

**N1 CRITICAL TECHNOLOGIES, INC.**

# **L60/L60i and L60XL/L60iXL Lithium Ion UPS**

350VA and 600 VA Models

User and Installation Manual



# INTRODUCTION

Thank you for choosing N1 Critical Technologies for your Uninterruptible Power Supply needs! We hope our Lithium-Ion UPS products serve you well. If they don't, remember that we have a 5-year warranty on electronic components batteries in these L60-Series UPS units. For service needs, please contact us at 877-226-3311. For sales, please contact us at 855-208-0011.

Please save this manual for future reference.

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### ATTENTION

The included software (found on CD in box) is compatible with the following Operating Systems: Windows, Mac, Linux, Unix. Java required.

## PACKAGE CONTENTS

The following items are inside the package:

- UPS Unit
- User Manual
- Local Monitoring Software CD

## PRODUCT INTRODUCTION

Thank you for selecting this Uninterruptible Power Supply (UPS) from N1 Critical Technologies. It provides you with protection for connected equipment. Please read this manual before installing the L60 Series UPS 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 maximum safety and performance. Included is information on customer support and service, if 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 team can more effectively assist you.

## PRODUCT OVERVIEW

N1C L60 Series features an advanced design that combines the benefits of lithium-powered UPS an advanced surge suppression technology. Slim form factor (just 1.25" tall for the L60/L60i), wall mounting and easy access receptacles make the L60 ideal for mounting behind thin display screens used in hotels, restaurants, hospitals, campuses, airports and other commercial areas.

While the compact design is appealing to the digital signage industry, it is also excellent for providing protection to kiosks, gaming machines, computers, point-of-sale equipment and small printers.



**L60/L60i**



**L60XL/L60iXL**

## INSTALLATION & INITIAL STARTUP

Note: Before installation, inspect the unit and packaging to make sure that nothing inside has been damaged.

### Connect UPS to Utility and Charging

Before the initial use of the UPS, plug the UPS input cord into the UPS and then into a wall outlet and turn on the UPS by pressing the Power switch on the back of the UPS. For best results, the batteries in the UPS should be charged for at least 8 hours before use. The UPS charges its battery while it is connected to AC utility power and powered on.

### Connecting the Loads

Plug the loads to be supported by the UPS into the output receptacles on the front of the UPS. Simply turn the power switch on the UPS "on" and the devices connected to the UPS will be protected by the UPS unit.

### Turn UPS On/Off

To turn the UPS unit on, press the Power button on the back of the UPS. To turn the UPS unit off, press the Power button on the back of the UPS unit again.

### Connecting Local Monitoring Software (optional)

If it is desired to use the Local Monitoring Software, connect the USB cable to the UPS and a computer. Install the software from the included CD and follow on-screen installation instructions for your operating system.

## INDICATORS & ALARM CONDITIONS

Condition	Visual Indicator	Alarm
AC Mode	LED illuminated	No audible alarm
Battery mode	LED flashes every 10 seconds	Audible alarm sounds every 10 seconds
Low battery mode	LED flashes every 1 second	Audible alarm sounds every 1 second
Fault	LED is illuminated	Audible alarm is continuous
Alarm for over temperature protection	Led flashes ever 0.5 seconds	No audible alarm

## IMPORTANT SAFETY INSTRUCTIONS

**Note:** Save These Instructions. It contains important information for the L60/L60i/L60XL/L60iXL units and should be followed closely during installation and maintenance of the UPS.

**CAUTION! (UPS HAS 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 personnel.

**CAUTION! (NON-ISOLATED BATTERY SUPPLY)** — Risk of electrical shock. Battery circuit is not isolated from the AC input. Hazardous voltage may exist between battery terminals and the ground. Test before touching.

**CAUTION! RISK OF EXPLOSION IF BATTERY IS REPLACED BY INCORRECT TYPE. DISPOSE OF USED BATTERIES PROPERLY. CONTACT A LOCAL BATTERY RECYCLING FACILITY.**

When replacing batteries, replace with the same type and number of batteries.

