



NXRTi Online UPS

1000VA, 2000VA, 3000VA Models

User & Installation Manual

Table of Contents

Introduction.....	6
Product Description.....	6
Double Conversion Online Technology.....	6
Functions and Characteristics.....	7
System Configuration.....	7
LED Description.....	9
LCD Descriptions.....	10
RS-232 Standard Interface.....	12
SNMP Communications Option.....	12
Determining the Power Requirements of Your Equipment.....	12
Hardware Installation Guide.....	13
Safety Information.....	13
Storage and Transportation.....	13
Environment.....	13
Installation.....	14
19" Cabinet Ear Installation.....	16
Initial Connection and Startup.....	18
User's Operations.....	20
Turning Off the UPS When Connected to an AC Source.....	20
Starting the UPS From a DC Source (Cold Start).....	20
Turning Off the UPS When in Utility Mode.....	20
Turning Off the UPS When in Battery Mode.....	20
Self Test & Mute Test Operation.....	20
Parameter Setting.....	21
ECO Mode Setting.....	21
Bypass Output Setting.....	22
Parameter Inquiring.....	23
Run Mode.....	25

Maintenance	27
Batteries	27
Replacing the Battery.....	27
Troubleshooting	27
LED Indication and Warning Table.....	28
Specifications	30
Shipping List	30
Obtaining Service	31
Xtreme Power Conversion Limited Warranty	32
Appendix A: Extended Battery Pack User Guide	33
Estimated Run Time for UPS with Extended Battery Packs.....	33
LED Description.....	35
Extended Battery Pack Operation.....	35
Extended Battery Pack Installation.....	36
Extended Battery Pack Q & A.....	37

Thank you for selecting this uninterruptible power supply (UPS). It provides you with protection for connected equipment. **Please read this manual** before installing the NXRTi-Series UPS models NXRTi-1000, NXRTi-2000 and NXRTi-3000 as it provides important information that should be followed during installation and maintenance of the UPS and batteries, allowing you to correctly set up your system for the maximum safety and performance. Included is information on customer support and service, if it is required. If you experience a problem with the UPS, please refer to the Troubleshooting section in this manual to correct the problem. If the problem is not corrected, please collect information so that the Technical Support personnel can more effectively assist you.

WARNING: Any changes or modifications not expressly approved by the manufacturer of this device could void the user's authority to operate the equipment.

IMPORTANT SAFETY INSTRUCTIONS: (SAVE THESE INSTRUCTIONS)

CAUTION! (UPS having Internal Batteries): Risk of electrical shock – Hazardous live parts inside this unit are energized from the battery supply even when the input AC power is disconnected.

CAUTION! (No User serviceable Parts): Risk of electrical shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION! (Non-isolated Battery supply): Risk of electric shock, battery circuit is not isolated from AC input, hazardous voltage may exist between battery terminals and ground. Test before touching.

WARNING! (Fuses): To reduce the risk of fire, replace only with the same type and size of fuse.

WARNING! Unit intended for installation in a controlled environment.

CAUTION! Do not dispose of batteries in a fire, the battery may explode.

CAUTION! Do not open or mutilate the battery, released electrolyte is harmful to the skin and eyes.

CAUTION! 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 electric shock, disconnect the UPS from the main supply before installing a computer interface signal cable. Reconnect the power cord only after signaling interconnections have been made.

Servicing of batteries should be performed or supervised by personnel with knowledge of batteries and the required precautions. Keep unauthorized personnel away from batteries.

These UPS units are extremely heavy. Do not install the UPS in a rack or enclosure by its front two ears only. Adjustable rack rails are required for this type of installation.

The instructions contained within this safety manual are deemed important and should be closely followed at all times during installation and follow-up maintenance of the UPS and batteries.

 **CAUTION**

The unit has a dangerous amount of voltage. If the UPS indicator is on, the unit’s outlets may have a dangerous amount of voltage even when not plugged into the wall outlet because the battery may continue to supply power.

Care should be taken to undertake installation indoors, free from electrically-conductive particles which are under temperature and humidity control, in order to reduce the risk of electric shock.

It is best to disconnect the device using the power supply cord. Ensure that the equipment is placed in a position near the outlet where easily accessible.

Except for replacing the batteries, all servicing on this equipment must be carried out by qualified service personnel.

Before conducting any maintenance, repair, or shipment, first ensure that everything is turned off completely and disconnected.

For additional safety instructions, please use the Safety Manual as a reference.

Special Symbols

The following symbols used on the UPS warn you of precautions:

-  **RISK OF ELECTRIC SHOCK** - Please observe the warning that a risk of electric shock is present
-  **CAUTION: REFER TO OPERATOR’S MANUAL** - Refer to the operator’s manual for additional information, such as important operating and maintenance instructions.
-  **SAFE GROUNDING TERMINAL** - Indicates primary safe ground
-  **LOAD ON/OFF** – Pressing the button turns on/off the output receptacles and the indicator light.
-  **RJ45 RECEPTACLE** – The receptacle provides network interface connections and telephone or telecommunications equipment should not be plugged into it.
-  **Please do not discard of the UPS or the UPS batteries as the UPS may have valve-regulated lead-acid batteries. Please recycle batteries appropriately.**

EMC standard/Safety standard

Our products are manufactured in accordance with the following EMC international grade standards and has passed the CE authentication:

EMC standard number	Safety standard number
IEC62040-2	IEC62040-1
IEC61000-4-2	GB4943-2005
IEC61000-4-3	
IEC61000-4-4	
IEC61000-4-5	

Introduction

The information provided in this manual covers high-voltage, single phase 1000-3000 VA uninterruptible power systems, their basic functions, operating procedures, options available and emergency situations. It also includes information on how to ship, store, handle, and install the equipment. Only detailed requirements of the UPS units are described herein, and installation must be carried out in accordance with this manual. Electrical installation must also carefully follow local legislation and regulations. Only qualified personnel should conduct these installations as failure to acknowledge electrical hazards could prove to be fatal.

Product Description

Many different kinds of sensitive electrical equipment can be protected by an Uninterruptible Power Supply (UPS) including computers, workstations, process control systems, telecommunications systems, sales terminals, other critical instrumentation, etc. The purpose of the UPS is to protect these systems from poor quality utility power, complete loss of power, or other associated problems.

Electrical interference exists in many forms, causing problems in AC power, from lightning, power company accidents and radio transmission motors, air conditioners, and vending machines. Protection of sensitive electrical equipment is vital to protect against power outages, low or high voltage conditions, slow voltage fluctuations, frequency variations, differential and common-mode noise, transients, etc.

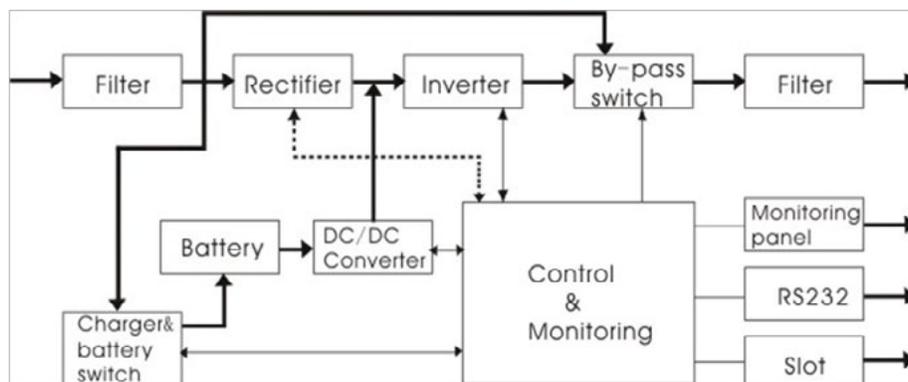
To prevent power line problems from reaching critical systems causing damage to software, hardware, and equipment malfunctions, the UPS maintains constant voltage, isolating critical load output and cleaning the utility AC power.

Double Conversion Online Technology

A double conversion on-line technology UPS provides completely isolated, clean, uninterrupted single-phase power to your critical systems, while maintaining the batteries for their maximum potential. In the event that the power failure lasts longer than the UPS backup time, the UPS will shut down avoiding battery damage. When the input AC voltage returns, the UPS will automatically return online to recharge the batteries.

As shown in block diagram:

- An input filter reduces transients on the incoming utility.
- To maintain full battery charge, the AC input power is rectified and regulated in the rectifier feeding power to the battery converter and inverter.
- DC power is converted to AC in the inverter, passing it on to the load.
- Power is maintained from the battery during a power failure.
- The converter increases voltage appropriately for the inverter.



Functions and Characteristics

- **Advanced IGBT** modules are used in our UPS, with electronics that will work for more than 300,000 hours.
- **Digital Control Technology** with high efficiency algorithm delivers a most reliable controller design used to optimize the output parameters of the UPS.
- The UPS performs a **Self-Diagnostic Test** before starting, enabling the UPS to detect and correct any potential problems prior to powering up the load.
- **Double Conversion On-Line Topology** makes the output of the UPS a pure sine wave with consistent frequency and voltage regulation, low noise, and no interruption in power to the load when utility power is lost.
- **Zero Transfer Time** when the utility power fails or returns.
- The UPS has a **Bypass Function** that allows for the load to be transferred to a bypass mode when a UPS fault occurs. No interruption in power occurs to the load and an alarm will alert to this occurrence. This feature also allows for configuring the UPS to support fully rated loads of switching power supplies, as the bypass circuit can handle the start up.
- **Advanced Voltage Compensation Technology** allows the input voltage range to be 115VAC to 295VAC, reducing battery usage and enhancing UPS response during utility power fluctuations.
- **Advanced Wide Input Frequency Technology** enables the UPS to perform from 45 to 55 Hz when 50Hz output is selected, or 55 to 65 Hz when 60Hz output is selected. All of this means that the UPS is very compatible with single-phase generator operation.
- **Advanced Power Factor Correction (PFC) Technology** on the input of the UPS makes the input power factor more than 0.98, increasing power efficiency, removing harmonic noise, and lowers the UPS operational cost.
- **Auto Start on Battery** allows the UPS to start in battery mode when utility power is not available.
- **Rack-Tower Conversion LCD** means that the display can be read in Rack or Tower configurations by only pressing a button – the display electronically rotates to provide the detailed information in an easy-to-read manner.
- **ECO Function** can help to save electricity by allowing the UPS to operate in a line-interactive mode. The load is supplied with utility power directly while the inverter is in a standby mode until needed.

