INTEGRITY MAX Series
Battery Cabinet User Manual

Model Number NPB48-192

***** IMPORTANT SAFETY INSTRUCTIONS *****

***** SAVE THESE INSTRUCTIONS *****

INTRODUCTION

Thank you for choosing the INTEGRITY MAX Series UPS.

This document provides useful guidance on your INTEGRITY Max Series Battery Cabinet. You will find helpful information here on the Battery Cabinet features, performance, appearance, structure, working principles, installation, operation, maintenance, transportation, and storage. This Battery Cabinet is intended for use with the Integrity Max Series UPS System. Please refer to that product manual for additional details. Please save this manual for future reference.

NOTE

The images shown in the various figures in this manual are for reference purposes. For specific details, please see the actual product.

SYMBOL GUIDE

Symbol	Description
 DANGER	Alerts the user to a high-risk hazard that could, if not avoided, result in severe injury or death.
 WARNING	Alerts the user to a medium or low-risk hazard that if not avoided, could result in moderate or minor injury.
 CAUTION	Alerts the user to a potentially hazardous situation that if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.
	Alerts the user to protect against electrostatic discharge (ESD).
	Alerts the user to a risk of electric shock.
	Protective Earth Ground
 TIP	Provides a tip that may help the user solve a problem or save time.
 NOTE	Provides additional information to emphasize or supplements essential points in the main text.

GUIDE DES SYMBOLES

Symbol	Description
 LE DANGER	Avertit l'utilisateur d'un danger à haut risque qui pourrait, s'il n'est pas évité, entraîner des blessures graves ou la mort.
 L'ALERTE	Avertit l'utilisateur d'un danger à risque moyen ou faible qui, s'il n'est pas évité, pourrait entraîner des blessures modérées ou mineures.
 PRUDENCE	Avertit l'utilisateur d'une situation potentiellement dangereuse qui, si elle n'est pas évitée, pourrait entraîner des dommages matériels, une perte de données, une détérioration des performances ou des résultats imprévus.
	Alerte l'utilisateur pour qu'il se protège contre les décharges électrostatiques (ESD).
	Alerte l'utilisateur d'un risque de choc électrique.
	Terre de protection
 L'AVIS	Fournit une astuce qui peut aider l'utilisateur à résoudre un problème ou à gagner du temps.
 LA NOTE	Fournit des informations supplémentaires pour souligner ou compléter les points essentiels du texte principal.

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SAFE OPERATION OF YOUR BATTERY CABINET

Before performing any work on the battery cabinet, please read this user manual carefully and follow the proper installation, operation, and maintenance instructions. To prevent injury to personnel or equipment damage caused by improper equipment operation, please observe all the critical danger, warning, and safety information found in this manual and on the Battery Cabinet. Save these instructions for future reference.

CAUTION

Before using the Battery Cabinet, please read this section carefully to avoid accidents. The cautions and warning you see here in this user manual do not encompass all potential safety hazards but provide general guidelines for the safe use of the equipment, as well as known dangers and hazards.

DANGER

USING YOUR BATTERY CABINET SAFELY

High voltage is present inside the Battery Cabinet. When in use, please strictly comply with all warnings and operation instructions on the equipment and in the user manual.

CAUTION

There are no user-serviceable parts inside the Battery Cabinet. The removal of covers by non-authorized personnel exposes the user to high voltage and the risk of electric shock. Removal of the equipment cover also voids the warranty.

CAUTION

This Battery Cabinet is a Class A product. When it is used in residential applications, additional measures should be taken to prevent electromagnetic interference (EMI).

- Ensure that no liquid or other foreign objects can enter the Battery Cabinet.
- The Battery Cabinet must be properly grounded in accordance with the National Electric Code and other applicable codes.
- If the Battery Cabinet must be rewired, relocated, or maintained, all sources of external and internal power must be disconnected and electrically isolated. To avoid the risk of injury from electric shock, no work should be attempted until the Battery Cabinet and its power sources have been shut off and isolated.
- In case of fire, use only dry powder type extinguisher.

CAUTION

BATTERY SAFETY

Please use only the battery type and model specified for this UPS. Using non-specified batteries may result in reduced performance and or catastrophic battery or equipment failure.

