Endeavor UPS Series

User's Manual
5-10kVA Rack/Tower Series

BAT PACK

BAT PACK

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1.0 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 and comply with all warnings and instructions before installing your Endeavor 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.

Veuillez lire ce manuel et respecter tous avertissements et instructions avant d'installar votre onduleur de la série Endeavor 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.

1.1 WARNINGS AND CAUTION STATEMENTS:

⚠	**DANGER!** This symbol indicates a hazardous situation that could result in severe electrical shock or death. All precautions must be taken.
⚠	**WARNING!** This symbol indicates a hazardous situation that could result in injury or harm. Necessary precautions must be taken

⚠ Risk of Electrical Shock. There are hazardous live parts inside these products that are energized from the internal batteries even when the AC input is disconnected. Before installation, ensure the following:
- The Main Input Circuit Breaker is in the OFF position
- The internal battery module(s) are disconnected and removed
- The DC Breaker is in the OFF position
- The UPS is properly grounded to an earth ground conductor.

⚠ To reduce the risk of electrical shock from the leakage current of the UPS and its connected devices, this UPS must be installed using a protected earth ground, properly bonded at the service panel.

⚠ Installation, repairs and battery replacement must be performed by QUALIFIED SERVICE PERSONNEL ONLY and must adhere to all local electrical codes. Any changes or modifications made to this unit, without expressed written permission from Para Systems, Inc. will void the warranty of the product.

⚠ This UPS series is only intended to be installed in an indoor, temperature-controlled environment that is free of conductive contaminants, dust or direct sunlight. Never install the UPS near liquids, damp locations or where there is potential for contact with liquids. The ambient operating temperature range for this UPS series is 32° ~ 104°F (0° ~ 40°C). To ensure the proper ventilation and cooling of the UPS, do not block any of the ventilation cutouts on the UPS.

Adequate space must be provided around all sides of the UPS to allow for proper air flow. Do not mount the UPS system with its front or rear panel facing down at any angle.

Batteries can present a risk of electrical shock. Observe proper cautions and do not bridge the battery terminals at any time. Follow all precautions and instructions for battery replacement and disposal in the BATTERY REPLACEMENT section of this manual.

For models that use a hardwire input, installation must be made to a dedicated branch circuit and performed by a licensed electrician. Models that are installed using a bundled power cord, connect the UPS only to a two-pole, three-wire grounded AC utility source, using a NEMA L6-30 connection and includes appropriate branch circuit protection as rated in the table below. The branch protection (circuit breaker) should be installed near the UPS and shall be easily accessible. Do not plug the UPS into itself or use extension cords, adapter plugs, or surge strips as it may damage the UPS or connected devices.

1.2 FCC Class A Radio Frequency Warning:

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.

1.3 Safety Details:

General:
- The UPS must be installed according to all national and local electrical codes and be performed only by a qualified electrician.
- Install this UPS in an environmentally controlled, indoor location away from any heat source, excessive moisture, direct sunlight or conductive materials.
- 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.
- Adequate airflow around the UPS is required to prevent overheating. Do not block any open vents on the UPS or its connected modules.
- The UPS and accessory modules are extremely heavy. Handling and installation requires at least two individuals. Take special care to practice safe lifting practices.
- This UPS is not intended for use in medical applications where failure of the unit can reasonably be expected to affect the performance of life support or critical treatment devices.

Connections:
- When using the optional, bundled power cord, plug the UPS directly into a properly wired NEMA wall outlet. Do not plug into a surge protector or extension cord.
- For models with a hardwire input, the UPS must be wired directly to a dedicated branch circuit and the installation be performed by a qualified electrician.
- This UPS must be properly connected to an earth ground conductor. If powered by a source, other than utility power, the UPS must be properly grounded to the supply source.
- All input and output connections from the UPS must be performed by a qualified electrician.
- This UPS provides backfeed protection from leakage current of connected devices.

Maintenance:
- There are no user serviceable parts in the UPS. Any maintenance or service must be performed by qualified personnel only.
- The UPS may contain parts that are energized. Before any service of the UPS, verify all input and DC circuit breakers are opened and internal batteries are disconnected.

Batteries:

- The batteries included with the UPS will last several years. Environmental and usage factors can and will affect battery life. Installation in extreme ambient temperatures, high humidity, poor utility sources and extreme usage can reduce a battery's effective life.
- When replacing batteries, use the same number, type and capacity as the original batteries.
- Replacement of batteries should be performed by qualified personnel only.
- Lead-acid batteries present a risk of electrical shock. Use proper precautions when replacing:
  - No tools are necessary in the replacement of UPS battery modules
  - Remove all rings, watches and other metallic devices. Wear rubber gloves and eye protection.
  - Do not lay tools or other metal parts on top of batteries.
  - 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.
  - Do not dispose of batteries in a fire. The batteries may explode, releasing poisonous gases
  - Do not open or mutilate batteries. Release material in the battery is harmful to skin and eyes and may be toxic
- Always recycle the replaced batteries.

1.4 Life Support Policy:

As a general policy, Para Systems does 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.

2.0 Installation

There are multiple models and configurations covered with the base models of the Endeavor line. The table below outlines the available configurations:

Models	Rating		Branch Circuit Rating / Circuit Breaker Rating
	VA	WATTS	
ED5KRT	5,000	4,500	50 Amps
ED5KRT-3KTF	5,000	4,365	
ED5KRT-5KTF	5,000	4,275	
ED6KRT	6,000	5,400	50 Amps
ED6KRT-3KTF	6,000	5,265	
ED6KRT-5KTF	6,000	5,175	
ED6KRT-6KTF2	6,000	5,130	
ED8KRT	8,000	7,200	60 Amps
ED8KRT-3KTF	8,000	7,065	
ED8KRT-5KTF	8,000	6,975	
ED8KRT-6KTF2	8,000	6,930	
ED8KRT-8KTF2	8,000	6,840	
ED10KRT	10,000	9,000	70 Amps
ED10KRT-3KTF	10,000	8,865	
ED10KRT-5KTF	10,000	8,775	
ED10KRT-6KTF2	10,000	8,730	
ED10KRT-8KTF2	10,000	8,640	
ED10KRT-10KTF2	10,000	8,550	

2.1 Package Contents:

Prior to installing the UPS, inspect all contents and notify the manufacturer immediately if the unit is damaged or parts are missing. Save the original packing materials in a safe location for future use.

- UPS
- 4-post rail kit
- Optional 6-foot input power cord with NEMA L6-30P (5kVA & 6kVA models only)
- (2) Strain-relief adaptors
- USB communications cable
- RS232 cable
- Two-pin EPO connector
- Tower stand (Set of 2)
- 19" Rack mount brackets with retaining screws, (Set of 2), installed
- User Manual

2.2 Receiving Inspection:

Once the product arrives, it should be visually inspected for any 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 are the responsibility of the purchaser. The product packing materials were carefully designed to meet ISTA 1A and minimize any potential shipping damage. Please save the packing materials in the unlikely event that the product needs to be returned to the manufacturer. The manufacturer is not responsible for shipping damage incurred when the product is returned and is not properly packaged. Keep all invoices and packing materials to ensure the relevant version for installation.

Connect the UPS to AC utility power as per the directions outlined in the **INPUT/OUPUT CONNECTIONS** section. and allow a minimum of 8 hours to charge the internal batteries.

2.3 Utility Connections:

- Use only qualified, licensed electricians for the installation
- Follow all national and local electrical codes for the installation
- When attaching input power cord, (5kVA and 6kVA models only), use the included snap-in strain-relief when attaching to the UPS
- Unless superseded by local electrical codes, use Table 1-1 and 1-2 for circuit breaker ratings and input wire size
- Ensure that all Utility and UPS input circuit breakers are in the OFF position prior to powering on the UPS
- Connect all the devices to be protected into the desired receptacles/terminal block
- Use the recommended input terminal screw torque of 11.5kgf.cm for input and output connections

2.4 Rack/Cabinet Installation:

Use caution as the modules that comprise the UPS system are very heavy. Two or more individuals are recommended for installation.

To reduce the weight, remove the internal battery modules from the UPS before installation. Once the UPS is anchored to the rack/cabinet, reinstall battery modules The UPS must be installed above any optional external battery pack(s). Battery packs should always be installed in the bottom of the rack/cabinet. If necessary, install the optional ISO PACK transformer on top of the UPS module.

1. Remove the internal battery modules of the UPS: Pull the front panel cover of the battery housing cage from the UPS and separate the battery module connectors. (Fig. 1)
2. Unscrew and remove the battery retention bracket using a Philips screwdriver. (Fig. 2)
3. Pull both modules directly out the front of the UPS. (Fig. 3)
4. Attach the Rackmount Ears to the left and right front of the UPS. (Fig. 4)

5. Locate and attach the rack/cabinet mounting rails (Fig. 5). Rest the UPS on the front of the rack/cabinet mounting rails. Slide the UPS into the rack until the ears contact the front posts and anchor the unit using the included mounting screws. (Fig. 6)
5. Re-insert the internal battery modules (Fig. 7).
6. Re-attach the battery retention bracket (Fig. 8)
7. Re-attach the front panel cover (Fig. 9)

Repeat this same process for any additional battery pack modules.
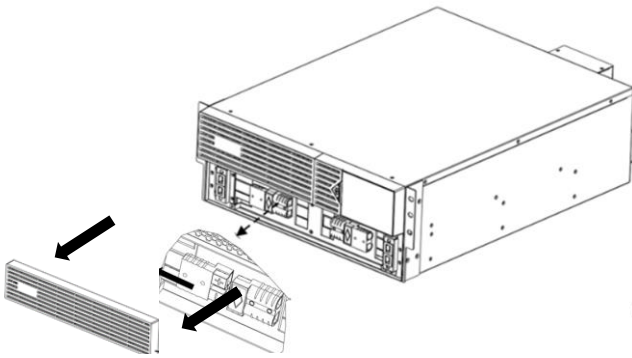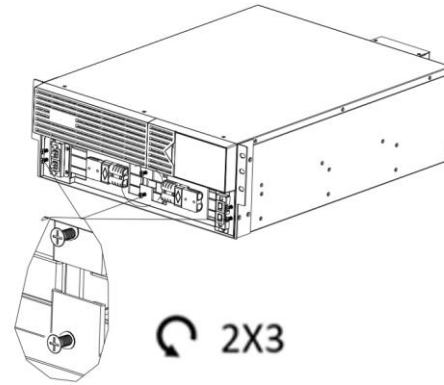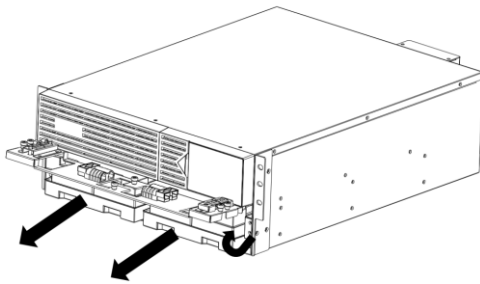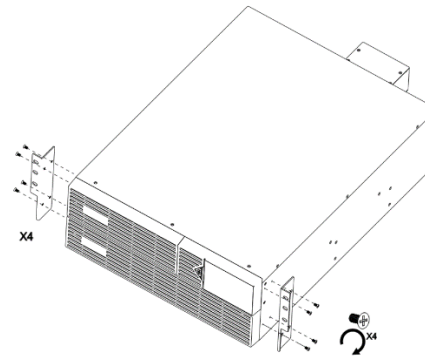

Figure 1

Figure 2

Figure 3
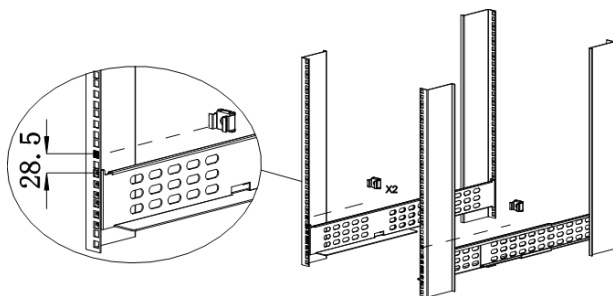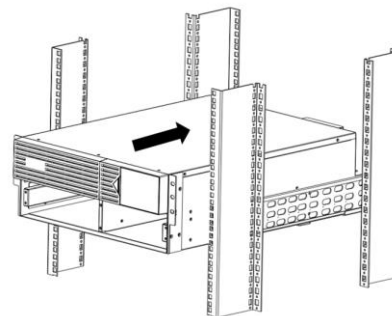
Figure 4

Figure 5

Figure 6
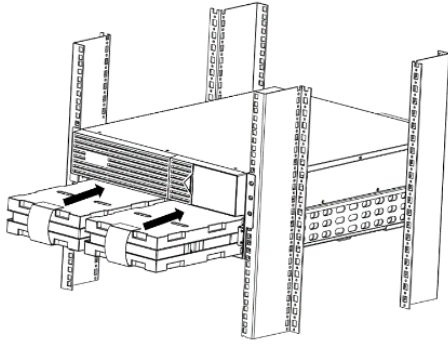
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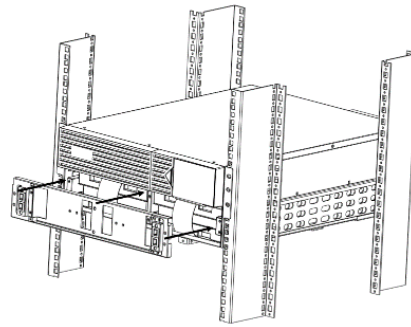
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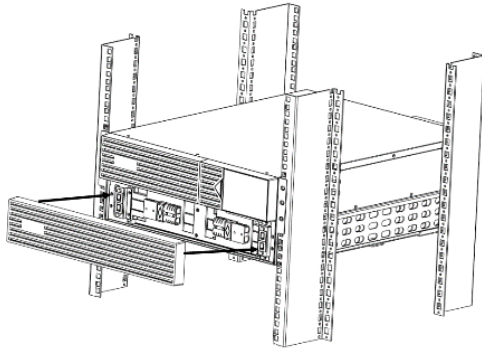
Figure 9

2.5 Tower Installation:

Use caution as the components that comprise the UPS system are very heavy. Two or more individuals are recommended for installation. To reduce the weight, remove the internal battery modules from the UPS and battery packs before installation.

