



## UPStation GXT 2U

700 - 3000 VA 230V

**User Manual**  
English





## IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** Opening or removing the cover may expose you to lethal voltages within this unit even when it is apparently not operating and the input wiring is disconnected from the electrical source. Observe all cautions and warnings in this manual. Failure to do so MAY result in serious injury or death. Refer all UPS and battery service to qualified service personnel. Do not attempt to service this product yourself. Never work alone.

### SAVE THESE INSTRUCTIONS.

#### **This Manual Contains Important Safety Instructions.**

Read all safety, installation, and operating instructions before operating the Uninterruptible Power System (UPS). Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions. Individuals without previous training can install and operate this equipment.

It is not intended for use with life support and other designated "critical" devices. Maximum load must not exceed that shown on the UPS rating label. The UPS is designed for data processing equipment. If uncertain, consult your local dealer or Liebert Representative. See the Limited Warranty.

This UPS is designed for use on a properly grounded (earthed), 200 - 240 VAC, 50Hz or 60Hz supply. Installation instructions and warning notices are located in this manual.

**ELECTROMAGNETIC COMPATIBILITY** - The GXT 2U Series complies with the requirements of the EMC directive 89/336/EEC and the published technical standards. Continued compliance requires installation in accordance with these instructions and use of manufacturer approved accessories only.

Operate the UPS in an indoor environment only in an ambient temperature range of 0°C to +40°C (32°F to +104°F). Install it in a clean environment, free from conductive contaminants, moisture, flammable liquids, gasses, or corrosive substances.

**WARNING:** This UPS should not be supplied from electrical power systems of the "IT" (Impedance á Terre) type. (IEC 364 - ELECTRICAL INSTALLATION OF BUILDINGS).

This UPS contains no user serviceable parts except the internal battery packs. The UPS ON/OFF pushbuttons do not electrically isolate internal parts. Under no circumstances attempt to gain access internally other than to replace the batteries due to risk of electric shock or burn. Do not continue to use the UPS if the front panel indications are not in accordance with these operating instructions, or the UPS performance alters in use. Refer all faults to your local dealer, Liebert Representative or the Liebert Worldwide Support Group.

Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from the batteries. **PROPER DISPOSAL OF BATTERIES IS REQUIRED. REFER TO YOUR LOCAL LAWS AND REGULATIONS FOR BATTERY DISPOSAL REQUIREMENTS.** Never block or insert any object into the ventilation holes or other openings of the UPS.

**DO NOT CONNECT** equipment that could overload the UPS or demand DC current from the UPS, for example: electric drills, vacuum cleaners, laser printers, hairdryers or any appliance using half wave rectification.

Storing magnetic media on top of the UPS may result in data loss or corruption.

Turn the UPS OFF and isolate the UPS before cleaning. Use only a soft cloth, never liquid or aerosol cleaners. Keep the front and rear vents free of dust accumulation that could restrict airflow.

When replacing batteries, replace with the same Liebert authorized replacement battery kits.

**CAUTION:** Do not dispose of battery or batteries in a fire. The battery may explode.

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

**CAUTION:** A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.

## INTRODUCTION

Congratulations on your choice of the Liebert UPStation GXT 2U Uninterruptible Power System (UPS). It provides conditioned power to microcomputers and other sensitive electronic equipment.

Upon generation, AC power is clean and stable. However, during transmission and distribution it may be subject to voltage sags, spikes, or complete power failure that may interrupt computer operations, cause data loss, or even damage equipment. The UPStation GXT 2U protects equipment from these disturbances.

The UPStation GXT 2U comes in nominal power ratings of 700, 1000, 1500, 2000, & 3000 VA. Complete model specifications appear at the end of this manual.

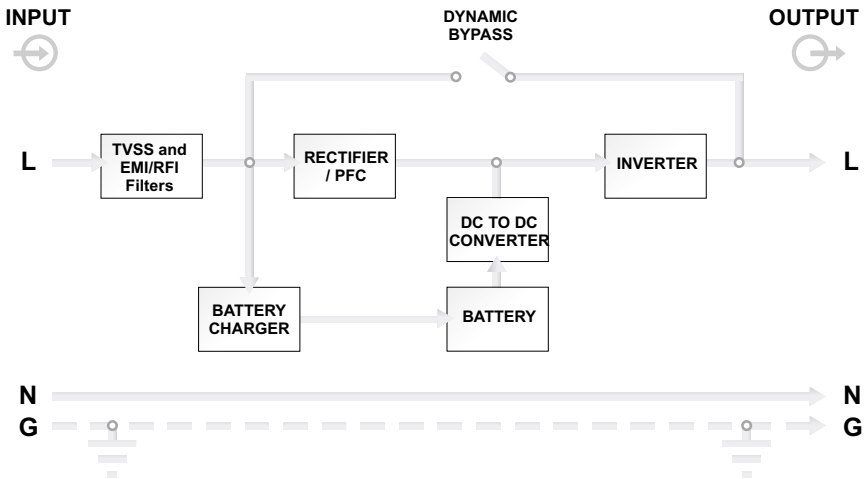
The UPStation GXT 2U is a compact, "on-line" UPS. An "on-line" UPS continuously conditions and regulates its output voltage, whether the utility power is present or not. It supplies connected equipment with clean sine-wave power. Sensitive electronic equipment operates best from sine-wave power.

For ease of use, the UPStation GXT 2U contains a light emitting diode (LED) display to indicate either "load percentage" or "battery capacity" depending upon the mode of operation. It also provides self-diagnostic tests, a combination ON/Alarm Silence/Manual Battery Test button, a combination OFF/Bypass button, user configurable program, and two levels of alarms when the unit is operating on battery.

The UPStation GXT 2U has an interface port for communications between the UPS and a Network server or other computer systems. This port provides detailed operating information including voltages, currents, and alarm status to the host system when used in conjunction with Liebert MultiLink™ software. MultiLink software can also remotely control UPS operation.



# MAJOR COMPONENTS



## TRANSIENT VOLTAGE SURGE SUPPRESSION (TVSS) AND EMI/RFI FILTERS

These UPS components provide surge protection, and filter both electromagnetic interference (EMI) and radio frequency interference (RFI). They minimize any surges or interference present in the mains line and keep the sensitive equipment protected.

## RECTIFIER/POWER FACTOR CORRECTION (PFC) CIRCUIT

In normal operation, the rectifier/power factor correction (PFC) circuit converts utility AC power to regulated DC power for use by the inverter, while ensuring that the waveshape of the input current used by the UPS is near ideal. Extracting this sinewave input current achieves two objectives: the utility power is used as efficiently as possible by the UPS, and the amount of distortion reflected on the mains is reduced. This results in cleaner power being available to other devices in the building not being protected by the UPStation GXT 2U.

