Fenton

Line-interactive UPS
User's Manual

S1000A/S1000E/S1500A/S1500E/S2000A/S2000E

(1000VA, 1500VA and 2000VA)

Table of Contents

Introduction

Important Safety Instructions…………….

- Battery management should be performed or supervised by personnel knowledgeable of batteries and with required precautions. Keep unauthorized personnel away from batteries.
- When replacing batteries, replace with the same type of batteries.
- UPS is designed for use with computers and monitors, network system and electronic cash register systems. Other application is not suggested.
- 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 skin and eyes. It may be toxic.
- CAUTION – A battery can present a risk if operated at electrical shock and high short circuit current. The following precautions should be taken before working on batteries:
  1) Remove watches, rings, or other metal objects.
  2) Use tools with insulated handles.
- CAUTION –This UPS cannot be laid flat.

    UNAUTHORIZED SERVICING OF YOUR UPS, OR FAILURE TO FOLLOW THESE INSTRUCTIONS, WILL CAUSE YOUR WARRANTY TO BE NULL AND VOID.

Introduction

Important Safety Instructions……………

ρ If your UPS shows obvious signs of having been damaged during transport, immediately return the unit in its original box, with your receipt to your dealer for replacement.

ρ Keep your UPS away from wet or moist places.

ρ Do not leave your UPS in direct sunlight.

ρ Check the electrical specifications on the back of your UPS to make sure that the input voltage matches your local power specifications.

ρ Your UPS is designed for use with computers and monitors, network system and electronic cash register systems. Other applications are not suggested.

ρ To clean the external surfaces of your UPS, use dry cloth only, since water or cleaning solutions could get into the internal electronic circuitry then cause major damage. Do not apply any chemical solvents to the UPS.

ρ Your UPS is intended for use in a climate-controlled indoor area, not outdoors, or exposed to severe climate conditions.

ρ **UNAUTHORIZED SERVICING OF YOUR UPS, OR FAILURE TO FOLLOW THESE INSTRUCTIONS, WILL CAUSE YOUR WARRANTY TO BE NULL AND VOID.**

Introduction

Features of Line-interactive UPS…………

Thank you for purchasing S series Line-interactive UPS. This series UPS is an advanced Line-Interactive Uninterruptible Power System which produces power in pure sine wave form to your equipment; unlike the traditional off-line UPS, this series requires very short transference when blackouts happen. The voltage regulation of the series is similar to On-line UPS; however, the series provides efficiency over 98% under normal power condition. Two charge modes, quick charge and trickle charge, are provided to maintain the batteries at the best condition.

** Battery Replacement Warning -*
The self-test function (by pushing the button) will inform you with an alarm when the batteries are weak and require replacement.

** Smart Communication Interface -*
A communication interface port is provided for sensing input voltage, output voltage, battery capacity, output power level, and UPS statuses. Through this port, you can remotely control the UPS such as turning on and off by customized schedule and setting the auto-test procedure.

Introduction

Features of Line-interactive UPS

* Automatic Voltage Regulation Function -

AVR provides voltage range by input ±22% and output ±5% regulation, which depend on two boosts and two bucks design.

* DC Start Function-

Allow you to power on the UPS inverter (battery) operation, even in absence of external power. This function offers you the convenience of powering on your computer via UPS when the AC utility power is out.

* Network Line Protection-

Two special jacks allow RJ45 connection to protect your Internet (Modem) or 10Base-T signals from surge damage.