- Batteries should be replaced only by authorized personnel trained and knowledgeable on the steps necessary for the safe handling and replacement of the battery system.
- Do not place conductive tools or other objects on the battery.
- Avoid improper contact of or short-circuiting of battery terminals.
- Before connecting or disconnecting the battery terminals, disconnect the charger by opening the DC circuit breaker.
- Replacement batteries must be of the correct specified type.
- Battery should be kept away from sources of heat, sparks, and liquids.
- Do not open or destroy the battery. The battery contains an acid-based electrolyte and other harmful substances. In case of electrolyte contact with eyes or skin, immediately rinse affected areas thoroughly with clean water and seek medical attention.
- The spent battery should be disposed of in accordance with all applicable environmental regulations.

WORKING ENVIRONMENT REQUIREMENTS

Install and operate the Battery Cabinet in accordance with environmental specifications contained in this manual and avoid exposure to direct sunlight, water, condensation, dust, or heat sources. Here is some additional guidance on where to install your Battery Cabinet:

- Install your Battery Cabinet on a flat floor without vibration and with a vertical gradient less than 5°.
- Make sure there is proper ventilation around the Battery Cabinet. The clearance between the rear or the side of the equipment and adjacent devices or wall should be at least 12" (305 mm).
- Inadequate ventilation will result in a temperature rise inside the Battery Cabinet that will reduce the life of the batteries.

OVERVIEW OF YOUR BATTERY CABINET

Here you will find useful information about product features, characteristics, and working principles for your new UPS.

PRODUCT BASICS

(2-10kVA) Integrity Series Battery Cabinet is an auxiliary cabinet for use with the Integrity Max Series UPS to provide extended battery run time on mission critical equipment.

KEY FEATURES

Compact Design: The cabinet features a small footprint, high power density design that may be placed next to, or apart from the Integrity Max UPS.

Ease of Use: The cabinet features a plug and play design that allows the user to add up to two battery cabinets to the UPS at the initial start-up or anytime thereafter. No external AC Power source or user configuration of the Integrity Max UPS is necessary.

Modular: The chassis features modular battery tray assemblies that can be quickly and easily removed and replaced thus minimizing the time the Battery Cabinet is offline during a battery replacement event.

Expandable: The Battery Cabinet is equipped with parallel DC connections so that adding a second battery cabinet can be easily accomplished by simply plugging it into the available connection on the first cabinet.

PRODUCT VIEWS

Figure 2-1: Isometric view

Figure 2-2: Front panel view

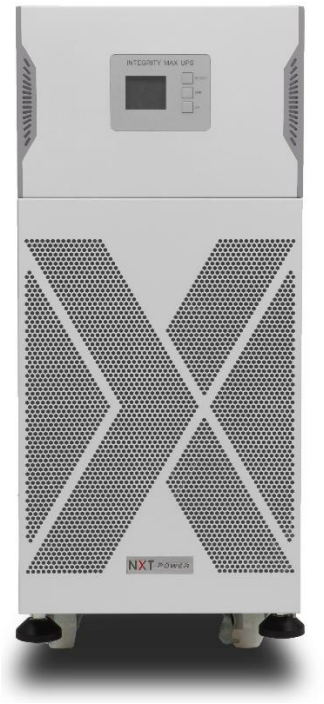


Figure 2-3: Rear panel view

INSTALLATION

This section contains useful information on site preparation, unpacking, inspection, installation, and electrical connection of the Battery Cabinet.

UNPACKING AND INSPECTION

The Battery Cabinet is shipped from NXT Power on a wood skid with a wooden crate surrounding and protecting the UPS unit, as shown in figure 3-1.

CAUTION

When using a forklift to move the UPS, the end of the fork should extend beyond the crate to avoid tipping or dropping of the unit.

Figure 3-1: Appearance of packaging

The proper unpacking and inspection steps are as follows:

Step 1 Inspect the exterior appearance of the packaging for shipping damage. Look for any signs of physical damage such as excessive force, water damage, heat damage. If any damage is found, take photographs, report it to the carrier, and file a shipping damage claim immediately.

Step 2 Compare the packing list to the order. If there is any unexpected discrepancy, contact NXT Power Customer Service immediately at 877-NXT-POWR.

Step 3 Check the contents of the shipment and compare it to the packing list to verify the receipt of all items. Immediately report any missing items to the carrier.

Step 4 Transport the Battery Cabinet to the installation site.

Step 5 Remove any shipping straps from the outer crate.

Step 6 Detach the crate from the shipping skid and carefully lift it from the unit. Locate and remove any ancillary materials, including the wood offloading ramp inside the crate. Retain all packaging materials until the Battery Cabinet is installed in its final location and operational. The appearance of the Battery Cabinet after unpacking is as shown in Figure 3-2.

