



power your future<sup>SM</sup>

**MAGNUS**

**Parallel Redundancy On-Line UPS**

**User Manual**

4,500 VA  
6,000 VA  
8,000 VA  
10,000 VA

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## IMPORTANT SAFETY INSTRUCTIONS

### PLEASE, SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during unpacking, installation and maintenance of the UPS and batteries.

#### Important Notices

- To ensure safety in all applications where a UPS is hard-wired to the electrical supply, the connections between the UPS and the electrical supply should be made by a qualified electrical contractor.
- Those UPS systems supplied with a factory input lead can be safely connected to the wall outlet by the purchaser.
- The UPS has its own internal energy source (battery). Should the battery be switched on when no AC power is available, voltage will be at the output terminals.
- Ensure that the AC utility outlet is correctly wired and grounded.
- Ensure that the input voltage of the UPS matches the supply voltage.
- Use a certified input power cable with the correct plugs and sockets that matches the voltage system.
- Do not open the case as there are no serviceable parts inside. Opening the case will void the warranty.
- Any attempt to repair the UPS unit by someone other than an authorized technician shall void the warranty.
- To eliminate overheating of the UPS, keep all ventilation openings free from obstruction, and do not store anything on top of the UPS. Keep the UPS 12 inches (30 cm) away from the wall.
- Ensure the UPS is installed within the proper environment as specified (0-40°C or 32-40° F and 30-90% non-condensing humidity).
- Do not install the UPS in direct sunlight. The warranty may be void if the batteries fail.
- Install the UPS indoors as it is not designed for outdoor use.
- Dusty, corrosive and salty environments can damage the UPS.
- Install the UPS away from objects which give off excessive heat and areas which are excessively wet.
- Liquids spilled and/or foreign objects dropped into the UPS will void the warranty.
- The battery will discharge naturally if the system is unused for any length of time.
- The UPS should be recharged every 2-3 months if unused. If this is not done, the warranty will be void. When the UPS is used regularly, the batteries will be automatically recharged and kept in top condition.

- This UPS has been designed and constructed to protect your assets from the wide range of power aberrations experienced on utility power lines. Take care to install and maintain the system correctly by your local distributor.
- Intended for installation in a temperature controlled environment.
- Servicing of batteries should be performed or supervised by persons knowledgeable about batteries and the required precautions. Keep unauthorized personnel away from batteries.
- When replacing batteries, replace with the same number and type.

**CAUTION** – Do NOT dispose of battery or batteries in a fire. The battery may explode.

**CAUTION** – Do NOT open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

**CAUTION** – Risk of Electric Shock – Do NOT remove the cover. There are no user serviceable parts. Refer servicing to qualified technicians.

**CAUTION** – Risk of Electric Shock – The battery circuit is NOT isolated from AC. Hazardous voltage may exist between the battery terminals and ground. Test before touching.

**CAUTION** – A battery can present a risk of electrical shock and high short circuit current.

**CAUTION** – Keep children away from this product.

**CAUTION** – HEALTH CARE – THE UPS IS NOT TO BE USED IN PATIENT CARE APPLICATIONS: The Rocpower product you purchased was not designed for direct or indirect patient care and treatment. DO NOT use this product with any equipment used to directly or indirectly treat or care for a patient.

**CAUTION** – To prevent personal injury or property damage, do not carry or move the UPS by the handle or the front cover.

**CAUTION** – The UPS is designed to be used with computer loads only.

**CAUTION** – Do NOT connect a laser printer to the UPS outlets.

The Following precautions should be observed when working on batteries:

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.
- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.

**WARNING**

- This is a Class A-UPS Product in a domestic environment
- This product may cause radio interference. Should this occur, the user may be required to take additional measures.

A Maintenance Bypass Switch is equipped with the UPS. Please strictly follow the procedures when using this switch.

The UPS offers CVCF (Constant Voltage Constant Frequency) Settings.

- a. For correct setting and wiring, please contact your local agent.
- b. Changes not made by an authorized technician will void the warranty.

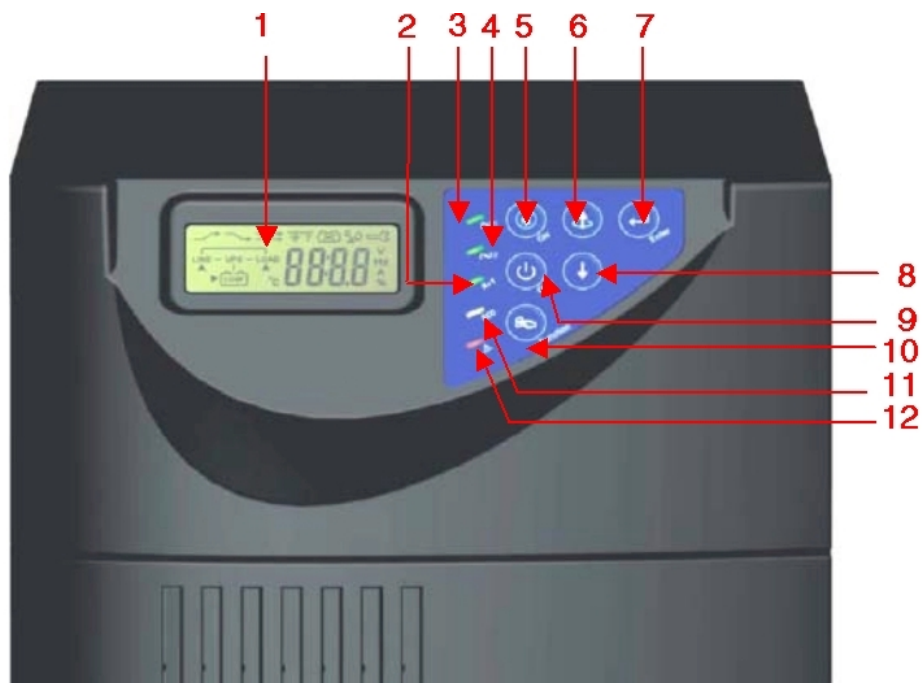
CAUTION - A disconnect switch would be provided by other vendors for the AC output circuit. To reduce the risk of fire, connect the UPS to a circuit with a 30 amperes rating in accordance with the National Electric Code, ANSI/NFPA 70.

**CAUTION** - To reduce the risk of fire, connect the UPS input to a circuit with a 40 amperes rating in accordance with the National Electric Code ANSI/NFPA 70.

Use No. 10 AWG, 60°C copper wire and 22.1 lb-in Torque force when connecting the Ground wire to the terminal block.

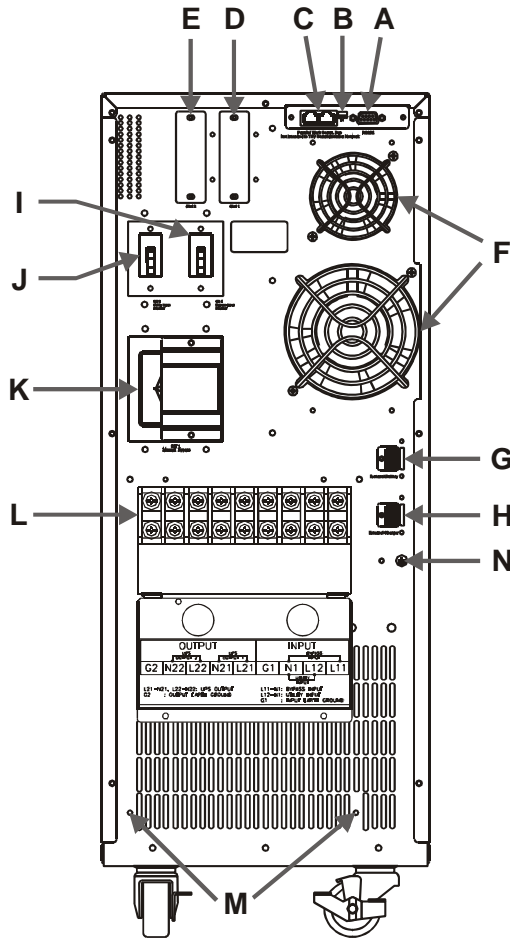
## CHAPTER 1

### Front Panel Function Explanations



- ① LCD Display
- ② Green LED turns on to indicate the UPS has the capability to run under redundancy configuration.
- ③ Green LED steadily lights up to indicate that the utility input voltage is within the range; the LED flashes to indicate that the utility input voltage is within the acceptable range.
- ④ Green LED lights up to indicate Bypass Input is normal.
- ⑤ UPS ON/Alarm Silence
- ⑥ Go to previous page or change the setting of the UPS.
- ⑦ To re-confirm the change of UPS Setting
- ⑧ Go to next page
- ⑨ UPS OFF Switch
- ⑩ Special functions log in/out
- ⑪ UPS is working under ECO (Economic, Line-interactive) Mode.
  - UPS Fault or Abnormal

Rear Panel Explanation



- A RS232 Port
- B Terminal Resistor for Parallel function
- C CAN Bus Connection Port for Parallel System
- D Customer Options Slot 1
- E Customer Options Slot 2
- F Cooling Fan
- G External Battery Connector
- H External Charger Connector
- I Utility Input Breaker
- J Bypass Input Breaker (for Dual Input Model Only)
- K CAM Switch (Maintenance Bypass Switch)
- L Input / Output Terminal Block

OUTPUT					INPUT			
G2	N22	L22	N21	L21	G1	N1	L12	L11
N22, L22, N21, L21: UPS OUTPUT G2 : OUTPUT EARTH GROUND					L11-N1: BYPASS INPUT (DIM TYPE ONLY) L12-N1: UTILITY INPUT G1 : INPUT EARTH GROUND			

- M Fixing Holes for External Charger Cabinet
- N Ground Position for External Battery Cabinet

## Communication Port Explanation

The Communication port on the UPS provides true RS232 type interface to communicate with the UPS software for remote monitoring of the power and UPS status.

