User Manual

Version: 1.0

PIP3624MAX/PIP7248MAX

SOLAR INVERTER / CHARGER

Table of Contents

ABOUT THIS MANUAL

Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

SAFETY INSTRUCTIONS

⚠ **WARNING: This chapter contains important safety and operating instructions. Read and keep this manual for future reference.**

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. **CAUTION** --To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.
3. Do not disassemble the unit. Take it to a qualified service center when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
5. **CAUTION** – Only qualified personnel can install this device with battery.
6. **NEVER** charge a frozen battery.
7. For optimum operation of this inverter/charger, please follow required spec to select appropriate cable size. It's very important to correctly operate this inverter/charger.
8. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
9. Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
10. Fuses are provided as over-current protection for the battery supply.
11. GROUNDING INSTRUCTIONS -This inverter/charger should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this inverter.
12. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
13. **Warning!!** Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this inverter/charger back to local dealer or service center for maintenance.
14. **WARNING:** Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline, poly crystalline with class A-rated and CIGS modules. To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
15. **CAUTION:** It's required to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

INTRODUCTION

This is a multi-function inverter, combining functions of inverter, solar charger and battery charger to offer uninterruptible power support in a single package. The comprehensive LCD display offers user-configurable and easy-accessible button operations such as battery charging current, AC or solar charging priority, and acceptable input voltage based on different applications.

Features

- Pure sine wave inverter
- Configurable color with the built-in RGB LED bar
- Built-in Wi-Fi for mobile monitoring (APP is required)
- Supports USB On-the-Go function
- Built-in anti-dusk kit
- Detachable LCD control module with multiple communication ports for BMS (RS485, CAN-BUS, RS232)
- Configurable input voltage ranges for home appliances and personal computers via LCD control panel
- Configurable AC/PV output usage timer and prioritization
- Configurable AC/Solar charger priority via LCD control panel
- Configurable battery charging current based on applications via LCD control panel
- Compatible to utility mains or generator power
- Auto restart while AC is recovering
- Overload / Over temperature / short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

Basic System Architecture

The following illustration shows basic application for this unit. It also includes the following devices to have a complete running system:
- Generator or Utility mains.
- PV modules

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

This inverter can power various appliances in home or office environment, including motor-type appliances such as tube light, fan, refrigerator and air conditioners.
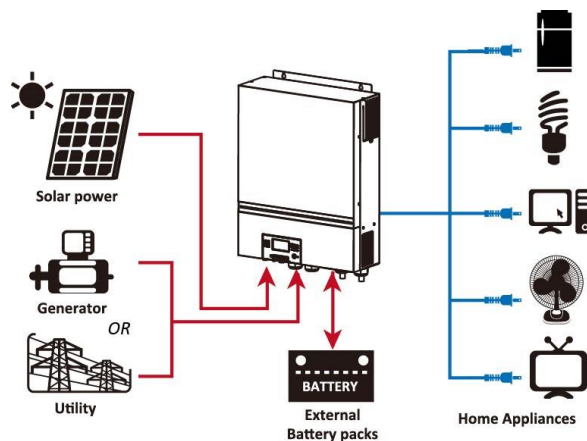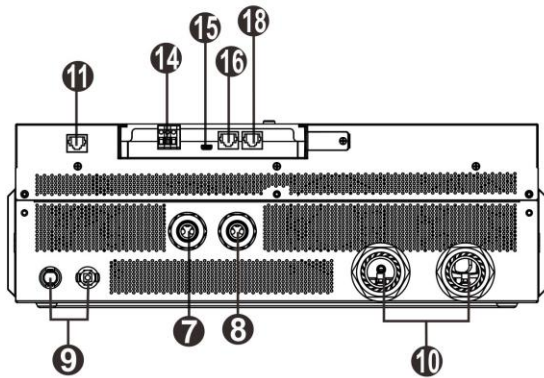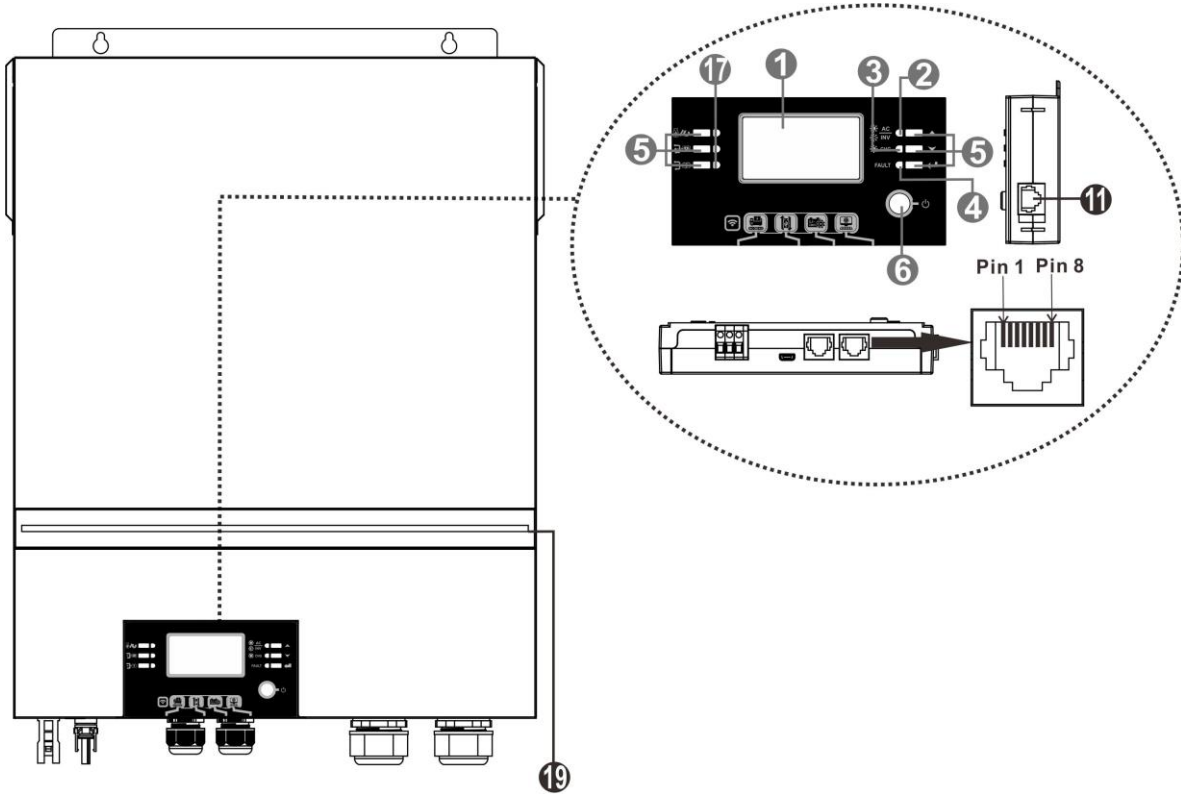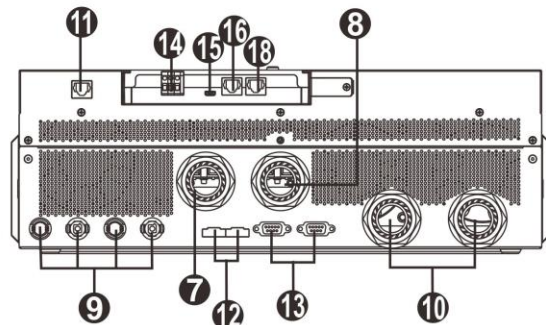

Figure 1 Basic hybrid PV System Overview

Product Overview

PIP3624MAX   **PIP7248MAX**

NOTE: For parallel model installation and operation, please check *Appendix I.*

1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. Power on/off switch
7. AC input connectors
8. AC output connectors (Load connection)
9. PV connectors
10. Battery connectors
11. Remote LCD module communication port

12. Current sharing port
13. Parallel communication port
14. Dry contact
15. USB port as USB communication port and USB function port
16. BMS communication port: CAN, RS-485 or RS-232
17. Output source indicators (refer to OPERATION/Operation and Display Panel section for details) and USB function setting reminder (refer to OPERATION/Function Setting for the details)
18. RS-232 communication port
19. RGB LED bar (refer to LCD Setting section for the details)

INSTALLATION

Unpacking and Inspection

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

Inverter unit	Manual	software CD	RS-232 cable	Parallel communication cable (only for PIP7248MAX model)	Current sharing cable (only for PIP7248MAX model)

DC Fuse	Cable gland x 4 pcs	PV connectors (1 set for PIP3624MAX, 2 sets for PIP7248MAX)
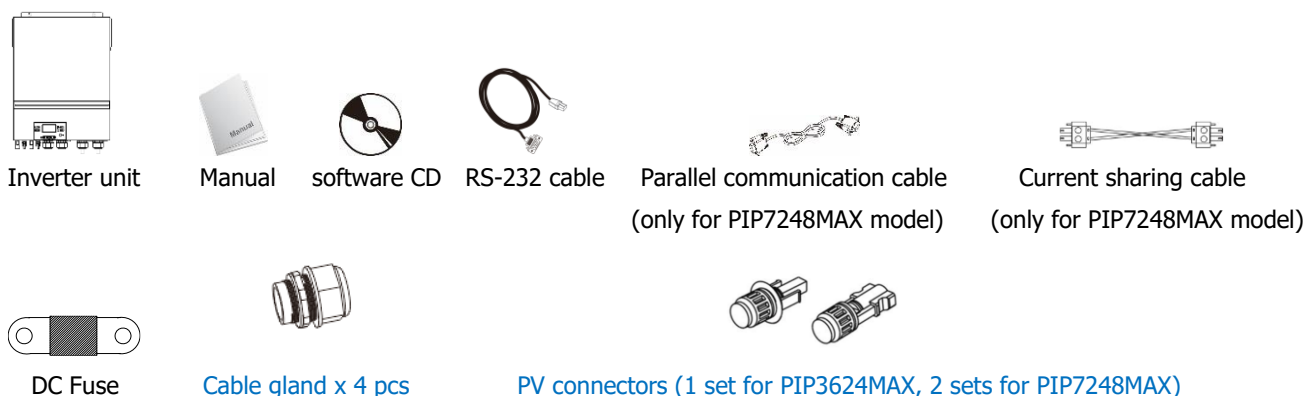
Preparation

Before connecting all wirings, please take off bottom cover by removing five screws. When removing the bottom cover, be carefully to remove three cables as shown below.
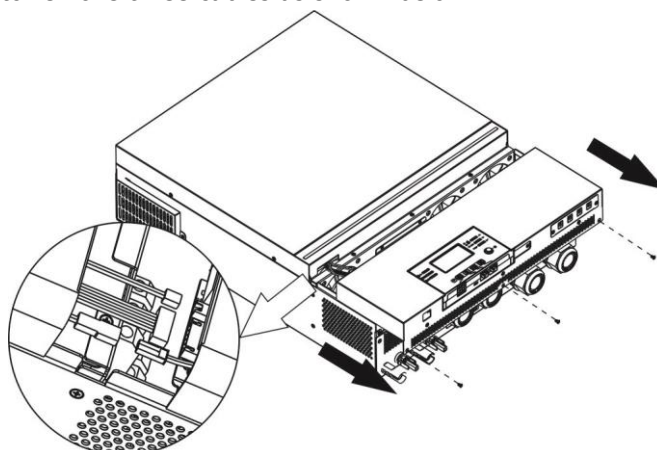
Mounting the Unit

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 0°C and 55°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the right diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.
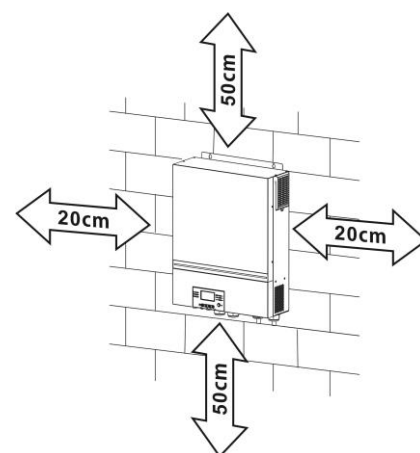
⚠ **SUITABLE FOR MOUNTING ON CONCRETE OR OTHER NON-COMBUSTIBLE SURFACE ONLY.**

Install the unit by screwing four screws. It's recommended to use M4 or M5 screws.
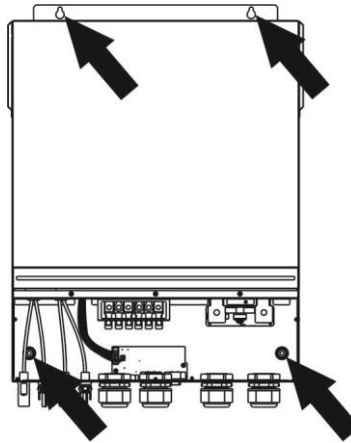
Battery Connection

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:
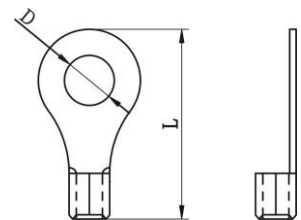
Recommended battery cable and terminal size:

Model	Typical Amperage	Battery capacity	Wire Size	Cable mm²	Ring Terminal Dimensions		Torque value
					D (mm)	L (mm)	
PIP3624MAX	167A	250AH	1*1/0AWG	50	8.4	47	5 Nm
PIP7248MAX	164.8A		1*1/0AWG	50	8.4	47	

Please follow below steps to implement battery connection:
1. Assemble battery ring terminal based on recommended battery cable and terminal size.
2. Fix two cable glands into positive and negative terminals.
3. Insert the ring terminal of battery cable flatly into battery connector of inverter and make sure the nuts are tightened with torque of 5 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.
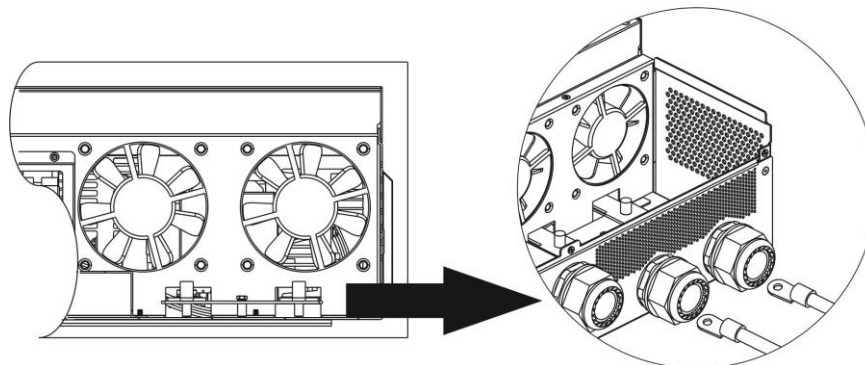
⚠	**WARNING: Shock Hazard**
	Installation must be performed with care due to high battery voltage in series.

⚠	**CAUTION!!** Do not place anything between the flat part of the inverter terminal and the ring terminal. Otherwise, overheating may occur. **CAUTION!!** Do not apply anti-oxidant substance on the terminals 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 (-).

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.

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
PIP3624MAX	12AWG	1.2~ 1.6Nm
PIP7248MAX	8 AWG	1.4~ 1.6Nm

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. Fix two cable glands into input and output sides.
3. Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N 3 mm.
4. 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)**
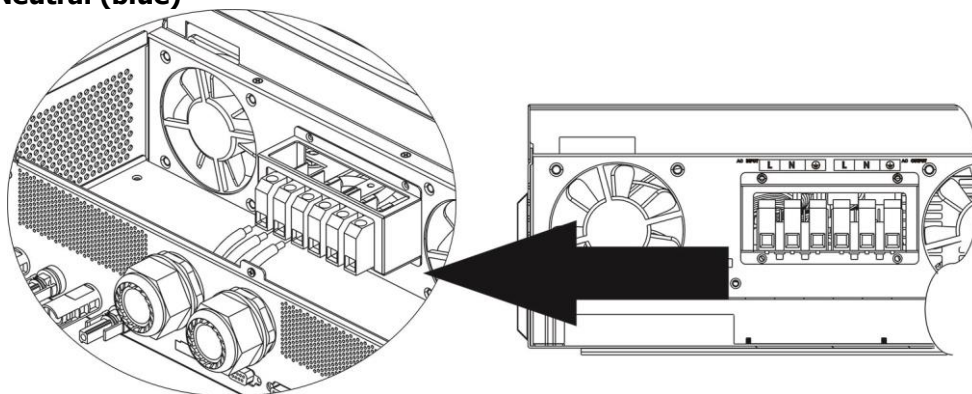
⚠	**WARNING:** Be sure that AC power source is disconnected before attempting to hardwire it to the unit.

5. Then, insert AC output 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)**
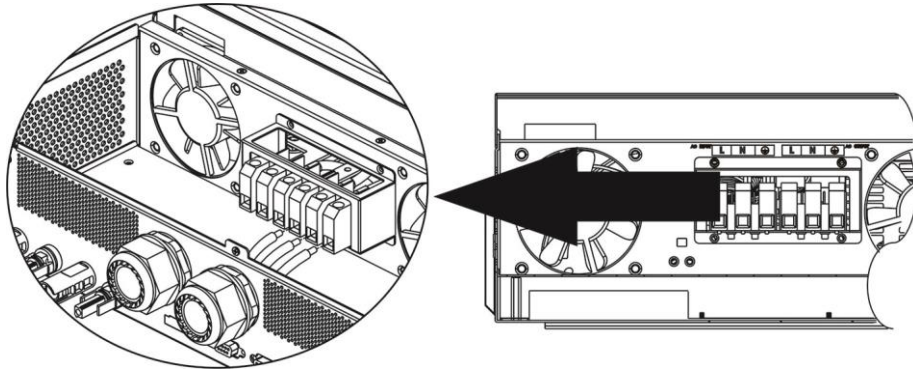
6. Make sure the wires are securely connected.

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 requires 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 be trigger overload fault and cut off output to protect your appliance but sometimes it still causes internal damage to the air conditioner.

PV Connection

CAUTION: Before connecting to PV modules, please install **separately** DC circuit breakers between inverter and PV modules.
NOTE1: Please use 600VDC/30A circuit breaker.
NOTE2: The overvoltage category of the PV input is II.
Please follow the steps below to implement PV module connection:

WARNING: Because this inverter is non-isolated, only three types of PV modules are acceptable: single crystalline and poly crystalline with class A-rated and CIGS modules.
To avoid any malfunction, do not connect any PV modules with possible current leakage to the inverter. For example, grounded PV modules will cause current leakage to the inverter. When using CIGS modules, please be sure NO grounding.
CAUTION: It's required to use PV junction box with surge protection. Otherwise, it will cause damage on inverter when lightning occurs on PV modules.

Step 1: Check the input voltage of PV array modules. This system is applied with two strings of PV array. Please make sure that the maximum current load of each PV input connector is 18A.

CAUTION: Exceeding the maximum input voltage can destroy the unit!! Check the system before wire connection.

Step 2: Disconnect the circuit breaker and switch off the DC switch.

Step 3: Assemble provided PV connectors with PV modules by the following steps.
Components for PV connectors and Tools:

Female connector housing	
Female terminal	
Male connector housing	
Male terminal	
Crimping tool and spanner	

Prepare the cable and follow the connector assembly process:

Strip one cable 8 mm on both end sides and be careful NOT to nick conductors.
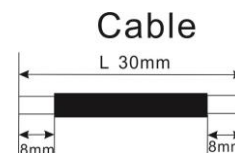
Cable
L 30mm
8mm   8mm

Insert striped cable into female terminal and crimp female terminal as shown below.

Insert assembled cable into female connector housing as shown below.

Insert striped cable into male terminal and crimp male terminal as shown below.

Insert assembled cable into male connector housing as shown below.

Then, use spanner to screw pressure dome tightly to female connector and male connector as shown below.

Step 4: Check correct polarity of connection cable from PV modules and PV input connectors. Then, connect positive pole (+) of connection cable to positive pole (+) of PV input connector. Connect negative pole (-) of connection cable to negative pole (-) of PV input connector.
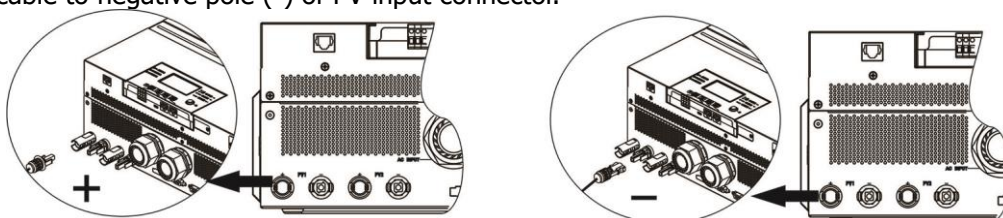
WARNING! For safety and efficiency, it's very important to use appropriate cables for PV module connection. To reduce risk of injury, please use the proper cable size as recommended below.