Step 7 Inspect the appearance of the Battery Cabinet for shipping damage, if any shipping damage is found, take photographs of the product, report it to the carrier and file a shipping damage claim immediately.

Step 8 If after inspection, you find the Battery Cabinet is in good condition, remove the shipping brackets from the Battery Cabinet as shown in Figure 3-2, which are located at the base of the unit on each side.

Figure 3-2: Appearance of the unit after crate and packing material removal.

Location of the shipping bracket

Step 9 Locate the wheel locks on the omnidirectional casters and move them to the unlocked (off) position.

Step 10 Ensure the leveling jacks, located adjacent to the casters are fully raised before attempting to offload the UPS from the skid.

Step 11 Attach the ramp to the skid using one of the shipping bolts. Ensure that the ramp is positioned with the guard rails up as shown in figure 3-3. Use the ramp to offload the UPS from the crate to the floor.

CAUTION

The Battery Cabinet unit is heavy. Use extreme caution when removing it from the shipping skid.

This step requires 2 people for unloading.

Figure 3-3: Offloading ramp

Step 12 Move the Battery Cabinet to the final installation location. Lock the wheels, lower and seat the leveling jacks to the floor to secure the unit in place as shown in Figure 3-4

NOTE

- For additional stability, use the shipping brackets to secure the unit to the building structure floor.
- Shipping brackets are not seismic rated. OSHPD rated brackets are available from the factory.

Figure 3-4: Appearance of the Battery Cabinet in the installed position

INSTALLATION & SITE PREPARATION

The Battery Cabinet should be installed on a flat surface capable of supporting the weight of the unit. The area should be climate-controlled per the unit environmental specifications shown in Appendix A. The area should also be free of foreign substances that could interfere with proper ventilation and operation of the unit. All installation clearances outlined in Table 3-1 must be observed.

Area	Front	Back	Top	Sides
Minimum Clearance	36 Inches	12 Inches	No Minimum	No Minimum

Table 3-1: Installation clearances

ELECTRICAL CONNECTION

Before performing the electrical connection between the UPS and the Battery Cabinet, ensure that the UPS is off-line and that the Power and DC circuit breakers on the UPS and the Battery Cabinet are turned off.

DANGER

- Verify all power is disconnected and locked out before attempting to make electrical connections to the UPS.
- Place and bundle Battery Cabinet connecting wires safely to ensure no one can step on or trip over them.

