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Endeavor LCD RTXL UPS Series

User's Manual

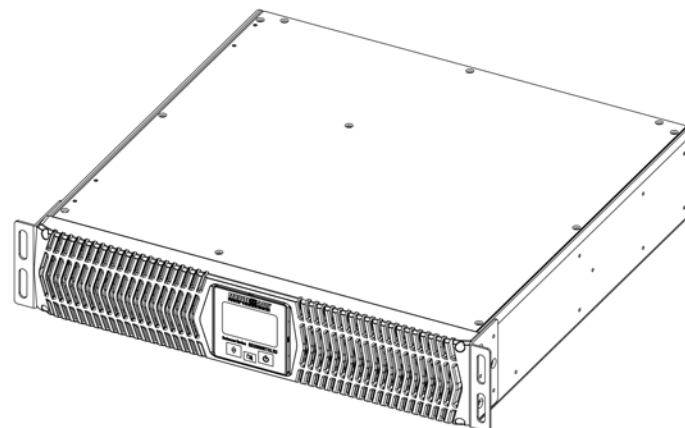


Table Of Contents

1.	Introduction	2
2.	Controls and Indicators	6
3.	Installation	9
4.	Operation	15
5.	Configurable Parameters & Settings	19
6.	Obtaining Service	20
7.	Troubleshooting	21
8.	Replacing the Battery	22
9.	Specifications	25
10.	Limited Product Warranty	27
A1.	Declaration of Conformity	28

Chapter 1: Introduction

Thank you for purchasing this power protection product. It has been designed and manufactured to provide many years of trouble free service. Please read this manual before installing your Endeavor LCD UPS, models [ED1000RTXL2U](#), [ED1500RTXL2U](#), [ED2000RTXL2U](#), [ED3000RTXL2U](#) as it provides important information that should be followed during the installation and the maintenance of the UPS system allowing you to correctly set up your system for the maximum safety and performance. Included is information on customer support and factory service, if it is required. If you experience a problem with the UPS system please refer to the Troubleshooting guide in this manual to correct the problem or collect enough information so that the Technical Support Department can assist you.

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

Veuillez lire ce manuel avant l'installation de l'onduleur modèles [ED1000RTXL2U](#), [ED1500RTXL2U](#), [ED2000RTXL2U](#), [ED3000RTXL2U](#). Il contient de l'information importante qui doit être respectée au cours de l'installation et de l'entretien de l'onduleur et des batteries. Cette information vous permettra de correctement installer le système pour atteindre son rendement maximum en toute sécurité.

CAUTION! The maximum ambient operating temperature for this UPS series is 40°C ("0 ~ 40°C" for Ambient Operation).

- The external vents and openings on the UPS are provided for ventilation. To ensure reliable operation of the UPS and to protect the UPS from overheating, these vents and openings must not be blocked or covered. Do not insert any object into any of the vents or openings that may hinder the ventilation.
- Install the UPS system in a well ventilated area, away from excess moisture, heat, dust, flammable gas or explosives.
- Leave adequate space (at least 20cm) in the front and at the rear of the UPS system for proper ventilation.
- Do not mount the UPS system with its front or rear panel facing down at any angle.
- Before usage, you must allow the UPS system to adjust to room temperature (20°C~25°C or 68°F~77°F) for at least one hour to avoid moisture condensing inside the UPS.

CAUTION! This UPS series is **ONLY** intended to be installed in an indoor temperature controlled environment that is free of conductive contaminants. This UPS series is not intended for use in a computer room as defined in the Standard for the Protection of Electronic Computer/Data Processing Equipment ANSI/NFPA 75.

CAUTION! Connect the UPS to a two pole, three wire grounded AC wall outlet. The receptacle must be connected to the appropriate branch protection (circuit breaker or fuse). Connection to any other type of receptacle may result in a shock hazard and violate local electrical codes. Do not plug the UPS into extension cords, adapter plugs or surge strips.

CAUTION! To reduce the risk of fire, connect only to a utility powered circuit provided with 20 / 30 amperes maximum branch circuit over-current protection in accordance with the National Electric Code, ANSI/NFPA 70.

CAUTION! To reduce the risk of electrical shock with the installation of this UPS equipment and the connected equipment, the user must ensure that the combined sum of the AC leakage current does not exceed 3.5mA.

CAUTION! To reduce the risk of electrical shock in conditions where the load equipment grounding cannot be verified, disconnect the UPS from the AC wall outlet before installing a computer interface cable. Reconnect the power cord only after all signaling connections are made.

WARNING: This Uninterruptible Power Supply contains potentially hazardous voltages. Do not attempt to disassemble the UPS beyond the battery replacement procedure. This UPS contains no user serviceable parts. Repairs and Battery replacement must be performed by **QUALIFIED SERVICE PERSONNEL ONLY**.

WARNING: Qualified Service Personnel ONLY must perform the Installation and Servicing of these UPS systems. MINUTEMAN accepts no liabilities and is not limited to: injury to the Service Personnel, or damages to; the UPS, or the connected equipment caused by the incorrect installation or servicing of the UPS system.

WARNING: Risk of Electrical Shock. Hazardous live parts inside these power supplies are energized from the battery even when the AC input is disconnected.

CAUTION! DO NOT USE THE MOUNTING BRACKETS TO LIFT THE UPS. The mounting brackets are **ONLY** for securing the UPS to the rack.

NOTE: These UPSs are shipped with the batteries disconnected. The batteries must be connected before putting these UPSs into service. Refer to Section 3 "Installation" for connecting the batteries.

CAUTION! To de-energize the outputs of the UPS:

1. If the UPS is On press and release the On/Off/Test button.
2. Disconnect the UPS from the AC wall outlet.
3. To de-energize the UPS completely, disconnect the battery.

ON / OFF / TEST BUTTON: Press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS On. Once the UPS successfully passes the twenty-second self test the load will be powered.



Press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS Off. The UPS will continue to charge the batteries whenever it is plugged into a wall outlet and there is an acceptable AC voltage present.

To perform a ten-second battery test: With the UPS in the AC normal mode, press and hold the On/Off/Test button until the audible alarm sounds four beeps, and then release. During the test, the UPS will switch to the Battery mode, the On-Battery icon will illuminate and the alarm will sound.

NOTICE: This equipment has been tested and found to comply with the limits for a Class A and/or B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules and the Class A and/or B limits for radio noise emissions from digital apparatus set out in the Radio Interference of the Canadian Department of Communications. 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, that is, in strict accordance with the manufacturer's instructions, this equipment may cause interference to radio and television reception. If this equipment 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:

- Re-orient 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.

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Receiving Inspection

After removing your UPS from its carton, it should be inspected for damage that may have occurred in shipping. Immediately notify the carrier and place of purchase if any damage is found. Warranty claims for damage caused by the carrier will not be honored. The packing materials that your UPS was shipped in are carefully designed to minimize any shipping damage. In the unlikely case that the UPS needs to be returned to the manufacturer, please use the original packing material. Since the manufacturer is not responsible for shipping damage incurred when the system is returned, the original packing material is inexpensive insurance. **PLEASE SAVE THE PACKING MATERIALS!**



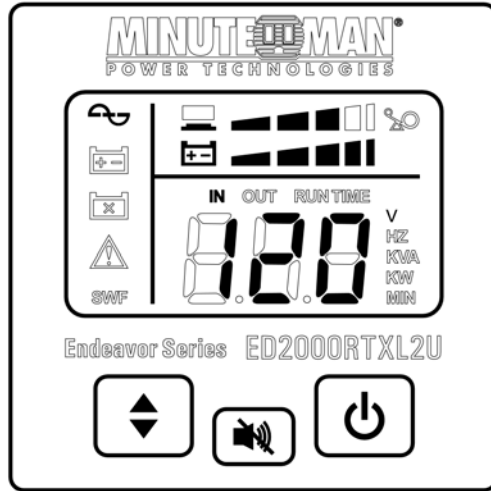
Life Support Policy

As a general policy, we do not recommend the use of any of our products in life support applications where failure or malfunction of the product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. We do not recommend the use of any of our products in direct patient care. We will not knowingly sell our products for use in such applications unless it receives in writing assurances satisfactory to us that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) our liability is adequately protected under the circumstances.