You may combine the following interface cards: R2E (2<sup>nd</sup> RS232 plus EPO), RSE (RS485 plus EPO), USE (USB plus EPO), DCE (Dry Contact plus EPO), as well as SNMP/ card. However, the R2E card, RSE card and USE card cannot be used simultaneously.

The bundled software for the UPS is compatible with many operating systems such as Windows 98, & 2000, ME, NT, XP and Vista. For other applications like Novell, NetWare, UNIX, Linux, please contact your local distributor for a proper solution.

When the optional interface cards are used with the onboard RS232 port in Communication Mode, the shutdown command has the following priorities: Highest = DCE card & EPO signals (will get the highest priority in control command), the Next Highest = SNMP/WEB card, Next = R2E, Next = RSE and USE getting the lowest priority.

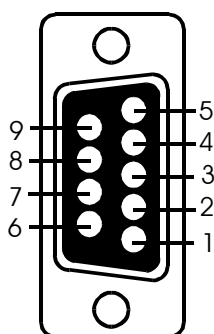
## True RS232 Type Interface

The RS232 interface settings

The RS232 interface shall be set as follows:

<b>Baud Rate</b>	<b>2400 bps</b>
<b>Data Length</b>	<b>8 bits</b>
<b>Stop Bit</b>	<b>1 bit</b>
<b>Parity</b>	<b>None</b>

## Pin Assignments of true RS232 type interface



Pin 3: RS232 Rx  
 Pin 2: RS232 Tx  
 Pin 5: Ground



## CHAPTER 2

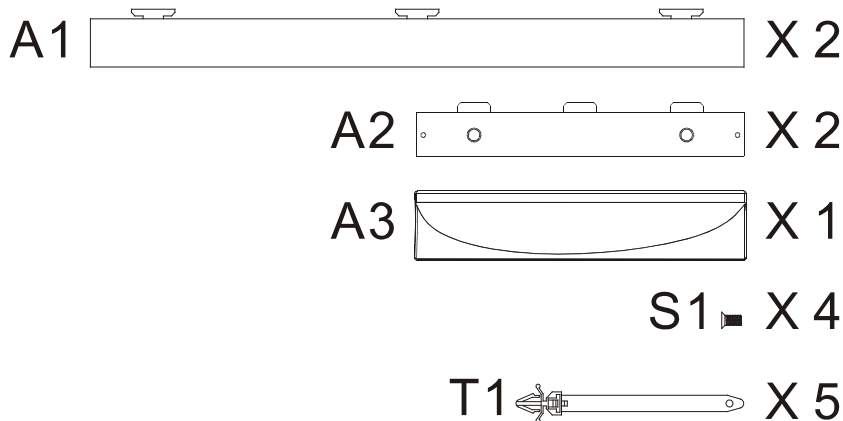
### Installation and Operation

Check the unit in its packing container and after removal, but before installation, for any obvious problems. Retain the packing material for future use.

#### Unpacking

**CAUTION:** Please be careful when lifting the shipping container or the UPS. These items are heavy. Improper lifting or movement may cause personal injuries or property damage.

- Take the UPS out of the packing material. Retain it for future use.
- Inspect the UPS for any obvious damage. If damage exists, IMMEDIATELY contact the hipper.
- Standard Package includes:
  - Quick Start Manual
  - User's Manual
  - UPS communication software with RS232 cable
  - Metal Accessories Kit as below:



**Package contents for the UPS with Isolation transformer and dual input:**  
 Standard package plus 3pcs No. 7 wire and 1pcs No. 10 wire.

**Package for the UPS without isolation transformer but with dual input:**  
 Standard package plus 1pcs No. 7 wire.

No. 7 wire is to be used at the input/output terminal block of the UPS. Please refer to Chapter 3, Terminal Block Explanation, for installation. No. 10 wire is to be used for 208VAC/120VAC model only.

Consult with your local dealer for assistance.

## Installation Location

It is necessary to select a proper environment to install the unit in order to minimize the possibility of damage to the UPS and extend the life of the UPS. Please follow the instructions below:

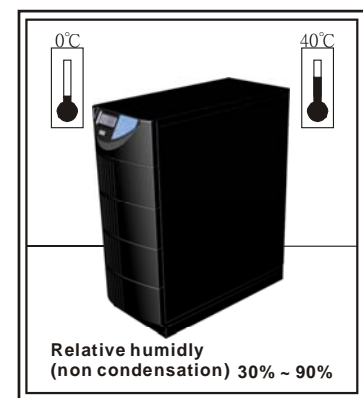
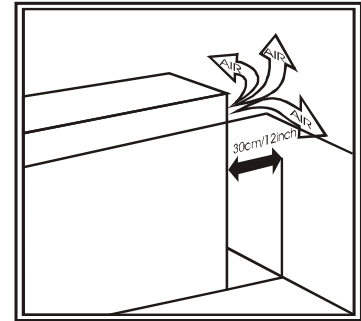
Keep at least 30cm (12 inches) clearance from the rear panel of the UPS to the wall.

Do not block the air-flow to the ventilation openings of the unit.

Please check the installation site to avoid overheating and excessive moisture.

Do not place the UPS in an environment near dust, corrosive, salty material or flammable objects.

Do not expose the UPS to the outdoors. It is for indoor use only.

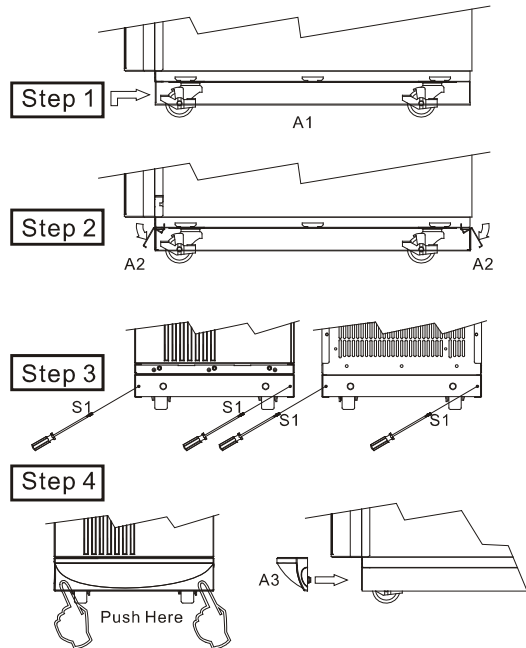


## Storage Instruction

For extended storage through moderate climate, the batteries should be charged for 12 hours every three (3) months. Connect the UPS power cord into the wall outlet and turn on the input breaker on front panel. Repeat this procedure every two (2) months in a high temperature

**CHAPTER 3**

**Installation of Caster Covers**



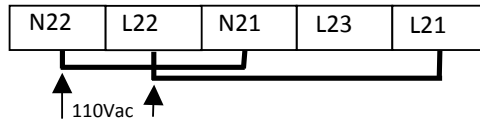
**Terminal Block Explanation**

OUTPUT					INPUT			
G2	N22	L22	N21	L21	G1	N1	L12	L11
N22, L22, N21, L21: UPS OUTPUT G2 : OUTPUT EARTH GROUND					L11-N1: BYPASS INPUT (DIM TYPE ONLY) L12-N1: UTILITY INPUT G1 : INPUT EARTH GROUND			

- **L11-N1:** the terminal for Bypass Input to provide the power source when the UPS is working under Bypass Mode.
- **L12-N1:** the terminal for Utility Input to provide the power source when the UPS is working under Utility Mode.
- **G1:** the terminal for UPS Input Ground.
- **L21, N21, L22, and N22:** the terminals for UPS Output.
- **G2:** the terminal for UPS Output Ground.

