Network Xtreme Rack Tower Series

(NXRT)

User's & Installation Manual

Table of Contents

Thank you for selecting this uninterruptible power supply (UPS). It provides you with protection for connected equipment. **Please read this manual** before installing the NXRT-Series UPS models NXRT-1000, NXRT-1500, NXRT-2000 and NXRT-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.

EMC Statements - FCC Part 15

Notice: Pursuant to section 15 of the FCC rules, this product has been tested and thereby complies to the conditions of a Class B (NXRT-1000, NXRT-1500) and Class A (NXRT-2000, NXRT-3000) digital device, which have been established for offering sufficient protection against dangerous interference for installation in a residential area. Installation and use of the equipment should comply with the instructions provided in order to avoid such interference due to the amount of radio frequency energy that is radiated and generated by the equipment. In spite of this, we cannot assure that a certain amount of interference may not occur in some installations. If, by turning on and off, it can be deduced that your radio or television reception is found to be influenced by harmful interference from the equipment, it is recommended to use one of the following preventive measures.

- Place the receiving antenna in a separate location or orientation.
- Ensure a greater distance is achieved between the receiver and the equipment.
- Ensure that your equipment is connected to an outlet on a separate circuit than the receiver.
- Contact a technician experienced with radio and TV or a dealer for further assistance.

ICES-003

This Class B Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003. Cet appareil numerique de la classe B respecte toutes les exigencies du Reglement sur le materiel brouilleur du Canada.

Declaration of Conformity Request

Units labeled with a UL mark comply with the following standards and directives:

- UL 1778

CAUTION: A shielded-type power cord is required in order to meet FCC emission limits and to prevent interference to the nearby radio or TV reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment.

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.

INTRODUCTION

The information provided in this manual covers 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 On-Line 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 fig. 1 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.

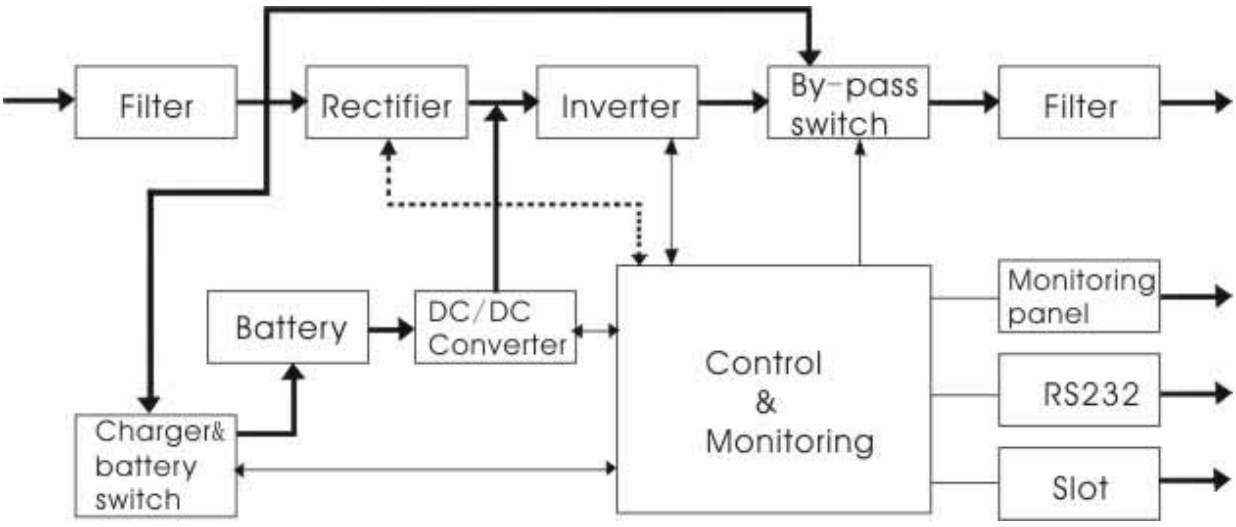


Figure 1 – Block Diagram

Diagnostic Tests

When the UPS is started, a diagnostic test is automatically executed, checking the electronics and batteries, reporting any problems on the LCD display. A diagnostic test can also be performed manually from the front panel at any time.

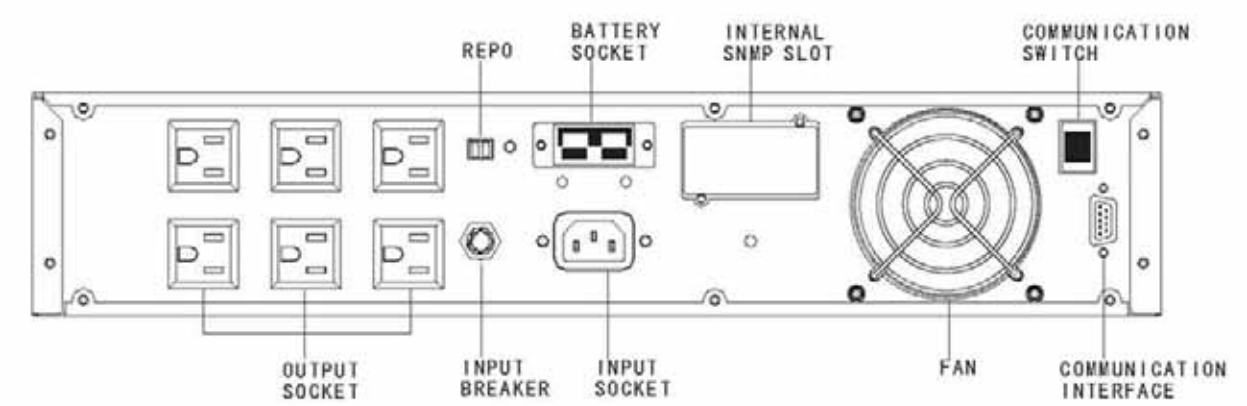
SYSTEM CONFIGURATION

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.