## INVERTER

In normal operation, the inverter utilizes the DC output of the power factor correction circuit and "inverts" it into precise, regulated sinewave AC power. Upon a utility power failure, the inverter receives its required energy from the battery through the DC to DC converter. In both modes of the operation, the UPS inverter is on-line and continuously generating clean, precise, regulated AC output power.

## **BATTERY CHARGER**

The battery charger utilizes energy from the mains and precisely regulates it to continuously "float" charge the battery system. The battery system charges whenever the UPStation GXT 2U is plugged in.

## **DC TO DC CONVERTER**

The DC to DC converter utilizes energy from the battery system and raises the DC voltage to the optimum operating voltage for the inverter. This allows the inverter to operate continuously at its optimum efficiency and voltage, thus increasing reliability.

## **BATTERY**

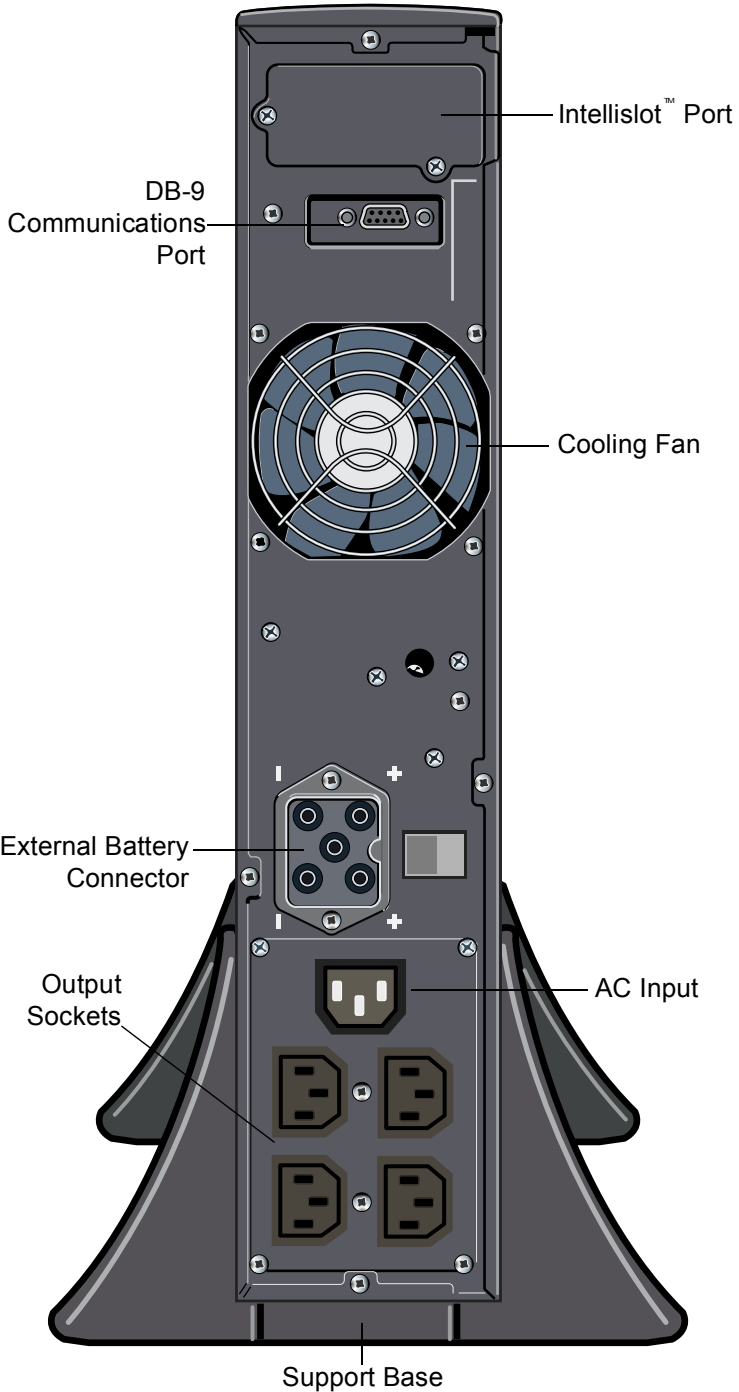
The UPStation GXT 2U utilizes valve regulated, nonspillable, flame retardant lead acid batteries. At typical room temperatures and with the UPS float charging, the battery system will last many years. Optional external battery cabinets are available to provide extended battery run times.

## **DYNAMIC BYPASS**

The UPStation GXT 2U provides an alternate path for mains to the connected load, in the unlikely event of a UPS malfunction. Should the UPS have an overload, over temperature, or UPS failure condition, the UPS automatically transfers the connected load to bypass. Bypass operation is indicated by an alarm and illuminated Amber Bypass LED (other LED's may be illuminated to indicate the diagnosed problem). To manually transfer the connected load from the inverter to bypass, press the "OFF" button once.

**NOTE:** The bypass power path does NOT protect the connected equipment from disturbances or an outage on the mains supply.

# GXT 2U (Rear View)



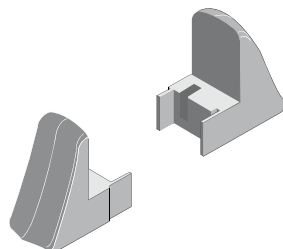


# INSTALLATION

## Tower UPS Installation

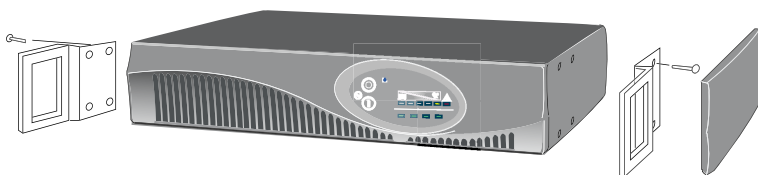
When using the GXT 2U in a tower configuration, use the included support base (as shown) to stabilize the UPS.

If any additional cabinets are added, they will include spacers to accommodate the additional cabinets.



