User Manual

3.6KW/6.5KW/7.2KW SOLAR INVERTER / CHARGER

Version: 1.4

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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

\triangle 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
- Optional 12V DC output
- 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 required 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.

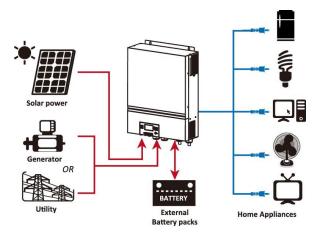
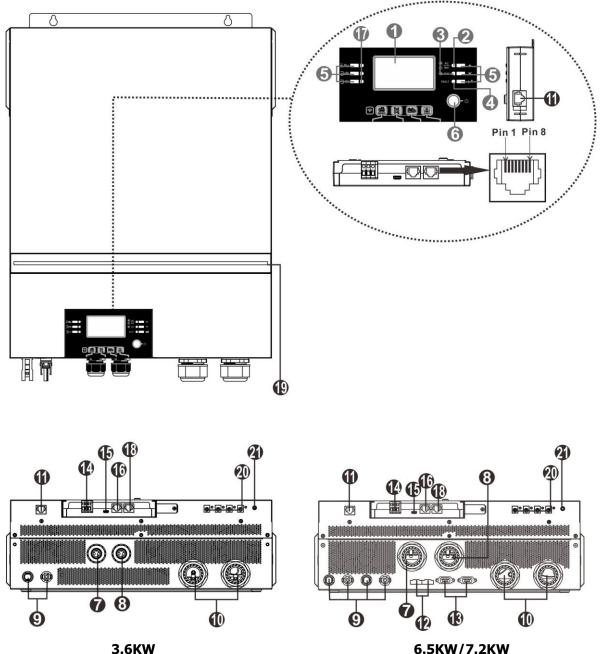


Figure 1 Basic hybrid PV System Overview

Product Overview



NOTE: 6.5KW and 7.2KW are parallel models. For parallel installation and operation, please check Appendix I.

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

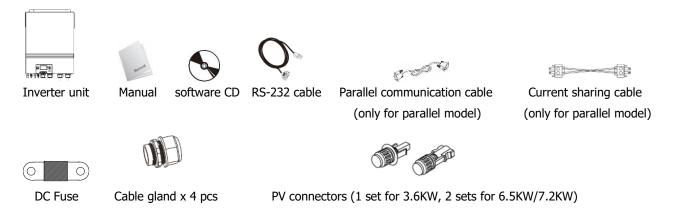
6.5KW/7.2KW

- 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)
- 20. 12V DC output connectors (option)
- 21. Power switch for DC output (option)

INSTALLATION

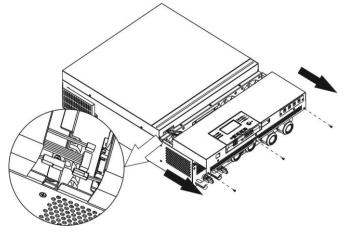
Unpacking and Inspection

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:



Preparation

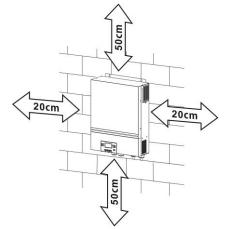
Before connecting all wirings, please take off bottom cover by removing five screws. When removing the bottom cover, be carefully to remove three cables as shown below.



Mounting the Unit

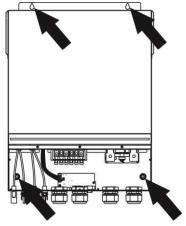
Consider the following points before selecting where to install:

- 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.

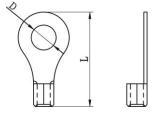


Battery Connection

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.

Ring terminal:

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.

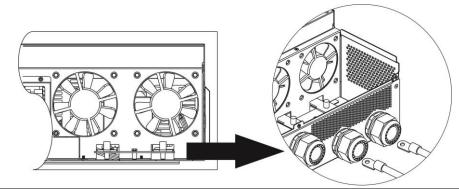


Recommended battery cable and terminal size:

Model	Typical	Battery	Wire Size	Cable	Ring Te Dimen		Torque
	Amperage	capacity		mm ²	D (mm)	L (mm)	value
3.6KW	167A		1*1/0AWG	50	8.4	47	
6.5KW	153A	250AH	1*2/0AWG	67	8.4	47	5 Nm
7.2KW	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.

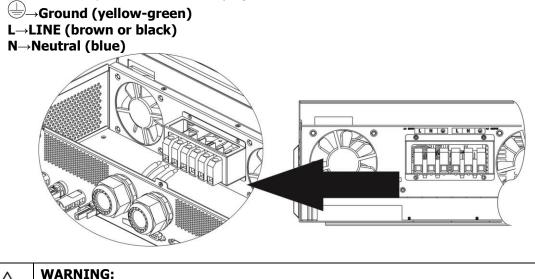
WARNING! It's very important for system safety and efficient operation to use appropriate cable for AC input connection. To reduce risk of injury, please use the proper recommended cable size as below.

Suggested cable requirement for AC wires

Model	Gauge	Torque Value
3.6KW	12AWG	1.2~ 1.6Nm
6.5KW	4 AWG	1.4~ 1.6Nm
7.2KW	8 AWG	1.4~ 1.6Nm

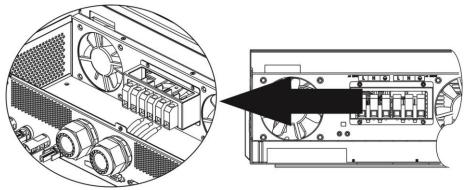
Please follow below steps to implement AC input/output connection:

- 1. Before making AC input/output connection, be sure to open DC protector or disconnector first.
- 2. Remove insulation sleeve 10mm for six conductors. And shorten phase L and neutral conductor N 3 mm.
- 3. Fix two cable glands into input and output sides.
- 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.



- Δ | 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.

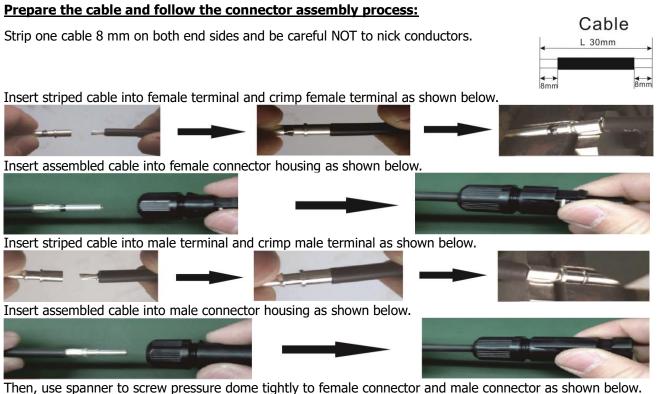
Step 1: Check the input voltage of PV array modules. This system is applied with two strings of PV array. Please make sure that the maximum current load of each PV input connector is 18A.

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.

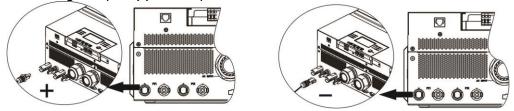
Step 3: Assemble provided PV connectors with PV modules by the following steps.

<u>Components for PV conne</u>	Components for PV connectors and Tools:				
Female connector housing					
Female terminal					
Male connector housing					
Male terminal					
Crimping tool and spanner					





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	3.6KW	6.5KW	7.2KW
Max. PV Array Power	4000W	8000W	8000W
Max. PV Array Open Circuit Voltage	500Vdc	250Vdc	500Vdc
PV Array MPPT Voltage Range	120Vdc~450Vdc	90Vdc~230Vdc	90Vdc~450Vdc
Start-up Voltage (Voc)	150Vdc	80Vdc	80Vdc

Recommended solar panel configuration for 3.6KW model:

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

Recommended solar panel configuration for 6.5KW model:

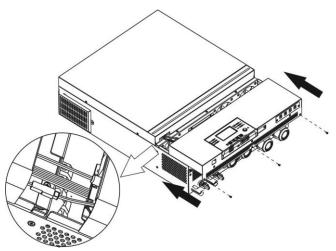
Solar Panel Spec.	SOLAR INPUT 1	SOLAR INPUT 2		
(reference)	Min in series: 3pcs, p		Q'ty of panels	Total Input Power
- 330Wp	Max. in series:6pcs, p	per input		
- Vmp: 33.7Vdc	3pcs in series	Х	3pcs	990W
- Imp: 9.79A	x	3pcs in series	3pcs	990W
- Voc: 39.61Vdc	6pcs in series	х	6pcs	1980W
- Isc: 10.4A	x	6pcs in series	6pcs	1980W
- Cells: 60	6pcs in series	6pcs in series	12pcs	3960W
	6pcs in series, 2 strings	х	12pcs	3960W
	x	6pcs in series, 2 strings	12pcs	3960W
	6pcs in series, 2 strings	6pcs in series, 2 strings	24pcs	7920W