1. Remove the internal battery modules of the UPS: Pull the front panel cover of the battery housing cage from the UPS and separate the battery module connectors. (FIG. 9-10)
2. Unscrew and remove the battery retention bracket using a Philips screwdriver. (FIG. 11)
3. Pull both modules directly out the front of the UPS. (FIG. 12)
4. Locate the UPS to its final installation location. Once placed, re-insert the battery modules (FIG. 13)
5. Re-attach the battery retention bracket (FIG. 14)
6. Re-connect the battery modules to the UPS. (FIG. 15)
7. Re-attach the front panel cover (FIG. 16)
8. Add any additional Battery Packs to the right of the UPS with the case label on located toward the bottom. Transformer modules should be placed to the left of the UPS.
9. Attach the modules together using anchor plate and tower feet.
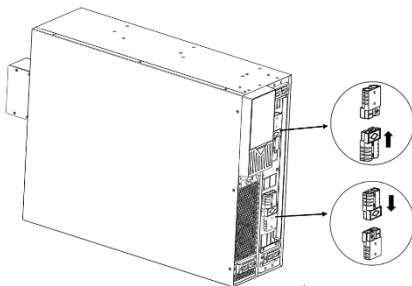
Figure 10
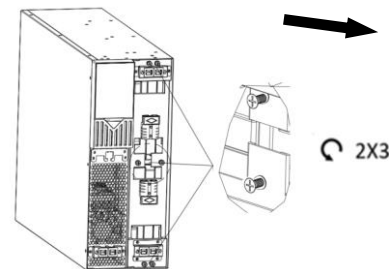
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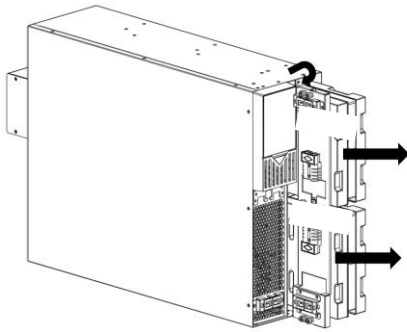
Figure 12
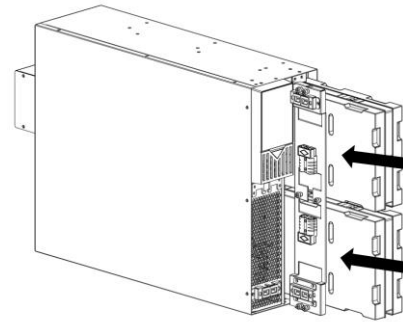
Figure 13

2X3
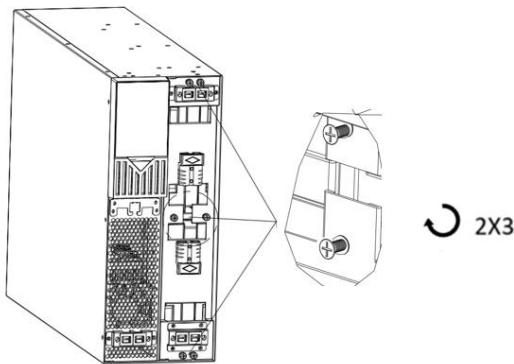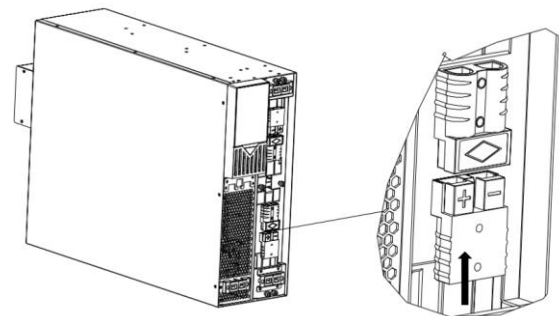
Figure 14

Figure 15
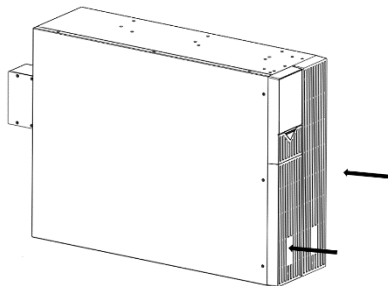
Figure 16

2.6 Connecting the Internal Battery Module:

Remove the battery cover panel of the UPS by pulling the panel out from the front of the UPS, no tools are required, (FIG. 1). Align the Black Anderson connector and push together. Reattach the front panel battery cover, (FIG. 9).

2.7 UPS Rear Panels:
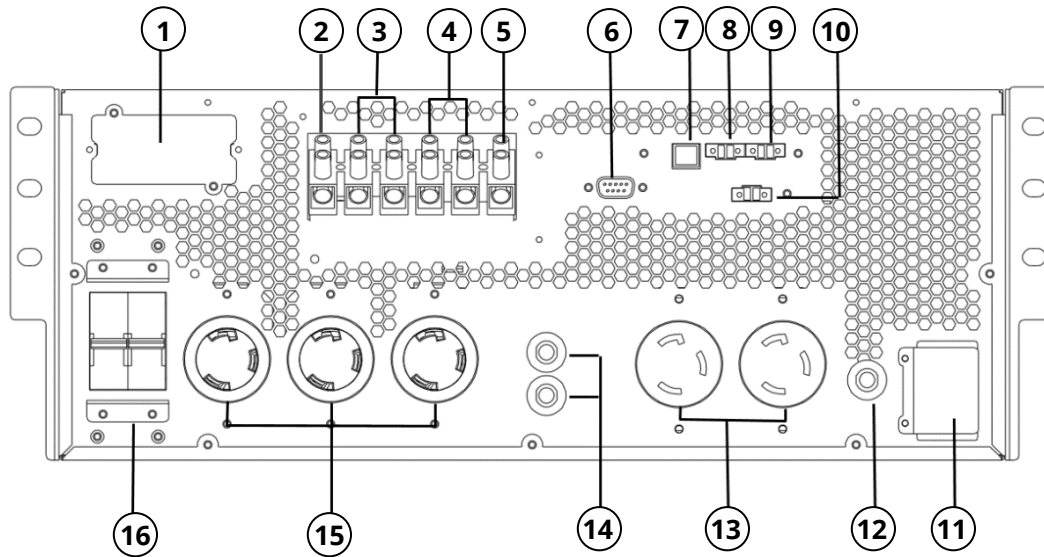
5/6kVA
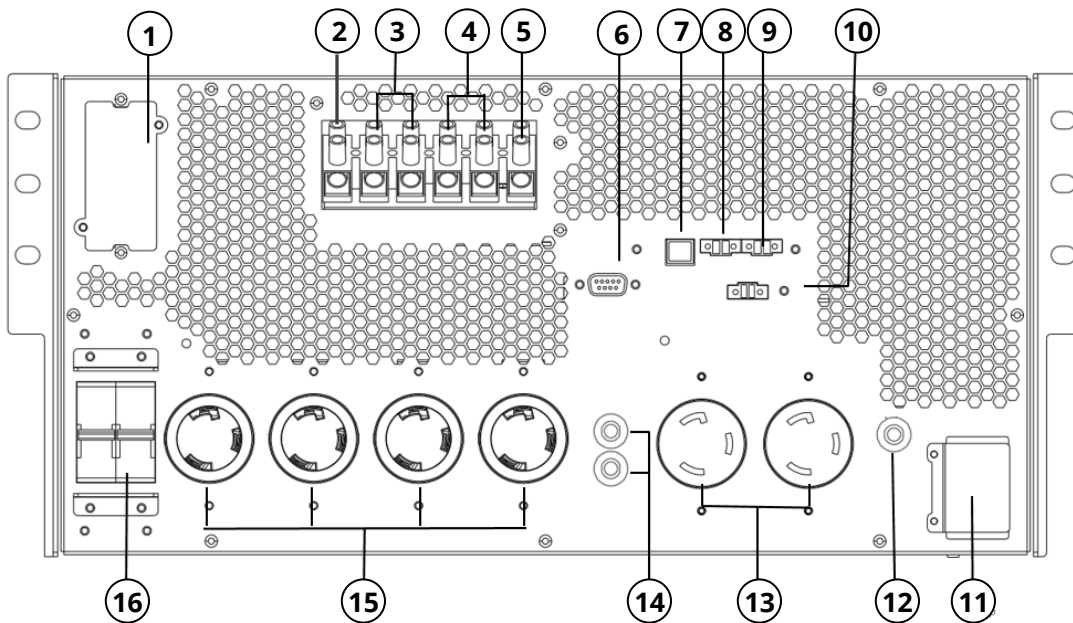
8/10kVA

1	Intelligent Option Card Slot	9	Ambient Temperature Sensor Port
2	Output Ground Terminal Connection	10	Emergency Power Off Connector (EPO)
3	Output Terminal Connections (L-N)	11	External Battery Pack Connection
4	Input Terminal Connections (L-N)	12	DC Circuit Breaker
5	Input Ground Terminal Connection	13	NEMA L6-20 Receptacles
6	RS232 communication port	14	Circuit Breaker for L6-20 Receptacles
7	USB communication port	15	NEMA L6-30 Receptacles
8	Battery Communication Port	16	Input Circuit Breaker

2.8 Input/Output Connections:

All wiring used for the installation of the UPS must be in accordance with the local electrical codes and regulations and performed using the following instructions by a licensed electrician.

1) Confirm the mains wiring and circuit breakers used for supplying input AC power for the UPS are rated for the capacity of the UPS to avoid the hazards of electric shock or fire.
2) When connecting the UPS to the utility power and the load, it is recommended that you install the protective devices. The protective devices should be approved components that meet safety certifications. (Table 1-1)
3) Switch off the main input breaker on the dedicated circuit panel of the UPS before installation.
4) Turn off all the connected devices before connecting them to the UPS.
5) The following table (Table 1-2) designates the wire size to use for installation of the UPS
6) Prior to applying power to the UPS, ensure the UPS is properly grounded.
7) The utility power for the UPS must be single-phase in accordance with its rating label and the specifications in this manual.
8) The ED5KRT and ED6KRT come with an optioanl 6-foot, #10 AWG input power cord with an L6-30P plug in the box. Connect the UPS to a two pole, three wire, grounded AC wall outlet. If used, the designated receptacle must be connected to appropriate branch protection (circuit breaker). Connection to any other type of receptacle may result in a shock hazard and violate local electrical codes.

   The AC wall receptacle should be installed near the UPS and easily accessible. The plug on the input power cord on this UPS series is intended to serve as a disconnect device. Do not use extension cords, adapter plugs, or surge strips.
9) The ED8KRT and ED10KRT are hardwire input only. The pins for the input cable are included. The UPS must be connected to appropriate branch protection (circuit breaker) to avoid shock hazard and violation of any local electrical codes. The branch protection (circuit breaker) shall be installed near the UPS and shall be easily accessible.
10) The installation of upstream and downstream protective devices is highly recommended when the UPS is connected to the utility power and the load.

Table 1-1

Model	Power Rating	Suggested Protection Device
ED5KRT	5000VA	C Curve – 50 Amp
ED6KRT	6000VA	C Curve – 50 Amp
ED8KRT	8000VA	D Curve – 60 Amp
ED10KRT	10000VA	D Curve – 70 Amp

Table 1-2

Model	Wiring spec (AWG)		
	Input	Output	Ground
ED5KRT	10	10	10
ED6KRT	10	10	10
ED8KRT	6	6	6
ED10KRT	6	6	6

(In accordance with National Electrical Code (NEC), install suitable conduit and bushing.) **NOTE:** Use copper wire only.

Output Ground ——————

Output Line ——————

Output Neutral ——————

—————— Input Ground

—————— Input Neutral

—————— Input Line
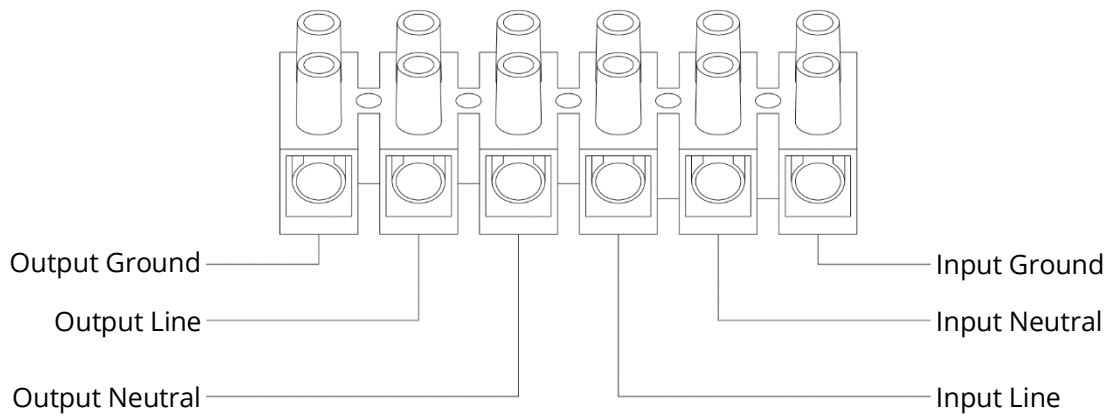
Terminal Block Wiring Diagram

1. Remove the terminal block cover box from the rear panel of the UPS (requires a Phillips screwdriver). Refer to the figure below for the input / output connections.
3. Before connecting to the input / output terminals read all of the Cautions and Warning, then observe the following:
   a) Ensure that the UPS is turned off and not connected to the AC source or the battery source before any connections are made.
   b) Calculate the power consumption of the load to ensure that an overload condition does not occur.
   c) Ensure that the terminal block screws are secured after connecting the input / output wires. The terminal block screws should be torque to 8±2Kgf.cm (requires a 3/16" flat-head screwdriver).
   d) Ensure that the UPS is properly grounded.
4. Connect the input utility wires and/or input power cord to the input terminal block and secure.
5. Connect the load wires to the output terminal block and secure.
6. Re-install the terminal block cover box.

3.0 Front Panel Display and Controls:

The color display on the front panel of the UPS is a pressure-sensitive LCD display used to configure and control the operation of the UPS.

When utility power is applied to the UPS, the LCD panel will start its initialization process. The home screen of the LCD display will provide real-time information about the UPS status, including input and output data. Press the icon and select the User Level or Administrator menu options, (the Factory option is not field accessible). Access to the User Level and Administrator menus is password protected. The default passwords can be found in **Section 4.2**.

NOTE: <u>**Even though the LCD display is active, the UPS is only operating in Bypass Mode with pass-through utility power. To complete the startup process, go to Section 4.2 of the manual**</u>

3.1 Home Screen

The Home Screen on the Front Panel LCD display contains the following information:
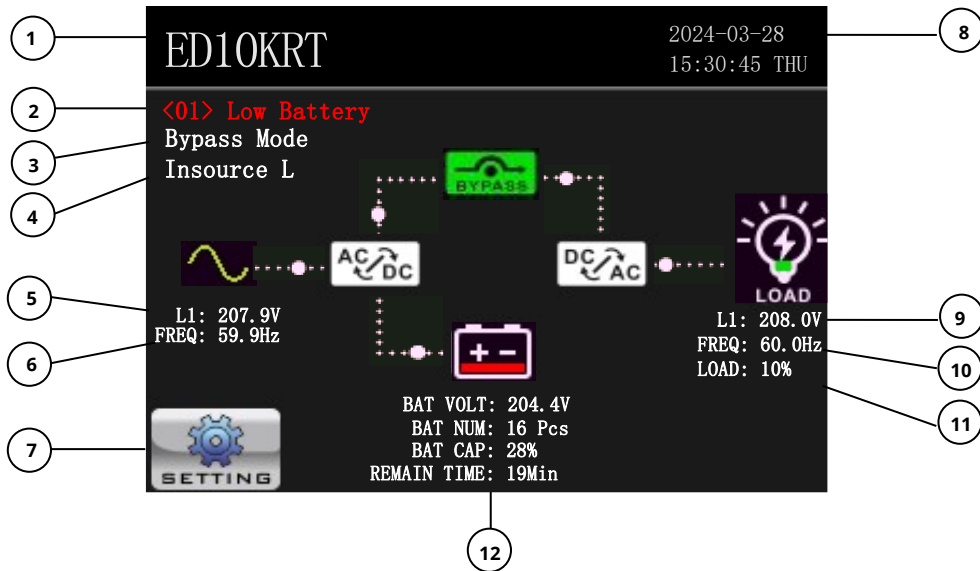
1	UPS Model Number	7	UPS Configuration Settings
2	UPS Alarm Description	8	Time and Date
3	UPS Mode of Operation	9	UPS Output Voltage
4	UPS Input Source Type	10	UPS Output Frequency
5	AC Input Voltage	11	Connected Load Capacity (as a percent of Max.)
6	AC Input Frequency	12	Battery Information, (Voltage, Qty., Capacity and Est. Runtime)

3.2 LCD Display and Control Menu Tree

There are five primary options included in the LCD menu tree operation:

- UPS Status: Provides real time information about the condition of the UPS, input status and output functions.
- UPS Mode of Op: Provides details about the active mode of operation of the UPS.
- UPS Setup – User Level: Allows for the configuration of a limited set of functions, including the startup and shutdown of the UPS.
- UPS Setup – Admin Level: Allows for full access to the configuration and operation of the UPS.
- UPS Setup – Factory Level: Restricted to factory level settings only. Not field accessible.