Conductor cross-section (mm^2)	AWG no.
4~6	10~12

CAUTION: Never directly touch the terminals of inverter. It might cause lethal electric shock.

Recommended Panel Configuration

When selecting proper PV modules, please be sure to consider the following parameters:
1. Open circuit Voltage (Voc) of PV modules not to exceed maximum PV array open circuit voltage of the inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than the start-up voltage.

INVERTER MODEL	PIP3624MAX	PIP7248MAX
Max. PV Array Power	4000W	8000W
Max. PV Array Open Circuit Voltage	500Vdc	
PV Array MPPT Voltage Range	120Vdc~450Vdc	90Vdc~450Vdc
Start-up Voltage (Voc)	150Vdc	80Vdc

Recommended solar panel configuration for PIP3624MAX model:

Solar Panel Spec. (reference) - 250Wp - Vmp: 30.1Vdc - Imp: 8.3A - Voc: 37.7Vdc - Isc: 8.4A - Cells: 60	SOLAR INPUT Min in series: 6 pcs, max. in series: 12 pcs.	Q'ty of panels	Total input power
	6 pcs in series	6 pcs	1500W
	8 pcs in series	8 pcs	2000W
	12 pcs in series	12 pcs	3000W
	8 pieces in series and 2 sets in parallel	16 pcs	4000W

Recommended solar panel configuration for PIP7248MAX model:

Solar Panel Spec. (reference) - 250Wp - Vmp: 30.7Vdc - Imp: 8.3A - Voc: 37.7Vdc - Isc: 8.4A - Cells: 60	SOLAR INPUT 1 Min in series: 4pcs, per input Max. in series: 12pcs, per input	SOLAR INPUT 2	Q'ty of panels	Total Input Power
	4pcs in series	x	4pcs	1000W
	x	4pcs in series	4pcs	1000W
	12pcs in series	x	12pcs	3000W
	x	12pcs in series	12pcs	3000W
	6pcs in series	6pcs in series	12pcs	3000W
	6pcs in series, 2 strings	x	12pcs	3000W
	x	6pcs in series, 2 strings	12pcs	3000W
	8pcs in series, 2 strings	x	16pcs	4000W
	x	8pcs in series, 2 strings	16pcs	4000W
	9pcs in series, 1 string	9pcs in series, 1 string	18pcs	4500W
	10pcs in series, 1 string	10pcs in series, 1 string	20pcs	5000W
	12pcs in series, 1 string	12pcs in series, 1 string	24pcs	6000W
	6pcs in series, 2 strings	6pcs in series, 2 strings	24pcs	6000W
	7pcs in series, 2 strings	7pcs in series, 2 strings	28pcs	7000W
	8pcs in series, 2 strings	8pcs in series, 2 strings	32pcs	8000W

Final Assembly

After connecting all wirings, re-connect three cables and then put bottom cover back by screwing five screws as shown below.
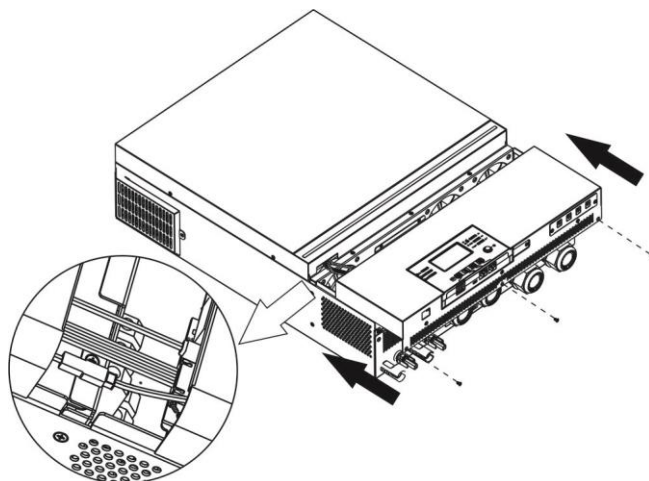
Remote Display Panel Installation

The LCD module can be removable and installed in a remote location with an optional communication cable. Please take the follow steps to implement this remote panel installation.

Step 1. Remove the screw on the bottom of LCD module and pull down the module from the case.　Detach the cable from the original communication port. Be sure to replace the retention plate back to the inverter.
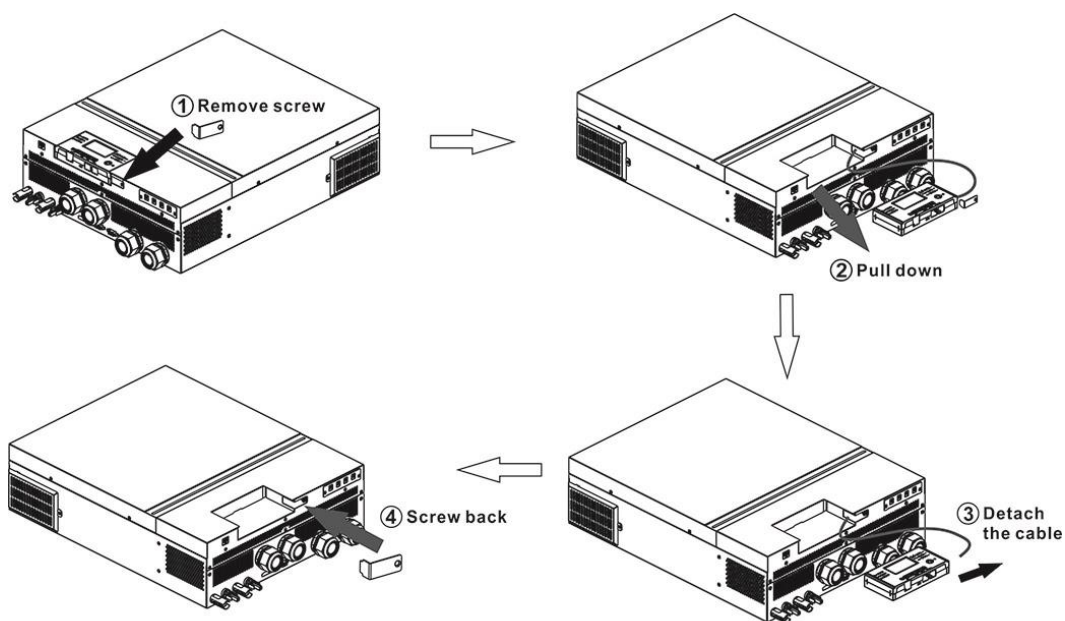
Step 2. Prepare your mounting holes in the marked locations as shown in the illustration below.   The LCD module then can be securely mounted to your desired location.

70mm
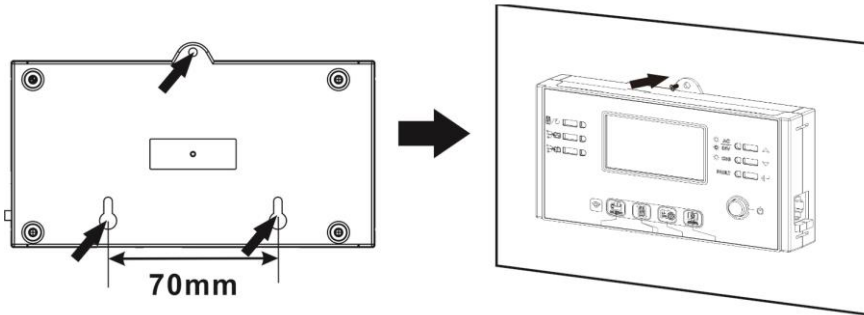
Note: Wall installation should be implemented with the proper screws to the right.

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Step 3. After LCD module is installed, connect LCD module to the inverter with an optional RJ45 communication cable as shown below.

RS-232 communication to PC

Remote communication

USB communication to PC
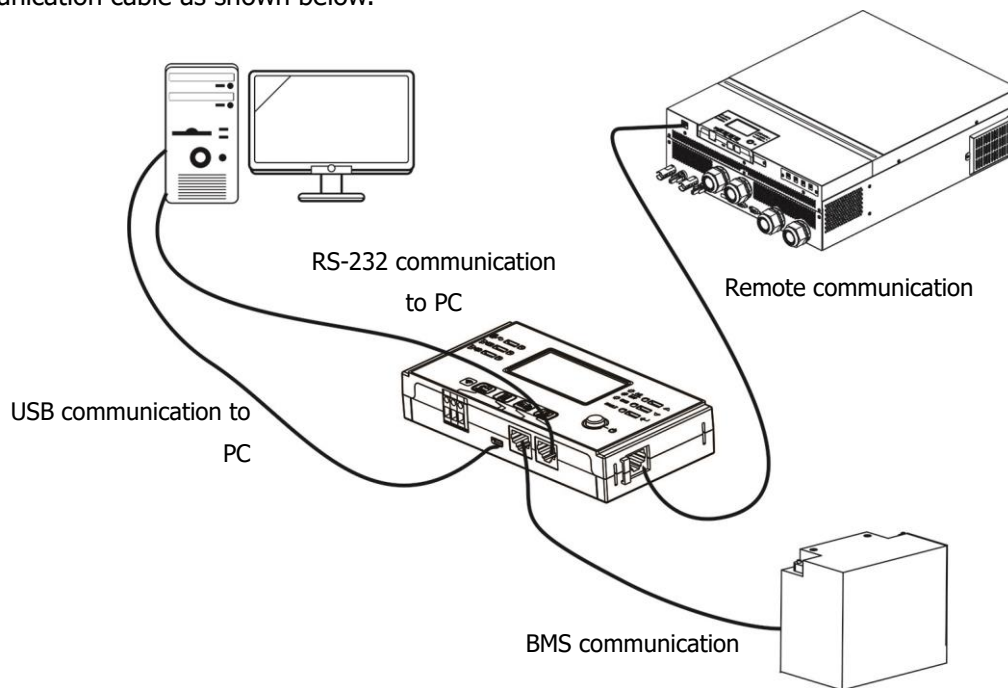
BMS communication

Communication Connection

Serial Connection

Please use the supplied serial cable to connect between the inverter and your PC. Install the monitoring software from the bundled CD and follow the on-screen instructions to complete your installation. For detailed software operation, refer to the software user manual on the bundled CD.
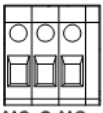
Wi-Fi Connection

This unit is equipped with a Wi-Fi transmitter. Wi-Fi transmitter can enable wireless communication between off-grid inverters and monitoring platform. Users can access and control the monitored inverter with downloaded APP.   You may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store. All data loggers and parameters are saved in iCloud. For quick installation and operation, please check Appendix III.

Dry Contact Signal

There is one dry contact (3A/250VAC) available on the rear panel. It could be used to deliver signal to external device when battery voltage reaches warning level.

Unit Status	Condition			Dry contact port: NC C NO	
				NC & C	NO & C
Power Off	Unit is off and no output is powered.			Close	Open
Power On	Output is powered from Battery power or Solar energy.	Program 01 set as USB (utility first) or SUB (solar first)	Battery voltage < Low DC warning voltage	Open	Close
			Battery voltage > Setting value in Program 13 or battery charging reaches floating stage	Close	Open
		Program 01 is set as SBU (SBU priority)	Battery voltage < Setting value in Program 12	Open	Close
			Battery voltage > Setting value in Program 13 or battery charging reaches floating stage	Close	Open

BMS Communication

It is recommended to purchase a special communication cable if you are connecting to Lithium-Ion battery banks. Please refer to *Appendix II- BMS Communication Installation* for details.

OPERATION

Power ON/OFF

Once the unit has been properly installed and the batteries are connected well, simply press On/Off switch (located on the display panel) to turn on the unit.
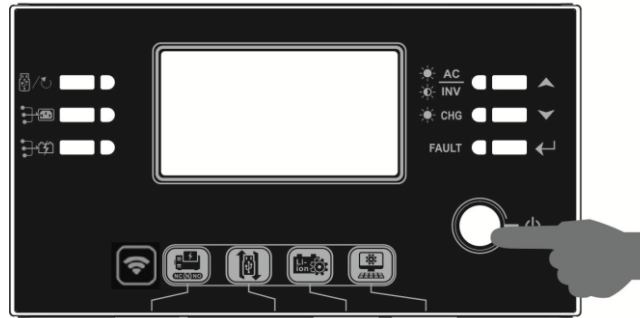
Inverter Turn-on

After this inverter is turned on, WELCOME light show will be started with RGB LED BAR. It will slowly cycle through entire spectrum of nine colors (Green, Sky blue, Royal blue, Violet, Pink, Red, Honey, Yellow, Lime yellow) about 10-15 seconds. After initialization, it will light up with default color.

RGB LED BAR can light up in different color and light effects based on the setting of energy priority to display the operation mode, energy source, battery capacity and load level. These parameters such as color, effects, brightness, speed and so on can be configured through the LCD panel. Please refer to LCD settings for the details.

Operation and Display Panel

The operation and the LCD module, shown in the chart below, includes six indicators, six function keys, on/off switch and a LCD display to indicate the operating status and input/output power information.
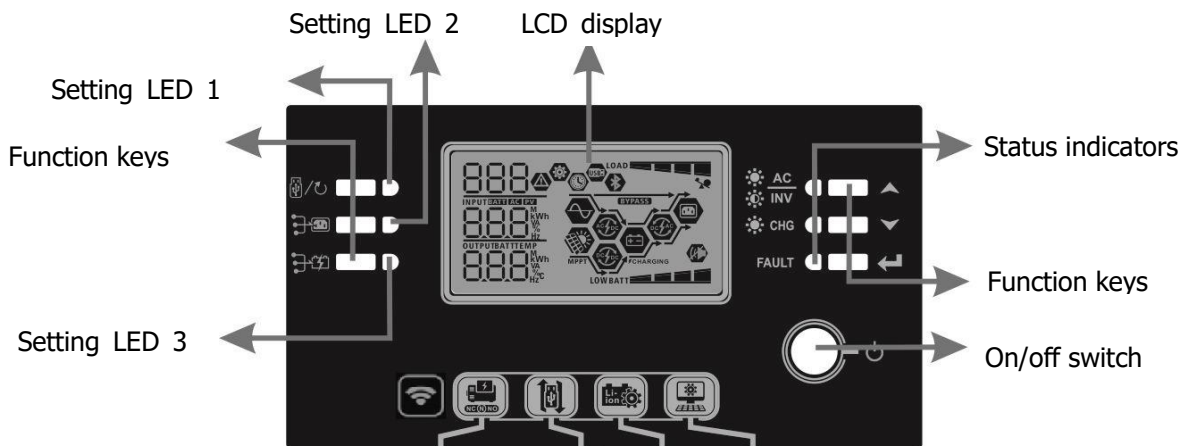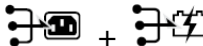
Indicators

LED Indicator		Color	Solid/Flashing	Messages
Setting LED 1		Green	Solid On	Output powered by utility
Setting LED 2		Green	Solid On	Output powered by PV
Setting LED 3		Green	Solid On	Output powered by battery
Status indicators	☀ AC / ☀ INV	Green	Solid On	Output is available in line mode
			Flashing	Output is powered by battery in battery mode

			Solid On	Battery is fully charged
☼ CHG		Green	Flashing	Battery is charging.
FAULT		Red	Solid On	Fault mode
			Flashing	Warning mode

Function Keys

Function Key		Description
🔌/↻	ESC	Exit the setting
	USB function setting	Select USB OTG functions
⇶🔋	Timer setting for the Output source priority	Setup the timer for prioritizing the output source
⇶⚡	Timer setting for the Charger source priority	Setup the timer for prioritizing the charger source
⇶🔋 + ⇶⚡		Press these two keys at the time to switch RGB LED bar for output source priority and battery discharge/charge status
▲	Up	To last selection
▼	Down	To next selection
↵	Enter	To confirm/enter the selection in setting mode

LCD Display Icons
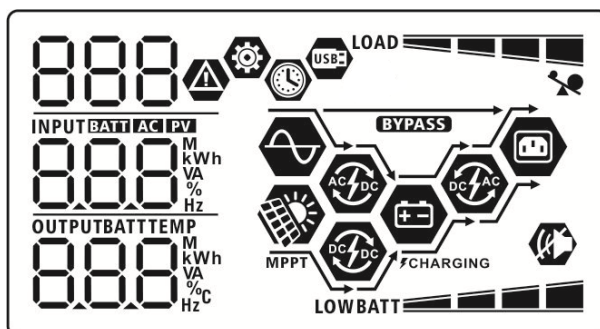
Icon	Function description
Input Source Information	
AC	Indicates the AC input.
PV	Indicates the PV input
INPUT BATT AC PV 888	Indicate input voltage, input frequency, PV voltage, charger current, charger power, battery voltage.
Configuration Program and Fault Information	
⚙ 888	Indicates the setting programs.
888⚠	Indicates the warning and fault codes. Warning: 88⚠ flashing with warning code. Fault: F88 lighting with fault code
Output Information	
OUTPUT BATT TEMP 888	Indicate output voltage, output frequency, load percent, load in VA, load in Watt and discharging current.

Battery Information	
BATT (battery bars icon)	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.

When battery is charging, 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.
	> 2.167 V/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%	< 1.85V/cell	LOW BATT (1 bar)
	1.85V/cell ~ 1.933V/cell	BATT (2 bars)
	1.933V/cell ~ 2.017V/cell	BATT (3 bars)
	> 2.017V/cell	BATT (4 bars)
Load < 50%	< 1.892V/cell	LOW BATT (1 bar)
	1.892V/cell ~ 1.975V/cell	BATT (2 bars)
	1.975V/cell ~ 2.058V/cell	BATT (3 bars)
	> 2.058V/cell	BATT (4 bars)

Load Information	
(overload icon)	Indicates overload.
LOAD (load bars icon) (outlet icon)	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.

0%~24%	25%~49%
LOAD (1 bar)	LOAD (2 bars)
50%~74%	75%~100%
LOAD (3 bars)	LOAD (4 bars)

Mode Operation Information	
(mains icon)	Indicates unit connects to the mains.
(PV panel icon) MPPT	Indicates unit connects to the PV panel.
BYPASS	Indicates load is supplied by utility power.
(AC/DC icon)	Indicates the utility charger circuit is working.
(DC/DC icon)	Indicates the solar charger circuit is working.
(DC/AC icon)	Indicates the DC/AC inverter circuit is working.
(alarm disabled icon)	Indicates unit alarm is disabled.
USB	Indicates USB disk is connected.
(clock icon)	Indicates timer setting or time display

LCD Setting

General Setting

After pressing and holding "↵" button for 3 seconds, the unit will enter the Setup Mode. Press "▲" or "▼" button to select setting programs. Press "↵" button to confirm you selection or "⏻" 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	Utility first (default) **01** ⚙ **USb**	Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.
		Solar first **01** ⚙ **SUb**	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time.
		SBU priority **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** ⚙ **10** A	20A **02** ⚙ **20** A

		30A 02 ⚙ 30 ᴀ	40A 02 ⚙ 40 ᴀ
		50A 02 ⚙ 50 ᴀ	60A (default) 02 ⚙ 60 ᴀ
		70A 02 ⚙ 70 ᴀ	80A 02 ⚙ 80 ᴀ
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.
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.
		Pylontech battery 05 ⚙ PYL	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.