**Remarks:**

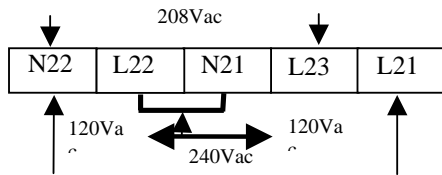
1. If the UPS is DIM (Dual Input) type, Utility and Bypass Sources are the same. Short L11 and L12.
2. If the UPS is not DIM (Dual Input) type, the AC source to UPS can only be supplied from L12-N1 terminal.
3. When the Isolation transformer is NOT installed, the UPS output terminals will be L22-N22.
4. When the Isolation transformer is installed:
  - a. For 120Vac system, you may connect as shown in below.



(a)

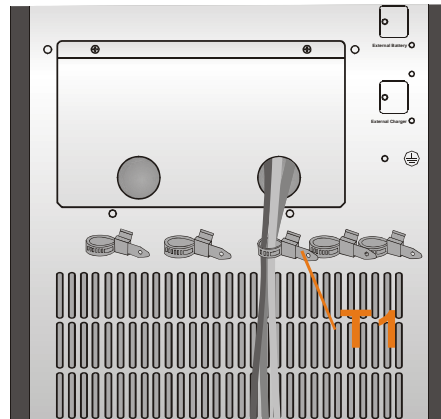
b. For 200/100VAC, 220/110VAC, 230V/115VAC, or 240/120VAC, or 240/208/120VAC system,

You may connect as shown in below.



(b)

- Use Mounting Cable Tie to fix cables.



5. Please refer to the specs of input current, output current and recommended conductors listed as below:

a. AC input and output

Model	Maximum Current	Conductor Section
6KVA	33A	AWG # 9

b. Battery input

Model	Maximum Current	Conductor Section
6KVA	25A	AWG # 10

**CHAPTER 4**

**Operation Test**

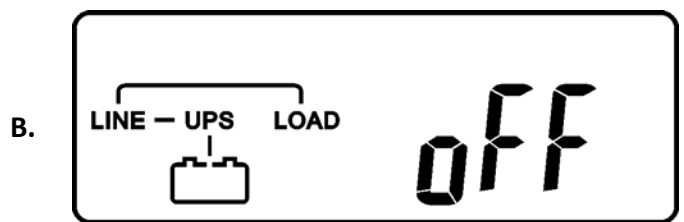
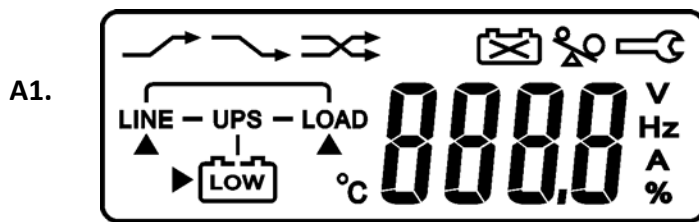
Start Up in Normal Mode

Open the terminal block cover on the rear panel (refer to Chapter 1) before starting the installation. Please ensure that the ground is properly connected.


Ensure that the utility breaker, UPS utility breaker and bypass breaker are in the OFF position.

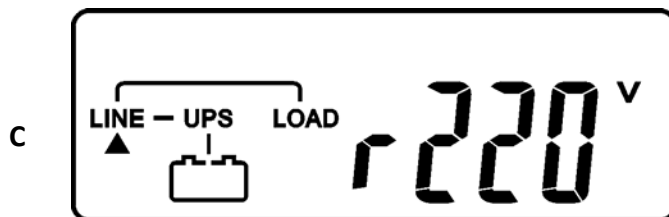
Ensure that the utility voltage matches the input voltage of the UPS. Ensure that the utility voltage matches the UPS input voltage.

Connect the utility to the UPS. Switch ON the distribution Power Breaker, the UPS Breakers and the Bypass Inputs. The UPS should start up. Green LEDs  $\sim 1$  and  $\sim 2$  light up to show the Utility and Bypass Inputs are normal and the LCD will display information from drawings A1, A2 then B.

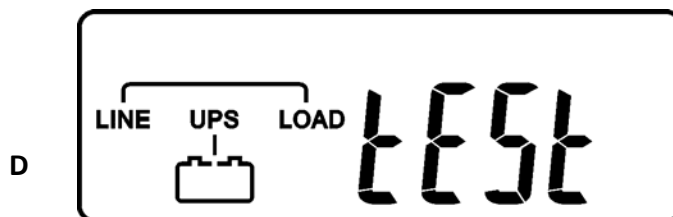


The UPS is now on Bypass Mode and will automatically self-test. If there is no abnormal message, it means the pre-startup of the UPS is successful and the charger starts to charge the batteries.

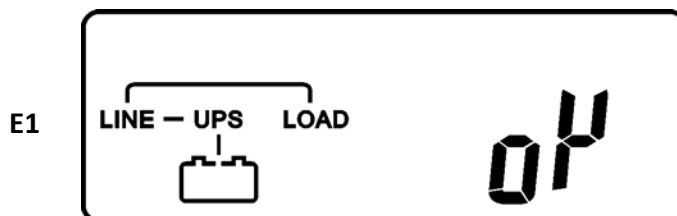
Press the UPS ON Switch  for approximately 3 seconds. The Buzzer will sound twice and the LCD display will change from drawing B to drawing C.



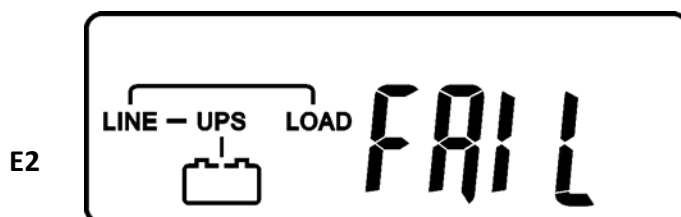
The UPS is now in Self-Test Mode. The LCD display will change from drawing C to drawing D and remain in Battery Mode for approximately four (4) seconds. It will then change from drawing D to drawing E1 then to drawing F if the Self-Test is successful.



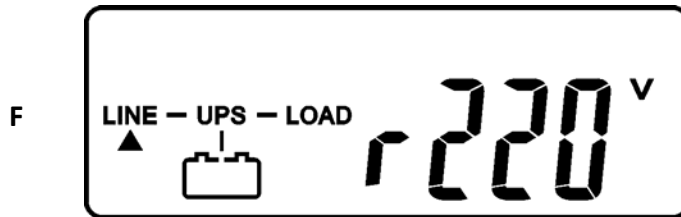
\* It shows "test."



\* It shows "OK" in self-test.



\* It shows "Fail" in self-test.




\* It shows "220VAC" in Utility Input.


If the Self-Test fails, the LCD display will change from Drawing D to drawing E2. An error code or error status will be shown on the screen.

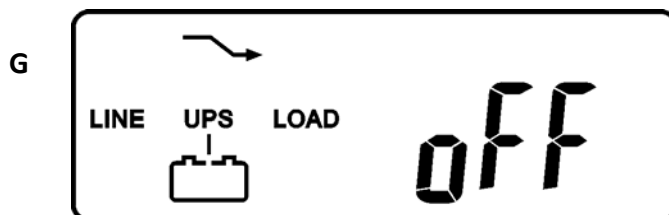
The start-up operation of the UPS is now completed. Ensure that the UPS is plugged onto the wall outlet at least 8 hours for charging.

### Start-up in Battery Mode (Cold Start)

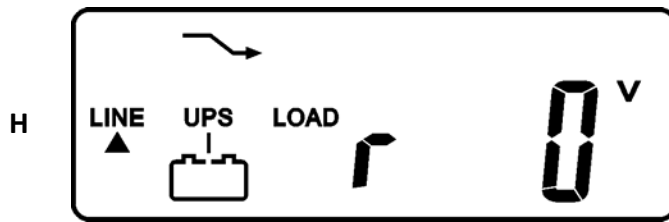
Ensure that the UPS has already been installed with 1 set (20pcs) of 12V / 7AH batteries.

Push the UPS ON Switch  for approximately three (3) seconds. The buzzer will sound twice. The LCD display will change from drawing A to drawing G and remain that way for approximately 10 seconds.

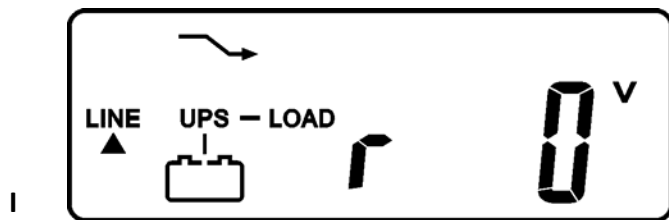
Press the UPS ON Switch  for about three (3) seconds. (Within the 10 second period above) until the LCD display changes from drawing G to drawing H. At this time the UPS will be in Self-Test Mode. The UPS should provide power output within a minute and the LCD display will change to drawing I. If the UPS ON switch is not pressed during the 10 second period, the UPS will automatically turn OFF. If the UPS turns OFF, go through the Start-up steps again.