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Chapter 2: Controls and Indicators



The AC normal icon illuminates when the UPS is on and operating in the AC normal mode. The AC normal icon will extinguish when operating in the Battery mode.



The On-Battery icon illuminates when the UPS is operating in the Battery mode. The On-Battery icon will extinguish when operating in the AC normal.



The Weak/Bad Battery icon illuminates when the UPS detects a weak battery, bad battery or if the battery is disconnected. The Weak/Bad Battery icon is extinguished when the battery's condition is good.



The Fault icon illuminates when the UPS detects an internal fault. The Fault icon is extinguished when the UPS is operating properly.



The Site Wiring icon (120V models) illuminates when the UPS detects a site wiring problem. The SWF icon is extinguished when the UPS is connected to proper site wiring.

The Load Level Bar Graph operates as follows:

LED #1: When the attached load is $\geq 20\%$ the LED will illuminate.

LED #2: When the attached load is $\geq 40\%$ the LED will illuminate.

LED #3: When the attached load is $\geq 60\%$ the LED will illuminate.

LED #4: When the attached load is $\geq 80\%$ the LED will illuminate.

LED #5: When the attached load is $\geq 100\%$ the LED will illuminate.



When the amount of load attached to the UPS is $\geq 106\%$ of its power rating; the Overload icon will flash Off and On, all of the LEDs in the Load Level Bar Graph will be illuminated and the UPS will sound a constant alarm to indicate that there is an Overload condition.



The Battery Capacity Bar Graph operates as follows:

LED #1: When the battery capacity is $\geq 20\%$ the LED will illuminate.

LED #2: When the battery capacity is $\geq 40\%$ the LED will illuminate.

LED #3: When the battery capacity is $\geq 60\%$ the LED will illuminate.

LED #4: When the battery capacity is $\geq 80\%$ the LED will illuminate.

LED #5: When the battery capacity is $\geq 100\%$ the LED will illuminate.

The UPS reports the following parameters on the LCD screen:

Input: Voltage, Frequency

Output: Voltage, Frequency, KVA (Apparent power), KW (Active power)

Runtime: The time operating on the Battery mode in minutes

Message	Description
off	The UPS output is off
on	The UPS output has been turned on
bPS	The UPS is operating in the Bypass mode
ECo	The UPS is operating in the Economy mode
EPo	The UPS has been shutdown due to the Emergency Power Off function
RPo (E24)	The UPS has been shutdown due to the Remote Power Off function
PAS	The battery test Passed
bAd	The battery test Failed

The Multi-Function On/Off/Test Button functions as follows:

When the UPS is Off, press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS On.



When the UPS is On, press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS Off.

When the UPS is in the AC normal mode, press and hold the On/Off/Test button until the alarm sounds four beeps, and then release. The UPS will perform a 10-second battery test.



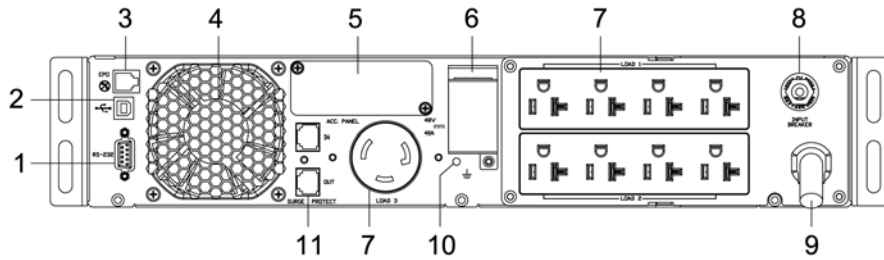
When the unit is operating in Battery mode, pressing the Alarm Silencer Button will silence the audible alarm. Once the UPS reaches the LBW (Low Battery Warning) threshold the alarm will be re-activated. The alarm cannot be silenced during the LBW alarm or any Fault alarms. Once the UPS transfers to the AC mode the alarm will be reset to default.



The Scroll Button allows the user to scroll through the UPS parameters that are available on the LCD screen.

NOTE: The LCD backlight will illuminate for 20-seconds when the UPS switches to the Battery mode. When the UPS has an event and/or an error code the LCD backlight will turn on and remain on to alert the user that an event has occurred.

REAR PANEL



1. The RS232 Communications Port is for UPS monitoring and control.
2. The USB Communications Port is for UPS monitoring and control.
3. The RJ11 EPO (Emergency Power Off) Port is for UPS control. This connection is not for Telecommunication use.
4. Vent/fan is for ventilation.
5. The option slot is for option cards.
6. The External Battery Connector is for connecting External Battery Packs.
7. The Battery Backup output receptacles. The output receptacles are electrically wired into two segments to support the "Load Shedding Function" (Labeled Load 1 & Load 2). The locking and Always On receptacles (Labeled Load 3) do not support the "Load Shedding Function". **NOTE:** The locking receptacle is not on all models.
8. The input circuit breaker will trip in the event the load exceeds the UPS's power rating.
9. The input power cord is for connecting to utility power.
10. The External Ground Stud is for connecting an external ground wire.
11. The R-J11/R-J45 modular connectors are used for 10/100 Base-T Network /single line Phone/Fax/Modem protection.

Model #	Input Power Plug (All power cords are 10ft)	Output Power Receptacles
ED1000RTXL2U	NEMA 5-15P	6-NEMA 5-15R (Controllable) 2-NEMA 5-15R (Always On)
ED1500RTXL2U	NEMA 5-15P	6-NEMA 5-15R (Controllable) 2-NEMA 5-15R (Always On)
ED2000RTXL2U	NEMA 5-20P	8-NEMA 5-15/20R (Controllable) 1-NEMA L5-20R (Always On)
ED3000RTXL2U	NEMA L5-30P	7-NEMA 5-15/20R (Controllable) 1-NEMA L5-30R (Always On)

Chapter 3: Installation

INSTALLATION PLACEMENT



This UPS series is **ONLY** intended to be installed in an indoor temperature controlled environment that is free of conductive contaminants. **DO NOT** operate the UPS in: extremely dusty and/or unclean areas, locations near heating devices, water or excessive humidity, or where the UPS is exposed to direct sunlight. Select a location, which will provide good air circulation for the UPS at all times. Route power cords so they cannot be walked on or damaged. This UPS series is not intended for use in a computer room as defined in the Standard for the Protection of Electronic Computer/Data Processing Equipment ANSI/NFPA 75. Typical battery life is 3 to 5 years. Environmental factors do affect battery life. High temperatures, poor utility power, and frequent, short duration discharges have a negative impact on battery life.

