USER'S MANUAL
Chgarging Station
CW-PR-3K3W-01

ColorWay®

The software supports installation on Windows systems.
Scan the QR code for download or visit the website for
downloading: https://sw.chbattery.com

Appliances

Computer | TV | Air-Conditioning | Refrigerator | Washing machine

Contents

ABOUT THE MANUAL

Purpose
This manual describes the operation and troubleshooting of the equipment. Please read this manual carefully before operation.
Retain this manual for future reference.

Scope
This manual provides safety guidelines and information on tools and wiring.

The following situations are not covered by the warranty :
(1) Overdue the warranty period .
(2) The serial number has been changed or lost.
(3) The battery capacity is the lowest or the appearance of the device is damaged.
(4) External factors such as transportation,negligence,etc.
(5) This equipment has been damaged by an irresistible natural disaster .
(6) Damage caused by not following the power supply conditions or operating environment .

SAFETY NOTICE

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

1. Before using this unit , please read all instructions and precautions on this unit , understand all relevant chapters in this manual to Prevent explosion which may lead to personal injury and battery damage.

2. Do not disassemble the unit . When service or repair is required , send it to a professional service center . Incorrect assembly may result in electric shock or fire.

3. To reduce the risk of electric shock , disconnect all wiring before attempting any maintenance or cleaning . Turning off the device does not reduce this risk.

4. Caution - Only professionals should install this device.

5. Grounding Instructions - This equipment should be connected to a permanently grounded wiring system. Be sure to comply with local requirements and regulations to use this device.
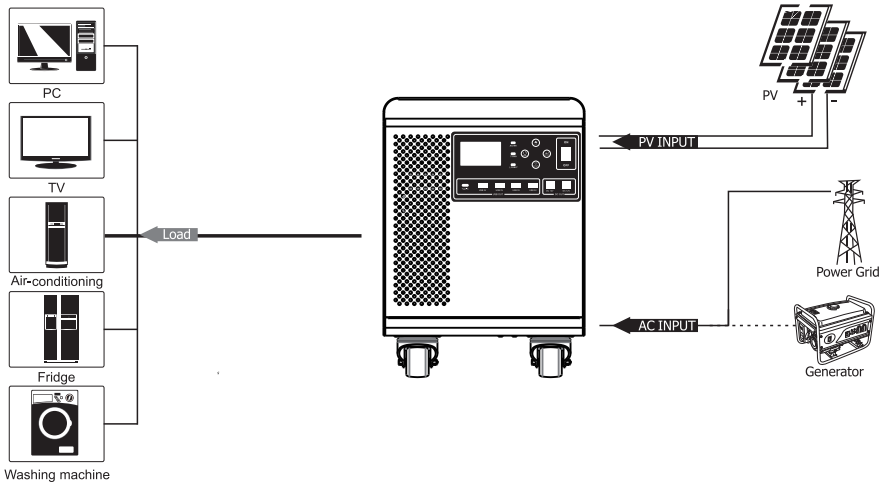
INTRODUCTION

This is a multi-functional photovoltaic energy storage power station, integrated with battery, MPPT solar charge controller, high frequency pure sine wave inverter and UPS function module into one , which is suitable for outdoor backup electric compartment and spontaneous self-use system .