\* It shows OFF, which means the UPS pre-start is successful.

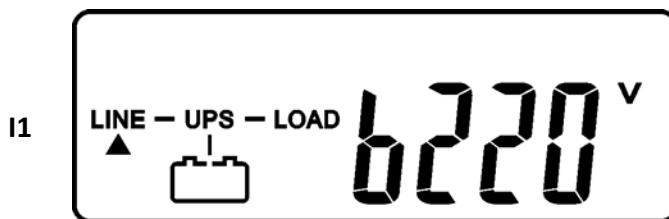


\* It shows Utility Input is "0" and Utility Abnormal.

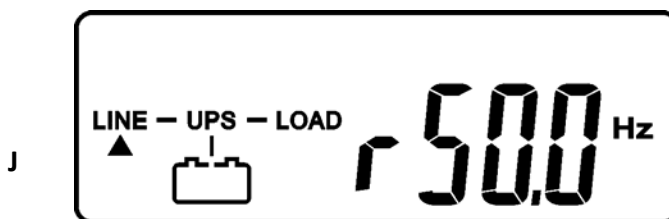


### Check Measured Values & Figures detected by UPS

If you would like to check the measured values and figures detected by the UPS, please use the scroll down (↓) and scroll up (↑) keys. When using the scroll down key, the LCD will display in the following order: Drawing C (Voltage from Utility Input), Drawing I1 (Voltage from Bypass Input), Drawing J (Frequency from Utility Input), Drawing K (Frequency from Bypass Input), Drawing L (UPS Output Voltage), Drawing M (UPS Output Frequency), Drawing N (UPS Output Load %), Drawing O (UPS Battery Voltage), and Drawing P (UPS Inner Temperature).

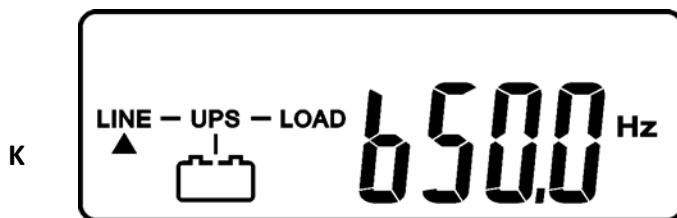


\* It shows voltage comes from Bypass Input

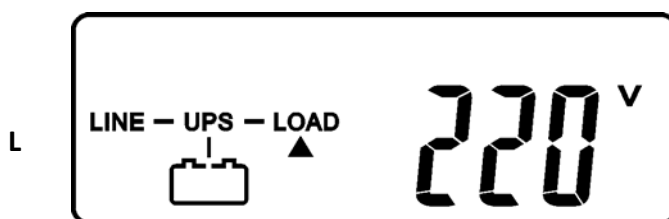




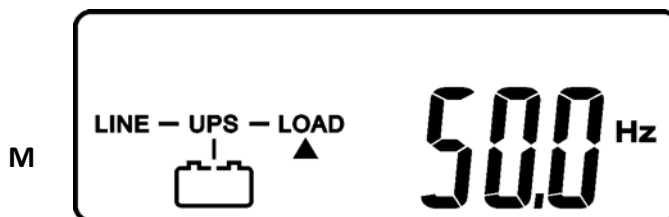
\*It shows Frequency from Utility Input.



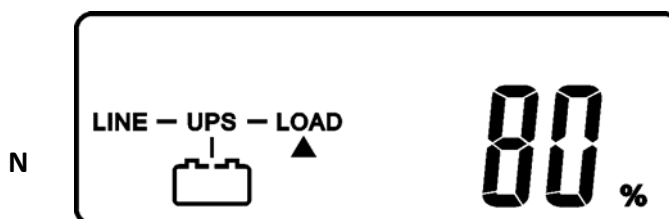
\* It shows Frequency from Bypass Input.



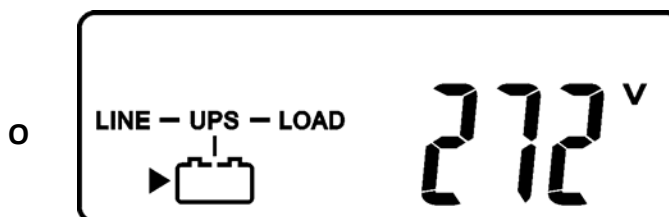
\* It shows UPS Output Voltage.



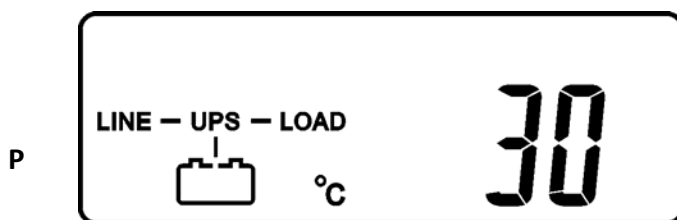
\* It shows UPS Output Frequency.



\* It shows UPS Output Load Level (%)




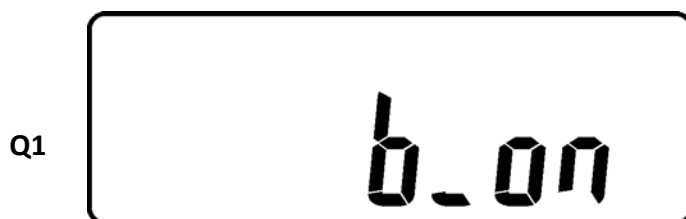
\* It shows Battery Voltage.



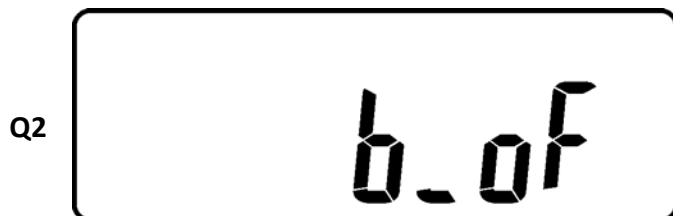
\* It shows UPS Inner Temperature

### UPS Default Data and Special Function Execution


After UPS completely starts up, press  key to change the LCD display screen to drawing Q1.

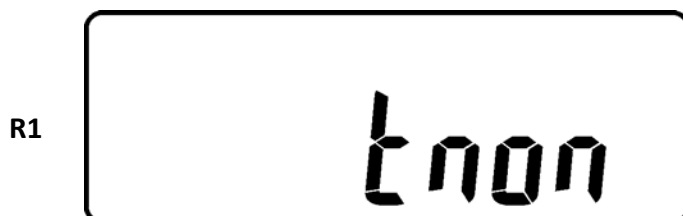


\* It shows buzzer ON.

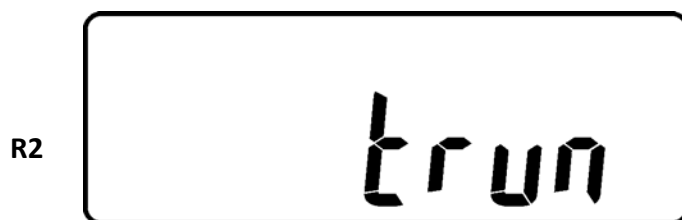


\* It shows buzzer OFF.

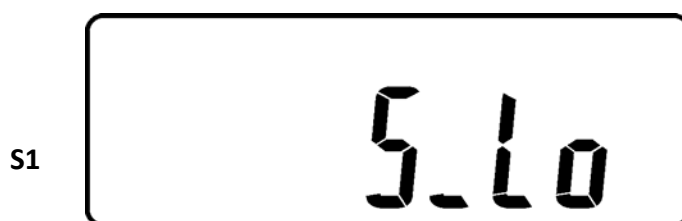
Press  key to scroll down the screen and check the UPS settings. The LCD will display in the following order: Drawing Q1 (buzzer), Drawing R1 (Self-Test), Drawing S1 (Bypass Voltage Windows), Drawing T (Output Frequency Synchronization Window), Drawing U (Inverter Output Voltage), Drawing V1 (UPS Operation Mode), Drawing W (Output Voltage Micro Tune Value), Drawing X (UPS Id#) and Drawing Y (Parallel function status).