3.2.1 UPS Status Menu Tree
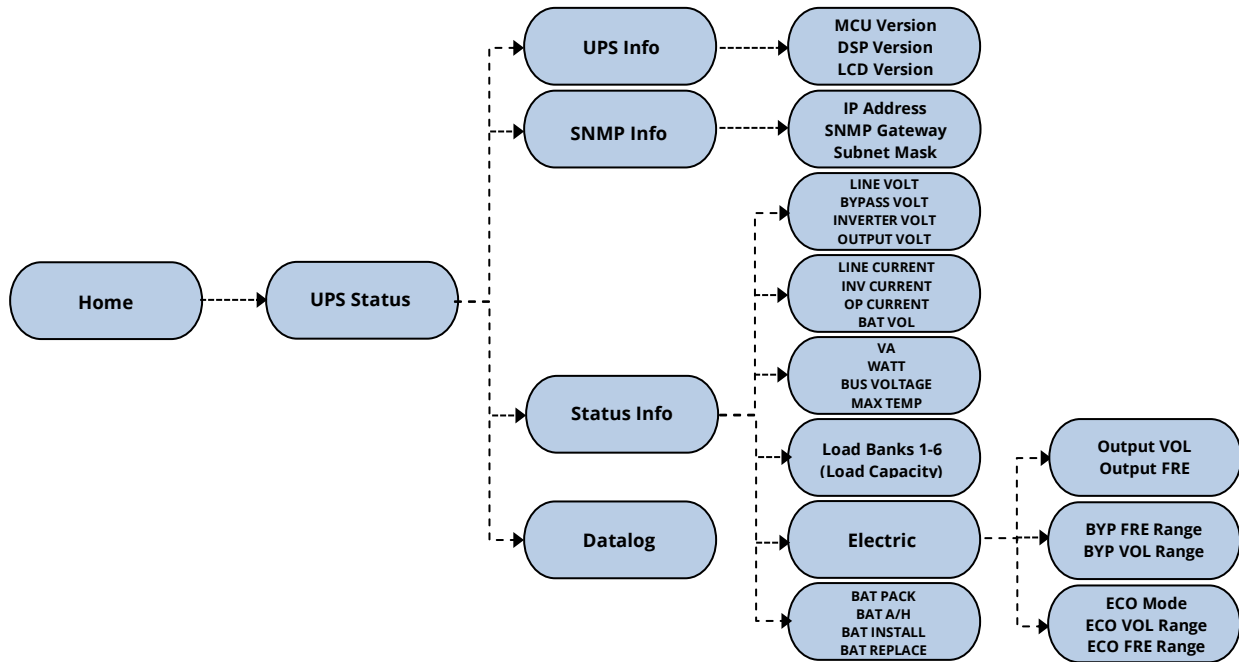
3.2.2 UPS Mode of Op Menu Tree

3.2.3 UPS Setup – User Level

A flowchart diagram showing the UPS Setup – User Level menu navigation.

Home → UPS Setup → User-Level Password →

- On/Off UPS
  - On
  - Off
- LCD Display
  - Rack
  - Tower
  - LCD Calibration
- Mute
  - Yes
  - No
- Bat Testing
  - 10 Seconds
  - Deep Cycle
- Load Banks
  - Manual On/Off → Bank1 - 6
  - Schedule On/Off → Bank1 - 6
  - Sequence On/Off → Bank1 - 6
  - Reboot → Bank1 - 6
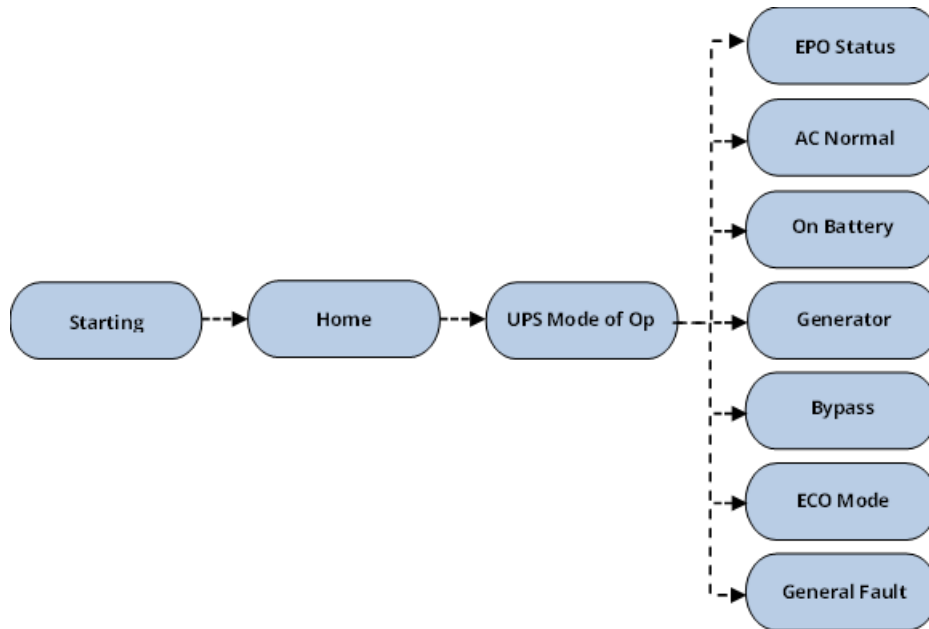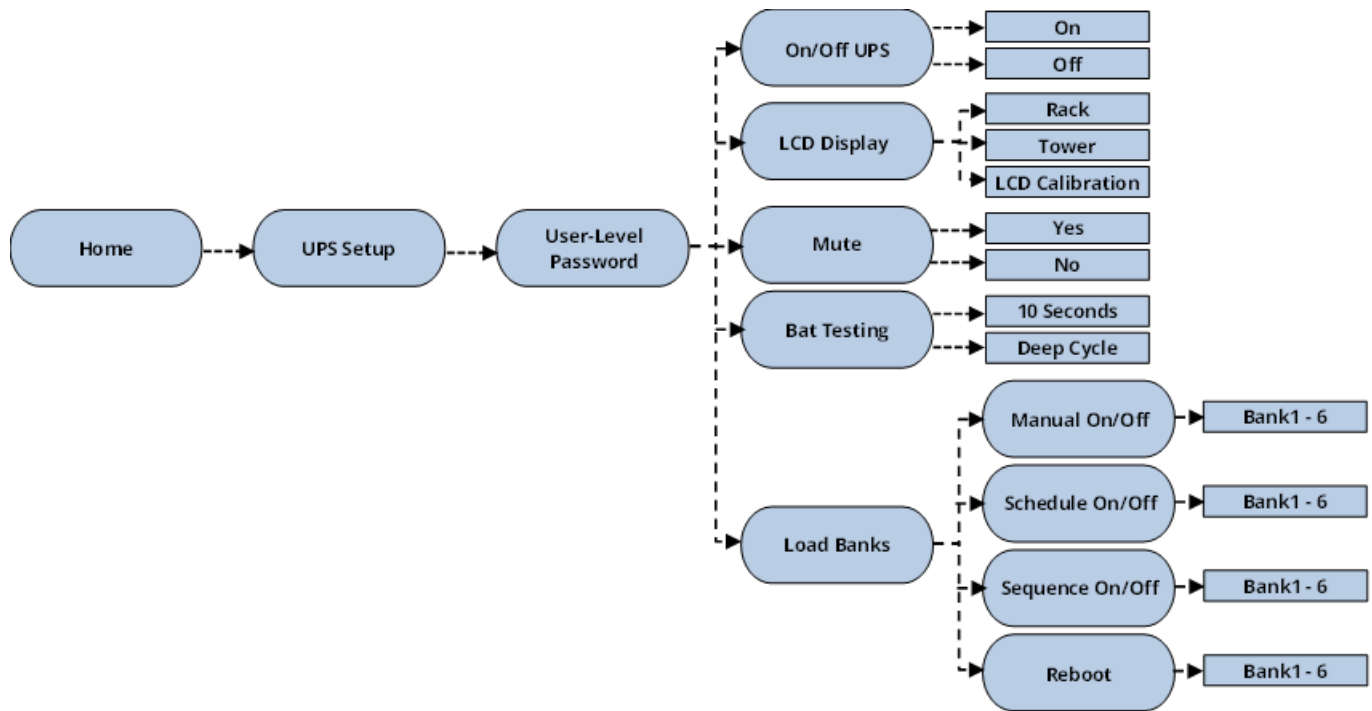
3.2.4 UPS Setup – Administrator Level

```
Home ----> UPS Setup ----> Admin-Level
                           Password

Admin-Level Password -->
    Batteries -->
        Auto -->
            Bat Pack AH Qty
            Bat Inst Date
            BAT A/H
            BAT Repl. (mos.)
        Manual -->
            Bat Pack AH Qty
            Bat Inst Date
            BAT A/H
            BAT Repl. (mos.)
    Admin -->
        Voice Volume
        Date/Time -->
            Set Date/Time
        Language -->
            English
            Spanish
            French
        Label Load Banks*** -->
            Bank1 - 6
        Reset Passwords -->
            User-Level
            Administrator
    Mode of Operation Setup -->
        Generator -->
            Vol Input
            Vol Output
            Freq Input
            Freq Output
        On Battery -->
            Vol Output
            Freq Output
        Bypass -->
            BYP VOL Range
            Vol Output
            BYP FRE Range
            Freq Output
        AC Normal -->
            VOL Input Range
            Output VOL Set
            FreqInput Range
            Freq Output
        ECO Mode -->
            ECO VOL Range
            Vol Output
            ECO FRE Range
            Freq Output
    Reset to Default -->
        UPS Config -->
            Yes
            No
        Datalog -->
            Yes
            No
    Mode of Operation Selection -->
        AC Normal
        Battery
        ECO Mode
        Bypass
    Input Type -->
        Line
        Generator
```

3.2.5 UPS Setup – Factory Level

This section of the UPS configuration is restricted exclusively to factory access.

4.0 UPS Startup

4.1 Initialize the UPS

Confirm that nominal input AC power is available to the UPS. Begin the startup process by closing the input circuit breaker, applying input power to the UPS. Once input power is made available to the UPS, the internal batteries will begin actively charging, the LCD display will activate and the UPS will provide output utility power through the Bypass circuitry.
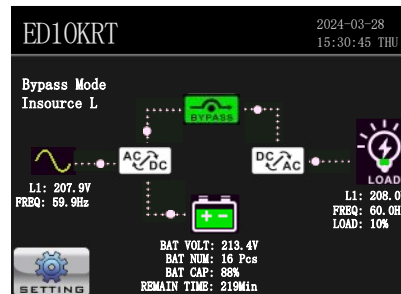

At this point, the UPS will only be in **Bypass Mode** and is only providing utility power to connected loads. The UPS is now ready to complete the startup process or can be customized and configured.

4.2 Startup UPS

To complete the Startup process requires turning on the UPS. Press the icon in the lower, left-hand corner of the main LCD display and a new page will appear with three options: **UPS Status, UPS Mode of Op** and **UPS Setup**. Select the

icon to access either the **User-Level** or **Administrator** menu options. Access to both the User Level and Administrator menus requires password authentication.
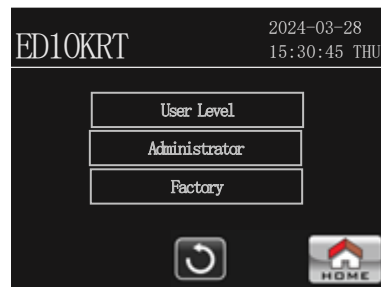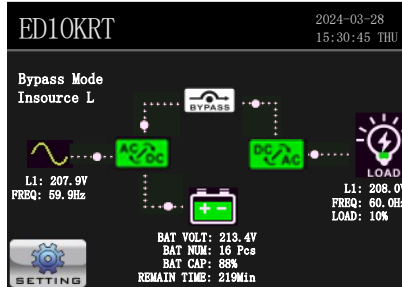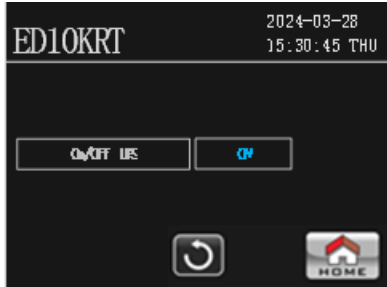

User Level Password: 1000
Administrator Password: 0000

Select the preferred menu option and a keypad will appear to enter the password. Enter the correct password and press the ⏎ key.

Press the [On/Off UPS] icon from the menu selection. Press "Yes" to turn on the UPS and confirm the selection. The UPS will return to the main LCD home page to complete the startup process.

Before completing the startup, the UPS will perform an self-test on internal electronics and batteries. If successful, the UPS will transfer to Line Mode and the startup process is complete. If the UPS detects any internal anomalies during the initial self-test, the unit will display an error message, sound an audible alarm, the front panel LED will turn RED. The UPS will remain in Fault Mode until the alarm are removed.

5.0 Configuration

From the main LCD home page, press the **SETTING** icon in the lower, left-hand corner of the main LCD display and the main configuration menus page will appear. To access either the **User-Level** or **Administrator** menu options for configuring and customization of the UPS, press the **UPS Setup** icon. The **Administrator** menu will provide access to all the operational and configuration preferences for the UPS. The **User-Level** menu will only provide access to the following limited functions and configurations:

- On/Off UPS
- LCD Display
- Mute
- Bat Testing
- Load Banks

Use the passwords listed in Section 4.2 to enter either the **User-Level** or **Administrator** menu option required password authentication.

NOTE: Keep passwords in a safe location for future reference.

The **UPS Status** [UPS Status] and Mode of Operation [UPS Mode of Op] icons on this page will only provide realtime information about the status of the UPS, including input power, output power and connected load information, (See **Sections 6.4 and 6.5** for more details). There are no configurable options available under either the **UPS Status** or **UPS Mode of Op** sections.

User-Level menu

Administrator menu
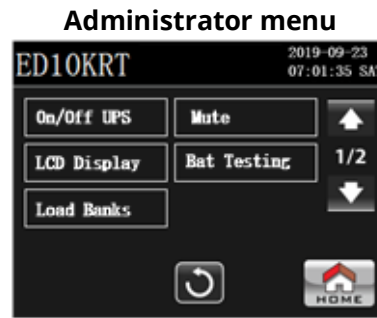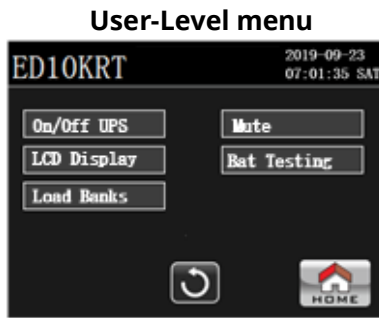
5.1   Menu Tree for "UPS Setup" - User-Level
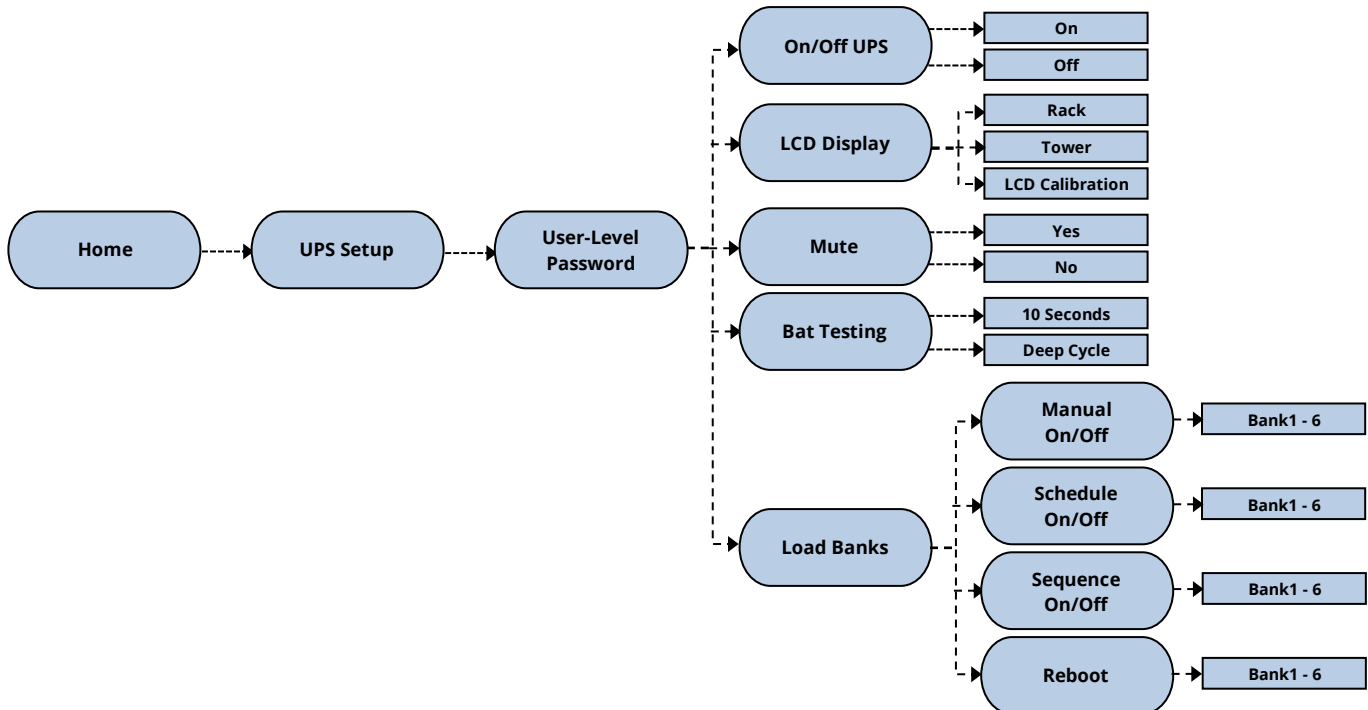
NOTE: At any time, and on any sub-menu screen, pressing the [HOME] icon will return the display to the main screen. Any changes made will be lost unless set prior to selecting the **HOME** icon. Press the [⟲] icon to return to the previous page.