- Operating Temperature (Maximum): 0 to 40 degrees C (+32 to +104 degrees F)
- Operating Elevation: 0 to 3,000m (0 to +10,000 ft)
- Operating and Storage Relative Humidity: 95%, non-condensing
- Storage Temperature: -15 to +45 degrees C (+5 to +113 degrees F)
- Storage Elevation: 0 to 15,000m (0 to +50,000 ft)

INSTALLATION

Be sure to read the installation placement and all the cautions before installing the UPS. Place the UPS in the final desired location and complete the rest of the installation procedure. These UPSs are shipped with the internal batteries disconnected. The batteries must be connected before putting these UPSs into service. See the "Connecting the Batteries" procedure to connect the batteries and then the "Rackmount Configuration" to install the UPS into the rack. **USE CAUTION:** The UPS is heavy. Use the appropriate number of personnel when installing the UPS.

CAUTION! DO NOT USE THE MOUNTING BRACKETS TO LIFT THE UPS. The mounting brackets are **ONLY** for securing the UPS to the rack.

NOTE: If you are using an External Battery Pack with this UPS series, the UPS must be configured so that the UPS will report the correct estimated runtime on the LCD screen and in the Power Monitoring software and/or the SNMP card. See the Power Monitoring software or the SNMP card's User's Manual to configure the UPS.

CONNECTING THE BATTERIES

(QUALIFIED SERVICE PERSONNEL ONLY)

Please read all of the **WARNINGS** and **CAUTIONS** before attempting to connect the batteries.

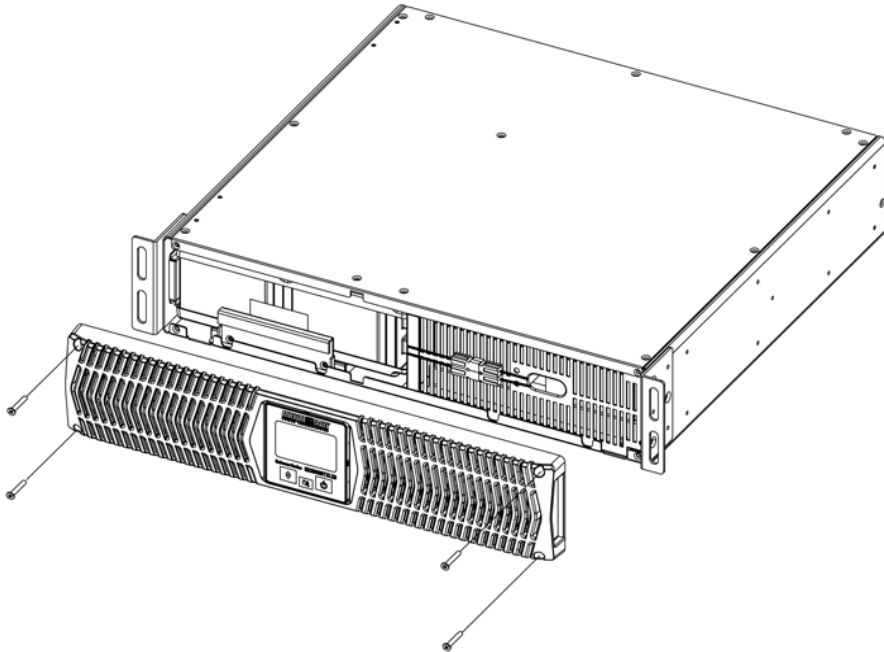
CAUTION! DO NOT USE THE MOUNTING BRACKETS TO LIFT THE UPS. The mounting brackets are **ONLY** for securing the UPS to the rack.

WARNING: Use two or more people when installing the UPS, the UPS is extremely heavy.

1. Remove the UPS from the shipping box.
2. Place the UPS on a flat surface and then remove the front panel retaining screws.
3. Lay the front panel on top of the UPS.
4. Verify proper polarity. Connect the battery connectors (red and black) together.

NOTE: Some sparking may occur this is normal.

5. Re-install the front panel onto the UPS.
6. Re-install the front panel retaining screws.
7. Connecting the Batteries is complete. See the Rackmount Configuration.



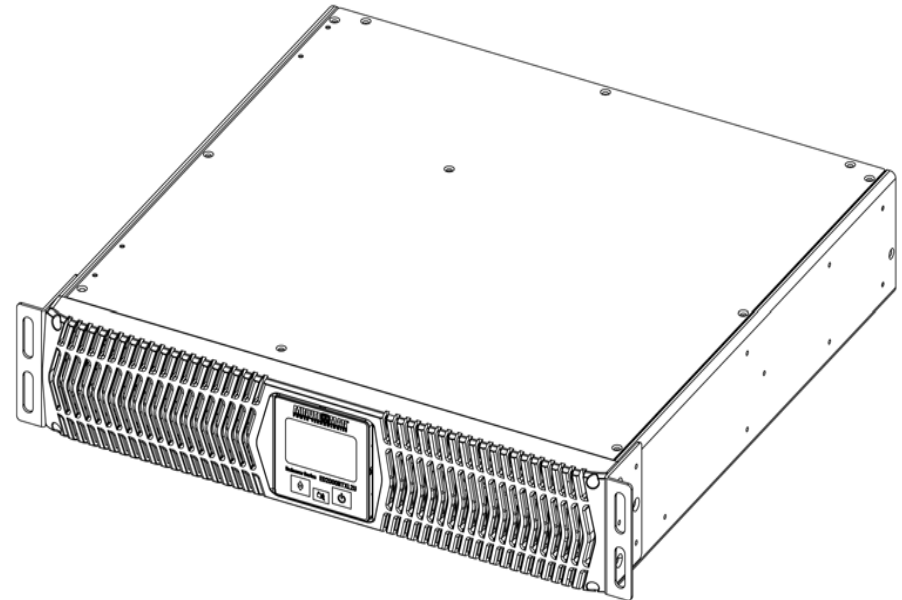
RACKMOUNT CONFIGURATION

This UPS series comes with mounting brackets for the standard 19" (46.5cm) rack pre-installed on the UPS. The mounting brackets to fit a 23" (59.2cm) rack and Rail Kits for 4-post racks and cabinets are also available. The screws for mounting the UPS to the rack are included. **NOTE:** The Rail Kits for a 4-post rack and/or cabinet are included with the ED3000RTXL2U.

CAUTION! DO NOT USE THE MOUNTING BRACKETS TO LIFT THE UPS. The mounting brackets are **ONLY** for securing the UPS to the rack.

NOTE: The mounting brackets can be mounted in the middle of the UPS.

1. Mount the UPS into the rack and secure with the retaining screws. **WARNING:** Use two or more people when installing the UPS, the UPS is extremely heavy. Do not move the rack after the units have been installed. The rack may become unstable due to the weight distribution.
2. The Rackmount Configuration is complete. See Connecting your Equipment.