* Smart Overload Protection-

While the UPS is on, the S series UPS smart chip monitors load conditions. In case an overload or short-circuit occurs, your UPS will beep continuously to alarm, or shut down automatically to save your critical load and avoid the nuisance fuse blows.
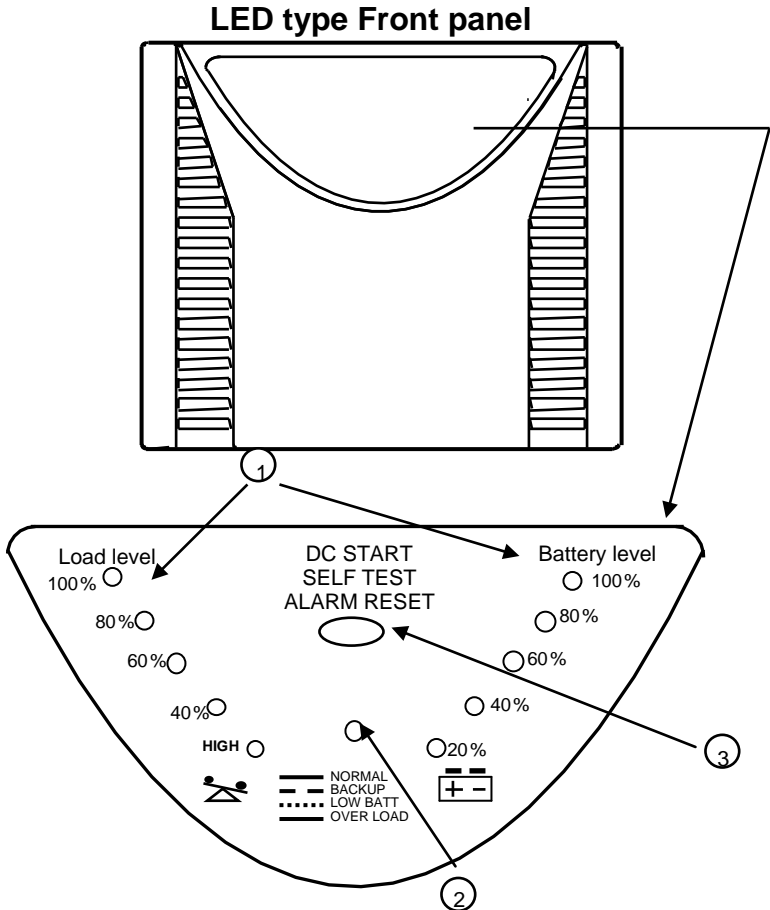
Introduction

Features of Line-interactive UPS

* Real Time Warning For Failed Battery (LCD Model)-

The battery self-test function of the UPS will check battery status every 20 minutes (no need to push the button by user). The "Battery Replacement" symbol on LCD panel will show up when battery failed or is in open circuit, simultaneously the word "Battery Bad" will be displayed in the main screen of the monitoring software.
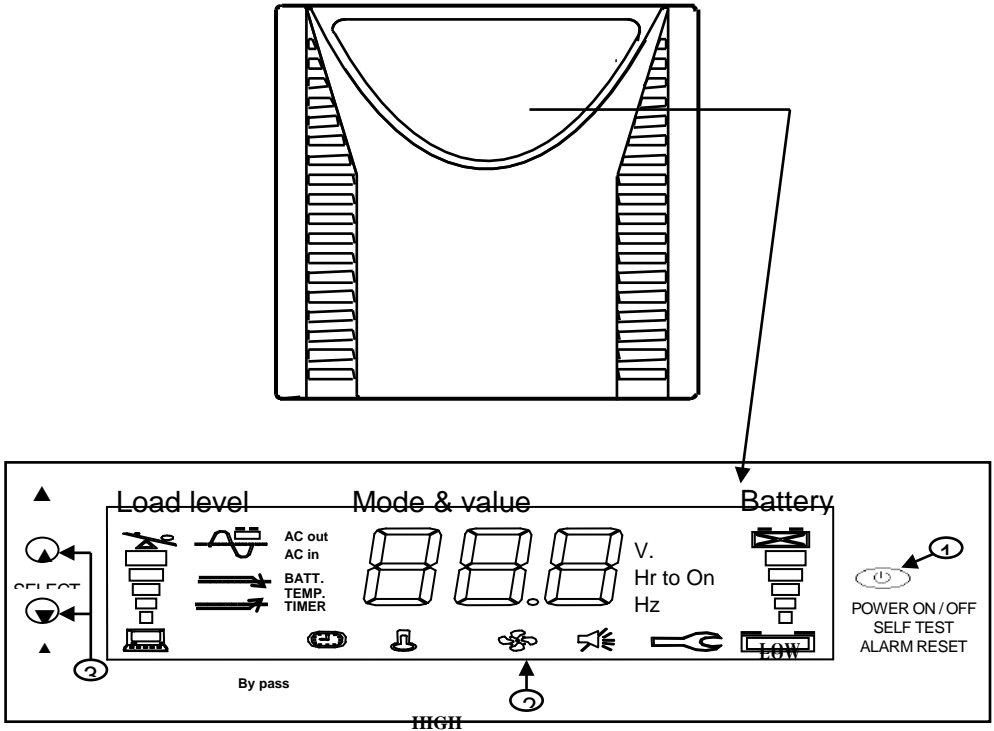
Overview S1000, 1500, 2000VA