Recommended solar panel configuration for 7.2KW model:

Solar Panel Spec.	SOLAR INPUT 1	SOLAR INPUT 2			
(reference)	Min in series: 4pcs, per input		Q'ty of panels	Total Input Power	
- 250Wp	Max. in series: 12pcs	, per input			
- Vmp: 30.7Vdc	4pcs in series	Х	4pcs	1000W	
- Imp: 8.3A	X	4pcs in series	4pcs	1000W	
- Voc: 37.7Vdc	12pcs in series	х	12pcs	3000W	
- Isc: 8.4A	х	12pcs in series	12pcs	3000W	
- Cells: 60	6pcs in series	6pcs in series	12pcs	3000W	
	6pcs in series, 2 strings	х	12pcs	3000W	
	х	6pcs in series, 2 strings	12pcs	3000W	
	8pcs in series, 2 strings	х	16pcs	4000W	
	х	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

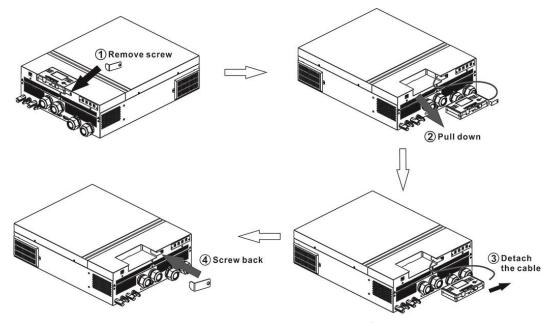
After connecting all wirings, re-connect three cables and then put bottom cover back by screwing five screws as shown below.



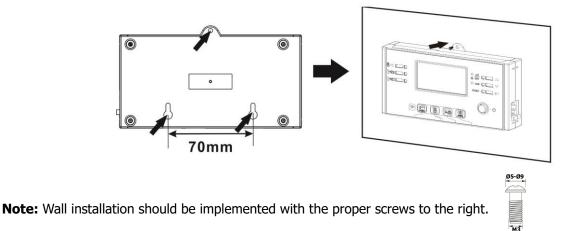
Remote Display Panel Installation

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.

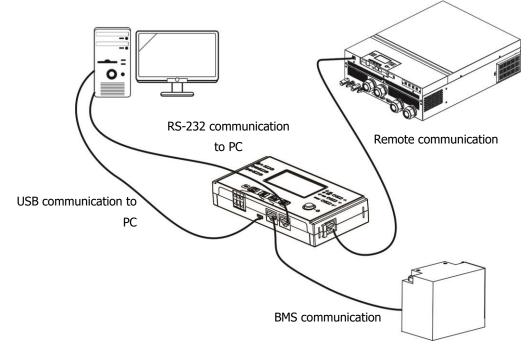
Step 1. Remove the screw on the bottom of LCD module and pull down the module from the case. Detach the cable from the original communication port. Be sure to replace the retention plate back to the inverter.



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.



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



DC Output Connectors (Optional)

These DC output connectors are used to provide emergency power backup to all kinds of DC-powered equipment such as routers, modems, set-top box, VOIP phone systems, surveillance system, alarm system, access control system and many critical telecom equipment. There are 4 channels (current limit at 3A for each channel), which could be activated/disabled manually either through LCD operation or power switch beside the DC jacks.

Supplied dimension of DC jack (male) is OD 5.5mm, ID 2.5mm.

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



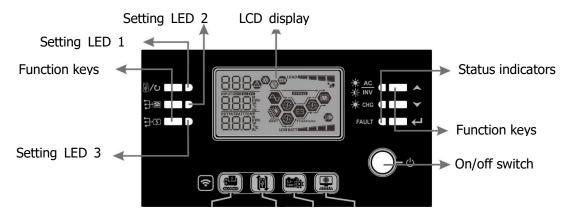
Inverter Turn-on

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

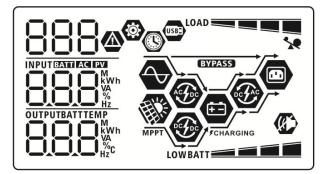
LED Ind	licator	Color	Solid/Flashing	Messages
Setting	LED 1	Green	Solid On	Output powered by utility
Setting	LED 2	Green	Solid On	Output powered by PV
Setting	LED 3	Green	Solid On	Output powered by battery
	<u> </u>	Creater	Solid On	Output is available in line mode
Status	-) - INV	Green	Flashing	Output is powered by battery in battery mode
indicators	×	Guardia	Solid On	Battery is fully charged
	-\chicketers	Green	Flashing	Battery is charging.

EALUT	Red	Solid On	Fault mode
FAULT	Reu	Flashing	Warning mode

Function Keys

Function	Кеу	Description
₩/U	ESC	Exit the setting
W/O	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	Input Source Information			
AC	Indicates the AC input.			
PV	Indicates the PV input			
	Indicate input voltage, input frequency, PV voltage, charger current,			
	charger power, battery voltage.			
Configuration Program and F	ault Information			
(Ø)				
888	Indicates the setting programs.			
	Indicates the warning and fault codes.			
888@	Warning: BBC flashing with warning code.			
	Fault: 🗖 🖸 🖸 lighting with fault code			
Output Information				
	Indicate output voltage, output frequency, load percent, load in VA,			
	load in Watt and discharging current.			
Battery Information				



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 c		present battery cr	arging status.		
Status	Battery voltag	ge LCD Di			
	<2V/cell		4 bars will flash in turns.		
Constant	2 ~ 2.083V/cell		Bottom bar will be on and the other three bars will flash in turns.		
Current mode / Constant	2.083 ~ 2.16	7V/cell	//cell Bottom two bars will be on and the oth bars will flash in turns.		nd the other two
Voltage mode	> 2.167 V/ce	1	Bottom three		nd the top bar will
Floating mode. E			flash. 4 bars will be	- on	
In battery mode,			i bars vili b		
Load Percentage		Battery Voltage		LCD D	Display
		< 1.85V/cell		LOWBATT	l
		1.85V/cell ~ 1.9	33V/cell	BATT	
Load >50%		1.933V/cell ~ 2.	017V/cell	BATT	
		> 2.017V/cell		BATT	
		< 1.892V/cell		LOWBATT	1
		1.892V/cell ~ 1.	975V/cell	BATT	
Load < 50%		1.975V/cell ~ 2.058V/cell		BATT	
		> 2.058V/cell		BATT	
Load Informatio	on				
	*	Indicates overlo	ad.		
LOAD		Indicates the lo	ad level by 0-2	24%, 25-49%, 50-	74% and 75-100%.
		0%~24%			25%~49%
2		LOAD		LOAD	
		50%~74%		75%~100%	
				LUAD	
Mode Operation	Information				
	Indicates un				
Indicates unit c			onnects to the	mains.	
MPPT		Indicates unit co			
MPPT BYPASS			onnects to the	PV panel.	
BYPASS		Indicates unit contract Indicates load is	onnects to the s supplied by u	PV panel.	
MPPT BYPASS COC		Indicates unit contract Indicates load is	onnects to the s supplied by u ility charger ci	PV panel. utility power. rcuit is working.	
MPPT BYPASS CODO CODO CODO		Indicates unit control Indicates load is Indicates the ut Indicates the solution	onnects to the s supplied by u ility charger ci lar charger cir	PV panel. utility power. rcuit is working.	
EVPASS CONSTRUCTION CONSTRUC		Indicates unit control Indicates load is Indicates the ut Indicates the solution	onnects to the s supplied by u ility charger ci lar charger cir C/AC inverter o	PV panel. utility power. rcuit is working. rcuit is working. circuit is working.	
NPPT BYPASS CODE CODE CODE CODE CODE CODE CODE CODE		Indicates unit co Indicates load is Indicates the ut Indicates the so Indicates the Do	onnects to the s supplied by u ility charger ci lar charger cir C/AC inverter o larm is disable	PV panel. utility power. rcuit is working. rcuit is working. circuit is working.	

LCD Setting

General Setting

After pressing and holding "←" button for 3 seconds, the unit will enter the Setup Mode. Press "▲" or "▼"

Program	Description	Selectable option	
00	Exit setting mode	Escape	
		Utility first (default)	
		0 ; © US6	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
01	Output source priority: To configure load power source priority	Solar first	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	Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, batter 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 of 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)	60A (default)	Setting range is from 10A to 120A for 6.5KW model and from 10A to 80A for 3.6KW/7.2KW model. Increment of each click is 10A.

