

User Guide

GS 1100B

For your records

The serial number of your UPS is on the rear panel. You should note the serial number in the space provided below. Retain this booklet as a permanent record of your purchase to aid in identification in the event of theft or loss.

Model No:

Serial No.:

Purchase Date:

LIMITED WARRANTY

What the warranty covers:

We warrant this product to be free from defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, we will at our sole option repair or replace the product with a like product.

How long the warranty is effective:

For accurate warranty period and conditions, please contact local branch offices or your dealers.

Who the warranty protects:

This warranty is valid only for the first consumer purchaser.

What the warranty does not cover:

1. Any product on which the serial number has been defaced, modified or removed.
2. Damage, deterioration or malfunction resulting from:
 - a) Accident, misuse, neglect, fire, water, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
 - b) Repair or attempted repair by anyone not authorized by Opti.
 - c) The fault is the result of accidental damage or damage in transit or transportation, including but not limited to liquid spillage.
 - d) Removal or installation of the product.
 - e) Causes external to the product.
 - f) Use of supplies or parts not meeting our specifications.
 - g) Normal wear and tear.
 - h) Any other cause which does not relate to a product defect.
3. Removal, installation and set-up service charges.

Limitation of implied warranties:

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION CONTAINED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Exclusion of damages:

OUR LIABILITY IS LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE PRODUCT. WE SHALL NOT BE LIABLE FOR:

1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE PRODUCT*, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, LOSS OF PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF GOODWILL, LOSS OF DATA, LOSS OF SOFTWARE, COSTS OF SUBSTITUTE EQUIPMENT, INTERFERENCE WITH BUSINESS RELATIONSHIPS, CLAIMS BY THIRD PARTIES, OR OTHER COMMERCIAL LOSS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.
3. ANY CLAIM AGAINST THE CUSTOMER BY ANY OTHER PARTY.

Effect of state law (for US):

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Life Support:

We do not recommend the use of our UPS products for life support equipment or direct care where failure of a UPS product could cause failure of, or diminished effectiveness of the life support equipment or patient care.

*Except as expressly provided for by the UPS "Equipment Protection Policy"

EFFECTIVE October 1, 1997

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

**THIS MANUAL CONTAINS IMPORTANT SAFETY INSTRUCTIONS.
KEEP THIS MANUAL HANDY FOR REFERENCE.**

- CAUTION: A BATTERY CAN PRESENT A RISK OF ELECTRICAL SHOCK, BURNS FROM HIGH SHORT-CIRCUIT CURRENT, FIRE OR EXPLOSION FROM VENTED GASES. OBSERVE PROPER PRECAUTIONS.
- WHEN REPLACING BATTERIES, USE THE SAME NUMBER AND THE FOLLOWING TYPE BATTERIES: SEALED LEAD-ACID MAINTENANCE FREE
- PROPER DISPOSAL OF BATTERIES IS REQUIRED. REFER TO YOUR LOCAL CODES FOR DISPOSAL REQUIREMENTS.

CAUTION:

THE UPS CONTAINS VOLTAGES WHICH ARE POTENTIALLY HAZARDOUS. ALL REPAIRS SHOULD BE PERFORMED BY QUALIFIED SERVICE PERSONNEL.

THE UPS HAS ITS OWN INTERNAL ENERGY SOURCE (BATTERY). THE OUTPUT RECEPTACLES MAY BE ALIVE EVEN WHEN THE UPS IS NOT CONNECTED TO AN AC SUPPLY.

Safe and continuous operation of the UPS depends partially on the care taken by users. Please observe the following precautions.

- Do not disassemble the UPS.
- Do not attempt to power the UPS from any receptacle except a 2-pole 3-wire grounded receptacle.
- Do not place the UPS near water or in environments of excessive humidity.
- Do not allow liquid or any foreign objects to get inside the UPS.
- Do not block air vents on the side of the UPS.
- Do not plug appliances, such as hair dryers, into the UPS receptacles.
- Do not place the UPS under direct sunshine or close to heat-emitting sources.
- This UPS is intended for installation in a temperature controlled, indoor area free of conductive contaminants.
- The socket-outlet shall be installed near the UPS and easily accessible.
- With the installation of the UPS it should be prevented, that the sum of the leakage current of the UPS and the connected consumer exceeds 3.5mA.
- The battery supply should be disconnected in the plus and minus pole at the quick connectors of the battery when maintenance or service work inside the UPS is necessary.
- Do not dispose of batteries in a fire. The battery may explode.
- Do not open or mutilate the battery or batteries, released electrolyte is harmful to the skin and eyes.
- A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries
 - * Remove watches, rings or other metal objects.
 - * Use tools with insulated handles.
- To reduce the risk of fire, connect only to a circuit provided with 20 amperes maximum branch circuit over-current protection in accordance with the National Electrical Code. ANSI/NFPA 70.