LED type Front panel

Load level
100% ◯
80% ◯
60% ◯
40% ◯
HIGH ◯

DC START
SELF TEST
ALARM RESET

Battery level
◯ 100%
◯ 80%
◯ 60%
◯ 40%
◯ 20%

NORMAL
BACKUP
LOW BATT
OVER LOAD

1. LEDs of battery voltage level and load level
2. LED of operation status
3. Control button

※LED indication: Please refer to "audible / visual indicator" section.

6

LCD type Front panel

1. Main control button

2. LCD screen

**3. Selection button for mode & value**

Note:

LCD available models:

All of S series sine-wave line interactive UPS could be equipped with LCD display. These models include standard tower series, long-run tower series, standard rack mount series, & long-run rack mount series, etc.

※LCD indication: Please refer to "audible / visual indicator" section.

Rear panel

S1000 S1500/S2000 NEMA Type IEC Type
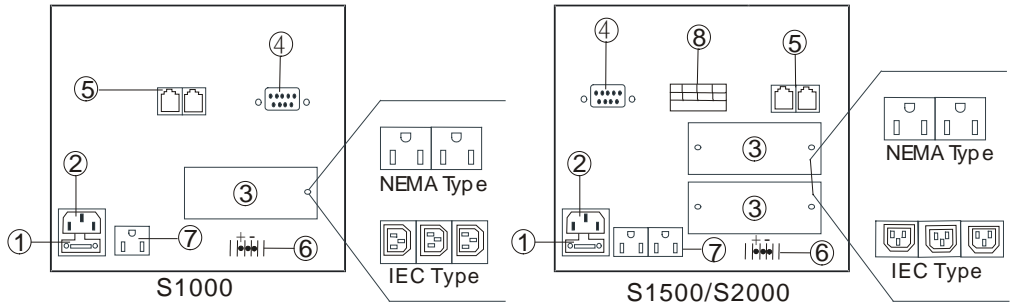
1. **Fuse**
2. **Inlet of AC power**
3. **Outlet(s) (NEMA/IEC).**

4. **RS-232 Communication Port**
   It provides RS-232 serial signal and contact closure signals.
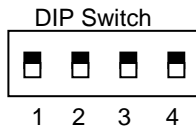
5. **Network Jack- RJ45**
   These two modular jacks provide surge protection to modem or 10 Base-T signals.

6. **Battery Connector**
   When use external battery, the load has to be lower than 1/4 of rated full-load.