		Appliances (default)	If selected, acceptable AC input voltage range will be within 90-280VAC for 3.6KW/7.2KW model and 80-140VAC for 6.5KW model.
03	AC input voltage range	UPS 03 @ 11P5	If selected, acceptable AC input voltage range will be within 170-280VAC for 3.6KW/7.2KW model and 90-140VAC for 6.5KW model.
		AGM (default)	Flooded
		05 🐵	05 🚳
		86n	FLJ
		User-Defined	If "User-Defined" is selected, battery charge voltage and low DC cut-off voltage can be set up in program 26, 27 and 29.
		USE	
		Pylontech battery	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
05	Battery type	PYL	
		WECO battery (only for 48V model)	If selected, programs of 02, 12, 26, 27 and 29 will be auto-configured per battery supplier recommended. No need for further adjustment.
		J3u	
		Soltaro battery (only for 48V model)	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting.
		SOL	

		LIb-protocol compatible battery	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.
05	Battery type	LIЪ	
		3 rd party Lithium battery	If selected, programs of 02, 26, 27 and 29 will be automatically set up. No need for further setting. Please contact the battery supplier
		LIC	for installation procedure.
		Restart disable (default)	Restart enable
06	Auto restart when overload occurs	06 @	06 @
		LF9	L≻E
		Restart disable (default)	Restart enable
07	Auto restart when over temperature occurs		[]] 🕲
		223	645
09	Output frequency	50Hz (default for 3.6KW/7.2KW models)	60Hz (default for 6.5KW)
	output nequency	50	80 _{nz}
		Available options for 3.6KW/7 220V	230V (default)
10	Output voltage	220 ^v	-230 [,]
		10 ©	

	Available options for 6.5KW m	nodel
	110V	120V (default)
	iLi 🖤	
	1 10,	150,
output volage	127V	
	127,	
Maximum utility charging current	30A (default)	
		Setting range is 2A, then from 10A to 120A for 6.5KW model and from
program 02 is smaller than	1 11-1	10A to 80A for 3.6KW/7.2KW
that in program in 11, the inverter will apply charging		model. Increment of each click is
current from program 02 for utility charger.	_111 ↓	10A.
	Available options for 24V mod	lel:
	23.0V (default)	Setting range is from 22V to 25.5V.
	ic w	Increment of each click is 0.5V.
Setting voltage point back		
	Available options for 48V mod	
priority) in program 01.	46V (default)	Setting range is from 44V to 51V.
	12 @	Increment of each click is 1V.
	BATT	
	46	
	Available options for 24V mod	
Setting voltage point back	Battery fully charged	27V (default)
to battery mode when	10 9	
selecting "SBU" (SBU		
priority) in program 01.		
	Setting range is from 24V to 3	31V. Increment of each click is 0.5V.
	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. Setting voltage point back to utility source when selecting "SBU" (SBU priority) in program 01. Setting voltage point back to battery mode when selecting "SBU" (SBU	Output voltage 110V Output voltage 110V 127V 127V 127V 10 127 10

		Available options for 48V mod	lel·
		Battery fully charged	54V (default)
	Setting voltage point back		
	to battery mode when		
13	selecting "SBU" (SBU		
	priority) in program 01.	BATT	BATT
		F!!! •	ςy,
		Setting range is from 48V to 6	52V. Increment of each click is 1V.
			king in Line, Standby or Fault mode,
		charger source can be progra	
		Solar first	Solar energy will charge battery as
		! C @	first priority.
		·U	Utility will charge battery only
			when solar energy is not available.
		cco	
		150	
		Solar and Utility (default)	Solar energy and utility will charge
		15 @	battery at the same time.
	Charger source priority:	.0	
16	To configure charger source		
	priority	SOU	
			Color an anna sill ha tha an ha
		Only Solar	Solar energy will be the only
		15 ¥	charger source no matter utility is available or not.
		858	
		If this inverter/charger is wor	king in Battery mode, only solar
		energy can charge battery. So	olar energy will charge battery if it's
		available and sufficient.	
		Alarm on (default)	Alarm off
			പ് ത
		iq 🖉	10 9
18	Alarm control		
		600	60F
		Return to default display screen (default)	If selected, no matter how users switch display screen, it will
			automatically return to default
	Auto return to default	19 🐵	display screen (Input voltage
19	display screen		/output voltage) after no button is
			pressed for 1 minute.
		85P	

		Stay at latest screen	If selected, the display screen will	
		19 ®	stay at latest screen user finally	
			switches.	
		F6b		
		Backlight on (default)	Backlight off	
		20 ©	20 🐵	
20	Backlight control			
		LON	LOF	
		Alarm on (default)	Alarm off	
	De sue subile aciacana estas	82 🐵	82 8	
22	Beeps while primary source is interrupted			
		800	806	
		Bypass disable (default)	Bypass enable	
	Overload bypass:	23 🐵		
23	When enabled, the unit will transfer to line mode if			
25	overload occurs in battery			
	mode.	644	696	
		Record enable (default)	Record disable	
		- 25 🐵		
25	Record Fault code	· - -·		
		FEN	1692	
		24V model default: 28.2V	48V model default: 56.4V	
	Pulk charging voltage			
26	Bulk charging voltage (C.V voltage)			
		If self-defined is selected in program 5, this program can be set		
		, , ,	IV to 31.0V for 24V model and 48.0V	
		to 62.0V for 48V model. Inc		

		24V model default: 27.0V	48V model default: 54.0V
			בי 🐵
27	Floating charging voltage		
		270,	
			rogram 5, this program can be set
		up. Setting range is from 25.0 to 62.0V for 48V model. Incre	IV to 31.0V for 24V model and 48.0V ment of each click is 0.1V.
		Single: This inverter is used	Parallel: This inverter is operated in
		in single phase application.	parallel system.
		CO -	CO -
		e. e	00
		<u>SI G</u>	PAL
		inverter to be operated in spe	I in 3-phase application, set up ecific phase.
		L1 phase:	L2 phase:
		28 🐵	Z B 🚳
	AC output mode (only for 6.5KW/7.2KW model) *This setting is only available when the inverter is in standby mode (Switch off).		
		38 1	365
		L3 phase:	
		68 📽	
28			
		383	
	,	When the inverter is operation in split phase application, set up inverter to be operated in specific phase.	
		L1 for split phase:	L2 for split phase:
		28 🐵	(120° phase difference)
		1.95	150
			265
		L2 for split phase: (180° phase difference)	
		180	
		292	

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 	up. Setting range is from 21.0	48V model default: 44.0V 29 0 0 0 0 0 0 0 0
	transfer to line mode and provide output power to loads.	cut-off voltage will be fixed to percentage of load is connect	o setting value no matter what ed.
30	Battery equalization	Battery equalization	Battery equalization disable (default)
		EEN If "Flooded" or "User-Defined program can be set up.	" is selected in program 05, this
31	Battery equalization voltage	24V model default: 29.2V 3 E C C Setting range is from 25.0V to 62.0V for 48V model. Increment	48V model default: 58.4V 48V model default: 58.4V 48V model and 48.0V to a 31.0V for 24V model and 48.0V to ent 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)	Setting range is from 5min to 900 min. Increment of each click is 5 min.
35	Equalization interval	30days (default) 35	Setting range is from 0 to 90 days. Increment of each click is 1 day

36	Equalization activated immediately	be set up. If "Enable" is select battery equalization immediat " " " " " If "Disable" is selected	Disable (default) 35 • BdS bled in program 30, this program can ted in this program, it's to activate tely and LCD main page will show I, it will cancel equalization function on time arrives based on program 35
37	Reset all stored data for PV generated power and output load energy		vill not be shown in LCD main page. Reset ∃↑ ♥ ►GE
41	Maximum discharging current (only for 6.5KW/7.2KW model)	Disable (Default)	If selected, battery discharge protection is disabled. The setting range is from 30 A to 150 A. Increment of each click is 10A. If discharging current is higher than setting value, battery will stop discharging. At this time, if the utility is available, the inverter will operate in bypass mode. If no utility is available, the inverter will shut down after 5-minute operation in battery mode.
51	On/Off control for RGB LED *It's necessary to enable this setting to activate RGB LED lighting function.	Enabled (default)	Disable 5 ®

		Low 52 🕲	Normal (default)
52	Brightness of RGB LED	L D High	N0-
		52 🐵	
		H I	
		Low	Normal (default)
53	Lighting speed of RGB LED	LO	N0-
		High	
		HI	
		Scrolling	Breathing
		50-	626
54	RGB LED effects	Solid on (Default)	
		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 SS ⁽²⁾ 	C02: • White-Yellow-Green • Royal blue-Lime yellow 55
92	On/Off control for 12V DC output	Enable (default) 92 ©	Disable 92 © dCd
93	Erase all data log	Not reset (Default)	Reset 93 © FSE
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 👁 10 minutes (default) 94 👁 10 30 minutes 94 👁	5 minutes 94 ⁽²⁾ 20 minutes 94 ⁽²⁾ 60 minutes 94 ⁽²⁾ 60 minutes 94 ⁽²⁾ 60 Minutes
95	Time setting – Minute	For minute setting, the range	

96	Time setting – Hour	For hour setting, the range is from 0 to 23.
97	Time setting– Day	For day setting, the range is from 1 to 31.
98	Time setting– Month	For month setting, the range is from 1 to 12.
99	Time setting – Year	For year setting, the range is from 17 to 99.

