User’s Guide

Models 525bt

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:

Our UPS products which are purchased and installed in the contiguous United States or Canada are warranted for three (3) years for parts, two (2) years for labor and two (2) years for the batteries from the date of the first consumer purchase. For UPS products which are located outside of the contiguous United States or Canada, contact your dealer for warranty information.

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.
   c) Any damage of the product due to shipment.
   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:

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

TABLE OF CONTENTS

IMPORTANT SAFETY 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.
- THE BATTERY CONTAINED IN THE 525bt CANNOT BE REPLACED BY THE USER. **RETURN TO THE SUPPLIER FOR BATTERY REPLACEMENT.**
- PROPER DISPOSAL OF BATTERIES IS REQUIRED. REFER TO YOUR LOCAL CODES FOR DISPOSAL REQUIREMENTS.

INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITE

- CONSERVER CES INSTRUCTIONS. CETTE NOTICE CONTIENT DES INSTRUCTIONS IMPORTANTES CONCERNANT LA SÉCURITE.
- L'ÉLIMINATION DES BATTERIES EST RÈGLEMENTÉE. CONSULTER LES CODES LOCAUX À CET EFFET.

DIESE ANLEITUNG ENTHÄLT WICHTIGE SICHERHEITSANWEISUNGEN.
DIESE ANLEITUNG ZUR WEITEREN VERWENDUNG AUFBEWAHREN.

- VORSICHT: EINE BATTERIE KANN EINEN ELEKTRISCHEN SCHLAG, BRANDWUNDEN VON HOHEM KURZSCHLIEßENDEN STROM, ODER FEUER ODER EXPLOSION VON ENTLÜFTETEN GASEN VERURSACHEN. AUF DIE VORSICHTSMAßNAHMEN ACHTEN.
- · RICHTIGE ENTSORGUNG DER BATTERIEN IST ERFORDERLICH. DIE LOKALEN ENTSORGUNGSVORSCHRIFTEN SIND ZU BEACHTEN.

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 AND INTERNAL COMPONENTS 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.

A certified attached power supply cord is to be used with the 525bt , a type not lighter than SJT 18 AWG should be used.

VORSICHT: 

DIE UPS* ENTHÄLT SPANNUNGEN, DIE MÖGLICHERWEISE GEFÄHRLICH SIND. ALLE REPARATUREN SOLLTEN NUR VON QUALIFIZIERTEN MONTEUREN DURCHGEFÜHRT WERDEN.

DIE UPS HAT EINE EIGENE INNERE STROMVERSORGUNG (BATTERIE). DIE AUSGANGSANSCHLÜSSE KÖNNEN ALSO UNTER STROM STEHEN, SELBST DANN, WENN DIE UPS NICHT AN DIE STROM VERSORGUNG IS ANGESCHLOSSEN IST.

Um die UPS auf Dauer sicher bedienen zu können, sollte der Benutzer auf folgende Vorsichtsmaßnahmen genau achten:

- Die UPS nicht auseinandernehmen.
- Die Stromversorgung darf nur mit einem, dreiadrigen, Kabel mit Schutzkontakt stecker an einer geerdeten Steckdose erfolgen.
- Die UPS nicht in der Nähe von Wasser oder in Umgebungen übermäßiger Feuchtigkeit aufstellen.
- Flüssigkeiten oder Fremdobjekte dürfen nicht in das Innere der UPS dringen.
- Die Lüftungsöffnungen an der Seite dürfen nicht verdeckt werden.
- Elektrogeräte, wie z. B. Haartrockner u.a. sollten nicht an die UPS angeschlossen werden.
- Die UPS nicht direkter Sonnenbestrahlung oder Hitzequellen aussetzen.
- Die Steckdose sollte nahe dem Gerät installiert und gut zugänglich sein, um sie vom Wechselstromeingang zu isolieren. Zur Trennung vom Wechselstromkreis den Stecker aus der Steckdose ziehen.
- Dieses Gerät ist nur durch den fachmann zu installieren.
- Die Bedienung dieses Gerätes soll nur durch unterwiesenes Personal erfolgen.
- Bei der Installation dieses Gerätes ist darauf zu achten, daß die Summe der Ableitströme der USV und der angeschlossenen Verbraucher den Maximalwert von 3.5mA nicht überschreiten.

