

**MARSRIVA**

# **User Manual**

Online UPS

[www.marsriva.com](http://www.marsriva.com)

# Safety precautions

## Operation safety

- 1 . Before using this product, please read "safety precautions" carefully to ensure correct and safe use, and please keep the manual properly.
- 2 . During operation, please pay attention to all warning signs and operate as required.
- 3 . Avoid using the device in direct sunlight, rain or humid environment.
- 4 . This equipment cannot be installed near the heat source area or similar equipment such as electric heater and hot stove.
- 5 . A safe distance and ventilation shall be reserved around the UPS. Please refer to the manual for installation.
- 6 . Please use dry cleaning tools for wiping or cleaning the UPS.
- 7 . In case of fire, please use the dry powder extinguisher correctly. There is a risk of electric shock if a liquid fire extinguisher is used.

## Electrical safety

- 1 . The battery life is shortened with the increase of ambient temperature. Regular battery replacement can ensure the UPS to work normally and ensure sufficient backup time.
- 2 . Battery maintenance can only be carried out by personnel with battery expertise.
- 3 . There is a risk of electric shock and short circuit current in the battery. In order to avoid personal injury caused by electric shock, please observe the following warnings when replacing the battery:
  - Do not wear watches, rings or similar metal objects.
  - Use insulated tools.
  - Do not place metal tools or similar metal parts on the battery.
  - Before removing the battery connection terminal, the load connected to the battery must be disconnected.
- 4 . Please do not expose the battery to the fire to avoid explosion and personal safety.
- 5 . Non-professionals should not open or damage the battery, because the electrolyte in the battery contains dangerous substances such as strong acid, which will cause harm to the skin and eyes. If you accidentally touch the electrolyte, immediately wash it with plenty of water and go to the hospital for examination.
- 6 . Please do not short-circuit the positive and negative poles of the battery, which may cause electric shock or fire.

## Use and maintenance

- 1 . The use environment and preservation method have influence on the service life and reliability of this product. Please do not use it in the following working environment:
  - High, low temperature and humid places exceeding the technical specifications (temperature 0 °C - 40 °C, relative humidity 20% - 90%).
  - Places with vibration and vulnerability.
  - Places with metal dust, corrosive substance, salt and combustible gas.
- 2 . If it is not used for a long time, the UPS (without battery) must be stored in a dry environment, and the storage temperature range: - 15 °C - + 60 °C. Before starting UPS, the ambient temperature must be warmed to above 0 °C and maintained for more than 2 hours.

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# 1 . Introduction

This series of UPS is an on-line sine wave uninterruptible power supply system with bypass maintenance switch, which can provide reliable and high-quality AC power for your precision equipment. It can be used in a wide range, from computer equipment, communication system to industrial automatic control equipment. Because of its on-line design, it is different from the backup ups. It continuously adjusts and filters the input voltage. When the power supply is interrupted, it will provide the backup power from the backup battery without time interruption. In case of overload or inverter failure, ups will switch to bypass state and be powered by mains. If the overload condition is eliminated, the ups will automatically switch back to the inverter power supply state.

## 1.1 Models

This manual is applicable to the following products, including:

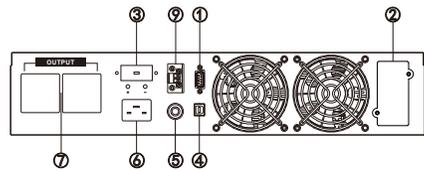
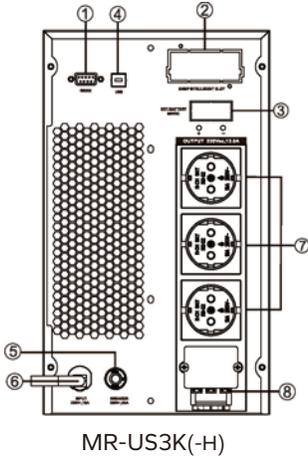
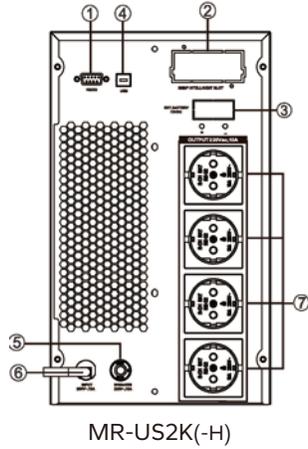
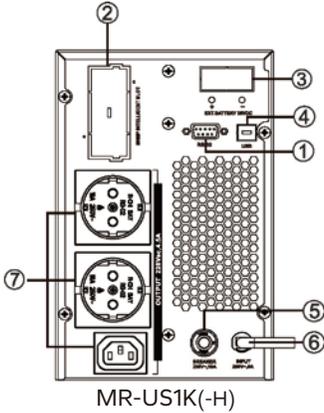
Model	Description
US1K / US1KRT	1KVA/1KW Online UPS Standard Machine (Tower Type/Rack Type)
US2K / US2KRT	2KVA/2KW Online UPS Standard Machine (Tower Type/Rack Type)
US3K / US3KRT	3KVA/3KW Online UPS Standard Machine (Tower Type/Rack Type)
US6K	6KVA/6KW Online UPS Standard Machine (Tower Type)
US10K	10KVA/10KW Online UPS Standard Machine (Tower Type)
US1K-H / US1KRT-H	1KVA/1KW Online UPS Long-backup Machine (Tower Type/Rack Type)
US2K-H / US2KRT-H	2KVA/2KW Online UPS Long-backup Machine (Tower Type/Rack Type)
US3K-H / US3KRT-H	3KVA/3KW Online UPS Long-backup Machine (Tower Type/Rack Type)
US6K-H / US6KRT-H	6KVA/6KW Online UPS Long-backup Machine (Tower Type/Rack Type)
US10K-H / US10KRT-H	10KVA/10KW Online UPS Long-backup Machine (Tower Type/Rack Type)

- Machines without "-H" in the model name is Standard Machine. They have built-in batteries and do not support external battery expansion.
- Machines with "-H" in the model name is Long-backup Machine. They don't have built-in batteries and require users to purchase battery for connections.
- Models without "RT" are Tower Type machines, and models with "RT" are Rack Type machines.
- Tower and Rack machines are only different in shape and structure, and there is no difference in specifications and parameters

# 1.2 Rear view

These diagrams are for reference only. The positions of the interfaces on the UPS rear panel may vary due to different versions. Please refer to the actual product.