FEDERAL COMMUNICATIONS COMMISSION (FCC)

WARNING:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CANADIAN DEPARTMENT OF COMMUNICATIONS (DOC)

This equipment does not exceed Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

TABLE OF CONTENTS

1. INTRODUCTION

1.1	Overview	8
1.2	Frequency Auto Sensing	8
1.3	Smart Buck and Boost Line Conditioning	8
1.4	User Replaceable Battery Design	9
1.5	Advanced Interface to Communicate with Computer	9
1.6	Schedule Shutdown & Startup	9

2. UPS CONTROLS

2.1	External Views	10
2.2	On/Off/Test/ Silence Button	11
2.3	Audible Alarm	11
2.4	Status Indication	12
2.5	Communication Port	12
2.6	AC Input	12
2.7	Output Outlet	12

3. INSTALLATION AND OPERATION

3.1	Unpacking and Inspection	13
3.2	Placement	13
3.3	Determining How Much Equipment You Can Connect to Your UPS	14
3.4	Powering Up Your UPS	14
3.5	Connecting Your Equipment to the UPS	14
3.6	Operation and Functional Test	15
3.7	Storage Instructions	16

4. SPECIFICATIONS

4.1	Electrical Specifications	16
4.2	Mechanical Specifications	17
4.3	Environmental Specifications	17

5. TROUBLESHOOTING

5.1	Troubleshooting Chart	18
-----	-----------------------	----

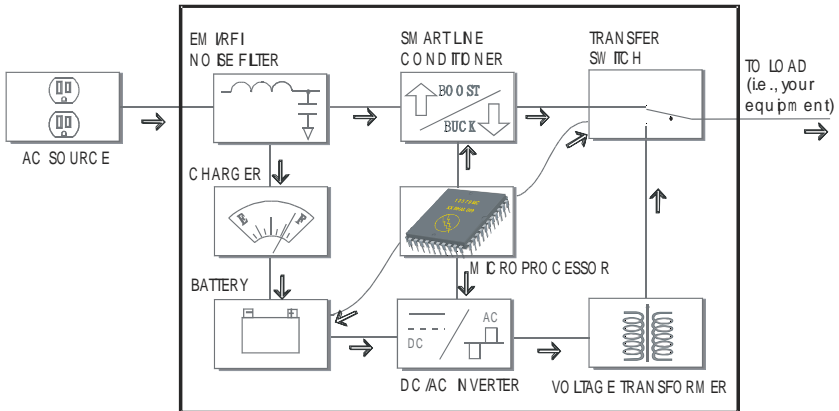
6. USER REPLACEABLE BATTERY

6.1	Warning	19
6.2	Battery Replacement Procedure	20

1. INTRODUCTION

1.1 Overview

These models are advanced line-interactive simulated sinewave uninterruptible power systems (UPS) designed to prevent spikes, surges, sags, transients and blackouts from reaching your sensitive equipment. Your equipment may include such items as computers and computerized instruments to telecommunication systems. When AC power is present, the UPS filters and conditions the power continuously. When AC power fails, the unit employs its internal maintenance-free battery to supply back-up power without interruption.



Enhance Series Block Diagram

1.2 Frequency Auto Sensing

The GS models can operate in either a 50 or 60 Hz environment. When you plug the UPS into an AC outlet and turn it on, it will automatically detect the incoming line frequency and configure itself to match that frequency.