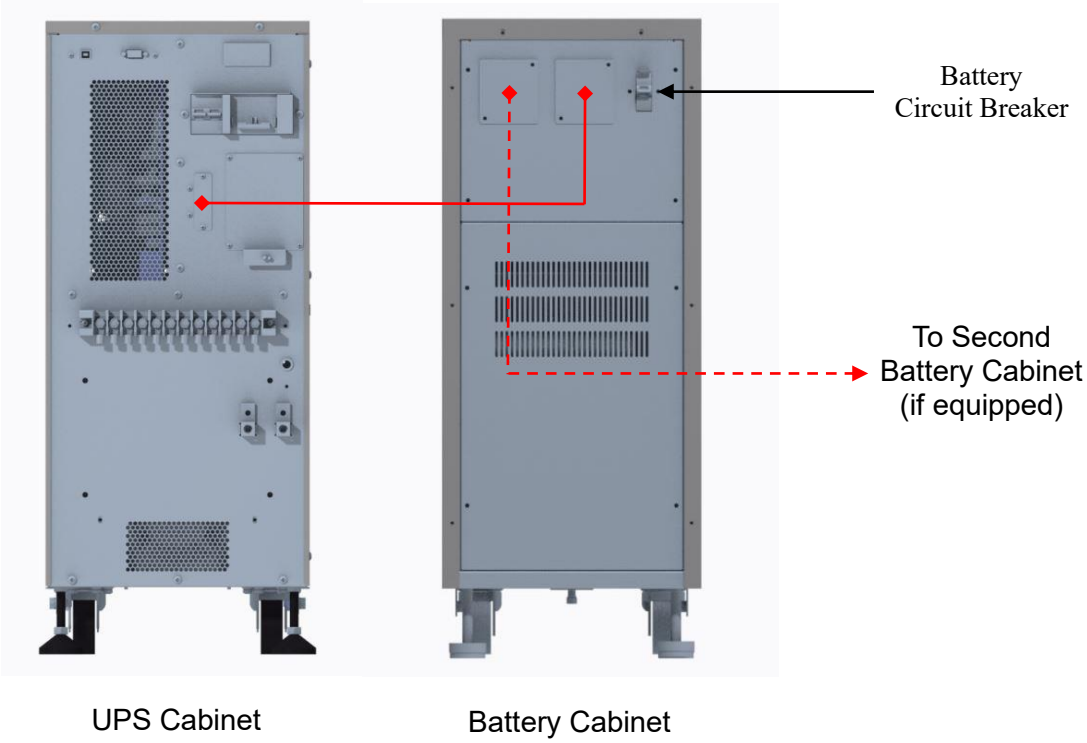
EXTERNAL BATTERY CONNECTIONS

The interconnecting cables are provided by the factory when this option is included. Refer to Figure 3-5 for the location of the external battery connection.

NOTE

- Use only the factory supplied connecting wires for making connections between the Battery Cabinet and the Integrity Max UPS.

Figure 3-5: Side by side appearance of the UPS and the Battery Cabinet



The above illustration shows the primary (◆——◆) electrical connection between the UPS and the Battery Cabinet and the secondary (◆- - -▶) electrical connection between the first Battery Cabinet and the second Battery Cabinet if so equipped. The elecrical connections on both the UPS and the Battery Cabinet are concealed behind removable covers. Please save these covers after removal for future installation if needed.

Once the electrical connections are complete, the UPS can be placed back into service by following the start up guidenace in the Integrity Max users manual. Please make sure to turn on the circuit breaker on the back of the battery cabinet before putting the UPS in service.

OPERATION AND MAINTENANCE

This section contains useful information on unit operation, user maintenance checks, and troubleshooting.

START-UP SEQUENCE (1ST TIME)

1. Ensure that the electrical cables between the UPS and the Battery Cabinet are securely connected at the appropriate terminals of each cabinet.
2. Turn on the battery circuit breaker on the back of the Battery Cabinet
3. Follow start up guidance in Integrity Max user manual to bring the UPS on-line.

SHUTDOWN OPERATION

If it is desired to shut off and/or disconnect the Battery Cabinet, use the following procedure:

Turn off the battery circuit breakers on the BatterTurn off the connected load and keep the UPS running without load for five to exhaust residual heat.

1. Shut off the battery circuit breaker on the back of the Battery Cabinet (refer to figure 3-5 for location). Please do this on each battery cabinet connected to the UPS.

If it is desired to disconnect the Battery Cabinet from the UPS, please follow these additional steps:

2. Turn off the battery circuit breaker on the back of the UPS (refer to the Integrity Max user manual for location).
3. Remove the electrical cables connecting the UPS to the Battery Cabinet by unplugging both ends of the cable from its respective connection on each cabinet.
4. Reinstall the covers of the DC connections on both the Battery Cabinet and on the UPS.

PERIODIC PREVENTATIVE MAINTENANCE

To maintain the performance, efficiency, and reliability of the Battery Cabinet, perform the following maintenance regularly by the user.

CAUTION

Performing the following preventive maintenance steps will interfere with the normal operation of the UPS and may result in the loss of power on the output.

1. Check the battery values on the UPS display.
2. Check the operating environment for excess dust, debris, heat, or humidity.
3. Perform the battery self-test function. Press and hold the ON button for 5 seconds to initiate the test.
4. Shut down the Battery Cabinet and then clean the exterior using a dry cloth. Prevent and clear any obstruction to all air inlets and outlets. Do not use liquid or aerosol solutions of any type. Liquid entering in the unit may result in failure.
5. Visually inspect the electrical connection between the Battery Cabinet(s) and the UPS to ensure that the connections are firmly inserted into the receptacles.

BATTERY MAINTENANCE TIPS

The working life of the battery is based on the environment temperature and the number of discharge cycles. Exposing the battery to a high-temperature environment for a long time or discharging the battery completely will reduce the working life.

- The battery charges under normal UPS operation. Allow a minimum of twenty-four (24) hours of charge time for the battery to attain full charge after prolonged storage or a discharge event. The discharging time will be less than the rated value for batteries at less than a full charge.
- Perform a battery self-test at least once per month. Perform a battery discharge until the battery is at or under-voltage, then power it off and charge it. In a high-temperature environment, perform the battery discharge once every two months.
- If storing the Battery Cabinet, be sure to comply with environmental specifications for storage. Recharge the battery for at least twenty-four (24) hours in intervals not to exceed three months while the unit is in storage.
- The working life of the battery is three to five years. For optimum performance and reliability, it is recommended that the batteries are replaced at three years. The battery replacement should be performed only by authorized personnel using batteries compliant with the agency listings for these units. Contact NXT Power for replacement batteries.