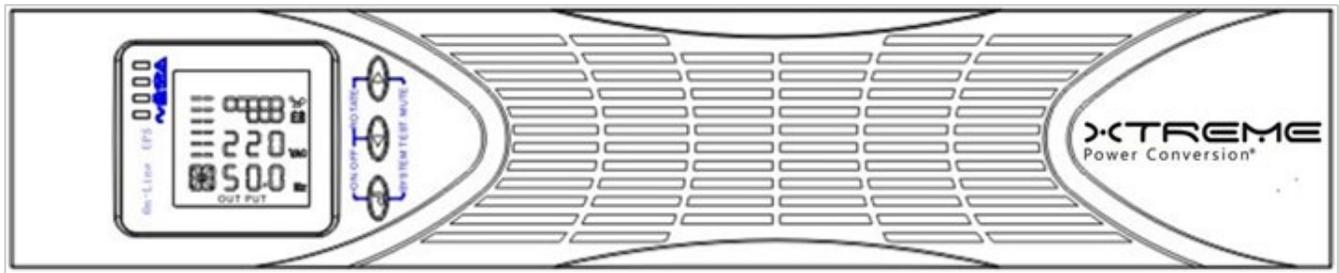
System Configuration

The UPS device and the internal batteries make up the system. Depending on the site and load requirements of the installation, certain additional options are available for the solution.

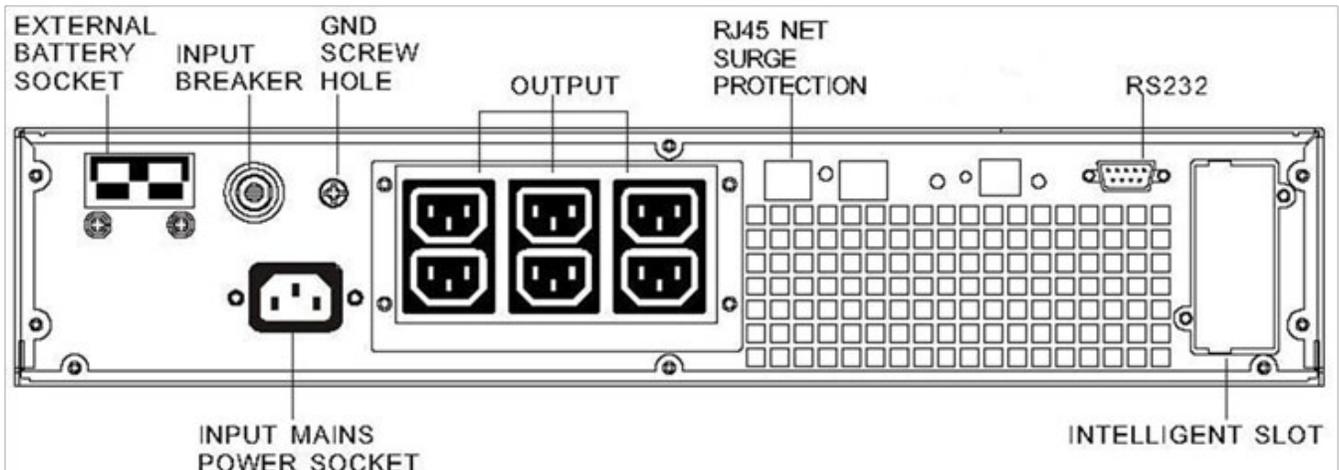
Planning a UPS system, the following should be taken into consideration:

- The total demand of the protected system shall dictate the output power rating (VA). Allow a margin for future expansion or calculation inaccuracies from measured power requirements.
- Backup time required will indicate the battery size needed. If the load is less than the UPS nominal power rating, then actual backup time is longer.
- The following options are available:
 - Extended Battery Packs
 - » NXRTi-EBP1 for 1000
 - » NXRTi-EBP2 for 2000
 - » NXRTi-EBP3 for 3000
 - Connectivity Options –SNMP/WEB card
 - Xtreme Power Distribution Units (XPDU)

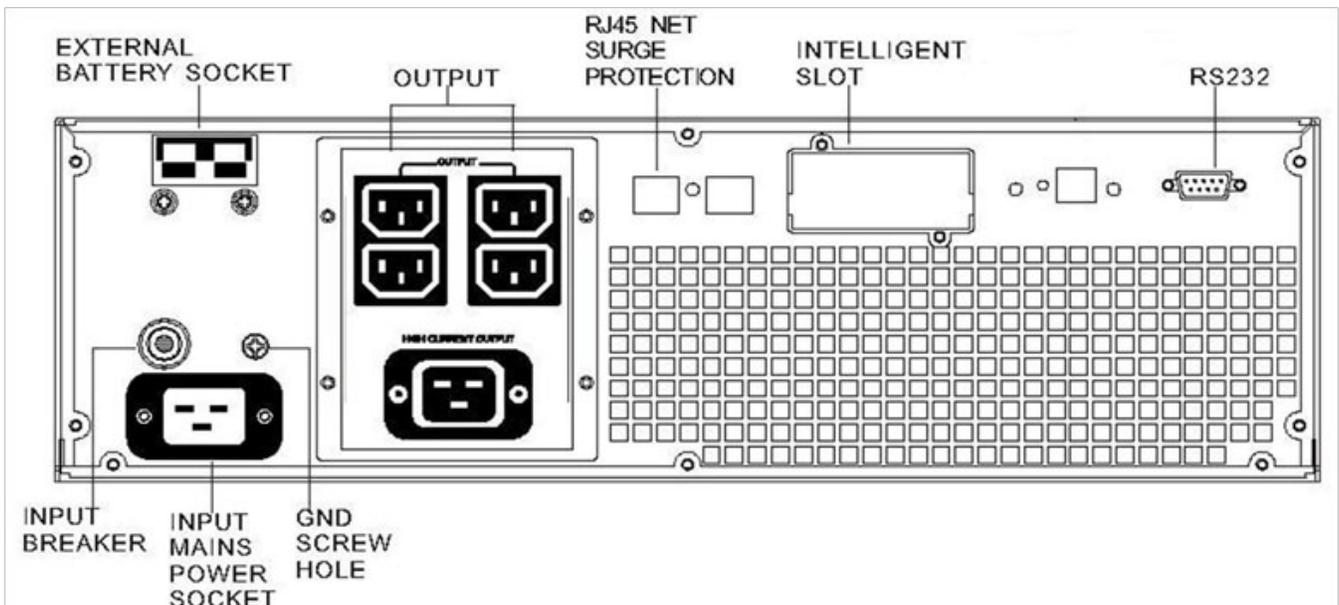
See the Specification section of this manual for additional model information.



NXRTi front view



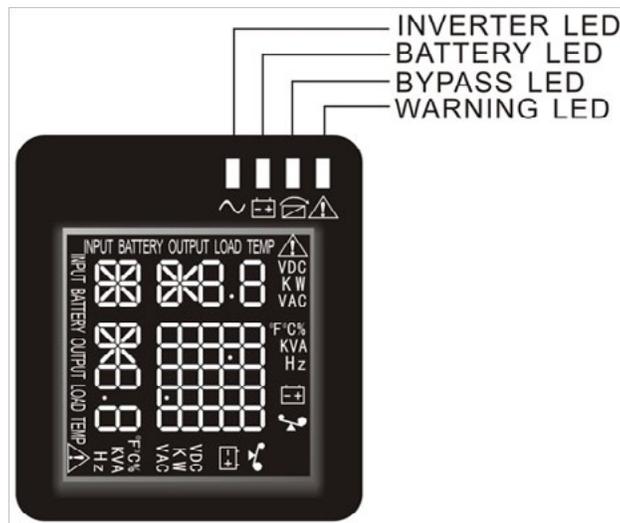
NXRTi-1000 rear view



NXRTi-2000 and NXRTi-3000 rear view

LED Description

The UPS has four LED's on the front control panel. These LED's allow the user to quickly understand if any action is needed.



Red LED

If this WARNING LED is illuminated it indicates a fault and the UPS will have no output. Faults that would indicate this alarm condition include:

- Overload
- Inverter fault
- BUS fault
- Over temperature fault

Yellow LED

If this BYPASS LED is illuminated it indicates the user needs to take some action, and included:

- UPS in Bypass Mode

If this BATTERY LED is illuminated it indicates the user needs to take some action, and included:

- UPS operating on battery
- Batteries Overcharged
- Charger fault
- Fan fault
- Batteries discharged to low voltage level

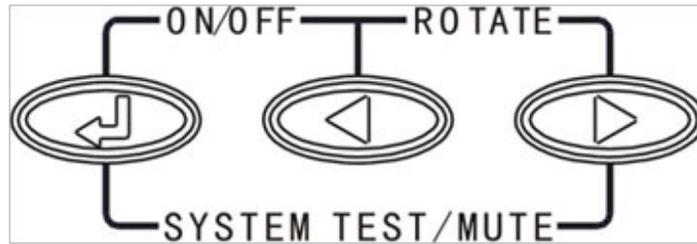
Green LED

If this INVERTER LED is illuminated it indicates that everything is normal and the UPS is being powered by incoming AC utility or by the batteries.

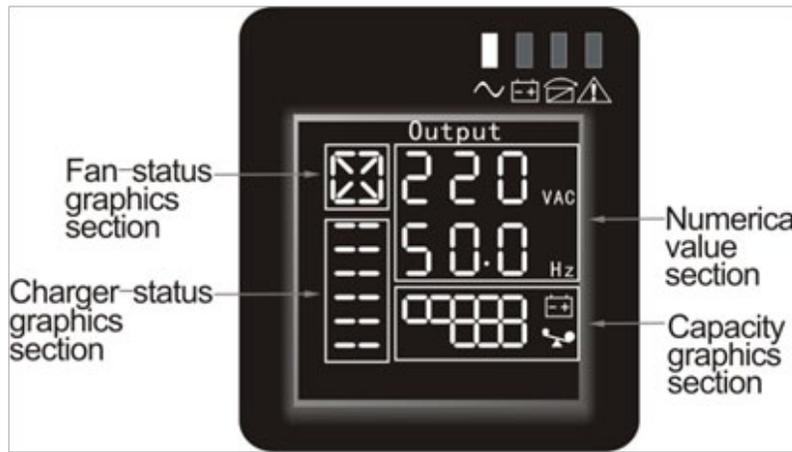
After starting the UPS, the four LED's will light and go out one-by-one, cycling until the UPS starts successfully.