MPPT solar charge controller adopts advanced MPPT method and intelligent battery management design, which ensures the acquisition of maximum energy. High frequency pure sine wave inverter adopts high frequency design , achievement high rate density , small size , simple operation and other advantages; The whole machine has high efficiency and the empty load loss is small ,which uses large capacity basket and high-density hammer pool to improve portability of the system.
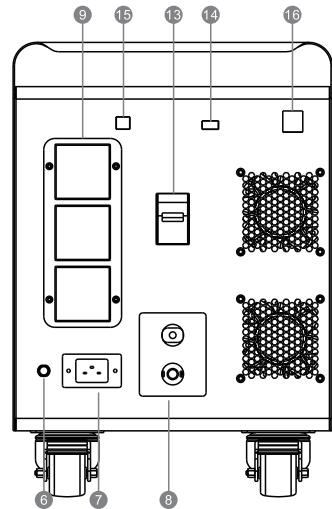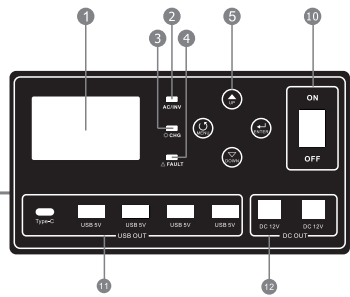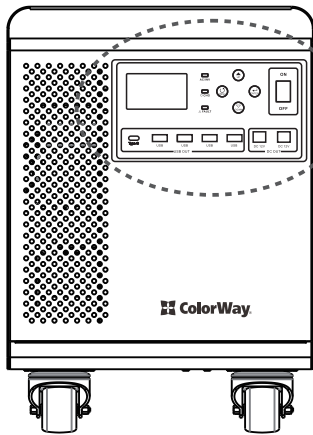
Features

- Pure sine Wave AC Output Inverter with 3KW rated power and power factor 1.
- High power density with universal wheels and high portability.
- Setting input voltage and voltage range on the LCD Screen.
- 5V USB and 12V DC output supported.
- AC/PV input and battery priority level configurable on LCD.
- Protection functions such as overload, over temperature and short circuit.

Basic System Structure

PC

TV

Air-conditioning

Load

Fridge

Washing machine

PV

PV INPUT

Power Grid

AC INPUT

Generator

Product Overview

1. LCD display
2. Status Indicator
3. Charge/discharge Indicator
4. Fault Indicator
5. Function Button
6. AC input over-current protection
7. AC input
8. PV input
9. AC output
10. ON/OFF Switch
11. DC5V USB output
12. DC12V output
13. Battery Breaker
14. USB WIFI
15. USB-A communication port
16. Dry contact

PART LIST

Make sure nothing in the package is damaged. You should have received the following items inside the package.

Machine X 1	User manual X 1	Mains input line X 1	USB cable X 1

OPERATION

Before turning on the device, please reserve a distance of more than 300mm above the device and 200mm to the left and right to ensure for heat dissipation,To ensure the best operation, the ambient temperature should be between 0-50 ° C.
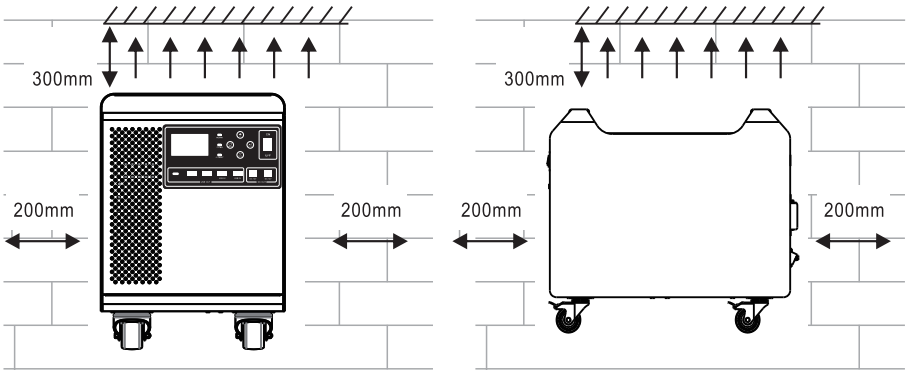
PV Panel Selection

When choosing the right PV module, be sure to consider the following parameters:

1. The open-circuit voltage (VOC) of the PV module does not exceed the maximum open-circuit voltage of the PV array of the inverter.

