120ºC.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02.	Internal temperature of inverter component is over 100ºC.	
	Fault code 03.	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01.	Fan fault.	Replace the fan.
	Fault code 06/58.	Output abnormal (inverter voltage below than 190Vac or is higher than 260VAC).	1. Reduce the connected load. 2. Return to reoair center.
	Fault code 08/09/53/57.	Internal components failed.	Return to repair center.
	Fault code 51.	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52.	Bus voltage is too low.	
	Fault code 55.	Output voltage is unbalanced.	
	Fault code 56.	Battery is not connected well or fuse is burnt.	If the battery is connected well, please return to repair center.

9. APPENDIX: Approximate Back-up Time Table

Model	Load (W)	Backup Time @ 48Vdc 100Ah (min)	Backup Time @ 48Vdc 200Ah (min)
PDA1500-STATION (12V)	500	613	1288
	1000	268	613
	1500	158	402
	2000	111	271
	2500	90	215
	3200	76	182
	3500	65	141
	4000	50	112
	4500	44	100
	5000	40	90

Note: Backup time depends on the quality of the battery, age of battery and type of battery. Specifications of batteries may vary depending on different manufacturers.

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