LCD Descriptions

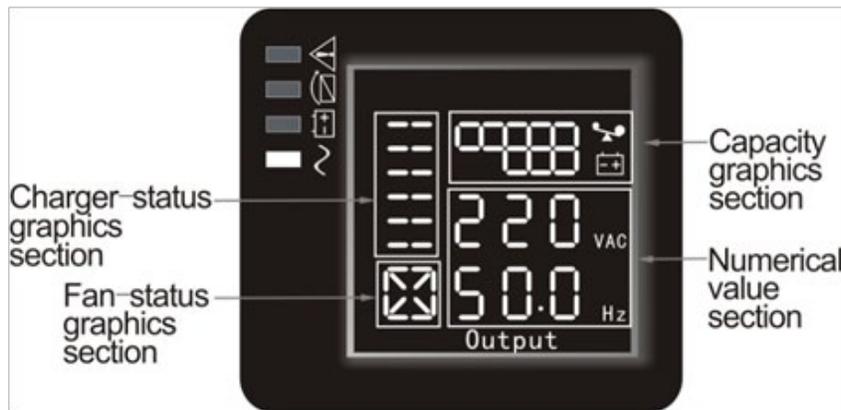
The LCD display electronically rotatable by PRESS and HOLD the ROTATE button for more than 1 second.



NXRTi buttons



NXRTi LCD Panel in Tower Mode



NXRTi LCD Panel in Rack Mode

The LCD display contains

Numerical value section

This section displays the corresponding numerical value of output, load, temperature, input, and battery. Example: Output Voltage = 220V; Output Frequency = 50Hz

Capacity graphics section

This section displays the capacity of the battery and amount of load on the UPS output. Each pane represents 20% capacity. When the capacity of the battery is 80-100% 5 panes would be displayed. When the load reaches 40-60%

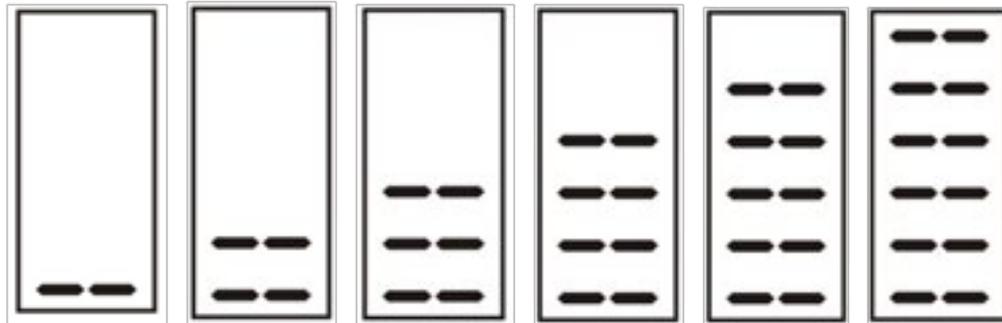
3 panes would be displayed. When the UPS is in overload, the icon will flash. When the capacity of battery is too low or disconnected, the icon will also flash.

Fan status graphics section

This section displays if the fan works normally. When the fan is working normally, it will show the dynamic fan blades rotating. If the fan fails or works abnormally, the icon will keep flashing and alarm.

Charger status graphics section

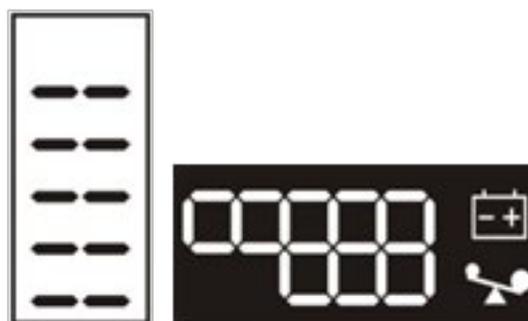
The section displays the status of the charger. When the charger is working normally, the corresponding icon will vary dynamically and orderly.



When the charger works abnormally, the icon will flash as shown below.

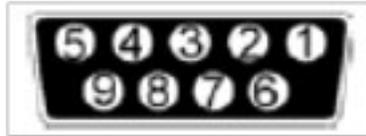


When the UPS is in Battery Mode, the number of icons for the charger status section will vary according to the changeable capacity of the battery. For example, there are five panes in the figure below, so the corresponding number of icons is five rows.



RS-232 Standard Interface

The RS-232 interface uses a 9-pin female D-sub connector. Information provided includes data about utility, load and the UPS. The interface port pins and their functions are identified in the following table:



PIN #	FUNCTIONS
1,4,6,7,8	NOT USED
2	TRANSMIT
3	RECEIPT
5	GND
9	REMOTE WAKE UP

CAUTION: MAX RATED VALUES 12VDC

SNMP Communications Option

The UPS provides an intelligent slot for internal or external network card. This special intelligent network card can be compatible with popular software and hardware found on the web and in operating systems. It can support operating systems such as HP Open View, IBM Netview, SUN Netmanager, etc. This enables the UPS to provide instant UPS and power information over the network. Please contact your reseller for additional details.

Determining the Power Requirements of Your Equipment

1. Make sure the total Volt-Amp (VA) requirements of your connected equipment does not exceed the maximum VA rating for the UPS. The maximum VA ratings are shown in the Specifications section of this document.
2. Ensure that the equipment plugged into the battery-powered outlets does not exceed the UPS rated capacity. If UPS rated capacities are exceeded, an overload condition may occur and cause the UPS to shut down and trip the circuit breaker.
3. If the power requirements of your equipment are listed in values other than Volt-Amps (VA), convert Watts (W) or Amps (A) into VA by doing the calculations below. Note: The equation below only calculates the maximum amount of VA that the equipment can use, not what is typically used by the equipment at any given time. Users should expect usage requirements to be approximately 60% of the value to estimate power requirements:

$$\text{Watts (W)} \times 1.43 = \text{VA or Amps (A)} \times 230 \text{ Volts (V)} = \text{VA}$$

Add the totals for all of the equipment and multiply this total by 0.65 to calculate actual power requirements.

Note: Many factors can affect the amount of power that your computer system will require. The total load that you will be placing on the battery-powered outlets should not exceed 85% of the UPS capacity.

Hardware Installation Guide

Inspect the UPS upon receipt. The packaging is recyclable; keep it for reuse or dispose of properly.

Safety Information

Information presented here is vital to all personnel. Please read all Safety information.

Storage and Transportation

Please handle the UPS and associated equipment with extreme caution since a high amount of energy is contained in the batteries. Always keep the unit in an upright position as marked on the packaging, and never drop the unit.

Please adhere to the following instructions if the UPS is not installed immediately:

- Store the equipment as is in its original packing and shipping carton.
- Do not store in temperatures outside the range of -15°C to +25°C
- Ensure that the equipment is fully protected from wet or damp areas and from moist air.

In order to maintain the batteries, the UPS should be recharged every 6 months for at least 8 hours.

If flammable substances such as gases or fumes are present, or if the room is airtight, a hazardous situation may exist in which no electrical equipment should be operated.

The instructions in this manual explain how to install the UPS safely. Not acknowledging such electrical hazards may be fatal – keep this manual for future reference.



WARNING!

It is strongly recommended that the UPS cabinet not be opened as components have very high voltage and touching those components may be fatal. Only a qualified technician or authorized agent may service the unit.

The UPS unit's output receptacles carry live voltage even when not connected to an input voltage source. The UPS has its own internal energy source.

Environment

Ensure that all environmental concerns and requirements are met according to specifications listed in this document, otherwise the safety of installation personnel cannot be guaranteed, and the unit may malfunction.

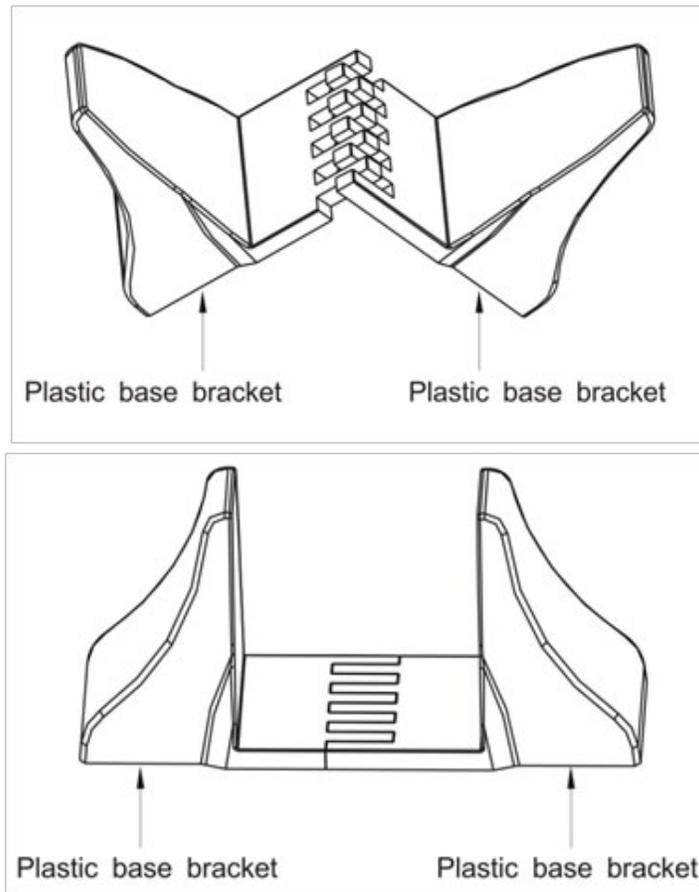
Ensure that you remember the following when locating the UPS system and battery options:

- Avoid extremes of temperature and humidity. Maximum battery life can be attained with a recommended temperature range of +15°C to +25°C.
- Provide protection for the equipment from moisture.
- Space and ventilation requirements must be met. Ensure there is 100mm behind and 50mm on the sides of the UPS for proper ventilation.
- Ensure that the front of the UPS remains clear for user operation.