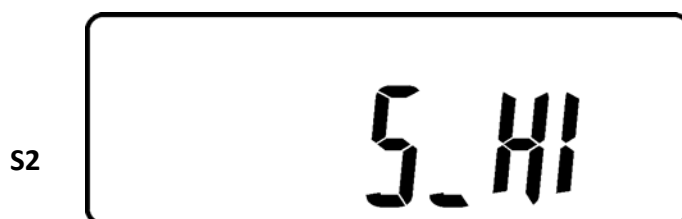
\*It shows self-test is NOT ON.



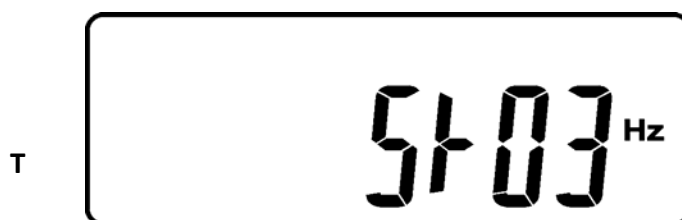
\* It shows self-test is ON.



\* It shows Bypass Voltage Range is 195VAC-260VAC.



\* It shows Bypass Voltage Range is 184VAC-260VAC.



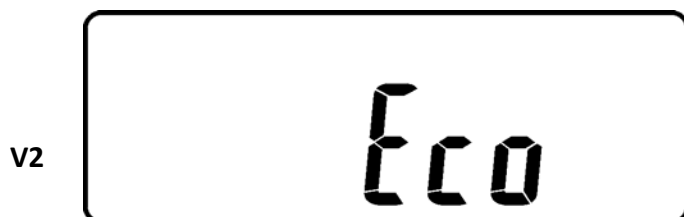
\* It shows Frequency Window is +/-3Hz.



\* It shows inverter output voltage.



\* It shows the UPS is operated in Normal Mode.



\* It shows the UPS is operating in Eco Mode.



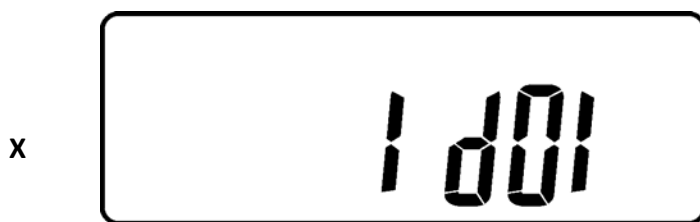
\* It shows the UPS is operating in CVCF 50Hz Mode.



\* It shows the UPS is operating in CVCF 60Hz Mode.




\* It shows Output Voltage Adjustment % from 0% to 3% or -0% to -3%.





\* It shows UPS Identification Number.




\* It shows the UPS is in the No. 1<sup>st</sup> of parallel systems.

Press the scroll up  key, to use the special functions. The function includes buzzer ON (as drawing Q1), buzzer OFF (as drawing Q2, alarm silence for UPS Warning) and Self-Test OFF (As drawing R1) or Self-Test ON, as drawing R2. UPS will execute battery test for 10 seconds. If the Self-Test is successful, it will show Drawing E1; otherwise, it will show drawing E2 and an error message at the same time.

### UPS Default Settings and their alternatives

Start with the UPS OFF. Press the ON switch  and scroll down  key simultaneously for approximately 3 seconds. The buzzer will sound twice and the LCD display screen will show drawing Q1. The UPS is now in Setting Mode.

To scroll down the LCD screen, refer to page 19.

All default settings may be changed by pressing the scroll up  key, except Buzzer (drawings Q1 & Q2) and Self-Test (drawings R1 & R2).

Drawings S1 and S2 show the bypass input can be 184VAC~260VAC or 195VAC~260VAC.

Drawing T shows the bypass frequency of the inverter output. The acceptable setting values are  $\pm 3\text{Hz}$  and  $\pm 1\text{Hz}$ .




Drawing U shows the acceptable inverter output voltage. The voltage is 200VAC, 208VAC, 220VAC, 230VAC, or 240VAC.

Drawing V1, V2, V3 and V4 show the operation modes of the UPS. There are Online, Eco (Economic) Mode, fixed 50Hz output or fixed 60Hz output.

Drawing W shows the adjustments of the inverter output. It may be calibrated at 0%, +1%, -1%, +2%, -2%, +3%, or -3%.

Drawing X shows a specified address and position of the UPS when the UPS is in Parallel Mode. The settable numbers are from 1st to 4th. When the UPS is not in Parallel Mode, it must be set to number 1.

Drawing Y shows the parallel function status. "P 01" means parallel function disabled and "P 02" means parallel function enabled.

When the setting changes are completed, press the  key several times to display drawing Z in the LCD screen, then press the enter  key to save changes. The LCD screen will show drawing AA as a prompt to reset the UPS. To abort the changes before saving them, press the OFF  key for five (5) seconds anytime in the Setting Mode. The LCD screen will display drawing AA, which means your setting changes were aborted.



\* Please press Enter key to save data.







\* It shows the UPS is locked and needs to be reset.

Turn OFF the Utility Input breaker.  
Your Setting changes are complete.

**Troubleshooting: when the UPS is in the OFF position due to an abnormal condition.**

If an abnormal condition occurs, the UPS will turn itself OFF See drawing AA. After three (3)


seconds an abnormal message will show on the LCD screen.

All messages will be locked except Bypass messages LED  & LCD . In case the utility is abnormal after the UPS is locked, the  icon will be extinguished and the  icon will be shown on the LCD screen.

To unlock the UPS, proceed as follows:

Review the error messages.


Review Chapter 6 to troubleshoot the problem. Otherwise, consult your local distributor for service.

Press the OFF  key for five (5) seconds the buzzer will sound twice.

Turn OFF the Breaker Utility Input.

The UPS should now be unlocked; however, contact an authorized technician to ensure the error message is resolved.

### Shutting OFF the UPS


Press the OFF  key for about five (5) seconds. The Inverter output will be turned OFF. Drawing B will show in the LCD screen.


Turn OFF the Utility and Bypass Input breakers.

The UPS is now turned OFF completely.

### Maintenance Bypass Mode

This is only for UPS maintenance. ONLY AN AUTHORIZED technician is allowed to perform the following procedures. If there is any damage due to unauthorized maintenance, your warranty will immediately be void. Only an authorized technician may perform maintenance to retain the warranty.


















Press the OFF  key for approximately five (5) seconds. The LCD screen will show Drawing B and the UPS output will be on Bypass Mode.

Remove the cover of the CAM switch (Maintenance Bypass Switch). Then turn ON the CAM switch to Bypass Mode. The upper right-hand Corner of the LCD screen will show the  symbol.





Turn OFF the UPS utility breaker. Maintenance can now be performed on the UPS.

To return the UPS to Normal Mode, repeat the instructions. Turn the CAM switch to "INV" Mode and secure the switch cover. The UPS will return to Inverter Mode.

### Symbols on the LCD Display Panel

Item	Symbol	Description
1	<i>LINE</i>	Utility or Bypass Source
2		Battery Low
3		Battery Abnormal
4		UPS Overloading
5		UPS Working in specified mode*
6		A Blackout Transfer occurred in UPS Output
7		Bypass Input Abnormal, UPS fails to transfer to bypass, Bypass Abnormal at
8		Utility Input Abnormal
9	<b>OFF</b>	UPS Shutoff
10	LINE OFF	UPS Abnormal Lock
11		UPS Flow Chart
12		4 Digits Measurement Display
13		Indicate the item desired to be measured
14		UPS ON Switch or Alarm Silence
15		UPS OFF Switch
16		Previous Page or Setting Change
17		Next Page
18		Special Function Log in /out
19		Enter or Reconfirmed
20		Utility Input Normal LED



21		Bypass Input Normal LED
22		UPS under Redundancy Mode
23		UPS under ECO Mode
24		UPS Fault or Abnormal Warning LED
25	<b>EPO</b>	Emergency Power OFF
26	<b>Er05</b>	Battery Weak or Dead
27	<b>Er06</b>	Output Short Circuit
28	<b>Er10</b>	Inverter Over-current
29	<b>Er11</b>	UPS Overheating
30	<b>Er12</b>	UPS Output Overloading
31	<b>Er15</b>	Wrong Procedure to Enter Maintenance Mode
32	<b>Er24</b>	CVCF Mode with Bypass input
33	<b>Er**</b>	Other Error code

*\*The specified modes include Normal Mode, ECO Mode, CVCF Mode, etc.*

*\*\* Contact Rocpower for technical support.*

## CHAPTER 5

### Product Introduction

#### General Characteristics

True online architecture continuously supplies your critical device with stable, regulated, transient-free pure sine wave AC Power.

20 KHz Pulse Width Modulation (PWM) sine-wave topology yields excellent overall performance. The high crest factor of the Inverter handles all high inrush current loads without the need to upgrade the power rating.