2. The open circuit voltage (VOC) of the PV module should be higher than the minimum value of the cell voltage.

3. The maximum power point voltage of the photovoltaic array should be close to the MPPT optimal working voltage of the inverter or within the MPPT working voltage range. If a photovoltaic module cannot meet this requirement, it is necessary to connect the photovoltaic modules in series to meet the requirements. See the table below.

Power	3KW
Maximum charging current	60A
PV open circuit voltage	160VDC
Photovoltaic MPPT voltage range	30-128VDC
System battery voltage	25.6VDC

PV Panel Connection

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 PV module connection. To reduce risk of injury, please use the proper recommended cable size as below.

Model	Typical Amperage	Cable size
3KW DC24V	18A	12AWG

Connect PV panel to the UNIT through the MC4 PV input port.

MC4 Connector
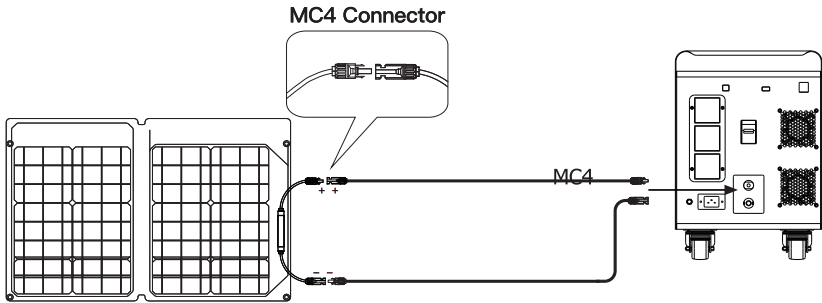
AC input connection

Use the mains input line witch is contained in the package to charge the battery . Connect the unit to the grid trough the AC input port.
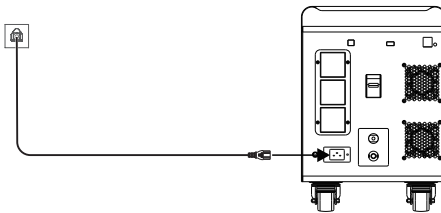
Dry Contact Signal

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

Unit status	Condition		Dry contact port:	
			NC&C	NO&C
Power Off	Unit is off and no output is powered.		Close	Open
Power On	output is powered from Utility		Close	Open
	Output is powered from Battery or Solar.	Program 01 set as utility	Battery voltage<Low DC warning voltage	Open	Close
			Battery voltage>Setting value in Program 21	Close	Open
		Program 01 is set as SBU, SUB, solar first	Battery voltage<Setting value in Program 20	Open	Close
			Battery voltage>Setting value in Program 21	Close	Open

## Upper Computer Communication

Please use the supplied USB communication cable to connect the device and PC.
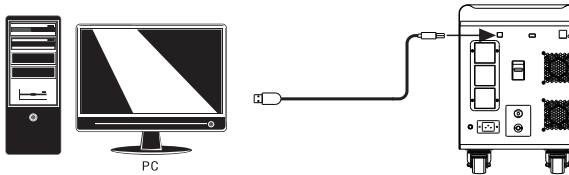
Download the software by link on the first page of this manual into PC and follow instruction on screen to install the monitoring software.

Power ON/OFF

The unit could be turned on by simply pressing the ON/OFF switch(located on the front of the case). After power on, you can directly take power from the AC output socket. You can take power from DC output without turning on the unit.
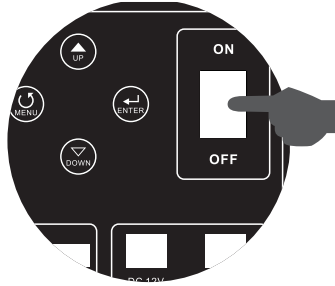
Operation and Display Panel