Manufacturer: BST Power (Shenzen) Co., Ltd.

Model: IFR18650P1200RD 4S2P 12.8V 2.4AH

**WARNING!** — Unit intended for installation in a controlled environment.

**CAUTION!** — Do not dispose of batteries in a fire. The batteries 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 a 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.
- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect charging source and load prior to installing or maintaining the battery.

**WARNING!** — (EN 62040-2,C2: )This is a Category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.

### FCC Notice: Class A

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**WARNING!** — To reduce the risk of electric shock, disconnect the UPS from the main power supply before installing a computer interface signal cable. Reconnect the power cable 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.



## CAUTION

The UPS 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.

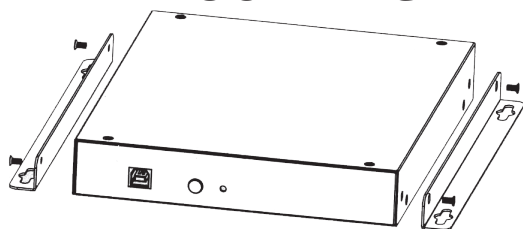
All servicing on this equipment must be carried out by qualified service personnel.

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

## TROUBLESHOOTING

Condition	Visual Indicator	Alarm
No LED Display on the rear UPS panel	Low battery	Charge the UPS at least 8 hours
	Battery fault	Replace the battery with the same type of battery
	The UPS is not turned on	Press the Power Switch on the rear of the UPS
Alarm continuously sounds when the AC input is normal	The UPS is overloaded	Remove some of the load from the output of the UPS
	UPS fault	Return the unit for service
Alarm sounds every 2 seconds when the AC input is normal	Battery defect	Replace the battery with the same type of battery
	Charging circuit is damaged	Return the unit for service
When the power fails, backup time is shorter than expected	The UPS is overloaded	Remove some of the load from the output of the UPS
	Battery voltage is too low	Charge the UPS at least 8 hours
	Battery defect	Replace the battery with the same type of battery
The AC input is normal but the LED is flashing	Power cord is loose	Reconnect the input power cord properly

## WALL-MOUNTING



Fix two ears on the two sides of the unit with four screws (M3 \* 6mm) as shown on left.

## BATTERY RUN TIME

SYSTEM LOAD (watts)	20	40	60	120	160	200	240	280	320	360
L60/L60i (350VA/200W)	72	35	17	11	9	7	N/A	N/A	N/A	N/A
L60XL/L60iXL (600VA/360W)	161	79	35	23	17	14	11	9	8	6

Runtime estimates are shown in minutes and will vary based on battery age and site/usage conditions.

# SPECIFICATIONS

MODEL NUMBER		L60 (120V, 350VA)	L60i (230V, 350VA)	L60XL (120V, 600VA)	L60iXL (230V, 600VA)
<b>CAPACITY</b>	Power Rating	350VA (200W)		600VA (360W)	
<b>INPUT</b>	Voltage	120VAC	230VAC	120VAC	230VAC
	Frequency	50/60Hz			
<b>OUTPUT</b>	Voltage	120VAC	230VAC	120VAC	230VAC
	Waveform	Sine wave (normal), simulated sine wave (battery mode)			
	Frequency	50/60Hz			
	Surge Suppression	312 joules			
	Efficiency	Up to 98%			
	Transfer Time	2-6ms (typical)			
<b>BATTERY</b>	Battery Type	Lithium Iron Phosphate (LiFePO <sub>4</sub> )			
	Battery quantity/size	(8) 18650 cells, 2400mAh		(16) LiFePO <sub>4</sub> 18650 cells, 4400mAh	
	Battery Runtime (est)	7 min at 100% load; 14 min at 50% load		6 min at 100% load; 18 min at 50% load	
<b>PHYSICAL</b>	Dimensions (WxDxH)	6.9 x 8.5 x 1.25 in*		7.3 x 10.8 x 1.6 in*	
	Weight	3.4 lbs		4.9 lbs	
	Line cord	Detachable 5-15P to C13 (3ft)	C14 inlet	Detachable 5-15P to C13 (3ft)	C14 inlet
	Receptacles	(3) 5-15R	(2) IEC C13	(3) 5-15R	(2) IEC C13
<b>ENVIRONMENT</b>	Temperature	32°-104°F (0-40°C)			
	Humidity	0-90%			
	Altitude	11,500 ft above sea level			
<b>APPROVALS</b>	UL-1778, cTUVus, FCC, and RoHS	CE and RoHS	UL-1778, cTUVus, FCC, and RoHS	CE, RoHS	
<b>WARRANTY</b>	5 years on electronics and battery (USA & Canada)**				
<b>COMMUNICATIONS INTERFACE</b>	USB interface including cable and software.		RS232 interface including cable and software. SNMP Web Card Option		
<b>AVAILABLE OPTIONS</b>	Web/SNMP adapter (600VA), Environmental monitoring sensor (600VA), power cord with offset/right angle 5-15P plug (120V units only)				
<b>INCLUDED IN BOX</b>	ViewPower CD, user manual, 5-15P to C13 line cord (120VAC units only)				