7. **Outlet(s) (NEMA/IEC)**

8. **DIP switch** (Available for standard models: 1500/2000, long run models: 1000/1500/2000)

DIP Switch

1   2   3   4

DIP 1	DIP 2	220V System	110V System
Down	Up	220V / 60Hz	100V / 50Hz
Up	Up	220V / 50Hz	110V / 60Hz
Up	Down	230V / 50Hz	115V / 60Hz
Down	Down	240V / 50Hz	120V / 60Hz
DIP 3 for AC auto turn-on when AC power returns UP = Enable / Down = Disable			
DIP 4 for Green Mode setting UP = Enable / Down = Disable			

P.S.: Program setting active only after the UPS is re-started.

8

Product Specification

ITEM		DESCRIPTION		
MODEL		S1000	S1500	S2000
RATING		1000VA	1500VA	2000VA
WATTAGE		600W	900W	1200W
INPUT	Voltage	100 / 110 / 115 / 120 or 200 / 220 / 230 / 240 Vac ±22% Nominal		
	Frequency	50 / 60Hz ±5% Auto Sensing		
	Phase	Single		
OUTPUT	Voltage	100 / 110 / 115 / 120 or 200 / 220 / 230 / 240 Vac ±3% (On Backup Mode)		
	Frequency	50 / 60 Hz ±0.1% Auto Sensing		
	Waveform Type	Pure Sine Wave		
	Voltage Regulation	±5% (On AC Power Mode)		
	Transfer Time	3.5 ms Typical		
	Number of Outlets	3 (IEC Type) or 2 (NEMA Type)	6	6
SURGE PROTECTION	Energy Rating	320 Joules Instantaneous		
	Dataline Protection	RJ45 Modem / 10 Base-T Signals		
BATTERIES	Battery Type	Maintenance Free Lead Acid		
	Re-Charge Time	5 Hours To 90% Charged	3 Hours To 90% Charged	
	Battery Capacity	12V / 7AH x 2	12V / 7AH x 3	12V / 7AH x 4
	Typical Backup Time	15 - 33 Minutes Base On The Loading	13 - 33 Minutes Base On The Loading	13 - 44 Minutes Base On The Loading

Product Specification

ITEM		DESCRIPTION		
MODEL		S1000	S1500	S2000
COMMUNICATIONS & MANAGEMENT	Interface Port	RS-232		
	Control Panel	LED Status Display On AC Power, On Battery, Overload		
	Audible Alarm	On Battery, Low Battery, Overload		
	Software	UPSilon2000		
	OS Support	Windows 95, 98, 2000, ME, NT4.0, XP		
PHYSICAL	Dimensions	180 mm (W) x 200 mm (H) x 380 mm (D) 7.1" (W) x 7.9" (H) x 15" (D)	180 mm (W) x 200 mm (H) x 450 mm (D) 7.1" (W) x 7.9" (H) x 17.7" (D)	180 mm (W) x 200 mm (H) x 510 mm (D) 7.1" (W) x 7.9" (H) x 20.1" (D)
	Net / Gross Weight	15 kgs. / 16 kgs. 33.0 lbs. / 35.2lbs.	21 kgs. / 22 kgs. 46.2 lbs. / 48.4lbs.	25 kgs / 26 kgs. 55.0 lbs. / 57.2lbs.
ENVIRONMENTAL	Ambient	32-104°F,30-90% RH Non-Condensing		
	Audible Noise	Less than 45 dBA (1 Meter Measured)		

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Installation & Operation Instructions

To install the UPS, please follow the installation steps below and **Charge the UPS overnight before use.**

1. Check the power ratings on the back of your UPS to make sure the input voltage matches with your local power specifications.

2. Plug the female end of the enclosed AC power cord into the male AC power inlet on the back of your UPS.

3. Decide where you want to place your UPS. It is recommended that you place it in a location where you will be able to see and hear its visual and audible indicators and alarms.

4. Plug the male end of the same AC power cord into a properly grounded AC wall outlet.

5. Plug in your computer devices into the output sockets. Make sure you have charged your S series UPS overnight before using the UPS for the very first time.

