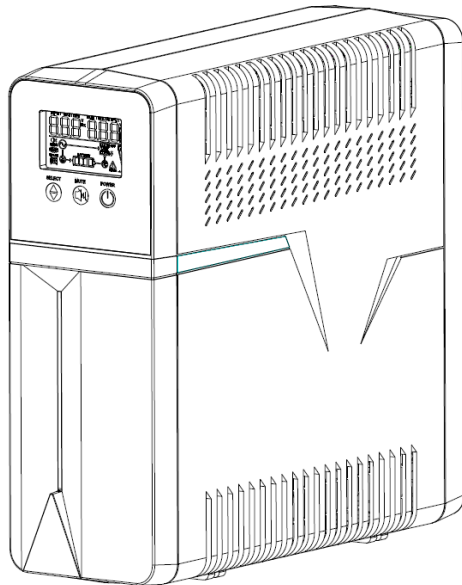


**Entrust-LG UPS Series**

**User's Manual**





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# Introduction

Thank you for purchasing a MINUTEMAN power protection product. It has been designed and manufactured to provide many years of trouble-free service.

**IMPORTANT SAFETY INSTRUCTIONS  
SAVE THESE INSTRUCTIONS!  
CONSIGNES DE SÉCURITÉ IMPORTANTES  
SAUVEGARDEZ CES CONSIGNES!**

Please read this manual before installing your Entrust-LG Series UPS as it provides important information that should be followed during installation and maintenance of the UPS allowing you to correctly set up your UPS for the maximum safety and performance.

Veillez lire ce manuel avant d'installer votre onduleur de la série Entrust-LG car il fournit des informations importantes qui doivent être suivies lors de l'installation et de la maintenance de l'onduleur, vous permettant de configurer correctement votre onduleur pour une sécurité et des performances maximales.

**CAUTION:**

To reduce the risk of electrical shock, ONLY install the UPS in a temperature- and humidity-controlled indoor area, free of conductive contaminants. Risk of electrical shock! (i) Hazardous live parts inside the UPS are energized from the internal battery supply, even when the AC input power is disconnected. (ii) Battery circuit is not isolated from AC input. (iii) Hazardous voltage may exist between terminals and ground. Test before touching. Do not remove the cover as there are no user-serviceable parts inside. Servicing should only be performed by qualified service technicians.

**ATTENTION:**

*Pour réduire le risque de choc électrique, installez UNIQUEMENT l'UPS dans une zone intérieure à température et humidité contrôlées, exempte de contaminants conducteurs. Risk of choc électrique! (i) Les pièces sous tension dangereuses à l'intérieur de l'UPS sont alimentées par l'alimentation de la batterie interne, même lorsque l'alimentation d'entrée CA est déconnectée. (ii) Le circuit de la batterie n'est pas isolé de l'entrée CA. (iii) Une tension dangereuse peut exister entre les bornes et la terre. Testez avant de toucher. Ne retirez pas le couvercle car il ne contient aucune pièce réparable par l'utilisateur. L'entretien ne doit être effectué que par des techniciens d'entretien qualifiés.*

**CAUTION:**

The lead acid battery(ies) may cause chemical hazard.

**ATTENTION:**

*La batterie/les batteries plomb-acide peut/peuvent présenter des risques chimiques.*

**CAUTION:**

The battery(ies) present/(presents) a risk of electrical shock and an energy hazard. For the battery source, see the product specification table. Only install in a temperature- and humidity-controlled indoor area, free of conductive contaminates. Refer to specification table for environmental conditions.

**ATTENTION:**

*La/les batteries(s) présente/(présente) un risqué de choc électrique et un danger énergétique. Pour la source de la batterie, consultez le tableau des spécifications du produit. Installer uniquement dans une zone intérieure à température et humidité contrôlées, exempte de contaminants conducteurs. Reportez-vous au tableau des spécifications pour les conditions environnementales.*

**LOAD TYPE:**

Examples of such generic load types include computer loads and information processing loads. Do not connect laser printers to the UPS.