Zur Stromzufuhr sollte ein gesichertes, trennbares Kabel benutzt werden. Für eine Stromstärke bis 10A sollte dieses mit H05VV-F 3C; 0.75 mm² benutzt werden.

*UPS (Uninterruptible Power Supply) = Unterbrechungsfreie Stromversorgung

ATTENTION: 

L'UPS contient de la haute tension qui peut poser risques. Toute réparation doit être exécutéé par du personnel de service qualifié.

L'UPS a sa propre alimentation secteur interne (batterie). Les prises femelles peuvent être chargées même si l'UPS n'est pas relié à une alimentation secteur.

La sécurité de l'opération de l'UPS dépend des soins de l'utilisateur. Veuillez lire les précautions ci-dessous:

- Ne jamais démonter l'UPS.
- Ne jamais essayer de brancher l'UPS à une prise femelle sauf à une qui posséde une terre et 2 poles.
- Ne jamais mettre l'UPS prés de l'eau ou dans un milieu trop humide.
- Ne jamais faire entrer du liquide ou d'objet étranger dans l'UPS.
- Ne jamais boucher les ventilations d'air de l'UPS ou l'aération arrière.
- Ne jamais brancher d'appareils, comme les sèche-cheveux, à la prise femelle de l'UPS.
- Ne jamais placer l'UPS aux rayons directs du soleil ou près d'autre source de chaleur.
- La fiche d'alimentation secteur doit être installée tout près de cet appareil. Elle doit être facilement accessible pour l'isoler de la prise secteur de sortie. Pour couper la connexion, enlever la fiche de la prise femelle.

Un câble d'alimentation secteur amovible et certifié est utilisé avec cet appareil. Pour un courant jusqu'à 10A, un câble qui n'est pas plus légèr que 0,75mm² doit être utilisé.

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)

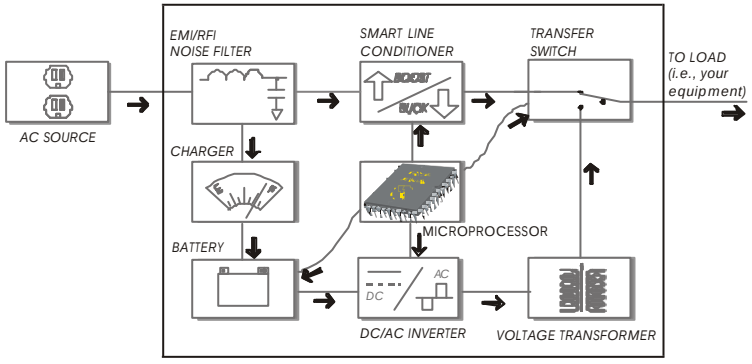
This equipment does not exceed Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause Unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.
Cet équipement ne dépasse pas limites de Classe A d'émission de bruits radioélectriques pour les appareils numériques, telles que prescrites par le Réglement sur le brouillage radioélectrique établi par le Ministère des Communications du Canada. L'exploitation faite en milieu résidentiel peut entrainer le brouillage des réceptions radio et télé, ce qui obligerait le propriétaire ou l'opérateur à prendre les dispositions nécessaires pour en éliminer les causes.

AUSTRALIAN EMC / ACA COMPLIANCE. (A TICK)
This unit meets the requirements of the Electromagnetic Compatibility Framework.

1. INTRODUCTION

1.1 Overview

The BackUp Time Series of Uninterruptible Power Systems (*UPS*) was 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 the power continuously. When AC power fails, the unit employs its internal maintenance-free battery to supply back-up power without interruption.



Power BT Series Features

1.2 Smart Boost Line Conditioning

For example, the voltage from your AC power source can fluctuate above the standard 240V. This microprocessor controlled UPS provides line conditioning via buck / boost (*step-up / step-down voltage*) functions. For example, if the voltage fluctuates down to 200V, the boost function steps it up so that your equipment receives approximately 240V. This provides your equipment with excellent voltage regulation with less possibility for the UPS to drain its internal battery.