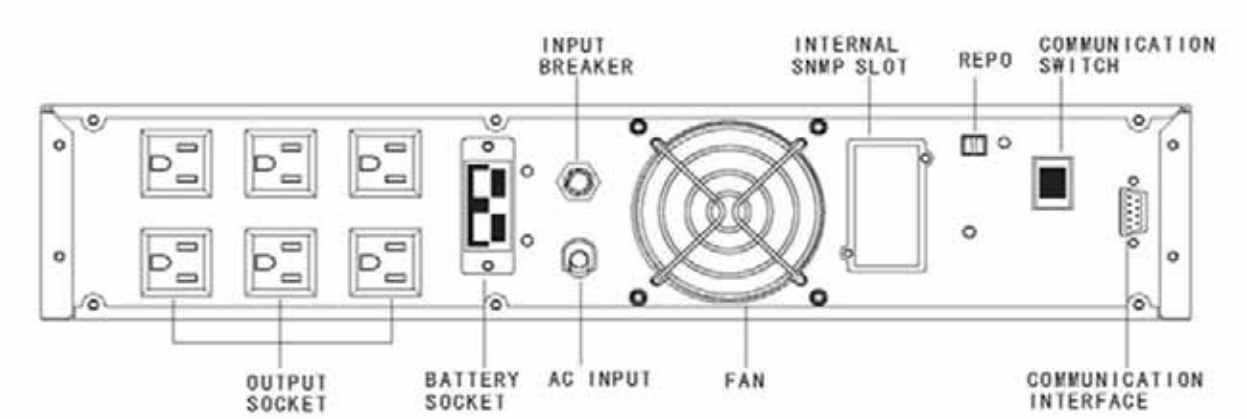
Planning a UPS system, the following should be taken into consideration:

- 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
        - NXRT-EBP1 for 1000
        - NXRT-EBP2 for 1500
        - NXRT-EBP3 for 2000/3000
    - Connectivity Options –SNMP/WEB card
    - Xtreme Power Distribution Units (XPDU)

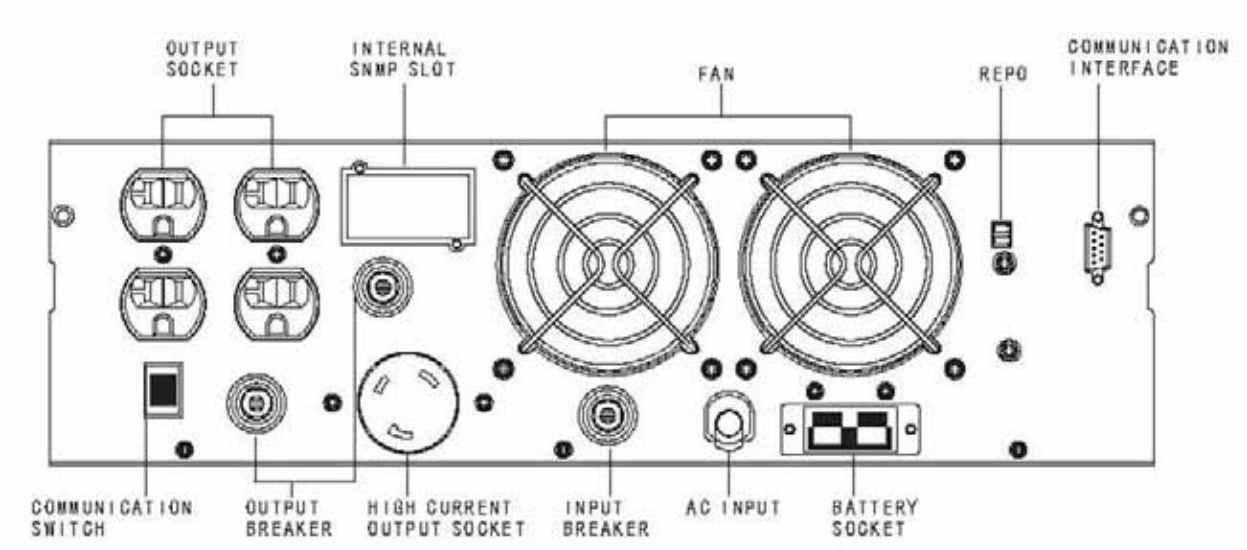
See the Specification section of this manual for additional model information.



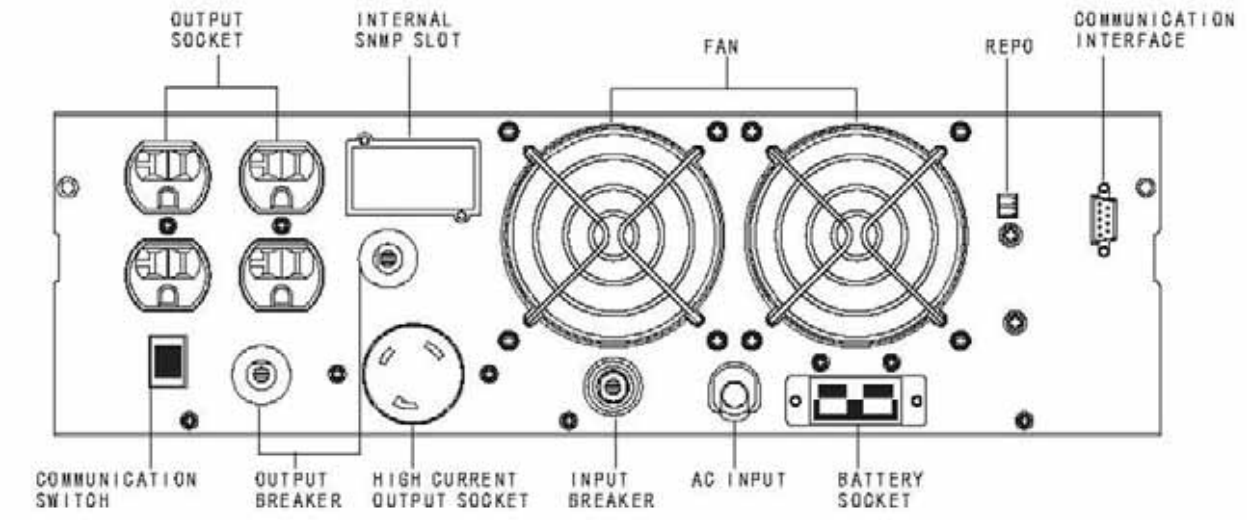
NXRT-1000 REAR VIEW



NXRT-1500 REAR VIEW



NXRT-2000 REAR VIEW



NXRT-3000 REAR VIEW

NXRT FRONT CONTROL PANEL

LED Description

The UPS has three 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 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 LED is illuminated it indicates the user needs to take some action, and included:

- UPS in Bypass Mode
- Batteries Overcharged
- Charger fault
- Fan fault
- Batteries discharged to low voltage level

Green LED

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

LCD Descriptions

There are four lines of information in the LCD display. Each line provides specific information related to the unit status and/or operation. Line information will be described from top to bottom with the top being line one.

Line One

Provides data in to numeric sections, with the data corresponding to the applicable category in line one and two

Line Two

Allows the user to identify which variable information is being displayed.