5.1.1   LCD Display:

Press the ![LCD Display] icon from the **UPS Setup – User-Level** menu to configure and refine the LCD display.

5.1.1.1 LCD Direction:

Press "Tower" to convert the format of the screen to a vertical position for tower installation or press "Rack" to format the LCD display to a horizontal, rackmount position. The default setting is "Rack".

5.1.1.2 LCD Calibration:

Updates and corrects any deviations in the accuracy of the calibration of the touchscreen LCD display. Select **LCD Calibration** and a blue screen will appear with a "+" in the upper corner. Press the "+" mark as it moves around the LCD screen to sharpen the calibration. When complete the UPS will return to the previous menu page.

5.1.2 Mute:

Press the ![Mute] icon from the **UPS Setup – User-Level** menu to engage a general audible mute function. Press "Yes" to mute the UPS during the "On Battery" mode of operation. If "Mute" is active, the home page of the LCD display will show the ![mute icon] icon in the heard of the main screen. Press "No" to cancel the Mute function.

NOTE: The Mute function will not operate during a general fault or once the UPS passes to the Low Battery Warning during Battery Mode.

5.1.3 Bat Testing:
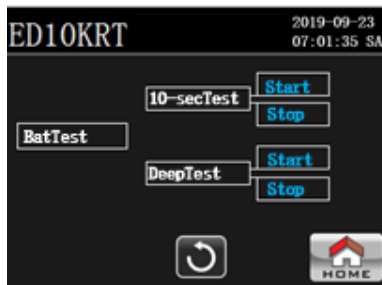
Press the **Bat Testing** icon of the **UPS Setup – User-Level** menu to engage various battery testing options for the UPS.

- 10-secTest: Press "Start" to initiate a 10 second self-test of the internal batteries and electronics.
- Deep Test: Press "Start" to initiate a deep-cycle battery self-test until the Low-Battery Warning alarm. Press "Stop" to cancel this operation at any time during the test.

If all battery tests return positive results, the UPS will return to its last programmed mode of operation. If any weak, dead or disconnected batteries are detected during the test, the UPS will return to its mode of operation and issue an audible and visual alarm

NOTE: Battery testing can only be performed when UPS is in AC Normal and ECO Modes.

5.1.4   Load Banks:

Press the **Load Banks** icon of the **UPS Setup – User-Level** menu to configure the operation of the output Load Banks on the UPS. There are four sub-menus under the "Load Banks" menu: **Manual On/Off**, **Schedule On/Off**, **Sequence On/Off**, and **Reboot**.

NOTE: There are five individually-controlled output receptacles on 5/6kVA Endeavor Models and six individually-controlled receptacles on 8/10kVA Endeavor models.

5.1.4.1   Manual On/Off:
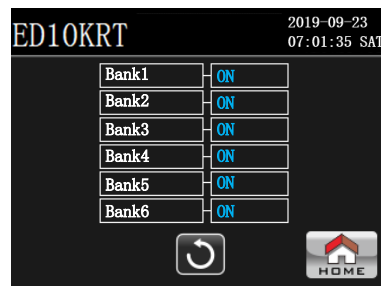
Press the **Manual On/Off** icon from the **Load Banks** menu and the **Manual On/Off** submenu above will appear. Each output Load Bank, (Bank1 - Bank6), will display its current operating status, (On or Off). Press the On/Off icon next to the corresponding Load Bank to activate or deactivate output power from that receptacle bank.

5.1.4.2   Schedule On/Off:
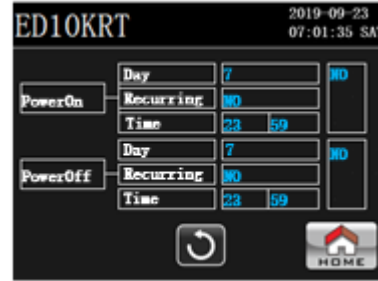
Press the **Schedule On/Off** icon from the **Load Banks** menu and the **Schedule On/Off** submenu (above/left) will appear. Select any individual Load Bank, (Bank1 – Bank6), to jump to the schedule programming screen (above/right).

PowerOn / PowerOff

– Day:
This option will program an individual Load Bank to Power On or Power Off on a specific day of the week as a one-time occurrence. Press the blank field next to the "Day" listing and a pop-up keypad will appear. Press the blank cursor field at the top then enter the day, 1-9, to schedule the event, then press: ◀┘ .
Each individual day of the week from Sunday to Saturday is represented numerically as 1-7. To program the receptacle for Mon-Fri use **8** and to program from Sun-Sat, use **9**:

"Sunday" through "Saturday": 1 - 7
"Monday – Friday":   8
"Sunday – Saturday":   9

This is a one-time only schedule program unless the recurring filed is set to "**Yes**".

– Recurring:
Select this option to program the Load Bank to continuously repeat the program based on the "Day" and "Time" values entered in those fields. This program will continu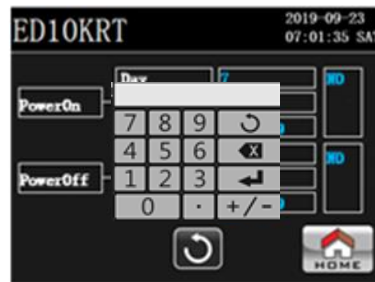e to repeat until the action is removed. To activate, press the blank field next to the "Recurring" icon and "Yes" will appear.

– Time:
Use this field to set the time in which the Load Bank will power on and power off on the day programmed above it. The time format is based on military-based time, (0:00 – 11:59 for am and 12:00 to 23:59 for pm). Press the first blank field next to the "Time" listing. A pop-up keypad will appear. Press the blank cursor field at the top then enter hour, 0-23, to schedule the hour of the event, then press ◀┘ . Repeat this process for the field next to the "Hour" field to program the "Minutes", (0-59), then press: ◀┘ .

– Activate:
Once the date and time programming are complete, press "No" in the right-hand columns of both Power On and Power Off until each says "Yes". This will activate the programming.

NOTE: The programming will not function unless activated

5.1.4.3   Sequence On/Off:
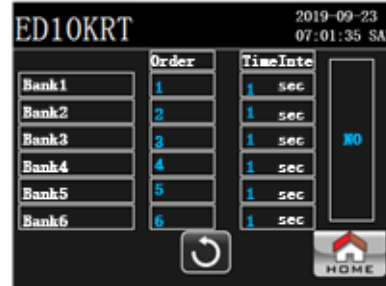
Press the [Sequence On/Off] icon from the **Load Banks** menu and the **Sequence On/Off** submenu (above/left) will appear. Select either "Power On" or Power Off" to access the sequence programming interface (Above/right).

This menu option is used to program the order, and time interval, in which individual Load Banks can be <u>turned ON or turned OFF whenever the</u> UPS is manually powered on or powered down.

**NOTE:** The sequencing function is only for a manual startup and shutdown of the UPS.

–   Order: "Order" refers to the sequence in which the Load Banks, 1-6, will Power On or Power Off. To properly program the sequencing function, all load banks must be programmed and individual load banks cannot share a sequence number. To set the sequence, press the blank field next to the desired load bank and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering your selection, (1-6), then press: ⬅ . Repeat this process for each desired Load Bank to be programmed.
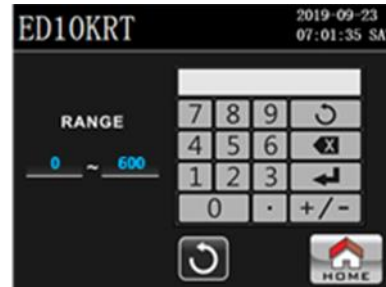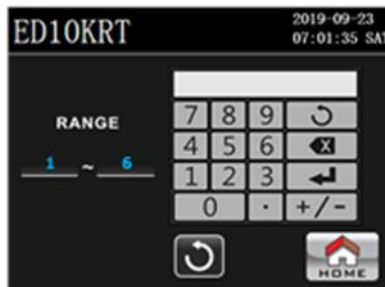
–   Time Inte: Programs a delay in the activation of the Power On/Power Off command between the sequenced Load Banks. This delay can be programmed from 0 to 600 seconds. To set the time interval, press the blank field next to the desired load bank and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering your selection, (1-6), then press: ⬅ . Repeat this process for each desired Load Bank to be programmed.
–   Activate: To activate the sequencing function press "No" in the far right-hand column so that it changes to "Yes". If the programming is not activated, all output Load Banks will power on and off immediately as the UPS is powered on and shut down.

5.1.4.4   Reboot:
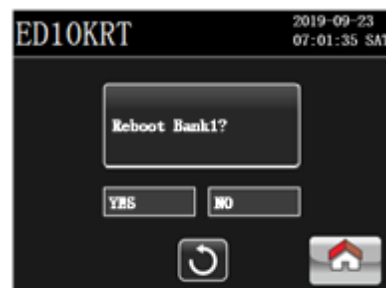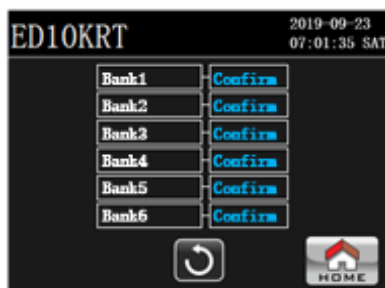
Press the ![Reboot] icon from the **Load Banks** menu and the **Reboot** submenu above will appear. The Reboot function enables the UPS to manually perform a hard reboot of connected devices by cycling the power to any individual Load Bank. Press "Confirm" in the field next to the respective Bank. A window will appear to confirm the reboot. Press "Yes" to continue or "No" to return to the previous screen. If activated, within 5 seconds the Load Bank will shutdown and after another 10 seconds, power will return to the Load Bank, cycling the power to the connected device.
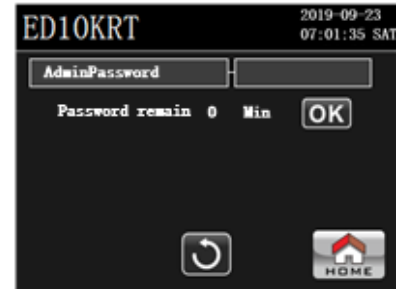
5.2　Menu Tree for "UPS Setup" - Administrator

The **Administrator UPS Setup** menu offer access to all configurable options for the UPS.

To access the menu, from the main LCD home page select the ![SETTING] then ![UPS Setup] icons. Choose the Administrator option and enter the default password: "**0000**" on the keypad that appears when pressing the blank field and then press ![enter] . If entered correctly, the page will jump to **UPS Setup Administrator** menu page. If the password is wrong, "Password error!" will appear and it must be re-entered correctly.
NOTE: The UPS must be in Standby or Bypass Mode to make configuration changes,
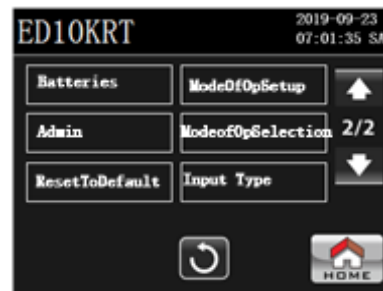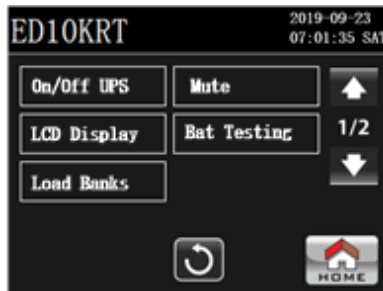
There are eleven available sub-menus once the Administrator Password has been entered correctly: **On/Off UPS, LCD Display, Mute, Bat Testing, Load Banks, Batteries, Admin, UPS Mode Of Op Setup, Reset To Default, Mode of Op Selection,** and **Input Type**. Use the ![up] or ![down] icons to browse each page of menu selections.

NOTE: At any time, and on any sub-menu screen, pressing the ![HOME] icon will return the display to the main screen. Any changes made will be lost unless saved prior to selecting the **HOME** icon. Press the ![back] icon to return to the previous page.

Menu Tree for "UPS Setup" - Administrator

![MINUTEMAN POWER TECHNOLOGIES by Para Systems, Inc.]
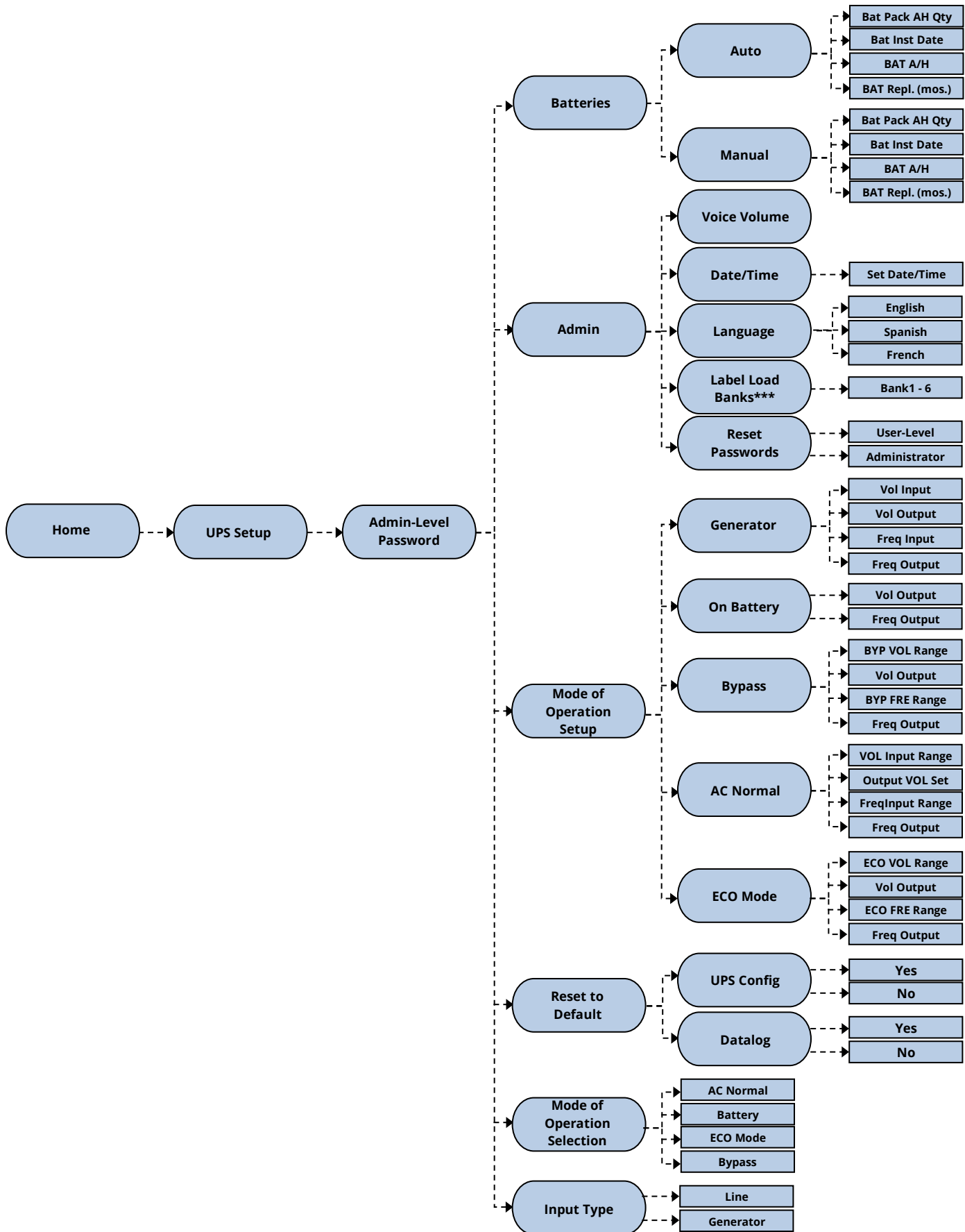
5.2.1 On/Off UPS:

Press the [User Level] icon of the **UPS Setup – Administrator** menu to Power On or Shut Down the UPS. Follow the instructions found in **Section 4.2 Start UPS**.