05	Battery Type	WECO battery (only for PIP7248MAX model) 05 ⚙ υEC	If selected, programs of 02, 12, 26, 27 and 29 will be auto-configured per battery supplier recommended. No need for further adjustment.
		Soltaro battery (only for PIP7248MAX model) 05 ⚙ SOL	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		LIb-protocol compatible battery 05 ⚙ LI b	Select " LIb" if using Lithium battery compatible to Lib protocol. If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		3rd party Lithium battery 05 ⚙ LI C	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting. Please contact the battery supplier for installation procedure.
06	Auto restart when overload occurs	Restart disable (default) 06 ⚙ Lťd	Restart enable 06 ⚙ LťE
07	Auto restart when over temperature occurs	Restart disable (default) 07 ⚙ tťd	Restart enable 07 ⚙ tťE
09	Output frequency	50Hz (default) 09 ⚙ 50 Hz	60Hz 09 ⚙ 60 Hz

10	Output voltage	220V 10 ⚙ 220ᵥ	230V (default) 10 ⚙ 230ᵥ
		240V 10 ⚙ 240ᵥ	
11	Maximum utility charging current Note: If setting value in program 02 is smaller than that in program in 11, the inverter will apply charging current from program 02 for utility charger.	2A 11 ⚙ Utl 2 A	10A 11 ⚙ Utl 10 A
		20A 11 ⚙ Utl 20 A	30A (default) 11 ⚙ Utl 30 A
		40A 11 ⚙ Utl 40 A	50A 11 ⚙ Utl 50 A
		60A 11 ⚙ Utl 60 A	70A 11 ⚙ Utl 70 A
		80A 11 ⚙ Utl 80 A	
12	Setting voltage point back to utility source when selecting "SBU" (SBU priority) in program 01.	PIP3624MAX model:	
		22.0V 12 ⚙ BATT 220ᵥ	22.5V 12 ⚙ BATT 225ᵥ

12	Setting voltage point back to utility source when selecting "SBU" (SBU priority) in program 01.	23.0V (default) **BATT** 230v	23.5V **BATT** 235v
		24.0V **BATT** 240v	24.5V **BATT** 245v
		25.0V **BATT** 250v	25.5V **BATT** 255v
		PIP7248MAX model:	
		44V **BATT** 44v	45V **BATT** 45v
		46V (default) **BATT** 46v	47V **BATT** 47v
		48V **BATT** 48v	49V **BATT** 49v
		50V **BATT** 50v	51V **BATT** 51v

		PIP3624MAX model:	
13	Setting voltage point back to battery mode when selecting "SBU" (SBU priority) in program 01.	Battery fully charged `13` ⚙ `FUL`ᵥ BATT	24V `13` ⚙ `240`ᵥ BATT
		24.5V `13` ⚙ `245`ᵥ BATT	25V `13` ⚙ `250`ᵥ BATT
		25.5V `13` ⚙ `255`ᵥ BATT	26V `13` ⚙ `260`ᵥ BATT
		26.5V `13` ⚙ `265`ᵥ BATT	27V (default) `13` ⚙ `270`ᵥ BATT
		27.5V `13` ⚙ `275`ᵥ BATT	28V `13` ⚙ `280`ᵥ BATT
		28.5V `13` ⚙ `285`ᵥ BATT	29V `13` ⚙ `290`ᵥ BATT
		29.5V `13` ⚙ `295`ᵥ BATT	30V `13` ⚙ `30.0`ᵥ BATT

13	Setting voltage point back to battery mode when selecting "SBU" (SBU priority) in program 01.	30.5V 13 ⚙ **BATT** 30.5ᵥ	31V 13 ⚙ **BATT** 31.0ᵥ
		PIP7248MAX model:	
		Battery fully charged 13 ⚙ **BATT** FUL ᵥ	48V 13 ⚙ **BATT** 48ᵥ
		49V 13 ⚙ **BATT** 49ᵥ	50V 13 ⚙ **BATT** 50ᵥ
		51V 13 ⚙ **BATT** 51ᵥ	52V 13 ⚙ **BATT** 52ᵥ
		53V 13 ⚙ **BATT** 53ᵥ	54V (default) 13 ⚙ **BATT** 54ᵥ
		55V 13 ⚙ **BATT** 55ᵥ	56V 13 ⚙ **BATT** 56ᵥ
		57V 13 ⚙ **BATT** 57ᵥ	58V 13 ⚙ **BATT** 58ᵥ

13	Setting voltage point back to battery mode when selecting "SBU" (SBU priority) in program 01.	59V ⬡ `13` ⚙ BATT `59`v	60V ⬡ `13` ⚙ BATT `60`v
		61V `13` ⚙ BATT `61`v	62V `13` ⚙ BATT `62`v

16	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Standby 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 (default) `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, 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` ⚙ `tEP`	If selected, the display screen will stay at latest screen user finally switches.
20	Backlight control	Backlight on (default) `20` ⚙ `Lon`	Backlight off `20` ⚙ `LoF`
22	Beeps while primary source is interrupted	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 (default) `25` ⚙ `FEn`	Record disable `25` ⚙ `FdS`

26	Bulk charging voltage (C.V voltage)	PIP3624MAX model default: 28.2V 26 ⚙ CV BATT 28.2V	PIP7248MAX model default: 56.4V 26 ⚙ CV BATT 56.4V
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.0V for PIP3624MAX model and 48.0V to 62.0V for PIP7248MAX model. Increment of each click is 0.1V.	
27	Floating charging voltage	PIP3624MAX model default: 27.0V 27 ⚙ FLV BATT 27.0V	PIP7248MAX model default: 54.0V 27 ⚙ FLV BATT 54.0V
		If self-defined is selected in program 5, this program can be set up. Setting range is from 25.0V to 31.0V for PIP3624MAX model and 48.0V to 62.0V for PIP7248MAX model. Increment of each click is 0.1V.	
28	AC output mode (only for parallel model) *This setting is only available when the inverter is in standby mode (Switch off).	Single: This inverter is used in single phase application. 28 ⚙ SIG	Parallel: This inverter is operated in parallel system. 28 ⚙ PAL
28	AC output mode (only for parallel model) *This setting is only available when the inverter is in standby mode (Switch off).	When the inverter is operated in 3-phase application, set up inverter to be operated in specific phase.	
		L1 phase: 28 ⚙ 3P1	L2 phase: 28 ⚙ 3P2
		L3 phase: 28 ⚙ 3P3	

29	Low DC cut-off voltage:
	● If battery power is only power source available, inverter will shut down.
	● If PV energy and battery power are available, inverter will charge battery without AC output.
	● If PV energy, battery power and utility are all available, inverter will transfer to line mode and provide output power to loads.
		PIP3624MAX model default: 22.0V
		
		`29 ⚙`
		`COV`
		`BATT`
		`22.0 V`
			PIP7248MAX model default: 44.0V
			
			`29 ⚙`
			`COV`
			`BATT`
			`44.0 V`

		If self-defined is selected in program 5, this program can be set up. Setting range is from 21.0V to 24.0V for PIP3624MAX model and 42.0V to 48.0V for PIP7248MAX model. 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.	

30	Battery equalization	Battery equalization
		
		`30 ⚙`
		
		`EEN`
			Battery equalization disable (default)
			
			`30 ⚙`
			
			`EdS`

		If "Flooded" or "User-Defined" is selected in program 05, this program can be set up.	

31	Battery equalization voltage	PIP3624MAX model default: 29.2V
		
		`31 ⚙`
		`EV`
		`BATT`
		`29.2 V`
			PIP7248MAX model default: 58.4V
			
			`31 ⚙`
			`EV`
			`BATT`
			`58.4 V`

		Setting range is from 25.0V to 31.0V for PIP3624MAX model and 48.0V to 62.0V for PIP7248MAX model. Increment of each click is 0.1V.	

33	Battery equalized time	60min (default)
		
		`33 ⚙`
		
		`60`
			Setting range is from 5min to 900min. Increment of each click is 5min.

34	Battery equalized timeout	120min (default)
		
		`34 ⚙`
		
		`120`
			Setting range is from 5min to 900 min. Increment of each click is 5 min.

35	Equalization interval	30days (default) 35 ⚙ 30d	Setting range is from 0 to 90 days. Increment of each click is 1 day
36	Equalization activated immediately	Enable 36 ⚙ AEN	Disable (default) 36 ⚙ AdS
		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will show "E9". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "E9" will not be shown in LCD main page.	
37	Reset all stored data for PV generated power and output load energy	Not reset(Default) 37 ⚙ NrE	Reset 37 ⚙ rSE
41	Maximum discharging current (only for Parallel model)	Disable (Default) 41 ⚙ ddS	If selected, the maximum discharge current limits protection is disabled. It will be protected by overload.
		30A 41 ⚙ 30	The setting range is from 30 A to 150 A. Increment of each click is 10A. Setting to limit maximum discharge current. If more current is required, the inverter will by-pass (like overload by-pass) or if no AC source is available then shut down for 5 minutes.
		150A 41 ⚙ 150	

		Enabled (default)	Disable
51	On/Off control for RGB LED *It's necessary to enable this setting to activate RGB LED lighting function.	51 ⚙ LEN	51 ⚙ LdS

		Low	Normal (default)
52	Brightness of RGB LED	52 ⚙ LO	52 ⚙ NOr
		High	
		52 ⚙ HI	

		Low	Normal (default)
53	Lighting speed of RGB LED	53 ⚙ LO	53 ⚙ NOr
		High	
		53 ⚙ HI	

		Scrolling	Breathing
54	RGB LED effects	54 ⚙ SCr	54 ⚙ brE
		Solid on (Default)	
		54 ⚙ SOL	

55	Color combination of RGB LED to show energy source and battery charge/discharge status: ● Grid-PV-Battery ● Battery charge/discharge status	C01: (Default) ● Violet-White-Sky blue ● Pink-Honey 55 ⚙ C01	C02: ● White-Yellow-Green ● Royal blue-Lime yellow 55 ⚙ C02
93	Erase all data log	Not reset (Default) 93 ⚙ ח⊦�t	Reset 93 ⚙ ⊦5t
94	Data log recorded interval *The maximum data log number is 1440. If it's over 1440, it will re-write the first log.	3 minutes 94 ⚙ 3	5 minutes 94 ⚙ 5
		10 minutes (default) 94 ⚙ 10	20 minutes 94 ⚙ 20
		30 minutes 94 ⚙ 30	60 minutes 94 ⚙ 60
95	Time setting – Minute	For minute setting, the range is from 0 to 59. 95 ⚙🕐 חı ח 0	
96	Time setting – Hour	For hour setting, the range is from 0 to 23. 96 ⚙🕐 HOU 0	

97	Time setting– Day	For day setting, the range is from 1 to 31. 97 ⚙🕐 dAY 1
98	Time setting– Month	For month setting, the range is from 1 to 12. 98 ⚙🕐 nOn 1
99	Time setting – Year	For year setting, the range is from 17 to 99. 99 ⚙🕐 YEA 19

Function Setting

There are three function keys on the display panel to implement special functions such as USB OTG, Timer setting for output source priority and timer setting for charger source priority.

1. USB Function Setting

Insert an OTG USB disk into the USB port (⬛). Press and hold "⬛/⏻" button for 3 seconds to enter USB Setup Mode. These functions including inverter firmware upgrade, data log export and internal parameters re-write from the USB disk.

Procedure	LCD Screen
Step 1: Press and hold "⏻/☗" button for 3 seconds to enter USB function setting mode. **Step 2:** Press "⏻/☗", "⊐▣" or "⊐⚡" button to enter the selectable setting programs (detail descriptions in Step 3)..	UPG ⚙ ⬡ SEt LOG

Step 3: Please select setting program by following the procedure.

Program#	Operation Procedure	LCD Screen
⏻/☗: Upgrade firmware	This function is to upgrade inverter firmware. If firmware upgrade is needed, please check with your dealer or installer for detail instructions.	
⊐▣: Re-write internal parameters	This function is to over-write all parameter settings (TEXT file) with settings in the On-The-Go USB disk from a previous setup or to duplicate inverter settings. Please check with your dealer or installer for detail instructions.	
⊐⚡: Export data log	By pressing "⊐⚡" button to export data log from the inverter to USB disk. If the selected function is ready, LCD will display "┝ d५". Press "⏻/☗" button to confirm the selection again.	LOG ⚙ ⬡ ┝d५
	● Press "⊐▣" button to select "Yes", LED 1 will flash once every second during the process. It will only display LOG and all LEDs will be on after this action is complete. Then, press "⏻/☗" button to return to main screen. ● Or press "⊐⚡" button to select "No" to return to main screen.	LOG ⚙ ⬡ ५ES nO

If no button is pressed for 1 minute, it will automatically return to main screen.

Error message for USB On-the-Go functions:

Error Code	Messages
U01	No USB disk is detected.
U02	USB disk is protected from copy.
U03	Document inside the USB disk with wrong format.

If any error occurs, error code will only show 3 seconds. After three seconds, it will automatically return to display screen.

2. Timer Setting for Output Source Priority

This timer setting is to set up the output source priority per day.

Procedure	LCD Screen
Step 1: Press and hold "⊐▣" button for 3 seconds to enter Timer Setup Mode for output source priority. **Step 2:** Press "⏻/☗", "⊐▣" or "⊐⚡" button to enter the selectable programs (detail descriptions in Step 3).	USb ⚙ Sub SbU

Step 3: Please select setting program by following each procedure.

Program#	Operation Procedure	LCD Screen
/⏻	Press "/⏻" button to set up Utility First Timer. Press "" button to select staring time. Press "▲" or "▼" button to adjust values and press "←" to confirm. Press "" button to select end time. Press "▲" or "▼" button to adjust values, press "←" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	USb ⚙ 00 23
	Press "" button to set up Solar First Timer. Press "" button to select staring time. Press "▲" or "▼" button to adjust values and press "←" to confirm. Press "" button to select end time. Press "▲" or "▼" button to adjust values, press "←" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	SUb ⚙ 00 23
	Press "" button to set up SBU Priority Timer. Press "" button to select staring time. Press "▲" or "▼" button to adjust values and press "←" to confirm. Press "" button to select end time. Press "▲" or "▼" button to adjust values, press "←" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	SbU ⚙ 00 23

Press "/⏻" button to exit the Setup Mode.

3. Timer Setting for the Charger Source Priority

This timer setting is to set up the charger source priority per day.

Procedure	LCD Screen
Step 1: Press and hold "" button for 3 seconds to enter Timer Setup Mode for charging source priority.	CSO ⚙ SNU 0S0
Step 2: Press "/⏻", "" or "" button to enter the selectable programs (detail descriptions in Step 3).	

Step 3: Please select setting program by following each procedure.
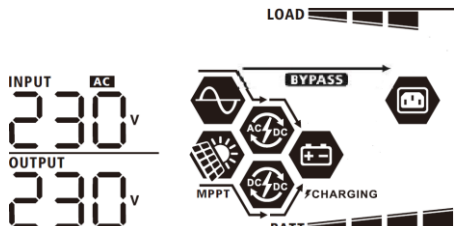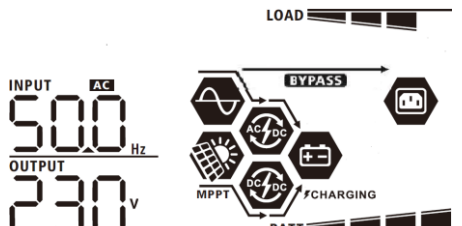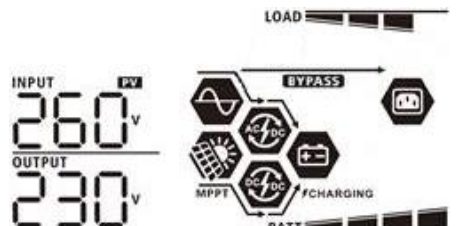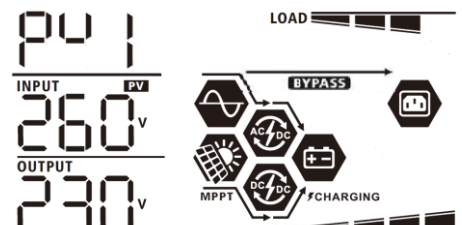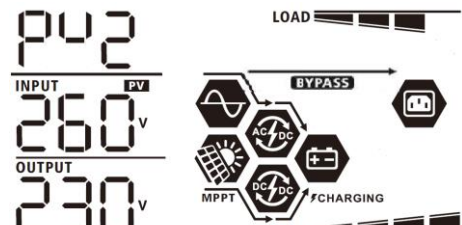
Program#	Operation Procedure	LCD Screen
/⏻	Press "/⏻" button to set up Solar First Timer. Press "" button to select staring time. Press "▲" or "▼" button to adjust values and press "←" to confirm. Press "" button to select end time. Press "▲" or "▼" button to adjust values, press "←" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	CSO ⚙ 00 23
	Press "" button to set up Solar & Utility Timer. Press "" button to select staring time. Press "▲" or "▼" button to adjust values and press "←" to confirm. Press "" button to select end time. Press "▲" or "▼" button to adjust values, press "←" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	SNU ⚙ 00 23
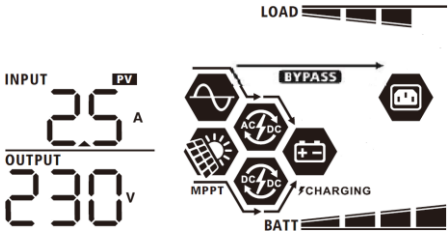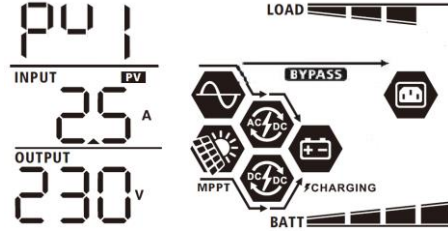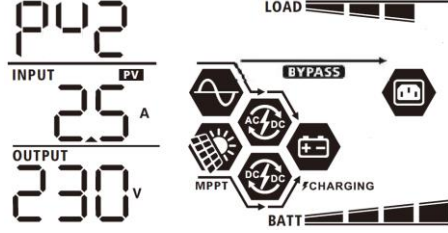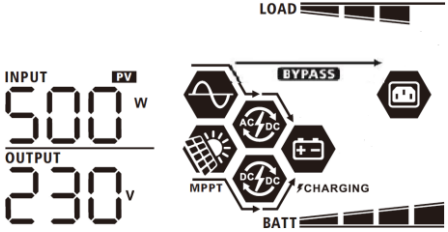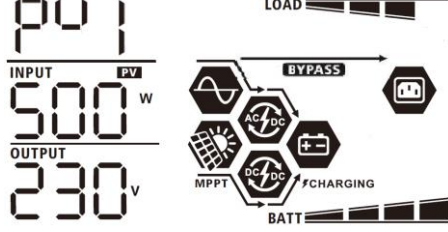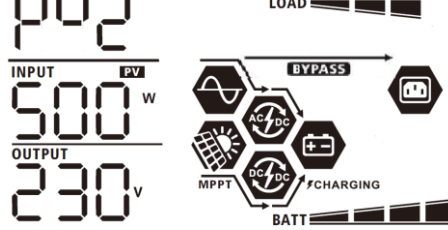
	Press "⊐⚡" button to set up Solar Only Timer. Press "⊐🔋" button to select staring time. Press "▲" or "▼" button to adjust values and press "←┘" to confirm. Press "⊐⚡" button to select end time. Press "▲" or "▼" button to adjust values, press "←┘" button to confirm. The setting values are from 00 to 23, with 1-hour increment.	050 ⚙ 00 23
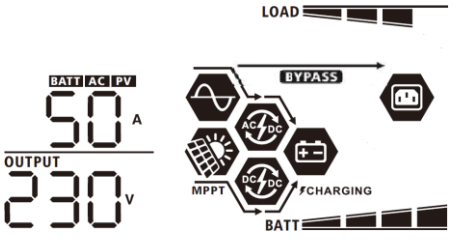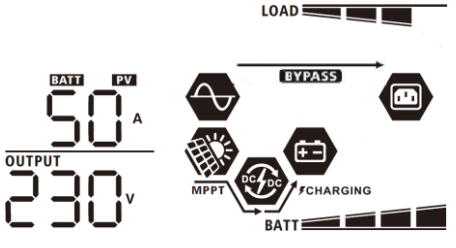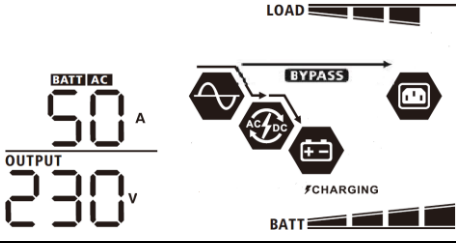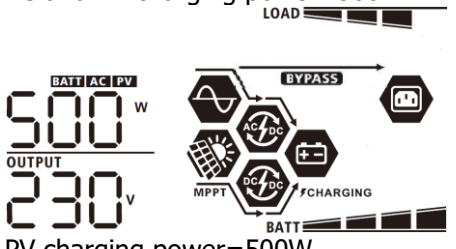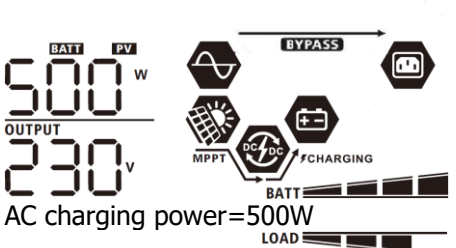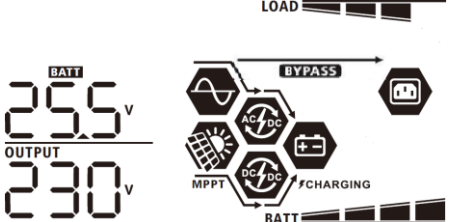
Press "🔋/⏻" button to exit the Setup Mode.
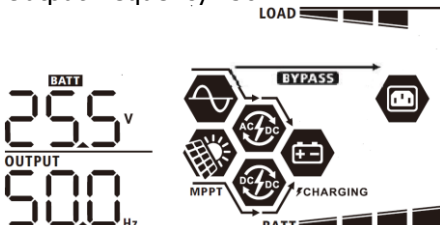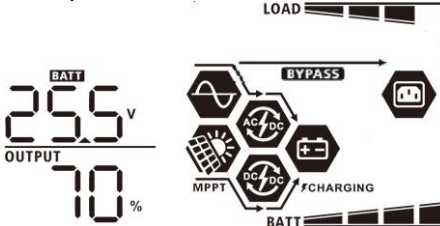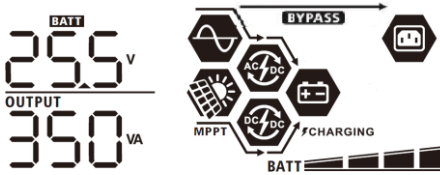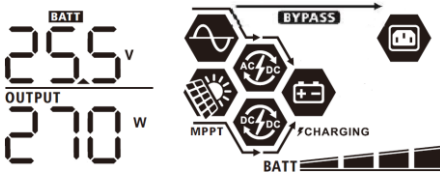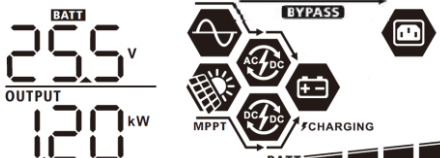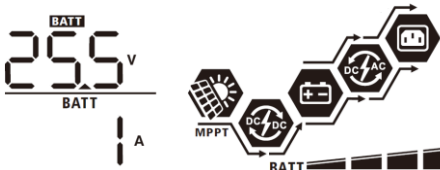
LCD Display
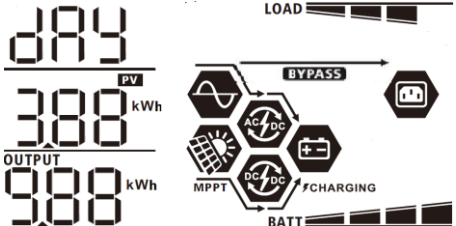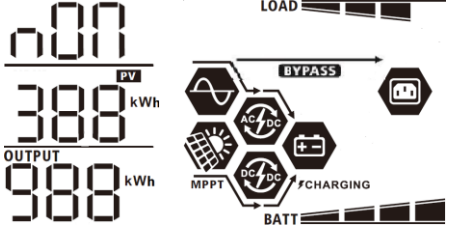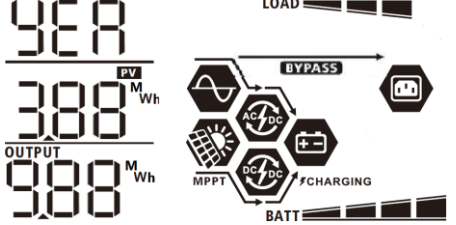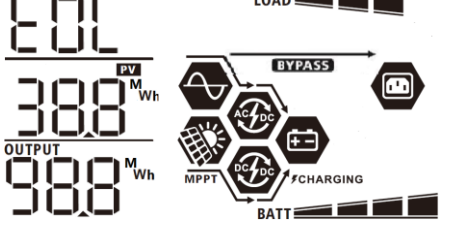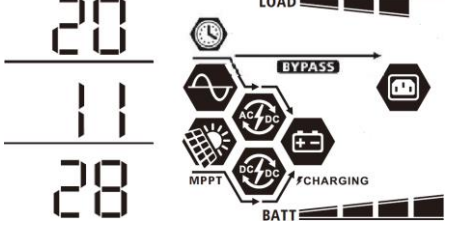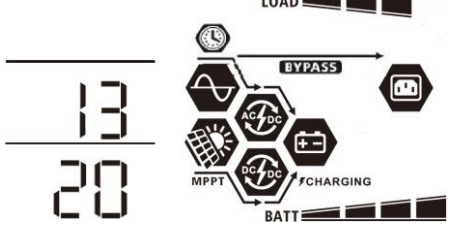
The LCD display information will be switched in turn by pressing the "UP" or "DOWN" button. The selectable information is switched as the following table in order.
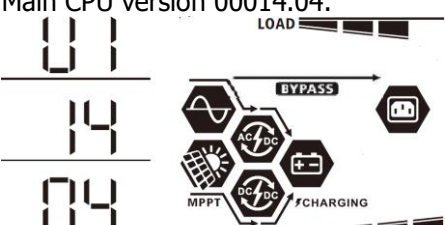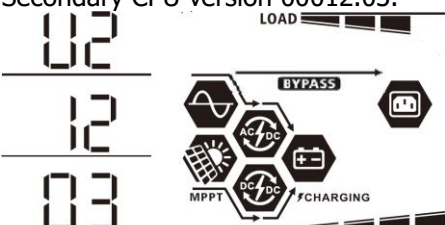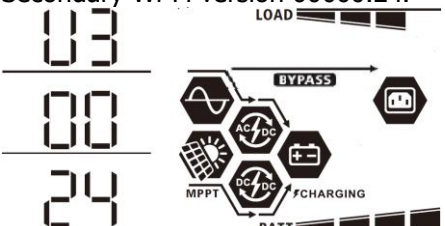
Selectable information	LCD display
Input voltage/Output voltage (Default Display Screen)	Input Voltage=230V, output voltage=230V
Input frequency	Input frequency=50Hz
PV voltage	PV voltage=260V PV1 voltage=260V (dual input model) PV2 voltage=260V (dual input model)