- Input
- Output
- Battery
- Load
- Temperature

Line Three

This is a graphics section with load graphics on the left and battery graphics on the right. The failure icon will appear in this section when a failure occurs.

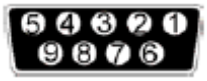
Line Four

This indicates the status of the UPS.

- ON LINE = utility mode
- ON BATT = battery mode
- ON BPS = bypass mode
- UPS OFF = standby mode

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.

Notes

The UPS can be monitored through the RS232 interface or the SNMP card, but only one way at a time. The user can choose RS232 or SNMP communications through the communications switch on the rear panel of the UPS. RS232 is chosen if the switch is depressed to the RS232 position, and SNMP is chosen if the switch is depressed to the SNMP position. When there are two or more monitored pieces of equipment, the ground of each piece of equipment should be shared. The SNMP card is configured as DHCP by default IP setting.

Remote Emergency Power Off (REPO) Port

A customer supplied switch located remotely can be used to open the REPO connection and allows the UPS output receptacles to be switched off. Since the REPO shuts down the equipment immediately, orderly shutdown procedures are not followed by any power management software. The UPS will have to be manually restarted in order to regain power to the outlets on the UPS.

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:

   Watts (W) x 1.43 = _____ VA or _____ Amps (A) x 120 = _____ 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

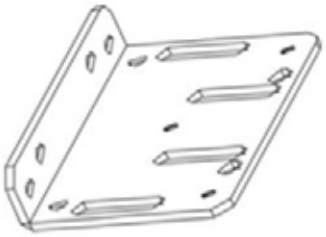
Ensure that all environmental concerns and requirements are met according to specifications listed in this document, otherwise the safety of installation personnel cannot be guaranteed, and the unit may malfunction.

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

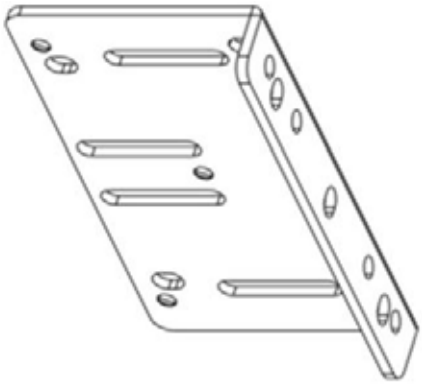
- Avoid extremes of temperature and humidity. Maximum battery life can be attained with a recommended temperature range of +15°C to +25°C.
- Provide protection for the equipment from moisture.
- Space and ventilation requirements must be met. Ensure there is 100mm behind and 50mm on the sides of the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

Installation

Standard brackets

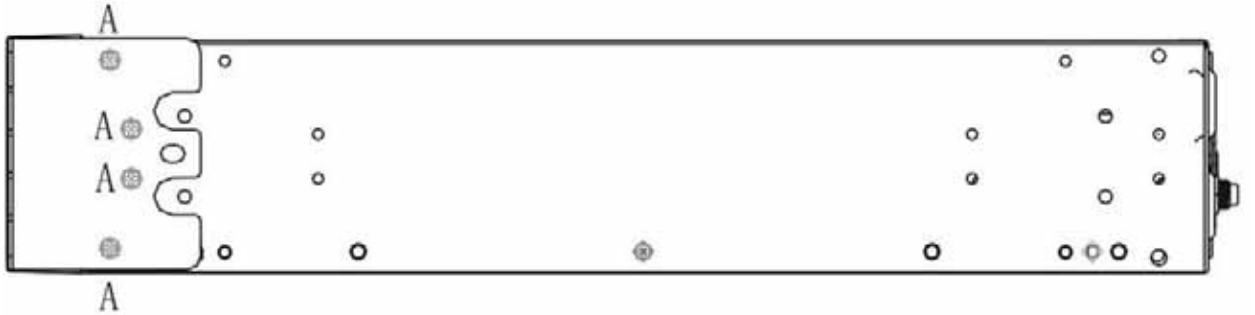


2U 5 IN 1 BRACKET FOR NXRT-1000, NXRT-1500, EBP1 & EBP2



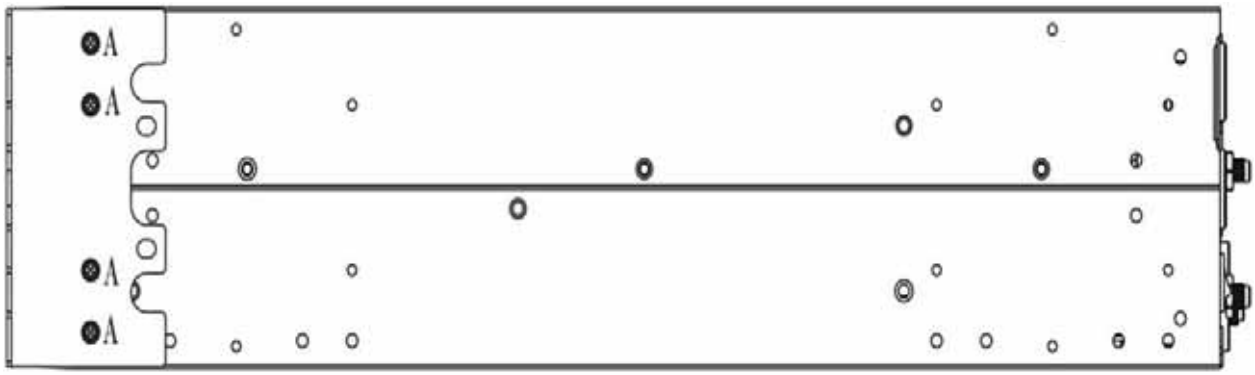
3U 5 IN 1 BRACKET FOR NXRT-2000, NXRT-3000 & EBP3

19" Cabinet Ear Installation



NXRT-1000, NXRT-1500, NXRT-EBP1, NXRT-EBP2

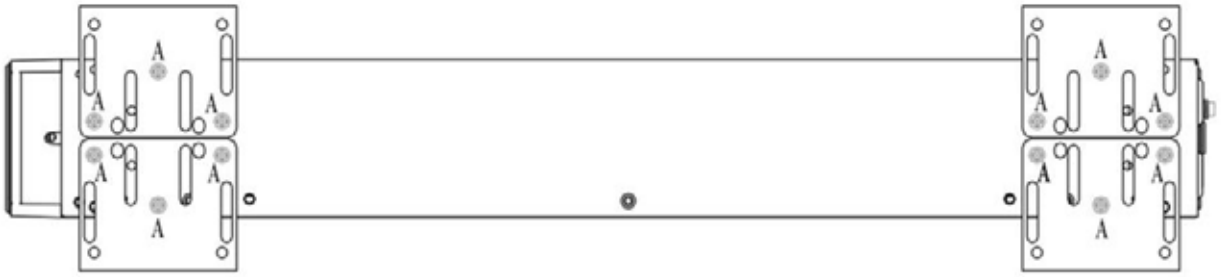
Use M4 x 6 screws on places marked with letter A