1.3 Smart Buck and Boost Line Conditioning

The voltage from your AC power source can fluctuate above and below the standard rating. This microprocessor controlled UPS provides line conditioning via both buck (*step-down voltage*) and boost (*step-up voltage*) functions. For example, if your normal voltage is 120V and the voltage fluctuates up to 131V, the buck function in your UPS will step it down so that your equipment receives approximately 120V. If the voltage fluctuates down to 109V (92V second step boost), the boost function will step it up so that your equipment receives approximately 120V. This provides your equipment with excellent voltage regulation with less possibility for the UPS to drain its internal battery.

1.4 User Replaceable Battery Design

The battery is the most critical part in a UPS. The average lifetime of a battery is between 2 and 3 years. The special user-replaceable battery design of this UPS provides significant savings and gives the UPS an almost unlimited life. You can replace the battery very easily, and without turning off your UPS or the equipment it is protecting.

1.5 Advanced Interface to Communicate with Computer

Many UPS provide only a basic power failure warning. These models, together with *OPTI-SAFE Sentinel* also provide you with important operating information. From your computer screen, you can know input/output voltage and current, frequency, battery voltage, etc., and analyze power problems. If software is not part of your UPS package, you can purchase it from your local dealer.

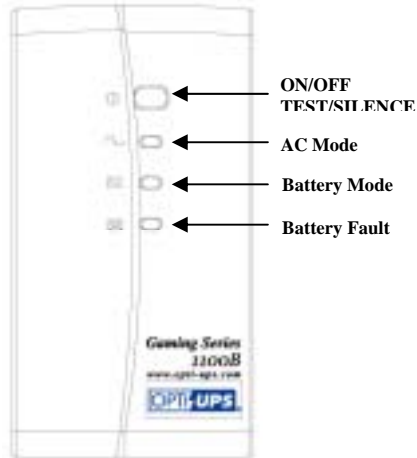
1.6 Schedule Shutdown & Startup

Using software you can locally or remotely control the shutdown and startup of equipment connected to the UPS. A customized schedule can be developed to meet your specific requirements.

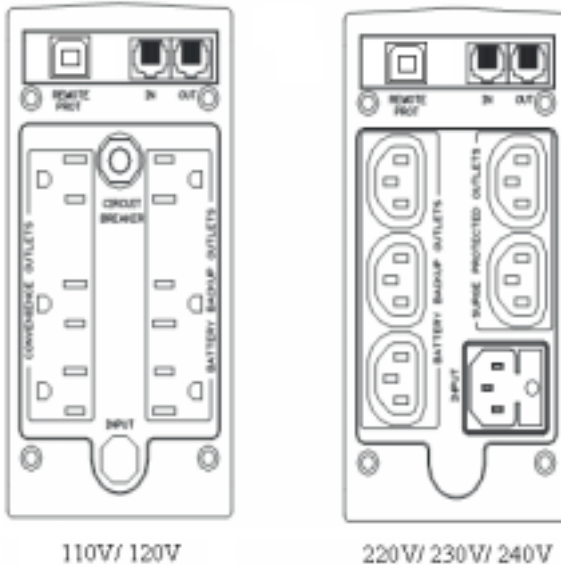
2. UPS CONTROLS

2.1 External Views

Front Panel



Rear Panel



2.2 On/Off/Test/Silence Button

The On/Off/Test/Silence Button has four functions:

1. When the UPS is off and AC power is present, press this button for more than 3 seconds to turn on the UPS. The UPS can be turned on even when AC power is not present.
2. When the UPS is on, press this button for more than 3 seconds to turn off the UPS and output power.
3. When the UPS is operating in "BACKUP" mode, you can silence the alarm by quickly pressing the power button. (This function is disabled when the UPS has a "LOW BATTERY" or "OVERLOAD" condition).
4. Quickly press the button while the UPS is under "AC" mode, and the UPS will perform an automatic self-test procedure.

**** "No load shut down" function: As a battery saving feature, the UPS will automatically turn off if none of the connected equipment is operating while the UPS is in back-up mode. Once normal utility power returns, the unit will wake up automatically. You can disable the "No load shut down" function by pressing the power button until you hear two beeps.***

2.3 Audible Alarm

1. **BACKUP mode:** When the UPS is working under "Battery" mode, the UPS will emit an audible alarm. The alarm beeps every 2 seconds. The alarm stops when the UPS returns to "AC" mode.
2. **LOW BATTERY:** In the "Battery" mode, the alarm will begin to beep more rapidly when the battery energy becomes low. This means that the UPS will soon shut down from battery exhaustion, until the unit can return to "AC" mode and charge the batteries again.
3. **OVER LOAD:** When the UPS is working under overload condition (the connected equipment exceeds the maximum rated capacity), the UPS will emit a continuous alarm. In order to protect the unit and the equipment, the UPS may automatically turn off. Please disconnect nonessential devices from the UPS to eliminate the overload alarm.