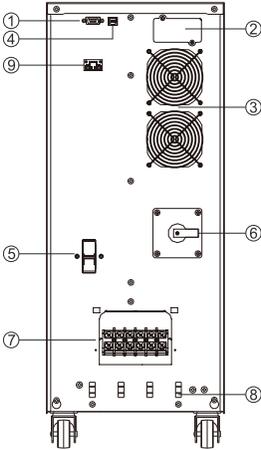
## MR-US1K/2K/3K(-H) Rear view



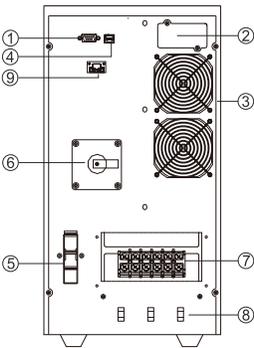
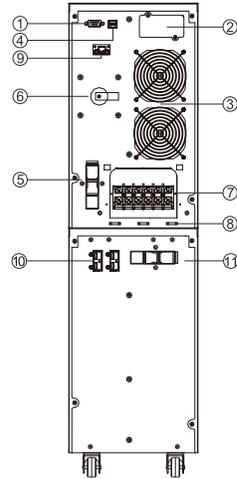
- ① RS232 communication port
- ② Smart slot
- ③ External battery connection  
(only available for “-H” model)
- ④ USB communication port

- ⑤ Input circuit breaker
- ⑥ AC Input
- ⑦ Output receptacles
- ⑧ Output terminal
- ⑨ EPO
- ⑩ Battery pack interface

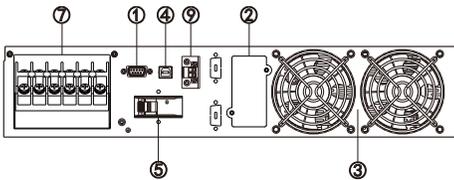
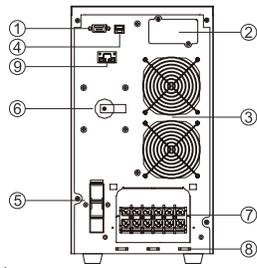
# MR-US6K/10K(-H) Rear view



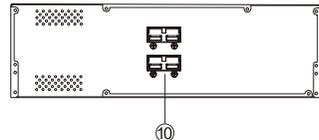
MR-US6K/10K



MR-US6K/10K(-H)



RT: MR-US6K/10K(-H)



Battery Pack

- ① Computer interface
- ② Smart slot (optional)
- ③ Fan
- ④ USB (optional)
- ⑤ Input protection switch
- ⑥ Maintenance switch (optional)

- ⑦ Terminal strip
- ⑧ Corbel
- ⑨ EPO
- ⑩ Battery interface
- ⑪ Battery protection switch

## 1.3 Specification

Model	Standard Machine			Long-backup Machine		
	1K	2K	3K	1K-H	2K-H	3K-H
Rated Capacity	1KVA/1KW	2KVA/2KW	3KVA/3KW	1KVA/1KW	2KVA/2KW	3KVA/3KW
<b>INPUT</b>						
Input Phase	Single Phase (L+N+PE)					
Nominal Input Voltage	208VAC-240VAC					
Voltage Range	110VAC-300VAC @within 50% load; 176VAC-280VAC @100% load					
Frequency Range	50/60Hz±6Hz					
Input Power Factor	≥0.99					
Input Harmonic Distortion	≤3% THD (linear load), ≤5% THD (non-linear load), PF=0.8					
<b>OUTPUT</b>						
Output Phase	Single Phase (L+N+PE)					
Nominal Output Voltage	208/220/230/240VAC (Settable) @AC Mode & Battery Mode					
Voltage Regulation	±1%					
Output Frequency	AC/Bypass Mode: Sync to mains; Battery Mode: 50/60Hz±1%					
Output Power Factor	1.0					
Output Harmonic Distortion	≤1% THD (linear load), ≤3% THD (non-linear load), PF=0.8					
Switching Time	AC to Battery: 0ms; AC to Bypass: 4ms					
Overload Capacity	AC Mode:			Battery Mode:		
	30min @102%-110% load 10min @110%-130% load 30s @130%-150% load 200ms @>150% load			1min @102%-110% load 10s @110%-130% load 3s @130%-150% load 200ms @>150% load		
When the overload duration of AC Mode passes, UPS enters Bypass Mode. When the overload duration of Battery Mode passes, UPS will shut down. When in Bypass Mode, UPS work continuously when load ratio is less than 130%; When the load is greater than 130%, screen shows error code, after 10 minutes UPS shuts down and beeps urgently.						
<b>EFFICIENCY</b>						
AC Mode	1K: 94.5% (Max.); 2-3K: 95.5% (Max.)					
ECO Mode	98.5% (Max.)					
Battery Mode	1K: 89.5% (Max.); 2-3K: 91.5% (Max.)					
<b>BATTERY</b>						
Battery Type	Lead-acid Battery					
Battery Voltage	24VDC	48VDC	72VDC	36VDC	72VDC	96VDC
Battery Capacity & Quantity	7Ah*2/ 9Ah*2	7Ah*4/ 9Ah*4	7Ah*6/ 9Ah*6	Connect external batteries based on the required backup time		
Charging Current	Default 1.0A (Not settable)			5.0A (Default), 1-12A (Settable)		
Charging Method	Three stage charging: Constant Current (CC) - Constant Voltage (CV) - Float Charge					