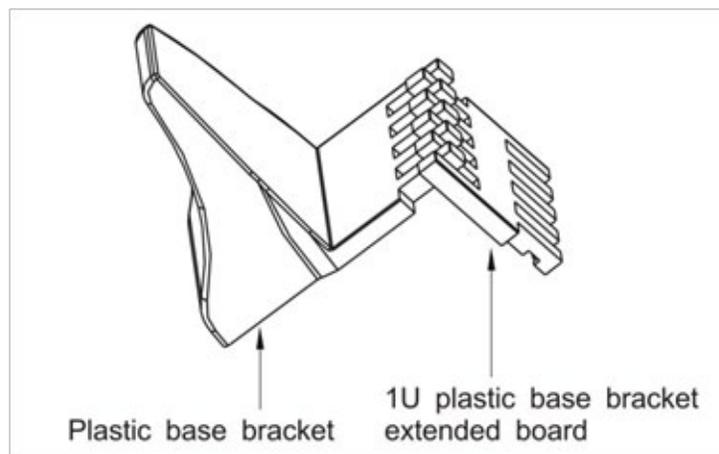
Installation

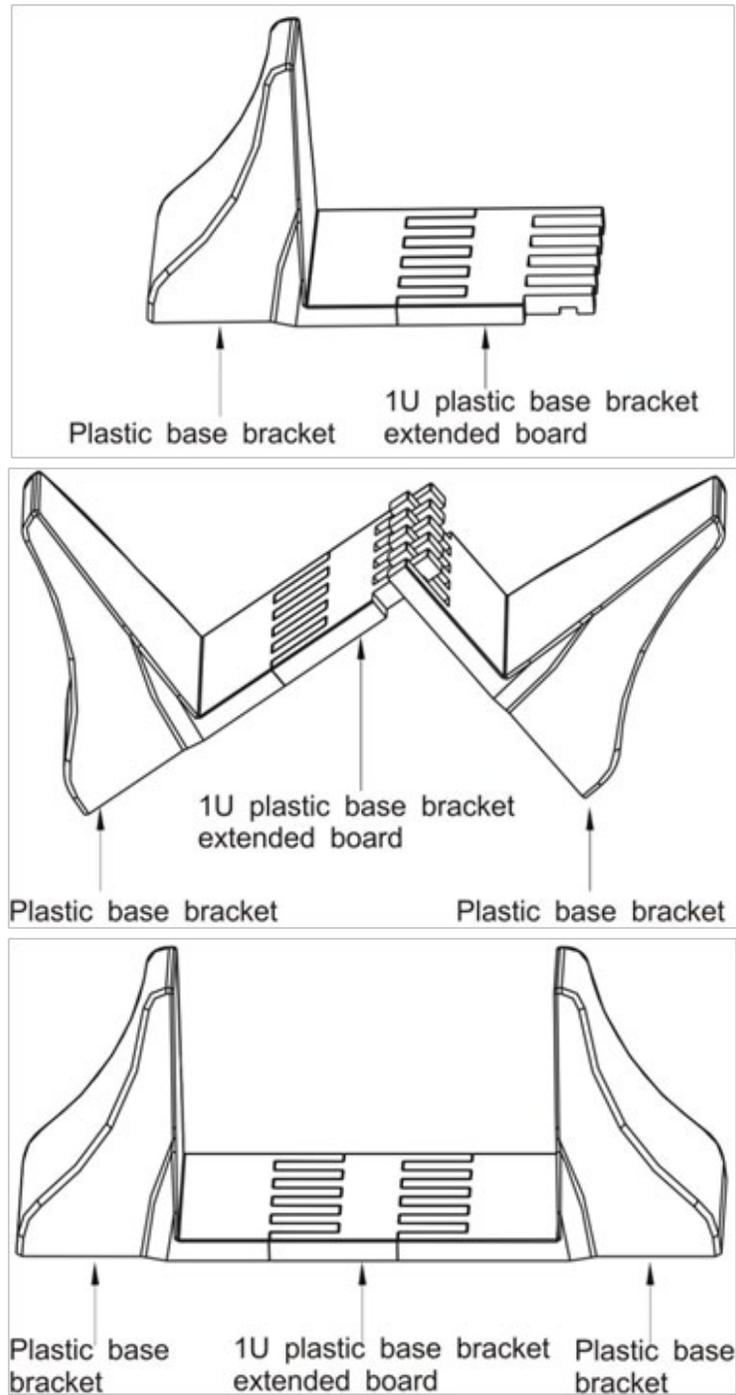
Plastic Base Installation (for use in Tower configuration)

Two plastic base brackets interconnect and flatten for holding 2U base unit configuration.



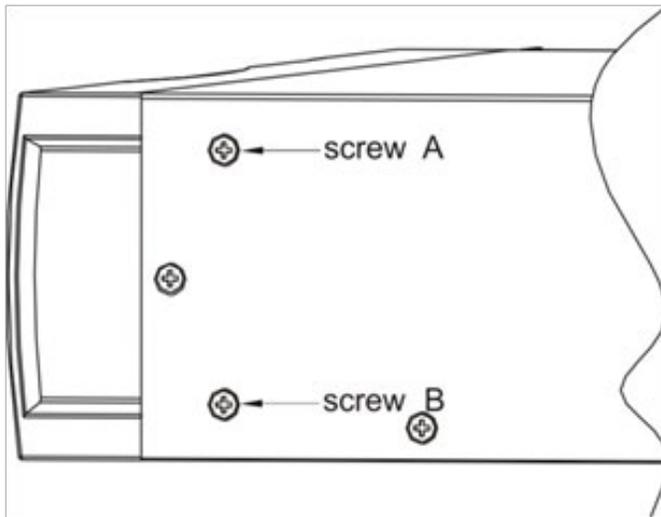
The same plastic base assembly plus a 1U plastic base extension bracket are connected together as shown below to accommodate 3U enclosures.



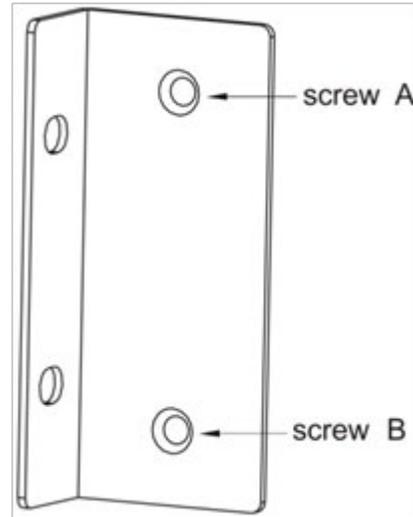


19" Cabinet Ear Installation

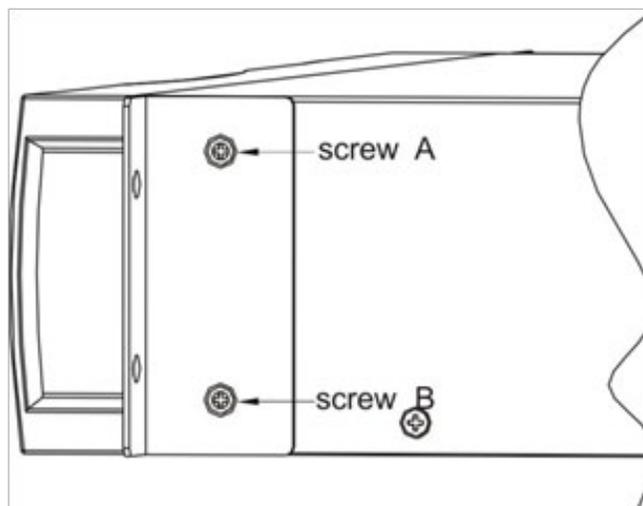
The bracket is installed on the UPS as shown below



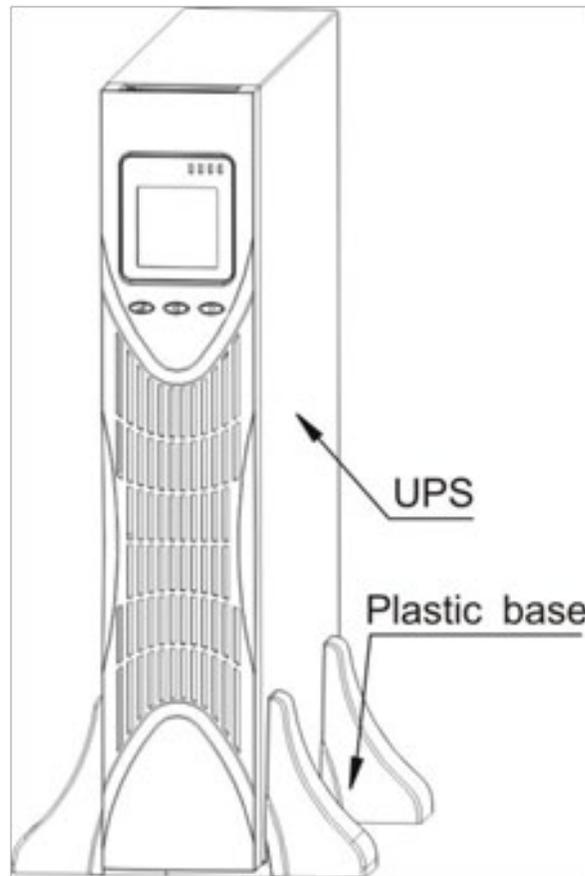
UPS Front Corner



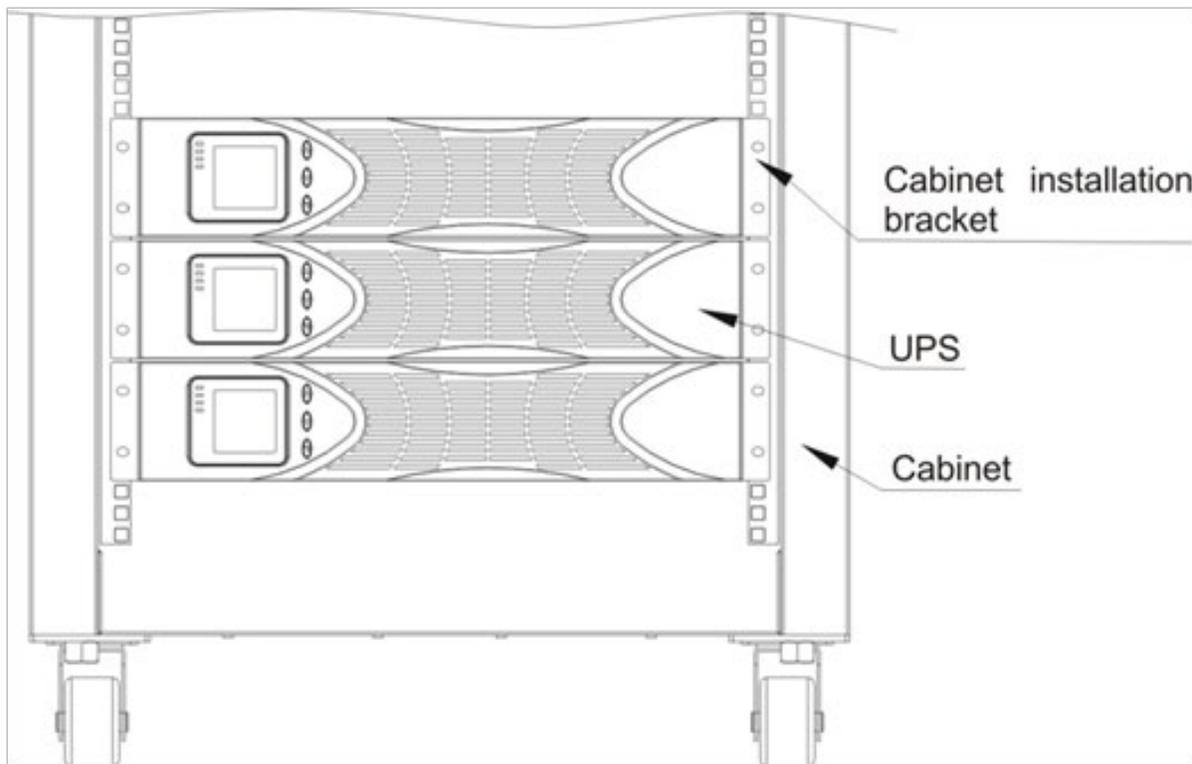
UPS Rack Bracket



UPS Front Corner With Bracket Installed



Tower Assembled Unit



Rack Assembled Unit

Initial Connection and Startup

Ensure that the UPS and optional battery packs are mounted correctly, and the UPS is disconnected from input power before proceeding.