PV current	PV current = 2.5A PV1 current = 2.5A (dual input model) PV2 current = 2.5A (dual input model)
PV power	PV power = 500W PV1 power = 500W (dual input model) PV2 power = 500W (dual input model)

Charging current	AC and PV charging current=50A PV charging current=50A AC charging current=50A
Charging power	AC and PV charging power=500W PV charging power=500W AC charging power=500W
Battery voltage and output voltage	Battery voltage=25.5V, output voltage=230V
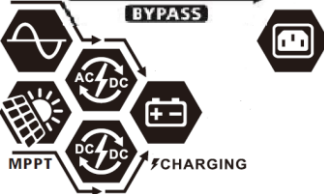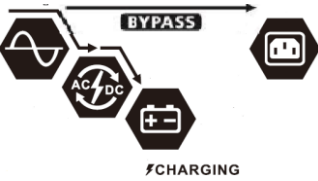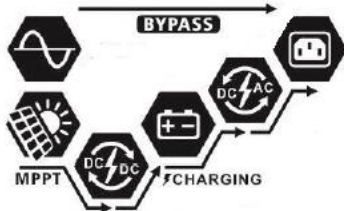
Output frequency	Output frequency=50Hz
Load percentage	Load percent=70%
Load in VA	When connected load is lower than 1kVA, load in VA will present xxxVA like below chart. When load is larger than 1kVA (≥1KVA), load in VA will present x.xkVA like below chart.
Load in Watt	When load is lower than 1kW, load in W will present xxxW like below chart. When load is larger than 1kW (≥1KW), load in W will present x.xkW like below chart.
Battery voltage/DC discharging current	Battery voltage=25.5V, discharging current=1A
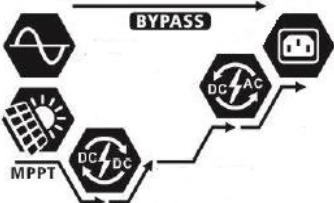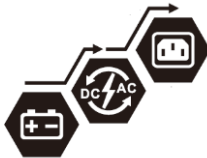
PV energy generated today and Load output energy today	This PV Today energy = 3.88kWh, Load Today energy= 9.88kWh. dAY 388 kWh OUTPUT 988 kWh
PV energy generated this month and Load output energy this month.	This PV month energy = 388kWh, Load month energy= 988kWh. nON 388 kWh OUTPUT 988 kWh
PV energy generated this year and Load output energy this year.	This PV year energy = 3.88MWh, Load year energy = 9.88MWh. YEA 388 MWh OUTPUT 988 MWh
PV energy generated totally and Load output total energy.	PV Total energy = 38.8MWh, Load Output Total energy = 98.8MWh. tOL 388 MWh OUTPUT 988 MWh
Real date.	Real date Nov 28, 2020. 20 11 28
Real time.	Real time 13:20. 13 20

		Main CPU version 00014.04.
Main CPU version checking.		U1 14 04
Secondary CPU version checking.		Secondary CPU version 00012.03. U2 12 03
Secondary Wi-Fi version checking.		Secondary Wi-Fi version 00000.24. U3 00 24

Operating Mode Description

Operation mode	Description	LCD display
Standby mode **Note:** *Standby mode: The inverter is not turned on yet but at this time, the inverter can charge battery without AC output.	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.

Operation mode	Description	LCD display
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.
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" (solar first) 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.

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.	If either "SUB" (solar first) or "SBU" 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/or PV power.	Power from battery and PV energy. PV energy will supply power to the loads and charge battery at the same time. No utility is available. Power from battery only. Power from PV energy only.

Faults Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	F01
02	Over temperature	F02
03	Battery voltage is too high	F03
04	Battery voltage is too low	F04
05	Output short circuited.	F05
06	Output voltage is too high.	F06
07	Overload time out	F07
08	Bus voltage is too high	F08
09	Bus soft start failed	F09
10	PV over current	F10
11	PV over voltage	F11
12	DCDC over current	F12
13	Battery discharge over current	F13
51	Over current	F51
52	Bus voltage is too low	F52
53	Inverter soft start failed	F53
55	Over DC voltage in AC output	F55
57	Current sensor failed	F57
58	Output voltage is too low	F58

Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	
02	Over temperature	None	
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	
15	PV energy is low.	Beep twice every 3 seconds	
16	High AC input (>280VAC) during BUS soft start	None	
32	Communication failure between inverter and remote display panel	None	
E9	Battery equalization	None	
bP	Battery is not connected	None	

BATTERY EQUALIZATION

Equalization function is added into charge controller. It reverses the buildup of negative chemical effects like stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that might have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery.   Therefore, it's recommended to equalize battery periodically.

● **How to Apply Equalization Function**

You must enable battery equalization function in monitoring LCD setting program 33 first. Then, you may apply this function in device by either one of following methods:

1. Setting equalization interval in program 37.
2. Active equalization immediately in program 39.

● **When to Equalize**

In float stage, when the setting equalization interval (battery equalization cycle) is arrived, or equalization is active immediately, the controller will start to enter Equalize stage.
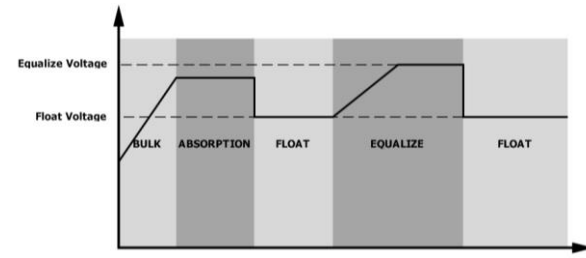
● **Equalize charging time and timeout**

In Equalize stage, the controller will supply power to charge battery as much as possible until battery voltage raises to battery equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the battery equalization voltage. The battery will remain in the Equalize stage until setting battery equalized time is arrived.
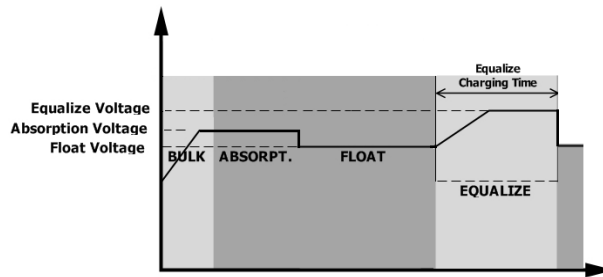
However, in Equalize stage, when battery equalized time is expired and battery voltage doesn't rise to battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves battery equalization voltage. If battery voltage is still lower than battery equalization voltage when battery equalized timeout setting is over, the charge controller will stop equalization and return to float stage.
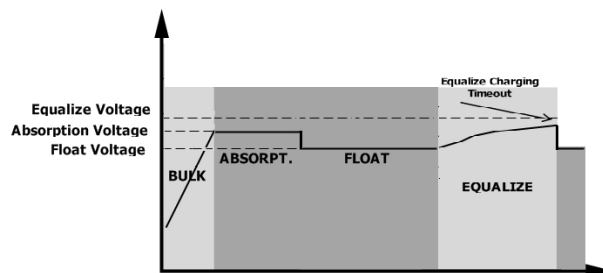
SPECIFICATIONS

Table 1 Line Mode Specifications

MODEL	PIP3624MAX	PIP7248MAX
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	
Max AC Input Current	40A	60A
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 de-rating: When AC input voltage under 170V the output power will be de-rated.		

Table 2 Inverter Mode Specifications

MODEL	PIP3624MAX	PIP7248MAX
Rated Output Power	3600W	7200W
Output Voltage Waveform	Pure Sine Wave	
Output Voltage Regulation	230Vac±5%	
Output Frequency	60Hz or 50Hz	
Peak Efficiency	91%	93%
Overload Protection	100ms@≥205% load;5s@≥150% load; 10s@110%~150% load	
Surge Capacity	2* rated power for 5 seconds	
Nominal DC Input Voltage	24Vdc	48Vdc
Cold Start Voltage	23.0Vdc	46.0Vdc
Low DC Warning Voltage @ load < 20%	23.0Vdc	46.0Vdc
@ 20% ≤ load < 50%	21.4Vdc	42.8Vdc
@ load ≥ 50%	20.2Vdc	40.4Vdc
Low DC Warning Return Voltage @ load < 20%	24.0Vdc	48.0Vdc
@ 20% ≤ load < 50%	22.4Vdc	44.8Vdc
@ load ≥ 50%	21.2Vdc	42.4Vdc
Low DC Cut-off Voltage @ load < 20%	22.0Vdc	44.0Vdc
@ 20% ≤ load < 50%	20.4Vdc	40.8Vdc
@ load ≥ 50%	19.2Vdc	38.4Vdc
High DC Recovery Voltage	32Vdc	64Vdc
High DC Cut-off Voltage	33Vdc	66Vdc
DC Voltage Accuracy	+/-0.3V@ no load	
THDV	<5% for linear load,<10% for non-linear load @ nominal voltage	
DC Offset	≦100mV	

Table 3 Charge Mode Specifications

Utility Charging Mode			
MODEL		**PIP3624MAX**	**PIP7248MAX**
Charging Current (UPS) @ Nominal Input Voltage		80A	
Bulk Charging Voltage	**Flooded Battery**	29.2Vdc	58.4Vdc
	AGM / Gel Battery	28.2Vdc	56.4Vdc
Floating Charging Voltage		27Vdc	54Vdc
Overcharge Protection		33Vdc	66Vdc
Charging Algorithm		3-Step	
Charging Curve			
Solar Input			
MODEL		**PIP3624MAX**	**PIP7248MAX**
Rated Power		4000W	8000W
Max. PV Array Open Circuit Voltage		500Vdc	500Vdc
PV Array MPPT Voltage Range		120Vdc~450Vdc	90Vdc~450Vdc
Max. Input Current		18A	18A*2
Start-up Voltage		150V +/- 5Vdc	80V +/- 5Vdc
Power Limitation			

Table 4 General Specifications

MODEL	PIP3624MAX	PIP7248MAX
Safety Certification	CE	
Operating Temperature Range	-10℃ to 50℃	
Storage temperature	-15℃~ 60℃	
Humidity	5% to 95% Relative Humidity (Non-condensing)	
Dimension (D*W*H), mm	147.4x 432.5 x 553.6	
Net Weight, kg	14.1	18.4

Table 5 Parallel Specifications (PIP7248MAX model only)

Max parallel numbers	6
Circulation Current under No Load Condition	Max 2A
Power Unbalance Ratio	<5% @ 100% Load
Parallel communication	CAN
Transfer time in parallel mode	Max 50ms
Parallel Kit	YES

Note: Parallel feature will be disabled when only PV power is available

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 output 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 and remove abnormal load.
		Temperature of internal converter component is over 120°C. (Only available for 1-3KVA models.)	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 100°C.	
	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 repair 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.

Appendix I: Parallel function (Only for PIP7248MAX mode)

1. Introduction

This inverter can be used in parallel with two different operation modes.

1. Parallel operation in single phase is with up to 6 units. The supported maximum output power is 43.2KW/43.2KVA.
2. Maximum six units work together to support three-phase equipment. Maximum four units support one phase.

2. Mounting the Unit

When installing multiple units, please follow below chart.
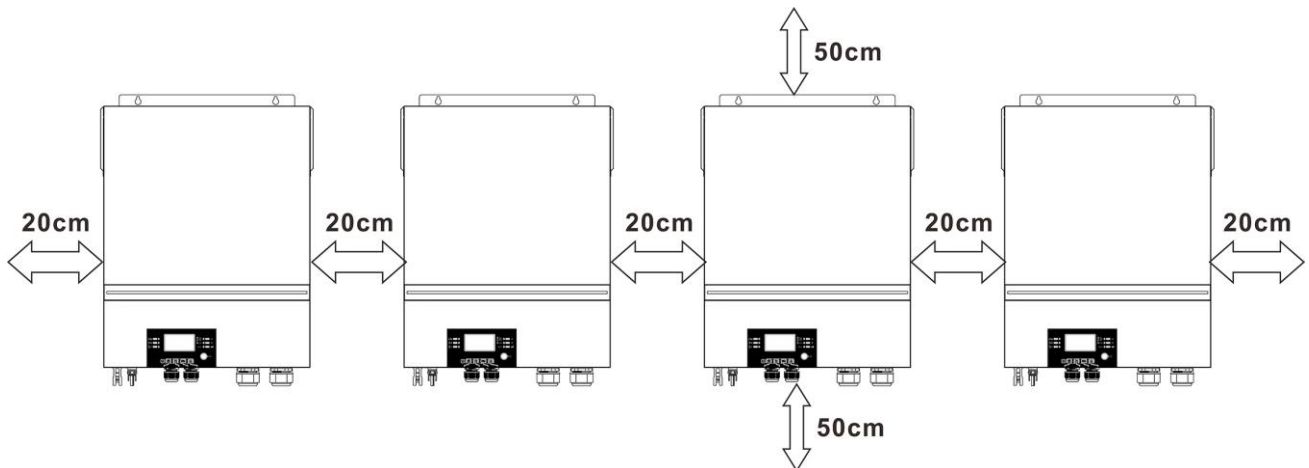
NOTE: For proper air circulation to dissipate heat, allow a clearance of approx. 20 cm to the side and approx. 50 cm above and below the unit. Be sure to install each unit in the same level.

3. Wiring Connection

WARNING: It's REQUIRED to connect battery for parallel operation.

The cable size of each inverter is shown as below:

Recommended battery cable and terminal size for each inverter:

Ring terminal:

| Wire Size | Cable mm² | Ring Terminal Dimensions | | Torque value |
		D (mm)	L (mm)	
1*1/0AWG	50	8.4	47	5 Nm
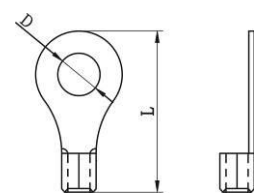
WARNING: Be sure the length of all battery cables is the same. Otherwise, there will be voltage difference between inverter and battery to cause parallel inverters not working.

Recommended AC input and output cable size for each inverter:

Model	AWG no.	Torque
PIP7248MAX	8 AWG	1.4~ 1.6 Nm

You need to connect the cables of each inverter together. Take the battery cables for example: You need to use a connector or bus-bar as a joint to connect the battery cables together, and then connect to the battery terminal. The cable size used from joint to battery should be X times cable size in the tables above. "X" indicates the number of inverters connected in parallel.

Regarding AC input and output, please also follow the same principle.

CAUTION!! Please install the breaker at the battery and AC input side. This will ensure the inverter can be securely disconnected during maintenance and fully protected from over current of battery or AC input.

Recommended breaker specification of battery for each inverter:

Model	1 unit*
PIP7248MAX	250A/70VDC

*If you want to use only one breaker at the battery side for the whole system, the rating of the breaker should be X times current of 1 unit. "X" indicates the number of inverters connected in parallel.

Recommended breaker specification of AC input with single phase:

Model	2 units	3 units	4 units	5 units	6 units
PIP7248MAX	120A/230VAC	180A/230VAC	240A/230VAC	300A/230VAC	360A/230VAC

Note 1: Also, you can use 60A breaker with only 1 unit and install one breaker at its AC input in each inverter.