## Rack UPS Installation

### Rack-Mount UPS Conversion and Installation



1. **CAUTION:** The UPS is heavy (see specifications). Take proper precautions when lifting or moving it.
2. Visually inspect the UPS for freight damage. Report damage to the carrier and your local dealer or Liebert Representative.
3. **NOTE:** When rack mounted, the UPS MUST be supported by a shelf, fixed rails or slide rails on each side. The Rack Mount Handles WILL NOT support the weight of the UPS.
4. For slide rail installations, first remove the top/side fin. Top/side fin slides forward and then lift up to remove. Optional rack-mount handles are shipped with the UPS and maybe installed at this time if desired.
5. Securing hardware and slide rails are sold separately. Please contact your local dealer or Liebert Representative for these additional options and any assistance needed. Fasten the slides into position with the screws per the instructions included with the slide rail kits.
6. Locate UPS indoors in a controlled environment, where it cannot be accidentally turned off. Locate it in an area of unrestricted airflow around the unit, away from water, flammable liquids, gases, corrosives, or conductive contaminants. Maintain a minimum of 100 mm

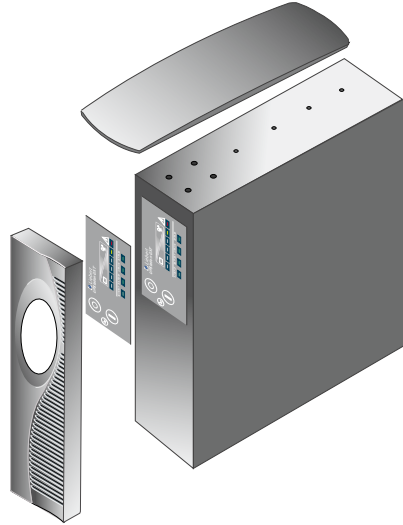
(4 inches) clearance in front and rear of the UPS. Maintain an ambient temperature range of 0° to 40° C (32° to 104° F) to 40° C).

**NOTE:** UPS operation in temperatures above 25° C (77° F) reduces battery life.

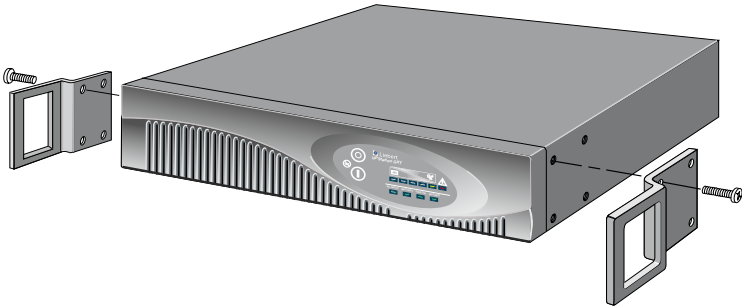
7. Remove the front plastic bezel by grabbing and pulling forward evenly on both sides. There are 2 front panel overlays, the tower configuration ships on the unit. For Rack mounting, remove the front plastic bezel cover and then the Tower display template overlay. Snap the front plastic bezel cover back into place.
8. The UPS is now ready to be placed into the equipment rack.
9. Once the UPS is installed in the rack, the load may be connected. Ensure the load equipment is turned off; plug all loads into the output receptacles on the rear of the UPS.
10. Plug the UPS into a dedicated wall socket properly protected in accordance with Local Codes and Regulations. The wall socket must be grounded (earthed).
11. Turn ON the UPS by pressing the ON button; then turn ON the connected load equipment. The UPS is now providing conditioned power to your equipment.

## Optional Rack Slide Installation

1. Remove the decorative Top / Side Cover by sliding it forward to disengage inner tabs and lifting it upward. To change orientation of the Display, remove the Front Plastic Bezel Cover by pulling it forward. Remove the tower Display Template by lifting it to reveal the rack-mount Display Template. Replace the Front Plastic Bezel Cover.



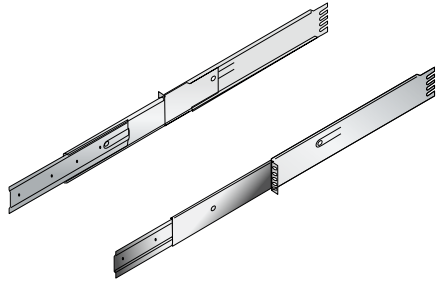
2. Locate (2) Rack Mount Handles and (8) M4 Truss Head Screws in the accessories box packed with the UPS. Fasten the Rack Mount handles to the sides of the UPS using (4) Screws for each Flange.



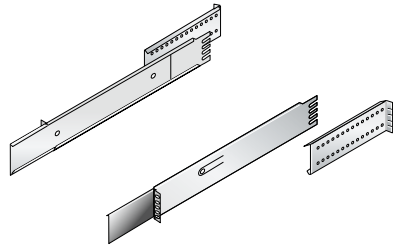
**NOTE:** For rack-mount installation, the UPS must be supported by a shelf or slide rails. The Securing Flanges WILL NOT support the weight of the UPS.

**CAUTION:** REDUCE THE RISK OF TIPPING THE RACK ENCLOSURE BY PLACING THE UPS IN THE LOWEST POSSIBLE RACK POSITION.

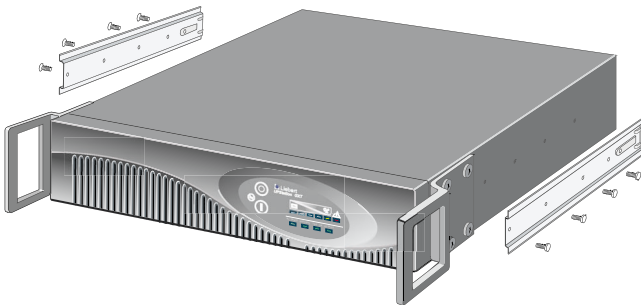
3. Unpack the (2) Slide Assemblies and mounting hardware from this kit. The Slide Assemblies are interchangeable between left-hand or right-hand. Remove the Inner Member of each Slide Assembly (as seen on right) by extending it to its outermost position, depressing the Locking Mechanism and then pulling the Inner Member from the Slide Assembly.



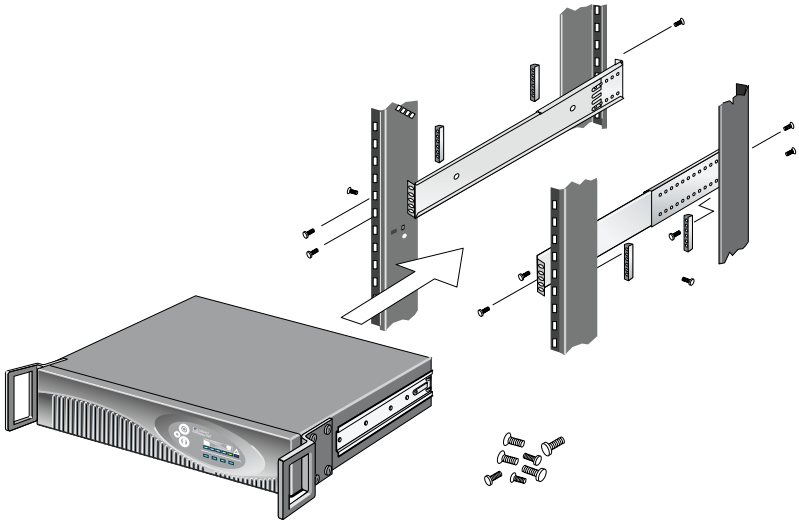
4. Fasten the Inner Members from Step 3 to the UPS on both sides as shown below with (8) M4 Truss Head Screws provided in the accessories box of the UPS.