1. Connect external battery packs (option)

CAUTION: CONNECT ONLY BATTERY PACKS PROVIDING THE SAME DC VOLTAGE AS THE UPS – PLEASE DOUBLE CHECK LABELING ON THE UPS AND BATTERY PACKS TO ASSURE PROPER VOLTAGES ARE CONNECTED. CONNECTING THE INCORRECT BATTERY PACK TO THE UPS MAY RESULT IN DAMAGE TO THE UPS AND/OR BATTERY PACK THAT WILL VOID THE WARRANTY.

- Ensure that the UPS is disconnected from AC input and is off while connecting the External Battery Packs. Ensure all battery breakers are in the “OFF” position.
- Remove the EBP covers on the UPS and EBP. Connect the battery cable that comes with the External Battery Pack between the External Battery Pack to the UPS.
- Secure the DC battery cable to the rear of the UPS, and the rear of the EBP by using M3 x 8 screws provided (2 each per connector end).
- Connect the input power cord from the EBP to an input AC utility source per specifications.
- Connect a second battery pack to the first EBP in the same fashion if more than one is to be installed.
- Refer to Appendix A: Battery Pack User Manual for more details

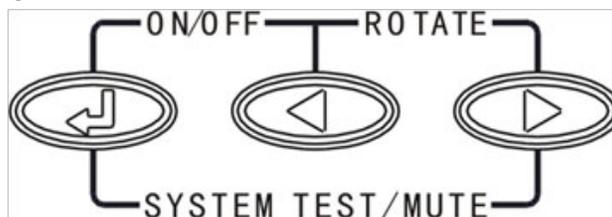
2. Connect SNMP card (option)

- Remove the two screws securing the SNMP cover plate on the rear of the UPS, and slide the SNMP NetAgentII card into the slot. Secure the card into the slot with the two screws previously removed.

3. Close the battery breakers on the Optional battery packs if installed.

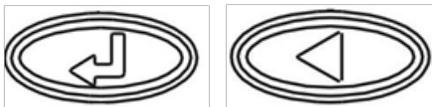
- ### 4. Connect the AC input cable to the UPS and connect the other end to an approved grounded outlet.
- Once the UPS has been connected to an AC power source the internal charger will start charging the UPS batteries, at this point the yellow LED is illuminated, and the LCD displays “UPS OFF”. In this state the output voltage is zero, which means UPS has no output. Please realize that although you may start using the UPS immediately, maximum back-up time will still not be available, so it is recommended to charge the batteries for a minimum of 6 hours before use.

5. Start and configure the UPS



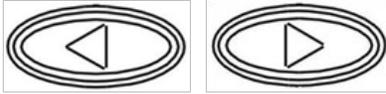
Front Panel Buttons

• ON/OFF BUTTON



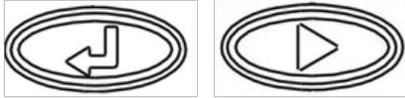
Press and hold button(s) for more than ½ second to turn on or turn off the UPS

- **ROTATE BUTTON**



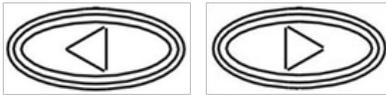
Press and hold button(s) for more than 2 seconds to rotate the LCD in any mode

- **SELF-TEST / MUTE BUTTON**



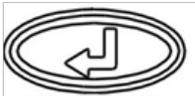
Press and hold button(s) for more than 1 second in utility mode or ECO mode to operate UPS Self-Test
Press and hold button(s) for more than 1 second in battery mode to operate the Mute Function

- **INQUIRE BUTTON**



Press and hold the button(s) for more than ½ second but less than 2 seconds to change inquire function
Press and hold this button for more than 2 seconds to change display information

- **FUNCTION SETTING MODE**



Press and hold this button for more than ½ second but less than 2 seconds to set options

- **NON-FUNCTION SETTING MODE**

Press and hold the button for more than 2 seconds

6. Configure the local monitoring software if desired.

- Insert the UPSilon 2000 CD (included with UPS packaging) into the CD ROM of the local computer.
- Select "Install program" from the Autorun menu and choose for the correct operating system.
- Follow the setup instructions. Enter the product key when prompted. The software key is found on the CD cover. Click finish when prompted.
- The UPSILON icon will appear in the system tray of the desktop near the system clock. Double click this icon to enlarge the program window.
- Connect the RS232 cable (included in the UPS packaging) to the Computer and UPS. Communication should start momentarily. If it does not, click on Settings up on the UPSilon toolbar, then select a different Comport until communication is established.
- Click on "Manual" in the UPSILON toolbar for further software configuration.
- **NOTE:** PLEASE VERIFY AUTOMATIC SHUTDOWN TIME PARAMETERS IN THE SETTINGS SECTION FOR YOUR SPECIFIC INSTALLATION.

7. Configure the optional NetAgentII SNMP card if installed.

- Insert the NetAgent Utility CD (included with SNMP packaging) into a PC and download the user manual
- Install Netility from the AutoRun menu
- Connect a network cable from the PC to the SNMP card.
- Run Netility program and it will auto-search and list available NetAgents (SNMP card)
- Highlight and click "Configure" to change the network settings on the NetAgent discovered.
- Disconnect the cable to the PC and connect the SNMP card to your network.
- Access the SNMP card via the network and make configuration changes using the manual downloaded previously.

- **NOTE:** PLEASE VERIFY AUTOMATIC SHUTDOWN TIME PARAMETERS IN THE SETTINGS SECTION FOR YOUR SPECIFIC INSTALLATION.

8. After charging is complete, connect the loads to the UPS while monitoring the load levels via the UPS LCD or via the software.

- Do not connect any devices that have the possibility of overloading the UPS.

Refer to the Troubleshooting section and/or Technical Support with any problems during setup.

User's Operations

The only operations that users are permitted to do are:

- Turning the UPS unit ON or OFF
- Operating the user interfaces
- Connecting data interface cables

All such operations are to be performed exactly as instructed in this manual. The greatest care possible must be taken for any of these operations, and any change thereof may prove very hazardous to the operator.

Turning Off the UPS When Connected to an AC Source

- Once utility power is plugged in, the UPS will charge the battery, at the moment, LCD shows that the output voltage is 0, which means UPS has no output. If it is expected to have output of bypass, you can set the bps "ON" by LCD setting menu.
- Press and hold the ON/OFF key for more than half a second to start the UPS, then it will start the inverter.
- Once started, the UPS will perform a self-test function, LED will light and go out circularly and orderly. When self-test finishes, it will come to line mode, the corresponding LED lights, UPS is working in line mode.

Starting the UPS From a DC Source (Cold Start)

- When utility power is disconnected, press and hold the ON/OFF key for more than ½ second to start UPS.
- The operation of the UPS in cold start is almost the same as that when utility power is available. After finishing the self-test, the corresponding LED lights and UPS are working in battery mode.

Turning Off the UPS When in Utility Mode

- Press and hold the ON/OFF key for more than ½ second to turn off the UPS and inverter.
- After the UPS shuts down, the LEDs go out and there is no output. If output is needed, you can set bps "ON" by LCD setting menu.

Turning Off the UPS When in Battery Mode

- Press and hold the ON/OFF key for more than ½ second to turn off the UPS.
- When turning off the UPS, it will do a self-test first, then the LED light and LCD display will turn off.

Self Test & Mute Test Operation

- When the UPS is in on-line mode, Press and Hold the Self-Test / Mute Button for more than 1 second, the LED lights and go out in order. The UPS arrives then at its Self-Test Mode and tests its status. The UPS will

exit this mode automatically after finishing testing. LED resumes status.

- When the UPS is in Battery Mode, Press and Hold the Self-Test / Mute Button for more than 1 second, the buzzer stops. Press and Hold the Self-Test / Mute Button for more than 1 second and the UPS will restart buzzer again.

Parameter Setting

- The UPS has a setting function. It can run the setting function in any mode. After setting, the changes will become effective at once when. The set information can be saved only when the battery is connected and following normal power off process.

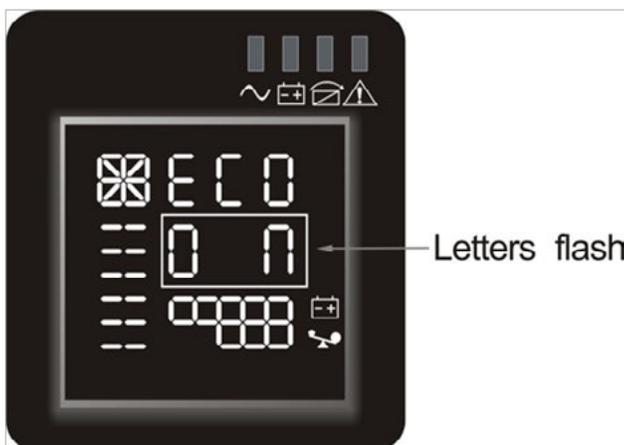
The operation of settings are as following:

ECO Mode Setting

- Enter the setting interface. Press and hold the function setting key  for more than 2 seconds, the letters ECO will flash as following:



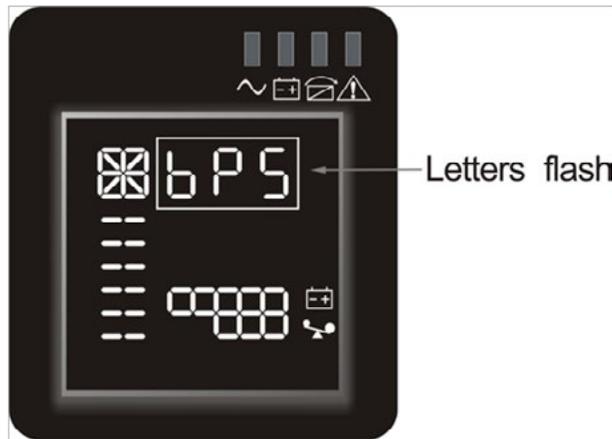
- Enter the ECO setting interface. Press and hold the function setting button  for more than ½ second but less than 2 seconds, then come to setting interface of ECO, the letters “ECO” will light for a long time. The “ON” below the ECO will flash. Press and hold the inquiring button  for more than ½ second but less than 2 seconds to determine whether the ECO function is used or not. If used, the corresponding word is “ON”, if not, the word is “OFF”.