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 (I). Press and hold "U" 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 " $^{0}/^{0}$ " button for 3 seconds to enter USB function setting mode.	ျမင္ 🕲 🔿
Step 2: Press ^w (ひ", ^w) ⁽¹⁾ (" or ^w うび" button to enter the selectable setting programs (detail descriptions in Step 3)	582 100

Program#	Operation Procedure	LCD Screen
₩/ ტ	This function is to upgrade inverter firmware. If firmware upgrade is needed, pl	ease check with
Upgrade	your dealer or installer for detail instructions.	
firmware		

} @:	This function is to over-write all parameter settings (TEXT file) with settings in t USB disk from a previous setup or to duplicate inverter settings. Please check	
Re-write	or installer for detail instructions.	
internal		
parameters		
	By pressing "🗗 witton to export data log from the inverter to USB disk. If	L[][🛛 🔿
	the selected function is ready, LCD will display "ーロコ". Press "倒/ひ" button to	
	confirm the selection again.	F97
子道:	 Press "Image: button to select "Yes", LED 1 will flash once every second 	[[[] 🖉 🔿
Export data log	during the process. It will only display $\lfloor 00$ and all LEDs will be on after	YES
	this action is complete. Then, press " $^{}/^{}'$ button to return to main screen.	ΠO
	• Or press " $\mathfrak{P}^{\mathfrak{P}}$ " button to select "No" to return to main screen.	

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
100	No USB disk is detected.
50U	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 "🖓 שיל button for 3 seconds to enter Timer Setup Mode for output source priority.	US6 ©
Step 2: Press "谢心", " 宁 卿" or "宁 ^伊 " button to enter the selectable programs (detail descriptions in Step 3).	506 560

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

Program#	Operation Procedure	LCD Screen
₩/ฃ	Press " 0 " button to set up Utility First Timer. Press " 0 " button to select staring time. Press " \bigstar " or " \checkmark " button to adjust values and press " $^{-1}$ " to confirm. Press " 0 " button to select end time. Press " \bigstar " or " \checkmark " button to adjust values, press " $^{-1}$ " button to confirm. The setting values are from 00 to 23, with 1-hour increment.	US6 © 00 23

:	Press " \rat{Pm} " button to set up Solar First Timer. Press " \rat{Pm} " button to select staring time. Press " \rat{A} " or " \rat{V} " button to adjust values and press " \rat{H} " to confirm. Press " \rat{Pm} " button to select end time. Press " \rat{A} " or " \rat{V} " button to adjust values, press " \rat{H} " button to confirm. The setting values are from 00 to 23, with 1-hour increment.	SUB @ 00 23
7 3	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.	56U 🎯 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 "라ળ" button for 3 seconds to enter Timer Setup Mode for charging source priority.	[50 0 500
Step 2: Press ^w 優/ひ", ^w 予2 ^m " or ^w 予第 ^m " button to enter the selectable programs (detail descriptions in Step 3).	050

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

Program#	Operation Procedure	LCD Screen
₩/ฃ	Press " [™] / ^U " 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.	€SO ♥ 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 " Dutton to select staring time. Press " ▲ " or " ▼ " button to adjust values and press " ↓ " to confirm. Press " Dutton 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=230V, output voltage=230V
Input voltage/Output voltage (Default Display Screen)	
Input frequency	Input frequency=50Hz
PV voltage	PV voltage=260V
PV current	PV current = 2.5A

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

	AC and PV charging current=50A
	OUTPUT OUTPUT OV PV charging current=50A
Charging current	OUTPUT OUTPUT OUTPUT AC charging current=50A
	AC and PV charging power=500W
	OUTPUT OUTPUT
Charging power	OUTPUT OUTPUT OUTPUT AC charging power=500W
	Battery voltage=25.5V, output voltage=230V
Battery voltage and output voltage	

	Output frequency=50Hz
Output frequency	
Load percentage	Load percent=70%
	When connected load is lower than 1kVA, load in VA will present xxxVA like below chart.
Load in VA	UTPUT OU
	When load is lower than 1kW, load in W will present xxxW like below chart.
Load in Watt	UTPUT OUTPUT OUTPUT When load is larger than 1kW (≥1KW), load in W will present x.xkW like below chart. LOAD
	Battery voltage=25.5V, discharging current=1A
Battery voltage/DC discharging current	

	This PV Today energy = 3.88kWh, Load Today		
	energy= 9.88kWh.		
PV energy generated today and Load output energy			
today			
	This PV month energy = 388kWh, Load month energy= 988kWh.		
PV energy generated this month and Load output energy			
this month.			
	This PV year energy = 3.88MWh, Load year		
	energy = 9.88 MWh.		
PV energy generated this year and Load output energy			
this year.			
	BATT		
	PV Total energy = 38.8MWh, Load Output Total		
	energy = 98.8MWh.		
PV energy generated totally and Load output total			
energy.			
	Real date Nov 28, 2020.		
Real date.			
	MPPT Contracting		
	Real time 13:20.		
Real time.			

Main CPU version checking.	Main CPU version 00014.04.
Secondary CPU version checking.	Secondary CPU version 00012.03.
Wi-Fi version checking.	Wi-Fi version 00000.24.

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 utility. Charging by PV energy. Charging by PV energy. No charging. Excharging

Operation mode	Description	LCD display	
Fault mode			
Note:		No charging.	
*Fault mode: Errors are	No charging at all no matter		
caused by inside circuit error	if grid or PV power is		
or external reasons such as	available.		
over temperature, output			
short circuited and so on.			
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.	
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.	

Operation mode	Description	LCD display
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. 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 battery only. Power from PV energy only.

Faults Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	F8 }
02	Over temperature	583
03	Battery voltage is too high	F83
04	Battery voltage is too low	FBY
05	Output short circuited.	F8S
06	Output voltage is too high.	F86
07	Overload time out	F87
08	Bus voltage is too high	F88
09	Bus soft start failed	F89
10	PV over current	
11	PV over voltage	F ; ;
12	DCDC over current	F 12
13	Battery discharge over current	83
51	Over current	FS
52	Bus voltage is too low	852
53	Inverter soft start failed	FS3
55	Over DC voltage in AC output	FSS
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	8 -50
03	Battery is over-charged	Beep once every second	830
04	Low battery	Beep once every second	[]Ч ⊗
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	15 @
16	High AC input (>280VAC) during BUS soft start	None	15 @
32	Communication failure between inverter and remote display panel	None	32@
89	Battery equalization	None	29 @
6P	Battery is not connected	None	6 P@

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.

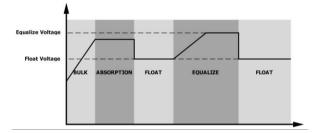
• How to Apply Equalization Function

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.

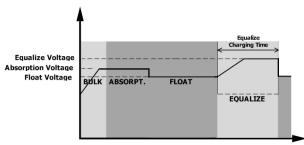
• When to Equalize

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.