6. Turn on your computer and/or other connected devices.

Installation & Operation Instructions

7. Perform the Power Failure Test

   Pull out the AC power cord from the wall receptacle to test the operation of UPS on battery backup function. Make sure that your computer and other devices are running normally.

8. Turn Off the UPS

   Before you turn off the UPS power, please make sure that your computer and other devices are properly shut down. Push the Power Switch to turn off the UPS.

9. To ensure your computer equipment to be protected during an AC utility power failure, it is important to make sure that the maximum power needed by the equipment is not over the rated capacity of the UPS. If your equipment is overloading the UPS, then the red LED will light up (LED version), or the "Over load" symbol will show up (LCD version), and the alarm will beep. Furthermore, if the overload is severe, the UPS will shut down immediately for protecting UPS itself.

10. After installed under the AC mode, the UPS will charge the battery automatically, and the status LED (in LED version) blinks green every 2 seconds; or in LCD version, the battery symbol and battery level will blink every second during charging. If AC auto turn-on function is enabled, the UPS will turn on automatically when utility power is green. If auto turn on is disabled, please push the button for one second on the front panel, then the UPS will supply power to the outlets after a short-time of self-test.

12

Installation & Operation Instructions

11. Pushing the button for 4 seconds, the UPS will turn off the power on the outlets. But, the UPS will keep charging if AC power is normal. To stop the charging, please pull out the power cord to shut down the UPS completely.

12. During a blackout, push the button for entering idle mode, then push again for one second, and the UPS will be turned on and enter into backup mode. To turn off the power from UPS; please push the button for 4 seconds, then the status LED (in LED version) will blink orange every 2 seconds; or LCD display will show "OFF" (in LCD version); then, wait for 5 seconds, and UPS will turn off the power automatically.

13. In the idle mode, UPS will turn off power automatically within 4 seconds during a utility failure; while UPS will keep charging the batteries if the utility power is normal. When utility power is normal, please pull out the power cord if you want to turn off the UPS completely.

Green power mode setting

When "Green Power" function is enabled, the UPS will turn off the power within 30 seconds after blackout occurs with power consumption lower than 25W.
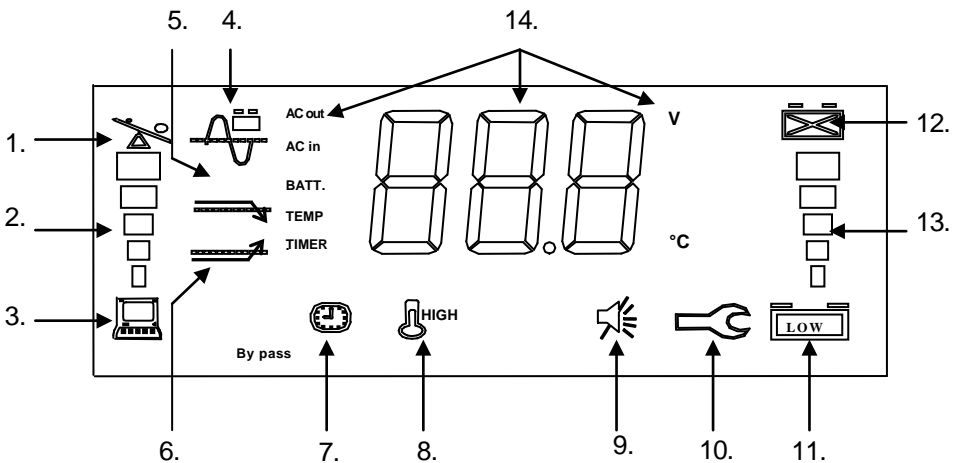
Audible/Visual Indicators

Under the following power conditions (status), the LED and LCD type indicator, and the audible alarm will respond as follows:
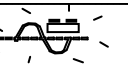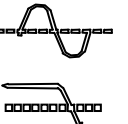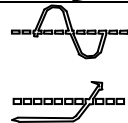
LED indicator table