**TYPE DE CHARGE:**

*Des exemples de tells types de charges génériques comprennent de charges informatiques et des charges de traitement d'informations. Ne connectez pas d'imprimantes laser à l'onduleur.*

**NOTICE:**

The output of this device is not sinusoidal. It has harmonic distortion ass below:

550VA	30.39% total and 32.13% single
850VA	32.54% total and 34.39% single
1,000VA	33.64% total and 35.81% single
1,350VA	33.51% total and 35.48% single
1,500VA	33.51% total and 35.48% single
2,000VA	33.56% total and 35.64% single

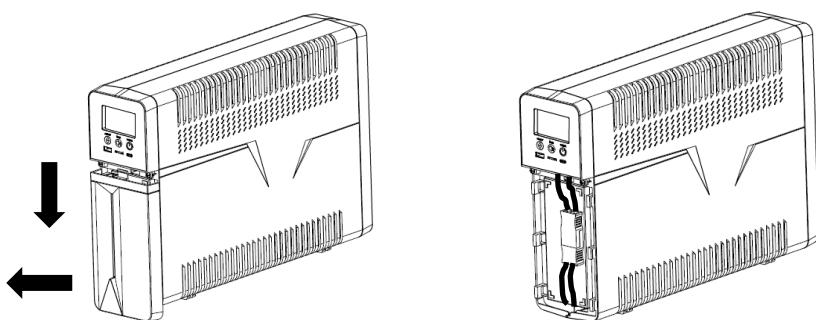


# Installation

## Package Contents:

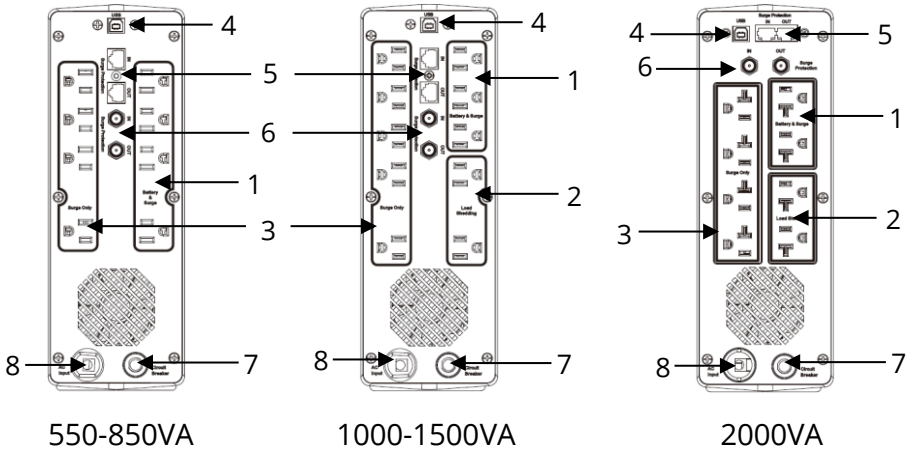
- UPS
- USB Communications Cable
- Quick Install Guide

## Connect the Internal Battery Module:



Attach the internal battery module of the UPS then connect the UPS to utility power, following the product safety warnings. The UPS will automatically begin charging its batteries without having to power on the unit. Allow the unit to charge its batteries for a minimum of 8 hours before use.