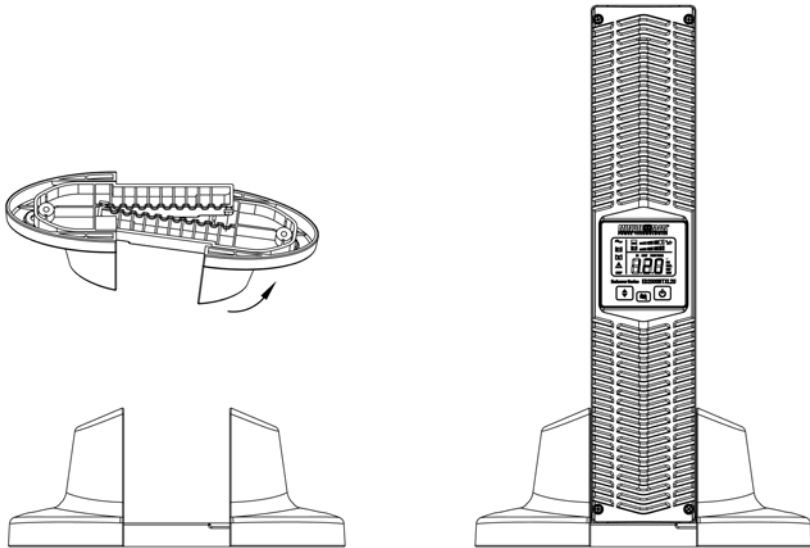
TOWER CONFIGURATION

The tower configuration allows the user to install the UPS in the up-right position next to a tower computer. The tower brackets are provided with the UPS. **WARNING:** Use two or more people when installing the UPS, the UPS is extremely heavy.

1. Once the location of the UPS has been determined, place the UPS on a flat surface, remove the rackmount brackets from the UPS and then place the tower brackets in the desired location.
2. The LCD panel can be rotated to read in the up-right position. Remove the front panel from the UPS. On the backside of the front panel, push the LCD panel outwards, the panel will pop out. Position the LCD panel so that it reads in the upright position. Re-install the front panel on the UPS.

WARNING: The UPS must be installed in the proper up-right position. If the UPS is not installed in the proper up-right position the Batteries will be damaged. Once the UPS is placed in the tower brackets, looking at the front panel the YELLOW Battery disconnected label on the top cover of the UPS MUST be on your left hand side.

3. Slide the UPS into the tower brackets. Make sure that the UPS is stable.
4. The Tower Configuration is complete. See Connecting your Equipment.



DESKTOP CONFIGURATION

The desktop configuration allows the user to install the monitor, the computer and the UPS in one single stack. **WARNING:** Use two or more people when installing the UPS, the UPS is extremely heavy.

1. Once the location of the UPS has been determined, place the UPS on a flat surface, remove the rackmount brackets from the UPS and then place the UPS in the desired location.
2. Stack the computer and then the monitor on top of the UPS. **NOTE:** Do not stack the UPS on top of the computer. The UPS is heavy and may damage the other equipment.
3. The Desktop Configuration is complete. See Connecting your Equipment.

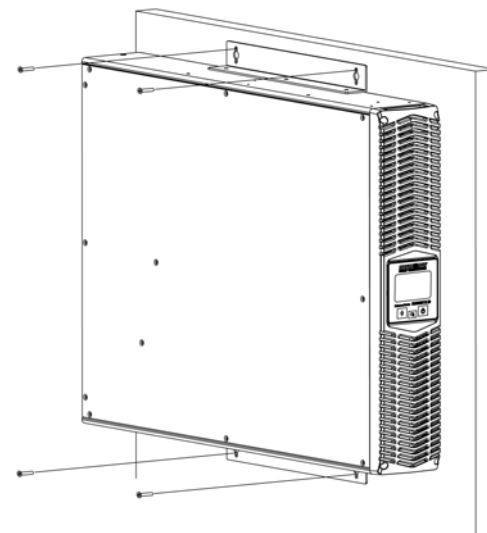
WALLMOUNT CONFIGURATION

The wallmount configuration allows the user to mount the UPS on the wall. There is a wallmount bracket kit available for the UPS. The kit includes two wall mounting brackets, ten retaining screws, and the wallmount template. **WARNING:** Use two or more people when installing the UPS, the UPS is extremely heavy. The UPS's side panels have mounting bracket screw holes for attaching the wall mounting brackets.

1. Once the location of the UPS has been determined, place the UPS on a flat surface and remove the rackmount brackets from the UPS.
2. The LCD panel can be rotated to read in the up-right position. Remove the front panel from the UPS. On the backside of the front panel, push the LCD panel outwards, the panel will pop out. Position the LCD panel so that it reads in the upright position. Re-install the front panel on the UPS.

WARNING: The UPS must be installed in the proper up-right position. If the UPS is not installed in the proper up-right position the Batteries will be damaged. Once the UPS is placed on the wall, looking at the front panel the YELLOW Battery disconnected label on the top cover of the UPS MUST be on your left hand side.

3. Align the mounting brackets with the mounting bracket screw holes on the side panels of the UPS and attach with the six retaining screws.
4. Use the template to mark the screw hole position on the wall. **CAUTION,** you should always wear protective gear for your hands and eyes when operating power tools.
5. Attach the four retaining screws to the wall and make sure that all of the retaining screws are screwed into structural material. Then clean the area of any loose material. Do not tighten the retaining screws all the way, leave approximately 3/8" of the retaining screws sticking out.
6. Position the UPS, so that the mounting bracket keyed holes line up with the four retaining screws. Slide the UPS down until its resting securely on the four retaining screws.
7. Tighten the four retaining screws to secure the UPS to the wall.
8. The Wallmount Configuration is complete. See Connecting your Equipment.



CONNECTING YOUR EQUIPMENT

Plug the equipment into the output receptacles on the rear panel of the UPS. Ensure that you do not exceed the maximum output rating of the UPS (refer to the information label or the Electrical Specifications in this manual). **DO NOT PLUG EXTENSION CORDS, ADAPTER PLUGS OR SURGE STRIPS INTO THE OUTPUT RECEPTACLES OF THE UPS.**

CAUTION! DO NOT connect a laser printer to the output receptacles on the UPS, unless the UPS is rated 2000VA or greater. A laser printer draws significantly more power when printing than at idle and may overload the UPS.

CONNECTING THE UPS TO AN AC SOURCE

Plug the UPS into a two pole, three wire, grounded AC wall outlet. The AC wall outlet shall be near the UPS and shall be easily accessible. The plug on the input power cord on this UPS series is intended to serve as a disconnect device. **DO NOT PLUG THE UPS INTO EXTENSION CORDS, ADAPTER PLUGS OR SURGE STRIPS. DO NOT CUT THE INPUT PLUG OFF AND ATTEMPT TO HARDWIRE THIS UPS, DOING SO WILL VOID THE WARRANTY.**

CHECKING THE SITE WIRING FAULT (120V Models)

After plugging the UPS into the AC wall outlet, check the Site Wiring Fault (SWF) icon on the front panel of the UPS. If the SWF icon is illuminated, the UPS is plugged into an improperly wired AC wall outlet. If the UPS indicates a Site Wiring Fault (SWF), have a Qualified Electrician correct the problem.

CHARGING THE BATTERY

The UPS will charge the internal batteries whenever the UPS is connected to an AC source and there is an acceptable AC voltage present. It is recommended that the UPS's batteries be charged for a minimum of 4 hours before use. The UPS may be used immediately, however, the "On-Battery" runtime may be less than normally expected. **NOTE:** If the UPS is going to be out of service or stored for a prolonged period of time, the batteries must be recharged for at least twenty-four hours every ninety days.

NETWORK/PHONE/FAX/MODEM PROTECTION CONNECTION (OPTIONAL)

Connect a 10/100 Base-T network, single line phone, Fax or Modem line to the RJ11/45 modular connectors on the rear panel of the UPS. This connection will require another length of telephone or network cable. The cable coming from the telephone service or networked system is connected to the port marked "IN". The equipment to be protected is connected to the port marked "OUT". **NOTE:** Connecting to the Network/Phone/Fax/Modem modular connectors is optional. The UPS works properly without this connection.