Multi-functional LCD/LED panel will display the status of the UPS. The LED display may show UPS Working Status, Utility Status and Abnormal Status. The LCD display may show Input / Output Voltage, Frequency, Load Status, Inner Cabinet temperature, and abnormal operation.

To protect the unit from overloading, the UPS automatically switches to Bypass Mode between 160 seconds~ 40ms if loading is between 105%~ 150% of rating. An overload > 150% of rating causes the UPS to immediately switch to Bypass Mode. It will automatically switch back to Inverter Mode once the overload condition ceases.

Should the output short-circuit, the UPS automatically cuts the output until the short circuit is resolved.

Should the unit become overheated, the internal thermal sensor will detect the heat and switch to Bypass Mode, after the heat dissipates, the UPS will return to Inverter Mode.

Due to its fully digitalized control circuit, the UPS has the ability for remote control and easy monitoring.

Maintenance-free sealed-type non-spillable battery minimizes after-sales service.

Maintenance bypass switch provides easy and safe troubleshooting and maintenance function when the electrical input power is normal.

The UPS has four different working modes:, Normal, ECO, CF50 and CF60. It may be used in a variety of applications.

During power outages, the DC start function ensures the start up of the UPS.

Revolutionary battery management circuit analyzes battery discharging status to adjust battery cut-off point and extend the life of the batteries.

Intelligent temperature-controlled fan not only extends the life of the fan, but also reduces annoying noise. Your working environment remains quiet and comfortable as usual.

When the UPS stops functioning, the LCD screen displays the problem to be corrected.

WHEN THE UPS FAILS, THE FAULT STATUS WILL BE SHOWN ON THE LCD SCREEN.

When the UPS is operated under CF50 or CF60 mode, the capacity of the UPS will downgrade to 75%.

## CHAPTER 6




### Troubleshooting Guide

When the UPS malfunctions during operation, you may check the following:

Is the input and output wiring correct?

Is the utility input voltage within the specified range of the UPS?

If problems or symptoms still exist, please review the following chart or contact your local distributor for help.

Situation	Check Items	Solution
UPS Red Fault LED lights up	Check the error code shown on the LCD screen  1. Er05,  &  2. Er06, Er10, Er12, Er28 &  3. EPO 4. Er11 5. Er15 6. Er16, Er27 7. Er21 8. Er24 9. other error code	1. Check all battery connections. Then recharge the batteries for 8 hours to see whether the UPS may backup normally; otherwise, consult your local distributor. 2. Remove an uncritical load at the UPS output. Replace any damaged AC power cord. 3. Remove the short circuit if it occurred at the EPO terminal. 4. Remove obstructions to the ventilation holes. 5. Ensure the UPS is operating in Normal Mode. If it is in CVCF Mode, turn OFF the UPS and then turn ON the UPS again. 6. All of the parameters, except ID Number in the parallel UPS, must be same. Please refer to Default Settings on page 23 to reset. 7. Reconnect the RJ-45 wire or set the UPS to ID=1. 8. When the UPS is in CVCF Mode, bypass input is not possible. You have to turn OFF the UPS and bypass input and restart the UPS. 9. Consult your local distributor for help.

UPS fails to provide battery backup or its back up time is shorter than its intended performance.		If the backup time is too short after charging for 8 hours, please contact your local distributor for battery replacement.
UPS locks itself and it cannot be turned OFF.		Please refer to Chapter 4 to troubleshoot the problem; otherwise, consult your local distributor for help.

## CHAPTER 7

### Bundled Hardware and Software Installation Guide

#### Hardware Installation

Connect the male connector of RS232 cable to the UPS communication port.  
 Connect the female connector of the RS232 cable to a dedicated RS232 port of the computer.  
 Refer to Chapter 1 for installation of optional interface cards.

#### Software Installation

Please refer to the software User’s Manual for installation.

#### Customer Options Slots

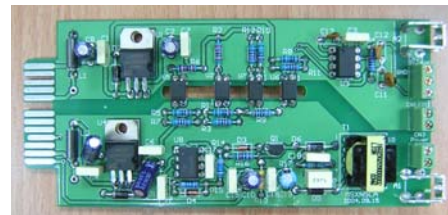
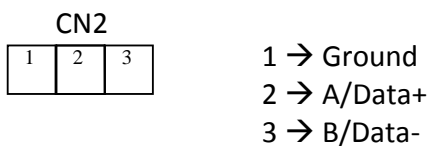
##### R2E (2nd RS-232) card

CN1 is for RS232 DB9.  
 For communication protocol, please refer to Chapter 1.  
 Installation Position: slot 1 or slot 2.  
 Use connector: A or B  
 For installation, please refer to Chapter 1.



##### RSE (RS-485) card

CN2 for RS485 and CN3 for remote power.  
 For communication protocol, please see the definition below:



Installation Position: slot 1 or slot 2.

Use connector: A or B

For installation, please refer to Chapter 1.

**USE (USB) card**

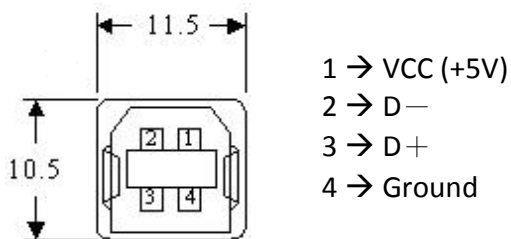
CN1 for USB.

For communication protocol, please see the definition below:

Comply with USB version 1.0,1.5 Mbps

Comply with USB HID Version 1.0.

The Pin Assignments of the USE card:



Installation Position: slot 1 or slot 2.

Use connector: A or B

For installation, please refer to Chapter 1.

**DCE (Dry Contact) card**

The pin assignments of 10-Pin Terminal:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

- Pin 1: UPS on Bypass Mode.
- Pin 2: Utility Normal
- Pin 3: Inverter On
- Pin 4: Battery Low
- Pin 5: Battery Bad or Abnormal
- Pin 6: UPS Alarm
- Pin 7: Common
- Pin 8: Shutdown UPS positive (+) signal
- Pin 9: EPO+
- Pin 10: Ground



Installation Position: slot 1 or slot 2

To enable the shutdown function, please short Pin 8 and 10.

The capacity of each relay contact is 40VDC/25mA.

Use connector: A or B

For installation, please refer to Chapter 1.

## SNMP Card and Net Agent II Card

### SNMP/WEB card

For installation, please refer to the user's manual attached with the card. .

Installation

Position: slot 1 or slot 2.

Use connector: A or B

For installation, please refer to Chapter 1.



### Net Agent II Internal Card

For installation, please refer to the user's manual attached with the card.

Installation

Position: slot 2.

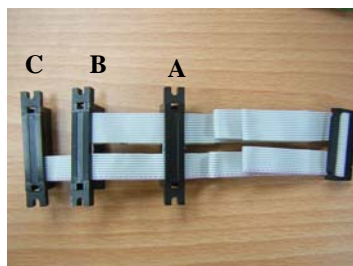
Use connector: C.

For installation, please refer to Chapter 1.



## Installation of the Interface Cards

Ensure that the flat cable installed is the same as the one indicated below.





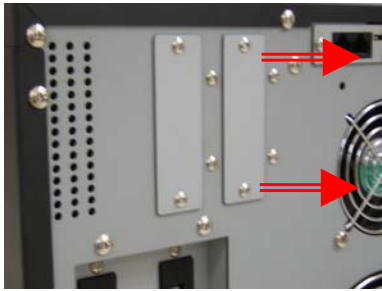
Please follow the hardware installation as indicated below.

Remove the cover of Slot 1.

Slide in the selected interface card onto the Slot.

Properly fasten the selected interface card.