## UPS Back Panel Connections:



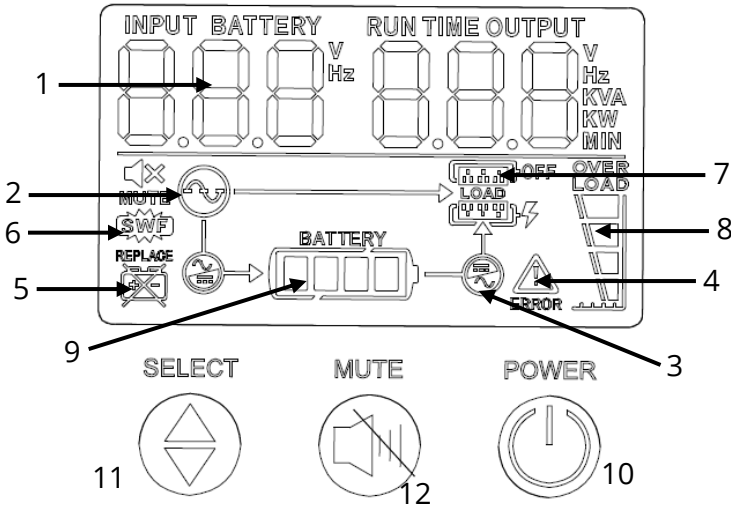
- 1) Battery & Surge Outlets: Connect critical equipment such as PCs, Gaming Consoles, and Routers to the “Battery & Surge” outlets on the UPS to maintain power during power outages.
- 2) Load Shedding Outlets: Can be managed via SentryHD
- 3) Surge Only Outlets: For all other non-critical devices use the “Surge-Only” outlets.
- 4) USB Communications Port: The Entrust-LG Series is compatible with Minuteman’s SentryHD monitoring and management software which is available as a free download at [www. minutemanups.com/minuteman-software-download-center/](http://www.minutemanups.com/minuteman-software-download-center/). Use the included USB communications cable to connect the UPS to your computer and follow the installation instructions included with the SentryHD download.
- 5) & 6) Surge Protection Ports: Optional surge protection for Ethernet network connections (RJ45) or broadband



connections (Coax) are available but not required for the operation of the UPS.

- 7) Resettable Input Circuit Breaker: Allows the UPS to be reset in the event of an overload. (First remove one or more connected devices from the UPS to reduce the load before pressing the circuit breaker).
- 8) Input Power Cord: Utilizes a NEMA 5-15P for connecting to utility source. (NOTE: The ETR2000LG uses a NEMA 5-20P input plug).

### Front Panel Display and Controls:



The front panel controls will have the following indicators and function buttons:

1. Realtime Display (Input / Output)
2. AC Mode Icon
3. On Battery Icon
4. "Error" Icon
5. Replace Battery Icon

6. Site Wiring Fault (SWF) Icon
7. Load Shedding Status
8. Load Status
9. Battery Capacity
10. "POWER" – On/Off/Test Button
11. "SELECT" – Menu Scroll Button
12. "MUTE" - Alarm Silencer Button

## Operation

Connect the UPS to AC utility power and allow a minimum of 8 hours to charge the internal batteries.

Connect all the devices to be protected into the desired receptacles.

### **Battery & Surge Receptacles:** (All models)

Provides power to critical devices during a blackout

### **Surge Only Receptacles:** (All models)

Provides spike and surge protection for devices that do not require battery backup.

### **Load Shedding:** (1000VA-2000VA models)

The outlets labeled "Load-Shedding" offer battery and surge protection but can be independently turned off and on using SentryHD software. The default setting for these outlets will be "On".

Press and hold the "POWER" button until the UPS sounds one beep then release.

The UPS will initiate a five-second self-test to check the internal systems and batteries.

If a fault or bad battery is detected, the UPS will sound an alarm and an associated error code for the fault on the LCD Display. Once the self-test is cleared the UPS will begin providing power to connected devices.

### **Input Voltage Sensitivity Adjustment:**

(1000VA-2000VA models)

The input voltage window of the Entrust-LG can be adjusted if the UPS is transferring to battery mode due to inconsistent utility power. With the UPS off and connected to utility power, press and hold the Scroll button for 5 seconds. This change will alter the default nominal input voltage range from 87VAC to 82VAC before UPS transfers to battery mode. To return the setting to its factory default, repeat the process by holding the Scroll button for 5 seconds with the UPS off but connected to utility power.

### **USB Charging Ports:** (1000VA-2000VA models)

One each of a type A and Type C USB charging port are located on the front panel of the UPS for a total of 15W of DC power. Charging power is available when the UPS is plugged in to utility power and powered on. It is also available when the UPS is in either AC or Battery mode.

### **Surge Protection Ports:** (All models)

The Entrust-LG series comes with both RJ45 and Coax surge protection ports.