2.4 Status Indication

UPS Status Indication: Front Panel LED

AC Mode	When this Green LED is lit, the UPS is in normal mode, and providing power to your equipment. The UPS will continue to filter and provide surge protection.
Battery Mode	When this Yellow LED is lit, the UPS is providing power from its battery. Also, this LED is lit when you press the button to test the battery.
Battery Fault	This Red LED indicator indicates two statuses of the UPS: When this Red LED is on, it indicates that the battery needs to be replaced. When this Red LED is flashing rapidly, it indicates the UPS is over loaded.

2.5 Communication Port (Remote Port)

The communication port on the rear panel of the UPS allows for connection to a host computer. When used with software communication software you will have access to important operating information. From your computer screen, you can monitor input/output voltage, AC frequency, battery voltage, etc., and analyze power problems. Software will also initiate automatic graceful shutdowns during extended power failures.

If software and a communication cable are not included in your UPS package, you can purchase it from your local dealer.

2.6 AC Input

Connect the AC power cord into the AC Input socket. UPS can have power from commercial electricity. It has a circuit breaker to protect against over current.

***GS1100B has a power strip on the rear panel.**

2.7 Output outlet

There are two kinds of functional output outlets:

1. Surge protection outlet : These output outlets offer surge protection only. It won't have back up power at inverter mode.
2. UPS outlet : These output outlets not only offer surge protection but also back up power to your main equipments at inverter mode.

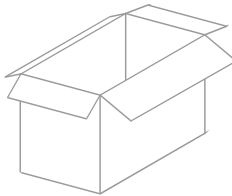
3. INSTALLATION AND OPERATION

Before installation, please read and understand the following instructions:

3.1 Unpacking and Inspection

Examine the packing carton for damage and accessories in the box. Notify the carrier immediately if damage is observed.

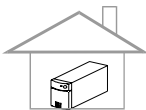
- * UPS *1
- * User Manual *1
- * Power Cord *1
- * CD-ROM *1
- * Communication Cable *1
- * Telephone Line *1



save the box

3.2 Placement

1. This unit is intended for indoor use only. Although your UPS is very rugged, its internal components are not sealed from the environment.
2. The UPS must be installed in a protected environment away from heat-emitting appliances such as a radiator or heater. Do not install this product where excessive moisture is present.



3. The location should provide adequate air flow around the UPS with one inch minimum clearance on all sides for proper ventilation.

3.3 Determining How Much Equipment You Can Connect to Your UPS

1. Make a list of all equipment that requires protection.
2. Each piece of equipment has voltage and current (VA) ratings printed on the back label (see examples below). Your equipment may have a voltage rating such as 88-264V. Since the standard voltage in the United States is 120V, you should use 120V in your calculations.

ViewSonic G810
120V 2.7A
50 / 60 Hz
SN: Q771515388

Computer Co
Pentium Pro 200MHz
120V 2.0A
50/60 Hz
SN: 123456

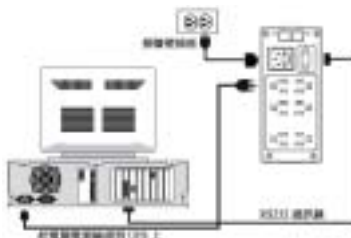
3. Multiply the voltage and current of each piece of equipment (VA requirements); for example, $120V \times 2.7A = 324VA$, $120V \times 2.0A = 240VA$.
Add up the VA requirements for each device; for example, $324VA + 240VA = 564VA$.
4. Make sure that your UPS has at least as much VA capacity as your equipment requires.