Conditions		LED Indicator		Audible Alarm	
		Status	Description	Status	Description
Idle mode	Utility Good	Green	Flashing	Off	None
	Utility outage	Orange	Flashing	Off	None
	Timer on	Red	Flashing	Off	None
Normal / Back-up mode	Normal (Utility good)	Green	Flashing	Off	None
	Back-up (No load)	Orange	Flashing	Beeping	4 Sec./time
	Back-up (Loaded)	Orange	Flashing	Beeping	42Sec./time
	Battery Low	Orange	Flashing	Beeping	4 Sec./time
Abnormal Condition	Battery NG.	Red	Flashing	Beeping	8 Sec./time
	Over load	Red	Flashing	Beeping	Continuous
	UPS fault	Red	Flashing	Beeping	2 Sec./32 time
	Thermal alarm	Red	Flashing	Beeping	2 Sec./32 time

LCD type

14

LCD indicator table (1)

Item	Symbol	Indication	Description
1.		Over load	The loading exceeds the rating of UPS.
2.		Load level	The higher the loading is, the more bars will illuminate.
3.		UPS is loaded	When "Green Mode" is enabled, this symbol will display if the loading is over 30W (approximately), and disappears when it's under 25W (approximately). If "Green Mode" is disabled, the symbol will always display.
4.		Normal mode	1. The sine wave symbol will display steadily without battery symbol when UPS is in the normal mode.
		Battery mode	1. The sine wave symbol and battery symbol will blink when the UPS is in back-up (inverter) mode.
		Test mode	1. The sine wave symbol will display steadily with blinking battery symbol when the UPS is in testing mode.
5.		Buck mode	The AVR (Auto Voltage Regulator) is reducing the output voltage of the UPS (when the input voltage is too high), and the sine wave symbol, as mentioned in item 4, will also display steadily to indicate that the output is in the normal mode.
6.		Boost mode	The AVR is increasing the output voltage of the UPS (when the input voltage is too low), and the sine wave symbol, as mentioned in item 4, will display to indicate it's in the normal mode
7.		Timer is enabled	This symbol will show up in the following situations: 1. A turn-on / turn-off schedule has been set using the monitoring software. 2. The Green Mode is enabled and the loading is under 25W (approximately). The UPS will turn itself off automatically in 30 seconds.
8.	**HIGH**	Thermal alarm	The temperature inside the UPS is over 55℃. If the user does not reduce the load, the temperature will continue to rise and the UPS will shut down automatically at 60℃.

15

LCD indicator table (2)

Item	Symbol	Indication	Description
9.		Silence mode	The audible alarm has been silenced. To reset the alarm in Back-up mode, push the control button (not available during low battery level or abnormal condition).
10.		UPS fault	The UPS has failed and must be repaired. Contact a qualified service person.
11.		Battery normal	1. In normal operation, this symbol indicates a charged battery.
	LOW	Battery low	1. When the battery charge level is low, the word "LOW" will be added to the symbol.
12.		Battery replacement	The battery has failed and must be replaced. The battery is checked each time the Test Function is executed.
13.		Battery voltage level	1. The higher the battery voltage, the more bars will illuminate. 2. When the UPS is charging the battery, the battery symbol and the level indicator will blink together.

	Mode	Value	Description
	AC out	V	AC output voltage.
	AC in	V	AC input voltage.
	AC out	Hz	AC output frequency.
	BATT.	V	DC battery voltage.
	TEMP.	℃	UPS internal temperature.
14.	TIMER	Min. to off	The UPS will turn off when the displayed value reaches zero. For example, if the timer shows 0.5 Min to off, the UPS will shut down in 30 seconds.
	TIMER	Hr. to on	The UPS will turn on when the displayed value reaches zero. For example, if the timer shows 48 Hr to on, the UPS will turn on in 2 days.
	BATT.	Min. to off	The estimated remaining run time in Back-up mode. The accuracy of the value is influenced by the loading type, ambient temperature and battery condition (old or new).