Use the input port for the connection from the source and the output port to connect the protected devices. Use of these ports are not required for the operation of the UPS.

### **USB Communication Port:** (All models)

Use the USB port, with the included USB communications cable, to connect to a computer if using Minuteman's SentryHD software, (available via download from: ***www.minutemanups.com/minuteman-software-download-center/***), and follow the instructions in the software manual for installation. SentryHD is not required for the operation of the UPS.

## Troubleshooting

### **Alarms:**

On Battery – When the UPS goes to Battery Mode, it will sound a single beep once every 10 seconds until the UPS reaches “Low Battery Warning” or AC power returns.

Low Battery Warning – Once the UPS reaches “Low Battery Warning”, it will sound 2 beeps every 5 seconds and Error Code: E07 will be displayed on the LCD panel until it shuts down for “Low Battery Cut-off” or AC power returns.

Weak/Bad Battery – When the UPS detects a weak or bad battery, the alarm will sound 3 beeps every 5 minutes and Error Code: E06 will be displayed on the LCD panel. This alarm will remain until the battery is recharged, replaced or connected.

Overload – When the UPS detects an overload, the alarm

will sound continuously and Error Code: E02 will be displayed on the LCD panel. This alarm will continue until the overload is removed.

**Fault** – When the UPS detects an internal fault, the alarm will sound continuously and Error Code: E04 will be displayed on the LCD panel. This alarm will remain until the UPS is powered off and serviced.

Symptom / Error Code	Cause / What to Do
UPS will not turn on	Press the "POWER" button and release after one beep.
UPS operates in battery mode only, even with AC present.	Reset the input circuit breaker by pressing the plunger back in. If the input circuit breaker trips after the UPS restarts, reduce the load on the UPS.
The AC Normal Icon is blinking and the alarm is silent.	The UPS is in Boost Mode. It is performing its intended function
The UPS does not provide the expected runtime.	Charge the batteries for 8 hours and retest. If the runtime is still less than expected, the batteries may need to be replaced.
The AC Normal Icon is illuminated but there is no output.	Disconnect the computer cable from the UPS and press the "POWER" button. If the UPS works normally, the software has control of the UPS.
The "ERROR!" Icon is illuminated and there is a constant alarm.	The UPS has an internal problem. Call for service.
<b>Error Code: E01</b> The UPS is shut down	The UPS has detected a short circuit on its output. Check the attached load.

<p><b>Error Code: E02</b> Overload Icon is illuminated and there is a constant alarm.</p>	<p>Check the specifications of the connected devices and remove part of the load. If the UPS shuts down because of an overload, the UPS must perform an inverter function or a Self-Test to clear the overload alarm.</p>
<p><b>Error Code: E03</b> Over-temperature shutdown</p>	<p>The internal or ambient temperature has exceeded the safe operating range for the UPS. Refer to the product specifications.</p>
<p><b>Error Code: E04</b> Invert/Output failure - shutdown</p>	<p>The UPS has an internal fault. Call for service.</p>
<p><b>Error Code: E05</b> Charger Failure Warning</p>	<p>The battery charger has failed. Call for service.</p>
<p><b>Error Code: E06</b> Weak/Bad Battery Icon is illuminated</p>	<p>Check the battery connections and charge the batteries for 8 hours and re-test. If no change in the alarm, the batteries may need to be replaced. Call for service.</p>
<p><b>Error Code: E07</b> Low Battery Warning</p>	<p>The UPS battery reserve is low. This condition will continue until AC power returns or the UPS shuts down from battery exhaustion.</p>
<p><b>Error Code: E08</b> SWF icon is illuminated</p>	<p>Have a qualified electrician correct the service wiring.</p>

## Replacing the Battery Module

The batteries provided with the Entrust-LG UPS will provide several years of service. Replacement of the battery module should be performed by qualified service personnel only. Review all the warning and caution statements below prior to attempting battery module replacement.