Note 2: Regarding three-phase system, you can use 4-pole breaker directly and the rating of the breaker should be compatible with the phase current limitation from the phase with maximum units

Recommended battery capacity

Inverter parallel numbers	2	3	4	5	6
Battery Capacity	200AH	400AH	400AH	600AH	600AH

WARNING! Be sure that all inverters will share the same battery bank. Otherwise, the inverters will transfer to fault mode.

4-1. Parallel Operation in Single phase

Two inverters in parallel:
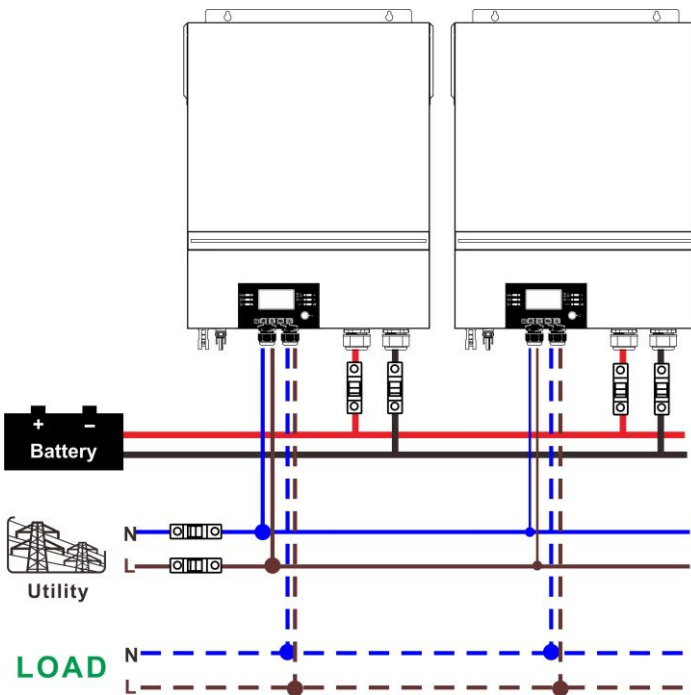
Power Connection

Communication Connection
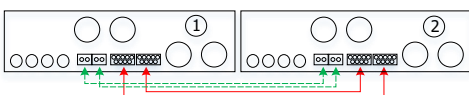
Three inverters in parallel:
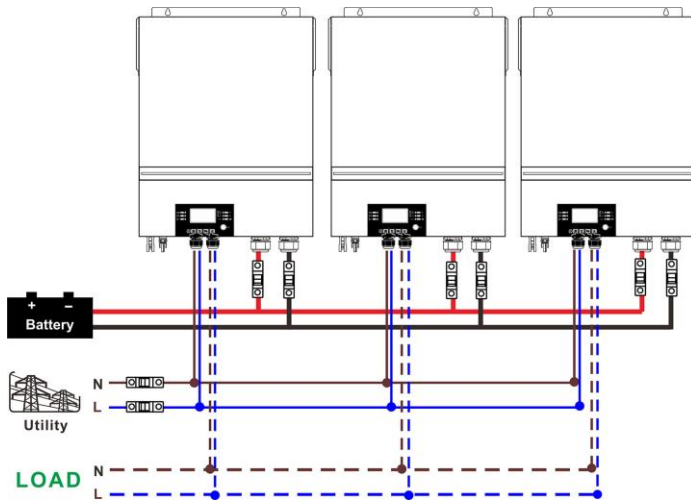
Power Connection

Communication Connection
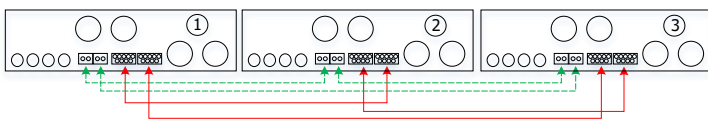
Four inverters in parallel:
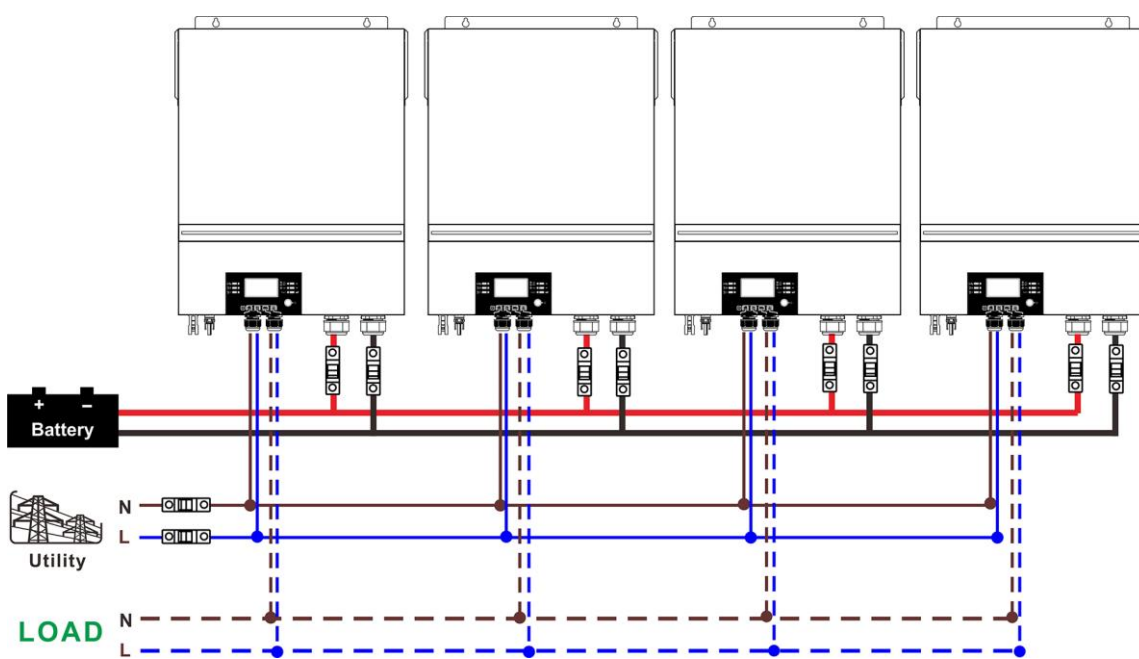
Power Connection

Communication Connection
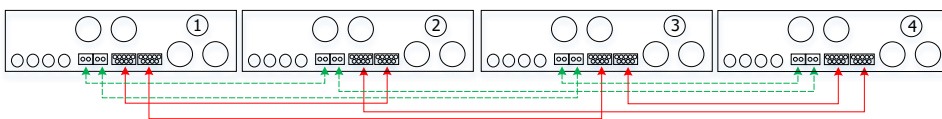
Five inverters in parallel:
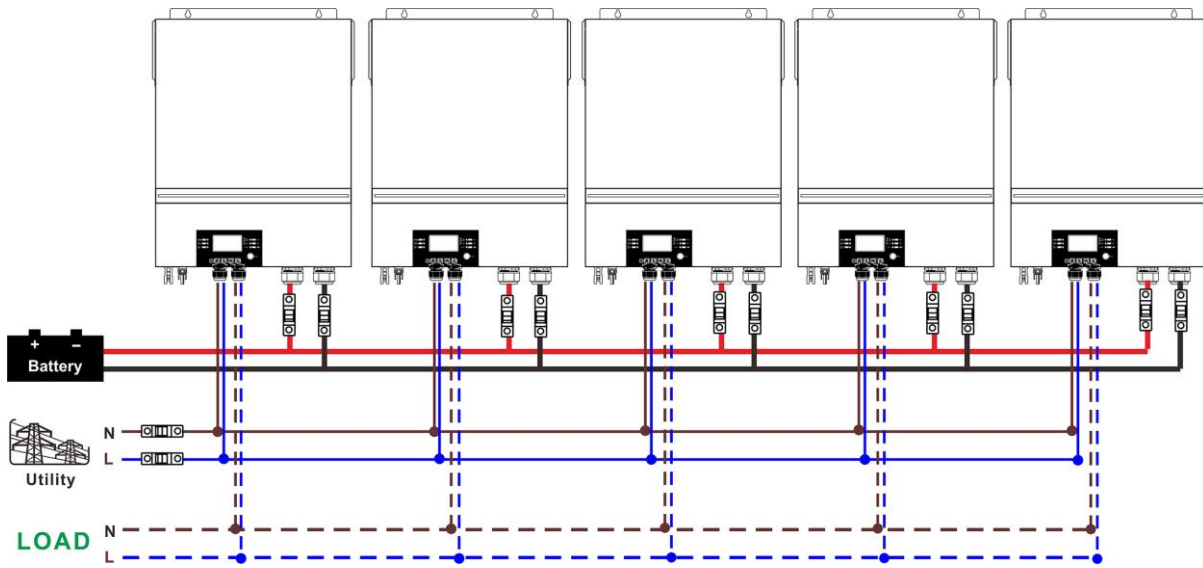
Power Connection

Communication Connection
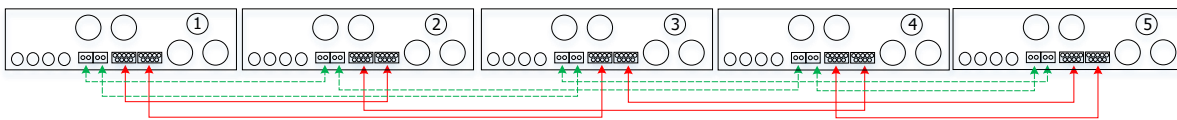
Six inverters in parallel:
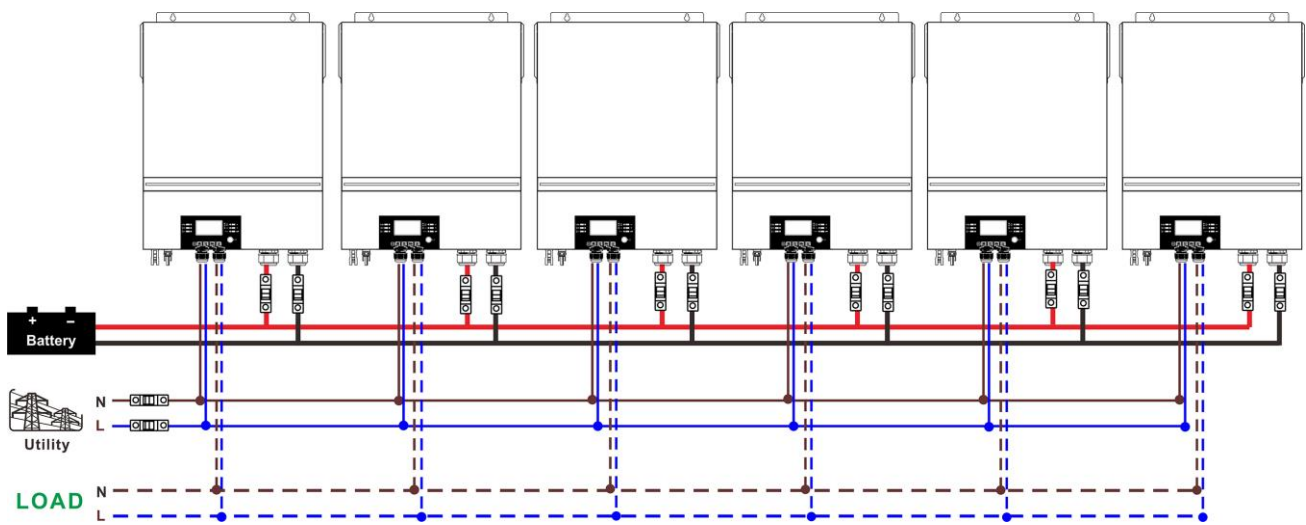
Power Connection

Communication Connection
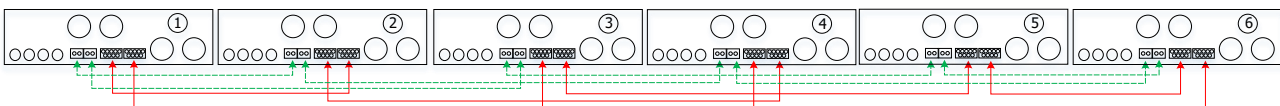
4-2. Support 3-phase equipment

Two inverters in each phase:
Power Connection
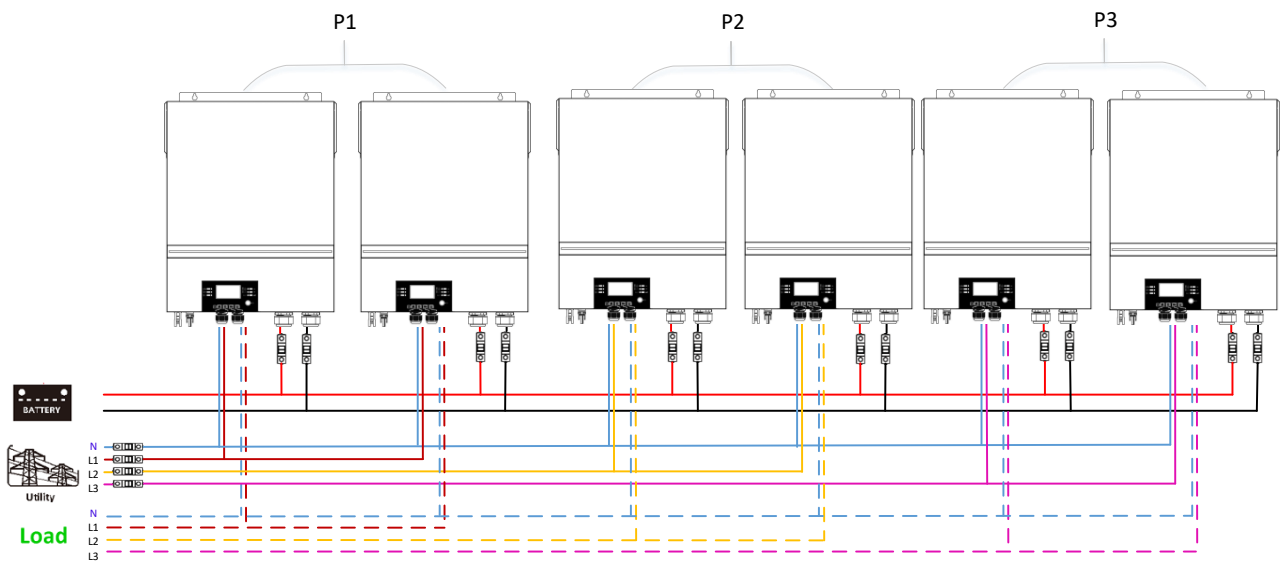
Communication Connection
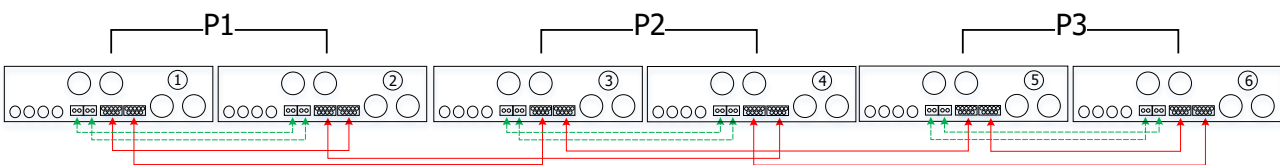
Four inverters in one phase and one inverter for the other two phases:
Power Connection
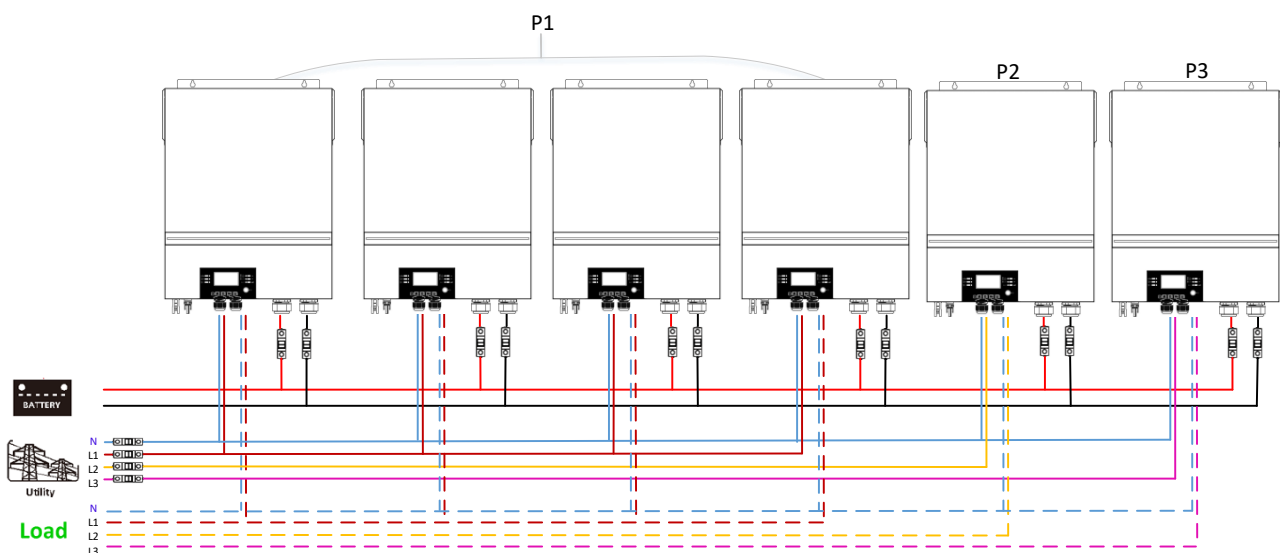
Communication Connection
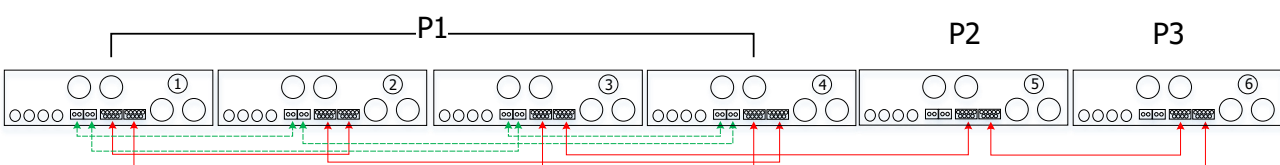
Three inverters in one phase, two inverters in second phase and one inverter for the third phase:

Power Connection
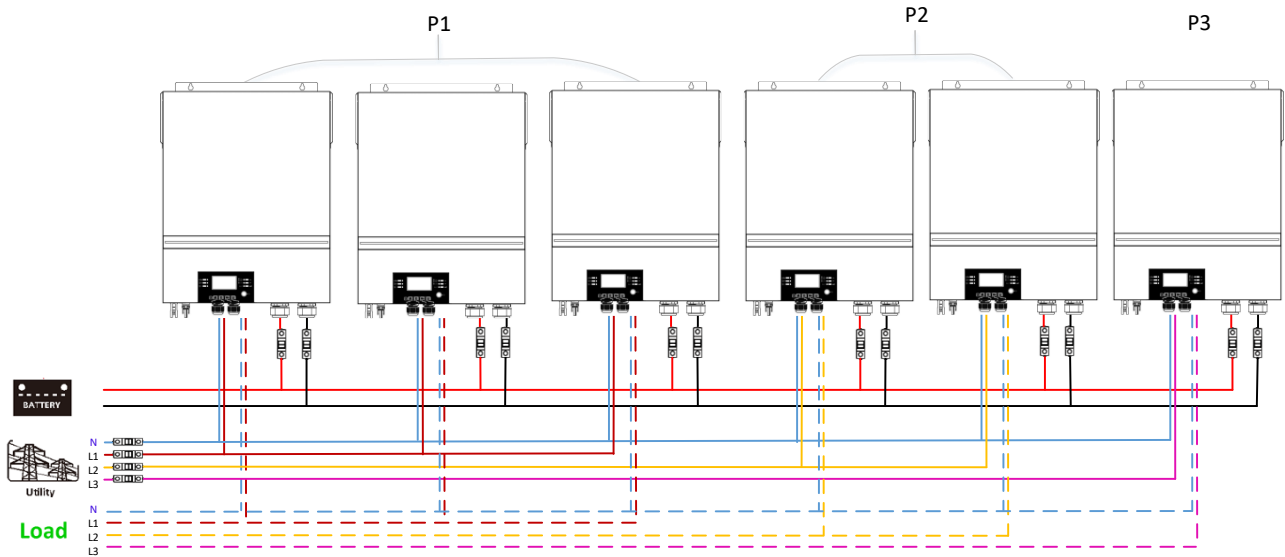
Communication Connection
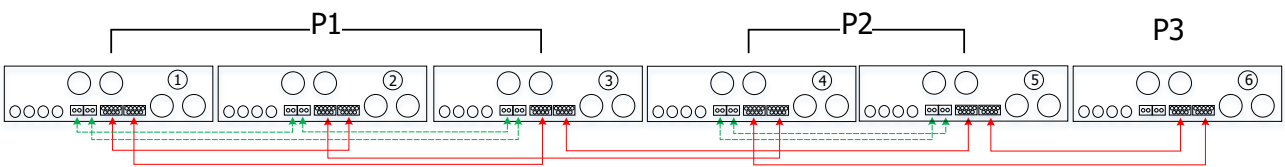
Three inverters in one phase and only one inverter for the remaining two phases:

Power Connection
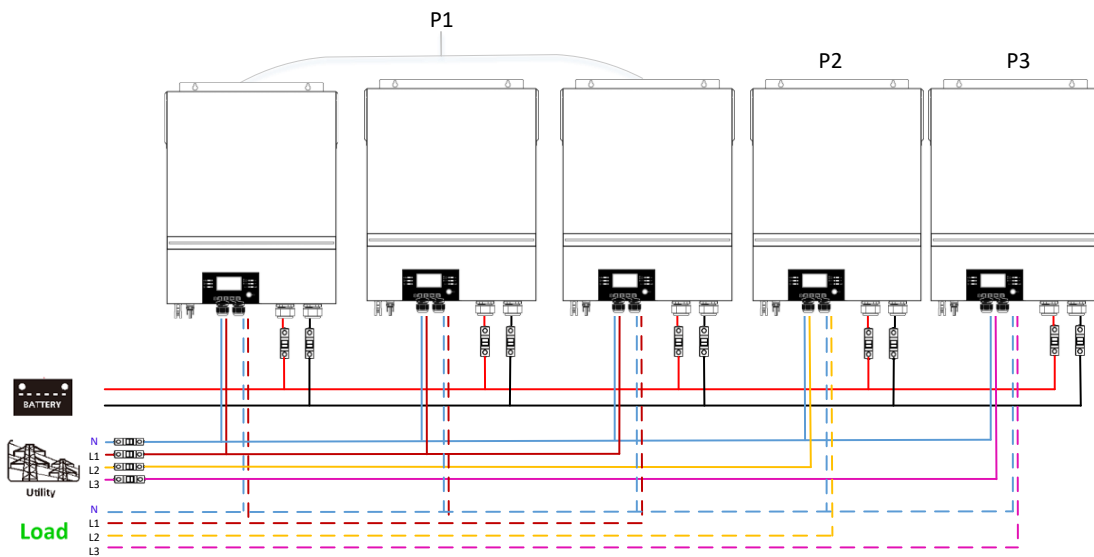
Communication Connection
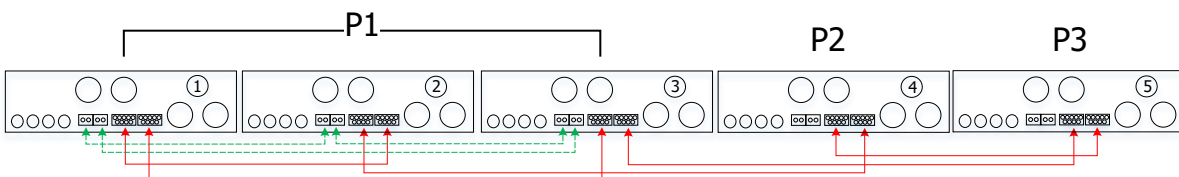
Two inverters in two phases and only one inverter for the remaining phase:

Power Connection
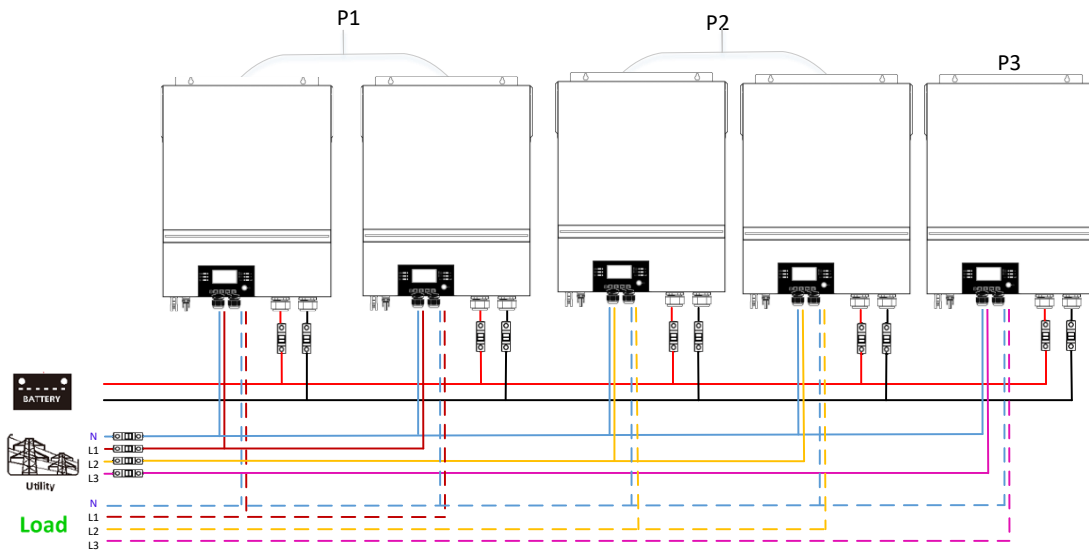
Communication Connection
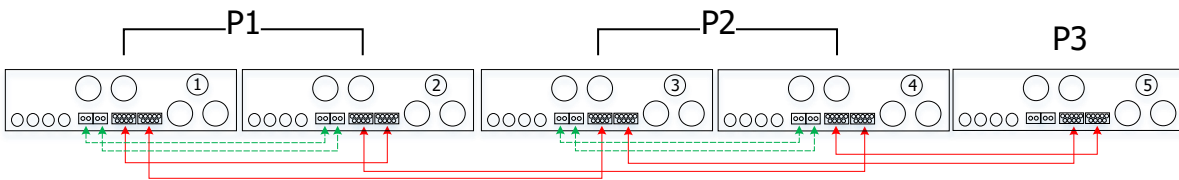
Two inverters in one phase and only one inverter for the remaining phases:

Power Connection
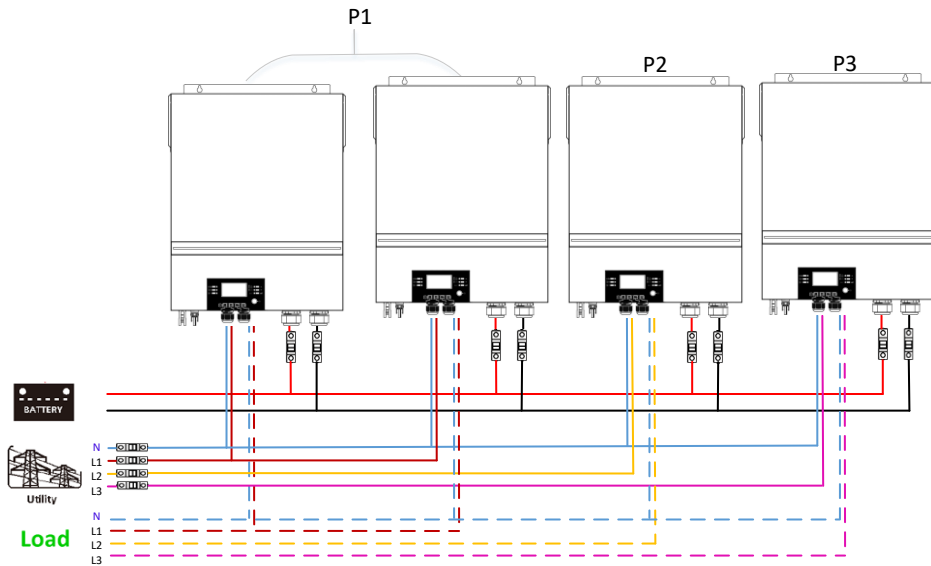
Communication Connection
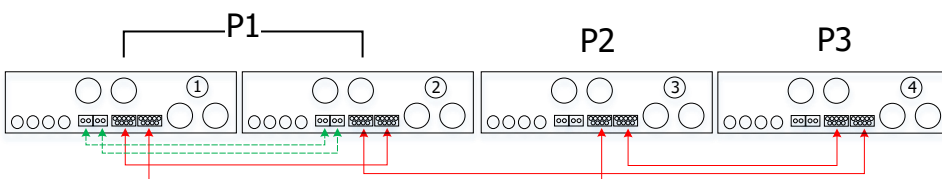
One inverter in each phase:

Power Connection
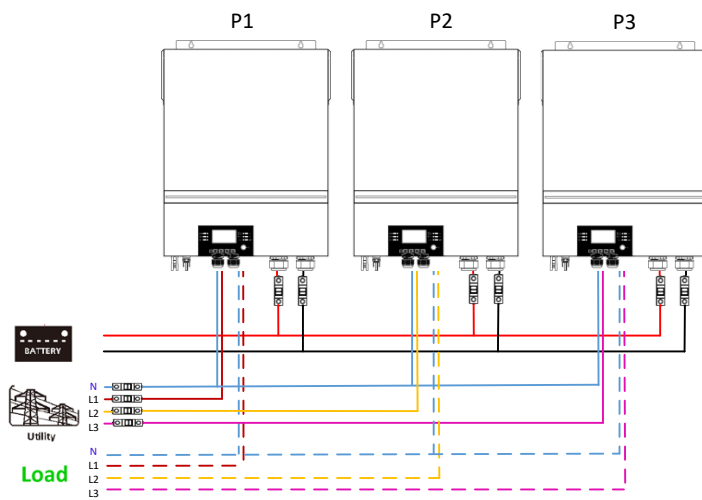
Communication Connection
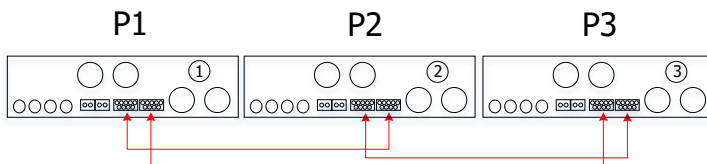
WARNING: Do not connect the current sharing cable between the inverters which are in different phases. Otherwise, it may damage the inverters.

5. PV Connection

Please refer to user manual of single unit for PV Connection.

CAUTION: Each inverter should connect to PV modules separately.

6. LCD Setting and Display

Setting Program:

Program	Description	Selectable option	
28	AC output mode *This setting is able to set up only when the inverter is in standby mode. Be sure that on/off switch is in "OFF" status.	Single 28 ⚙ SI G	When the unit is operated alone, please select "SIG" in program 28.
		Parallel 28 ⚙ PAL	When the units are used in parallel for single phase application, please select "PAL" in program 28. Please refer to 5-1 for detailed information.
		L1 phase: 28 ⚙ 3P 1	When the units are operated in 3-phase application, please choose "3PX" to define each inverter. It is required to have at least 3 inverters or maximum 9 inverters to support three-phase equipment. It's required to have at least one inverter in each phase or it's up to four inverters in one phase. Please refers to 5-2 for detailed information. Please select "3P1" in program 28 for the inverters connected to L1 phase, "3P2" in program 28 for the inverters connected to L2 phase and "3P3" in program 28 for the inverters connected to L3 phase. Be sure to connect share current cable to units which are on the same phase. Do NOT connect share current cable between units on different phases.
		L2 phase: 28 ⚙ 3P2	
		L3 phase: 28 ⚙ 3P3	

Fault code display:

Fault Code	Fault Event	Icon on
60	Power feedback protection	F60
71	Firmware version inconsistent	F71
72	Current sharing fault	F72
80	CAN fault	F80
81	Host loss	F81
82	Synchronization loss	F82
83	Battery voltage detected different	F83
84	AC input voltage and frequency detected different	F84
85	AC output current unbalance	F85
86	AC output mode setting is different	F86

Code Reference:

Code	Description	Icon on
NE	Unidentified unit master or slave	NE
HS	Master unit	HS
SL	Slave unit	SL

7. Commissioning

Parallel in single phase
Step 1: Check the following requirements before commissioning:
● Correct wire connection
● Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.

Step 2: Turn on each unit and set "PAL" in LCD setting program 28 of each unit. And then shut down all units.
NOET: It's necessary to turn off switch when setting LCD program. Otherwise, the setting cannot be programmed.

Step 3: Turn on each unit.

LCD display in Master unit	LCD display in Slave unit
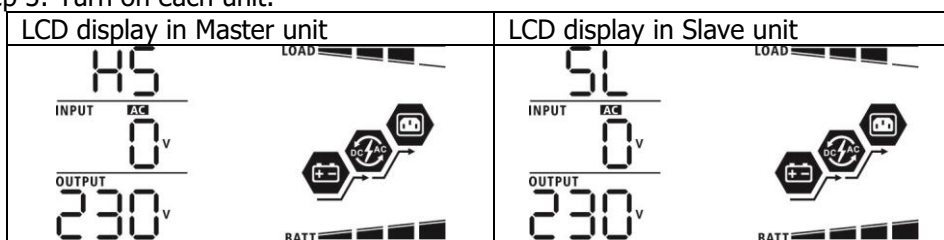
NOTE: Master and slave units are randomly defined.

Step 4: Switch on all AC breakers of Line wires in AC input. It's better to have all inverters connect to utility at the same time. If not, it will display fault 82 in following-order inverters. However, these inverters will

automatically restart. If detecting AC connection, they will work normally.

LCD display in Master unit	LCD display in Slave unit
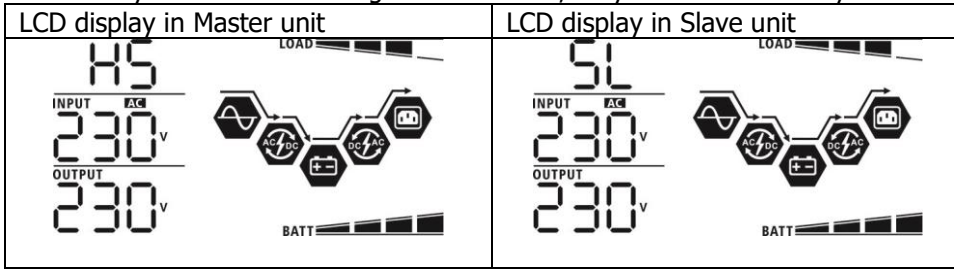
Step 5: If there is no more fault alarm, the parallel system is completely installed.

Step 6: Please switch on all breakers of Line wires in load side. This system will start to provide power to the load.

Support three-phase equipment
Step 1: Check the following requirements before commissioning:
● Correct wire connection
● Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.
Step 2: Turn on all units and configure LCD program 28 as P1, P2 and P3 sequentially. And then shut down all units.
NOET: It's necessary to turn off switch when setting LCD program. Otherwise, the setting cannot be programmed.
Step 3: Turn on all units sequentially.

LCD display in L1-phase unit	LCD display in L2-phase unit	LCD display in L3-phase unit
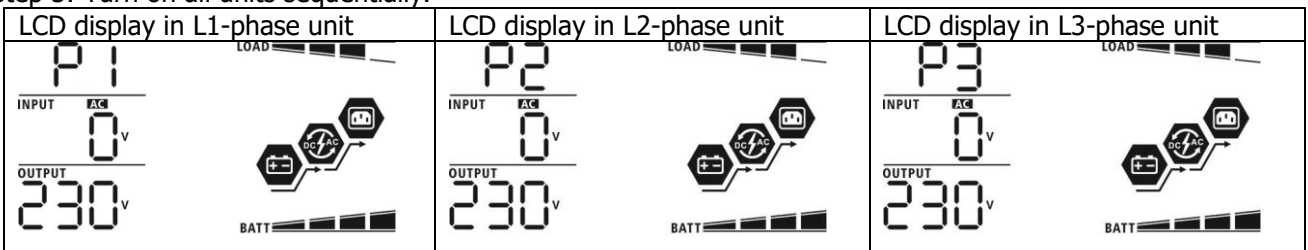
Step 4: Switch on all AC breakers of Line wires in AC input. If AC connection is detected and three phases are matched with unit setting, they will work normally. Otherwise, the AC icon ⦿ will flash and they will not work in line mode.

LCD display in L1-phase unit	LCD display in L2-phase unit	LCD display in L3-phase unit
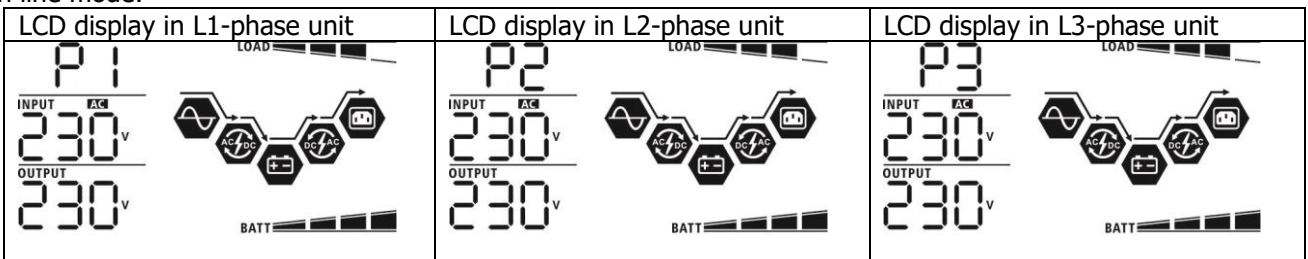
Step 5: If there is no more fault alarm, the system to support 3-phase equipment is completely installed.

Step 6: Please switch on all breakers of Line wires in load side. This system will start to provide power to the load.

Note 1: To avoid overload occurring, before turning on breakers in load side, it's better to have whole system in operation first.
Note 2: Transfer time for this operation exists. Power interruption may happen to critical devices, which cannot bear transfer time.

8. Trouble shooting

| Situation		Solution
Fault Code	**Fault Event Description**	
60	Current feedback into the inverter is detected.	1. Restart the inverter. 2. Check if L/N cables are not connected reversely in all inverters. 3. For parallel system in single phase, make sure the sharing are connected in all inverters. For supporting three-phase system, make sure the sharing cables are connected in the inverters in the same phase, and disconnected in the inverters in different phases. 4. If the problem remains, please contact your installer.
71	The firmware version of each inverter is not the same.	1. Update all inverter firmware to the same version. 2. Check the version of each inverter via LCD setting and make sure the CPU versions are same. If not, please contact your instraller to provide the firmware to update. 3. After updating, if the problem still remains, please contact your installer.
72	The output current of each inverter is different.	1. Check if sharing cables are connected well and restart the inverter. 2. If the problem remains, please contact your installer.
80	CAN data loss	1. Check if communication cables are connected well and restart the inverter. 2. If the problem remains, please contact your installer.
81	Host data loss	
82	Synchronization data loss	
83	The battery voltage of each inverter is not the same.	1. Make sure all inverters share same groups of batteries together. 2. Remove all loads and disconnect AC input and PV input. Then, check battery voltage of all inverters. If the values from all inverters are close, please check if all battery cables are the same length and same material type. Otherwise, please contact your installer to provide SOP to calibrate battery voltage of each inverter. 3. If the problem still remains, please contact your installer.
84	AC input voltage and frequency are detected different.	1. Check the utility wiring conncetion and restart the inverter. 2. Make sure utility starts up at same time. If there are breakers installed between utility and inverters, please be sure all breakers can be turned on AC input at same time. 3. If the problem remains, please contact your installer.
85	AC output current unbalance	1. Restart the inverter. 2. Remove some excessive loads and re-check load information from LCD of inverters. If the values are different, please check if AC input and output cables are in the same length and material type. 3. If the problem remains, please contact your installer.
86	AC output mode setting is different.	1. Switch off the inverter and check LCD setting #28. 2. For parallel system in single phase, make sure no 3P1, 3P2 or 3P3 is set on #28. For upporting three-phase system, make sure no "PAL" is set on #28. 3. If the problem remains, please contact your installer.

Appendix II: BMS Communication Installation

1. Introduction

If connecting to lithium battery, it is recommended to purchase a custom-made RJ45 communication cable. Please check with your dealer or integrator for details.

This custom-made RJ45 communication cable delivers information and signal between lithium battery and the inverter. These information are listed below:
- Re-configure charging voltage, charging current and battery discharge cut-off voltage according to the lithium battery parameters.
- Have the inverter start or stop charging according to the status of lithium battery.