5.2.2 LCD Display:

Press the [LCD Display] icon of the **UPS Setup – Administrator** menu to adjust the LCD display. Follow the instructions found in **Section 5.1.1 LCD Display**.

5.2.3 Load Banks:

Press the [Load Banks] icon of the **UPS Setup – Administrator** menu to configure and manage the output Load Banks of the UPS. Follow the instructions found in **Section 5.1.4 Load Banks**.

5.2.4 Mute:

Press the [Mute] icon of the UPS **Setup – Administrator** menu to set the Mute function. Follow the instructions found in **Section 5.1.2 Mute**.

5.2.5 Bat Testing:

Press the [Bat Testing] icon of the **UPS Setup – Administrator** menu to initiate a battery or electronic self-test of the UPS. Follow the instructions found in **Section 5.1.3 Bat Testing**.

5.2.6 Batteries:
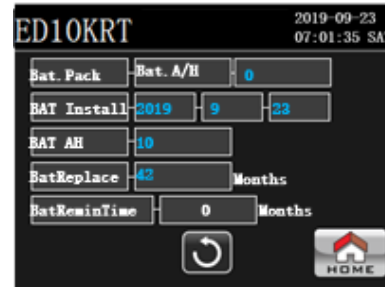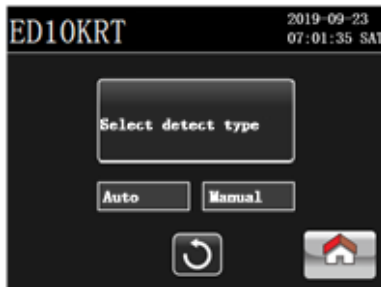
Press the [Batteries] icon of the **UPS Setup – Administrator** menu. A configuration page from the Batteries submenu will appear.

5.2.6.1 Auto

If using the Auto-detection communication cables for connected external battery packs, press [Auto] to enter the battery page to review and set the parameters for batteries used on the UPS installation. The only manually accessible fields are for entering the install date of replacement batteries and the replacement date for new batteries to be installed.

– Total BP A/H: In this section the UPS will automatically detect any connected external battery packs and enter the appropriate Amp/hour rating for that pack. If more than one battery pack is connected in a daisy-chain, the UPS will auto-sum the Amp/hour ratings of all the connected battery packs if also connected using the Auto-detect cables.

NOTE: If any connected battery packs are not using the auto-detect cable, it is important to calculate the total the connected Amp/hours of all connected battery packs and enter them manually, (see **Section 5.2.6.2**). Failure to properly account for all battery packs will result in an incorrect runtime estimation for the UPS operating in Battery Mode.

- BATInstall: When replacing the internal UPS batteries, use this field to update the replacement date when the new UPS batteries are installed. To manually enter the date, press the blank field next to "BATInstall" and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering a date using the **YYYY-MM-DD** format, then press: ◄─┘ . The default date is set during the original production.

- BAT AH: This field shows the Amp/hour rating of the internal batteries used in the UPS. This field is not adjustable and is for reference only. It is important to note any replacement battery set must match the same A/H rating as the original batteries.

- BatReplace: This field is used to set the anticipated replacement schedule for newly installed, replacement internal batteries. To manually enter the date, press the blank field next to "BATReplace" and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering a value. The format for the replacement batteries is listed in total months from, (1-42), from the installation of the new, replacement batteries. Enter the value in the field based on the instructions in the replacement battery packaging, then press: ◄─┘ . The default time period, (in mos.), is set during the original production.

5.2.6.2   Manual

If manually calculating the Amp/hour ratings for connected external battery packs, press **Manual** to enter the battery page to review and set the parameters for batteries used on the UPS installation The only non-accessible field on this page is the display of the Amp/hour rating used on the internal UPS batteries.

- Total BP A/H: In this section, manually sum up the total Amp/hour ratings for all connected battery packs. Press the blank field and a keypad will appear. Press the blank cursor field at the top of the keypad, then enter that number and press ◄─┘ . This rating will be used to determine the estimated runtime of the UPS during a blackout.

NOTE: It is important to correctly calculate the total the connected Amp/hours of all connected battery packs when entering them manually. Failure to properly account for all battery packs will result in an incorrect runtime estimation for the UPS operating in Battery Mode.

- BATInstall: When replacing the internal UPS batteries, use this field to update the replacement date when the new UPS batteries are installed. To manually enter the date, press the blank field next to "BATInstall" and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering a date using the **YYYY-MM-DD** format, then press: ◄─┘ . The default date is set during the original production.

- BAT AH: This field shows the Amp/hour rating of the internal batteries used in the UPS. This field is not adjustable and is for reference only. It is important to note any replacement battery set must match the same A/H rating as the original batteries.

- BatReplace: This field is used to set the anticipated replacement schedule for newly installed, replacement internal batteries. To manually enter the date, press the blank field next to "BATReplace" and a pop-up keypad will appear. Press the blank cursor field at the top of the keypad before entering a value. The format for the replacement batteries is listed in total months from, (1-42), from the installation of the new, replacement batteries. Enter the value in the field based on the instructions in the replacement battery packaging, then press: ◄─┘ . The default time period, (in mos.), is set during the original production.
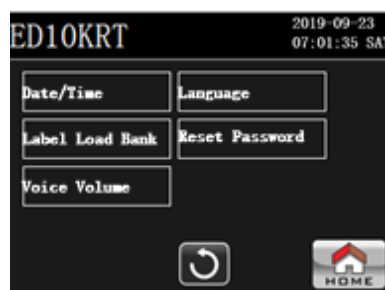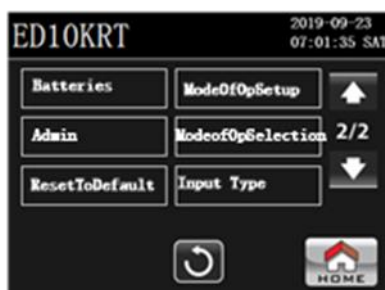
5.2.7   Admin:

Press the **Admin** icon of the **UPS Setup - Administrator** menu. There are five available sub-menus on the **Admin** tab: **Date/Time, Label Load Bank, Voice Volume, Language,** and **Reset Password**.

5.2.7.1 Date/Time:
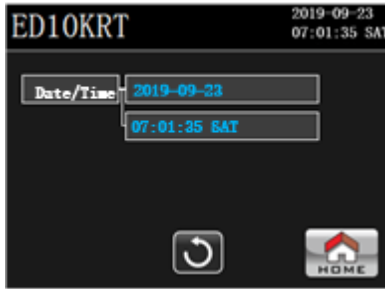
Press the **Date/Time** icon of the **Admin** menu to adjust the Date and Time for the UPS. Select either field next to the Date or Time label and a pop-up screen will appear showing: **(20_ _/_ _ /_ _ _ _ : _ _ : _ _)**, along with a keypad to enter the values. When making updates, both the date and time fields must be entered or the changes will not take effect. Using military time, the format for entering the values is 20YY-MM-DD HH:MM:SS. Once the update is complete, press ◀ to set the new values. The calendar day will automatically change when the year, month and date are set.

5.2.7.2 Label Load Banks:
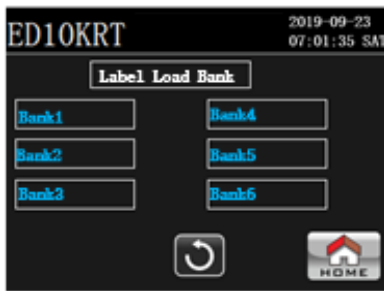
Press the **Label Load Bank** icon of the **Admin** menu to set up descriptive labels for each of the available output receptacle load banks on the UPS. Select any icon from Bank1 – Bank6 and a keyboard window will appear. Type out the name to be used for that Load Bank and press ◀ .

5.2.7.3 Voice Volume
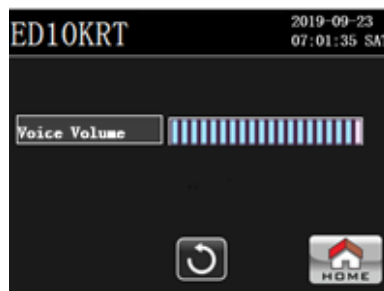
Press the **Voice Volume** icon of the **Admin** menu to control the volume of the voice funtion used during alarm events on the UPS. Use the slide bar to adjust the volume.

5.2.7.4   Language:
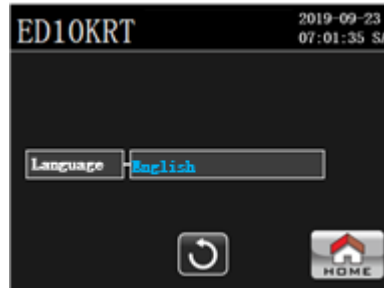
Press the ![Language] icon of the **Admin** menu to set the language to use for the LCD display. There are three available options: English, Simple and Tradition. English is default setting. Once the language preference has been set, the LCD will return to the main page.

5.2.7.5   Reset Passwords
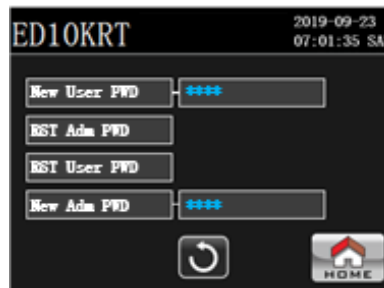
Press the ![Reset Password] icon of the **Admin** menu to change or reset the **User-Level** or **Administrator** passwords on the UPS.

NOTE1: The Factory Password is not field changeable.

NOTE2: <u>**Keep all changed passwords in a safe location. Loss of Passwords may require resetting the UPS to factory defaults which will result in the loss of all configured and programmed options.**</u>

– New User PWD: Press the field next to "New User PWD" to create a new **User Level** password. A numeric keypad will appear. Press the blank cursor field at the top of the keypad and then type in the new 4-digit code and press ![enter] . Confirm the password change and the UPS will return to the main home page. To re-enter the **User Level** menu requires inputting the new password.

– RST Adm PWD: Restores the Administrator Password to the factory default. Press "Yes" to reset the password to the factory default or "No" to return to the previous screen. If resetting, the UPS will return to the main home page. To re-enter the **Administrator** menu requires inputting the new password.

− RST User PWD: Restores the **User Level** Password to the factory default. Press "Yes" to reset the password to the factory default or "No" to return to the previous screen. If resetting, the UPS will return to the main home page. To re-enter the **User Level** menu requires inputting the new password.
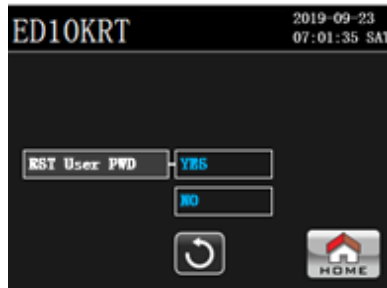
− New Adm PWD: Press the field next to "New Adm PWD" to create a new **Administrator** password. A numeric keypad will appear. Press the blank cursor field at the top of the keypad and then type in the new 4-digit code and press ⬅ . Confirm the password change and the UPS will return to the main home page. To re-enter the **Administrator** menu requires inputting the new password.
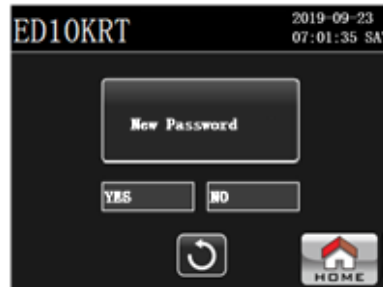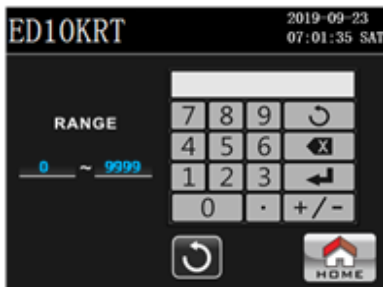
5.2.8   Reset to Default:
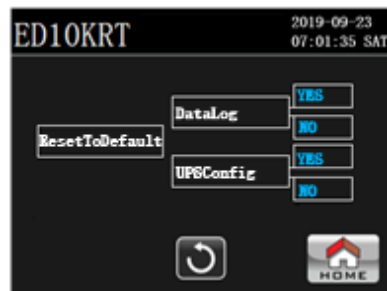
Press the **ResetToDefault** icon of the **UPS Setup – Administrator** menu and two menu options will appear: **DataLog** and **UPSConfig**.

DataLog: Press "YES" in the field next to "DataLog" to clear the DataLog page and confirm the selection. If cleared, the empty DataLog page will appear on the LCD screen. Press "No" to cancel this operation.

   NOTE: Once the DataLog has been cleared the information that is erased is not retrievable.

UPSConfig: Press "YES" in the field next to "UPSConfig" to restore the UPS to its original factory default configuration. A pop-up window will appear to confirm the reset. Press "Yes" again to return the UPS to its factory default settings. If reset the LCD will return to the main screen. Press "No" at any time to cancel this operation.

   NOTE: __All configured settings of the UPS will be lost if the UPS is reset to the default factory configuration, including passwords.__

5.2.9   ModeOfOp Setup:

Press the **ModeOfOpSetup** icon of the **UPS Setup – Administrator** menu. Five options will appear: **AC Normal, On Battery, Generator, Bypass Mode** and **ECO Mode**. Within each Mode of Operation menu, various input and output parameters can be reviewed. Additional configuration options for the UPS can also be set. To make any changes or adjustments to the settings, the UPS must be operating in the same mode as the configuration page or must by in Bypass Mode.

NOTE: If any configuration changes to the various "**ModeofOpSetup**" pages cause the operation of the UPS to conflict with the default Bypass Mode settings, the UPS will issue a general "Bypass Lost" alarm. The intent of the alarm is to warn the user if the UPS were to transfer to Bypass Mode with the amended settings, it would not be able to support the connected loads.

5.2.9.1   AC Normal Page:
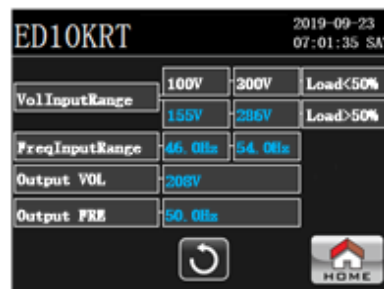
The **AC Normal** option is used for the custom configuration of the input and output settings used while the UPS is operating in **AC Normal** mode.

NOTE: If any configuration changes to the "**ModeofOpSetup-AC Normal**" page cause the operation of the UPS to conflict with the default Bypass Mode settings, the UPS will issue a general "Bypass Lost" alarm. The intent of this alarm is to warn the user if the UPS were to transfer to Bypass Mode with the amended settings, it would not be able to support the connected loads.

- Vol Input Range: This option can be used to make slight adjustments to the input voltage range of the UPS while operating in AC Normal Mode. Note that when the UPS has a connected load under 50% capacity, the input voltage range will be fixed at: 100VAC - 300VAC and is not a configurable option. When the connected load on the UPS is greater than 50% capacity, the default input voltage range of the UPS is: 155 – 286VAC and can be manually adjusted.