Model	Standard Machine		Long-backup Machine	
	6K	10K	6K-H	10K-H
Rated Capacity	6KVA/6KW	10KVA/10KW	6KVA/6KW	10KVA/10KW
<b>INPUT</b>				
Input Phase	Single Phase (L+N+PE)			
Nominal Input Voltage	208VAC-240VAC			
Voltage Range	110VAC-300VAC @within 50% load; 176VAC-280VAC @100% load			
Frequency Range	50/60Hz±6Hz			
Input Power Factor	≥0.99			
Input Harmonic Distortion	≤5% THD (linear load), ≤8% THD (non-linear load), PF=0.8			
<b>OUTPUT</b>				
Output Phase	Single Phase (L+N+PE)			
Nominal Output Voltage	208/220/230/240VAC (Settable) @AC Mode & Battery Mode			
Voltage Regulation	±1%			
Output Frequency	AC/Bypass Mode: Sync to mains; Battery Mode: 50/60Hz±1%			
Output Power Factor	1.0			
Output Harmonic Distortion	≤2% THD (linear load), ≤5% THD (non-linear load), PF=0.8			
Switching Time	AC to Battery: 0ms; AC to Bypass: 4ms			
Overload Capacity	AC Mode:		Battery Mode:	
	30min @102%-110% load 10min @110%-130% load 30s @130%-150% load 500ms @>150% load		10min @102%-110% load 1min @110%-130% load 10s @130%-150% load 500ms @>150% load	
When the overload duration of AC Mode passes, UPS enters Bypass Mode. When the overload duration of Battery Mode passes, UPS will shut down. When in Bypass Mode, UPS work continuously when load ratio is less than 130%; When the load is greater than 130%, screen shows error code, after 10 minutes UPS shuts down and beeps urgently.				
<b>EFFICIENCY</b>				
AC Mode	95.5% (Max.)			
ECO Mode	98.5% (Max.)			
Battery Mode	94.8% (Max.)			
<b>BATTERY</b>				
Battery Type	Lead-acid Battery			
Battery Voltage	192VDC-240VDC (16-20 pcs)			
Battery Capacity & Quantity	7Ah*16/9Ah*16		Connect external batteries based on the required backup time	
Charging Current	Default 1.0A (Not settable)		5.0A (Default), 1-12A (Settable)	
Charging Method	Three stage charging: Constant Current (CC) - Constant Voltage (CV) - Float Charge			

DIMENSION			
Tower Type		Rack Type	
Model	Size (mm), D*W*H	Model	Size (mm), W*H*D
MR-US1K	276 * 145 * 225	MR-US1KRT	438 * 88 * 385
MR-US2K	392 * 145 * 225	MR-US2KRT	438 * 88 * 385
MR-US3K	395 * 190 * 325	MR-US3KRT	438 * 88 * 385
MR-US6K	460 * 190 * 615	MR-US1KRT-H	438 * 88 * 385
MR-US10K	460 * 190 * 615	MR-US2KRT-H	438 * 88 * 385
MR-US1K-H	276 * 145 * 225	MR-US3KRT-H	438 * 88 * 385
MR-US2K-H	392 * 145 * 225	MR-US6KRT-H	438 * 88 * 385
MR-US3K-H	392 * 145 * 225	MR-US10KRT-H	438 * 88 * 385
MR-US6K-H	395 * 190 * 325	MR-PBC192-7	438 * 88 * 690
MR-US10K-H	395 * 190 * 325	MR-PBC192-9	438 * 88 * 690

Notice: Because the battery capacity of each UPS model are different, the products weight are different, the actual product serves as the standard.

GENERAL	
Operating Ambient	Temperature 0 C ~ 40 C, Relative Humidity 20%~95% (No-condensing)
Storage Temperature	-15 C ~ 60 C (Battery 0 C ~ 40 C)
Operating Altitude	<1000m for rated power
Noise Level	1-3K: <50dB @1meter; 6-10K: <60dB @1meter
Interface	RS232, USB, EPO, Smart Card Slot
PC Monitoring Software	Management for Windows, Linux, Unix, FreeBSD
Certification standard	EN/IEC 61000, EN/IEC 62040, ROHS

Load at altitude= Rated Power x Derating factor(Altitude corresponding)

Altitude(m)	1000	1500	2000	2500	3000	3500	4000	4500	5000
Derating factor	100%	95%	91%	86%	82%	78%	74%	70%	67%

Notice:If the machine is used at above 1000m,Diminishing ratings output must be used, please refer to above table for derating factor.

Because UPS model's parameters is different, so the product weight is different, please according to the physical object. If necessary, please consult with the sales.

## 2. Installation

 **Warning:** To ensure safety, please pay attention to cut off the AC BREAKER before installation. The battery breaker also need to be cut off, if it is a Long-backup model.

 **Caution:**

- 1.Installation and wiring must be performed by professional personnel in accordance with local regulations.
- 2.UPS need to connected to the GROUND.

### 2.1 Symbol

Inspect the appearance of the UPS to see if there is any damage during transportation. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or lacking some parts.