COMMUNICATIONS PORT CONNECTION (OPTIONAL)

The Power Monitoring Software and interface cables can be used with the UPS. Use only the interface cables that come with these UPSs. Connect the interface cable (Serial or USB) to the appropriate communications port on the rear panel of the UPS. Connect the other end of the cable to the device that will be monitoring/controlling the UPS. **NOTE:** Connecting to the Communications Port is optional. The UPS works properly without this connection. (For USB port see Note on page 17).

RJ11 EPO (Emergency Power Off) PORT (OPTIONAL)

Connect one end of the RJ11 cable to the EPO port and the other end of the RJ11 cable to the EPO switch. In the AC or the Battery mode short pin4 to pin5 for approximately 0.5-seconds to shutdown the UPS. The UPS must be turned off and then back on again to restart the UPS. **NOTE:** Connecting to the EPO port is optional. The UPS works properly without this connection. This connection is not for Telecommunication use.

Chapter 4: Operation

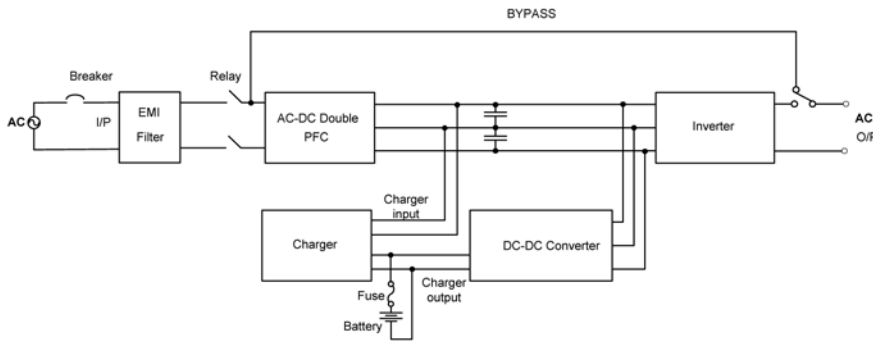
SYSTEM OVERVIEW

This double conversion On-Line UPS protects computers, servers, telecommunications, security and other electronic equipment from blackouts, brownouts, over-voltages, and surges. This On-Line UPS converts the input AC to DC and then back to a true sine wave AC output. The true sine wave output is regulated within 2% of the nominal output voltage. The Power Factor Correction (PFC) circuitry corrects the input power factor to within 99% of unity and blocks the load generated harmonic distortion from getting back on the input AC line. This On-Line UPS provides a continuous true sine wave output with zero transfer time and great regulation to protect your mission critical equipment. The UPS will quietly and confidently protect your system from power anomalies.

The UPS will charge the batteries when the UPS is in the on or off position as long as the UPS is plugged into the wall outlet and there is an acceptable AC voltage present (55V (load dependent) - 150VAC). When a blackout, brownout, or an over-voltage condition occurs while the UPS is in the On-Line mode or the Economy mode; the UPS will transfer to the battery mode, the On-Battery indicator will illuminate and the audible alarm will sound once every ten-seconds indicating that the utility power is lost or unacceptable. When the utility power returns or is at an acceptable level, the UPS will automatically transfer back to the On-Line mode or the Economy mode and start recharging the batteries. During an extended outage when there is approximately two-minutes of backup time remaining the audible alarm will sound twice every five-seconds. This Low Battery Warning is letting the user know that they should save all open files and turn off their equipment. When the batteries reach the predetermined level the UPS will automatically shutdown protecting the batteries from over discharging. Once the utility power returns the UPS will automatically restart providing safe usable power to the connected equipment and start recharging the batteries.

The Economy mode operation: The input utility power 'bypasses' the inverter circuit and is connected directly to the output of the UPS powering the connected equipment while simultaneously charging the batteries. When a blackout, brownout, or an overvoltage condition occurs the UPS will transfer to the battery mode, the inverter will turn on powering the connected equipment, the On-Battery indicator will illuminate and the audible alarm will sound once every ten-seconds indicating that the utility power is lost or unacceptable. When the utility power returns or is at an acceptable level, the UPS will automatically transfer back to the Economy mode and start recharging the batteries.

Block Diagram of the Basic Wiring and Internal Circuit Configuration



TURNING THE UNIT ON/OFF



On / Off / Test Button

When the UPS is connected to an AC source and there is an acceptable AC voltage present; Press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS On. Once the UPS successfully passes the twenty-second self test the load will be powered.

When the UPS is in the AC normal mode; Press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS Off. The UPS will continue to charge the batteries whenever it is plugged into a wall outlet and there is acceptable AC voltage present.

USER INVOKED BATTERY TEST

The user invoked battery test feature is useful to verify the correct operation of the UPS and the condition of the batteries. With the UPS in the AC normal mode; Press and hold the On/Off/Test button until the alarm sounds four beeps, and then release. The UPS will perform a ten-second battery test to measure the battery's capability to support the connected load. During the battery test, the UPS will switch to the battery mode and the On-Battery icon will illuminate and the audible alarm will sound. If the UPS fails a battery test, one of the icons will remain illuminated indicating the type of problem. **NOTE:** The UPS will automatically perform a self test on start-up.

LOAD SHEDDING FUNCTION

The output receptacles are electrically wired into two segments to support the "Load Shedding Function" (Labeled Load 1 & Load 2). The user can control the two segments individually or both at the same time. The Load Shedding Function is controllable by the Power Monitoring Software or the SNMP card. **NOTE:** The output segment labeled Load 3 does not support the "Load Shedding Function".

EMERGENCY POWER OFF (EPO) FUNCTION

Connect one end of the RJ11 cable to the REPO port and the other end of the RJ11 cable to the EPO switch. In the AC or the Battery mode short pin4 to pin5 for approximately 0.5-seconds to shutdown the UPS. The UPS must be turned off and then back on again to restart the UPS. The LCD will display EPO for this function.

ECONOMY MODE (ECo) FUNCTION

The UPS must be connected to utility power and there must be an acceptable AC voltage present.

1. Press and release the On/Off/Test button during the audible alarm's first beep to turn the UPS On. The UPS will start-up and perform a self test for approximately 20-seconds.
2. The Economy mode option must be Enabled through the SNMP card or the Power Monitoring software. Once the Economy mode has been Enabled the LCD will display ECo.
3. Turn on the connected equipment one at a time.

COMMUNICATIONS PORTS (RS232 and USB)

The RS232 communication port is a standard DB9 female with both RS232 and simulated contact closure capability. The UPS will poll the port and activate the port for RS232 or contact closure in accordance with the type of cable it finds connected to the port. To change the port configuration requires the unit be turned off and restarted with the desired cable connected. The pinout for the port is depicted per the chart below:

Pin 1: Simulated contact closure Low Battery Warning, NO

Pin 2: /TXD

Pin 3: /RXD and receive UPS shutdown command (connect to pin 9 for 4-seconds. The shutdown command is only active in the battery mode)

Pin 4: Not Used

Pin 5: Ground

Pin 6: Not Used

Pin 7: Not Used

Pin 8: Simulated contact closure AC fail, NO

Pin 9: Atx Signal (high level: +12V +/-2V, low level: -15V +/- -2V)

USB PORT

The USB protocol is HID. The HID USB driver is the standard for the Windows OS. Simply plug the USB cable into the UPS and the computer then follow the prompts on the screen. **NOTE: When using the UPS's USB port with Windows XP, 7, 8 or 10 the Power Options in the Control Panel may need to be configured.**

OPTION SLOT

The option slot on the rear panel of the UPS is for option cards. Contact your local dealer or visit our Web site at www.minutemanups.com for the available option cards for this series.