2. Lithium Battery Communication Configuration

PYLONTECH
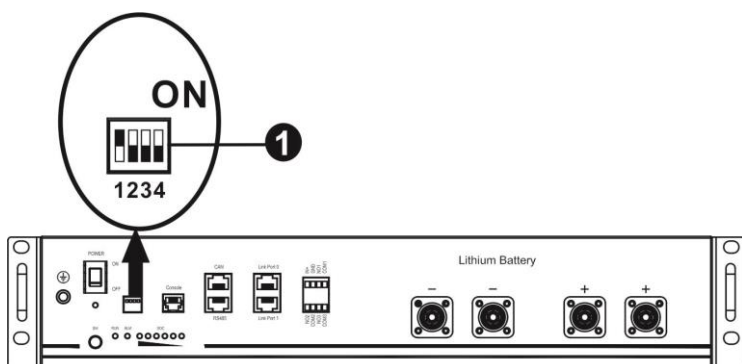
①Dip Switch: There are 4 Dip Switches that sets different baud rate and battery group address. If switch position is turned to the "OFF" position, it means "0". If switch position is turned to the "ON" position, it means "1".

Dip 1 is "ON" to represent the baud rate 9600.
Dip 2, 3 and 4 are reserved for battery group address.
Dip switch 2, 3 and 4 on master battery (first battery) are to set up or change the group address.

NOTE: "1" is upper position and "0" is bottom position.

Dip 1	Dip 2	Dip 3	Dip 4	Group address
1: RS485 baud rate=9600 **Restart to take effect**	0	0	0	Single group only. It's required to set up master battery with this setting and slave batteries are unrestricted.
	1	0	0	Multiple group condition. It's required to set up master battery on the first group with this setting and slave batteries are unrestricted.
	0	1	0	Multiple group condition. It's required to set up master battery on the second group with this setting and slave batteries are unrestricted.
	1	1	0	Multiple group condition. It's required to set up master battery on the third group with this setting and slave batteries are unrestricted.
	0	0	1	Multiple group condition. It's required to set up master battery on the fourth group with this setting and slave batteries are unrestricted.
	1	0	1	Multiple group condition. It's required to set up master battery on the fifth group with this setting and slave batteries are unrestricted.

NOTE: The maximum groups of lithium battery is 5 and for maximum number for each group, please check with battery manufacturer.

3. Installation and Operation

After configuration, please install LCD panel with inverter and Lithium battery with the following steps.

Step 1. Use custom-made RJ45 cable to connect inverter and Lithium battery.
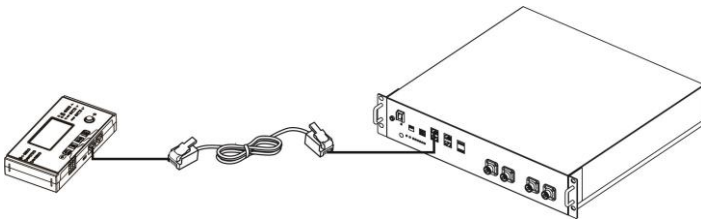
Note for parallel system:

1. Only support common battery installation.
2. Use custom-made RJ45 cable to connect any inverter (no need to connect to a specific inverter) and Lithium battery. Simply set this inverter battery type to "PYL" in LCD program 5. Others should be "USE".
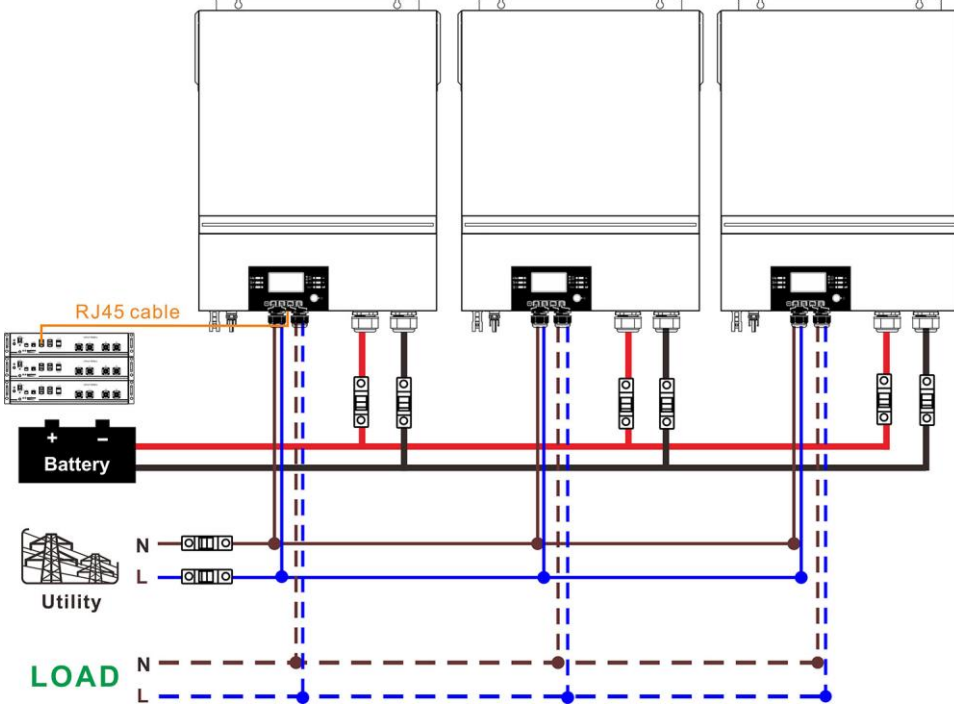
Step 2. Switch on Lithium battery.
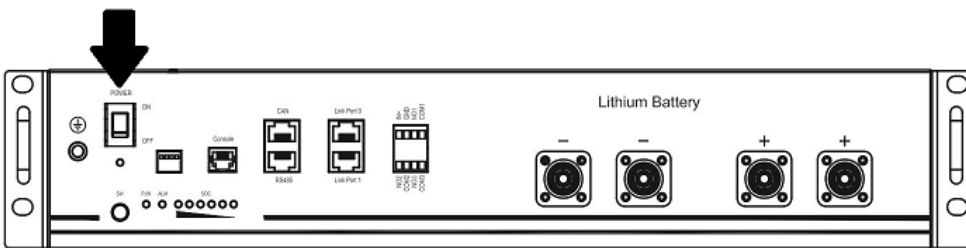
Step 3. Press more than three seconds to start Lithium battery, power output ready.
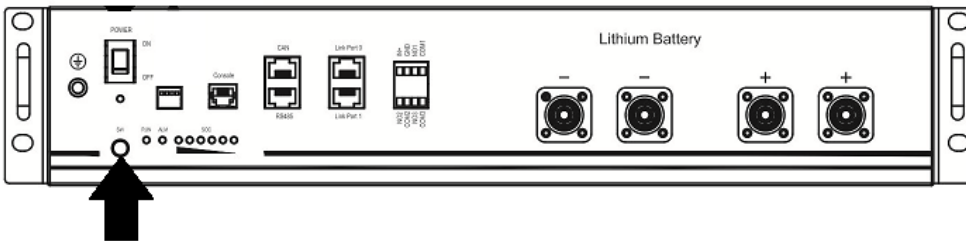
Step 4. Turn on the inverter.
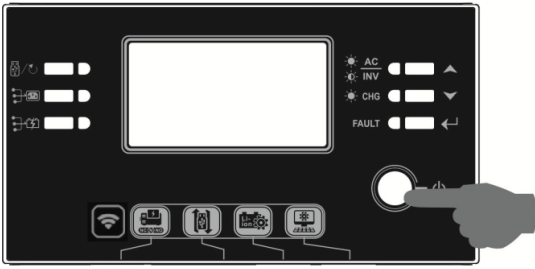
Step 5. Be sure to select battery type as "PYL" in LCD program 5.

If communication between the inverter and battery is successful, the battery icon on LCD display will flash. Generally speaking, it will take longer than 1 minute to establish communication.

Active Function

This function is to activate lithium battery automatically while commissioning. After battery wiring and commissioning is successfully, if battery is not detected, the inverter will automatically activate battery if the inverter is powered on.

WECO

Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.

Please take notice for parallel system:

1. Only support common battery installation.
2. Use one custom-made RJ45 cable to connect any inverter (no need to connect to a specific inverter) and Lithium battery. Simply set battery type of this inverter to "WEC" in LCD program 5. The remaining inverters are set as "USE".

Step 2. Switch on Lithium battery.
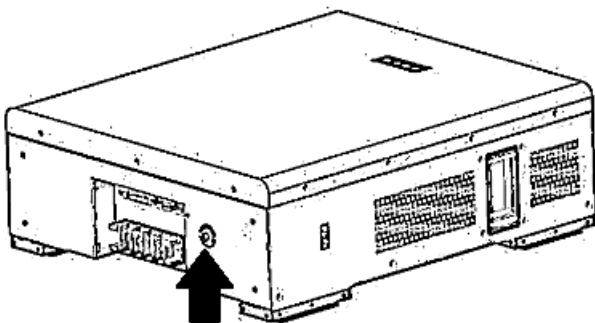
Step 3. Turn on the inverter.
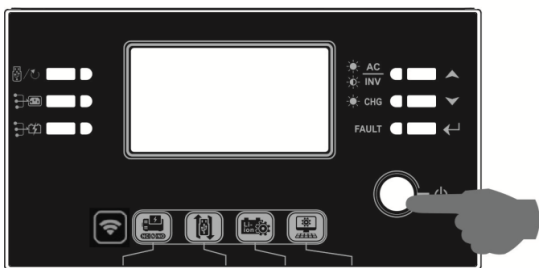
Step 4. Be sure to select battery type as "WEC" in LCD program 5.

$$05 \ \text{⚙}$$

$$\text{uEC}$$

If communication between the inverter and battery is successful, the battery icon on LCD display will "flash". Generally speaking, it will take longer than 1 minute to establish communication.

SOLTARO

Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.
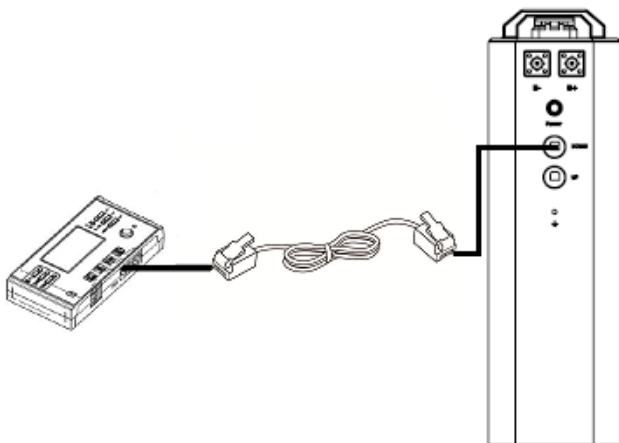

Please take notice for parallel system:
1. Only support common battery installation.
2. Use one custom-made RJ45 cable to connect any inverter (no need to connect to a specific inverter) and Lithium battery. Simply set battery type of this inverter to "SOL" in LCD program 5. The remaining inverters are set as "USE".

Step 2. Open DC isolator and switch on Lithium battery.
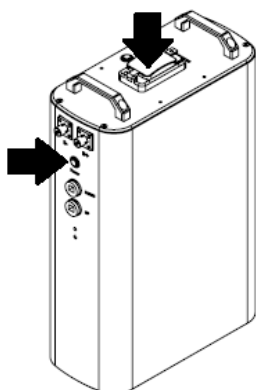
Step 3. Turn on the inverter.
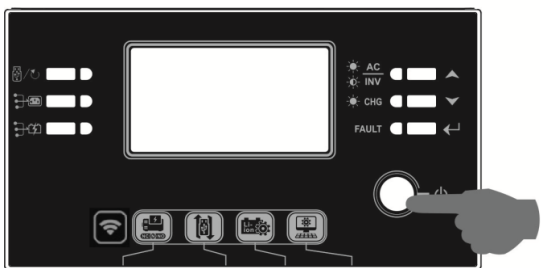
Step 4. Be sure to select battery type as "SOL" in LCD program 5.
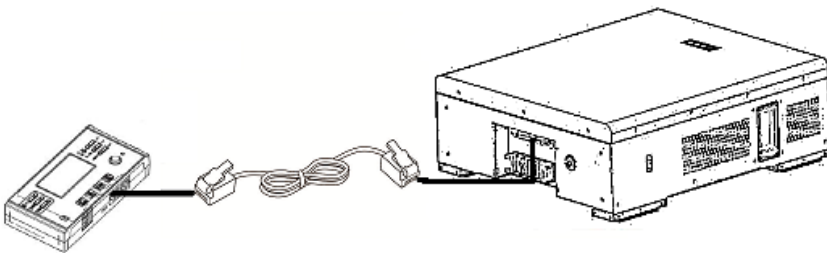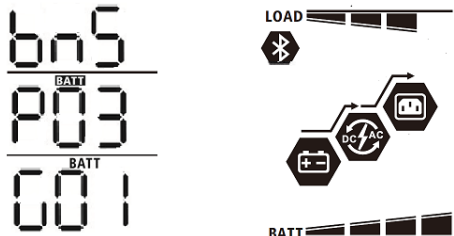
05 ⚙

SOL

If communication between the inverter and battery is successful, the battery icon ⬡ on LCD display will "flash". Generally speaking, it will take longer than 1 minute to establish communication.
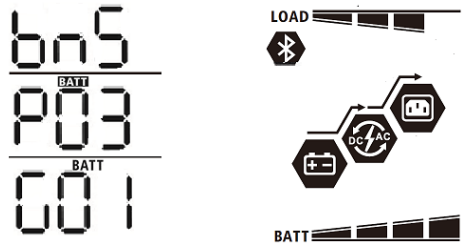
4. LCD Display Information

Press "▲" or "▼" button to switch LCD display information. It will show battery pack and battery group number before "Main CPU version checking" as shown below.

Selectable information	LCD display
Battery pack numbers & Battery group numbers	Battery pack numbers = 3, battery group numbers = 1 bn5 P03 U01

5. Code Reference

Related information code will be displayed on LCD screen. Please check inverter LCD screen for the operation.

Code	Description	Action
60 ⚠	If battery status is not allowed to charge and discharge after the communication between the inverter and battery is successful, it will show code 60 to stop charging and discharging battery.	
61 ⚠	Communication lost (only available when the battery type is setting as "Pylontech Battery", "WECO Battery" or "Soltaro Battery".) ● After battery is connected, communication signal is not detected for 3 minutes, buzzer will beep. After 10 minutes, inverter will stop charging and discharging to lithium battery. ● Communication lost occurs after the inverter and battery is connected successfully, buzzer beeps immediately.	
62 ⚠	Battery number is changed. It probably is because of communication lost between battery packs.	Press "UP" or "DOWN" key to switch LCD display until below screen shows. It will have battery number re-checked and 62 warning code will be clear.
69 ⚠	If battery status is not allowed to charge after the communication between the inverter and battery is successful, it will show code 69 to stop charging battery.	
70 ⚠	If battery status must to be charged after the communication between the inverter and battery is successful, it will show code 70 to charge battery.	
71 ⚠	If battery status is not allowed to discharge after the communication between the inverter and battery is successful, it will show code 71 to stop discharging battery.	

Appendix III: The Wi-Fi Operation Guide in Remote Panel

1. Introduction

Wi-Fi module can enable wireless communication between off-grid inverters and monitoring platform. Users have complete and remote monitoring and controlling experience for inverters when combining Wi-Fi module with WatchPower APP, available for both iOS and Android based device. All data loggers and parameters are saved in iCloud.

The major functions of this APP:

● Delivers device status during normal operation.

● Allows to configure device setting after installation.

● Notifies users when a warning or alarm occurs.

● Allows users to query inverter history data.

2. WatchPower App

2-1. Download and install APP

> **Operating system requirement for your smart phone:**
> 🍎 iOS system supports iOS 9.0 and above
> 🤖 Android system supports Android 5.0 and above

Please scan the following QR code with your smart phone and download WatchPower App.

Android   iOS system
system

Or you may find "WatchPower" app from the Apple® Store or "WatchPower Wi-Fi" in Google® Play Store.

2-2. Initial Setup

Step 1: Registration at first time

After the installation, please tap the shortcut icon to access this APP on your mobile screen. In the screen, tap "Register" to access "User Registration" page. Fill in all required information and scan the remote box PN by tapping icon. Or you can simply enter PN directly. Then, tap "Register" button.

Then, a "Registration success" window will pop up. Tap "Go now" to continue setting local Wi-Fi network connection.

Step 2: Local Wi-Fi Module Configuration

Now, you are in "Wi-Fi Config" page. There are detailed setup procedure listed in "How to connect?" section and you may follow it to connect Wi-Fi.
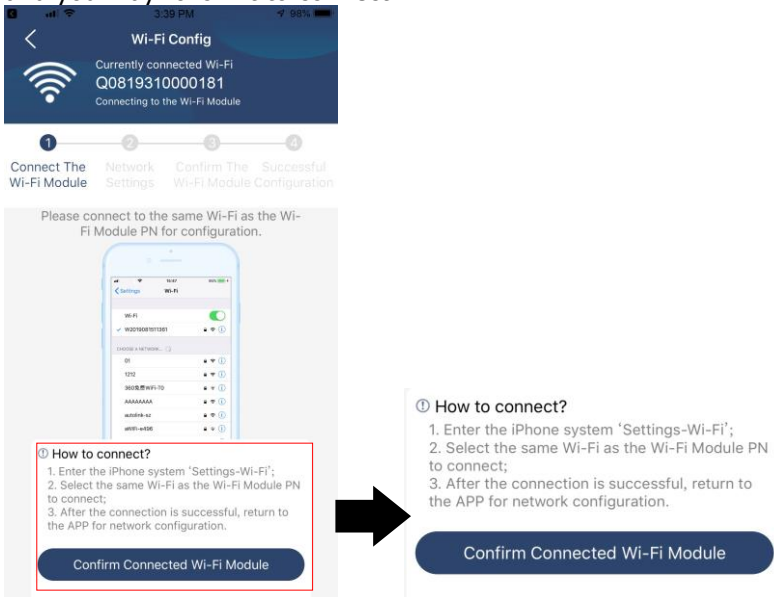
Enter the "Settings→Wi-Fi" and select connected Wi-Fi name. The connected Wi-Fi name is the same to your Wi-Fi PN number and enter default password "12345678".
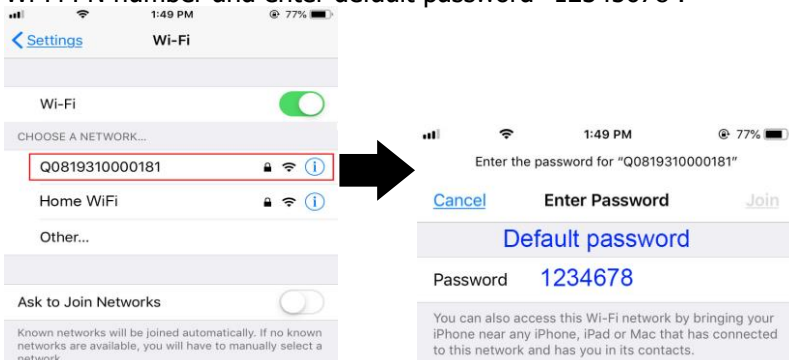
Then, return to WatchPower APP and tap " Confirm Connected Wi-Fi Module " button when Wi-Fi module is connected successfully.