1.3 Advanced Interface to Communicate with Computer

Many UPS's provide only a basic power failure warning. The BackUp Time Series, together with *OPTI-SAFE*™+ also provides you with important operating information. From your computer screen, you can determine input/output voltage and current, frequency, battery voltage, etc., and analyze power problems (*see Section 2.4)*.

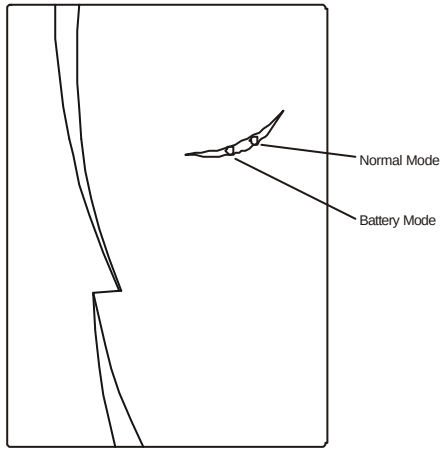
1.4 Data-Line Surge Protection

The built-in data-line surge suppression on the rear panel completes your system protection. It provides an easy way to protect a network (*RJ45 / RJ11*) or modem (single phone line) connection from hazardous spikes (*see Section 2.5*).

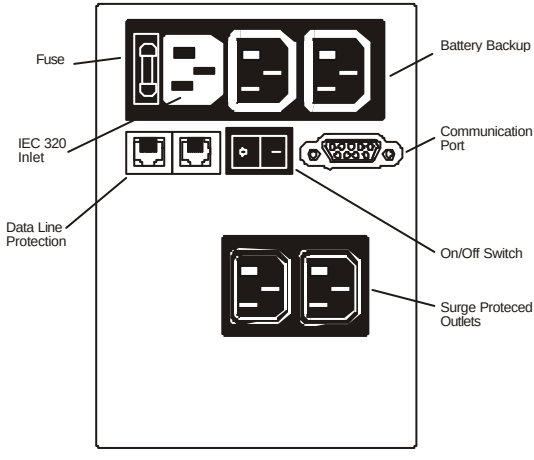
2. UPS CONTROLS

2.1 ***External Views*** *(see Sections 2.2 through 2.5 for more information, and Section 4.2 for the dimensions of all models)*

front view



rear view



2.2 On/Off Button:

Switch On/Off button for to turn on the UPS and power to the load.

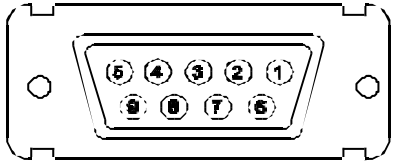
2.3 Front panel Status Indication

	**Normal Mode:** When green LED is lit, the UPS is in normal mode, and providing power to your equipment. The output voltage will be equal to the input voltage. The UPS will continue to filter and provide surge protection.
	**Battery Mode:** When yellow LED flashes every 4 seconds, the UPS is providing power from its battery.

2.4 Communication Port and Pin Assignments

The communication port on the rear panel of the UPS allows for connection to a host computer. When used with *OPTI-SAFE*™+ communication software you will have access to important operating information.

Pin Assignments:



PIN1	Power source for pin 6.
PIN2	Not connected.
PIN3	Not connected.
PIN4	Not connected.
PIN5	Not connected.
PIN6	RS232 Receiver pin (*RXD*).
PIN7	Common ground for pin 6 and pin 9.
PIN8	Not connected.
PIN9	RS232 Transmitter Pin (TXD)

2.5 Data-Line Surge Suppression

The data-line surge suppression on the rear panel provides an easy way to protect a network (*RJ45*) or modem (*RJ11*) connection from hazardous spikes. Connect your 10/Base-T network cable or a single line telephone cable to the “in” socket. To complete

the connection, connect another network cable or telephone line cable from the “Out” socket to your computer. The network cable and telephone line are optional accessories, which may be purchased from your local dealer.