5. Locate in this kit (2) Mounting Brackets for the Slide Assemblies. The Brackets allow up to 203 mm (8 inches) adjustment of the Slide Assembly mounting position front-to-back on the Rack Mounting Rails. Determine which adjustment holes to use on the Bracket, and attach it to the Slide Assembly on the stationary Outer Member using the Bar Nuts and Screws provided in this kit. Insert (2) Screws from the inside of each Slide Assembly as shown.



**NOTE:** Bar nuts may not be required on all installations depending on the type of racks being used.

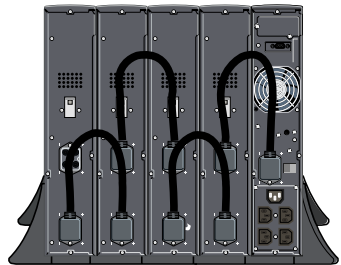
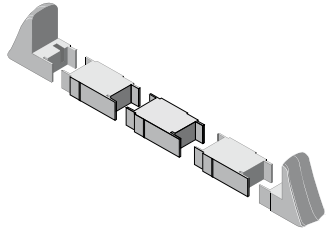


6. Install the Slide Assemblies, with attached Mounting Brackets from Step 5, into the Rack Enclosure and Screws provided in this kit. The return flanges on the Mounting Brackets and Outer Members fit to the inside of the Rack Mounting Rails. Insert the (8) Screws loosely (finger-tight). Make sure the Slide Assemblies are in the same alignment position on all (4) Rack Mounting Rails. After alignment is checked, **TIGHTEN ALL SCREWS**. Then insert the UPS, with Inner Members attached from Step 4, into the Slide Assemblies. You may need to depress the Locking Mechanisms on the Inner Members and Outer Members of the Slide Assemblies to allow the Slides to retract. The UPS should now move smoothly forward and backward on the Slide Assemblies. If not, recheck alignment. Secure the UPS Rack Mount Handles from Step 3 to the Rack Mounting Rails with (4) customer-supplied fasteners.

## External Battery Cabinet Installation

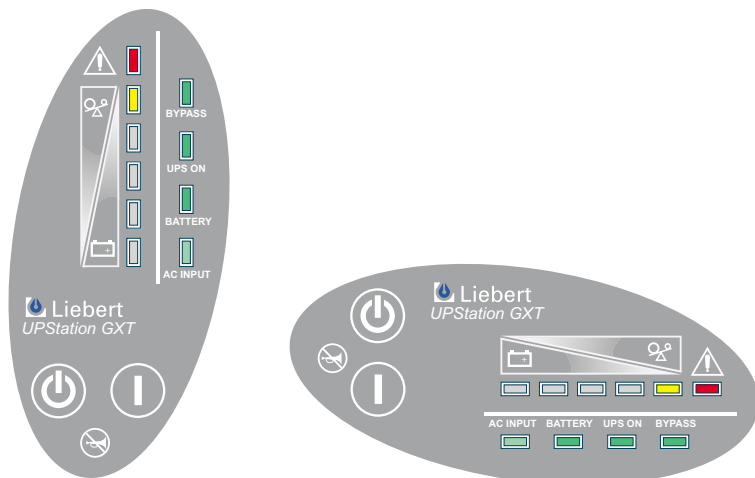
Optional Liebert external battery cabinets may be connected to the UPS to provide additional battery run time. External battery cabinets are designed to be placed all on one side of the UPS or stacked beneath the UPS. There is no limit to the number of external battery cabinets that can be used but each cabinet will increase the battery recharge time.

1. **CAUTION:** The external battery cabinet(s) are heavy (see specifications). External battery cabinets can be used in rack-mount or tower configuration. Take proper precautions when lifting them.
2. Visually inspect the external battery cabinet for freight damage. Report damage to the carrier and your local dealer or Liebert Representative.
3. For slide rail installations, first remove the top/side fin. Top/side fin slides forward and then lift up to remove. Optional rack-mount handles are shipped with the external battery cabinet and maybe installed at this time if desired.
4. Securing hardware and slide rails are sold separately. Please contact your local dealer or Liebert Representative for these additional options and any assistance needed. Fasten the slides into position with the screws per the instructions included with the slide rails.
5. Use the enclosed support bases for the tower option to prevent tip-over. One additional set of support base extensions ship with each external battery kit to accommodate the external battery cabinets.
6. Connect the supplied external battery cabinet cable to the rear of the external battery cabinet, then to the rear of the UPS.
7. Turn the battery breaker on the rear of the external battery cabinet "ON".
8. The UPS is now equipped with additional backup battery runtime. For approximate battery runtimes please refer to the Battery Run Time Charts in the back of this manual.



**NOTE:** You can use the Configuration Program to select the number of external battery cabinets connected to the UPS.

# CONTROLS AND INDICATORS



## ON/Alarm Silence/Manual Battery Test Button

This button controls output power to connected load(s) and has three functions: ON, Alarm Silence, and Manual Battery Test. Pressing this button will start up the UPS in order to provide conditioned and protected power.

To silence alarms, press this button for at least one half second while alarm conditions are present. After the alarm is silenced, the UPStation GXT 2U will reactivate the alarm system to alert of additional problems.

**NOTE:** The LOW BATTERY and BYPASS reminder alarms CANNOT be silenced.

To initiate a manual battery test, press the ON button for at least one second while operating from mains power and no alarm conditions are present.

If the bottom two LEDs do not illuminate during a Battery Test, allow the UPS to recharge the batteries for 24 hours. After 24 hours, retest the batteries. If the batteries have been retested and the bottom two LEDs still do not illuminate, contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.



### **OFF/ Manual Bypass Button**

This button controls output power to connected load(s) and has dual functions: OFF and Manual Bypass.

**CAUTION:** Pressing this button once will cause the load to be transferred to bypass power. Pressing this button a second time within 4 seconds will result in loss of power to the output receptacles and connected loads. Perform all necessary shutdown procedures on connected loads before pressing this button twice.

### **Load/Battery Level Indicators (4 Green, 1 Amber)**

The Load/Battery Level indicators have dual functions. During normal mode operation LED indicators display the approximate electrical load placed upon the UPS; and during battery mode operation LED indicators display approximate battery capacity.

The UPStation GXT 2U is equipped with automatic and remote battery test features. The automatic test occurs every 14 days (this option is user configurable) if utility has not been interrupted. Should the battery fail this test, the red fault indicator LED along with the A and C diagnostic LEDs will illuminate and an alarm will sound (refer to Troubleshooting Guide). The remote test feature functions with either MultiLink® 2 or MultiLink® SNMP Manager software and can remotely initiate the battery test.

### **Fault Indicator LED (Red)**

The Fault indicator LED is illuminated if the UPS has detected a problem. Also, one or more of the load/battery level indicators may be illuminated (Refer to Troubleshooting Guide).