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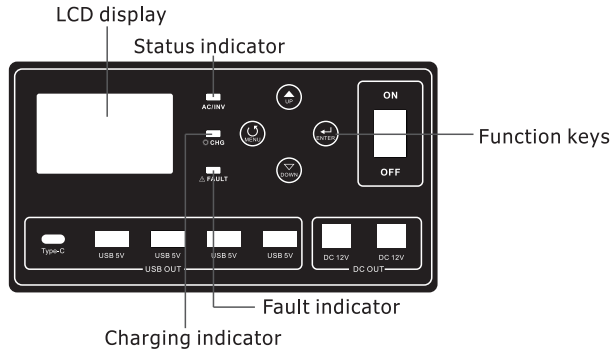
LED Indicator

LED Indicator			Messages
AC/INV	Green	Solid On	Output is powered by grid in Line mode.
		Flashing	Output is powered by battery or PV in battery mode.
CHG	Yellow	Flashing	Battery is charging or discharging.
FAULT	Red	Solid On	Fault occurs in the inverter.
		Flashing	Warning condition occurs in the inverter.

Function Keys

Function Keys	Description
MENU	Enter reset mode or setting mode go to previous selection.
UP	Increase the setting data.
DOWN	Decrease the setting data.
ENTER	Enter setting mode and Confirm the selection in setting mode go to next selection or exit the reset mode.

LCD Display Icons
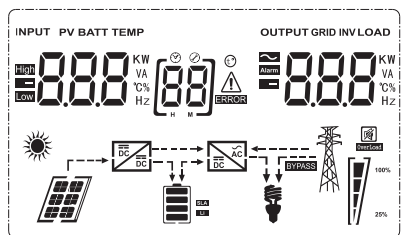
Icon	Function description
Input Source Information and Output Information	
～	Indicates the AC information.
▬	Indicates the DC information.
888 KW VA °C% Hz	Indicate input voltage, input frequency, PV voltage, battery voltage and charger current. Indicate output voltage, output frequency, load in VA, load in Watt and discharging current.
Configuration Program and Fault Information	
[88]	Indicates the setting programs.
88 ⚠ ERROR	Indicates the warning and fault codes. Warning: flashing 88 ⚠ with warning code. Fault: lighting 88 ERROR with fault code.
Battery Information	
🔋 SLA Li	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.

In AC mode, it will present battery charging status.

Status	Battery voltage	LCD Display
Constant Current mode / Constant Voltage mode	<2V/cell	4 bars will flash in turns.
	2 ~ 2.083V/cell	Bottom bar will be on and the other three bars will flash in turns.
	2.083 ~ 2.167V/cell	Bottom two bars will be on and the other two bars will flash in turns.
	> 2.167 V/cell	Bottom three bars will be on and the top bar will flash.
Batteries are fully charged.		4 bars will be on.

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

Load Information

OVER LOAD	Indicates overload.			
	Indicates the load level by 0-24%, 25-49%, 50-74% and 75-100%.			
	0%~24%	25%~49%	50%~74%	75%~100%
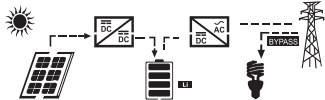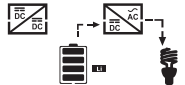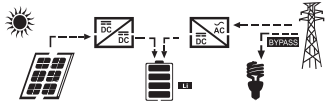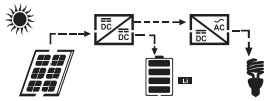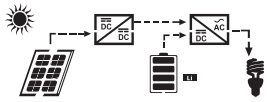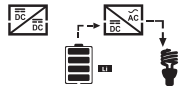
Mode Operation Information

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

Mute Operation

	Indicates unit alarm is disabled.

Operating State Description

Operation state	Description	LCD display
Utility-Tie state	PV energy is charger into the battery and utility provide power to the AC load.	PV is on PV is off
Charge state	PV energy and grid can charge batteries.	
Bypass state	Error are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.	
Off-Grid state	The inverter will provide output power from battery and PV power.	Inverter power loads from PV energy Inverter power loads from battery and PV energy Inverter power loads from battery only
Stop mode	The inverter stop working if you turn off the inverter by the soft key or error has occurred in the condition of no grid.	