  For installation sites that experience higher than normal utility voltages which causes the UPS to frequently transfer between AC Normal and Battery Modes, the input voltage range can be adjusted up to 169-300VAC. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 156-169, then press ◄▬ . The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

- Output VOL: Use this option to select the output voltage of the UPS while in AC Normal mode: Press the field next to "Output VOL" and four available options, 208V, 220V, 230V and 240V will appear. Select the preferred voltage and confirm. The default output voltage setting is 208V.

- FreqInputRange: This option is used to make slight adjustments to the input frequency range of the UPS while operating in AC Normal Mode. The default input range for Line Mode operation is "Auto Select 50/60Hz, (±3Hz)". For installation sites that experience significant fluctuations in frequency modulation which causes the UPS to frequently transfer between AC Normal and Battery Modes, the range can be adjusted to 50/60Hz, (±4Hz). To change the input range, press the minimum or maximum threshold fields next to "FreqInputRange" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and change the setting to 56 on the low end and 64 on the high end, (for 60Hz install site) or 46 and 54, (for 50Hz install sites), then press ◄▬ .

- Output FRE: The UPS will, by default, autosense the input frequency when the UPS is powered on. Use the "Output FRE" option to manually set the output frequency of the UPS to Auto, 60Hz or 50Hz. Press the field next to "Output FRE" and three options will appear: 50Hz, 60Hz or Auto. Select the preferred option and confirm. The default setting is Autosense.

5.2.9.2   On Battery Page:
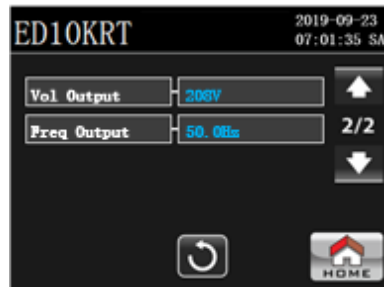
The **OnBattery** option is used for the custom configuration of the output voltage and frequency settings while the UPS is operating in Battery Mode.

- Output VOL: Use this option to select the output voltage of the UPS while in AC Normal mode: Press the field next to "Output VOL" and four available options, 208V, 220V, 230V and 240V will appear. Select the preferred voltage. Once set, the menu will return to the previous page. The default voltage setting is 208V.

- FreqOutput: Use this option to select output frequency of the UPS while in On Battery mode. This field will automatically update based upon the frequency Auto-select function or the programmed frequency on the AC Normal configuration page. To manually change this setting, press the field next to "FreqOutput" and three available options: Auto, 50Hz or 60Hz will appear. Select the preferred output frequency. When selected the menu will return to the previous page. The default frequency setting is 60Hz.

5.2.9.3   Generator Page:
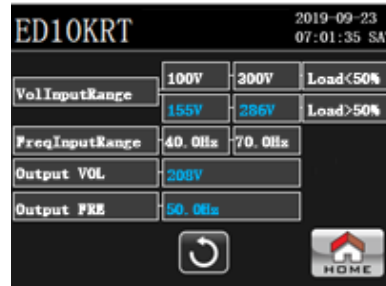
The **Generator** option is used for the custom configuration of the input and output voltage settings while the UPS is operating in Generator Mode.

− Vol Input: This field shows the input voltage range of the UPS while in Generator mode: This field is not programmable and is for information purposes only. The voltage range for Normal Mode operation is: 100V - 300V.

− Vol Output: Use this option to select the output voltage of the UPS while in Generator mode: Press the field next to the "Vol Output" icon and four available options, 208V, 220V, 230V and 240V will appear. Select the preferred voltage and, if successful, the screen will return to the previous page. The default voltage setting is 208V.

> **NOTE:** To avoid any potential voltage conflicts, the output voltage settings for both the Generator and Bypass Modes should be the same.

− Fre Input: This field shows the input frequency range of the UPS while in Generator mode: This field is not programmable and is for information purposes only. The frequency range for Generator operation is: 40Hz - 70Hz.

− Fre Output: Use this field to set the output frequency of the UPS while in Generator mode. Press the field next to the "Freq Output" icon and three available options, Auto, 50Hz and 60Hz will appear. Select the preferred frequency and, if the change is successful, the screen will return to the previous page. The default frequency setting is 60Hz.

> **NOTE:** To avoid any potential frequency conflicts, the output frequency settings for both the AC Normal and Bypass Modes should be the same.

5.2.9.4   Bypass Mode Page:

The **Bypass Mode** option is used for the custom configuration of the input and output voltage settings while the UPS is operating in Bypass Mode.

− **BYP VOL Range:** Use the "BYP VOL Range" field to adjust the minimum and maximum input voltage thresholds for the UPS while operating in "Bypass Mode". These thresholds, and the allowable adjustments, can vary depending on the "Vol Output" setting for the UPS. The table below will provide the minimum and maximum voltage range options for the available output voltage settings:

- 208VAC: The default Bypass Mode input voltage range for 208VAC operation is 198VAC to 220VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Standby or Normal Modes, the input voltage range can be adjusted between 187V – 208V and 208V – 231V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 187-208V, then press ⬅. The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

- 220VAC: The default Bypass Mode input voltage range for 220V operation is 209VAC to 232VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Standby or Normal Modes, the input voltage range can be adjusted between 198V – 220V and 220V – 244V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 198V – 220V, then press ⬅. The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

- 230VAC: The default Bypass Mode input voltage range for 230V operation is 219VAC to 243VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Standby or Normal Modes, the input voltage range can be adjusted between 207V – 230V and 230V – 255V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 207V – 230V, then press ⬅. The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

- 240VAC: The default Bypass Mode input voltage range for 240V operation is 228VAC to 253VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Standby or Normal Modes, the input voltage range can be adjusted between 216V – 240V and 240V – 266V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 216V – 240V, then press ⬅. The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

– **Vol Output:** Use this option to select the output voltage of the UPS while in Bypass mode. Press the field next to the "Vol Output" icon and four available options, 208V, 220V, 230V and 240V will appear. Select the preferred voltage and, if successful, the screen will return to the previous page. This setting will determine the default minimum and maximum allowable input voltage range for the UPS to remain in Bypass Mode. The default voltage output setting is 208V.

– **BYP FRE Range:** This option is used to make a slight adjustment to the input frequency range of the UPS while operating in Bypass Mode. The default input range for Bypass Mode operation is "Auto Select 50/60Hz, (±2Hz)". For installation sites that experience significant fluctuations in frequency modulation which causes the UPS to frequently transfer between Bypass and Battery Modes, the range can be adjusted to 50/60Hz, (±3Hz). To change the input range, press the minimum or maximum threshold fields next to "FreInputRange" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and change the setting to 57 on the low end and 63 on the high end, (for 60Hz install site) or 47 and 53, (for 50Hz install sites), then press ⬅.

– **Fre Output:** Use this field to set the output frequency of the UPS while in Bypass mode. Press the field next to the "Fre Output" icon and three available options, Auto, 50Hz and 60Hz will appear. Select the preferred frequency and, if successful, the screen will return to the previous page. The default frequency setting is 60Hz.

   NOTE: If any configuration changes to the various "ModeofOpSetup" pages cause the operation of the UPS to conflict with the default Bypass Mode settings, the UPS will issue a general "Bypass Lost" alarm. The intent of the alarm is to warn the user if the UPS were to transfer to Bypass Mode with the amended settings, it would not be able to support the connected loads.

5.2.9.5   ECO Mode Page:

The **ECO Mode** option is used for the custom configuration of the input and output voltage settings while the UPS is operating in ECO Mode.
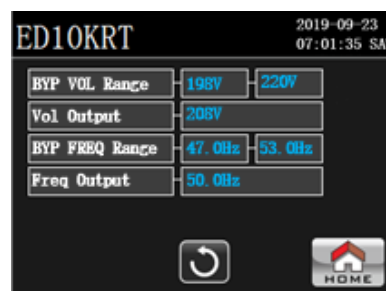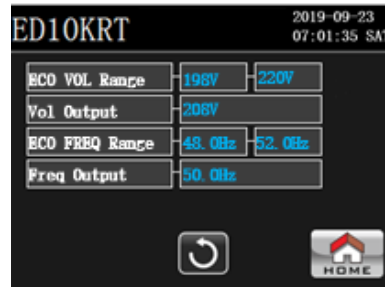
− **ECO VOL Range:**   Use the "ECO VOL Range" field to adjust the minimum and maximum input voltage thresholds for the UPS while operating in "ECO Mode". These thresholds, and the allowable adjustments, can vary depending on the "Vol Output" setting for the UPS. The table below will provide the minimum and maximum voltage range options for the available output voltage settings:

- 208VAC: The default ECO Mode input voltage range for 208VAC operation is 198VAC to 220VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Battery Mode, the input voltage range can be adjusted between 187V – 208V and 208V – 231V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 187-208V, then press ⬅ . The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.
- 220VAC: The default ECO Mode input voltage range for 220V operation is 209VAC to 232VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Battery Mode, the input voltage range can be adjusted between 198V – 220V and 220V – 244V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 198V – 220V, then press ⬅ . The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.
- 230VAC: The default ECO Mode input voltage range for 230V operation is 219VAC to 243VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Battery Mode, the input voltage range can be adjusted between 207V – 230V and 230V – 255V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 207V – 230V, then press ⬅ . The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.
- 240VAC: The default ECO Mode input voltage range for 240V operation is 228VAC to 253VAC. For installation sites that experience abnormal utility voltages which causes the UPS to frequently transfer to and from Battery Mode, the input voltage range can be adjusted between 216V – 240V and 240V – 266V. To change the input range, press the field next to "Vol Input Range" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and enter a voltage from 216V – 240V, then press ⬅ . The "Max" input voltage value field will automatically update based on the voltage entered in the "Min" field.

− **Vol Output:**   Use this option to select the output voltage of the UPS while in ECO mode. Press the field next to the "Vol Output" icon and four available options, 208V, 220V, 230V and 240V will appear. Select the preferred voltage and, if successful, the screen will return to the previous page. This setting will determine the default minimum and maximum allowable input voltage range for the UPS to remain in ECO Mode. The default voltage output setting is 208V.

– **ECO FRE Range:** This option is used to make slight adjustments to the input frequency range of the UPS while operating in ECO Mode. The default input range for ECO Mode operation is "Auto Select 50/60Hz, (±3Hz)". For installation sites that experience significant fluctuations in frequency modulation which causes the UPS to frequently transfer between ECO and Battery Modes, the range can be adjusted to 50/60Hz, (±4Hz). To change the input range, press the field next to "FreInputRange" and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and change the setting to 56, (for 60Hz install site) or 46, (for 50Hz install sites), then press ◀ . The "Max" value field will automatically update based on the frequency entered in the "Min" field.

– **Fre Output:** Use this field to set the output frequency of the UPS while in ECO mode. Press the field next to the "Fre Output" icon and three available options, Auto, 50Hz and 60Hz will appear. Select the preferred frequency and, if successful, the screen will return to the previous page. The default frequency setting is 60Hz.
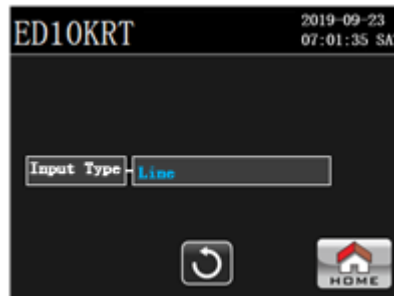
5.2.10 Mode of Operation Selection:
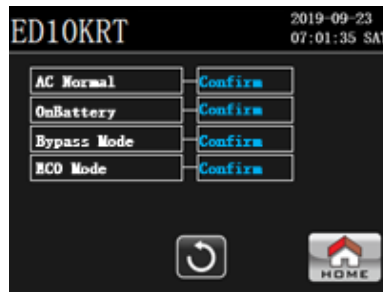
Press the **ModeofOpSelection** icon of the **UPS Setup – Administrator** menu to select the mode of operation for the UPS.

– AC Normal: Select the "Confirm" field to place the UPS in AC Normal Mode. The UPS will automatically transfer if input utility is within nominal levels. If the input line is abnormal, a window will appear that says: "Not active – No info avail" and the UPS will remain in the current operating mode prior to the transfer request.

– On Battery: Select the "Confirm" field to place the UPS in Battery Mode. The UPS will switch from its current mode to Battery Mode if the internal and connected batteries are nominal. If the batteries are weak, dead or disconnected, a window will appear that says: "Not active – No info avail" and the UPS will remain in the current operating mode prior to the transfer request.

– ECO Mode: Select the "Confirm" field to place the UPS in ECO Mode. The UPS will automatically transfer if input utility is within nominal levels. If the input line is abnormal, a window will appear that says: "Not active – No info avail" and the UPS will remain in the current operating mode prior to the transfer request.

– Bypass Mode: Select the "Confirm" field to place the UPS in Bypass Mode. The UPS will automatically transfer if input utility is within nominal levels. "Not active – No info avail"

5.2.11 Input Type:

Press the **Input Type** icon of the **UPS Setup – Administrator** menu to select the mode of operation for the UPS.

- Line (Utility): Sets the AC Normal parameters of the UPS for use with utility input power. Line is the default input source type used for the UPS. It also sets the input voltage and frequency parameters for operation of the UPS in ECO and Bypass Modes. (See specifications in section X.X for default settings)
- Generator: Sets the AC Normal parameters of the UPS for use with input power driven by generator source. It also sets the generator-driven input voltage and frequency parameters for operation of the UPS in ECO and Bypass Modes. (See specifications in section 5.2.9.3 for default settings)

NOTE: The UPS must be place in Bypass Mode the change the Input Type.

6.0 Operation

6.1 Modes of Operation:

6.1.1 Normal Mode:

When connected to acceptable input utility power and properly powered on, the UPS will provide uninterrupted output AC voltage to connected devices while also charging the internal batteries. The UPS will continue to operate in Normal Mode until a blackout, brownout, or overvoltage condition occurs where it will transfer to Battery Mode. When the utility power returns or is at an acceptable level, the UPS will automatically transfer back to the On-Line mode and start recharging the batteries.

6.1.2 Battery Mode:

When a blackout, brownout, or an overvoltage condition occurs while the UPS is in the On-Line or Economy modes, the UPS will transfer to the Battery Mode. The LED on the front panel of the UPS will change to orange, the On-Battery indicator on the LCD Display will illuminate and the audible alarm will sound once every four-seconds indicating that the utility power is lost or unacceptable.

During an extended outage when there is approximately two-minutes of battery backup time remaining, the LED will flash Red, a Low-Battery visual alarm will appear on the front panel and the audible alarm will sound one every second. This Low Battery Warning provides notification that all open files need to be saved and connected devices should be properly powered down. When the batteries reach the predetermined voltage level, the UPS will automatically shut down 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.

6.1.3 ECO Mode:

When operating in Economy Mode, the input utility power 'bypasses' the inverter circuitry of the UPS 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. When the utility power returns or is at an acceptable level, the UPS will automatically transfer back to the Economy mode, providing output power to connected devices, and begin recharging the batteries.

6.1.4 Bypass Mode:

In Bypass Mode, 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 or undervoltage occurs while the UPS is in the Bypass mode, the UPS will shut down output power to the connected equipment but will remain on, in Standby Mode, for approximately 60 seconds before shutting down. When utility power returns the UPS will automatically startup in the Bypass mode powering the connected equipment and resume charging the batteries. During an overvoltage event, the UPS will shut down output power and transfer to Standby Mode. It will stay in Standby Mode until the input voltage returns to nominal levels or a blackout/undervoltage event causes it to completely shut down.

6.2 Connecting the UPS

6.2.1 ED5KRT & ED6KRT Models:

Endeavor 5kVA & 6kVA models require a two-pole, three-wire grounded AC input. There are two options for making this type of connection: Hardwiring the connection directly into the input terminal block or attaching the enclosed 6-foot, NEMA L6-30P to hardwire input power cord to the input terminal block and connecting it to a NEMA L6-30R receptacle. For detailed instructions and cord size and length requirements, see **Section 2.8**.

NOTE: Do not use extension cords, surge strips or adaptor plugs when connecting the UPS to power.

6.2.2. ED8KRT & ED10KRT Models

Endeavor 8kVBA & 10kVA require the use of a two-pole, three-wire grounded AC input using a hardwire connection. For detailed instructions and cord size and length requirements, see **Section 2.8**.