### **Bypass Indicator LED (Amber)**

The Bypass indicator LED is illuminated when the UPS is operating from bypass power. An alarm will sound indicating the UPS detected a problem, or the manual bypass function has been activated.

### **UPS ON Indicator LED (Green)**

The UPS ON indicator LED is illuminated when the UPS inverter is operating and supplying power to your connected loads.

### **Battery Indicator LED (Amber)**

The Battery indicator LED is illuminated when the UPS is operating on battery.

### **AC Input Indicator LED (Green)**

The AC Input indicator LED is illuminated when mains power is available and within the input specifications.

### **Output Voltage Selection**

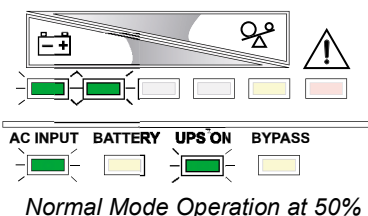
The Output Voltage is user configurable, and is designed to allow selecting or changing the desired output voltage to match the mains via the GXT2 Configuration Program provided with the UPS. The settings to choose from are 200, 208, 220, 230, and 240 VAC output. The factory default setting is 230 VAC.

**NOTE:** Never change the voltage settings while UPS is on and powering connected loads.

**NOTE:** Setting output voltage to 200 VAC will cause UPS unit to be derated (700/1000 VA to 90%, 1500/2000/3000 VA to 80%) of the VA and Watt ratings listed in specification section.



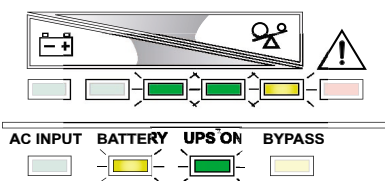
# OPERATING INSTRUCTIONS



## NORMAL MODE OPERATION

During normal operation, mains provides energy to the UPS. The filters, power factor correction circuit and the inverter process this power to provide computer grade power to connected loads. The UPS maintains the batteries in a fully charged state.

The four green LEDs indicate an approximate level of load in 25% increments. If the UPS becomes loaded beyond full rating, the fifth (amber) LED indicator will illuminate. The display template indicates the percentage of load on the UPS output.



*Battery Mode Operation at 80 - 61%*

## BATTERY MODE OPERATION

Battery mode occurs in event of an extreme input voltage condition or complete mains outage. The battery system supplies power through the DC to DC converter to the inverter to generate power for the connected load.

During battery mode an alarm sounds every 10 seconds. This will change to 2 beeps every 5 seconds when the battery runs low (approximately 2 minutes remaining, but this is user configurable). The AC Input LED will extinguish, and the Battery LED will illuminate to warn that a utility problem has occurred. Each load/battery level indicator represents a 20% capacity level. As capacity decreases, fewer indicators remain illuminated. Refer to the Troubleshooting Guide.

For battery run times, refer to the Battery Runtime Charts in this manual. These times are approximates based on resistive load and an ambient temperature of 25° C (77° F). To increase this time, turn off non-essential pieces of equipment (such as idle computers and monitors) or add the optional external battery cabinet.

**CAUTION:** Turning OFF the UPS while in battery mode will result in loss of output power.

### **BATTERY RECHARGE MODE**

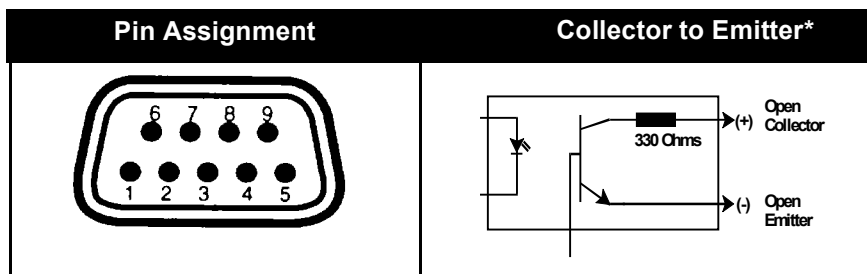
Once mains is restored, the UPS resumes normal operation. At this time, the Battery Charger begins recharging the batteries.

# COMMUNICATIONS

## Communications Interface Port

The UPStation GXT 2U UPS contains a standard DB-9 serial port female connector located on the rear of the UPS unit. Several signals are provided on this port and are assigned as follows:

PIN	ASSIGNMENT DESCRIPTION
1	Low Battery (open collector)
2	UPS TxD (typical RS-232 levels)
3	UPS RxD (typical RS-232 levels)
4	Remote Shutdown (5-12VDC, 10-24 mA max); battery operation
5	Common
6	Remote Shutdown (short to pin 5); all modes of operation
7	Low Battery (open emitter)
8	Mains Fail (open emitter)
9	Mains Fail (open collector)



\*Maximum voltage and current on pins 1,7,8,9 is 80V DC; 10.0 mA.

## Pin 4 - Remote shutdown on Battery

1. This pin is only functional if the UPS is in battery mode. If the UPS is being powered by the mains (PFC on), then pin 4 will ignore any signal on this pin.
2. Pin 4 requires a 5-12 VDC signal to shutdown. This normally comes from the serial port using our contact closure cable. It cannot be used with just a contact closure unless the relay is used to switch a voltage source. A 5-12 VDC signal for 1.5 seconds or greater is required to signal a shutdown. Signals for less than 1.5 seconds will be ignored. After Pin 4 receives a shutdown signal for 1.5 seconds, the command cannot be cancelled.
3. A battery shutdown signal on pin 4 will NOT cause an immediate shutdown. A shutdown signal will start a 2-minute shutdown timer. The timer cannot be stopped. After 2 minutes, the UPS will shutdown.
4. If the mains return during the 2-minute timer countdown, the shutdown timer will continue until the end of 2 minutes and the UPS will turn OFF. The UPS must remain OFF for at least 10 seconds even if AC input power returns before the UPS turns OFF. This serves to reset and restart the server.

Whether the UPS turns back ON when power is restored depends on the auto-restart setting: enabled or disabled.

If the auto-restart is disabled, the UPS will not restart after performing the 2-minute shutdown delay.

## UPS Intelligent Communications

The UPStation GXT 2U UPS is equipped with an Intellislot™ bay to provide advanced communication and monitoring options.

Liebert's MultiLink™ software continually monitors the UPS and can shut down your computer or server in the event of an extended power failure.

MultiLink can also be configured for use without the serial cable when the Intellislot SNMP/Web card is installed in the UPS. Additionally, MultiLink can be configured to coordinate shutdown across the network with other computers running MultiLink when you purchase a MultiLink License Kit. For more information about the Intellislot SNMP/Web Card and MultiLink License Kits, please see [www.liebert.com](http://www.liebert.com) or contact your local dealer or Liebert representative directly.