Display Setting

The LCD display information will be switched in turns by pressing "UP" or "DOWN" key. The selectable information is switched as below order: battery voltage, battery current ,inverter voltage, inverter current, grid voltage, grid current, load in Watt, load in VA, grid frequency, inverter frequency, PV voltage, PV charging power, PV charging output voltage, PV charging current.

Selectable information	LCD display	
Battery voltage/DC discharging current	**BATT** 26.0 V	48.0 A
Inverter output voltage/Inverter output current	**INV** 229 V	6.70 A
Grid voltage/Grid current	229 V	3.0 A
Load in Watt/VA	1.50 KW	**LOAD** 1.68 K VA
Grid frequency/Inverter frequency	**INPUT** 50.0 Hz	**INV** 50.0 Hz
PV voltage and power	**PV** 61.0 V	1.00 KW
PV charger output voltage and MPPT charging current	**PV** 25.0 V	**OUTPUT** 40.0 A

LCD Setting

After pressing and holding "MENU" button for 6 seconds, the unit will enter reset model. Press "Up"and "DOWN" button to select programs. And then ,press "ENTER" button to exit.

SEt	(default) [dt] nrt	Reset setting disable.
	[dt] rSt	Reset setting enable.

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

Setting Programs

Program	Description	Selectable option	
00	Exit setting mode	Escape `[00] ESC`	
01	Output source priority selection	`[01] SbU`	Solar energy provides power to the loads as first priority. If battery voltage has been higher than the setting point in program 21 for 5 minutes, the inverter will turn to battery mode, solar and battery will provide power to the load at the same time. When the battery voltage drops to the setting point in program 20, the inverter will turn to bypass mode, utility provides power to the load only, and the solar will charge the battery at the same time.
		`[01] SOL`	Solar energy provides power to the loads as first priority. If battery voltage has been higher than the setting point in program 21 for 5 minutes, and the solar energy has been available for 5 minutes too, the inverter will turn to battery mode, solar and battery will provide power to the load at the same time. When the battery voltage drops to the setting point in program 20, the inverter will turn to bypass mode, utility provides power to the load only, and the solar will charge the battery at the same time.
		(default) `[01] Uti`	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.

02	AC input voltage range	Appliances (default) `02 APL`	If selected, acceptable AC input voltage range will be within 90VAC-280VAC.
		UPS `02 UPS`	If selected, acceptable AC input voltage range will be within 170VAC-280VAC.
		VDE `02 VdE`	If selected, acceptable AC input voltage range will conform to VDE4105(184VAC-253VAC)
		GEN `02 GEN`	When the user uses the device to connect the generator, select the generator mode.
03	Output voltage	`03 230v`	Set the output voltage amplitude, (220VAC-240VAC)
04	Output frequency	50HZ(default) `04 50.0`	60HZ `04 60.0`
05	Solar supply priority	`05 bLU`	Solar energy provides power to charge battery as first priority
		(default) `05 LbU`	Solar energy provides power to the loads as first priority
06	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable `06 bYd`	Bypass enable (default) `06 bYE`
07	Auto restart when overload occurs	Restart disable (default) `07 Lrd`	Restart enable `07 LrE`
08	Auto restart when over temperature occurs	Restart disable (default) `08 trd`	Restart enable `08 trE`
10	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first `10 CSO`	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility (default) `10 SNU`	Solar energy and utility will charge battery at the same time.