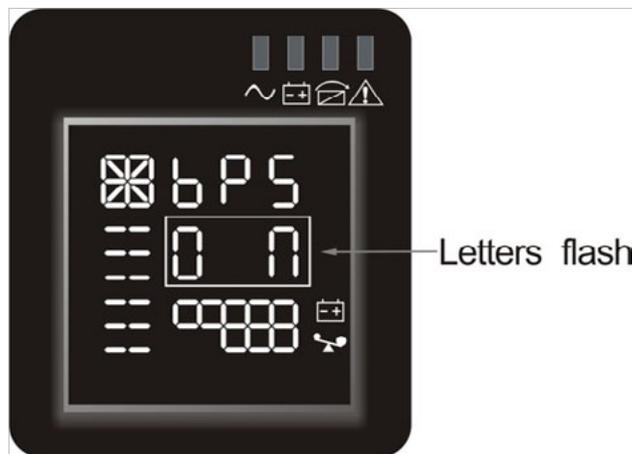
- Confirm the ECO setting function. After selecting ON or OFF, press and hold the function setting button  for more than 2 seconds. The ECO setting function is now completed and the "ON" or "OFF" below the "ECO" will light without flash.
- Exit from the setting interface. Press and hold function setting button  for more than 2 seconds, exit from the setting interface and return to the main interface.

Bypass Output Setting

- Enter the setting interface. Press and hold the function setting button  for more than 2 seconds. Press and hold the function setting button  for more than 1/2 second but less than 2 seconds, select the function setting, choose the bypass output interface, at that moment the letters "bPS" will flash as following:



- Enter the Bypass output setting interface. Press and hold the function setting button  for more than 1/2 second but less than 2 seconds, at this time the letters "bPS" will light for an extended period. The "ON" below the bPS will flash. Press and hold the inquiring button  for more than 1/2 second but less than 2 seconds to determine whether the bPS function is used or not. If used, the corresponding word is "ON", if not, the word is "OFF".



- Confirm the Bypass output setting interface. After selecting ON or OFF, press and hold the function setting button  for more than 2 seconds. The bPS setting function is completed and the "ON" or "OFF" below the "bPS" will light without flash.
- Exit from the setting interface. Press and hold function setting button  for more than 2 seconds, exit from the setting interface and return to the main interface.
- After setting bPS as ON, when utility power is plugged in without turning on the UPS, or no utility power is

plugged in, there is bypass output but no power down backup function.

Parameter Inquiring

Press and hold the inquiring button   for more than ½ second but less than 2 seconds to inquire about items. Items can include: input, battery, output, load, and temperature. The displayed items on LCD screen are showed as following:

Output: Display the output voltage and output frequency of the UPS. As the following graphic shows, the output voltage is 220v, the output frequency is 50Hz.



Load: Display the numerical value of the active power in WATTS and apparent power in VA of the load. For example, as the following graphics shows: the WATT of the load is 100w, VA is 100VA. Please note that when the load is disconnected, it is a normal to see a small numerical value of WATT and VA.



Temperature: Display the temperature of the inverter in the UPS. The graphics shows the temperature of the inverter is 37°C.



Input: Display the voltage and frequency of the input. The graphic shows the input voltage is 210v, input frequency is 49.8Hz.



Battery: Display the voltage and capacity of the battery (determined by type). The graphic shows the battery voltage is 28v, the capacity of battery is 100% (the capacity of battery is an approximation).

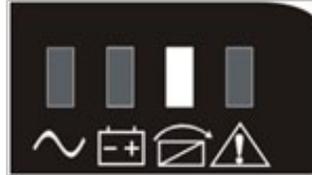


Press and hold the inquiring button  for more than 2 seconds, LCD begins to display the items sequentially every 2 seconds. Press and hold the button again and the display will return to output status.

Run Mode

Bypass Mode

LED indications on front panel in bypass mode are as following:



Bypass yellow LED is on, the buzzer beeps once every 2 minutes. The warning red LED is on when beeping. LCD displays are according to the exact load and battery capacity.

Turn to bypass mode under the following two conditions:

- Turn off the UPS in line mode while starting the bypass output.
- Overload in line mode.

NOTE: When UPS is working in bypass mode, it has no back up function.

Line Mode

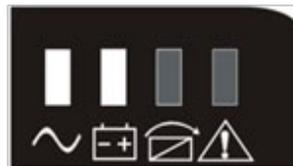
LED indications on the front panel in line mode are as following: the inverter green LED is on.



When input AC utility is in line with the working conditions, UPS will work in line mode.

Battery Mode

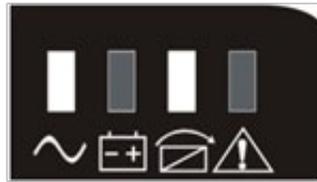
LED indications on front panel in battery mode are as follows: both the inverter green LED and battery yellow LED are on, the buzzer beeps once every 4 seconds. The warning red LED is on when beeping.



When the utility power is not available or is not stable, UPS will turn to battery mode immediately. Continuously working on battery mode can last for 20 hours depending on the battery volume and the load. If battery discharge for 20 hours and the load is lower than 10% of rated power, the UPS will alarm for ½ hour and then shutdown to protect the batteries.

ECO Mode

LED indications on front panel on ECO mode are as follows: both the inverter green LED and bypass yellow LED are illuminated.



When the input utility equals the input range of the ECO mode and the ECO function is activated, the UPS will operate in ECO mode. If input AC utility exceeds the range of ECO several times in a row in a minute but stays in the inverter input range, the UPS will operate on inverter mode automatically.

Fault Mode

LED indications on front panel in fault mode are as follows:



Fault mode (LCD interface with the fault code display)

When UPS has a fault, the fault LED lights and the buzzer beeps. The UPS will turn to fault mode with an overload fault, inverter fault, and over-temperature. The UPS cuts off the output and LCD displays the fault codes. Pressing the mute key will make the buzzer stop beeping. You can also press the ON/OFF key to shut down the UPS.

NOTE: As for corresponding information of the fault code, please refer to Fault Code information Table.

⚠ NOTICE: The following process must be performed if UPS is connected with generator:

- First turn on generator, after it runs stably connect output power of generator to UPS input terminal, then turn on UPS. After UPS turned on, please connect load one-by-one.
- It is recommended that the generator capacity is twice the UPS rated capacity.
- Do not use the ECO mode when the quality of the input AC utility is not stable.

Maintenance

Only minimum maintenance is required for this series of UPS. The battery is sealed lead acid maintenance free. It only needs to be kept charging to obtain the expected life. Whether it is started or not, the UPS would charge batteries once it is connected to utility power and provide protection for over-charging and deep discharging.

Batteries

The life of batteries used in these UPS products is estimated at 3-6 years depending on level of usage. Once the battery is no longer useful and must be replaced, please contact service personnel for assistance.

Replacing the Battery

(QUALIFIED SERVICE PERSONNEL ONLY)

CAUTION! Read and follow the IMPORTANT SAFETY INSTRUCTIONS before servicing the battery. Service the battery under the supervision of Qualified Service Personnel knowledgeable of batteries and their precautions.

CAUTION! Use only the specified type of battery. See your dealer for replacement batteries.

CAUTION! The battery may present risk of electrical shock. Do not dispose of batteries in a fire as it may explode. Follow all local ordinances regarding proper disposal of batteries.

CAUTION! Do not open or mutilate the batteries. Released electrolyte is harmful to skin and eyes and may be toxic.

CAUTION! Although the battery system voltage is only 12VDC and 24VDC, the battery can present a high risk of short circuit current and electrical shock. The short circuit current capability of the battery is sufficient to burn wire or tools very rapidly, producing molten metal. Observe these precautions when replacing the battery:

1. Remove all watches, rings or other metal objects.
2. Only use tools with insulated handles.
3. Do not lay tools or metal parts on top of battery or any terminals.
4. Wear protective eye wear (goggles), rubber gloves, and boots.
5. Disconnect the charging source before connecting or disconnecting the battery terminals.
6. Determine if the battery is inadvertently grounded. If inadvertently grounded, remove the source of the ground. Contact with a grounded battery can result in electrical shock! The likelihood of such shock will be reduced if such grounds are removed during installation and maintenance (applicable to a UPS and a remote battery supply not having a grounded circuit).

Troubleshooting

The following messages are the information that users would find on UPS if it fails to perform as designed. Users can judge if the fault is caused by external factors and know how to deal with it by making full use of the information.

1. Fault indicator on, indicates that the UPS has detected some fault.
2. Buzzer beeps, indicates that UPS needs maintenance, if beeps for an extended period of time, it means that there is something wrong with the machine.
3. If you need help, contact our service department, the following messages should be provided for analysis:
 - UPS MODEL NO. and SERIAL NO.
 - Date of fault happened
 - Detailed description of the problem (include indicator statements from front panel)

LED Indication and Warning Table

LCD Fault Codes

Fault causation	Fault Code
Bus Fault	00–19
Inverter Fault	20–39
Over Heat	40–44
Output short circuit	45–49
Overload	50–54
Output Relay Fault	55–59
Input NTC Fault	60–64
Auxiliary Power Fault	65–69
Input Fuse Fault	70–74
Others	99

NO	Working status	Indication				Warning	Remarks
		Nor	Bat	Bps	Fan		
1	Line mode						
	Normal voltage	X				None	
	High/low voltage protection, turn to battery mode	X	X		X	Once every four seconds	
2	Battery mode						
	Normal voltage	X	X		X	Once every four seconds	
	Battery Voltage abnormal warning	X	X		X	Once per second	
3	Bypass mode						
	Main AC Normal voltage in bypass mode			X	X	Once every two minutes	Eliminate after starting the UPS
	Main AC high voltage warning in bypass mode				X	Once every four seconds	
	Main AC low voltage warning in bypass mode				X	Once every four seconds	
4	Battery disconnect warning						
	Bypass mode			X	X	Once every four seconds	Affirm if the battery switch is closed
	Inverting mode	X			X	Once every four seconds	Affirm if the battery switch is closed
	Power up or start					Six times	Affirm if the battery is connected well
5	Output overload protection						

	Overload warning in line mode,	X			X	Twice per second	Remove the less important loads
	Overload in line mode, protection			X	X	Long beeps	Remove the less important loads
	Overload warning in battery mode	X	X		X	Twice per second	Remove the less important loads
	Overload in battery mode, protection	X	X		X	Long beeps	Remove the less important loads
6	Overload warning in bypass mode			X	X	Once every 2 seconds	Remove the less important loads
7	Fan fault (fan icon flash)	X	X	X	X	Once every 2 seconds	Check if the fan is blocked by object.
8	Fault mode				X	Long beeps	If display fault code and icon lights, contact for maintenance when you can’t deal with it by yourself.