 **Recycling:** The packing boxes are recyclable, so please keep them well for using in the future.

### 2.2 Writing schedule

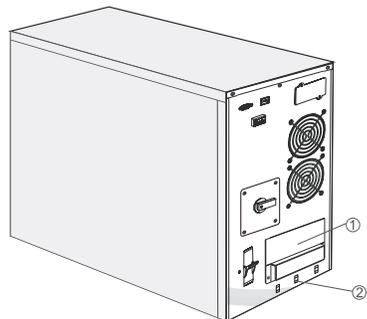
 **Attention:** The diameter of the cable and the cross-sectional area of the three wires depend on the real power of the UPS.

Model	Wire Diameter			
	AC Input	AC Output	Battery	Earth Wire
6KVA	AWG10 / 6mm <sup>2</sup>			
10KVA	AWG8 / 10mm <sup>2</sup>			

### 2.3 UPS connection

 **Warning:** The rated current for the switch of the AC power must be larger than the UPS maximum input current. Otherwise the switch of the AC power will be burned and destroyed.

1. Please choose the wire according to the table of wiring.
2. Remove the terminal cover on the back panel of the UPS①.
3. Connect the input and output wires to the corresponding input and output terminals.
4. Tie the wire tightly and pass through the holes②.
5. Tie the input, output and battery terminal blocks with the wire, adjust the wire to the appropriate position, and fix the cable.

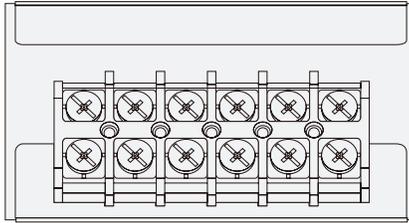




Warning: When you are connecting the wire, please make sure that the wires and the terminal blocks are connected tightly.

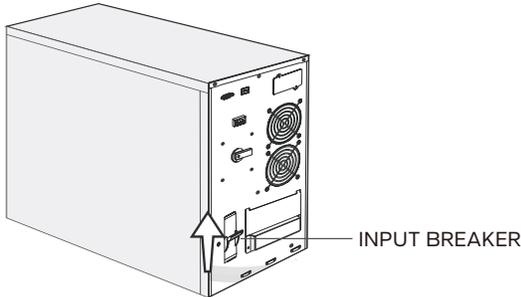
Input		Battery		Output	
N	L	+	-	L	N

Terminals block:



MR-US6K(-H)/MR-US10K(-H)

6. Reinstall the cover and lock the cover with a screwdriver.
7. After connecting the wire and AC, then put the UPS INPUT BREAKER to "ON", the UPS will be powered.



## 2.4 External battery connection of Long-backup UPS

The nominal DC voltage of each Long-backup model is as below. Each model requires a certain number of 12V lead-acid batteries to be connected in series and then connected to UPS. To achieve longer backup time, it is possible to connect large-capacity batteries or use multiple battery packs in parallel.

The battery connecting procedure is very important, if you don't follow the procedure, you may encounter the hazards of electric shock. So please strictly follow the steps below.

1. Set the Battery BREAKER in the "OFF" position and connect the right number of batteries in series. If the rear panel of the UPS is not equipped with a battery breaker, it is necessary to buy a DC circuit breaker and install it on the positive cable between the battery pack and the UPS.
2. Select suitable battery wires to connect between the battery pack and UPS. (Refer to 2.2) A DC breaker must be connected between the battery pack and the UPS. The rated current of the breaker must be not less than the data specified in the general.

Model	1K-H	2K-H	3K-H	6K-H	10K-H
Battery Voltage	36VDC	72VDC	96VDC	192VDC	192VDC
Battery current	36A	36A	36A	36A	36A

The rated current here is calculated according to the following formula standard  
 $\text{Rated Power} \times 130\% / \text{Nominal Battery Voltage} = \text{Rated Current}$

3. Connect the ends of the battery cables to the battery pack first, then connect to the UPS. Do not connect any load before starting the UPS. Please turn on the battery breaker first, then connect the AC power input, the UPS will start and charge the battery pack.

**Warning:** Please do not connect to the terminals of UPS first, otherwise you may encounter the hazardous of electric shock.

**Caution:** “⊕” is Grounding mark.

## 2.5 Communication Connection

### RS232:

Use the equipped RS232 communication cable to connect to the computer's RS232 port and UPS's RS232 port. Then use the monitoring software on the computer to monitor the working data of UPS.

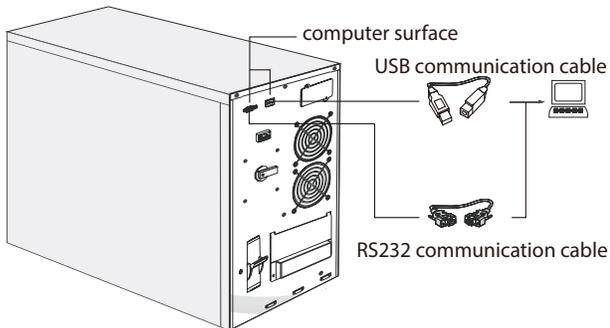
### USB:

Use the equipped USB communication cable to connect to the computer's USB port and UPS's USB port. Then use the monitoring software on the computer to monitor the working data of UPS.

### SNMP:

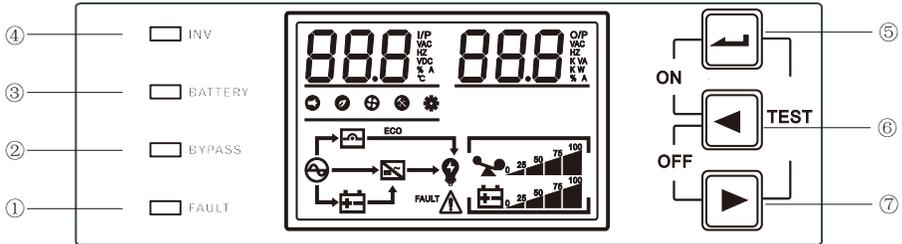
Insert the SNMP card into the smart card slot, and configure and use it according to the SNMP card manual.