NXRT-2000, NXRT-3000, NXRT-EBP3

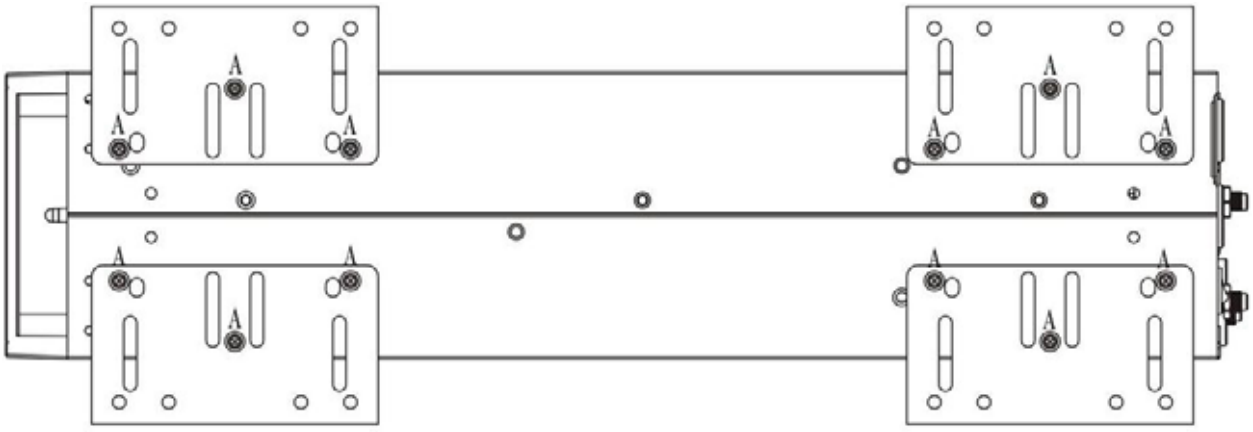
Use M4 x 6 screws on places marked with letter A

Vertical Installation Steps



NXRT-1000, NXRT-1500, NXRT-EBP1, NXRT-EBP2

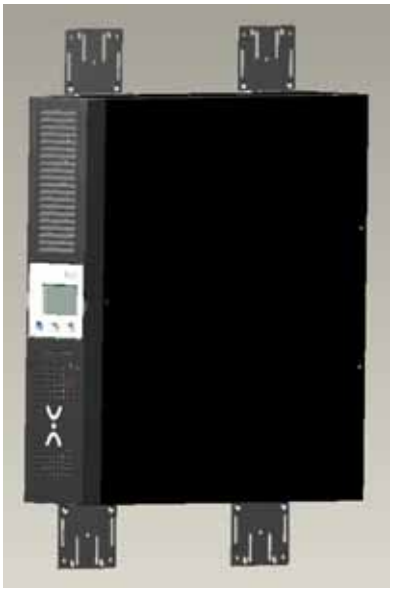
Use M4 x 6 screws on places marked with letter A

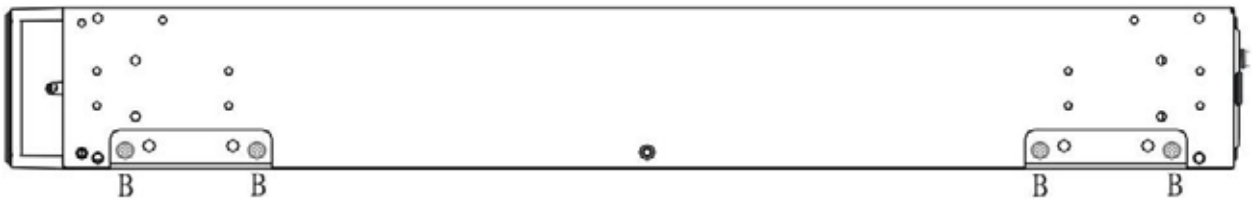


NXRT-2000, NXRT-3000, NXRT-EBP3

Use M4 x 6 screws on places marked with letter A

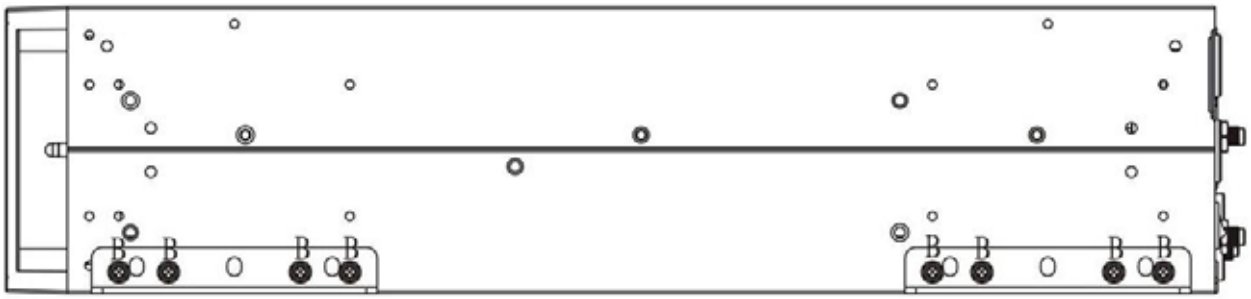
Wall-mounted Installation Steps





NXRT-1000, NXRT-1500, NXRT-EBP1, NXRT-EBP2

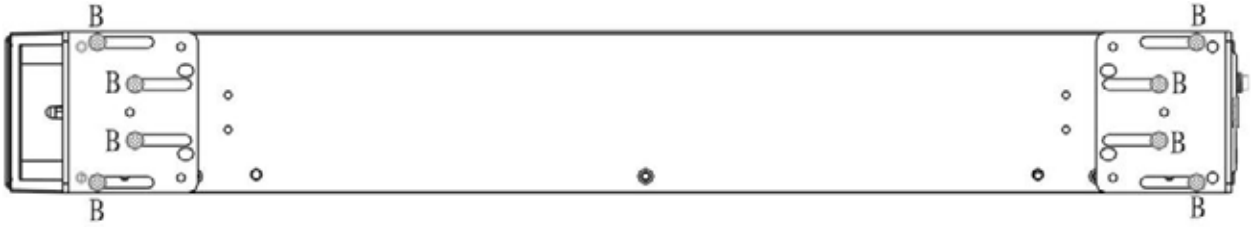
Use M5 x 12 screws on places marked with letter B