		Only Solar	Solar energy will be the only charger source no matter utility is available or not.
		[10] 050	
		If this inverter/charger is working in Battery mode or Power saving mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.	
11	Maximum solar charging current	60A (default) [11] 60 A	Setting range is from 1 A to 60A. Increment of each click is 1A.
13	Maximum utility charging current	60A (default) [13] 60 A	Setting range is from 1 A to 60A. Increment of each click is 1A.
17	Bulk charging voltage (C.V voltage)	28.4V (default) [17] Cv 28.4 v	Setting range is from 24.0V to 29.2V for. Increment of each click is 0.1V
18	Floating charging voltage	27.0V (default) [18] FLv 27.0 v	Setting range is from 24.0V to 29.2V. Increment of each click is 0.1V.
19	Low DC cut off battery voltage setting	22.4V (default) [19] COv 22.4 v	Setting range is from 20.0V to 24.0V. Increment of each click is 0.1V.
20	Battery stop discharging voltage when grid is available	23.0V (default) [20] 230 v	Setting range is from 22.0V to 29.0V. Increment of each click is 0.1V
21	Battery stop charging voltage when grid is available	27.0V (default) [21] 27.0 v	Setting range is from 22.0V to 29.0V. Increment of each click is 0.1V
22	Auto turn page	(default) [22] PtE	If selected, the display screen will auto turn the display page.
		[22] Ptd	If selected, the display screen will stay at latest screen user finally switches.
23	Backlight control	Backlight on [23] LOn	Backlight off(default) [23] LOF
24	Alarm control	Alarm on (default) [24] hOO	Alarm off [24] hOE

25	Beeps while primary source is interrupted	Alarm on	Alarm off (default)
		[25] AON	[25] AOF

27	Record Fault code	Record enable (default)	Record disable
		[27] FON	[27] FOF

28	Solar power balance: When enabled, solar input power will be automatically adjusted according to connected load power.	Solar power balance enable [28] SbE	If selected, the solar input power will be automatically adjusted according to the following formula: Max. Input solar power = Max. battery charging power + Connected load power when the machine in OffGrid workstate.
		Solar power balance disable (default) [28] Sbd	If selected, the solar input power will be the same to max. Battery charging power no matter how much loads are connected. The max. battery charging power will be based on the setting current in program 11 (Max. solar power = Max. battery charging power)

29	Power saving mode enable/ disable	Saving mode disable (default) [29] SdS	If disable, no matter connected load is low or high, the on/off status of inverter output will not be effected.
		Saving mode enable [29] SEN	If enable, the output of inverter will be off when connected load is pretty low or not detected.

30	Battery equalization	Battery equalization [30] EEN	Battery equalization disable(default) [30] EdS

31	Battery equalization voltage	28.8V (default) [31] EV 28.8 V	Setting range is from 24.0V to 29.0V. Increment of each click is 0.1V

33	Battery equalization time	60min(default) [33] 60	Setting range is from 5 min to 900min. Increment of each clink is 5min.

34	Battery equalization timeout	120min(default) [34] 120	Setting range is from 5 min to 900min. Increment of each clink is 5min.

35	Equalization interval	30days(default) [35] 30d	Setting range is from 0 to 90days. Increment of each clink is 1 day.

36	Equalization activated immediately	Enable [36] AEN	Disable(default) [36] AdS

If equalization function is enabled in program 30, this program can be set up. If "Enable"is selected in this program, it's to activate battery equalization immediately and LCD main page will shows " Eq ". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, " Eq " will be shown in LCD main page too.

Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off	01 ⚠ ERROR
02	Inverter transformer over temperature	02 ⚠ ERROR
03	battery voltage is too high	03 ⚠ ERROR
04	battery voltage is too low	04 ⚠ ERROR
05	Output short circuited	05 ⚠ ERROR
06	Inverter output voltage is high	06 ⚠ ERROR
07	Overload time out	07 ⚠ ERROR
08	Inverter bus voltage is too high	08 ⚠ ERROR
09	Bus soft start failed	09 ⚠ ERROR
11	Main relay failed	11 ⚠ ERROR
21	Inverter output voltage sensor error	21 ⚠ ERROR
22	Inverter grid voltage sensor error	22 ⚠ ERROR
23	Inverter output current sensor error	23 ⚠ ERROR
24	Inverter grid current sensor error	24 ⚠ ERROR
25	Inverter load current sensor error	25 ⚠ ERROR
26	Inverter grid over current error	26 ⚠ ERROR
27	Inverter radiator over temperature	27 ⚠ ERROR
31	Solar charger battery voltage class error	31 ⚠ ERROR
32	Solar charger current sensor error	32 ⚠ ERROR
33	Solar charger current is uncontrollable	33 ⚠ ERROR
41	Inverter grid voltage is low	41 ⚠ ERROR
42	Inverter grid voltage is high	42 ⚠ ERROR