By default, the UPS is not equipped with an SNMP card. If you need to use an SNMP card, please consult your local supplier whether they sell compatible SNMP cards, or ask MARSRIVA for usable SNMP card brands and models.



# 3. Operation Panel

## 3.1 Panel display



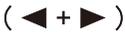
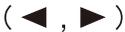
### Display Icons & Function Description

Error message	
FAULT	Failure occurred
	Warnings
BB	Fault code
UPS Working Data	
	Input Data (I/P): VAC: Input AC voltage; HZ: Input frequency; VDC: Battery volatge; A: Charging current; °C: Internal temperature;
	Output Data (O/P): VAC: Output AC voltage; HZ: Output frequency; VA: Apperant power; W: Active power; %: Load ratio or Battery capacity;
Load Information	
	The load ratio (0-25%,26%-50%,51 %-75%,76%-100%) is shown here, and the overload icon flashes when overload.
Battery Information	
	The battery capacity (0-25%,26%-50%,51 %-75%, 76%-100%) is displayed separately, and the battery icon flashes when the battery is low or not connected.
Other Information	
	AC
	BATTERY
	Bypass
	Inverter
	Output working
	Mute icon: Mute function is on.
	ECO icon: ECO function is on.
	Fan icon: Icon will always on when the fan is normal, and flashes when the fan is failure.
	Maintenance icon: When the maintenance switch is turned on, the icon lights up.
	Setting icon: When entering the setting menu, the icon will light up.

## 3.2 LED indicator

- ① Inverter indicator - GREEN: LED is always on when UPS work in the inverter mode (such as: AC mode, battery mode, battery self-test mode, ECO mode, frequency conversion mode).
- ② Battery indicator - YELLOW: LED is always on when UPS work in battery mode and battery self-test mode, LED flashes and UPS alarm when battery is low.
- ③ Bypass indicator - YELLOW: LED is continuous on when UPS working in bypass mode or ECO mode. When UPS working in standby mode, its frequency conversion do not turn on and bypass abnormal, LED flashes.
- ④ Fault indicator - RED: flashing when UPS alarm, and always on when fault.

## 3.3 Function of buttons

Button	
Combo key for Turning on the UPS 	Bypass Mode/Standby Mode: When UPS is off, press the combo key over 1 second to enter Bypass Mode/Standby Mode. AC Mode/Battery Mode: When in Bypass Mode/Standby Mode, press the combo key over 1 second to enter AC Mode/Battery Mode.
Combo key for Turning off the UPS 	In AC Mode: press the combo key over 1 second, UPS exits AC mode and enter Bypass Mode/Standby Mode. In Battery Mode: press the combo key over 1 second, UPS exits Battery mode and enter Standby Mode. After 1 minute, UPS will shut down, and screen will turn off.
Combo key for Self-checking and Mute function 	Self-checking: In AC mode, press the combo key over 2 second, to test the UPS and battery. Mute: In Battery mode, press the combo key over 2 second, to erase Alarm. Press the combo key over 2 second again, to recover Alarm.
Function setting/ Confirmation key 	Function setting: press the key over 2 seconds to enter the function setting page, determine the setting options. Press the key more than 2 seconds again to return to the main page. Confirmation: In the function setting page, press the confirmation key 2 seconds to confirm the setting options.
Page turning/ Query key 	Page turning: Press ◀ or ▶ key 2 seconds to turn to previous or next page. Polling mode: press the ▶ key more than 2 seconds to enter polling mode, circularly display each page content for 2 seconds, press ▶ more than 2 seconds again to return to the main page.

## 3.4 Working status of Indicators and Buzzer

### Working status of Buzzer:

Beeping	Description
Continuous beeping	Fault mode
Beep every second	Battery low voltage in DC mode
	Overload
Beep every two minutes	Bypass mode
Beep every four seconds	Other beeping

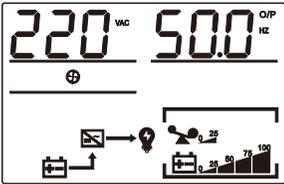
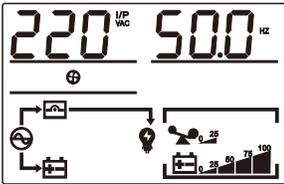
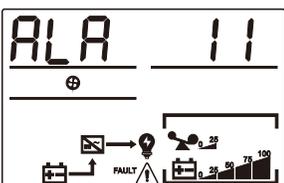
### Working status of Indicators:

Working mode	Panel display				Beeping
	Inverter LED	Battery LED	Bypass LED	Fault LED	
AC mode					
Normal working	●				N/A
Warnings	●			★	Beep every second/Beep every four seconds
Battery mode					
Warnings except the battery low voltage	●	●		★	Beep every four seconds low voltage
Battery low voltage warning	●	★		★	Beep every second
Bypass mode					
Normal working			●		Beep every two minutes
Warnings			●	★	Beep every second/Beep every four seconds
ECO mode					
Normal working	●		●		N/A
Warnings	●		●	★	Beep every second/Beep every four seconds
Other mode					
Battery self-checking mode/ Boot process	★	★	★	★	Beep every four seconds
Fault mode				●	Continuous beeping

● Indicator continuous ON. ★ Indicator flashing.