NXRT-2000, NXRT-3000, NXRT-EBP3

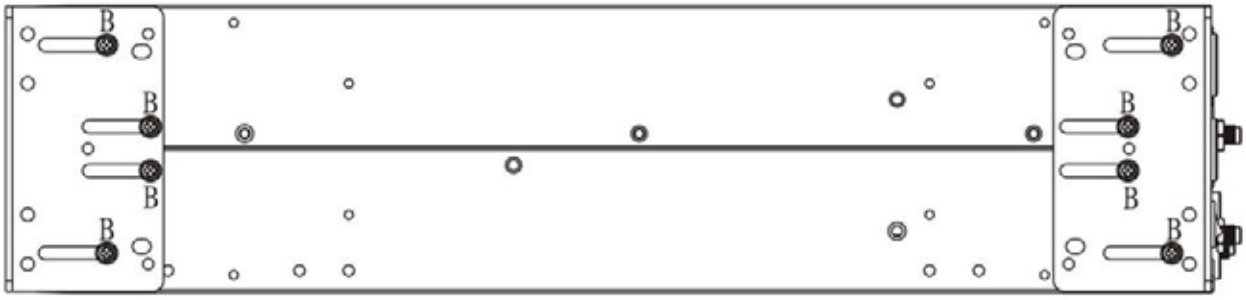
Use M5 x 12 screws on places marked with letter B

19" Rack mount using 5 in 1 bracket



NXRT-1000, NXRT-1500, NXRT-EBP1, NXRT-EBP2

Use M5 x 12 screws on places marked with letter B



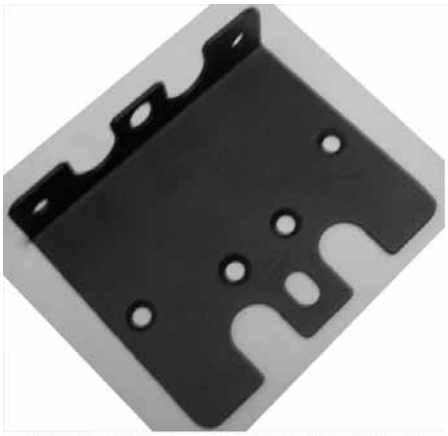
NXRT-2000, NXRT-3000, NXRT-EBP3

Use M5 x 12 screws on places marked with letter B

RACK-MOUNT INSTALLATION STEPS

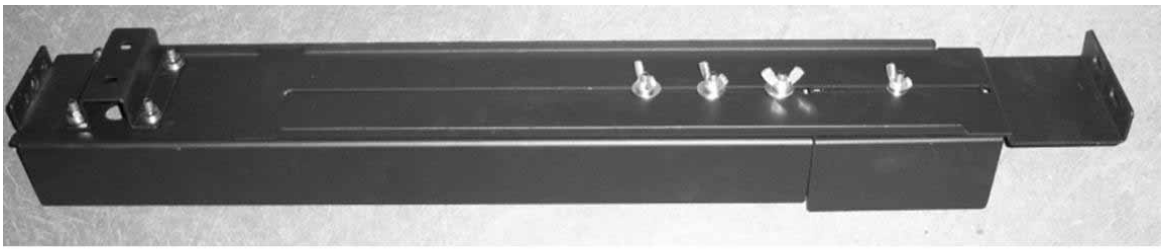
UPS Rail Installation Instructions to 19" Cabinet

1.



2U EAR FOR UPS OR EBP MOUNING IN CABINET

2.



EXPANDABLE RAIL FOR UPS OR EBP MOUNTING IN CABINET

3.

MOVEABLE NUT FOR MOUNTING RAIL KIT IN CABINET

4.

UPS FRONT VIEW AFTER INSTALLING 2U EARS

5.

ASSEMBLE THE RAIL ONTO THE CABINET U-BAR WITH SCREWS AT FRONT & BACK USING MOVABLE NUTS

6.

PUSH THE UPS OR EBP INTO THE CABINET VIA THE RAIL FROM THE FRONT

7.

ATTACH UPS OR EBP EAR ONTO CABINET U-BAR WITH SCREWS ON BOTH LEFT & RIGHT SIDES

Note: Any external Battery Packs must be installed next to or under the UPS. Please refer to Appendix A: Battery Pack User Guide for more information when installing these.

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 INCORECT 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 5-15P 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. Program the UPS for the correct number of battery packs. This can be set on the front of the UPS when the battery parameters are displayed on the LCD using the "inquiry button".

6. Start and configure the UPS

On/Off Button Function Button Inquiry Button

- Press and hold the ON/OFF button for more than 3 seconds to turn on the UPS. The UPS should now start its inspection of the internal functions, main synchronization, and inverter startup. Then power should start to be supplied via the outlets. Once turned on, the UPS will perform a self-test function, when the yellow LED turns to green, LCD displays "on line", and means UPS is working in utility mode.

7. 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.

8. 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.

9. 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.

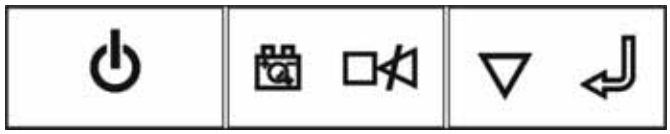
Refer to the Troubleshooting section and/or Technical Support with any problems during setup.

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
- Changing the batteries

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.



On/Off Button **Function Button** **Inquiry Button**

Turning Off the UPS when connected to an AC source

- Press and hold the ON/OFF button for more than 3 seconds to turn off the UPS. This means the internal inverter has been deactivated.
- The unit will run a self test prior to the deactivation of the inverter.
- The green LED will be off and the yellow LED will be on. The LCD display will indicate "On BPS", which means the UPS in providing no output.

Starting the UPS from a DC source (cold start)

- Assure that the UPS has fully charged batteries and the internal battery pack is connected.
- Assure that there is no AC input power source and/or the unit is not plugged into an outlet.
- Press and hold the ON/OFF button for three seconds.

- Once turned on, the UPS will perform a self-test function, when the yellow LED turns to green, LCD displays "On Batt" – the UPS is now functioning in DC mode.

Turning Off the UPS when in DC Mode

- Press and hold the ON/OFF button for more than 3 seconds to turn off the UPS. This means the internal inverter has been deactivated.
- During the shutdown period, the UPS will run a self test. Once the self-test has been completed, assuming there is still no AC input, the LCD will no longer display information. This indicates the UPS has no output.