43	Inverter grid under frequency	[43] ⚠ ERROR
44	Inverter grid over frequency	[44] ⚠ ERROR
51	Inverter over current protection error	[51] ⚠ ERROR
52	Inverter bus voltage is too low	[52] ⚠ ERROR
53	Inverter soft start failed	[53] ⚠ ERROR
55	Over DC voltage in AC output	[55] ⚠ ERROR
56	Battery connection is open	[56] ⚠ ERROR
57	Inverter control current sensor error	[57] ⚠ ERROR
58	Inverter output voltage is too low	[58] ⚠ ERROR

Warning Indicator

Fault Code	Fault Event	Icon on
61	Fan is locked when inverter is on.	[61] ⚠ ERROR
62	Fan 2 is locked when inverter is on.	[62] ⚠ ERROR
63	Battery is over-charged.	[63] ⚠ ERROR
64	Low battery.	[64] ⚠ ERROR
67	Overload.	[67] ⚠ ERROR 💡 100% 25%
70	Output power derating.	[70] ⚠ ERROR
72	Solar charger stops due to low battery.	[72] ⚠ ERROR
73	Solar charger stops due to high PV voltage.	[73] ⚠ ERROR
74	Solar charger stops due to over load.	[74] ⚠ ERROR
75	Solar charger over temperature.	[75] ⚠ ERROR
76	PV charger communication error.	[76] ⚠ ERROR
77	Parameter error.	[77] ⚠ ERROR

TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (< 1.91V/Cell)	1. Re-charge battery. 2. Return to repair center.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Battery polarity is connected reversed. Input protector is tripped	1. Check if the battery breaker is ON. 2. Re-charge battery. 3. Return to repair center.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct.(Appliance=>wide)
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 the bettery breaker in ON.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
	Fault code 02	Internal temperature of inverter component is over 90oC.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 03	Battery is over-charged.	Return to repair center.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 202Vac or is higher than 253Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components filed.	Return to repair center
	Fault code 51	Over current or surge	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low	
	Fault code 55	Output voltage is unbalanced	
	Fault code 56	Battery is not connected well or fuse is burnt.	If the battery is connected well, please return to repair center.

SPECIFICATIONS

MODEL		CW-PR-3K3W-01
INVERTER OUTPUT	Rated power	3000W
	Output Waveform	Pure Sine Wave
	Output voltage	230V ±5%
	Output frequency	50Hz / 60Hz (±0.2Hz)
	Peak efficiency	90%
	Standby Consumption	< 25W
PV Input	Max charging current	60A (±3A)
	Max combined charging current	100A (±4A)
	Max efficiency	98% max
	PV array open circuit voltage	160VDC
	PV Array MPPT Voltage Range	30~128V
AC Input	AC input voltage	230Vac ±5%
	Input voltage range	90-280VAC
	Nominal input frequency	50Hz / 60Hz (Auto detection)
	Transfer time	10ms typical (UPS, VDE); 20ms typical (APL)
	Max AC Charging current	60A (±4A)
DC Output	USB 5V	4PCS (5V 2A)
	12V	2PCS (12V 1A)
	Type-c	1PCS (5V 2A)
Battery	Material	LiFePO4
	Nominal voltage	25.6V
	Battery capacity	125Ah/3200Wh
	Rated current	150A
	Operation temperature — Charge	0°C to 45°C
	Operation temperature — Discharge	-10°C to 60°C