## 3.5 Working status of LCD display

AC mode	
LCD display content	Instruction
 <p>The LCD display shows '220' with 'V<sub>AC</sub>' and '50.0' with 'Hz'. Below the numbers is a battery icon with a plus sign. At the bottom, there is a diagram showing AC input, a battery, and a load, with a bar chart showing battery levels at 25%, 50%, 75%, and 100%.</p>	<p>UPS can provide stable AC output when AC input in the permissible range. In the AC mode, battery will also be charged by the UPS.</p>

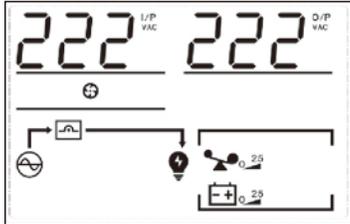
Battery mode	
LCD display content	Instruction
	<p>When the AC input is out of limited range or shut off, the UPS will turn to the battery mode. The batteries support output loading and will have beep every 4 seconds.</p>
Bypass mode	
LCD display content	Instruction
	<p>When the AC input keeps normal, start the bypass mode and UPS closed. The UPS will turn to the bypass mode, and have beep every 2 mins.</p>
AC mode	
LCD display content	Instruction
	<p>When the UPS have fault, LCD display will show the fault information.</p>

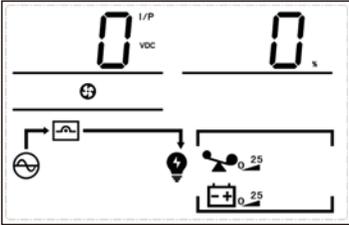
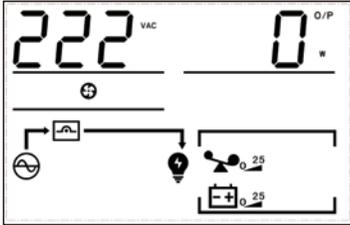
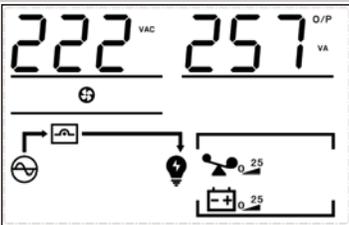
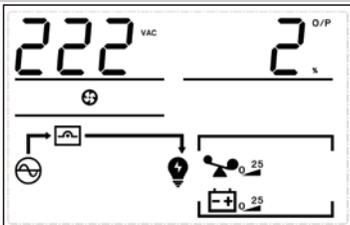
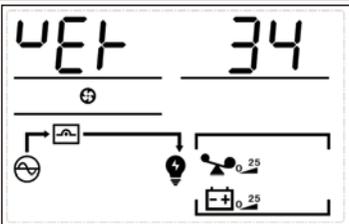
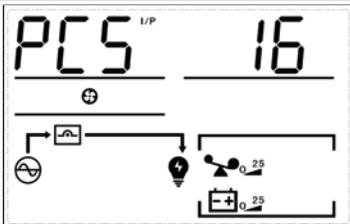
### 3.6 Parameter query

Normally the LCD display can show 8 pages totally. Press the query bottom  or  can change to the different pages which shown all information, such as input, battery, output, loading, software version, temperature, and etc. If there have alarm condition, display will add 1 more page to show the alarm information. If the UPS have fault, the default display will turn to the Fault code page automatically. The home page default display will show the fault or alarm information. When UPS keeps normal working, the home page default display will show the output voltage and frequency information.

Press  more than 2 sec, LCD will turn to the polling mode. Every 2 sec the shown display will turn page.

Press  long time LCD will turn out of the polling mode.

LCD Display 1: UPS input & output voltage	LCD Display 2: UPS input & output frequency
	

<p>LCD Display 3: Battery voltage and capacity</p> 	<p>LCD Display 4: Output voltage and Output active power</p> 
<p>LCD Display 5: Output voltage and output apparent power</p> 	<p>LCD Display 6: Output voltage and load percentage</p> 
<p>LCD Display 7: UPS system software version</p> 	<p>LCD Display 8: connected battery quantity</p> 

## 3.6 Parameter query

### •01 : Output Voltage

LCD Display	Setting
	<ol style="list-style-type: none"> <li>1. Press the function setting button ( ) over 2 sec, then go to the setting page. Press the page-turning buttons till the setting page of output voltage, and the words "OPU" flashing.</li> <li>2. Press confirm button ( ) 2sec, then go to the setting page of Output voltage OPU. The "OPU" words light on, and the the numbers by the left side of OPU keeps flashing. Press page-turning buttons ( ) or ( ) 2sec, choose different output voltage value. The optional voltage value are 208V, 220V, 230V, and 240V. The by default output voltage is 220V.</li> <li>3. Turn to the voltage value which you need, and press confirm button ( ) 2 sec, then finish the OPU setting. The number by left side of OPU will keep light on, no flashing.</li> </ol> <p>Note: When the output voltage setting with 208V, the output needs to decrease related to 90%.</p>

•02 : Other functional setting

02-1: Expert Mode (EP)

LCD Display	Setting
 	<p>The Expert Mode setting with ON, then go to the functional setting page again. The functional setting will show: Battery QTY (PCS), EPO, Charging current and other items can be chosen. When the Expert Mode setting with OFF, functional setting page will show only the general options.</p> <p>Note: The Expert Mode default to OFF. When setting as ON thenre-connected the AC power, the EP can be recovered as OFF.</p>

02-2: Battery Low voltage shutdown point/ End of Discharge voltage (EOD)

LCD Display	Setting
 	<p>The options of EOD setting are dEF, 9.8V, 9.9V, 10V, 10.2V, 10.5V.</p> <p>By default, the EOD is dEF            (The EOD will be changed automatically according to loading condition.            10.5V@ Loading&lt;25%, 10.2V@25%&lt; Loading&lt; 50%,            10V@Loading &gt;50%)</p>

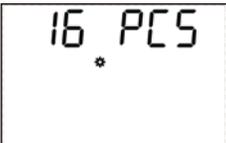
02-3: Economic Operation Mode (ECO)