Self Test Operation

Please refer to the three operating buttons on the front panel of the UPS.

- Confirm the UPS is in "Utility Mode".
- Press and hold the "Function" button for a minimum of two seconds.
- The self-test will last for 10 seconds, during this time the LED's will be lit in a sequential, repeating fashion.

Audible Alarm silence in DC Mode or Fault Mode

- When the UPS is in DC Mode, the audible alarm will sound every four (4) seconds. Press and hold the "Function" Button for a minimum of two (2) seconds to disable the audible alarm.
- When the UPS is in Fault Mode, the audible alarm will continuously sound. Press and hold the "Function" Button for a minimum of two (2) seconds to disable the audible alarm.

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.

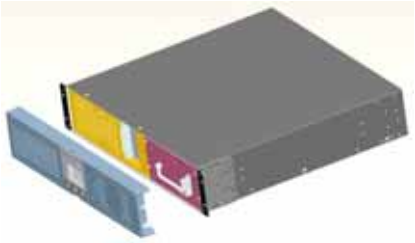
CAUTION! Although the battery system voltage is only 12VDC and 24VDC, the battery can present a high risk of short circuit current and electrical shock. The short circuit current capability of the battery is sufficient to burn wire or tools very rapidly, producing molten metal. Observe these precautions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

Slide the plastic cover to the right.

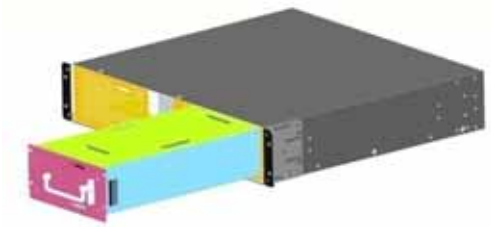
Remover the M5x10 screws on the right side.

Remove plastic front cover



Locate the battery tray on the right front side of the UPS

Remove (4) M4x6 screws marked with letter A.



Remove the battery tray from the UPS.

TROUBLESHOOTING

Issue	Audible Alarm	Alarm Description	What You Should Do
The "Input" letters in the second row of the LCD are flashing	Two Beeps per second at startup for 8 total seconds	The Input Voltage or frequency may be beyond the normal acceptable range.	Verify that utility voltage and frequency is within acceptable range. If so, contact support.
The "Input" letters in the second row of the LCD are flashing	One beep per 2 minutes	Possible mis-wiring AC line and neutral line	Check wiring of input to UPS (reversed wiring, etc) Rewire, if necessary
Battery Indicator Flashing	One beep per second	Batteries are undercharged, disconnected or need to be replaced.	Check UPS batteries. If necessary reconnect batteries, wait 12 hours to charge or replace defective batteries
Utility Normal- UPS has no AC input	N/A	Possibility that circuit breaker on UPS has tripped	Reset circuit breaker
Insufficient battery run-time	Once every 4 seconds in DC mode	"On batt" displayed on LCD	1. If batteries are undercharged let UPS charge batteries at least 12 hours 2. After charging, if runtime is still insufficient, replace with new batteries 3. Reduce output load to lengthen runtime
UPS will not start after pressing the "On/Off" button	N/A	1. Insufficient time for button depression 2. UPS has no battery connected 3. Battery voltage is too low to power the load 4. Fault has occurred inside the UPS	1. Depress the "On/Off" button for at least three seconds 2. Make sure the batteries are connected and the connector on the battery cartridge is "mated" correctly 3. Plug the UPS in, remove all loads, and allow to charge for 12 hours 4. Contact dealer for service details
Major fault detection by the UPS	Constant beep	Type of fault and fault code displayed on LCD.	Review abnormal process information table listed below in this manual and take appropriate action, If problem does not resolve contact supplier for service and provide error code(s)

LCD FAULT CODES

	BYP MODE	LINE MODE	BAT MODE	BAT TEST MODE
BUS FAULT	**62**	**05、25**	**01、21**	**40、41**
INV FAULT	**61、63**	**04**	**24**	**42**
OVERHEAT	**33**	**06**	**08**	**43**
OP SHORT	**/**	**16**	**02**	**44**
OVERLOAD	**/**	**03**	**09**	**45**
FAN FAULT	**36**	**28**	**38**	**46**
CHARGE FAULT	**07**	**07**	**/**	**/**
BAT OVER	**11**	**11**	**11**	**11**

SPECIFICATIONS

	120V MODEL	NXRT-1000	NXRT-1500	NXRT-2000	NXRT-3000
INPUT	Voltage	120 VAC (80 - 138V at 100% load) 60-138V at 40% load			
	Capacity VA (W)	1000 VA (700 W)	1500 VA (1050 W)	2000 VA (1400 W)	3000 VA (2100 W)
	Frequency	50/60 Hz auto sensing			
	Power Factor	≥ 0.97			
	Topology	True on-line, Double conversion, Input PF correction			
OUTPUT	Voltage	120 VAC			
	Frequency	50/60 Hz auto sensing			
	THD (full load)	Linear ≤ 5%; non-Linear ≤ 10%			
	Wave Form	Sine wave, zero transfer time			
	Load Power Factor	0.7			
	Efficiency AC/DC/AC	≥90%			
	Auto Restart	Yes			
	Start on Battery	Yes			
	Rated Current	8.3 A	12.5 A	16.6 A	25 A
	Overload Capacity	110-150% for 30 sec, ≥ 150% for 200 msec			
	Crest Factor	3:1 at full load			
BATTERY	Battery Type (UPS)	(3) 12V 9 AH / 36V	(4) 12V 7.2 AH / 48V	(8) 12V 7.2AH / 96V	
	Backup Time	7-11 min (internal batteries) to 18 hours using External Battery Packs (EBP)			
	Extended Battery Packs	EBP1	EBP2	EBP3	
	Battery Type (EBP)	2 strings of (3) 12V 9 AH / 36V	2 strings of (4) 12V 7.2 AH / 48V	2 strings of (8) 12V 7.2 AH / 96V	
	Recharge Time	< 8 hours to 90%			