3. INSTALLATION AND OPERATION

Before installation, please read and understand the following instructions:

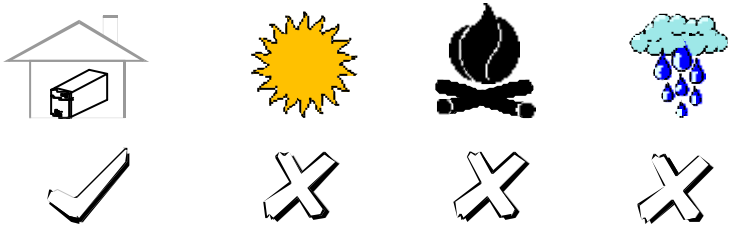
3.1 Unpacking and Inspection

Examine the packing carton for damage. Notify the carrier immediately if damage is observed.

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 heaters or radiators. Do not install this product where excessive moisture is present.

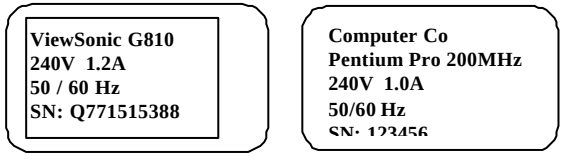


3. The location should provide adequate air flow around the UPS with one inch minimum clearance on all sides for proper ventilation.

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 Australia is 240V, you should use 240V in your calculations.

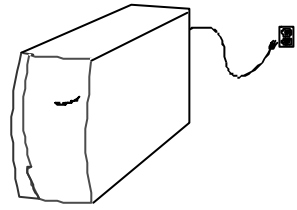


3. Multiply the voltage and current of each piece of equipment (*VA requirements*); for example, 240V x 1.2A = 288VA, 240V x 1.0A = 240VA.
   Add up the VA requirements for each device; for example, 288VA + 240VA = 528VA.

4. Make sure that your UPS has at least as much VA capacity as your equipment requires.

3.4 Powering Up Your UPS

1. For 100/110V/120V versions, connect the power cord to a verified grounded 3-wire receptacle. For 220V/230V/240V versions, please refer to Sec 3.5 .



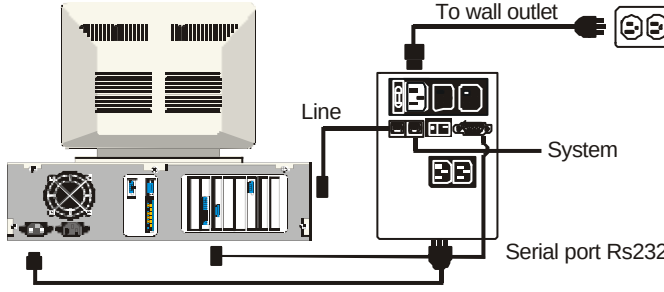
2. Power up the UPS by pressing the On/Off switch on the rear panel.

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 when AC power is available and UPS turn on.**

3.5 Connecting Your Equipment to the UPS

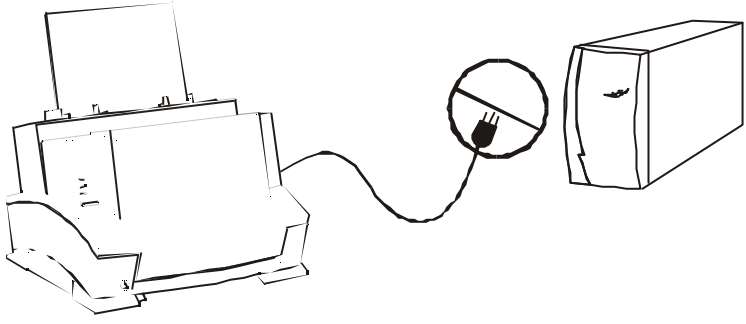
1. For all UPS models except the 220V/230V/240V versions: connect the power cord(s) of your computer equipment to the output receptacle(s) of the UPS. Switch on the computer equipment.

2. For 220V/230V/240V versions, as shown in the illustration below: connect the input power cord of your computer equipment to the inlet of the UPS and the wall socket. Use the power cord supplied with the UPS to connect from the outlet of the UPS to your equipment. Switch on the computer.



Connect the input of the PC to Battery Backup Outlet

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



3.6 Operation and Functional Test

1. Connect the input power and turn on the UPS. The front panel Normal Mode LED will light.

2. The UPS may be overloaded if the UPS buzzer sounds continuously. 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 need unplug the power cord of the UPS. 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 backup function test at least once a month.