Selection Buttons for modes & values.

All the operation data will be displayed on LCD screen. By selecting the required mode (upward or downward), the related value will be displayed.

Software Application

UPS Software Introduction

Introduction

The S series UPS with software driver provides the functions of AC failure detection, UPS battery low detection and system shutdown. UPSilon software is an advanced Intelligent UPS management utility, which can communicate with S series UPS through the RS-232 or USB interface.

With UPSilon 2000, users can manage UPS easily. UPSilon 2000 will display in analog signals and picture the input/output voltage, frequency, load, temperature, battery voltage and other power events to monitor power quality. It can also monitor remote UPS with the use of the intranet/internet. Using UPSilon 2000, there will be no distance-problem. Itmakes work efficiently. When there is a system power failure or battery low, UPSilon 2000 can automatically save files and shutdown systems, plus sending out warning messages via email. Users shall respond accordingly to avoid problems with the system and data at system power failure.

Software Application

Operating System Supported
- Novell Netware/
- Windows 95/98/NT/2000/ME/XP
- FreeBSD
- Linux

Please install the UPSilon 2000 step by step as follow:
1. Turn off the computer.
2. Connect the UPS output to the computer input power socket.
3. Connect the special RS232 cable or special USB cable between the UPS and the computer.
4. Turn on the UPS.
5. Turn on the computer.
6. Put the UPSilon2000 setup CD in CD-ROM.
7. Select "install program" then select the appropriate install program for your computer operating system and follow the operating system instruction.

Limited Warranty

Please register your Fenton product on
http://www.fentonups.com.

Fenton UPS provides the owner of this Fenton product with
the following Warranties and Equipment Protection Policy.

One Years UPS Warranty:
Fenton UPS warrants to the original purchaser of this Fenton
product that the product is free from defects in original
materials and workmanship for a period of up to one year from
the date of initial purchase. This warranty is only valid if the
product has been properly installed and is used in the way for
which it is intended, and has received only factory-authorized
repairs, servicing or alterations.
Under-warranty products that meet these conditions and that
function improperly will be repaired or replaced, at the
discretion of Fenton UPS.

One Year Battery Warranty:
Fenton UPS warrants to the original purchaser of this Fenton
product that the original batteries contained within this product
will function for a period of one year. This warranty is only
valid if the product has been properly installed and is used in
the way of which it is intended, and has received only factory-
authorized repairs, servicing, or alterations. Under-warranty
batteries that meet these conditions and that function
improperly will be repaired or replaced, at the discretion of
Fenton UPS.

These warranties contain the sole express warranty of Fenton
UPS, which makes no other warranties, expressed or implied.
These warranties are made in lieu of any implied warranties of
merchantability or fitness for a particular purpose. These
warranties give you specific legal rights. You may also have
other rights, which vary from state to state.

WHEN YOU RETURN A UPS PRODUCT OR BATTERY UNDER THIS WARRANTY, you must first obtain an RMA number by calling Fenton UPS. Fenton UPS reserves the right to request that you submit a letter describing the circumstances under which the problem occurred and that you submit any other supporting evidence and documentation. Return product with freight prepaid for RMA service.

Equipment Protection Policy:
Fenton UPS warrants to the original purchaser of this Fenton product for the functional lifetime of the product that if a power disturbance damages electronic equipment while properly connected to this product, the electronic equipment will be repaired, replaced, or reimbursed at fair market value, at Fenton UPS option, by Fenton UPS at a cost of up to but not exceeding $20,000.