1. The UPS should be connected to an AC outlet near the installed equipment and should be easily accessible.

*L'onduleur doit être connecté à une prise secteur à proximité de l'équipement installé et doit être facilement accessible.*

2. **CAUTION:** RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. To maintain the optimal performance of the Entrust-LG UPS, it is important to only use battery modules designed to work with the Entrust-LG series. Using third-party or inferior batteries will affect the negatively affect the performance and life of the UPS.

**ATTENTION:** *RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UN TYPE INCORRECT. Pour maintenir les performances optimales de l'onduleur Entrust-LG, il est important de n'utiliser que des modules de batterie conçus pour fonctionner avec la série Entrust-LG. L'utilisation de batteries tierces ou de qualité inférieure affectera négativement les performances et la durée de vie de l'onduleur.*

3. Do not open or mutilate the batteries, as there is a risk of shock, explosion or the release of hazardous gas.

*Ne pas ouvrir ou mutiler les batteries, car il y a un risque de choc, d'explosion ou la libération de gaz dangereux.*

4. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

*JETEZ LES PILES USAGÉES SELON LES INSTRUCTIONS.*

5. When replacing batteries, replace with the same type and number of batteries or battery packs.

*Lors du remplacement des piles, remplacez-les par des piles du même type et du même nombre piles ou blocs-piles.*

6. **CAUTION:** Do not dispose of the original batteries in a fire as they may explode. Batteries are recyclable, refer to your local codes for disposal at a recycling center. If you need assistance with the disposal of the batteries, please contact Minuteman at [service@minutemanups.com](mailto:service@minutemanups.com) for additional details and support or call 800.238.7272.

**ATTENTION:** *Ne jetez pas les piles d'origine au feu car elles pourraient exploser. Les piles sont recyclables, reportez-vous à vos codes locaux pour l'élimination dans un centre de recyclage. Si vous avez besoin d'aide pour la mise au rebut des batteries, veuillez contacter Minuteman à [service@minutemanups.com](mailto:service@minutemanups.com) pour plus de détails et d'assistance ou appelez le 800.238.7272.*

7. **CAUTION:** A battery can present a risk of electrical shock and high short-circuit current. Contact with any part of a grounded battery can result in electrical shock. The following precautions should be observed when working on batteries:
  - a) Remove watches, rings, or other metal objects.
  - b) Use tools with insulated handles.
  - c) Wear rubber gloves and boots.
  - d) Do not lay tools or metal parts on top of batteries.
  - e) Disconnect charging source and load prior to



installing or maintaining the battery.

- f) Remove battery grounds during installation and maintenance to reduce likelihood of shock. Remove the connection from ground if any part of the battery is determined to be grounded.

**ATTENTION:** *Une batterie peut présenter un risqué de choc électrique et de courant de court-circuit élevé. Le contact avec n'importe quelle partie d'une batterie mise à la terre peut entraîner un choc électrique. Les précautions suivantes doivent être observées lorsque vous travaillez sur des batteries:*

- a) *Retirez montres, bagues ou autres objets métalliques.*
- b) *Utilisez des outils avec des poignées isolées.*
- c) *Portez des gants et des bottes en caoutchouc.*
- d) *Ne posez pas d'outils ou de pièces métalliques sur les batteries.*
- e) *Déconnectez la source de charge et la charge avant d'installer ou d'entretenir la batterie.*
- f) *Retirez les masses de batterie pendant l'installation et l'entretien pour réduire la probabilité de choc. Retirez la connexion de la terre le cas échéant une de la batterie est déterminée comme étant mise à la terre.*

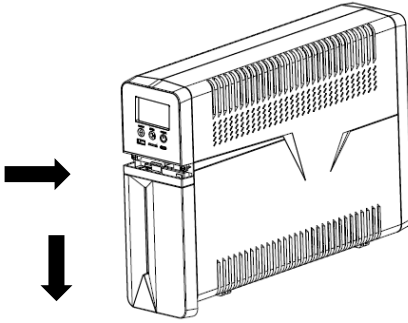
For your convenience, replacement battery modules are available from Minuteman at:

**<https://minutemanups.com/buy-ups-replacement-batteries/>**

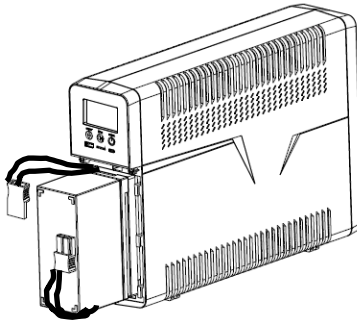
or by contacting Minuteman service by e-mail at: [service@minutemanups.com](mailto:service@minutemanups.com) or by phone at 800.238.7272.