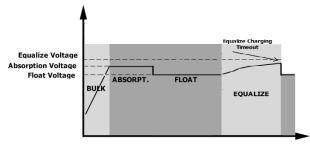


• Equalize charging time and timeout

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	3.6KW	7.2KW	6.5KW
Input Voltage Waveform	Sinusoidal (utility or generator)		
Nominal Input Voltage	230	Vac	120Vac
Low Loss Voltage	170Vac±7V (UPS) 90Vac±7V (Appliances)		90Vac±7V (UPS) 80Vac±7V (Appliances)
Low Loss Return Voltage		7V (UPS); (Appliances)	100Vac±7V (UPS); 90Vac±7V (Appliances)
High Loss Voltage	280Va	ac±7V	140Vac±7V
High Loss Return Voltage	270Va	ac±7V	135Vac±7V
Max AC Input Voltage	300	Vac	150Vac
Max AC Input Current	40A	60A	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: For 3.6KW/7.2KW models, when AC input voltage under 170V the output power will be de-rated. For 6.5KW model, when AC input voltage under 105V the output power will be de-rated.	Output Power Rated Power		
		90V 170V 80V 105V	280V 3.6K/7.2K models 140V 6.5K models

Table 2 Inverter Mode Specifications

MODEL	3.6KW	7.2KW	6.5KW
Rated Output Power	3600W	7200W	6500W
Output Voltage Waveform	Pure Sine Wave		
Output Voltage Regulation	230Vac±5%	230Vac±5%	120Vac±5%
Output Frequency		60Hz or 50Hz	
Peak Efficiency	91%	93%	91%
Overload Protection	100ms@≥205% load;5	s@≥150% load; 10s@1	110%~150% load
Surge Capacity	2* rat	ed power for 5 seconds	5
Optional 12V DC Output	1		
DC Output	12	2 VDC ± 7%, 100W	
High DC Cut-off Voltage	33Vdc	66Vdc	66Vdc
Low DC Cut-off Voltage	22Vdc	44Vdc	44Vdc
Nominal DC Input Voltage	24Vdc 48Vdc		
Cold Start Voltage	23.0Vdc	46.0	/dc
Low DC Warning Voltage			
@ load < 20%	23.0Vdc	23.0Vdc 46.0Vdc	
@ 20% ≤ load < 50%	21.4Vdc	21.4Vdc 42.8Vdc	
@ load ≥ 50%	20.2Vdc 40.4Vdc		/dc
Low DC Warning Return Voltage			
@ load < 20%	24.0Vdc 48.0Vdc		√dc
@ 20% ≤ load < 50%	22.4Vdc	44.8	/dc
@ load ≥ 50%	21.2Vdc	42.4	/dc
Low DC Cut-off Voltage			
@ load < 20%	22.0Vdc	44.0	√dc
@ 20% ≤ load < 50%	20.4Vdc	40.8	/dc
@ load ≥ 50%	19.2Vdc	38.4	/dc
High DC Recovery Voltage	32Vdc 64Vdc		dc
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 I	Mode			
MODEL		3.6KW	7.2KW	6.5KW
Charging Current @ Nominal Input V		80A	80A	120A
Bulk Charging	Flooded Battery	29.2Vdc	58.	4Vdc
Voltage AGM / Gel Battery		28.2Vdc 56.4Vdc		4Vdc
Floating Charging	g Voltage	27Vdc	54	Vdc
Overcharge Prote	ection	33Vdc	66	Vdc
Charging Algorit	าฑ		3-Step	
Charging Curve		Bulk		Charging Current, % Voltage 100% 50% Current Time Intenance Ioating)
Solar Input				
MODEL		3.6KW	7.2KW	6.5KW
Rated Power Max. PV Array Op Voltage	oen Circuit	4000W 500Vdc	8000W 500Vdc	8000W 250Vdc
PV Array MPPT V	oltage Range	120Vdc~450Vdc	90Vdc~450Vdc	90Vdc~230Vdc
_				<u> </u>
Max. Input Curre	Int	18A	184	A X 2
Max. Input Curre Start-up Voltage		18A 150V +/- 5Vdc		/- 5Vdc

Table 4 General Specifications

MODEL	3.6KW	7.2KW	6.5KW
Safety Certification	CE		UL
Operating Temperature Range	-10°C to 50°C -10°C to 40		-10°C to 40°C
Storage temperature	-15°C~ 60°C		
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 (Parallel 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)	 Re-charge battery. Replace battery.
No response after power on.	No indication.	 The battery voltage is far too low. (<1.4V/Cell) Battery polarity is connected reversed. 	 Check if batteries and the wiring are connected well. Re-charge battery. Replace battery.
	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.
Mains exist but the unit works in battery mode.	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	 Check if AC wires are too thin and/or too long. 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.
<u> </u>	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fourth conder OF	Output short circuited.	Check if wiring is connected well and remove abnormal load.
	Fault code 05	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
	Fault code 02	Internal temperature of inverter component is over 100°C.	the ambient temperature is too high.
		Battery is over-charged.	Return to repair center.
Buzzer beeps continuously and	Fault code 03	The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
red LED is on.	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	 Reduce the connected load. 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
	Fault code 52	Bus voltage is too low.	happens again, please return
	Fault code 55	Output voltage is unbalanced.	to repair center.
	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 parallel models)

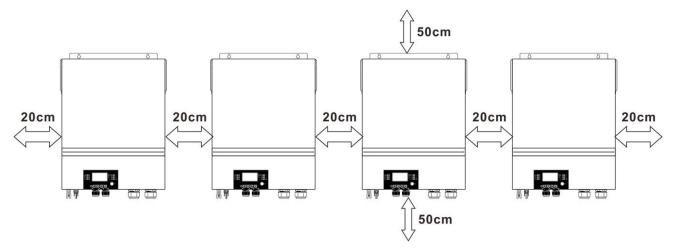
1. Introduction

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

- 1. Parallel operation in single phase is with up to 6 units. The supported maximum output power for 7.2KW model is 43.2KW/43.2KVA. The supported maximum output power for 6.5KW model is 39KW/39KVA.
- 2. Maximum six units work together to support three-phase equipment. Maximum four units support one phase.
- 3. Maximum six units work together to support split-phase equipment only available for 6.5KW model. 5 units support one phase maximum. The supported maximum output power is 39KW/39KVA and one phase can be up to 32.5KW/32.5KVA.

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.

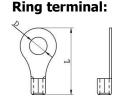
3. Wiring Connection

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:

Model	Wire Size	Cable mm ²	Ring Te Dimer	erminal nsions	Torque value
			D (mm)	L (mm)	-
6.5KW	1*2/0AWG	67	8.4	47	5 Nm
7.2KW	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
6.5KW	4 AWG	1.4~ 1.6 Nm
7.2KW	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*
6.5KW	250A/70VDC
7.2KW	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
6.5KW	120A/230VAC	180A/230VAC	240A/230VAC	300A/230VAC	360A/230VAC
7.2KW	120A/230VAC	180A/230VAC	240A/230VAC	300A/230VAC	360A/230VAC

Note 1: Also, you can use 60A breaker for 7.2KW and 6.5KW models 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

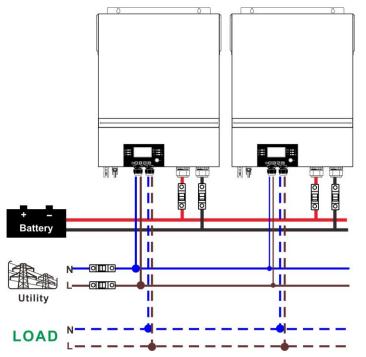
Inverter parallel numbers	2	3	4	5	6
Battery Capacity	200AH	400AH	400AH	600AH	600AH

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

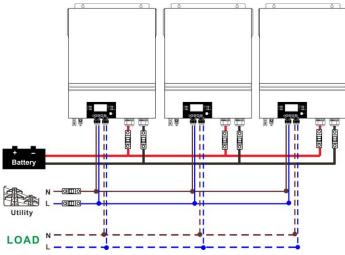


Communication Connection



Three inverters in parallel:

Power Connection

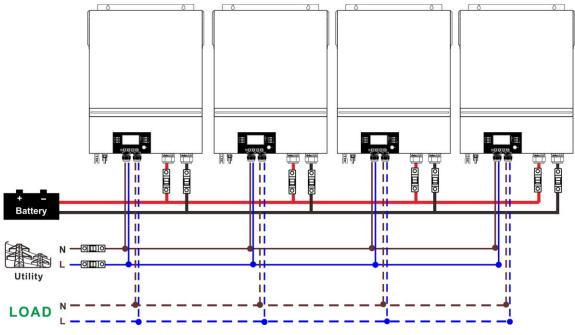


Communication Connection

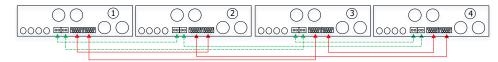


Four inverters in parallel:

Power Connection

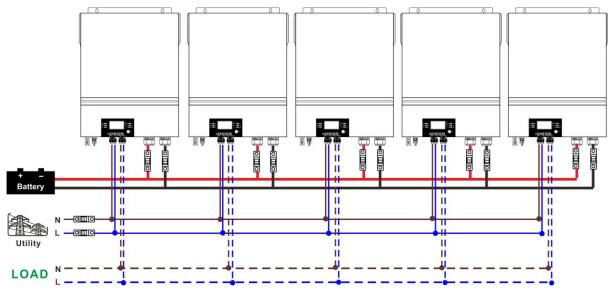


Communication Connection

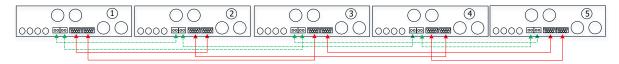


Five inverters in parallel:

Power Connection

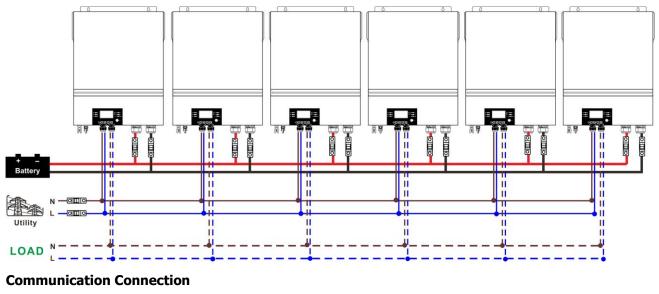


Communication Connection



Six inverters in parallel:

Power Connection

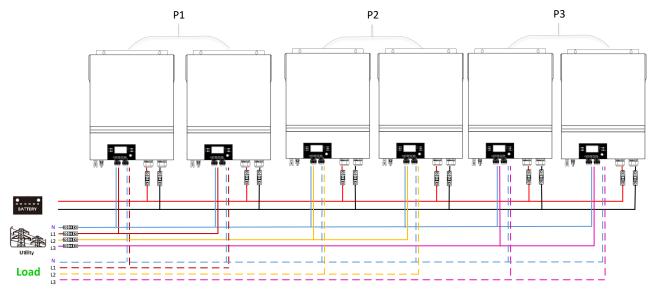




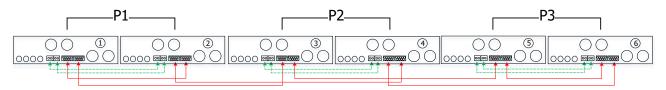
4-2. Support 3-phase equipment

Two inverters in each phase:

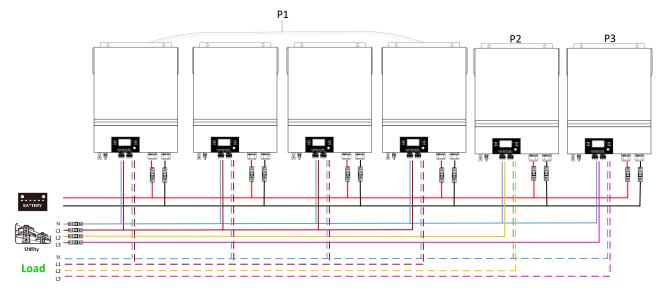
Power Connection



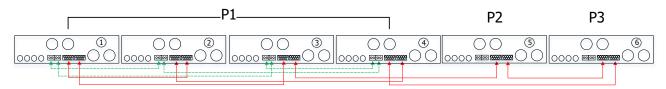
Communication Connection



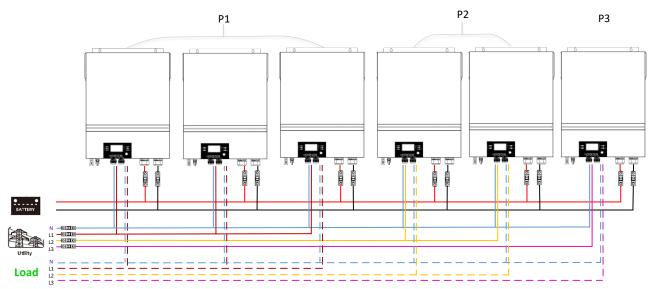
Four inverters in one phase and one inverter for the other two phases: **Power Connection**



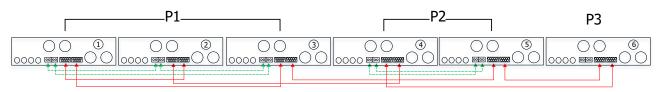
Communication Connection



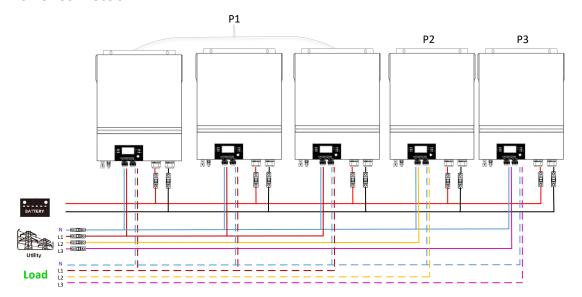
Three inverters in one phase, two inverters in second phase and one inverter for the third phase: **Power Connection**



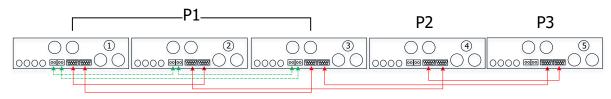
Communication Connection



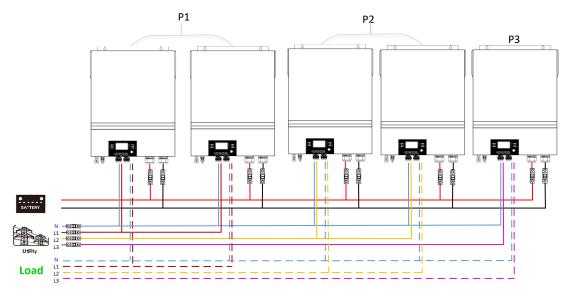
Three inverters in one phase and only one inverter for the remaining two phases: **Power Connection**



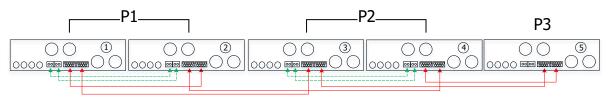
Communication Connection



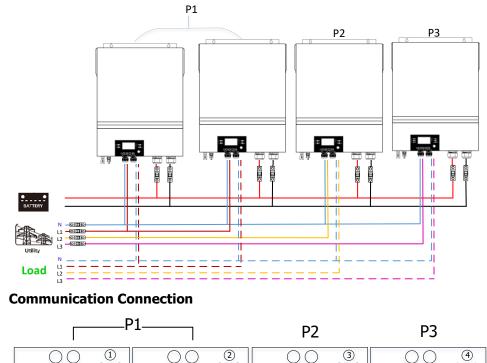
Two inverters in two phases and only one inverter for the remaining phase: **Power Connection**

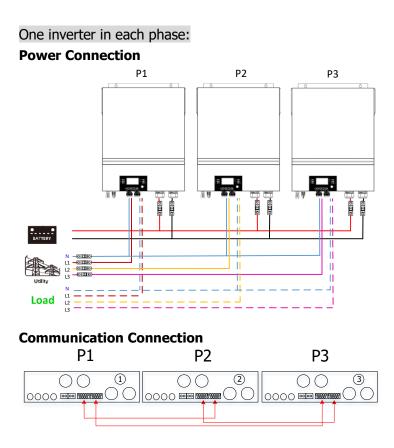


Communication Connection



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

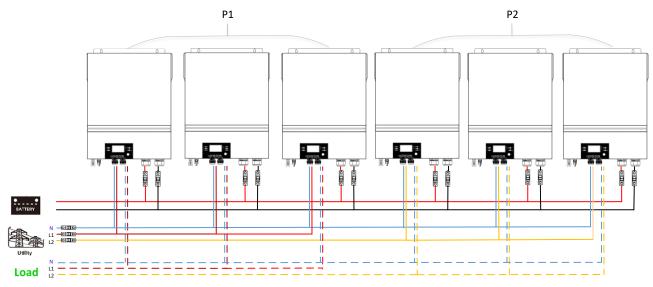


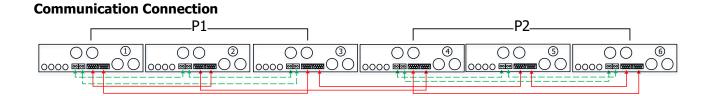


WARNING: Do not connect the current sharing cable between the inverters which are in different phases. Otherwise, it may damage the inverters.