3.4 Powering Up Your UPS

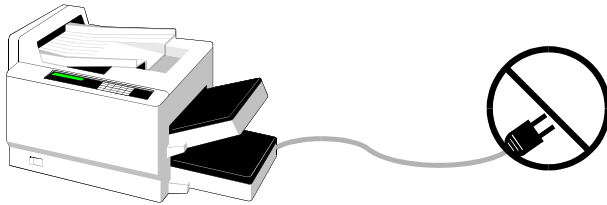
1. Connect the power cord to a verified grounded 3-wire receptacle.
2. Power up the UPS by pressing the On/Off button for 3 seconds.
3. **We recommend that you charge the battery for six (6) hours before first use of your UPS.** You may use the UPS immediately without charging the battery, but the backup time may be less than the rating. The UPS recharges the battery automatically whenever AC power is available.

3.5 Connecting Your Equipment to the UPS

Connect the power cord(s) of your computer equipment to the output receptacle(s) of the UPS. Switch on the computer equipment.



3. **DO NOT PLUG LASER PRINTERS INTO THE UPS BECAUSE THEY TYPICALLY DRAW TOO MUCH POWER**



3.6 Operation and Functional Test

1. Plug in the AC input cord to the rear panel and turn on the UPS by pressing the "On/Off" switch for 3 seconds. The UPS will beep and the front panel Normal Mode LED will light.
2. The UPS may be overloaded if the buzzer sounds continuously and the Overload LED lights. Unplug the least critical devices, such as a printer, etc... If the buzzer is still sounding, the battery or UPS may be faulty. Contact your local dealer for assistance.

Note: *Backup all unsaved files before you perform the following functional test.*

3. To test the backup function, you may unplug the power cord of the UPS or simply press the Test Button on the front panel. During this test, observe that your equipment operates properly and without interruption. If you leave your UPS on continuously, it is a good idea to perform a "Test" at least once a month.

If you unplug the power cord, all models will beep once every 4 seconds. You can press the Test Button to silence the alarm. The Battery Mode LED will light. Plug the power cord back in after a few seconds.

If you press the Test Button, the Battery Mode LED will light momentarily.

3.7 Storage Instructions

For extended storage in moderate climates, the battery should be charged for 12 hours every 3 months. Repeat it every 2 months in high temperature locations. Plug in the power cord. The UPS does not need to be turned on to charge.

4. SPECIFICATIONS

4.1 Electrical Specifications

Product Name	Frequency (Hz)	Rated Voltage (V)	Capacity (W)
GS1100B	50/60	110/120V or 220/230/240V	550

Input Voltage Range

Upper Limit	Rated Voltage+25%
Buck	Rated Voltage+12.5%
Boost	Rated Voltage-12.5%
Lower Limit	Rated Voltage-25%

Input/Output Frequency

Input (AC mode)	45Hz – 55 Hz / 55 Hz – 65 Hz
Output (Inverter mode)	50 Hz / 60 Hz ± 0.1 Hz

Wave Form

AC Mode	sine wave
Back Up Mode	step wave

Transfer time

Power Failure AC ⇒ Inverter	4 ms (typical)
-----------------------------	----------------

Spike/Surge protection

Version	Continuous Voltage Vrms	Single pulse 8/20us	
		I _{max}	Joules
110/120V	175V	10,000A	1050
220/230/240V	385V	10,000A	1050

Audible Alarm

Battery discharge at power failure	Beep every 2 seconds
Battery approaches final discharge	Beep every half second
Overload	Continuous buzzer

UPS faulty	Continuous buzzer
-------------------	-------------------

Battery and Charger

Battery type: Maintenance-free sealed-lead acid. Recharge time 6 to 8 hours typical from total discharge. (The *UPS may be used immediately after discharge but will provide shorter backup time*)

Battery Specifications

	DC voltage	Type	Quantity	Recharge time
GS1100B	12V	12V 9AH	1	<8 Hours

4.2 Mechanical Specifications:

Product Name	Dimensions	Weight (Kg)	
		Net	Shipping
GS1100B	322x102x165	7.6	7.9

4.3 Environmental Specifications:

	Operating	Storage and Shipment
Temperature	0 ~ 40°C (32° ~ 104°F)	-20° ~ +60°C (-4° ~ +140°F)
Humidity	0 ~ 95% (<i>non-condensing</i>)	0 ~ 95% (<i>non-condensing</i>)
Altitude	3,000 m (10,000 ft) (<i>Max.</i>)	12,000 m (40,000 ft) (<i>Max.</i>)

5. TROUBLESHOOTING

The TROUBLESHOOTING CHART below covers most of the difficulties that you may encounter under normal working conditions. If the UPS fails to operate properly, please review the following steps before calling the repair center:

1. Is the UPS plugged into a proper working outlet?
2. Is the line voltage within the rating specified?
3. Does the circuit breaker on the rear panel need to be reset?