POWER MONITORING SOFTWARE

The UPS comes with a Power Monitoring Software CD or you can go to our web site at www.minutemanups.com/support, then look under Downloads, and then Software Download Center. Please download (Free of Charge) the latest version of the Minuteman SentryHD software. See the software CD for the installation of the Power Monitoring Software. **NOTE: If you are using an External Battery Pack with this UPS series, the UPS must be configured so that the UPS will report the correct estimated runtime on the LCD screen and in the Power Monitoring software and/or the SNMP card. See the Power Monitoring software or the SNMP card's User's Manual to configure the UPS.**

ALARMS

ON BATTERY

When the UPS is operating on the batteries, the On-Battery icon will illuminate and the audible alarm will sound one beep every ten-seconds. The alarm will stop once the UPS returns to the AC normal mode.

LOW BATTERY WARNING

When the UPS is operating on the batteries and the battery reserve is running low, the audible alarm will sound two beeps every five-seconds. This condition will continue until AC returns or the UPS shuts down from battery exhaustion.

WEAK/BAD/DISCONNECTED BATTERY

The UPS automatically tests the battery's condition. If the battery is weak, bad or disconnected, the Weak/Bad/Disconnected Battery icon will illuminate and the alarm will beep three times every five-minutes until the battery is reconnected, replaced or passes a self test. It is recommended that the UPS be allowed to charge overnight before performing a battery test to confirm a Weak/Bad Battery condition.

OVERLOAD

When the amount of load attached to the UPS is $\geq 106\%$ of its power rating; the Overload icon will flash Off and On, all of the LEDs in the Load Level Bar Graph will be illuminated and the audible alarm will beep continuously. This alarm will remain on until the excess load is removed or the UPS's self protection circuit shuts the UPS down. If the UPS shuts down because of an Overload condition, the UPS must perform an Inverter function or a Self Test to clear the Overload Alarm.

UPS FAULT

When the UPS detects a hardware and/or internal fault, the Fault icon will illuminate and the audible alarm will beep continuously. The fault condition, in some instances, may be reset by turning the UPS off and then on again.

NOTE: The LCD backlight will illuminate for 20-seconds when the UPS switches to the Battery mode. When the UPS has an event and/or an error code the LCD backlight will turn on and remain on to alert the user that an event has occurred.

Chapter 5: Configurable Parameters and Settings

(These items may require optional software or hardware)

Function	Factory Default	User Choices	Description
UPS ID	Endeavor Series	Up to 64 characters to define the UPS	Use this function to uniquely identify the UPS in your network configuration.
Battery install date	Date of manufacture	Date of battery replacement - month/day/year XX/XX/XXXX	Enter the current date when replacing batteries.
Battery life in days	1826	Up to 5 characters	At first battery replacement, reset to reflect actual number of days experience in your environment or leave factory default.
Enable/Disable auto restart	Enabled	Enable or Disable	When <u>enabled</u> , the UPS will automatically restart from a low battery shutdown when normal AC returns.
Set audible alarm state	Enabled	Enabled, at low battery, disabled	<u>Enabled</u> - the UPS will emit a short beep when in the battery mode. <u>At Low Battery</u> the UPS will emit two beeps from low battery warning until shutdown. <u>Disabled</u> - Use only when software is controlling the UPS or to silence the alarm.
Shut-down Type	Entire UPS	Entire UPS or UPS output	<u>Entire UPS</u> - Turns off the entire UPS. <u>UPS Output</u> - Turns off the UPS's output receptacles only.
Set inverter output voltage	120VAC	110, 120VAC	Changes output voltage.
Enable/Disable RPo	Disabled	Enable or Disable	<u>Enabled</u> - the UPS will be powered off and remain off until the UPS is reset.
Enable/Disable ECo	Disabled	Enable or Disable	<u>Enabled</u> - the UPS will operate in the Economy mode.
Set External Battery Pack	0	0 - 10	Configures the UPS so that it will report the correct estimated runtime on the LCD screen and in the Power Monitoring software and/or the SNMP card.

Chapter 6: Obtaining Service

IF THE UPS REQUIRES SERVICE

1. Use the Troubleshooting section to eliminate obvious causes.
2. Verify there are no tripped circuit breakers and that the batteries are good. A tripped circuit breaker and defective batteries are the most common issues.
3. Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the issue call or fax the Technical Support department at the following numbers; Voice phone (972) 446-7363, FAX line (972) 446-9011 or visit our Web site at www.minutemanups.com the "Discussion Board". Before calling the Technical Support Department have the following information available:
 - a) Contact name and address.
 - b) Where and when the unit was purchased.
 - c) All of the model information about your unit.
 - d) The serial number of your unit.
 - e) Any information on the failure, including LEDs that may be illuminated or error codes displayed.
 - f) A description of the protected equipment including model numbers, if possible.
 - g) A technician will ask you for the above information and if possible, help solve the issue over the phone. In the event that the unit requires factory service, the Technical Support Representative will issue you a Return Material Authorization Number (RMA #). **NOTE: We must have the model number and the serial number of the product to issue an RMA #.**
 - h) If the unit is under warranty, the repairs will be done at no charge. If the unit is not under warranty there will be a charge for the repair.
4. Pack the unit in its original packaging. If the original packaging is no longer available, ask the Technical Support Representative about obtaining a new set. It is important to pack the unit properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.
 - a) Include a letter with your name, address, day time phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
5. Mark the RMA # on the outside of all packages. The factory cannot accept any package without the RMA # marked on the outside of the package.
6. Return the unit by insured, prepaid carrier to:

Para Systems Inc.
 MINUTEMAN UPS
 1809 W. Frankford Road, Suite 150
 Carrollton, TX 75007
 ATTN: RMA # _____

Chapter 7: Troubleshooting

Symptom / Error Code	Cause / What To Do
The LCD displays 'off'.	The UPS has not been turned on. Press the On/Off/Test button and release after one beep.
UPS operates in battery mode only, even though there is AC present.	Reset the input circuit breaker by pressing the plunger back in. If the input circuit breaker trips after UPS restarts, reduce the load on the UPS.
UPS does not provide 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, press the On button. If UPS works normally, the software has control of the UPS.
Fault icon is illuminated and a constant alarm.	The UPS has an internal problem. Call for service.
Error Code: E01. UPS is shutdown.	The UPS has detected a short-circuit on its output. Check the attached load.
Error Code: E02. Overload icon is illuminated and a constant alarm.	Check the specifications 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.
Error Code: E03. UPS is shutdown.	The transformer and/or the heatsink temperature has exceeded the safe operating range for the UPS. Check the specifications.
Error Code: E05. Input voltage and frequency out of range.	The Bypass mode is not available due to the input voltage and input frequency out of range.
Error Code: E06. Ambient Over Temperature Protection.	The internal temperature of the UPS has exceeded the safe operating range for the UPS. Check the specifications.
Error Code: E11: Inverter/Output Failure Shutdown.	The UPS has an internal fault. Call for service.
Error Code: E12. DCBUS OVP Shutdown.	The UPS has an internal fault. Call for service.
Error Code: E13. Fan Fail Warning.	The fan has either failed or has stopped due to excessive dirt. If the fan has failed, call for service. If the fan is dirty, use a can of "Canned Air" to clean the fan.
Error Code: E14. Charger Failure Warning.	The charger has failed, call for service.
Error Code: E15. Weak/Bad Battery icon is illuminated.	Check the battery connections, charge the batteries for 8-hours and retest, or replace the batteries.
Error Code: E16. SWF icon is illuminated.	Have a qualified electrician correct the service wiring.
Error Code: E17. Low Battery Warning.	The UPS's battery reserve is low. This condition will continue until AC returns or the UPS shuts down from battery exhaustion.
Error Code: E18. Low Battery Capacity.	The UPS's battery capacity is low. Charge the batteries for 24-hours.
Error Code: E20. DC BUS (high/low) failure.	The UPS has an internal fault. Call for service.
Error Code: E21. DC-DC converter failure.	The UPS has an internal fault. Call for service.
Error Code: E22. Output voltage abnormal.	The UPS has an internal fault. Call for service.
Error Code: E23. Low battery DC start shutdown.	The batteries are too low to for the UPS to DC start. Charge the batteries for 8-hours and retest.
Error Code: E24. RPO Shutdown.	The UPS has been remotely shutdown by either the software or SNMP card.