	120V MODEL	NXRT-1000	NXRT-1500	NXRT-2000	NXRT-3000
PHYSICAL	Dimensions	W x D x H (inches)		W x D x H (inches)	
	Unit Dimensions	17.3" x 17.7" x 3.4"	17.3" x 25.6" x 3.4"	17.3" x 21.7" x 5.2"	
	Shipping Dimensions	22.3" x 23.5" x 9.2"	22.3" x 31.4" x 9.2"	22.3" x 27.4" x 11.0"	
	Unit Weight	39.7 lbs	57.3 lbs	79.4 lbs	81.6 lbs
	Shipping Weight	50.7 lbs	68.4 lbs	91.5 lbs	93.7 lbs
	Line Cord	5-15P	5-15P	5-20P	L5-30P
	Receptacles	(6) NEMA 5-15R		(1) NEMA L5-20R + (4) NEMA 5-20R	(1) NEMA L5-30R + (4) NEMA 5-20R
	Communication Interface	RS-232 or SNMP (optional card)			
	Included in box	UPSILON CD, horizontal brackets, 5:1 brackets, manual, 6ft DB9 cable			
ENVIRONMENT	Operating Temperature	0 - 40ºC (32 - 104ºF)			
	Audible Noise	< 50dba at one meter			
	Altitude	6000 ft (1830 m) above sea level			
WARRANTY	Warranty	Three years electronics / One year batteries			
APPROVALS	North America	UL cUL FCC			
INDICATORS & ALARMS	LCD Visual Display	Input/output voltage & frequency, on-line mode, back up mode, battery capacity, load level			
	Audible Alarm	Beep every 4 sec (on battery)			
	UPS Fault	Continuous beeping sound and LCD display			

	EXTENDED BATTERY PACK MODELS	NXRT-EBP1	NXRT-EBP2	NXRT-EBP3
INPUT	Voltage	120 VAC		
	AC Current	1.5A	2.2A	4A
	Frequency	50/60 Hz auto sensing		
	Input Protection	resettable circuit breaker		
CHARGER OUTPUT	DC Voltage	41.2 ±0.5V	55.0 ±0.5V	110.0 ±0.5V
	DC Current	2.5A (max)		
	Output Protection	Fuse		
BATTERY	Battery Type	sealed, non-spillable, maintenance free, valve regulated, lead acid		
	Extended Battery Packs	EBP1	EBP2	EBP3
	Battery Type (EBP)	2 strings of (3) 12V 9 AH / 36V	2 strings of (4) 12V 7.2 AH / 48V	2 strings of (8) 12V 7.2 AH / 96V
	Recharge Time	< 4 hours to 90%		< 6 hours to 90%
PHYSICAL	Dimensions	W x D x H (inches)		
	Unit Dimensions	17.3" x 17.7" x 3.4"	17.3" x 25.6" x 3.4"	17.3" x 21.7" x 5.2"
	Shipping Dimensions	22.3" x 23.5" x 9.2"	22.3" x 31.4" x 9.2"	22.3" x 27.4" x 11.0"
	Unit Weight	58.4 lbs	75.0 lbs	113.6 lbs
	Shipping Weight	69.5 lbs	86.0 lbs	125.7 lbs
	Line Cord	5-15P		
	Included in box	EBP, User Manual, DC cable, AC input cord		
	EXTENDED BATTERY PACK MODELS	NXRT-EBP1	NXRT-EBP2	NXRT-EBP3
WARRANTY	Warranty	Three years electronics / One year batteries		
APPROVALS	North America	UL cUL FCC		
INDICATORS & ALARMS	LED Visual Display	Charging LED, Battery test LED		

SHIPPING LIST

1. (1) UPS
2. (1) User's and Installation Manual
3. (1) 6 ft RS232 cable
4. (1) UPSILON CD (monitoring software)
5. (2) sets of 5-in-1 mounting brackets
6. (1) set of horizontal mounting brackets

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 inquires can also be made at support@xpcc.com. Please have the following information available BEFORE calling the Technical Support Department:
    a. Your name and address.
    b. The serial number of the unit.
    c. Where and when the unit was purchased.
    d. All of the model information about your UPS.
    e. Any information on the failure, including LED's that may or may not be illuminated.
    f. 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, as 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.

    Refer to the Warranty statements in this manual for additional details on what is covered.

XTREME POWER CONVERSION™ (XPC) CORPORATION 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 ***three years for NXRT-Series products*** from the date of purchase. XPC Corporation warrants ***internal batteries for a period of one year*** from the date of purchase. For equipment sites within the United States and Canada, this warranty covers repair or replacement, at the sole discretion of XPC Corporation. The customer is responsible for the costs of shipping the defective product to XPC Corporation. XPC Corporation will pay for ground shipment of the repaired or replacement product. This warranty applies only to the original purchaser.

If equipment provided by XPC Corporation is found to be **Dead-on-Arrival (DOA)**, XPC Corporation will be responsible for the costs of shipping product to and returning equipment from the customer in a timely manner as agreed to with the customer, once the customer has requested 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) EBP	(4) EBP	(5) EBP
NXRT-1000	500	350	23	85	178	268	333	456
	1000	700	10	42	79	121	170	226
NXRT-1500	750	525	15	108	214	336	447	639
	1500	1050	7	43	84	132	187	250
NXRT-2000	1000	700	28	170	333	521	737	985
	2000	1400	14	68	130	202	284	378
NXRT-3000	1500	1050	19	105	204	318	448	599
	3000	2100	8	42	81	126	178	237

Note: for estimated run times using more than 5 EBP's, contact Xtreme Power Conversion at support@xpcc.com.