5.1 Troubleshooting Chart

Problem	Possible Cause	Corrective Action
UPS does not power up or always in back up mode	On/Off button is not pressed long enough.	Press the On/Off button until UPS turns on
	No incoming line or very low or very high line voltage.	Check the wall socket and test the input line voltage.
	UPS input power cord is not plugged in.	Plug in input power cord.
	Rear panel circuit breaker is tripped.	Reduce the load and reset the circuit breaker.
Battery Fault LED is flashing rapidly & continuous audible alarm.	UPS is overloaded.	Remove the least critical devices from the load.
Battery Fault LED is on	Battery voltage is too low, or the battery is dead.	Recharge the battery for more than 8 hours and reset the UPS. If the LED is still lit, replace battery.
Back-up time is less than the rating.	Battery is not fully charged or the battery is dead.	Recharge the battery for 8 hours and retest the backup time.
UPS is normal but the computer won't turn on.	Computer input power cord is loose or not connected.	Reconnect computer input power cord.
Software communication not working	Wrong interface cable.	Purchase the correct one from your distributor.
	The serial port of the computer has not been configured properly.	Check to see that the serial port is enabled in the CMOS settings. Also check for IRQ conflicts and make sure the settings match those of <i>OPTI-SAFE Sentinel</i> .

6. USER REPLACEABLE BATTERY

The Batteries inside this UPS should last from between 2 to 3 years. If you suspect that the batteries are weak, allow the UPS to charge the batteries for at least 24 hours and then test the backup time. If the UPS still does not provide adequate backup time, follow the procedures below to replace the batteries. Please read section 6.1 before performing the procedure in sections 6.2 or 6.3.

6.1 WARNING

Servicing of batteries should always be performed or supervised by personnel knowledgeable of batteries and required precautions. Please read the following cautions before replacing the batteries. Keep unknowledgeable (i.e., unauthorized) personnel away from the batteries.

CAUTION: Except for the battery, the unit contains no user serviceable parts. Repairs should be performed only by factory trained service personnel.

CAUTION: A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:

- (1) Remove watches, rings, or other metal objects.
- (2) Use tools with insulated handles.

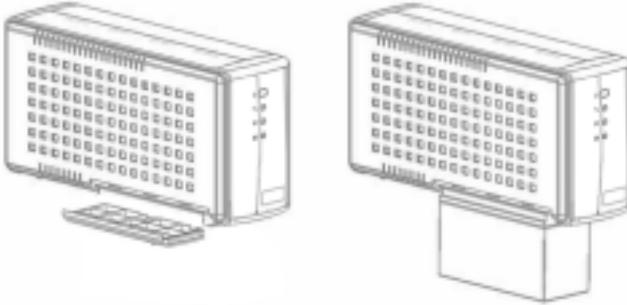
CAUTION: Do not dispose of batteries in a fire. The batteries may explode.

CAUTION: Do not open or mutilate batteries. They contain an electrolyte which is toxic and harmful to the skin and eyes.

CAUTION: When replacing batteries, use the same number and type batteries: sealed Lead-Acid Maintenance Free

6.2 Battery Replacement Procedure

Changing the batteries in your UPS is a safe and easy procedure. Since the battery is isolated from the AC input you may leave your UPS and computer or other equipment on during the following procedure. **Please read the cautions in section 6.1 before performing the following steps.**



1. Remove the two screws on the battery cover.
2. Pull and open the cover. Gently pull out the battery.
3. Disconnect the two wires connecting the battery to the UPS.
4. Connect the wires to the new battery, making sure that the red wire is connected to the red battery terminal and the black wire is connected to the black battery terminal.
5. Push the new battery into place.
6. Close the cover, and replace the screws back to the cover.