Several option cards are available for use in the Intellislot bay of the UPStation GXT 2U. The Intellislot SNMP/Web Card provides SNMP and web-based monitoring and control of the UPS across the network.

The Intellislot MultiPort 4 Card allows you to install MultiLink software on four computers and coordinate shutdown in the event of a power failure.

The Intellislot Relay Card gives you 2 dry contact relay outputs for custom wired applications and delivers support for built-in shutdown for AS/400 systems.

**CAUTION:** TO MAINTAIN SAFETY (SELV) BARRIERS AND FOR ELECTROMAGNETIC COMPATABILITY, SIGNAL CABLES SHOULD BE SEGREGATED AND RUN SEPARATE FROM ALL OTHER POWER CABLES, WHERE APPLICABLE.



# CONFIGURATION PROGRAM

This is a new feature included with the new UPStation GXT 2U line of UPS. Several UPS settings that were previously not available, or required custom manufacturing, may now be modified using this program. For most users, the factory default settings will be adequate. This manual will illustrate the features available for modification, as well as the factory default setting.

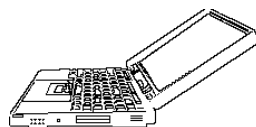
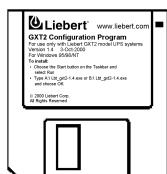
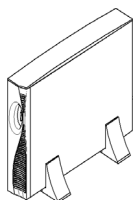
## GTX2 Configuration Program Abilities

- Select one of five output voltages to match voltages found around the world.
- Enable/Disable Auto-Restart.
- Select frequency converter operation with a fixed output frequency of 50 or 60 Hz.
- Set the Low Battery Warning alarm time from 2 to 30 minutes.
- Enable/Disable the Auto-Battery test.
- Set the Auto-Battery test to 7, 14, 21, or 28 days.
- Select the number of external battery cabinets connected to the UPS to adjust the remaining runtime calculations reported by the Liebert software products.

**NOTE:** This program is compatible with UPS models beginning with "GXT2-", as in "GXT2-1500RT230". It is not compatible with earlier versions of UPStation GXT UPS.

## What You Will Need

In addition to the GXT 2U UPS, you will need the configuration program



diskette and serial cable (Beige or Tan, 3-wire: GND, TX, RX; straight through 2-2, 3-3, 5-5) included in the UPS accessory box. The BLACK ML9P9S CONTACT CLOSURE communication cable IS NOT compatible with the configuration program. A Windows 95®, 98®, or NT® computer is also required to run the configuration program.



## MAINTENANCE

The UPStation GXT 2U requires very little maintenance. The batteries are valve regulated, nonspillable, flame retardant, lead acid, and should be kept charged to obtain their designed life. The UPS continuously charges the batteries when connected to the mains supply.

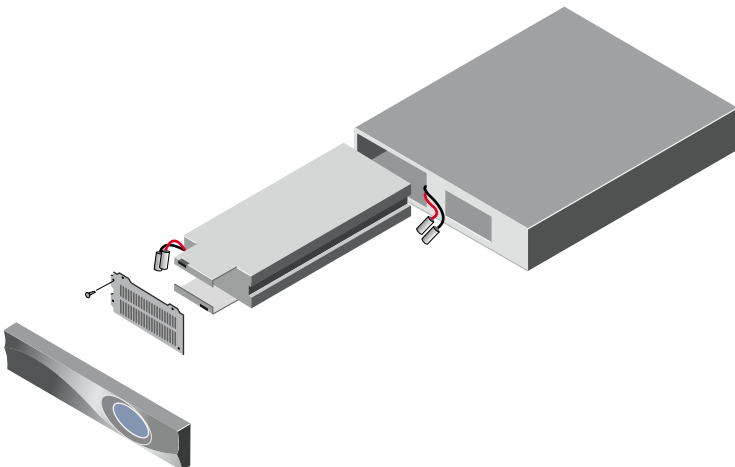
When storing the UPS for any length of time, it is recommended to plug the UPS in for at least 24 hours every four to six months to ensure full recharge of the batteries.

The UPStation GXT 2U is designed to allow the user to safely replace the internal batteries. Read the safety cautions before proceeding. Contact your local dealer or Liebert Representative to obtain the appropriate replacement battery kit part number and pricing.

### Battery Replacement

**CAUTION** - A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed before replacing the batteries:

- Remove rings, watches, and other metal objects.
- Use a Phillips (crosshead) screwdriver with insulated grips.
- Do not lay tools or other metal objects on top of the batteries.
- If the battery replacement kit is damaged in any way or shows signs of leakage, contact your local dealer or Liebert Rep. immediately.
- Do not dispose of batteries in a fire, the batteries may explode.



### **Internal Battery replacement procedures:**

1. Gently remove the front plastic bezel cover from the UPS.
2. Loosen and remove the four screws on the front battery door. Lay the battery door aside for reassembly.
3. Gently pull battery wiring out and disconnect the 2 slotted battery connectors.
4. Grasp the battery pack assembly, and pull it out of the front of the UPS.
5. Unpack the new battery assembly taking care not to destroy the packing. Compare new and old battery assemblies to make sure they are the same. If so, proceed with step 6; otherwise STOP and contact your local dealer or Liebert Representative, or the Liebert Worldwide Support Group.
6. Line up and slide in the new replacement battery pack.
7. Reconnect the 2 slotted battery connectors and gently push the battery wiring and battery pack assembly back into the UPS.
8. Reattach the front battery door with the four screws.
9. Reattach the front plastic bezel cover to the UPS.

**NOTE:** These are hot-swappable replacement batteries, caution should be taken, as during this procedure the load is unprotected from disturbances and power outages.