①



②



③



## CHAPTER 8

### Specifications

Model	4,500 VA/ 6,000 VA	8,000 VA / 10,000 VA
<b>INPUT</b>		
Voltage Window	160~280Vac	
Frequency	45 ~ 65 Hz	
Phase/Wire	Single, Line + Neutral + Ground	
Power Factor	Up to 0.99 at 100% Linear Load	
Current THD (100% linear load)	<6%	
<b>OUTPUT</b>		
Voltage Window	220/230/240Vac Selectable(208/120Vac optional)	
Voltage Adjustment	±0%; ±1%; ±2%; ±3%	
Voltage Regulation	±2%	
Capacity	4500VA 6000VA	8000VA 10000VA
Rated Power Factor	0.7 Lagging	
Wave Form	Sine Wave, THD<3%(no load to full load)	
Frequency Stability	±0.2%(Free Running)	
Frequency Regulation	±1%; ±3%	
Transfer Time	0ms	
Crest Factor	3:1	
Efficiency(AC to AC, Normal)	Up to 91%	
Efficiency(AC to AC, ECO)	Up to 97%	Up to 93%
Autonomy	>=6 min.	>=4 min.
DC Start	Yes	
<b>BATTERY</b>		
Type	Sealed Lead Acid Maintenance Free 12V/7AH	Sealed Lead Acid Maintenance Free 8KVA: 12V/7AH 10KVA: 12V/9AH
Quantity	20pcs	
Voltage	240Vdc	
Recharge Time	4 hours to 90%	5 hours to 90%
<b>DISPLAY</b>		
Status On LED + LCD	Line Mode, Backup Mode, ECO Mode, Bypass Supply, Battery Low, Battery Bad/Disconnect, Overload, and Transferring with interruption & UPS Fault.	
Readings on LCD	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Inner Temperature.	
Self-Diagnostics	Upon Power-on, Front Panel Setting & Software Control, 24-hour routine checking	
<b>ALARMS</b>		
Audible and Visual	Line Failure, Battery Low, Transfer to Bypass, System Fault Conditions	

<b>PHYSICAL</b>			
Dimensions (WxHxD) inch	Tower model	11.4x29.5x25.4	11.4x34.7x25.4
	RT model	17.3x12.2x26.8	17.3x15.6x26.8
Input / Output Connection		Hardwire	
External Battery Connection		Plug-in & Play	
Net Weight (lbs)	Tower model Standard Unit/Hot Swappable unit	265/322	309/366 (8K) 329/386(10K)
	RT model	185	205
Heat Dissipation	Tower & RT model (without Isolated Transformer at full Linear Load)	< 450W	< 600W
	Tower model (with Isolated Transformer at Full Linear Load)	< 615W	<1100W
Leakage Current		< 3mA at Full Load	
<b>Marks</b>		CE, cUL, UL	

\* (160~176Vac at <75% load)

\*\* Isolation transformer: net 43kgs for 4500VA and net 53kgs for 6000VA.

## CHAPTER 9

### LIMITED WARRANTY

This Limited Warranty is provided by Rocstorage, Inc. (hereinafter: Rocstor) for the Rocstor, Rocpower and Rocsecure lines of products.

#### General Terms

EXCEPT AS EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, ROCSTOR MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ROCSTOR EXPRESSLY DISCLAIMS ALL WARRANTIES AND CONDITIONS NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD. SOME STATES OR COUNTRIES DO NOT ALLOW A LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS. IN SUCH STATES OR COUNTRIES, SOME EXCLUSIONS OR LIMITATIONS OF THIS LIMITED WARRANTY MAY NOT APPLY TO YOU.

This Limited Warranty applies to the Rocstor branded hardware products sold by or leased from Rocstor, Inc., its worldwide subsidiaries, affiliates, authorized resellers, or country distributors (collectively referred to in this Limited Warranty as “Rocstor”). This Limited Warranty is applicable in all countries and may be enforced in any country where Rocstor or its authorized service providers offer warranty service subject to the terms and conditions set forth in this Limited Warranty. However, warranty service availability and response times may vary from country to country and may also be subject to registration requirements in the country of purchase.

Rocstor warrants that the Rocstor hardware product and all the internal components of the product that you have purchased or leased from Rocstor are free from defects in materials or workmanship under normal use during the Limited Warranty Period. The Limited Warranty Period starts on the date of purchase or lease from Rocstor. Your dated sales or delivery receipt, showing the date of purchase or lease of the product, is your proof of the purchase or lease date. You may be required to provide proof of purchase or lease as a condition of receiving warranty service. You are entitled to warranty service according to the terms and conditions of this document if a repair to your Rocstor branded hardware is required within the Limited Warranty Period. This Limited Warranty extends only to the original purchaser or lessee of this Rocstor branded product and is not transferable to anyone who obtains ownership of the Rocstor branded product from the original purchaser or lessee.

Rocstor products are manufactured using new materials or new and used materials equivalent to new in performance and reliability. Spare parts may be new or equivalent to new. Spare parts are warranted to be free from defects in material or workmanship for thirty (30) days or for the remainder of the Limited Warranty Period of the Rocstor hardware product in which they are installed, whichever is longer.

This Limited Warranty is provided by Rocstor for Rocpower lines of products used in the ordinary course of your business.

### **Descriptions, Drawings and Specifications**

Rocstor products will substantially conform to the descriptions, drawings and specifications published by Rocstor. However, the descriptions, drawings and specifications are not warranties of performance and not warranties of fitness for a particular purpose. The descriptions, drawings and specifications are subject to this limited warranty.

### **Rocstor's Obligation under the Warranty**

During the Limited Warranty Period, Rocstor will repair or replace the defective component parts or the hardware product. All component parts or hardware products removed under this Limited Warranty become the property of Rocstor. The replacement part or product takes on either the Limited Warranty status of the removed part or product or the thirty (30) day limited warranty of the spare part. In the unlikely event that your Rocstor product has a recurring failure, Rocstor, at its discretion, may elect to provide you with a replacement unit of Rocstor's choosing that is at least equivalent to your Rocstor branded product in hardware performance. Rocstor reserves the right to elect, at its sole discretion, to give you a refund of your purchase price or lease payments (less interest) instead of a replacement. This is your exclusive remedy for defective products. The original Limited Warranty is not extended when the product, or a part of the product, is repaired or replaced during the Limited Warranty period.

Rocstor does not warrant that the operation of this product will be uninterrupted or error-free. Rocstor is not responsible for damage that occurs as a result of your failure to follow the instructions that came with the Rocstor branded product.

This Limited Warranty does not apply to expendable parts. This Limited Warranty does not extend to any product from which the serial number has been removed or that has been damaged or rendered defective (a) as a result of accident, misuse, abuse, or other external causes; (b) as a result of normal wear; (c) by operation outside the usage parameters stated in the user documentation that shipped with the product and/or posted on the Rocstor website; (d) by the use of parts not manufactured or sold by Rocstor; or (e) by modification or service by anyone other than (i) Rocstor, (ii) a Rocstor authorized service provider, or (iii) your own installation of end-user replaceable Rocstor or Rocstor approved parts if available for your product in the servicing country.

These terms and conditions constitute the complete and exclusive Limited Warranty agreement between Rocstor and you regarding the Rocstor branded product you have purchased or leased. These terms and conditions supersede any prior agreements or representations including representations made in Rocstor sales literature or advice given to you by Rocstor or an agent or employee of Rocstor that may have been made in connection with your purchase or lease of the Rocstor branded product. No change to the conditions of this Limited Warranty is valid unless it is made in writing and signed by an authorized representative of Rocstor.

**Buyer's Obligation under the Warranty**

The person requesting coverage under this warranty shall prove that he or she is the original purchaser and declares that the product has not been sold, leased, bartered or otherwise changed possession.

**The buyer must notify Rocstor and show proof of notification through any reasonable means of communication in which there is acknowledgment of receipt. See full street address, email address and toll free phone numbers below. The notification shall identify any defect, malfunction or nonconformity promptly upon discovery. Rocstor will acknowledge receipt of the communication and issue a Return Merchandise Authorization (RMA) code. The buyer is obligated to securely and safely package the product, preferably in the original packing materials, WITH THE RMA code on the shipping label, and deliver it together with a copy of the original purchase receipt and a description of the problem to the Rocstor home office. Buyer is responsible for the product until it is received by Rocstor. It is recommended that the product be insured during transportation.**

**NOTICE:** The individual user should take care to determine, prior to use, whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, Rocstor makes no representation or warranty as to the suitability or fitness of these products for any specific application.

**Limitation of Damages (Liability)**

IF YOUR ROCSTOR BRANDED HARDWARE PRODUCT FAILS TO WORK AS WARRANTED ABOVE, THE ORIGINAL PURCHASER'S SOLE AND EXCLUSIVE REMEDY SHALL BE REPAIR OR REPLACEMENT. ROCSTOR'S MAXIMUM LIABILITY UNDER THIS LIMITED WARRANTY IS EXPRESSLY LIMITED TO THE LESSER OF THE PRICE YOU HAVE PAID FOR THE PRODUCT OR THE COST OF REPAIR OR REPLACEMENT OF ANY ROCSTOR HARDWARE COMPONENTS THAT MALFUNCTION IN CONDITIONS OF NORMAL USE. ROCSTOR IS NOT LIABLE FOR ANY DAMAGE TO ANY OTHER PRODUCT CONNECTED TO A ROCSTOR PRODUCT.

**Limitation on Consequential Damages**

ROCSTOR IS NOT LIABLE FOR ANY DAMAGES CAUSED BY THE PRODUCT OR THE FAILURE OF THE PRODUCT TO PERFORM, INCLUDING ANY LOST PROFITS OR SAVINGS OR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. ROCSTOR IS NOT LIABLE FOR ANY CLAIM MADE BY A THIRD PARTY OR MADE BY YOU ON BEHALF OF A THIRD PARTY. ROCSTOR IS NOT LIABLE FOR ANY DAMAGE TO ANY OTHER PRODUCT CONNECTED TO A ROCSTOR PRODUCT.