Fenton UPS reserves the right of ownership of the damaged equipment if it is replaced or reimbursed. This Policy applies only to power line and telephone line transients such as spikes and surges and only if the electronic equipment is plugged into outlets that are properly wired and grounded and if primary protection devices are installed with the utility power and telephone service equipment. This Policy does not apply to cable TV transients unless such protection is specifically stated as being offered by a Fenton product and proper grounding is maintained with the cable TV service. This Policy applies only to UL, cUL, CSA, or CE listed electronic equipment. This Policy does not cover damage caused by natural disasters and accidents, including lightening. This Policy does not cover the cost of lost data, lost time, or damaged software, and Fenton UPS shall in no way be liable for any other damages, costs, expenses, or loss of revenue or profits, resulting from occurrences not covered by this Policy. YOU MUST REGISTER YOUR FENTON PRODUCT BY REGISTED AT www.fentonups.com WITHIN TWO WEEKS OF PURCHASE IN ORDER FOR THIS POLICY TO BE VALID.

This protection guarantee is not an insurance policy. This guarantee is not a substitute of insurance coverage policy provided by your insurance carrier and equipment warranty. First, you need to make the claim for recovery, including but not limited to a claim under any applicable insurance, other warranty, or extended warranty. IF YOU MAKE A CLAIM FOR DAMAGE TO YOUR ELECTRONIC EQUIPMENT, you must first obtain an RMA number by contact Fenton UPS within one week of the occurrence of the damage. After receiving your RMA number, you must then: 1) submit a letter describing the circumstances under which the damage occurred, 2) enclose all other supporting evidence or documentation that exists, 3) submit the original receipt or proof of purchase, 4) return the Fenton product in question to Fenton UPS freight prepaid by United Parcel Service. Fenton UPS reserves the right to determine whether the damage to your equipment was caused by a performance failure of a Fenton product covered by this Policy and reserves the right to request that damaged equipment be sent to Fenton UPS at the owner's expenses for inspection. Furthermore, Fenton UPS reserves the right to contact the authorized service center that repairs the equipment.

Unauthorized service may void this policy. If Fenton UPS determines in good faith that the damage to your equipment was caused by a covered performance failure of a Fenton product covered by this Policy, you will be compensated as stated above. In order for this Policy to apply, all conditions as stated above must be met and you must have the original receipt or proof of purchase.

Troubleshooting

Trouble Shooting Guide Table

Problem	Possible Cause	Action to Take
UPS no reaction while AC is connected	1. Power cord plug is loose 2. Fuse on rear panel blown (Inside the drawer of inlet) 3. Dead wall socket	1. Check the power cord plug 2. Replace fuse 3. Check wall socket with a table lamp.
Power output is normal, UPS emits continuous beep, status LED shows RED, or LCD shows "overload".	UPS is over loaded	Turn off UPS and unplug excessive loads from UPS.
No power on outlets, UPS emits continuous beep, status LED show RED or LCD shows "over load".	UPS has shut down due to severe overload.	Unplug excessive loads from UPS, press button to reset the buzzer, and turn on the UPS again.
UPS does not provide expected run time	1.Excessive loads connected at UPS's outlets. 2. Battery is weak and cannot provide enough capacity.	Do not operate the UPS with load, and leave the UPS plugged in for 10 hours. Then, test it again, if UPS still cannot provide expected run time, battery should be replaced.
Button on front panel doesn't work	1.The CPU inside UPS is not running correctly. 2. Button damaged.	1. Push the button for 10 seconds to reset the UPS. 2. Unplug power cord and all loads from the UPS to let it shut down automatically, and call for service.
When push button for testing under AC mode, UPS emits urgent beep (8 beeps per sec.) and RED LED blinks, or LCD display shows "battery replacement" at the same time.	Battery is weak and should be replaced	Replace batteries.
UPS can not be turned on	1. Battery polarity wrong 2. UPS fault	1. Check battery connection. 2. Call for service.

S1000

is any question, please contact us at the following
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Appendix

AS FOR SOFTWARE APPLICATION, YOU'RE SUGGESTED
TO REFER TO THE WEB SITE HEREUNDER
WWW.MEGATEC.COM.TW