NOTE: Do not use extension cords, surge strips or adaptor plugs when connecting the UPS to power.

6.3   Power On the UPS

Confirm that nominal input AC power is available to the UPS. Begin the startup process by closing the input circuit breaker on the back panel of the UPS, applying input power to the device. Once input power is made available to the UPS, the internal batteries will begin actively charging, the LCD display will activate and the UPS will provide output utility power through the Bypass circuitry. When the initialization process is complete, the Home Page of the LCD display (below) will appear. At this point, the UPS will only be in **Bypass Mode** and is only providing utility power to connected loads. The UPS is now ready to complete the startup process or can be customized and configured using the menu options described in **Section 5.0**.
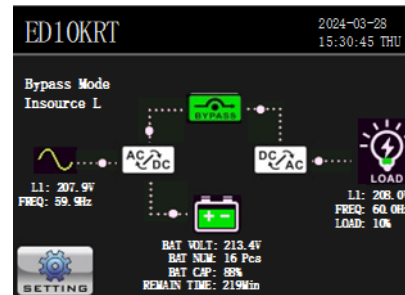
6.3.1   Start the UPS in Line Mode
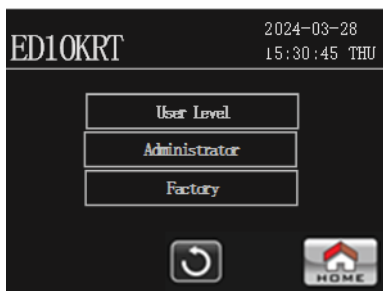
Once the UPS reaches Bypass Mode when powered on, it is ready to start up. Press the [SETTING] icon on the main LCD display, then select the [UPS Setup] icon. The UPS can be Powered On using either the **User-level** or **Administrator** menus. Press the Password field on the respective screen and a numeric keypad will appear. Press the blank cursor field at the top of the keypad and then type in the 4-digit password and press ↵ .

When the password is entered correctly, select the **On/Off UPS** menu option.

Press "On" next to "On/Off UPS" and confirm the selection. Once confirmed, the LCD screen will return to the main page. The UPS will begin the startup process. The first step the UPS performs is an internal electronics and battery self-test which takes several seconds. If successful, the UPS will transfer to Line Mode. If the UPS detects any internal anomalies during the initial self-test, the unit will display an error message, sound an audible alarm, the front panel LED will turn RED while the UPS is in Fault Mode.

6.3.2   Start in Battery Mode:

6.3.2.1 Without AC Power:

To power on the UPS without available utility power, press the ◀ button on the front panel of the UPS to start the initialization process. (During the initialization process the UPS LED will flash Red and the audible alarm will sound once every second). Once the UPS reaches Standby mode on the LCD screen, it is ready to complete the startup process. Press the ⚙ SETTING icon on the main LCD display, then select the ⚙ UPS Setup icon.

The UPS can be powered on using either the **User-level** or **Administrator** menus. Select one, then press the Password field on the respective screen and a numeric keypad will appear. Type in the 4-digit password and press ⏎ .   When the password is entered correctly, select the **On/Off UPS** menu option. Press "On" next to "On/Off UPS" and confirm the selection. Once confirmed, the LCD screen will return to the main page. The UPS will begin the startup process before transferring to Battery Mode. If the internal batteries are too weak or are dead, the DC Startup function will not function.

NOTE: <u>**The Battery Mode startup process must be completed within 60 seconds of initialization or the UPS will shut down and the process will have to be repeated**</u>.

6.3.2.2 With AC Power

To start the UPS in Battery Mode with nominal utility power available. Apply input power to the UPS, (See **Section 6.2**). The UPS will transfer to Bypass Mode and begin supplying output utility power to connected devices.

When the UPS reaches Bypass Mode, press the ⚙ SETTING icon on the main LCD page, then select the ⚙ UPS Setup icon. Press the **Administrator** menu and enter the password. Select the **ModeofOpSelection** option from the menu list then press **Battery Mode** and confirm. If successful, the UPS will begin the startup process and the LCD will return to the home page. The front LED will turn orange and the audible alarm will sound once every four seconds.

NOTE: The UPS will remain in Battery Mode until the mode of operation is manually changed or the unit reaches Low Battery shutdown.

6.3.3   Transfer to Battery Mode

To transfer the UPS to Battery Mode when operating in Line Mode, Bypass Mode or ECO Mode, press the ⚙ SETTING icon on the main LCD page, then select the ⚙ UPS Setup icon. Press the **Administrator** menu and enter the password. Select the **ModeofOpSelection** option from the menu list then press **Battery Mode** and confirm.

If successful, UPS will begin supplying output battery power immediately and the LCD will return to the home page .

6.3.4   Start in Bypass Mode:

The default startup mode for the UPS is Bypass Mode. To start the UPS in Bypass Mode, nominal utility power must be available to the UPS. Follow the procedures to power on the UPS in **Section 6.2**.

6.3.4.1 Transfer to Bypass Mode

To transfer the UPS to Bypass Mode when operating in Line Mode, Battery Mode or ECO Mode, nominal utility power must be available to the UPS. Press the **SETTING** icon on the main LCD page, then select the **UPS Setup** icon. Press the **Administrator** menu and enter the password. Select the **ModeofOpSelection** option from the menu list then press **Bypass Mode** and confirm. If successful, the LCD will return to the home page. If the input power of the UPS is out of range, the UPS will respond: "Not active – no info avail".

6.3.5   Start in ECO Mode:

To start the UPS in ECO Mode, nominal utility power must be available to the UPS. Apply input power to the UPS, (See **Section 6.2**). When the UPS reaches Bypass Mode, press the **SETTING** icon on the main LCD page, then select the **UPS Setup** icon. Press the **Administrator** menu and enter the password. Select the **ModeofOpSelection** option from the menu list then press **ECO Mode** and confirm. If successful, the UPS will begin the startup process and the LCD will return to the home page. If the input power of the UPS is out of range, the UPS will respond: "Not active – no info avail".

NOTE: The UPS will remain in ECO Mode until the mode of operation is manually changed.

6.3.5.1 Transfer to ECO Mode:

To transfer the UPS to ECO Mode when operating in Line Mode, Battery Mode or Bypass Mode, nominal utility power must be available to the UPS. Press the **SETTING** icon on the main LCD page, then select the **UPS Setup** icon. Press the **Administrator** menu and enter the password. Select the **ModeofOpSelection** option from the menu list then press **ECO Mode** and confirm. If successful, the LCD will return to the home page. If the input power of the UPS is out of range, UPS will respond: "Not active – no info avail".

6.4 Shutdown the UPS:

To shut down the UPS, in any mode, press the **SETTING** icon from the main LCD page, then the **UPS Setup** icon. Enter the **User-Level** or **Administrator** menu option and enter the appropriate password using the keypad. Select the "On/Off UPS" option from the submenu list, press "OFF" next to "On/Off UPS" and confirm the selection. The UPS will then begin is shutdown process.
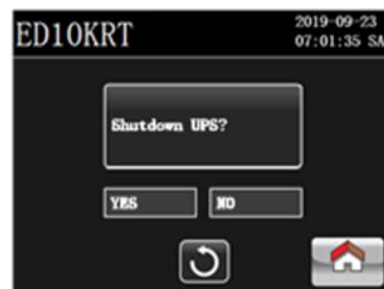
6.5 UPS Restart

There are two processes to manually restart the UPS if it has been manually powered off, re-initialization and a simple restart, which is essentially a reboot of the system.

6.5.1 Shutdown/Restart UPS

With the UPS manually turned off, using the front panel LCD control, remove the input power by opening the input circuit breaker on the back panel of the UPS. Wait 30 seconds then close the breaker, reapplying input power to the UPS. Once the UPS reaches Bypass Mode, follow the instructions in **Section 6.2.1** to complete the startup.

6.5.2 Front Panel Startup

To restart the UPS after it has been turned off using the front panel LCD control. Press the ◀ button on the front panel of the UPS. The UPS will begin its initialization process and transition to Bypass mode if no faults are detected. To complete the startup process, follow the procedures in **Section 6.2.1.**

6.6 UPS Status
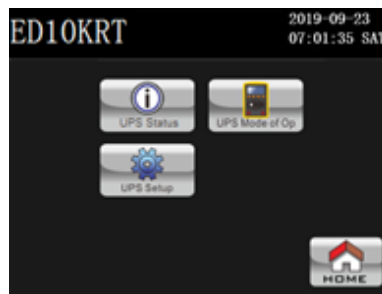
Press the ⚙ **SETTING** icon from the main LCD page then the ⓘ **UPS Status** icon and the following menu tree of real time status information will be accessible.
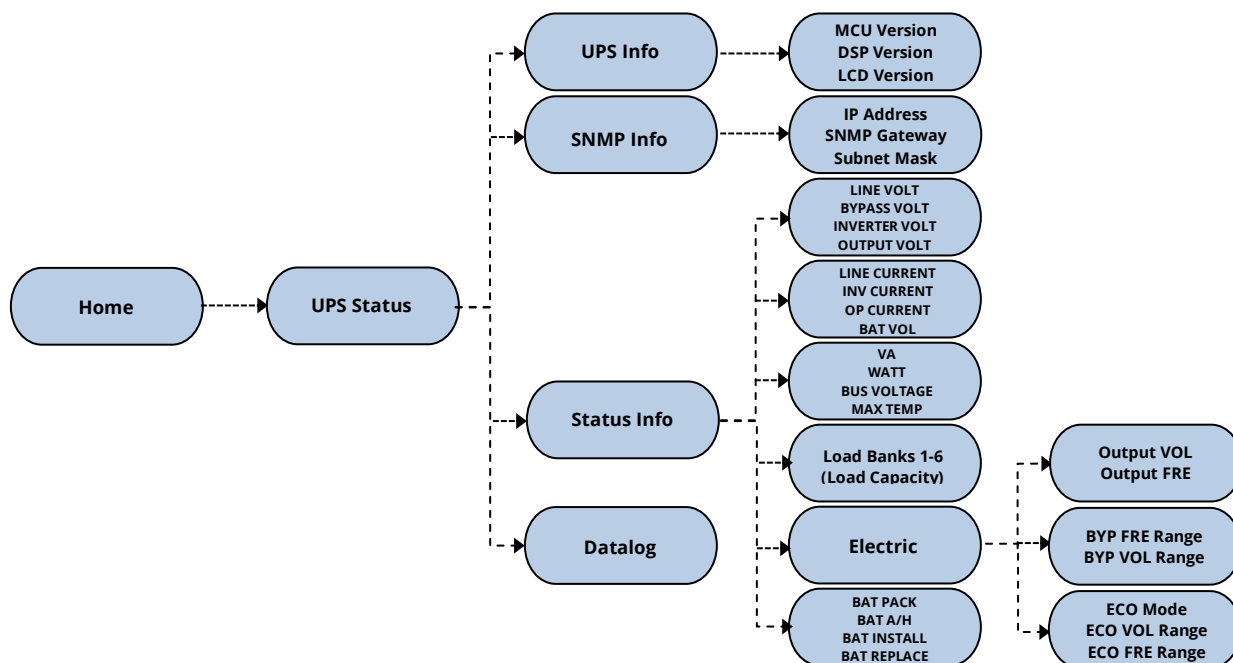
There are four sub menus listed under the UPS Status tab: **UPS Info, SNMP Info, Status Info** and **Datalog**. Each tab will provide detailed information about the UPS and current state of operations.

NOTE: At any time, and on any sub-menu screen, pressing the [HOME] icon will return the display to the main screen. Any changes made will be lost unless saved prior to selecting the **HOME** icon. Press the [↺] icon to return to the previous page.

6.6.1   UPS Info

Press the **UPS Info** option and the following firmware information about the UPS is provided:

- MCU Version
- DSP Version
- LCD Version
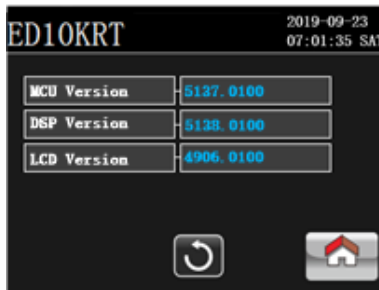
6.6.2   SNMP Info

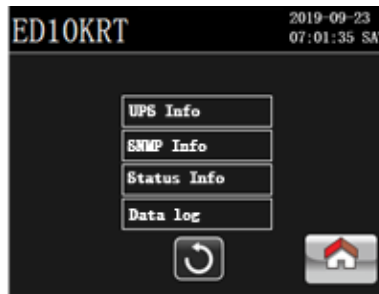If an optional SNMP network adaptor is installed in the option card slot, press the **SNMP Info** option and the network address information will be displayed in the fields of this menu option. If no card is installed, these fields will be blank.

- SNMP IP Address
- SNMP Gateway
- SNMP Subnet Mask

6.6.3   Status Info

There are six pages of information available in the Status Info submenu. Press the Status Info menu option and use the [▲] or [▼] icons to browse each page of information.

Page One:
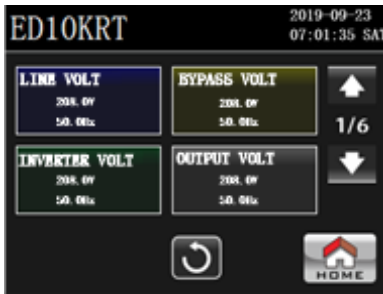
- LINE VOLT: The real time value of the input voltage and frequency.
- BYPASS VOLT: The real time value of the bypass voltage and frequency.
- INVERTER VOLT: The real time value of the inverter voltage and frequency.
- OUTPUT VOLT: The real time value of the output voltage and frequency.

Page Two:
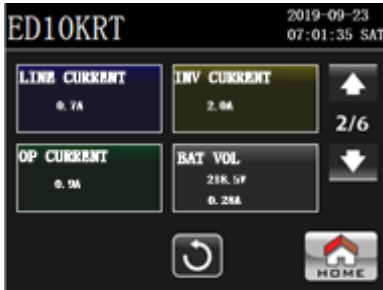
- LINE CURRENT: Input current in Amps.
- INV CURRENT: Inverter current in Amps.
- OP CURRENT: Output current in Amps.
- BAT VOL: Battery voltage in Volts and charger current in Amps.

Page Three:
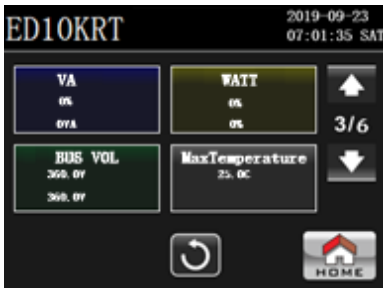
- VA: Output VA as a percentage of capacity.
- WATT: Output Wattage as a percentage UPS capacity.
- BUS VOL: The real time value of DC BUS (Positive and Negative) voltage.
- MaxTemperature: Maximum ambient internal temperature setting of the UPS.

Page Four:
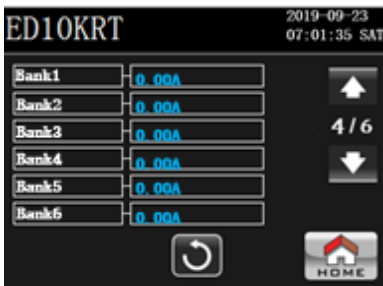
- Displays the current connected load values for each of the output Load Banks on the UPS.

Page Five: Electric Submenu
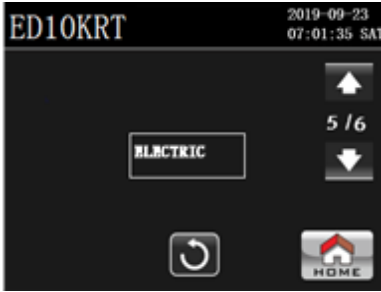
Press the **Electric** menu option on the Page 5 screen to enter the first of three pages under the Electric submenu. Use the ⬆ or ⬇ icons to browse each page of information.

Electric: Page One
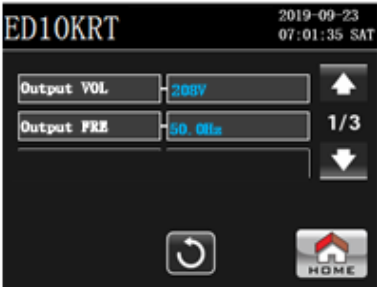
- Output VOL: Displays the output voltage setting of the UPS from four options: 208V (Default), 220V, 230V and 240V.
- Output FRE: Displays the output frequency setting of the UPS. The available options are 60Hz (Default) an 50Hz.