Note: When UPS has a fault, you need to know the working status of UPS and the exact information about the fault promptly by referring to the two tables listed above.

When the fault occurs, firstly, perform troubleshooting by referring to the troubleshooting table. If the fault still exists, please contact the franchiser.

Fault	Cause	Solution
The “INPUT” letters on LCD display section flashes	The voltage or frequency of utility power exceeds UPS input range	UPS is working in battery mode, save disk and close the programs, make sure AC mains voltage and frequency is in the normal range
	Anti-connection of utility line and neutral	Re-connect the input power cable and make a correct connection
Battery capacity indicator flashes	Battery low voltage or battery disconnected	Check UPS battery, connect battery well, if battery damaged, replace it
Utility normal, but UPS has no input	UPS input breaker open circuit	Press the breaker for reset
Short back up time	Battery not fully charged	Keep UPS connecting with mains power for more than 8 hours, recharge battery
	UPS overload	Check the usage of loads, remove some redundant devices
	Battery aged	When replace battery, contact franchiser to get battery and relative assembly
UPS doesn’t startup after pressing the ON button	Short holding time	Press and hold the ON key for more than 1s to start UPS
	UPS has no battery connected or battery voltage low and too many loads connected	Connect UPS battery well, if battery voltage low, please turn off UPS and take off some loads, then start UPS
	Fault occurs inside UPS	Contact supplier for servicing
The icon of charger status on LCD display flashes and buzzer beeps once per second	Charger doesn’t work normally or battery aged	Contact supplier for servicing

Specifications

MODEL NUMBER		NXRTi-1000	NXRTi-2000	NXRTi-3000
INPUT	Capacity	1000VA (800W)	2000VA (1600W)	3000VA (2400W)
	Frequency	50/60Hz ± 3%		
	Power factor	≥ 0.98		
	Harmonic distortion	< 5% non-linear load		
OUTPUT	Rated voltage	230VAC (default); configurable to 208/220/230/240VAC ± 2%		
	Frequency	50/60Hz ± 0.2		
	Crest factor	3:1		
	Overload capacity	150% for 30 sec; 200% for 300ms		
	Efficiency	≥ 90%		
BATTERY	UPS battery type	(2) 12V 9AH/24V	(4) 12V 9AH/48V	(6) 12V 9AH/72V
	UPS charge current	1A		
	EBP battery type	2 x (2) 12V 9AH	2 x (4) 12V 9AH	2 x (6) 12V 9AH
	EBP charge current	1A		
PHYSICAL	Line cord	1.8 m, IEC to Schuko		
	Receptacles	(6) IEC C13	(4) IEC C13 + (1) IEC C19	
	UPS dimensions (W x D x H)	440 x 380 x 86.5 mm (17.3 x 14.9 x 3.4 in)	440 x 530 x 131 mm (17.3 x 20.8 x 5.1 in)	
	UPS shipping dimensions (W x D x H)	607 x 514 x 170 mm (23.8 x 20.2 x 6.6 in)	607 x 654 x 210 mm (23.8 x 25.7 x 8.2 in)	
	UPS weight	12 kg (26.5 lbs)	21.5 kg (47.4 lbs)	26 (57.3 lbs)
	UPS shipping weight	14.5 kg (32 lbs)	24.3 kg (53.5 lbs)	28.8 kg (63.5 lbs)
	EBP dimensions (W x D x H)	EBP1: 440 x 380 x 86.5 mm (17.3 x 14.9 x 3.4 in)	EBP2 & EBP3: 440 x 530 x 131 mm (17.3 x 20.8 x 5.1 in)	
	EBP shipping dimensions (W x D x H)	EBP1: 607 x 514 x 170 mm (23.8 x 20.2 x 6.6 in)	EBP2 & EBP3: 607 x 654 x 210 mm (23.8 x 25.7 x 8.2 in)	
	EBP weight	17 kg (37.5 lbs)	31.5 kg (69.4 lbs)	41 kg (90.4 lbs)
	EBP shipping weight	19.5 kg (42.9 lbs)	34.3 kg (75.6 lbs)	43.8 kg (96.5 lbs)
ENVIRONMENT	Temperature	0–40°C (32–104°F)		
	Humidity	0–95% non-condensing		
	Altitude	3500 m (11,500 ft) above sea level		
APPROVALS	CE EN/IEC 62040-2, EN/IEC 62040-1-1, RoHS compliant			
COMMUNICATIONS INTERFACE	RS232, dry contact (optional), SNMP (optional)			
INCLUDED IN BOX	UPS, software, cable, mounting brackets, user manual, input cord with Schuko plug			
AVAILABLE OPTIONS	4-post rail kit, XBDM and XPDU modules, NEMA input cords, wall mount brackets			

Shipping List

- (1) UPS
- (1) User's and Installation Manual
- (1) 6 ft RS232 cable
- (1) UPSILON CD (monitoring software)
- (2) sets of mounting brackets
- (1) input power cord

Obtaining Service

If the UPS requires Service:

1. Use the TROUBLESHOOTING section in this manual to eliminate obvious causes.
2. Verify there are no circuit breakers tripped.
3. Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem, call Xtreme Power Conversion Corp Technical Support at 800.582.4524. Technical support inquiries can also be made at support@xpcc.com. Please have the following information available BEFORE calling the Technical Support Department:
 - Your name and address.
 - The serial number of the unit.
 - Where and when the unit was purchased.
 - All of the model information about your UPS.
 - Any information on the failure, including LED's that may or may not be illuminated.
 - A description of the protected equipment, including model numbers if possible.
 - A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization number (RMA).

If you are returning the UPS to Xtreme Power for service, please follow these procedures:

1. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a replacement set of packaging material. It is important to pack the UPS properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.
2. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
3. Mark the RMA number on the outside of all packages. Xtreme Power cannot accept any package without the RMA number marked on the outside of the boxes.
4. Return the UPS by insured, prepaid carrier to the address provided by the Technician.
5. Refer to the Warranty statements in this manual for additional details on what is covered.

Xtreme Power Conversion Limited Warranty

Xtreme Power Conversion (XPC) Corporation warrants Xtreme Power Conversion equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship (excluding batteries) for a period of **two years for NXRTi-Series products** from the date of purchase. XPC Corporation warrants **internal batteries for a period of two years** from the date of purchase. For warranty units, an (RMA) must be requested for all claims. XPC will honor warranties at the sole discretion of XPC Corporation after units have been evaluated.

If equipment provided by XPC Corporation is found to be **Dead-on-Arrival (DOA)**, the customer must request and received a **Return Material Authorization (RMA)** number. DOA equipment is defined as equipment that does not properly function according to user documentation when initially received and connected in conjunction with proper procedures as shown in the user documentation or via support provided by XPC Corporation personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than XPC Corporation or a XPC Corporation approved third party; (b) the equipment is damaged by the customer, is improperly used or stored, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; or (c) the equipment has been used or stored in a manner contrary to the equipment's operating manual, intended use or other written instructions. Any technical advice furnished by XPC Corporation or a XPC Corporation authorized representative before or after delivery with regard to the use or application of Xtreme Power Conversion equipment is furnished on the basis that it represents XPC Corporations best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

EXCEPT AS STATED ABOVE, XPC Corporation DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS STATED ABOVE, IN NO EVENT WILL XPC Corporation BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF Xtreme Power Conversion EQUIPMENT, including but not limited to, any costs, lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, or claims by third parties. Purchaser's sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Xtreme Power Conversion equipment, and the only obligation of XPC Corporation under this warranty, shall be the repair or replacement of defective equipment, components, or parts; or, at XPC Corporations sole discretion, refund of the purchase price or substitution of an equivalent replacement product.

Appendix A: Extended Battery Pack User Guide

Estimated Run Time for UPS with Extended Battery Packs

MODEL	LOAD	RUNTIME FOR QTY OF EXTENDED BATTERY PACKS IN MIN.						
	VA	WATTS	UPS	(1) EPB	(2) EPB	(3) EPB	(4) EPB	(5) EPB
NXRTi-1000	500	400	12	46	88	136	188	243
	1000	800	5	21	40	62	86	111
NXRTi-2000	1000	800	12	46	88	136	188	243
	2000	1600	5	21	40	62	86	111
NXRTi-3000	1500	1200	12	46	88	136	188	243
	3000	2400	5	21	40	62	86	111

Note: for additional runtimes beyond 5 EPB's, contact support@xpcc.com.

CAUTION: It is very critical to connect the correct voltage EPB with the UPS intended.

NXRTi-EBP1 is for NXRTi-1000

NXRTi-EBP2 is for NXRTi-2000

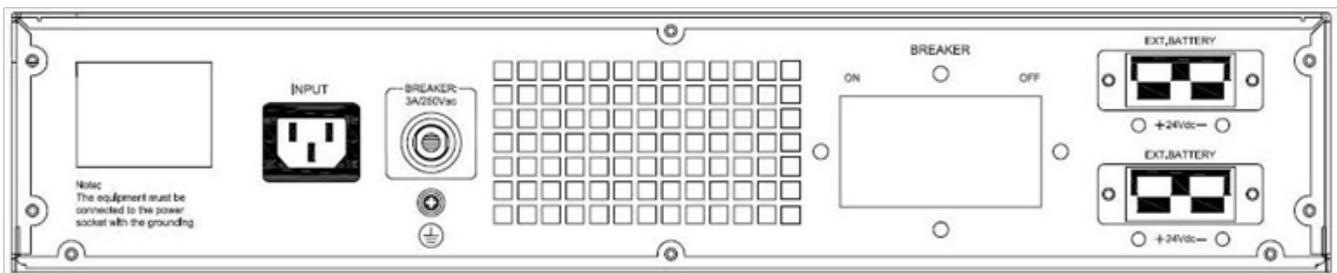
NXRTi-EBP3 is for NXRTi-3000

CONNECTING THE INCORRECT BATTERY PACK TO THE UPS MAY RESULT IN DAMAGE TO THE UPS AND/OR BATTERY PACK WILL VOID THE WARRANTY.