4-3. Support split-phase equipment (only for 6.5KW model)

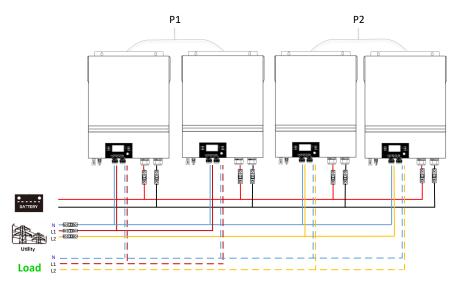
Three inverters in each phase:



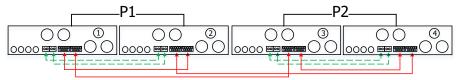


Two inverters in each phase:

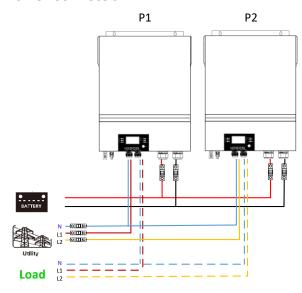
Power Connection



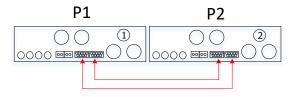
Communication Connection



One inverter in each phase: **Power Connection**



Communication Connection



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	
		Single 28 ©	When the unit is operated alone, please select "SIG" in program 28.
		51.6	
		Parallel	When the units are used in parallel for single phase application, please select "PAL" in program 28. Please refer to 5-1
		PRL	for detailed information.
		L1 phase:	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
		38 (maximum 6 inverters to support three-phase equipment. It's required to have at least one inverter in each phase or
		L2 phase:	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
	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.	385	inverters connected to L1 phase, "3P2" in program 28 for the inverters connected to
28		L3 phase:	L2 phase and "3P3" in program 28 for the inverters connected to L3 phase.
20		383	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.
		L1 for split phase:	When the units are operated in split phase application, please choose "2PX" to define
		1 95	each inverter. It is required to have at least 2 inverters or maximum 6 inverters to support
		L2 for split phase: (120° phase difference)	split-phase equipment. It's required to have at least one inverter in each phase or it's up to three inverters in one phase. Please refers to 5-2 for detailed information.
		051 595	Please select "2P1" in program 28 for the inverters connected to L1 phase, "2P2" in program 28 for the inverters connected to
		L2 for split phase:	L2 phase. And it can choose 120°or 180° phase difference for "2P2".
		(180° phase difference)	Be sure to connect share current cable to units which are on the same phase.
		180	Do NOT connect share current cable between units on different phases.
		292	

Fault code display:

Fault Code	Fault Event	Icon on
60	Power feedback protection	F68
71	Firmware version inconsistent	
72	Current sharing fault	572
80	CAN fault	F80
81	Host loss	F8 ;
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	F85

Code Reference:

Code	Description	Icon on
NE	Unidentified unit master or slave	
HS	Master unit	25
SL	Slave unit	

7. Commissioning

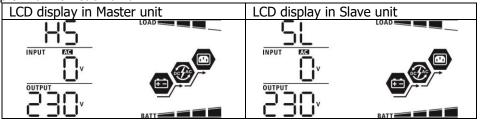
Parallel in single phase

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.

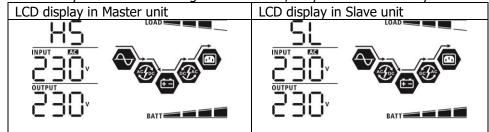
Step 3: Turn on each unit.



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.



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

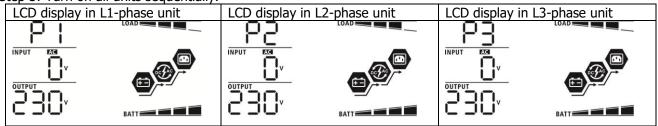
Step 1: Check the following requirements before commissioning:

- Correct wire connection
- Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.

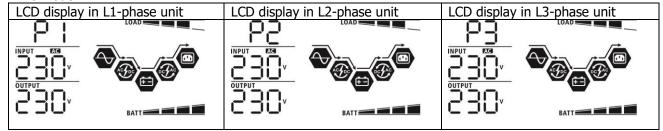
Step 2: Turn on all units and configure LCD program 28 as P1, P2 and P3 sequentially. And then shut down all units.

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.



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.



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.

Support split-phase equipment

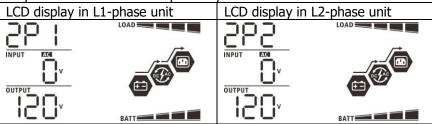
Step 1: Check the following requirements before commissioning:

- Correct wire connection
- Ensure all breakers in Line wires of load side are open and each Neutral wires of each unit are connected together.

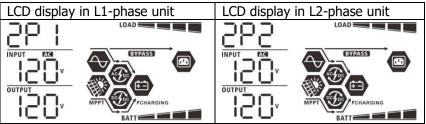
Step 2: Turn on all units and configure LCD program 28 as 2P1 and 2P2 sequentially. And then shut down all units.

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.



Step 4: Switch on all AC breakers of Line wires in AC input. If AC connection is detected and split-phases are matched with unit setting, they will work normally. Otherwise, the AC icon O will flash and they will not work in line mode.



Step 5: If there is no more fault alarm, the system to split-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	
Fault Code	Fault Event Description	Solution
60	Current feedback into the inverter is detected.	 Restart the inverter. Check if L/N cables are not connected reversely in all inverters. 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. If the problem remains, please contact your installer.
71	The firmware version of each inverter is not the same.	 Update all inverter firmware to the same version. 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. After updating, if the problem still remains, please contact your installer.
72	The output current of each inverter is different.	 Check if sharing cables are connected well and restart the inverter. If the problem remains, please contact your installer.
80	CAN data loss	1. Check if communication cables are connected well and restart the
81	Host data loss	 Check if communication cables are connected well and restart the inverter.
82	Synchronization data loss	2. If the problem remains, please contact your installer.
83	The battery voltage of each inverter is not the same.	 Make sure all inverters share same groups of batteries together. 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. If the problem still remains, please contact your installer.
84	AC input voltage and frequency are detected different.	 Check the utility wiring conncetion and restart the inverter. 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. If the problem remains, please contact your installer.
85	AC output current unbalance	 Restart the inverter. 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. If the problem remains, please contact your installer.
86	AC output mode setting is different.	 Switch off the inverter and check LCD setting #28. 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. If the problem remains, please contact your installer.

Appendix II: BMS Communication Installation

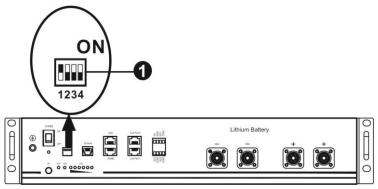
1. Introduction

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.

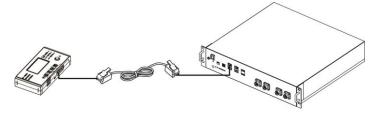
Dip 1	Dip 2	Dip 3	Dip 4	Group address
	0	0	0	Single group only. It's required to set up master battery with this
	0	0		setting and slave batteries are unrestricted.
	1 0 0		0	Multiple group condition. It's required to set up master battery on the
1: RS485	T	0	0	first group with this setting and slave batteries are unrestricted.
baud			0	Multiple group condition. It's required to set up master battery on the
rate=9600	0	1 0		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
Restart to	T			third group with this setting and slave batteries are unrestricted.
take effect	0	0	1	Multiple group condition. It's required to set up master battery on the
	0	0 1		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
	T			fifth group with this setting and slave batteries are unrestricted.

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

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

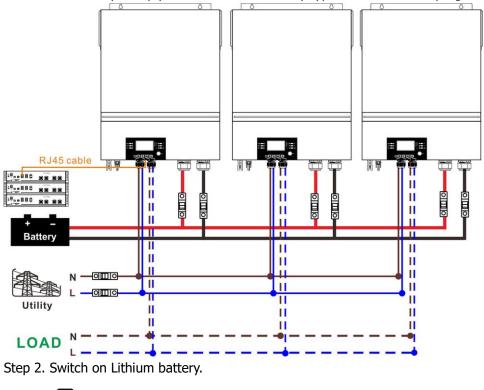
3. Installation and Operation

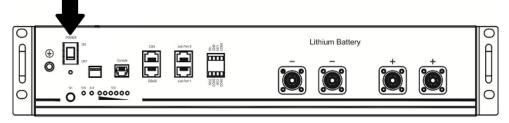
After configuration, please install LCD panel with inverter and Lithium battery with the following steps. Step 1. Use custom-made RJ45 cable to connect inverter and Lithium battery.

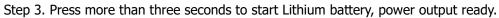


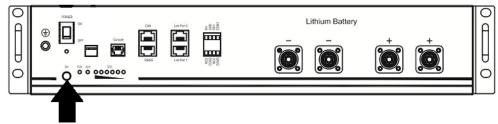
Note for parallel system:

- 1. Only support common battery installation.
- 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 4. Turn on the inverter.



Step 5. Be sure to select battery type as "PYL" in LCD program 5.



PYL

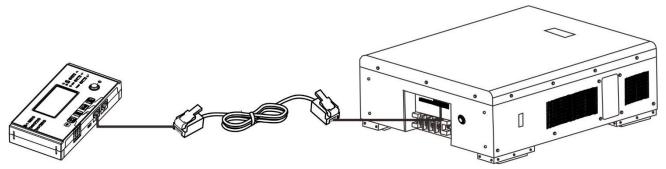
If communication between the inverter and battery is successful, the battery icon work on LCD display will flash. Generally speaking, it will take longer than 1 minute to establish communication.

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

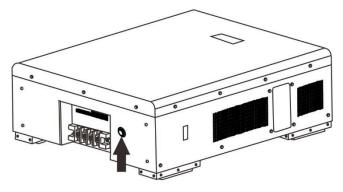
Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.