THIS LIMITATION OF LIABILITY APPLIES TO ANY CLAIM FOR DAMAGES OR EQUITABLE RELIEF, WHETHER A TORT CLAIM (INCLUDING NEGLIGENCE AND STRICT PRODUCT LIABILITY), A CONTRACT CLAIM, BREACH OF WARRANTY OR ANY OTHER CLAIM. THIS LIMITATION OF LIABILITY CANNOT BE WAIVED OR AMENDED BY ANY PERSON. THIS LIMITATION OF LIABILITY WILL BE EFFECTIVE EVEN IF YOU HAVE ADVISED ROCSTOR OR AN AUTHORIZED REPRESENTATIVE OF ROCSTOR OF THE POSSIBILITY OF ANY SUCH DAMAGES.

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT MAY VARY FROM STATE TO STATE OR FROM COUNTRY TO COUNTRY. YOU ARE ADVISED TO CONSULT APPLICABLE STATE OR COUNTRY LAWS FOR A FULL DETERMINATION OF YOUR RIGHTS.

**Limitation on the Use of Any Rocstor “Rocpower” Product**

The product you purchased was not designed for direct or indirect patient care and treatment. Do not use this product with any equipment used to directly or indirectly treat or care for a patient.

**CAUTION IF DAMAGED**

The UPS contains sealed, non-spillable, lead acid batteries. The UPS must be recycled or disposed of properly.

Packages that are crushed, punctured or torn such that the contents are revealed should be set aside in an isolated area and must be inspected by a qualified person. If the package is not shippable, the contents shall be promptly collected and segregated. Immediately contact the cosigner or consignee.

**Disclaimer**

We accept no liability for any loss of data, damages and the inability of Rocstor products to work with any third party equipment. Nor can Rocstor accept any liability or responsibility for software or third party hardware products.

**Options and Software**

The Limited Warranty terms and conditions for Rocstor options are as indicated in the Limited Warranty applicable to Rocstor options. **ROCSTOR DOES NOT WARRANTY SOFTWARE PRODUCTS, INCLUDING ANY SOFTWARE PRODUCTS OR THE OPERATING SYSTEM PREINSTALLED BY ROCSTOR.** Rocstor’s only obligations with respect to software distributed by Rocstor under the Rocstor brand name are set forth in the applicable end-user license or program license agreement. Non-Rocstor hardware and software products are provided “AS IS” and without any Warranty. However, non-Rocstor manufacturers, suppliers, or publishers may provide their own warranties directly to you.

**Software Technical Support**

Software technical support is defined as assistance with questions and issues about the software that was either preinstalled by Rocstor on the Rocstor branded product or that was included with the Rocstor branded product at the time of your purchase or lease of the product. Technical support for software is available for the first ninety (90) days from date of product purchase or lease. Your dated sales or delivery receipt, showing the date of purchase or lease of the product, is your proof of the purchase or lease date. You may be required to provide proof of purchase or lease as a condition of receiving software technical support.

After the first ninety (90) days, technical support for software that was either preinstalled by Rocstor on the Rocstor branded product or included with the Rocstor branded product at the time of your purchase or lease of the product is available for a fee.

#### **WARNING**

**The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer “Rocstor” makes no representation or warranty as to the suitability or fitness of these devices for any specific application.**

#### **Limited Warranty Period**

The limited warranty period for ROCPower UPS products is two (2) years Parts and Labor on the chassis and one (1) year Parts and Labor on the batteries, whether inside the chassis or provided separately. Rocstor warrants this equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of one (1) year from the date of original purchase by the original end user. This Limited Warranty extends only to the original purchaser or lessee of this Rocstor branded product and is not transferable. For equipment sites within the United States and Canada, this limited warranty covers repair or replacement of defective equipment at the discretion of Rocstor. Repair will be from the nearest authorized service center. Replacement parts and warranty labor will be borne by Rocstor. For equipment located outside of the United States and Canada, Rocstor, Inc. only covers faulty parts.

Rocstor products repaired or replaced pursuant to this limited warranty shall be warranted for the unexpired portion of the limited warranty applying to the original product. This limited warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

Customers in Mexico may obtain service under this Limited Warranty only by delivering or shipping the product (with all shipping or delivery charges prepaid) to an authorized service center.

#### **Types of Limited Warranty Service**

Your Rocstor Limited Warranty consists of repair or replacement of defective parts, identified by the Rocstor Support Organization as “pre-failure.”

#### **Carry-in Limited Warranty Service Available Monday – Friday**

Under the terms of carry-in service, you may be required to deliver your Rocstor product to the Rocstor Service Center or an authorized service location for warranty repair. You must prepay any shipping charges, insurance, taxes, or duties associated with transportation of the product. You are responsible for insuring any product shipped or returned for service. You assume risk of loss during shipping.



### Service Upgrades

Rocstor offers extra coverage for your product. For information on service upgrades, visit [www.Rocstor.com](http://www.Rocstor.com). Service upgrades purchased in one country are not transferable to another country.

### Manual – Disclaimer

Revisions to this manual occur periodically. Please go to the Rocstor website, [www.rocstor.com](http://www.rocstor.com) to obtain the most current version of the User Manual. Rocstor is not responsible for any errors or omissions or for the results obtained from the use of the information contained in this manual. All information in this manual is provided with no guarantee of completeness, accuracy, and without warranty of any kind, express or implied, including, but not limited to warranties of the completeness, accuracy, or currency of this information, nor its suitability for any particular purpose.

## TECHNICAL SUPPORT INFORMATION

### Technical Support

All Rocstor products are backed by free telephone technical support for two (2) years from the date of purchase. Please register your product with Rocstor. To register, fill in the Limited Warranty Registration form in the Support tab at [www.Rocstor.com](http://www.Rocstor.com).

Free telephone technical support is available weekdays from 9 AM until 6 PM Pacific Standard Time. Customers in the United States and Canada can call toll-free: **(888) 877-8777**; all others must call **(818) 449-2000**.

When calling for support, please have the product's serial number and system hardware information available.

### Rocstor Replaceable Parts Program

Where available, the Rocstor Replaceable Parts program ships approved replacement parts directly to you to fulfill your warranty. This will save considerable repair time. After you call the Rocstor Technical Support Center at **888.877.8777**, a replaceable part can be sent directly to you. Once the part arrives, call the Rocstor Technical Support Center. A technician will assist you over the phone to ensure that the installation is quick and easy.

### Limitation on the Use of Any Rocstor Product

The product you purchased was not designed for direct or indirect patient care and treatment. Do not use this product with any equipment used to directly or indirectly treat or care for a patient.

## Trademark Acknowledgements

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## Contact Information

### Corporate Headquarters

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Canoga Park, CA 91304-4129  
Office: +1 (818) 449-2000  
Fax: +1 (818) 884-8777  
Email: [info@Rocstor.com](mailto:info@Rocstor.com)

### Technical Support / RMA

Tel: (888) 877-7716 (USA and Canada)  
Tel: +1 (818) 449-2000 (Domestic and Internationals)  
Fax: +1 (818) 884-8777  
Hours: 9:00 am - 5:00 pm PST  
Mon - Fri (excluding holidays)  
Email: [support@Rocstor.com](mailto:support@Rocstor.com)

### Sales Info

Hours: 8:00 am - 5:00 pm PST  
Mon - Fri (excluding holidays)  
Email: [sales@Rocstor.com](mailto:sales@Rocstor.com)  
Tel: (888) 877-7716  
Fax: (818) 884-8777

### Corporate, Government and Academic Customers

Our Corporate Sales Team's goal is to help our U.S.A. and Canadian customers find a storage solution that best serves their needs. We will help you determine your best purchasing options. For more information please contact the appropriate department below or call us at +1 (888) 877-7716

General sales information: [sales@Rocstor.com](mailto:sales@Rocstor.com)  
Corporate sales information: [corporate\\_sales@Rocstor.com](mailto:corporate_sales@Rocstor.com)  
Educational sales information: [academic\\_sales@Rocstor.com](mailto:academic_sales@Rocstor.com)  
Federal, State & Local government sales information: [government\\_sales@Rocstor.com](mailto:government_sales@Rocstor.com)

### Resellers/Business Development/OEM Partners

All Channel National and International Resellers, VARs, Consultants ... contact Rocstor Channel Sales:

In U.S., call: 888.877.7716  
Out of USA call +1.818.449.2000  
Email: [reseller\\_info@Rocstor.com](mailto:reseller_info@Rocstor.com)

Thank you for purchasing Rocwave.

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