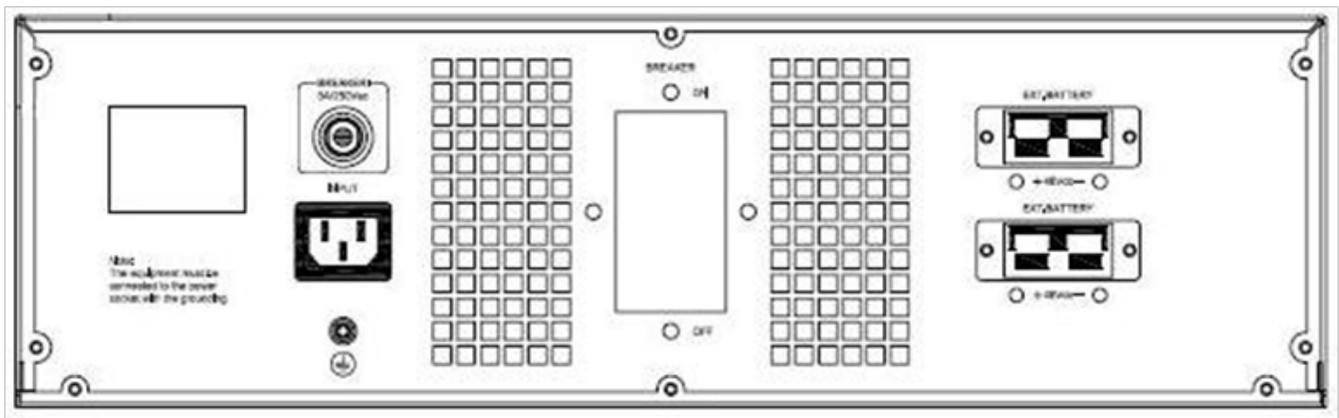
All EPB's have a different DC voltage configuration intended only for the UPS's listed above. PLEASE DO NOT MIX EPB's AND MAKE SURE YOU ONLY CONNECT THE EPB TO LIKE EPB's OR UPS INDICATED ABOVE. DC VOLTAGES ARE MARKED ON BOTH THE UPS AND THE EPB – MAKE SURE THEY MATCH.



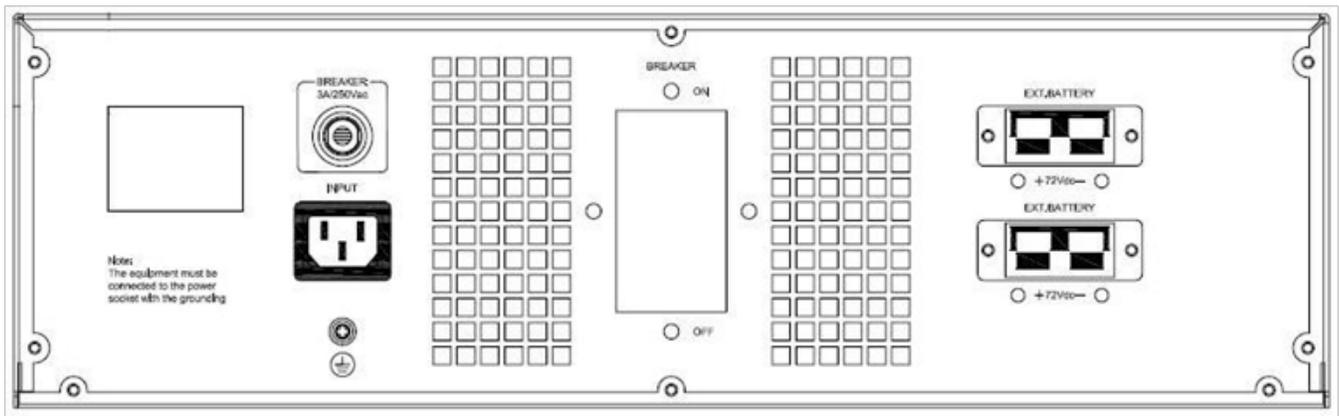
Caution Label on EPB Cable Connectors - Please Check Voltages Carefully



NXRTi-EBP1 rear view



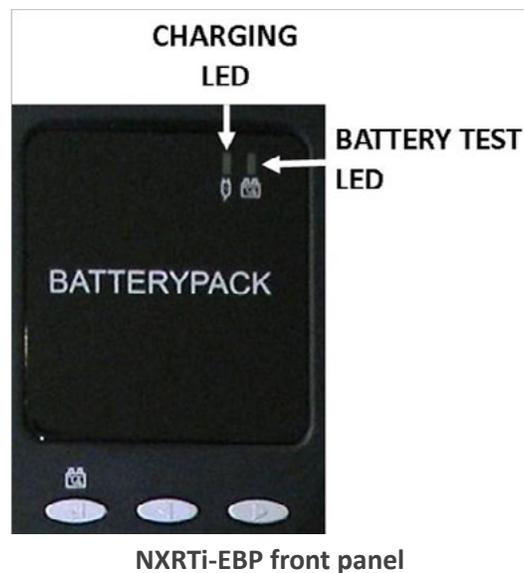
NXRTi-EBP2 rear view



NXRTi-EBP3 rear view



NXRTi-1000 with (2) NXRTi-EBP1



LED Description

The **Charging LED GREEN** indicates that the battery charger in the Extended Battery Pack is charging normally with the AC power cord attached to the Battery pack.

The **Battery Test LED GREEN** indicates that the DC output of the Extended Battery Pack (EBP) is normal. To perform the Battery Test:

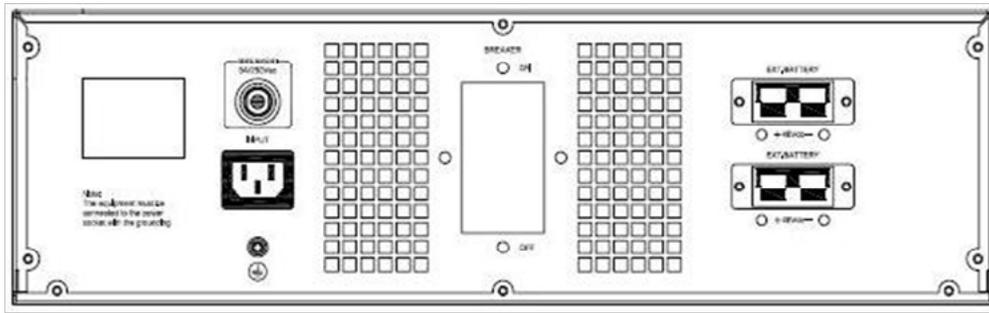
- Switch the breaker on the rear of the EBP to ON position
- Press the Battery Test Button on the front panel of the EBP
- The DC output from the EBP is normal when the Battery Test LED is illuminated

Prior to connecting EBP's, test each EBP to assure proper operation.

Extended Battery Pack Operation

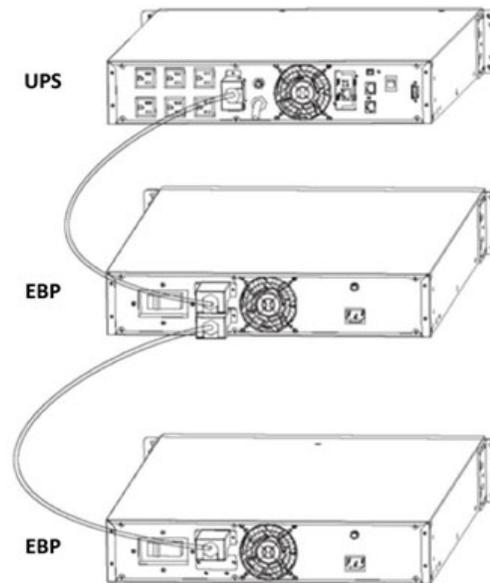
The NXRT UPS System can be connected to multiple extended battery packs to increase the runtime when connected to the UPS supporting the load. Most UPS Systems are limited to one or two external battery packs because the UPS is responsible for the recharging and does not have the recharge capacity to handle the additional batteries to a full recharge. The NXRT UPS System overcomes this limitation by equipping each extended battery pack (EBP) with its own charger, providing the user a way to achieve significantly more battery backup time. Not all of the AC input power cords for the EBP's need to be connected to AC - the more you connect the faster the recharge of the batteries.

1. The DC Circuit Breaker on the rear of the EBP connects and disconnects the DC bus voltage from the EBP to the UPS. The DC Circuit Breaker will also trip to the OFF position in the event of an over-current condition in the EBP.



NXRTi-EBP2 rear view

- The EBP's use a cable shipped with each EBP to "daisy chain" together additional EBP's to the first EBP being connected to the UPS in the appropriately labeled connector, or for connecting the first EBP to the UPS.



EBP's "Daisy Chain" to UPS or other EBP

- The AC input cord is for connecting AC utility to operate the Charger contained in each EBP.
- The input AC Circuit Breaker will trip to the OFF position in the event that the internal EBP charger draws excessive current.

Extended Battery Pack Installation

CAUTION: Extended Battery Pack (EBP) Installation should be performed by qualified service personnel.

- Verify that the DC circuit breaker on the rear panel of the EBP is in the OFF position.
- Turn the UPS OFF and disconnect the UPS Input Cord from the AC wall outlet.
- Remove the EBP connector cover from the UPS rear panel.
- Connect the external DC battery cable from the EBP to the appropriate connector on the UPS.
- Secure the DC battery cable to both the rear of the UPS and the rear of the EBP by using M3 x 8 screws provided (2 each per connector end).
- Repeat the above procedure for testing and securing each additional EBP required.

CAUTION: Do not use extension cords when connecting input AC power to UPS or EBP's.

7. Move the DC circuit breaker on the rear of each EBP to the ON position. At this point the UPS will need to be started.
8. If the EBP's are plugged into an AC source and properly installed, the internal batteries will be charged when acceptable voltage is present. EBP's must be charged for a minimum of 6 hours for full battery time.

NOTE: If the EBP is going to be out of service or stored for six months or longer, the batteries must be recharged for at least 36 hours every six months.

Extended Battery Pack Q & A

1. Which EBP's do I connect to an AC input source?
 - It is possible to plug in every EBP into an AC input source. The more connected the faster the recharge time. It is recommended that every third EBP be connected to incoming AC utility to properly charge the batteries in a complete system. Leaving too many chargers connected may cause an over charge situation which could damage the batteries.
2. Which LED's are supposed to be lit on the front of each EBP?
 - When an EBP is connected to an AC input source and the unit is charging, a GREEN LED on the front of the EBP will be illuminated.
3. Are any LED's on the front of the EBP supposed to be lit if it is not connected to an AC input source?
 - No. The UPS and/or the EBP's that are plugged into an AC input source are responsible for charging the entire system. The EBP is still working and has the capability of providing DC voltage when needed. No LED on the front bezel will be illuminated.
4. The EBP is connected to an AC input source, why does the LED on the front of the EBP turn ON and OFF intermittently, and does this mean this EBP is not working?
 - The GREEN LED on the front of each EBP indicates that the charger contained in the EBP is charging. Under certain conditions when the batteries are 100% charged, the charger in the EBP will shut off and the LED will no longer be illuminated. This is normal operation for the EBP. The EBP is working properly.
5. Why don't the LED's on each EBP connected to an AC input source turn ON and OFF at the same time?
 - The charger on each EBP functions independently from the others. One EBP charger may be charging while another one might be at 100% and the charger turned off. This is normal operation of the EBP.