Powering off the UPS is not required to replace the battery module but is recommended.

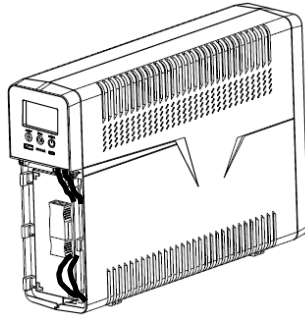
- 1) Expose the battery module by removing the front cover. Push the top of the panel in and slide it down.



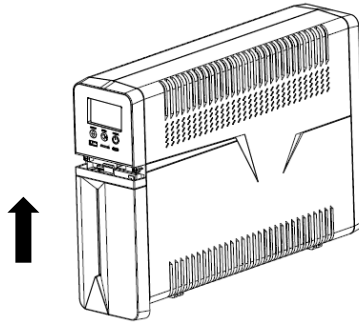
- 2) Slide battery module out of the battery cage and disconnect it by pulling the connectors apart.



- 3) Swap out the old battery module for the new one and reattach the battery module connector



- 4) Replace the front cover by sliding it up until it clicks in place.



- 5) Allow the replacement batteries 8 hours to fully charge while the UPS is plugged into utility power.

# Specifications

UPS Model	ETR550LG	ETR850LG	ETR1000LGU
<b>General Features</b>			
VA Rating	550	850	1000
Load Capacity (Watts)	330	510	600
USB Charging Ports	None		(1) Type A & (1) Type C
<b>Input</b>			
Voltage Range	90VAC to 140VAC		
Frequency Range	60Hz $\pm$ 6Hz		
Input Plug (6-ft. Cord)	NEMA 5-15P		
Input Protection	Circuit Breaker		
Max. Input Current	10 Amps		12 Amps
Surge Joule Rating	$\geq$ 1200 joules		
<b>Output</b>			
Voltage Range (Battery Mode)	104VAC to 140VAC (120VAC $\pm$ 5% until low battery warning)		
<b>Batteries</b>			
Replacement Module	BM0063	BM0064	BM0065
Est. Runtime (Full/Half Load)	2.5 / 11	2.5 / 10	2.5 / 11
DC Startup	Yes		
Hot Swappable Batteries	Yes		
<b>Display &amp; Communications</b>			
Front Panel Display	LCD		
Shutdown Software	SentryHD (via download)		
Communication Port	USB (HID compliant)		
<b>Environmental</b>			
Operating Temp. Range	+32°F to +104°F (0°C to +40°C)		
Operating Humidity Range	0% to 95% (Non-condensing)		
Operating Elevation	0 to +10,000 ft. (0 to +3,000m)		
<b>Physical</b>			
Unit Dimensions (LxWxH)	11.3" x 3.9" x 11.0" (288 * 99 * 280mm)		16.1" x 3.9" x 11.0" (410 * 99 * 280mm)
Unit Weight lbs. / (Kgs.)	14.1 / (6.4)	17.6 / (8.0)	20.9 / (9.5)
<b>Warranty &amp; Certifications</b>			
Standard Warranty	3 Years Electronics / 2 Years Batteries		
Connected Equipment Guarantee	\$75,000		
Safety Agency Approvals	cTUVus (Conforms to UL1778 5th Edition & CSA 22.2 no. 107.3:2014/R:2017-10), FCC Class B		
Green Compliance	RoHS2, Energy Star 2.0, DoE 10 CFR Part 430 Subpart B Compliant		