   If you unplug the power cord, all models will beep once every 4 seconds and the Battery Mode LED will light. Plug the power cord back in after a few seconds. When the test is over, the Normal Mode LED will light.

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 to charge the battery. The main power switch needs to be turned on.

4. SPECIFICATIONS

4.1 Electrical Specifications

		Output	
Product Name	**Frequency (Hz)**	**Voltage (V)**	**Current (A)**
525bt	50 / 60	240	2A (525VA)

Input/Output Voltage

AC Line Voltage		
Version	**Lower Limit**	**Upper Limit**
240V	180V	270V

Output voltage regulation: ± 10% (*Backup Mode*), ± 10% (*AC Mode*)

Input/Output Frequency Range

Input (*AC mode*)	50 Hz / 60 Hz Auto Sensing
Output (*Inverter mode*)	50 Hz / 60 Hz ± 0.5 Hz

Wave Form :

AC Mode	sine wave
Back-Up Mode	step-sine wave

Transfer Time:

Power failure AC Þ inverter	4 ms (*typical*)

Spike/Surge Protection:

Version	**Continuous Voltage Vrms**	**Single pulse 8/20us**	
		Imax	**Joules**
240V	300V	4500A	75

Data-Line Surge Suppression:

Telephone Line Surge Protection	+/- 6KV Peak (*1.2nS/50 Waveform*)
10 Base-T Protection Let Through Rating	<1% (*From 6KV/125A Normal Mode Surge*)

Audible Alarm:

Battery discharge at power failure	Beep every 4 seconds
Battery approaches final discharge	Beep every 0.5second
Overload	Continue Beep

BATTERY AND CHARGER

Battery type: Maintenance-free sealed-lead acid. Recharge time 4 to 6 hours typical from total discharge. (*UPS may be used immediately after discharge but will provide shorter backup time*)

Battery Specifications:

	525bt
DC voltage	12V
Type	12V 7AH/ 7.2AH
Quantity	1
Recharge Time	4 Hour

4.2 Mechanical Specifications:

Product Name	**Dimensions**	**Weight (Kg)**	
	W ´ H ´ D (*mm*)	**Net**	**Gross**
525bt	107x175x290	7.0	8.0

4.3 Environmental Specifications:

	Operating	**Storage and Shipment**
Temperature	0 ~ 40° *C* (*32° ~ 104°F*)	-20° ~ +60° *C* (*-4° ~ +140°F*)
Humidity	5 ~ 90% (*non-condensing*)	5 ~ 90% (*non-condensing*)
Altitude	3,000 m (*10,000 ft*) (*Max*.)	12,000 m (*40,000 ft*) (*Max*.)

4.4 Fuse Replacement:

Location	Rating	Type
Battery Fuse F1 F2	25 Amp 12V Qty 2	Wedge Type Automotive Fuse
Data/Line Fuse F3 F4	375mA 250V Qty 2	M205 Glass Pigtail Type
Mains Input Fuse	6.3A 250V	M205 Glass

Replace fuses only with the same size and type.

5. TROUBLESHOOTING

The TROUBLESHOOTING CHART on the next page 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 FUSE OPEN on the rear panel need to be changed?

5.1 Troubleshooting Chart

Problem	Possible Cause	Corrective Action
UPS can not turn on and has no alarm.	UPS rear panel on/off switch has not been pressed.	Press the On/Off switch to turn on.
Battery LED (*amber*) is lit and UPS beeps every 4 seconds when Incoming line is thought to be normal.	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 FUSE is OPEN.	Unplug the power cord and replace the FUSE.
There is a continuous sounding alarm.	UPS is overloaded.	Remove the least critical devices from the load.
Backup time is less than the rating.	Battery is not fully charged or battery is dead.	Plug the UPS into an AC outlet and recharge the battery for 6 hours. If problem remains, replace the battery.

UPS appears to be functioning normally but the computer won't turn on.	Computer input power cord is loose or not connected.	Check the 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 *OPTI-SAFE™+*.
	The I/O card is defective	Replace I/O card.