Chapter 8: Replacing the Battery

QUALIFIED SERVICE PERSONNEL ONLY

Please read all of the **WARNINGS** and **CAUTIONS** before attempting to service the batteries. Typical battery life is 3 to 5 years. Environmental factors do affect battery life. High temperatures, poor utility power, and frequent, short duration discharges have a negative impact on battery life.

WARNING! This UPS contains potentially hazardous voltages. Do not attempt to disassemble the UPS beyond the battery replacement procedure. This UPS contains no user serviceable parts. Repairs and battery replacement must be performed by **QUALIFIED SERVICE PERSONNEL ONLY**.

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

CAUTION: Do not dispose of batteries in a fire. The batteries may explode. The batteries in this UPS are recyclable. Dispose of the batteries properly. The batteries contain lead and pose a hazard to the environment and human health if not disposed of properly. Refer to local codes for proper disposal requirements or return the battery to the supplier.

CAUTION: The battery system can present a risk of electrical shock. These batteries produce sufficient current to burn wire or tools very rapidly, producing molten metal. Observe these precautions when replacing the batteries:

1. Remove watches, rings, or other metal objects.
2. Use hand tools with insulated handles.
3. Wear protective eye gear (goggles), rubber gloves and boots.
4. Do not lay tools or other metal parts on top of batteries.
5. Disconnect the charging source prior to connecting or disconnecting the battery terminals.
6. Determine if the battery is inadvertently grounded. If the battery is, remove the source of the grounding. Contact with any part of a grounded battery can result in an electrical shock. The likelihood of such shock will be reduced, if such grounds are removed during installation and maintenance.

CAUTION: Replace batteries with the same number and type as originally installed in the UPS. These batteries have pressure operated vents. These UPSs contain sealed non-spillable maintenance-free lead acid batteries.

Model #	ED1000RTXL2U	ED1500RTXL2U	ED2000RTXL2U	ED3000RTXL2U
Internal Battery Module Part #	BM0035	BM0036	BM0037	BM0032

BATTERY REPLACEMENT PROCEDURE

PLEASE READ THE CAUTIONS AND WARNINGS BEFORE ATTEMPTING TO REPLACE THE BATTERY MODULE

Hot-swappable batteries mean that the battery modules can be replaced without powering down the whole UPS system.

NOTE: If there is a power interruption while replacing the hot-swappable battery module, with the UPS on, the load will not be backed up. To hot-swap the battery module start with step number 6.

1. Turn off the equipment that is plugged into the output receptacles of the UPS.
2. Press and release the On/Off/Test button on the front panel to turn the UPS OFF.
3. Unplug the UPS's AC power cord from the AC wall outlet.
4. Unplug the equipment from the output receptacles of the UPS.
5. Unplug the computer interface cable from the rear panel of the UPS.
6. Remove the front panel retaining screws. (FIG. 2)
7. Lay the front panel on top of the UPS.

FIG. 1

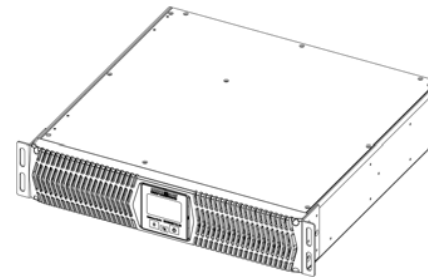
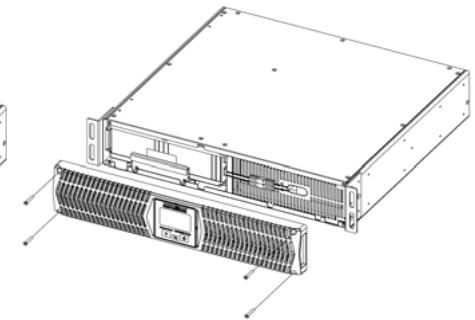


FIG. 2



8. Remove the two retaining screws for the battery retaining bracket. (FIG. 3)
9. Remove the battery retaining bracket. (FIG. 3)
10. Disconnect the Battery connectors (red and black). (FIG. 4)
11. Grasp the battery pull tab and gently pull the battery module out of the UPS and set aside. (FIG. 4)

NOTE: Use Caution, the battery module is heavy.

12. Slide the new battery module into the UPS.
 13. Re-install the battery retaining bracket.
 14. Re-install the two retaining screws for the battery retaining bracket.
 15. Verify proper polarity. Reconnect the battery connectors (red and black).
- NOTE:** Some sparking may occur this is normal.
16. Re-install the front panel on the UPS.
 17. Re-install the front panel retaining screws.
 18. The UPS is now ready for the normal operation.

19. Properly dispose of the old battery module at an appropriate recycling facility or return them to the supplier in the packing material that the new battery module came in.

NOTE: If the UPS has a Weak/Bad Battery Alarm after replacing the battery module, the user must initiate a self test to clear the Weak/Bad Battery Alarm. To initiate a self test see section 4 "**USER INVOKED BATTERY TEST**".

FIG. 3

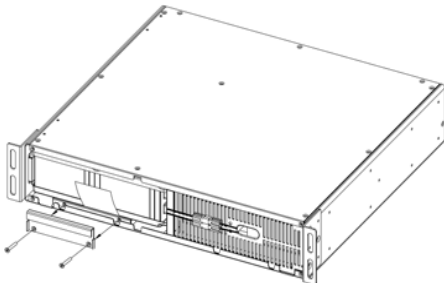
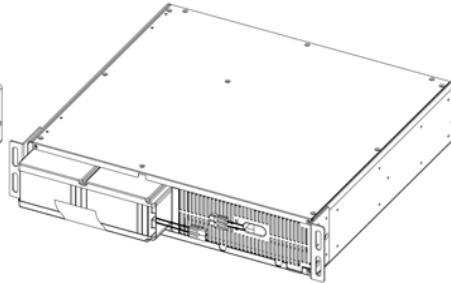