Please take notice for parallel system:

- 1. Only support common battery installation.
- 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 🛛

J30

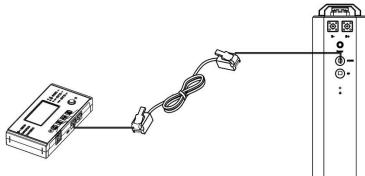
If communication between the inverter and battery is successful, the battery icon

on LCD display will

"flash". Generally speaking, it will take longer than 1 minute to establish communication.

SOLTARO

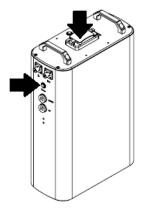
Step 1. Use a custom-made RJ45 cable to connect inverter and Lithium battery.



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.



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

5. Code Reference

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

Code	on code will be displayed on LCD screen. Please c Description	Action
50 @	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.	
5 Iø	 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 0	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.
59 @	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.	
][]@	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.	
	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:

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 it 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.

V 1.0.0	.at ♥ T⊕2:18 +/ 98% /
Please enter user name	Please enter user name
Please enter the password	Please enter the password
Remember Me	Please enter the password
Login	Please enter email
	Please enter the phone number
Wi-Fi Config	Please enter the Wi-Fi Module PN

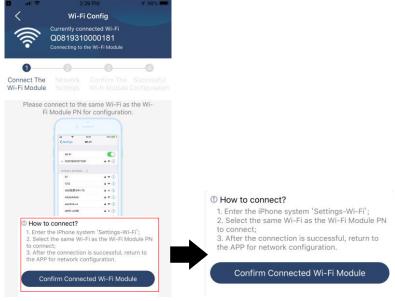
Don't have an account?Please Register

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

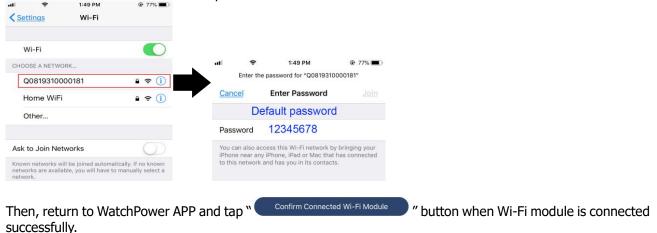


Step 2: Local Wi-Fi Module Configuration

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 \rightarrow 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".



Step 3: Wi-Fi Network settings



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.

nt 🗢 5:51 PM 👻 95% 🗰	nil 🗢 5:51 PM	@ 95% 🗰
K Network diagnostics	K Network diagnostic	s
Inverter Datalogger Router Server	Inverter Datalogger Router	Server
Repair suggestion Rediagnosis	Repair suggestion	Rediagnosis
The Inverter and the datalogger communicate abnormally.		
 Please check if the Inverter and the datalogger are powered on normally. 		
 Please check if the Inverter address is between 1 and 5. 	The diagnosis is succe	ssful!
 Please check if the connection between the Inverter and the collector is abnormal, such as poor contact caused by oxidation or looseness of the interface, reverse connection of the 485 interface AB line, and data line damage. 		
 Try restarting the Inverter and datalogger to see if the anomaly is eliminated. 		
Datalogger and router communication abnormalities		
 Please confirm that the wireless routing network setting has been made. 		
 Make sure that the datalogger is set up to connect to AP hotspots sent by hardware devices such as wireless routers instead of virtual AP hotspots. 		

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.

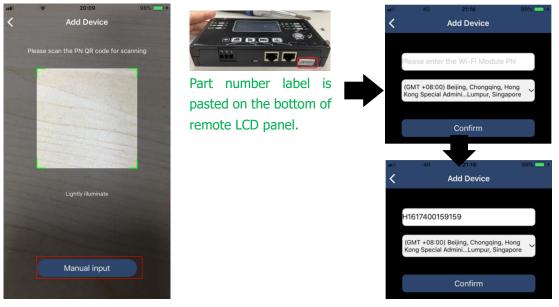


Devices

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.

Adc	l device			De	lete	device		
Carrier 🕈	е 6:10 РМ Device List		\oplus	-11	÷	з:02 PM Device List		• •••• •
Q, Ple	ease enter the alias or sn of	fdevice		Q PI	ease ente	er the alias or S	SN of devi	ice
	All status \checkmark	Alias A-Z \checkmark			All status	~	Alias A-Z	~
	• 92931706103012 Device SN:92931706103012 Wi-Fi Module PN:Q08193100	14063	>	Device S	3 1706103 N:1003170 Jer PN:Q08		>	<u>Delete</u>
					Device	31706103300 5N:10031706103: ger PN:Q081936	300	>
	~ ·				0			\bigcirc
(verview Devices	(S) Me		(01	rerview	Devices		8 Me

Tap 🕑 icon on the top right corner and manually enter part number to add device. This part number label is pasted on the bottom of remote LCD panel. After entering part number, tap "Confirm" to add this device 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.

			Carrier 🗢	7:04 PM Account Security	
arrier 🗢	7:04 PM	-	Modify P		>
	Ме		Carrier 🗢	7:04 PM Modify Password	-
		Cloud Walker		tchPower password, you can login directly to er with your account	
		Owner	My accourt	nt Cloud W	/alker
1 Devices		0 Alarms	Old passw	vord Please enter the old pass	sword
count Securit	ty	>	New pass	word Please enter the new pass	word
bout		>	Confirm p	assword Enter new password	
Clear Cache		1.62KB			
	Log Out]		Confirm	

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.

a i	2:15 Device Please enter the alia:	e List	• 70% •	u∎ 🗢	2:05 PM Device List The alias or SN	• 70% =	mi ♥ 8:25 PM 〈 1003170610330 Battery Mode	• 62% •
	All status V	Alias A	-Z ~	All status	/	Alias A-Z 🗸	R. OH2	• • 0.0%
	Pull down t Last updated: • 10031706103	Today 14:15		Device S	1706103300 N:1003170610330 er PN:Q08193100			
	Device SN:1003170 Datalogger PN:Q08		>				Basic Information	product Infe
							Grid Voltage	0.0V
							Grid Frequency	0.0Hz
							PV Input Voltage	0.0V
							Battery Voltage	26.2V
							Battery Capacity	100%
							Battery Charging Current	0A
							Battery Discharge Current	OA
							AC Output Voltage	229.5V
	Dverview Devic		8 Me	Overview	Devices	(B) Me	AC Output Frequency	60.0Hz

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.

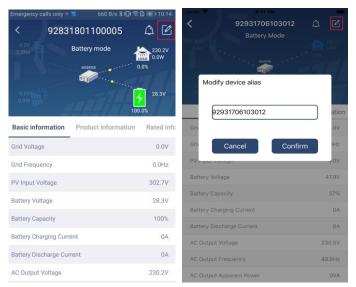


[Battery Mode] Inverter will power the load from the batter with or without PV charging. Only PV source can charge battery.



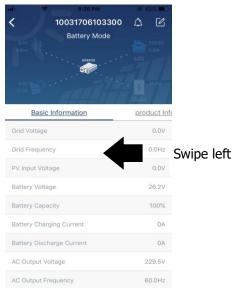
Device Alarm and Name Modification

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.



[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	To configure load power source priority.
	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	Battery type:	To set connected battery type.
parameter	Battery cut-off	To set the battery stop discharging voltage.
setting	voltage	Please see product manual for the recommended voltage range based
		on connected battery type.
	Back to grid	When "SBU" or "SOL" is set as output source priority and battery
	voltage	voltage is lower than this setting voltage, unit will transfer to line mode
		and the grid will provide power to load.
	Back to discharge	When "SBU" or "SOL" is set as output source priority and battery
	voltage	voltage is higher than this setting voltage, battery will be allowed to

		discharge.
	Charger source	To configure charger source priority.
	priority:	
	Max. charging	
	current	
	Max. AC charging	It's to set up battery charging parameters. The selectable values in different inverter model may vary.
	current:	Please see product manual for the details.
	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	It's real-time action to activate battery equalization.
	Equalization	
	Equalized Time	To set up the duration time for battery equalization.
	Out	
	Equalized Time	To set up the extended time to continue battery equalization.
	Equalization	To set up the frequency for battery equalization.
	Period	
	Equalization Voltage	To set up the battery equalization voltage.
Enable/Disable	LCD Auto-return	If enable, LCD screen will return to its main screen after one minute
Functions	to Main screen	automatically.
	Fault Code	If enabled, fault code will be recorded in the inverter when any fault
	Record	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.
	Enable/disable	Turn on or off RGB LEDs
	Brightness	Adjust the lighting brightness
RGB LED Setting	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 r	restore all settings back to default settings.