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

EBP1 is for NXRT-1000

EBP2 is for NXRT-1500

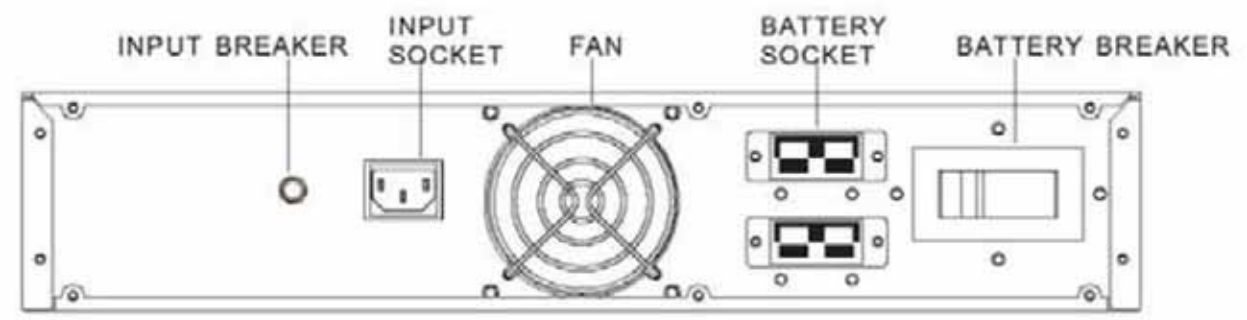
EBP3 is for NXRT-2000/3000

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

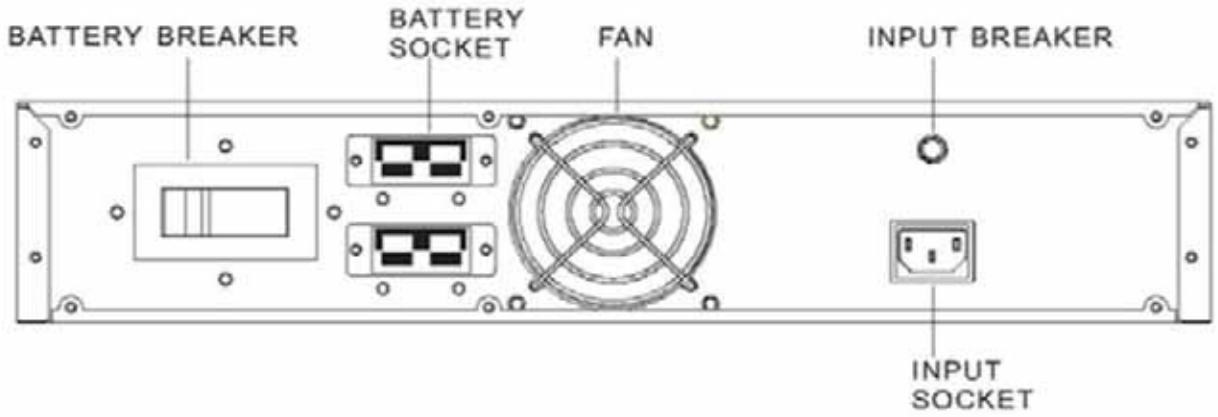
All EBP's have a different DC voltage configuration intended only for the UPS's listed above. PLEASE DO NOT MIX EBP's AND MAKE SURE YOU ONLY CONNECT THE EBP TO LIKE EBP's OR UPS INDICATED ABOVE. DC VOLTAGES ARE MARKED ON BOTH THE UPS AND THE EBP – MAKE SURE THEY MATCH.

CAUTION LABEL ON EBP CABLE CONNECTORS - PLEASE CHECK VOLTAGES CAREFULLY

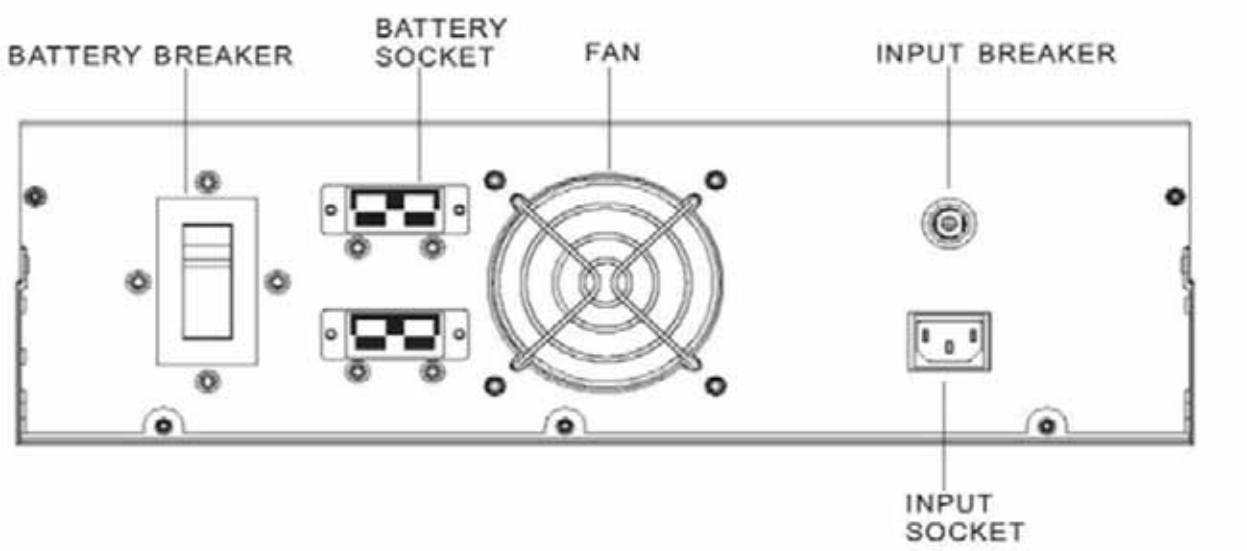
Extended Battery Pack Configuration



EXTENDED BATTERY PACK 1 (EBP1) FOR NXRT-1000



EXTENDED BATTERY PACK 2 (EBP2) FOR NXRT-1500



EXTENDED BATTERY PACK 3 (EBP3) FOR NXRT-2000/3000

NXRT-EBP FRONT PANEL

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.

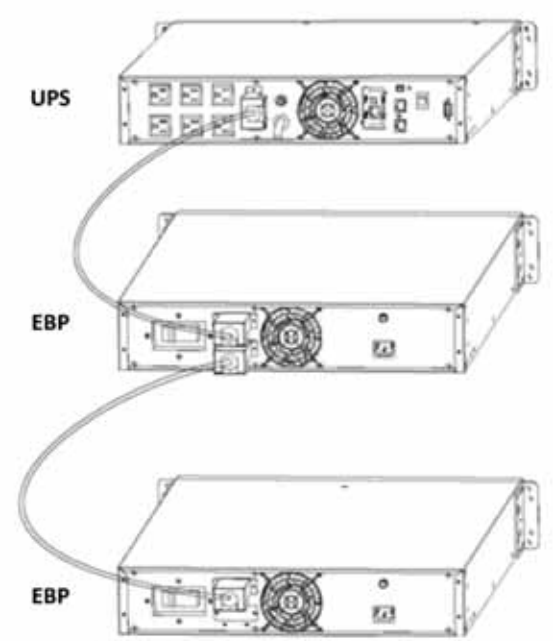
Extended Battery Pack Operation

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.

EPB2 REAR VIEW

2. 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

3. The AC input cord is for connecting AC utility to operate the Charger contained in each EBP.

EBP's "daisy chain" to UPS or other EBP

4. 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.

1. Verify that the DC circuit breaker on the rear panel of the EBP is in the OFF position.
2. Turn the UPS OFF and disconnect the UPS Input Cord from the AC wall outlet.
3. Remove the EBP connector cover from the UPS rear panel.
4. Connect the external DC battery cable from the EBP to the appropriate connector on the UPS.

5. 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).

6. 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.