# TROUBLESHOOTING

Problem	Cause	Solution
UPS fails to start when the ON button is pressed.	UPS is short circuited or overloaded	Ensure UPS is OFF. Disconnect all loads and ensure nothing is lodged in output sockets. Ensure loads are not defective or shorted internally.
Battery indicator LED is illuminated	UPS not plugged in	UPS is operating from battery mode, make certain UPS is securely plugged into the wall socket.
	Mains voltage out of UPS input range.	UPS is operating from battery mode. Save data and close applications. Ensure utility supply voltage is within acceptable limits for UPS.
UPS has reduced battery time	Batteries are not fully charged.	Keep UPS plugged in continuously at least 24 hours to recharge batteries.
	UPS is overloaded.	Check load level display and reduce the load on the UPS.
	Batteries may not be able to hold a full charge due to age.	Replace batteries. Contact your local dealer, Liebert Representative, or Liebert Worldwide Support Group for replacement battery kit.
Fault and Bypass indicator LEDs and all load level LEDs are illuminated.	UPS overloaded or load equipment is faulty.	Check load level display and remove non-essential loads. Recalculate load VA and reduce number of loads connected to UPS. Check load equipment for faults.
Fault and Bypass indicator LEDs and diagnostic LED A are illuminated.	UPS internal fan has a problem or UPS shutdown due to temperature condition. Load is on bypass power.	Ensure UPS is not overloaded, ventilation openings not blocked, or room ambient temperature not excessive. Wait 30 minutes to allow UPS to cool, then restart UPS. IF UPS does not restart, contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.
Fault and Bypass indicator LEDs and diagnostic LED B are illuminated.	UPS internal DC bus overvoltage.	UPS requires service. Contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.
Fault and Bypass indicator LEDs and diagnostic LED C are illuminated.	UPS control power supply fault.	UPS requires service. Contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Fault and Bypass indicator LEDs and diagnostic LED D are illuminated.	UPS PFC (Power Factor Correction Circuit) fault.	UPS requires service. Contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.
Fault and Bypass indicator LEDs and diagnostic LED E are illuminated.	UPS inverter fault.	UPS requires service. Contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.
Fault and Bypass indicator LEDs and diagnostic LED A and C are illuminated.	UPS failed the battery test.	Replace batteries. Contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.
Fault and Bypass indicator LEDs and diagnostic LED C and E are illuminated.	UPS shutdown due to a command from the communications port(s).	Your UPS has received a signal or command from the attached computer. If this was inadvertent, ensure the communication cable used is correct for your system. For assistance, contact your local dealer, Liebert Representative or the Liebert Worldwide Support Group.

## Alarm Conditions

Condition	Alarm
Battery Mode (Mains failure)	One short beep every ten seconds; more than two minutes of run time remaining
Low Battery	Two short beeps every five seconds; less than two minutes of run time remaining
Output overload (bypass)	One short beep every half second
Over Temperature (bypass)	A one second beep every four seconds
DC Bus Overvoltage (bypass)	A one second beep every four seconds
Control power supply failure (bypass)	A one second beep every four seconds
PFC failure (bypass)	A one second beep every four seconds
Inverter failure	A one second beep every four seconds
Battery Test failure	A two second beep every minute



# SPECIFICATIONS

Model Number	GXT2-700RT230	GXT2-1000RT230	GXT2-1500RT230
Model Rating	700VA / 490W	1000VA / 700W	1500VA / 1050W
<b>DIMENSIONS: mm</b>			
Unit W x D x H	87 x 547 x 430	87 x 547 x 430	87 x 547 x 430
Shipping W x D x H	268 x 692 x 585	268 x 692 x 585	268 x 692 x 585
<b>WEIGHT: kg</b>			
Unit	22.5	22.6	23.2
Shipping	26.5	26.6	27.2
<b>INPUT AC PARAMETERS</b>			
Voltage Range (typical)	230 VAC nominal; variable based on output load		
100% - 90% loading	159 VAC / 280 VAC	159 VAC / 280 VAC	176 VAC / 280 VAC
90% -70% loading	159 VAC / 280 VAC	159 VAC / 280 VAC	159 VAC / 280 VAC
70% -30% loading	139 VAC / 280 VAC	139 VAC / 280 VAC	139 VAC / 280 VAC
30% - 0% loading	119 VAC / 280 VAC	119 VAC / 280 VAC	119 VAC / 280 VAC
Frequency	40 - 70 Hz; Auto Sensing		
Input Connector	IEC320-10A		
<b>OUTPUT AC PARAMETERS</b>			
Output Sockets	(4) EN 60320/C13		
Voltage	200/208/220/230/240 (user configurable) VAC; ±3%		
Frequency	50 Hz or 60 Hz		
Waveform	Sinewave		
Main Mode Overload	200% for 8 cycles; 130% for 10 seconds with transfer to bypass		
<b>BATTERY PARAMETERS</b>			
Type	Valve-regulated, nonspillable, flame retardant, lead acid		
Qty x V x Rating	4 x 12V x 7.0 or 7.2 AH		
Battery Mfg/Part #	China Storage Battery / CSB FR 1270 F2		
Back-up Time	See Battery Runtime Charts		
Recharge Time	5 Hours to 95% capacity after full discharge into 100% load		
<b>ENVIRONMENTAL</b>			
Operating Temp	0°C to +40°C (+32°F to +104°F)		
Storage Temp	-15°C to +50°C (+5°F to +122°F)		
Relative Humidity	0% to 95%, non-condensing		
Operating Elevation	Up to 3000m (10,000 ft.) at 40°C without derating		
Storage Elevation	15,000 m (50,000 ft.) maximum		
Audible Noise	<50 dBA, at 1 metre from the rear <45 dBA, at 1 metre from the front or sides		
<b>AGENCY</b>			
Safety	EN50091-1-1, CE compliance mark, for both Low Voltage and EMC Directives		
RFI/EMI	EN 50091-2, Class B		
Surge Immunity	EN 61000 4-2, 4-3, 4-4, 4-5		
Transportation	ISTA Procedure 1A		

# SPECIFICATIONS

Model Number	GXT2-2000RT230	GXT2-3000RT230
Model Rating	2000VA / 1400W	3000VA / 2100W
<b>DIMENSIONS: mm</b>		
Unit W x D x H	87 x 547 x 430	87 x 618 x 430
Shipping W x D x H	268 x 692 x 585	268 x 692 x 585
<b>WEIGHT: kg</b>		
Unit	24.7	31.9
Shipping	28.7	35.9
<b>INPUT AC PARAMETERS</b>		
Voltage Range (typical)	230 VAC nominal; variable based on output load	
100% - 90% loading	176 VAC / 280 VAC	176 VAC / 280 VAC
90% -70% loading	159 VAC / 280 VAC	159 VAC / 280 VAC
70% -30% loading	139 VAC / 280 VAC	139 VAC / 280 VAC
30% - 0% loading	119 VAC / 280 VAC	119 VAC / 280 VAC
Frequency	40 - 70 Hz; Auto Sensing	
Input Connector		
<b>OUTPUT AC PARAMETERS</b>		
Output Sockets		
Voltage	200/208/220/230/240 (user configurable) VAC; ±3%	
Frequency	50 Hz or 60 Hz	
Waveform	Sinewave	
Main Mode Overload	200% for 8 cycles; 130% for 10 seconds with transfer to bypass	
<b>BATTERY PARAMETERS</b>		
Type	Valve-regulated, nonspillable, flame retardant, lead acid	
Qty x V x Rating	4 x 12V x 9.0 AH	6 x 12V x 9.0 AH
Battery Mfg/Part #	Panasonic UP-VW1245P1	
Back-up Time	See Battery Runtime Charts	
Recharge Time	5 Hours to 95% capacity after full discharge into 100% load	
<b>ENVIRONMENTAL</b>		
Operating Temp	+32°F to +104°F (0°C to +40°C)	
Storage Temp	+5°F to +122°F (-15°C to +50°C)	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 3000m (10,000 ft.) at 40°C without derating	
Storage Elevation	15,000 m (50,000 ft.) maximum	
Audible Noise	<55 dBA, at 1 metre from the rear <50 dBA, at 1 metre from the front or sides	
<b>AGENCY</b>		
Safety	EN50091-1-1, CE compliance mark, for both Low Voltage and EMC Directives	
RFI/EMI	EN 50091-2, Class	
Surge Immunity	EN 61000 4-2, 4-3, 4-4, 4-5	
Transportation	ISTA Procedure 1A	