FIG. 4



Chapter 9: Specifications

SYSTEM SPECIFICATIONS				
Model Number	ED1000RTXL2U	ED1500RTXL2U	ED2000RTXL2U	ED3000RTXL2U
Maximum Power Capacity	1000VA 900W	1500VA 1350W	2000VA 1800W	3000VA 2700W
Topology	Double Conversion On-Line, True Sine Wave			
INPUT				
Number of Phase	Single (1Ø 2W +G)			
Nominal Voltage	120VAC			
Acceptable Input voltage	0 - 160VAC			
Voltage Range	55V (load dependent) - 150VAC			
Frequency Limits	50 or 60 Hz, +/-6Hz, autosensing			
Power Factor Correction	≥99% at Full Load			
Low Voltage Transfer Point	55V (load dependent) resets to Utility Power at 75V or higher			
High Voltage Transfer Point	150V resets to Utility Power at 145V or lower			
Input Protection	Resettable Circuit Breaker			
OUTPUT NON-BATTERY OPERATION				
Voltage Regulation	Nominal +/-2%			
Frequency Range	60Hz: 54 - 66Hz or 50Hz: 44 - 56Hz			
Efficiency (Line Mode)	>90% (Full Load)			
OUTPUT BATTERY OPERATION				
Waveform Type	True Sine Wave			
Nominal Voltage (Adjustable)	120VAC (110VAC)			
Voltage Regulation	Nominal +/-2% (until Low Battery Warning)			
Frequency	50/60Hz, +/-0.5Hz (unless synchronized to utility)			
Voltage T.H.D.	<3% (Full Linear Load)			
Dynamic Response	+/-5% @ 100% Load change in 30 ms			
Transfer Time	0 ms Typical			
Slew Rate	≤1Hz / second			
Crest Factor	3 : 1			
Overload Capacity	≥106% to ≤125% for 60-seconds ≥126% to ≤150% for 30-seconds ≥151% Shutdown Immediately			
Protection	Over-Current, Short-Circuit Protected and Latching Shutdown			
ECONOMY MODE OPERATION				
Switches from Bypass to Inverter	+/-10% Of the Inverter output voltage			
Switches from Inverter to Bypass	+/-5% Of the Inverter output voltage			
Transfer Time	8 ms Typical			

SURGE PROTECTION AND FILTERING

Surge Energy Rating	1000 Joules	
Surge Current Capability	6500 Amps total	
Surge Response Time	0 ns (instantaneous) normal mode; <5 ns common mode	
Surge voltage let-through (as a percentage of an applied ANSI C62.41 Cat. A +/-2 kV)	<5%	
10/100 Base-T surge protection let-through (as a percentage of an applied +/-2 kV 1.2/50 us, 500 a 8/20 uS test)	<5%	
Telephone line surge protection let-through (as a percentage of an applied +/-2 kV 1.2/50 us, 500a 8/20 uS test)	<1%	
Noise Filter	normal and common mode EMI/RFI suppression	
Audible Noise at 1 m (3 ft.)	<45 dBA	<60 dBA

ENVIRONMENTAL

Operating Temperature (max)	0 to 40°C (+32 to +104°F)
Storage Temperature	-15 to +45°C (+5 to +113°F)
Operating/Storage Humidity	95% Non-Condensing
Operating Elevation	0 to 3,000m (0 to +10,000 ft)
Storage Elevation	0 to 15,000m (0 to +50,000 ft)

PHYSICAL

Size - Net L X W X H (rackmount brackets installed)	13.3 x 19.0 x 3.5" 339x482.6x89mm	17.0 x 19.0 x 3.5" 432x482.6x89mm	24.5 x 19.0 x 3.5" 621x482.6x89mm	
Weight - Net	29.3 lbs 13.3 Kgs	45.9 lbs 20.8 Kgs	47.6 lbs 21.6 Kgs	70.5 lbs 32.0 Kgs
Size - Shipping L X W X H	23.6 x 20.0 x 8.8" 599x508x223mm	23.5 x 21.6 x 8.8" 597x549x223mm	39.3 x 23.6 x 8.5" 1000x600x217mm	
Weight - Shipping	37.0 lbs 16.8 Kgs	54.2 lbs 24.6 Kgs	56.0 lbs 25.4 Kgs	90.4 lbs 41.0 Kgs

REGULATORY COMPLIANCE

Safety and Approvals	cTUVus (Conforms to UL1778 5th Edition & CSA 22.2 no. 107.3-14/R: 2014), FCC Class B (1K & 1.5K), FCC Class A (2K & 3K), CE certified, Energy Star certified, RoHS2 (EU Directive 2011/65/EU)
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BATTERY SYSTEM

Battery Type	Sealed, Non-Spillable, Maintenance Free, Value Regulated Lead Acid			
Typical Recharge Time	8-hours to 90% after a full load discharge			
Typical Battery Life	3-5 years, depending on discharge cycles and ambient temp			
Battery Module	BM0035	BM0036	BM0037	BM0032
Runtime: Half Load (minutes)	11	12	12	12
Runtime: Full Load (minutes)	3	3	4	3.5
External Battery Pack Options	BP24RTXL BP24RTEXTL	BP48RTXL BP48RTEXTL	BP72RTXL BP72RTEXTL	

Chapter 10: Limited Product Warranty

Para Systems, Inc. (Para Systems) warrants this equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of five (5) years from the date of purchase. The battery warranty borne by Para Systems is limited to one (1) set of replacement batteries during the five (5) year warranty period. For equipment sites within the United States and Canada, this warranty covers depot repair or replacement of defective equipment at the discretion of Para Systems. Depot repair will be from the nearest authorized service center. 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. Para Systems products that are depot repaired or replaced pursuant to this warranty shall only be warranted for the unexpired portion of the warranty applying to the original product. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

The warranty shall be void if (a) 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; (b) the equipment is repaired or modified by anyone other than Para Systems or Para Systems approved personnel; or (c) has been used in a manner contrary to the product's User's Manual or other written instructions.

Any technical advice furnished before or after delivery in regard to use or application of Para Systems' equipment is furnished without charge and on the basis that it represents Para Systems' best judgment under the circumstances, but it is used at the recipient's sole risk.

EXCEPT AS PROVIDED HEREIN, PARA SYSTEMS MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation of implied warranties; therefore, the aforesaid limitation(s) may not apply to the purchaser.

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, such as; 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. The sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Para Systems' products and the only obligation of Para Systems hereunder, shall be depot repair or replacement of defective equipment, components, or parts; or, at Para Systems' option, refund of the purchase price or substitution with an equivalent replacement product. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

No employee, salesman, or agent of Para Systems is authorized to add to or vary the terms of this warranty.

A1. DECLARATION OF CONFORMITY

Notes:

Application of Council Directive(s): 2014/30/EU

Standard(s) to which Conformity is declared: EN61000-3-2, EN61000-3-3, EN62040-2, IEC61000-2-2 IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEEE C62.41 Category A1, UL1778, CSA 22.2 no. 107.3-14, FCC Class A and Class B

Manufacturer's Name: Para Systems, Inc. (MINUTEMAN UPS)

Manufacturer's Address: 1455 LeMay Drive
Carrollton, Texas 75007 USA

Type of Equipment: Uninterruptible Power Supplies (UPS)

Model No: ED1000RTXL2U (Y), ED1500RTXL2U (Y), ED2000RTXL2U (Y),
ED3000RTXL2U (Y)

Year of Manufacture: Beginning February 2017

I hereby declare that the equipment specified above conforms to the above Directive(s).

Robert Calhoun
(Name)

Manager Engineering
(Position)

Place: Carrollton, Texas, USA

Date: February 1, 2017