LCD Display	Setting
 	<p>ECO is OFF by default, can be set as ON to improve the efficiency of system operation.</p> <p>When the AC input is within the bypass input range, the UPS is in ECO mode; when it exceeds the bypass input range but is within the AC input range, the UPS will switch to AC/Line mode.</p> <p>Note: For the models with PF&lt;1, OFF by default, and unable to set.</p>

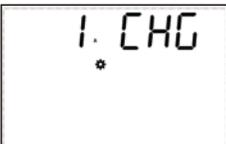
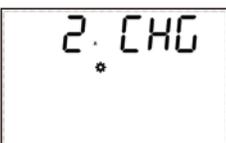
#### 02-4: Emergency shut down(EPO)

LCD Display	Setting
 	<p>When EP is set to ON, the EPO option appears on the function Settings page.emergency shutdowns can be set.Emergency shutdown function default that plug EPO terminal valid (OFF), can choose to plug EPO terminal valid (ON).</p> <p>Note: After EPO action, emergency shutdown, close all outputs immediately.</p>

#### 02-5: Battery quantity(PCS)

LCD Display	Setting
 	<p>This option is only available for the 6-10K Long-backup model. Other models will not display this option.</p> <p>When EP is set to ON, the PCS option appears on the function Settings page, will enter the password page, enter the password (the general password is 135), you can set the number of batteries.The battery number system defaults to 16pcs, which can be set to 16/18/20pcs.</p>

#### 02-6: Charger Current(CHG)

LCD Display	Setting
 	<p>When EP is set to ON, the CHG option appears on the function Settings page,charger current can be set, 1-12A optional, default 1A;</p> <p>Note: If UPS built-in batteries, the charger current default 1A, and can't be change.</p>

### 02-7: Input Neutral and Live cable reverse alarm function

LCD Display	Setting
 	<p>Input Neutral and Live cable reverse alarm mode closed by default, can choose to open to improve the safety of the system.</p> <p>Notice: This settings default closed, please open if you need.</p>

### 02-8: Bypass shut down (BYP)

LCD Display	Setting
 	<p>The Bypass function is ON by default. If it is not necessary to open the bypass in AC state and the inverter is not turned on, it can be changed to OFF.</p>

# 4. Warning Code / Fault Code and Solution

## 4.1 Warning code and solution

When the "▲" symbol on the UPS LCD flashes, the UPS is in alarm state. Press the page turn key to the error state page (refer to 3.5), observe the alarm code and make appropriate processing according to the table below.

1	No battery connection	1.Do not connect with battery 2.Battery damage	1.Check the connection of battery. 2.Change the battery
2	Battery low voltage	The battery voltage is less than the low voltage warning is below the alarm point.	After the battery has been set for a period of time, it can be turned on again. The built-in charger can be turned on to charge the battery
4	Input Neutral and Live cable is reversed.	1.Input Neutral and Live cable is reversed. 2.Input ground cable is not 3. Output ground cable is not connected.	1.Reverse the Neutral and Live cable. 2. Input+B3:C14output ground cable ensures good connection.
8	Battery over voltage	UPS detects high battery voltage	Check that the battery quantity setting is consistent with the actual battery quantity.
9	Charger failure	Abnormal charger hardware	Contact with supplier
10	Over temperature alarm	1.Fan fault 2.Air duct of UPS rear panel is blocked. 3.Overload 4.NTChardware abnormal connection abnormal 5.Power device IGBT is damaged	1.Check the rectifier fan is blocked. 2.Remove UPS back plate obstruction 3.Check the load 4.Ifthe above treatment cannot be solved, contact the supplier
12	Fan fault	1.Fan wiring is loose 2.Fan hardware abnormal	Check the fan and connection
13	AC fuse o pen	Fuse blown	Contact with supplier
14	EEPROM fault	EE PROM Chip damage	Contact with supplier
21	Over-load	The load exceed rated power	Check the load
22	3 times consecutive	3 times consecutive overload locks	Shut down and restart UPS
23	EPO action	Press EPO button	1. Release EPO button 2.Check the wiring harness on EPO button
24	Maintenance switch action	The maintenance switch is pressed	Release maintenance switch

## 4.2 Fault code and solution

When the " **FAULT**" is long bright, and "  symbol on the UPS LCD flashes, the UPS is in fault state. UPS automatically switches to the error status page (refer to 3.5) to observe the fault code and make appropriate processing according to the following table.

Fault code	Indication	Possible reasons	Treatment measure
1	Bus boosting soft start fail	1.AC abnormal 2.Abnormal soft-starting circuit of bus	Check the Main, if all normal please contact with supplier
2	Bus over voltage	1.AC abnormal 2.Software processing error 3.BUS capacitance fault	Check the Main, if all normal please contact with supplier
3	Bus under voltage	1. city electricity is too low 2. software processing errors 3.BUS capacitor failure	Please check the city electricity, if no any abnormal, please contact supplier
4	DC-DC fail	IGBT of DC-DC being damaged	1.Restart machine; 2.if no any abnormal, please contact supplier;
7	Over temperature	1. Fan failure 2.The air duct on the rear panel of the UPS is blocked 3. Overload 4. NTC hardware abnormality or abnormal wiring 5. Power device IGBT damaged	1.Please check the rectifier on the fan; 2. Clean the obstacles on the air duct of the rear panel of the UPS; 3. check the loads; 4. if all of above can not be solved, please contact supplier;
8	Battery relay short circuit	Relay RL 1 /RL3 hardware damaged	please contact supplier
9	Bus relay soft start fail	1.city electricity is abnormal 2.Busbar starts and loop in abnormal	Please check the city electricity, if no any abnormal, please contact supplier;
17	Inv soft start fail	1.Some hardware of Inverter is damaged; 2.Control panel is failure	please contact supplier
18	Inv output over voltage	1.Some hardware of Inverter is damaged; 2.Control panel is failure	please contact supplier
19	Inv output under voltage	1.Some hardware of Inverter is damaged; 2.Control panel is failure	please contact supplier
20	Inv short circuit	1.Some hardware of Inverter is damaged; 2.Output short circuit	1. Check if short circuit caused on the output of UPS 2. Check if the loads is short circuit 3.if no any abnormal, please contact supplier