NOTE

- For preventative maintenance performed by a authorized NXT technician please contact our service department at 877-NXT-POWR.

BATTERY REPLACEMENT

Servicing of the batteries including battery replacement should be performed only by authorized and qualified personnel knowledgeable about the batteries and the required safety precautions. Additionally, batteries should only be replaced by persons factory trained in the procedures for replacing batteries. Untrained personnel should not attempt to replace the batteries in this unit. Batteries should be replaced only with the same number and type as factory specified.

CAUTION

The type of batteries used in this system contain electrolyte. Do not dispose of batteries in a fire as batteries may explode. Do not attempt to open or destroy batteries as released electrolyte is harmful to the skin and eyes. Batteries must be disposed of in accordance with local, state, and national regulatory requirements.

TROUBLESHOOTING

Fault Indication	Customer action
The UPS does not support the load when input power is lost, or the backup time is substantially shorter than expected.	1) The battery capacity is lost, and it needs to be replaced. Call for service at 877-NXT-POWR. 2) There is a problem with the battery terminals or associated wiring. Call for service at 877-NXT-POWR.

Table 4-1: Fault Diagnostic Table

Table 4-1 shows general fault indications. Contact NXT Power for service support.

PACKAGE, TRANSPORTATION & STORAGE

This section covers essential information on packaging, transporting, and storing your Battery Cabinet safely and securely.

PACKAGING

The Battery Cabinet is packed in a wood crate for shipping. If future storage or shipping is anticipated, retain these shipping materials. When packing, pay attention to the directional requirements for placement indicated on the carton. On one side of the carton, you will notice warning icons related to keeping the unit dry, handling with care, up direction for placing in the carton, and stacking layer limits. Please adhere to these warnings when packing your Battery Cabinet for transport.

TRANSPORTATION

Avoid any jarring, shaking or severe impacts on the Battery Cabinet unit during transportation. To avoid damaging the equipment, follow the placing directions on the carton. Do not place objects that may be flammable, explosive, or corrosive near the equipment Cabinet while transporting. Do not put the equipment in an open-air warehouse when transporting or during shipment. Physical damage caused by the environment will void the warranty.

STORAGE

Store the Battery Cabinet according to the placement and directional warnings and instructions on the carton. Please note that the gap is 20cm between the crate and ground, and the clearance should be at least 50cm from carton to wall, heat source, cold source, windows, or air inlet.

The storage environment temperature is 0℃～40℃, and the relative humidity is 20%～80%. If the unit is stored in a warehouse, avoid exposure to toxic gasses, substances that are flammable, explosive, or corrosive. Also, avoid storage in an area of severe mechanical vibration as well as away from any strong magnetic fields.

Assuming these storage recommendations are followed, you can safely store the Battery Cabinet for up to three months. If stored beyond three months is necessary, a battery recharge is required to maintain the battery state of charge.

Appendix A – General Specifications

Index \ Model		2.2 – 6 kVA	8.2 – 10 kVA
DC Input	Input wiring	Factory Supplied DC Cables (+/- & Ground)	
	Nominal Battery Voltage	192 VDC	
	Float Voltage	218 (224 VDC Boost) +/- 1%	
Mech.	Dimensions W×D×H Inches (mm)	11.8 x 29.0 x 28.8 (300 x 737 X 732)	
	Weight Lbs. (kg）	402 (182)	
Other Features	Backup time (Note 1)	> 20 mins (full load) > 45 mins (half load)	> 10 min (full load) > 20 min (half load)
	Charge recovery time	90% ≤ 24 Hours	
	Noise (dB)	N/A	
	Working temperature ˚F (˚C)	32 – 104 ˚F (0 - 40˚C)	
	Relative humidity	5 - 95%, non-condensing	
	Altitude Feet (meters)	8202 (2500)	

Specifications are subject to change without prior notice.

Notes:

(1) See battery cabinet specification sheet for detailed run time values

7051 W. Wilson
Norridge, IL 60706

(P) 877-NXT-POWR or 877-697-7697
(F) 708-457-2266
(E) service@nxtpower.com

Access additional product and support via our website
https://www.nxtpower.com

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