\*Wall mount brackets add about 5/8" to each side. \*\*Warranty outside of USA & Canada is 3 years.

## 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 N1Critical Technologies Technical Support at 877-226-3311. Technical support inquiries can also be made at sales@n1critical.com.
- Please have the following information available BEFORE calling the Technical Support Department:

- Your name and address.
- The serial number of the unit.
- Where and when the unit was purchased.
- All of the model information about your UPS.
- Any information on the failure, including LED's that may or may not be illuminated.
- A description of the protected equipment, including model numbers if possible.
- A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization number (RMA) and provide you the return address.

If you are returning the UPS to N1C for service, please follow these procedures:

1. Pack the UPS in its original packaging. If the original packaging is no longer available, use suitable replacement 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. N1C 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 N1C Technician.
5. Refer to the Warranty statements in this manual for additional details on what is covered.

# LIMITED WARRANTY

## N1C L60/L60i/L60XL/L60iXL Limited Warranty

Product(s) must be registered at [www.lithium-ion-ups.com/warrantyregistration](http://www.lithium-ion-ups.com/warrantyregistration) for warranty validation. Model Number and Serial Number are required for completion. Registration must be completed using the end-user's Company, Name, Address, and Email.

In the United States and Canada, N1 Critical Technologies, Inc. (N1C) warrants N1C equipment, when properly applied and operated within the conditions set forth in the proper N1C User Manual, against faulty materials or workmanship for a period of five (5) years for L60/L60i/L60XL/L60iXL products from the date of shipment to the original end user. N1C warrants the original internal lithium battery for a period of five (5) years from the date of shipment. For equipment sites within the United States and Canada, this warranty covers repair or replacement, at the sole discretion of N1C. For equipment sites within the United States and Canada, N1C will cover fully the standard ground freight expense of sending out a new UPS unit or battery for warranty exchange. The customer is responsible for the costs of shipping the defective product to N1C. For sites outside of the United States or Canada, the warranty period is for three years against faulty materials or workmanship and the internal lithium battery. Also, the customer is responsible for freight to and from N1C for all warranty claims.

This warranty applies only to the original purchaser, for a maximum term of five years (USA and Canada) or three years (outside of USA and Canada) from the ship date of the original UPS.

If equipment provided by N1C is found to be Dead-on-Arrival (DOA), N1C 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 N1C personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than N1C or a N1C 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 N1C or a N1C authorized representative before or after delivery regarding the use or application of N1C equipment is furnished on the basis that it represents N1C's best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

EXCEPT AS STATED ABOVE, N1C DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS STATED ABOVE, IN NO EVENT WILL N1C BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF N1C 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 N1C equipment, and the only obligation of N1C under this warranty, shall be the repair or replacement of defective equipment, components, or parts; or, at N1Cs sole discretion, refund of the purchase price or substitution of an equivalent replacement product.