UPS Model	ETR1350LGU	ETR1500LGU	ETR2000LGU
<b>General Features</b>			
VA Rating	1350	1440	1920
Load Capacity (Watts)	810	900	1200
USB Charging Ports	(1) Type A & (1) Type C		
<b>Input</b>			
Voltage Range	90VAC to 140VAC		
Frequency Range	60Hz ±6Hz		
Input Plug (6-ft. Cord)	NEMA 5-15P		NEMA 5-20P
Input Protection	Circuit Breaker		
Max. Input Current	12 Amps		16 Amps
Surge Joule Rating	≥1200 joules		
<b>Output</b>			
Voltage Range (Battery Mode)	104VAC to 140VAC (120VAC ±5% until low battery warning)		
<b>Batteries</b>			
Replacement Module	BM0066	BM0066	BM0096
Est. Runtime (Full/Half Load)	2.5 / 11	2.5 / 11	2.5 / 10
DC Startup	Yes		
Hot Swappable Batteries	Yes		
<b>Display &amp; Communications</b>			
Front Panel Display	LCD		
Shutdown Software	SentryHD (via download)		
Communication Port	USB (HID compliant)		
<b>Environmental</b>			
Operating Temp. Range	+32°F to +104°F (0°C to +40°C)		
Operating Humidity Range	0% to 95% (Non-condensing)		
Operating Elevation	0 to +10,000 ft. (0 to +3,000m)		
<b>Physical</b>			
Unit Dimensions (LxWxH)	16.1" x 3.9" x 11.0" (410 * 99 * 280mm)		
Unit Weight lbs. / (Kgs.)	25.3 / (11.5)	26.4 / (12.0)	28.7 / (13.0)
<b>Warranty &amp; Certifications</b>			
Standard Warranty	3 Years Electronics / 2 Years Batteries		
Connected Equipment Guarantee	\$75,000		
Safety Agency Approvals	cTUVus (Conforms to UL1778 5th Edition & CSA 22.2 no. 107.3:2014/R:2017-10), FCC Class B		
Green Compliance	RoHS2, Energy Star 2.0, DoE 10 CFR Part 430 Subpart B Compliant		

# Warranty

Para Systems, Inc. (Para System) warrants this equipment, when properly applied and operated within specified conditions, against faulty materials (excluding the batteries) or workmanship for a period of three years from the date of purchase. Para Systems Inc. (Para Systems) warrants the batteries for a period of two years from the date of purchase. The customer pays for shipping the product to Para Systems. Para Systems pays ground freight to ship the product back to the customer. Replacement parts and warranty labor will be borne by Para Systems. For equipment located outside of the United States and Canada, Para Systems only covers faulty parts. The warranty shall be void if the equipment is damaged by the customer, is improperly used, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL PARA SYSTEMS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, Para Systems is not liable for any costs, including labor for on-site installation, on-site maintenance or on-site service, lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, claims by third parties, or otherwise.

Before contacting Para Systems regarding warranty service, please review the troubleshooting section of the user's manual to determine the problem can be resolved without additional assistance. If the problem can't be resolved using the Troubleshooting table, prior to contacting Para Systems customers support, please record the following information about the UPS in questions:

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Purchased From: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

After recording this information, please contact Para Systems customer support by phone at 800.238.7272 or by e-mail at: support@minutemanups.com.

Be prepared to provide the information above, along with a description of the problem and Para Systems will provide instructions on how to return the unit for service, if necessary.

## **Additional Notices:**

**NOTICE:** This product complies with the rules for Class B device, pursuant to Part 15 of the FCC rules for radio noise emissions from a digital apparatus.

These limits are designed to provide reasonable protection against such interference in a residential installation.

This equipment generates and uses radio frequency and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. If this device does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.
- Shielded communications interface cables must be used with this product.

### **Life Support Policy**

Para Systems does not support the use of any of its products in life support applications where the failure or malfunction of the product can be reasonably expected to cause failure to life support devices or to significantly affect their safety or effectiveness. Furthermore, Para Systems does not recommend the use of any of its products in direct patient care.

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## Company Contact information

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[SizeMyUPS.com](http://SizeMyUPS.com)

[SizeMyPDU.com](http://SizeMyPDU.com)

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