Step 3: Wi-Fi Network settings

Tap icon to select your local Wi-Fi router name (to access the internet) and enter password.
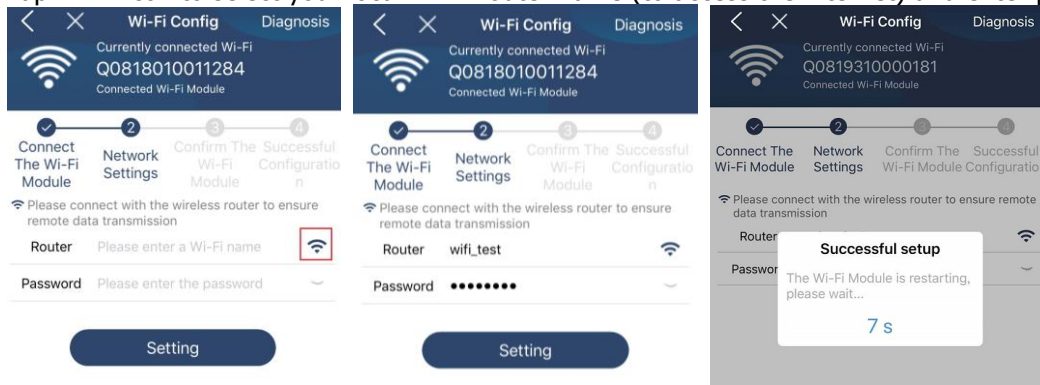
Step 4: Tap "Confirm" to complete the Wi-Fi configuration between the Wi-Fi module and the Internet.
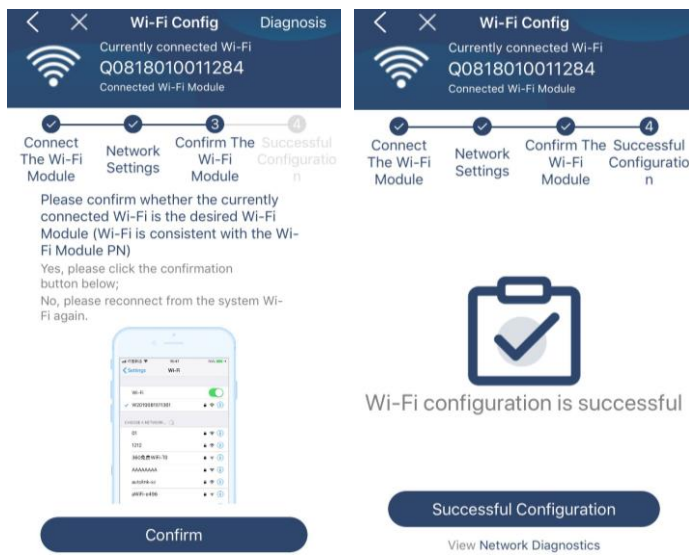
If the connection fails, please repeat Step 2 and 3.
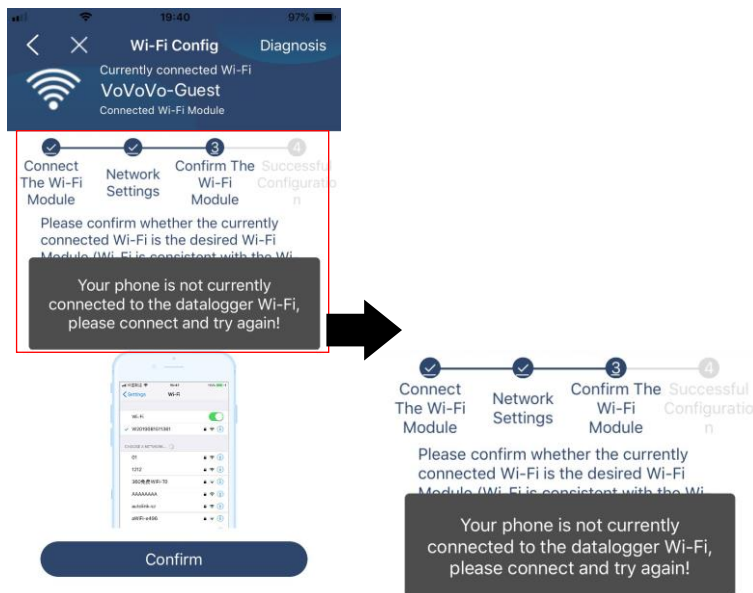
Diagnose Function

If the module is not monitoring properly, please tap " Diagnosis " on the top right corner of the screen for further details. It will show repair suggestion. Please follow it to fix the problem. Then, repeat the steps in the chapter 4.2 to re-set network setting. After all setting, tap "Rediagnosis" to re-connect again.
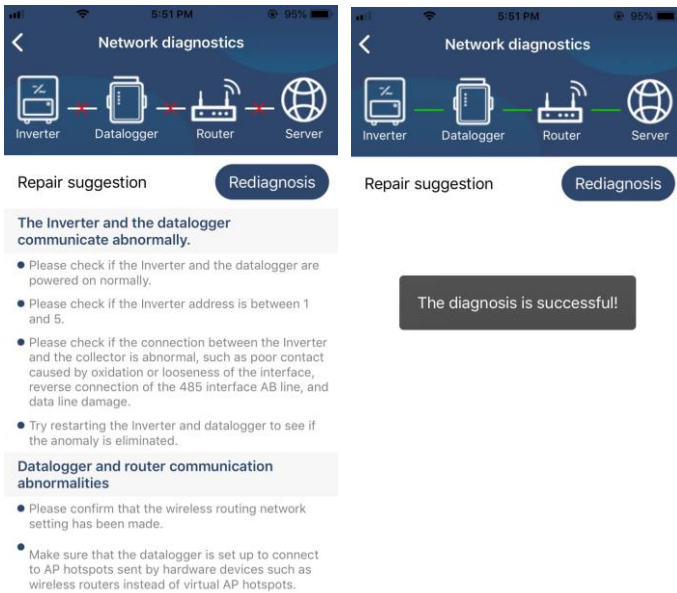
2-3.Login and APP Main Function

After finishing the registration and local Wi-Fi configuration, enter registered name and password to login.
Note: Tick "Remember Me" for your login convenience afterwards.
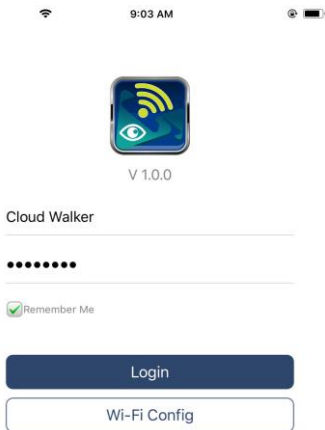
Overview

After login is successfully, you can access "Overview" page to have overview of your monitoring devices, including overall operation situation and Energy information for Current power and Today power as below diagram.

Devices

Tap the ▦ icon (located on the bottom) to enter Device List page. You can review all devices here by adding or deleting Wi-Fi Module in this page.
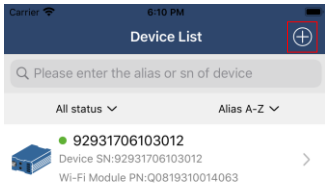
Add device   **Delete device**
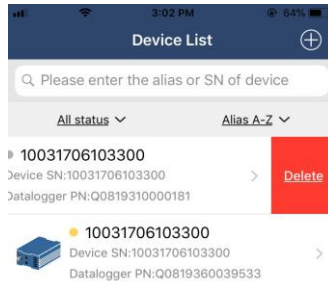
Tap ⊕ icon on the top right corner and enter part number by scanning bar code to add Wi-Fi module. This part number is printed on the Wi-Fi module's surface, or manually enter it. Tap "Confirm" to add Wi-Fi module in the Device list.
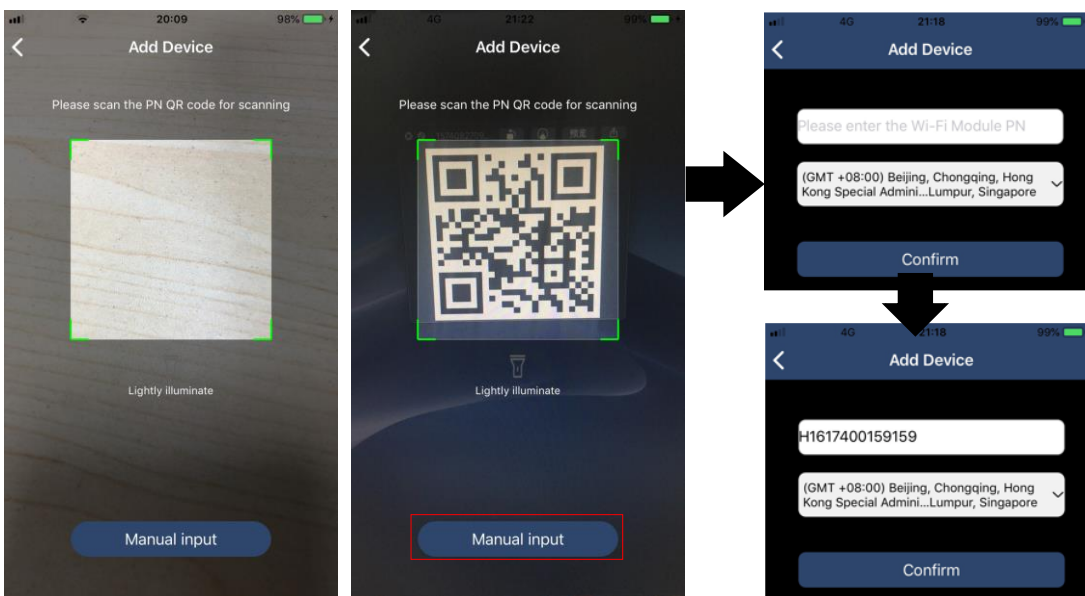
For more information about Device List, please refer to the section 2.4.

ME

In ME page, users can modify "My information", including 【User's Photo】,【Account security】, 【Modify password】,【Clear cache】,and【Log-out】, shown as below diagrams.
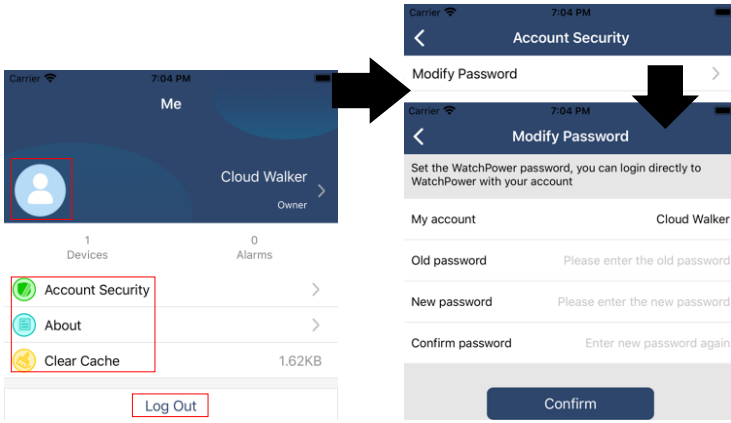
2-4. Device List

In Device List page, you can pull down to refresh the device information and then tap any device you want to check up for its real-time status and related information as well as to change parameter settings. Please refer to the parameter setting list.
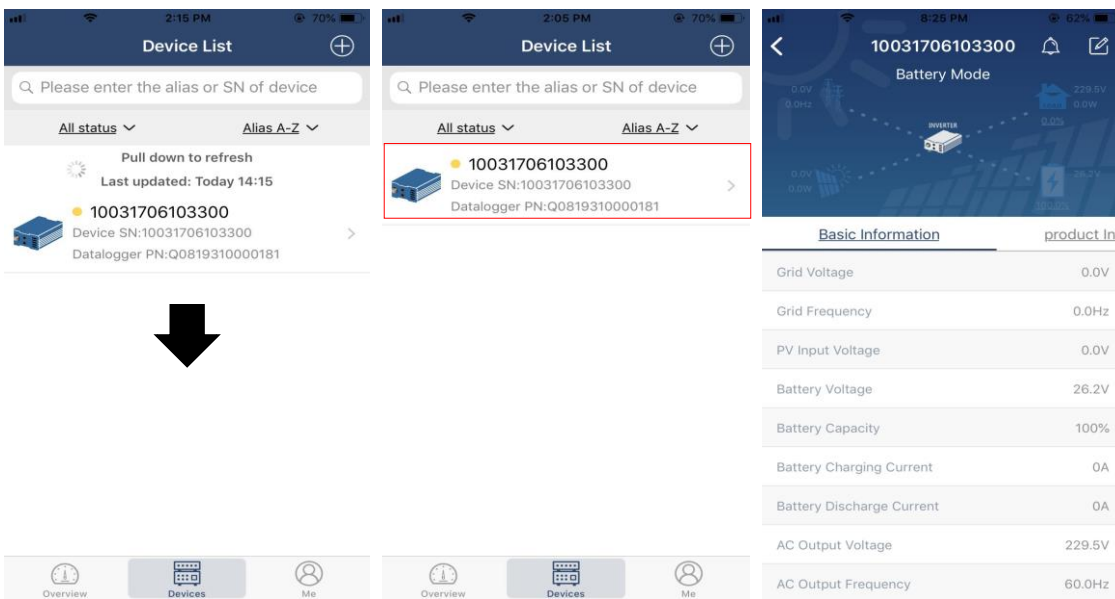
Device Mode

On the top of screen, there is a dynamic power flow chart to show live operation. It contains five icons to present PV power, inverter, load, utility and battery. Based on your inverter model status, there will be 【Standby Mode】, 【Line Mode】, 【Battery Mode】.

【**Standby Mode**】 Inverter will not power the load until "ON" switch is pressed. Qualified utility or PV source can charge battery in standby mode.

【**Line Mode**】 Inverter will power the load from the utility with or without PV charging. Qualified utility or PV source can charge battery.
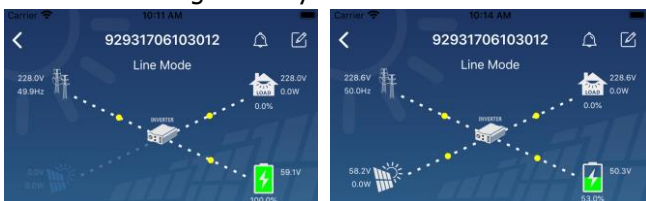
【**Battery Mode**】Inverter will power the load from the batter with or without PV charging. Only PV source can charge battery.
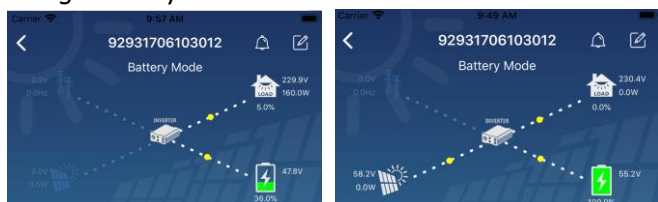
Device Alarm and Name Modification

In this page, tap the 🔔 icon on the top right corner to enter the device alarm page. Then, you can review alarm history and detailed information. Tap the ✎ icon on the top right corner, a blank input box will pop out. Then, you can edit the name for your device and tap "Confirm" to complete name modification.
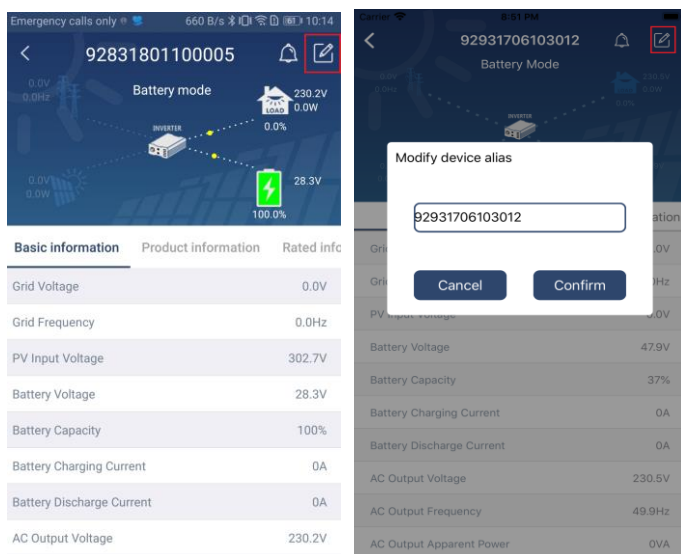
Device Information Data

Users can check up 【Basic Information】,【Product Information】,【Rated information】,【History】, and 【Wi-Fi Module Information】by swiping left.

Swipe left
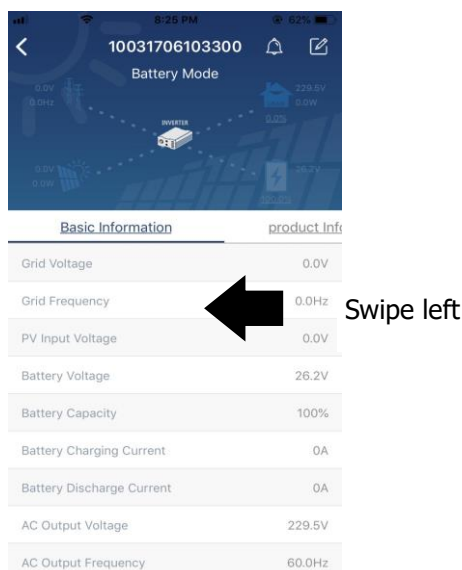
【**Basic Information**】displays basic information of the inverter, including AC voltage, AC frequency, PV input voltage, Battery voltage, Battery capacity, Charging current, Output voltage, Output frequency, Output apparent power, Output active power and Load percent. Please slide up to see more basic information.

【**Production Information**】 displays Model type (Inverter type), Main CPU version, Bluetooth CPU version and secondary CPU version.

【**Rated Information**】 displays information of Nominal AC voltage, Nominal AC current, Rated battery voltage, Nominal output voltage, Nominal output frequency, Nominal output current, Nominal output apparent power and Nominal output active power. Please slide up to see more rated information.

【**History**】 displays the record of unit information and setting timely.

【**Wi-Fi Module Information**】 displays of Wi-Fi Module PN, status and firmware version.

Parameter Setting

This page is to activate some features and set up parameters for inverters. Please be noted that the listing in "Parameter Setting" page in below diagram may differ from the models of monitored inverter. Here will briefly highlight some of it, 【Output Setting】, 【Battery Parameter Setting】, 【Enable/ Disable items】, 【Restore to the defaults】 to illustrate.

There are three ways to modify setting and they vary according to each parameter.
    a) Listing options to change values by tapping one of it.

    b) Activate/Shut down functions by clicking "Enable" or "Disable" button.

    c) Changing values by clicking arrows or entering the numbers directly in the column.
Each function setting is saved by clicking "Set" button.

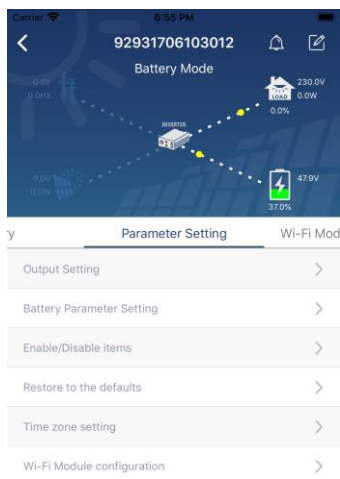Please refer to below parameter setting list for an overall description and be noted that the available parameters may vary depending on different models. Please always see the original product manual for detailed setting instructions.
Parameter setting list:

Item		Description
Output setting	Output source priority	To configure load power source priority.
	AC input range	When selecting "UPS", it's allowed to connect personal computer. Please check product manual for details.
		When selecting "Appliance", it's allowed to connect home appliances.
	Output voltage	To set output voltage.
	Output frequency	To set output frequency.
Battery parameter setting	Battery type:	To set connected battery type.
	Battery cut-off voltage	To set the battery stop discharging voltage. Please see product manual for the recommended voltage range based on connected battery type.
	Back to grid voltage	When "SBU" or "SOL" is set as output source priority and battery voltage is lower than this setting voltage, unit will transfer to line mode and the grid will provide power to load.
	Back to discharge voltage	When "SBU" or "SOL" is set as output source priority and battery voltage is higher than this setting voltage, battery will be allowed to

		discharge.
	Charger source priority:	To configure charger source priority.
	Max. charging current	It's to set up battery charging parameters. The selectable values in different inverter model may vary. Please see product manual for the details.
	Max. AC charging current:	
	Float charging voltage	
	Bulk charging voltage	It's to set up battery charging parameters. The selectable values in different inverter model may vary. Please see product manual for the details.
	Battery equalization	Enable or disable battery equalization function.
	Real-time Activate Battery Equalization	It's real-time action to activate battery equalization.
	Equalized Time Out	To set up the duration time for battery equalization.
	Equalized Time	To set up the extended time to continue battery equalization.
	Equalization Period	To set up the frequency for battery equalization.
	Equalization Voltage	To set up the battery equalization voltage.
Enable/Disable Functions	LCD Auto-return to Main screen	If enable, LCD screen will return to its main screen after one minute automatically.
	Fault Code Record	If enabled, fault code will be recorded in the inverter when any fault happens.
	Backlight	If disabled, LCD backlight will be off when panel button is not operated for 1 minute.
	Bypass Function	If enabled, unit will transfer to line mode when overload happened in battery mode.
	Beeps while primary source interrupt	If enabled, buzzer will alarm when primary source is abnormal.
	Over Temperature Auto Restart	If disabled, the unit won't be restarted after over-temperature fault is solved.
	Overload Auto Restart	If disabled, the unit won't be restarted after overload occurs.
	Buzzer	If disabled, buzzer won't be on when alarm/fault occurred.
RGB LED Setting	Enable/disable	Turn on or off RGB LEDs
	Brightness	Adjust the lighting brightness
	Speed	Adjust the lighting speed
	Effects	Change the light effects
	Color selection	Adjust color combination to show energy source an battery status
Restore to the default	This function is to restore all settings back to default settings.	