Fault code	Indication	Possible reasons	Treatment measure
26	Negative power protection (output with AC input fail)	1.Bypass reverse to the Inverter 2.Overload abnormal	Check the loads and if no any abnormal, please contact s upplier;
33	Inv relay or SCR open circuit	Relay RLB is damaged	please contact supplier
34	Inv relay or SCR short circuit		
35	Bypass relay or SCR open circuit	Relay RL4/RL6 is damaged	please contact supplier
36	Bypass relay or SCR short circuit		
37	1/0 connection reversed	Reverse wiring on input and output	Please check the wiring harness of input and output
39	Charger short circuit	1.output of Charger short circuit 2.Charger hardware abnormal	please contact supplier
66	Over load fault	1.overload too much 2.The voltage reduction causes the system rated power to dee rease	1. Check if the load is within the specified range 2Check if the pressure has been reduced
67	Charging over voltage or battery connection reversed	1.Hardware error 2.Number of Battery wrong 3.Wiring wrong	1. Check whether the battery wiring or battery number meets the requirements 2.if no any abnormal, please contact supplier
68	Unknown machine model	Software version error	1.Restart machine; 2.if no any abnormal, please contact supplier;
72	Charger over current	1. Hardware error 2.Battery abnormal	1.Check whether the battery wiring or battery number meets the requirements 2.if no any abnormal, please contact supplier;
73	No bootstrap	Software version error	1.Restart machine; 2.if no any abnormal, please contact supplier;
81	Unknown battery QTY setting	Number of Battery wrong	1.Check whether the battery number meets the requirements
82	Battery QTY setting matching error	Number of Battery setting wrong and can not be matched with software setting	2.Check if the configuration of the battery jumper cap is the same as the software setting

## 4.2 Fault code and solution

Number	Problem or errors Description	Reason	Solution
1	Connect to city electricity, and no display on LCD display panel	No Input power	Check if the input wiring harness of UPS is in well connection Use voltage meter to check the input voltage if in normal or meets the requirements
		Input voltage under voltage or overload	
2	City electricity in normal, no AC current Input indicator, UPS is still working in battery mode	UPS power switch is still off	Press UPS city electricity power switch on
		The wiring harness is loosen or in poor connection	Check the input wiring harness if in normal
3	UPS no display error, but no output voltage	The wiring harness is loosen or in poor connection	Make sure the wiring harness in well connection
4	Press  button, UPS did not start	Press button to shortly overloads	Press  over 5 seconds, hear "Di~" sound
			Remove all loads and restart machine
5	With City electricity, but no City electricity indicator	Mains voltage or frequency over UPS input range	Use a multimeter to check the input voltage, whether the input frequency meets the requirement
6	The battery discharge time is lower than the standard time	The power of battery has been used	Change new battery Charge the battery more than 8
		The battery did not charge in full	hours under normal city electricity, then retest it
7	Abnormal sound or smell come out from the inside of UPS	Inner of UPS may be damaged	Please immediately turn off the UPS, cut off the power input, and contact the customer service center for technical support
8	Battery mode display yellow light, long buzzer sounds, battery capacity is insufficient, ready to shut down	The power of battery is low, UPS is ready to shut down, and the loads will be cut off	1. Save the data on the loads immediately and complete shutdown the important loads to avoid data loss or damage. 2. Immediately connect the UPS input terminal to the standby AC power supply

# 5 . Battery Maintenance & Repair

- This series of UPS only needs very little maintenance. The batteries of the standard machine are seal type and no need to maintain frequently. But also keep charging to get the expected battery life. UPS keep charging when it is connecting to AC, no matter on/off. And if also have function of over charging and overload protection.
- If you don't use UPS for a long time, you should charge the UPS every 4-6 months. In the areas of high temperature, battery should be charging and discharging every two months, the charging time should not be less than 12 hours.
- In normal circumstances, service life of the battery is 3-5 years, if the battery is found to be in poor condition, it must be replaced in advance. When replacing the battery, it must be done by a professional.
- When replacing the battery, follow the principle of quantity Model consistent and model Model consistent.
- The battery should not be replaced individually and when it is replaced as a whole should be according to the battery supplier's instructions.
- In normal circumstances (under the condition of UPS with little back up power), the battery should be charged and discharged every 4-6 months. Keep discharging before UPS shut down then keep charging, the standard machine charging time should not be less than 12 hours.

# 6 . Computer Monitoring Software



UPS Monitor Software  
Download QR Code

MARSRIVA reserves the right to interpret the provisions in this MARSRIVA Warranty Information. The information in this warranty card may change without prior notice.

# Thank you for purchasing Marsriva product

This card entitles you to enjoy 1 year warranty on the product, including power adapter (if available) and battery.

## WARRANTY CARD

Product :

Model :

Purchase Date (DD / MM / YY) :

Customer Name :

Telephone Number :

E-mail Address :

Dealer's Name and Address :

Serial Number\* :



This Warranty applies only if the Product was newly manufactured on the Date of Purchase and not sold as used, refurbished, or manufacturing seconds. Please keep the proof of purchase and this warranty card for future service requests.

### IMPORTANT!

Please store this card in a secured location for future reference. Marsriva reserves the right to request this card before accepting repair requests. This does not affect or limit your mandatory statutory rights.

**MARSRIVA Technology Co., Ltd.**

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Specifications are subject to change without notice, all product drawings are for reference only.