# BATTERY CABINET SPECIFICATIONS

Model Number	GXT2-48VBATT	GXT2-72VBATT
Used w/ UPS Model	GXT2-700RT120 GXT2-1000RT120 GXT2-1500RT120 GXT2-2000RT120	GXT2-3000RT120
<b>DIMENSIONS: mm</b>		
Unit W x D x H	87 x 547 x 430	87 x 618 x 430
Shipping W x D x H	268 x 692 x 585	268 x 692 x 585
<b>WEIGHT: kg</b>		
Unit	28.3	42.5
Shipping	32.3	46.5
<b>BATTERY PARAMETERS</b>		
Type	Valve-regulated, nonspillable, flame retardant, lead acid	
Qty x V x Rating	2 x 4 x 12V x 7.0 or 7.2 AH	2 x 6 x 12V x 9.0 AH
Battery Mfg / Part #	China Storage Battery / CSBFR 1270 F2	Panasonic / UP-VW1234P1
Back-up Time	See Battery Runtime Charts	
Recharge Time	5 Hours to 95% capacity after full discharge into 100% load	
<b>ENVIRONMENTAL</b>		
Operating Temp	0°C to +40°C (+32°F to +104°F)	
Storage Temp	-15°C to +50°C (+5°F to +122°F)	
Relative Humidity	0% to 95%, non-condensing	
Operating Elevation	Up to 3000m (10,000 ft.) at 40°C without derating	
Storage Elevation	15,000 m (50,000 ft.) maximum	
<b>AGENCY</b>		
Safety	EN50091-1-1, CE compliance mark, for both Low Voltage and EMC Directives	
RFI/EMI	EN 50091-2, Class	
Surge Immunity	EN 61000 4-2, 4-3, 4-4, 4-5	
Transportation	ISTA Procedure 1A	

# BATTERY RUN TIMES

## Internal Battery (minutes)

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
700VA	248	115	79	58	44	35	29	24	20	17
1000VA	191	87	48	34	25	19	16	13	12	11
1500VA	144	83	42	28	20	15	12	10	8	7
2000VA	56	33	26	19	14	12	10	8	7	6
3000VA	91	46	30	21	16	11	9	8	7	5

## Internal Battery +1 External Battery Cabinet (minutes)

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
700VA	992	460	316	232	176	140	116	96	80	68
1000VA	764	348	192	136	100	76	64	52	48	44
1500VA	576	332	168	112	80	60	48	40	32	28
2000VA	168	99	78	57	42	36	30	24	21	18
3000VA	364	184	120	84	64	44	36	32	28	20

## Internal Battery +2 External Battery Cabinet (minutes)

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
700VA	1984	920	632	464	352	280	232	192	160	136
1000VA	1528	696	384	272	200	152	128	104	96	88
1500VA	1152	664	336	224	169	120	96	80	64	56
2000VA	392	231	182	133	98	84	70	56	49	42
3000VA	728	368	240	168	128	88	72	64	56	40

## Internal Battery +3 External Battery Cabinet (minutes)

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
700VA	2976	1380	948	696	528	420	348	288	240	204
1000VA	2292	1044	576	408	300	228	192	156	144	132
1500VA	1728	996	504	336	240	180	144	120	96	84
2000VA	560	330	260	190	140	120	100	80	70	60
3000VA	1092	552	360	252	192	132	108	96	84	60

## Internal Battery +4 External Battery Cabinet (minutes)

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
700VA	3968	1840	1264	928	704	560	464	384	320	272
1000VA	3056	1392	768	544	400	304	256	208	192	176
1500VA	2304	1328	672	448	320	240	192	160	128	112
2000VA	840	495	390	285	210	180	150	120	105	90
3000VA	1456	736	480	336	256	176	144	128	112	80

## LIMITED WARRANTY

Liebert Corporation extends the following LIMITED WARRANTY to the purchaser and to its customer (collectively referred to as the "Purchaser"): the enclosed Uninterruptible Power System (UPS) and components are free from defects in materials and workmanship under normal use, service, and maintenance FOR A PERIOD OF TWO YEARS FROM THE DATE OF ORIGINAL PURCHASE from Liebert or the Liebert dealer or retailer. THE FOREGOING WARRANTY IS THE ONLY WARRANTY GIVEN AND NO OTHER WARRANTY IS PROVIDED, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Certain aspects of disclaimers are not applicable to consumer products acquired by individuals and used for personal, family, or household purposes (as distinguished from industrial or other purposes). Local laws may not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which vary according to local law.

Certain repairs or services are the responsibility of the Purchaser and the Purchaser is expected to pay for them. This warranty does not extend either to products with removed or altered serial numbers or to any losses or damages due to act of God or source external to the product, misuse, accident, abuse, neglect, negligence, unauthorized modification, alteration, or repair, use beyond rated capacity, or improper installation, maintenance, application or use, including, without limitation, use in a manner contrary to the accompanying instructions or applicable codes. WARNING: Warranty is void if the battery is allowed to discharge below the minimum battery cutoff point. To prevent such discharge DO NOT leave the unit power switch "ON" for more than two (2) days without AC power being supplied to the UPS. The battery must be recharged every four (4) to six (6) months when not in use.

If the UPS fails to conform with the above warranty within the two year warranty period, Liebert will repair or replace the UPS, at Liebert's option. Repairs or replacements are warranted for the remainder of the original warranty period. Purchaser, to make a warranty claim, should call 1-800-222-5877 to obtain a Returned Goods Authorization number and shipping instructions. Return transportation costs to Liebert are the responsibility of the Purchaser.

### **"LIFE SUPPORT" POLICY**

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## UPStation GXT 2U

**700 — 3000 VA**  
**230 Volt**

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### The Company Behind the Products

With over a million installations around the globe, Liebert is the world leader in computer protection systems. Since its founding in 1965, Liebert has developed a complete range of support and protection systems for sensitive electronics:

- Environmental systems: close-control air conditioning from 1.5 to 60 tons.
- Power conditioning and UPS with power ranges from 300 VA to more than 1000 kVA.
- Integrated systems that provide both environmental and power protection in a single, flexible package.
- Monitoring and control - from systems of any size or location, on-site or remote.
- Service and support through more than 100 service centers around the world, and a 24/7 Customer Response Center.

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