Electric: Page Two
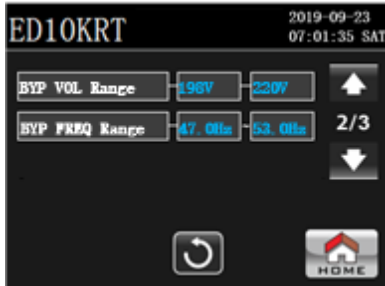
- BYP VOL Range: Displays the input voltage range setting for the Bypass Mode.
  - The low voltage point threshold for the Bypass Mode is between 187V ~ 240V. The default setting is 198V.
  - The high voltage point threshold for the Bypass Mode is between 208V ~ 266V. The default setting is 220V.

- BYP FREQ Range: Displays the input frequency range for the Bypass Mode.
  - The acceptable bypass frequency range is between 56Hz to 64Hz when the UPS operates at 60Hz system and between 46Hz to 54Hz when the UPS operates at 50Hz. The default setting is 47Hz to 53Hz.

Electric: Page Three
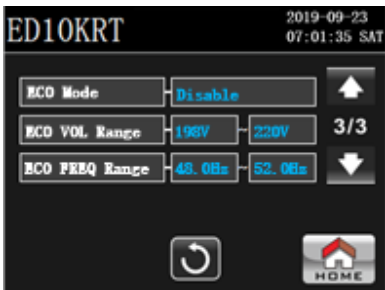
- ECO Mode: Displays the status of the ECO mode on the UPS, either "Enable/Disable"
- ECO VOL Range: Displays the ECO Mode input voltage range setting.
- ECO FRE Range: Displays the ECO Mode frequency range setting. The default range is from 57Hz to 63Hz when the UPS is 60Hz system and from 47Hz to 53Hz when the UPS is 50Hz system. The default setting is 48Hz to 52Hz.

Page Six:
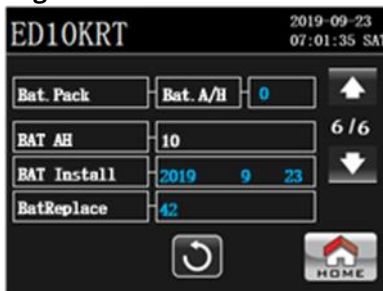
- Bat. Pack: Displays the Amp/hour rating of the connected external battery pack(s).
- Bat. A/H: Displays the Amp/hour rating of the internal batteries of the UPS.
- Bat Install: Displays the installation date of the internal batteries.
- BatReplace: Displays the target date (set in months of use) for the life of the internal batteries.

6.6.4 Datalog

The Datalog is used to record events, warnings and fault information regarding the UPS. Press the Datalog menu option to open the page below.
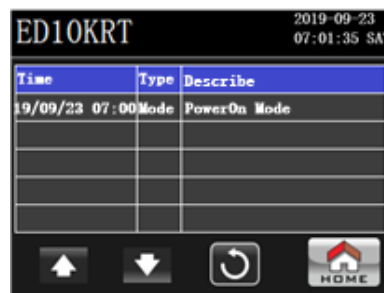
Each record will contain date & time stamps, along with the event type and description. Scroll events using the ⬆ or ⬇ icons to page up or down if there is more than one page in the Datalog. Refer to the Troubleshooting Section for a list of warnings and fault codes.

6.7 UPS Mode of Op

Press the ⚙ SETTING icon from the main LCD page then select the UPS Mode of Op icon and the following menu tree of real time status information will be accessible. This submenu will provide a list of all the available models of operation for the UPS as well as provide real time input and output information for the active UPS Mode of Operation. If the selected Mode of Operation is not active, there will be no real time information provided.
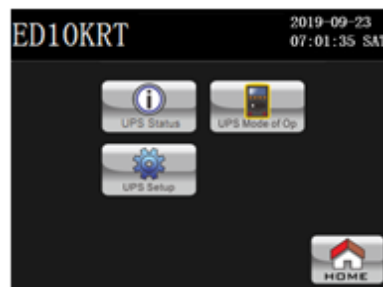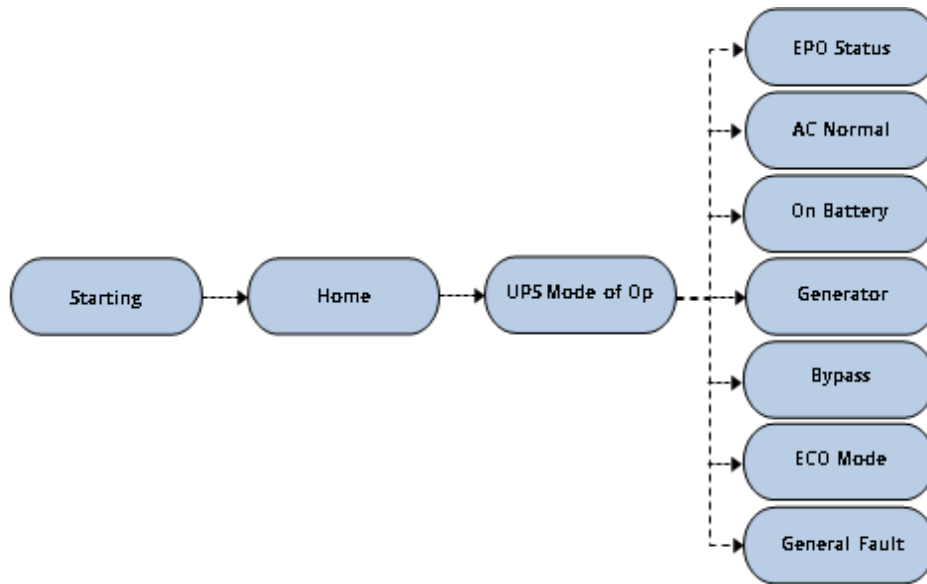
There are seven sub-menus available: **AC Normal, Generator, Bypass Mode, ECO Mode, On Battery, General Fault** and **EPO**. These menus will provide status information for the UPS when operating in each of these modes.

NOTE: At any time, and on any sub-menu screen, pressing the [HOME] icon will return the display to the main screen. Press the [↺] icon to return to the previous page.

6.7.1   AC Normal Page
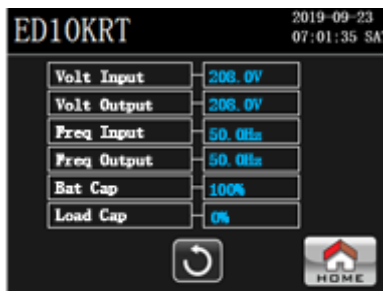
6.7.2   Generator Page
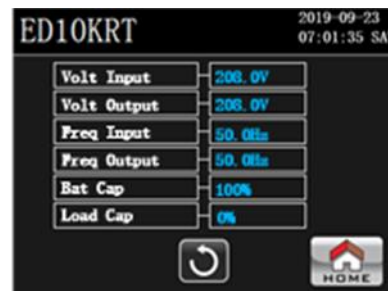
6.7.3   Bypass Mode Page
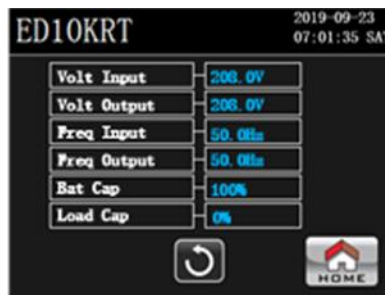
6.7.4   ECO Mode Page
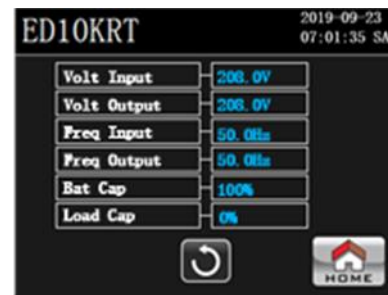
The following data points about the status of the UPS are displayed in each of the four submenus shown above, (when that respective Mode is in operation):

- Volt Input: The real time value of the UPS input voltage
- Volt Output: The real time value of the UPS output voltage
- Freq Input: The real time value of the UPS Input Frequency
- Freq Output: The real time value of the UPS output Frequency
- Bat Cap: Battery capacity percentage of the UPS and connected external battery packs.
- Load Cap: The connect load capacity of the UPS as a percentage of maximum capacity.

6.7.5   On Battery Mode Page

6.7.6   EPO Page:

The following data points about the status of the UPS are displayed in each of the two submenus shown above, (when that respective Mode is in operation):

- On Battery
    - BatCap: Battery capacity listed as a percentage
    - UPSRuntime: The maximum estimated discharge time in battery mode.
- EPO
    - Volt Input: The real time value of the UPS input voltage
    - VoltOutput: The real time value of the UPS Output voltage

6.8   General Fault Page:
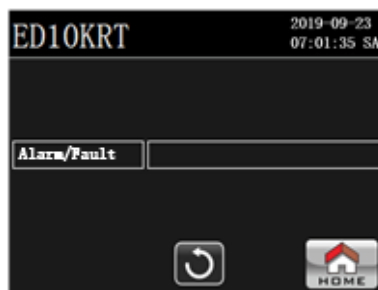
- Alarm/Fault: Lists the active UPS alarms and error codes

6.9 Communications:

6.9.1 USB Port:

This UPS if fully compatible with Minuteman's SentryHD management software, (available via download from: ***www. minutemanups.com/minuteman-software-download-center/***). To interface with the software, connect the included USB communications cable 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. To avoid any potential compatibility issues, only use only the interface cables that come with this UPS.

Additional instructions for setup, monitoring and management of the UPS can be found in the user manual for the SentryHD software.

NOTE: Connecting to the communications port is optional. The UPS works properly without this connection.

6.9.2 RS232 Port:

To interface with the downloaded SentryHD software, connect the included RS232 communications cable 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. To avoid any potential compatibility issues, only use only the interface cables that come with this UPS.

The RS232 communication port is a standard DB9 female. The pinout for the port is depicted below:
Pin 2: /TXD
Pin 3: /RXD
Pin 5: Ground
All of the other pins are not used.

NOTE: Connecting to the RS232 port is optional. The UPS works properly without this connection.

6.9.3 EPO Port (Emergency Power Off):

Activation of this port will immediately shutdown the UPS in case of emergency situations such as fire or flood. To avoid any potential compatibility issues, only use only the interface connector that come with this UPS. Attach a 2-pin communication cable to the 2-pin connector installed on the back of the UPS and the other end to an EPO switch. To activate the EPO function, short pin1 to pin2 for approximately 0.5-seconds to shut down the UPS. The UPS must be completely turned off by opening the input circuit breaker and then restarting the Power On process as described in **Section 4.2**.

NOTE: Connecting to the EPO port is optional. The UPS works properly without this connection.

6.9.4 External Battery Pack Detection Port:

Connecting the External Battery Detection Cable from the UPS to the Battery Pack allows the UPS to automatically detect the External Battery Pack for the purposes of runtime calculation. Once the UPS detects that there is an External Battery Pack connected it will automatically recalculate the estimated runtime based on the number of External Battery Packs detected and the attached load on the UPS. Configuration of the External Battery Pack can also be set manually through the LCD screen, the Power Monitoring Software, or the SNMP card.

NOTE: Connecting to the External Battery Pack Detection port is optional. The UPS works properly without this connection.

6.9.5 Option Card Slot:

The option slot on the rear panel of the UPS will support a variety of available accessory cards, including a Minuteman-approved network (SNMP) card. Contact your local dealer additional information on the cards available for this UPS or visit the Minuteman website at www.minutemanups.com for instructions on how install and operate.

7.0 Replacing the Battery Module

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

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

The original 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 for additional details and support or call 800.238.7272.

To maintain the optimal performance of the Endeavor UPS, it is important to only use battery modules designed to work with the series. Using third-party or inferior batteries will affect the negatively affect the performance and life of the UPS. Replacement battery modules are available from Minuteman at ***https://minutemanups.com/buy-ups-replacement-batteries/*** or by contacting Minuteman service at 800.238.7272.

Powering off the UPS is not required to replace the battery module. Remove all watches, rings or the metal objects during the process.
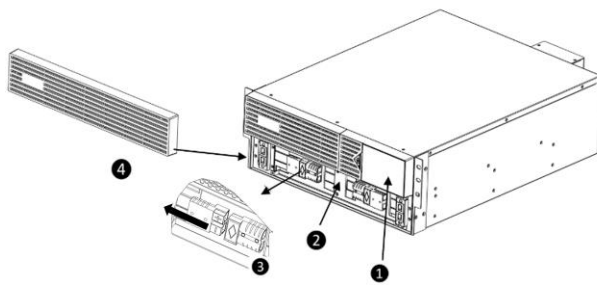
ED5KRT / ED6KRT　　　　　　　　　　　　　　　　　**ED8KRT / ED10KRT**
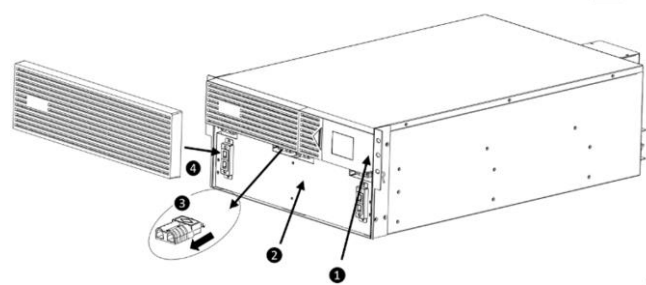
Figure 1　　　　　　　　　　　　　　　　　　　　　　**Figure 2**
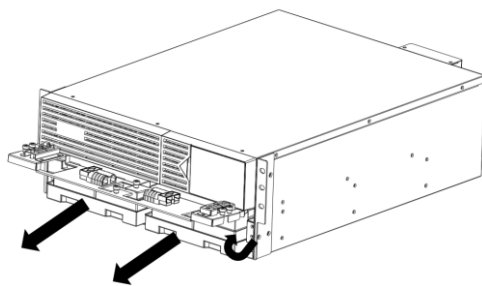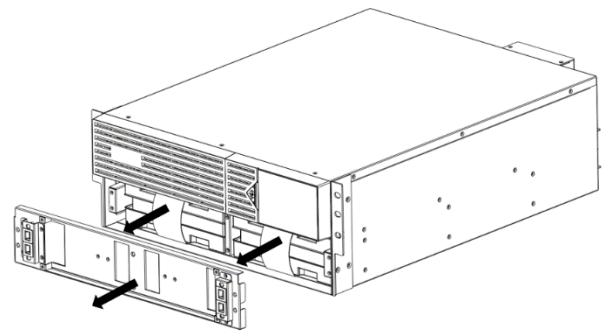
Figure 3　　　　　　　　　　　　　　　　　　　　　　**Figure 4**
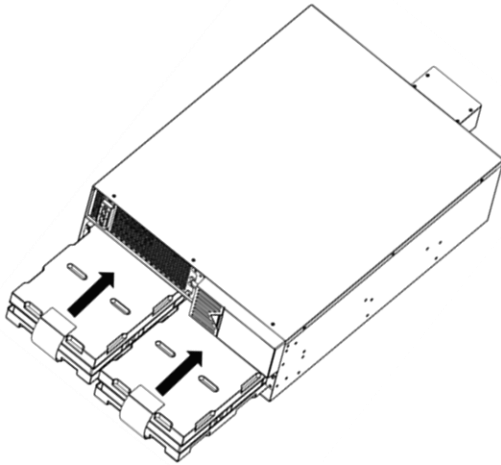
Figure 5

1) Expose the battery module by removing the front cover. The cover is anchored using a tension clip. Simply hold the side and pull directly away from the UPS housing. (Figures 1 and 2)

2) Separate the black Anderson battery module connections. There are two on the ED5KRT and ED6KRT. There are four on the ED8KRT and ED10KRT. (Figures 1 and 2)

3) With a Philips screwdriver, remove the visible anchor screws on the battery retention bracket and remove the bracket from the UPS housing, exposing the internal battery modules. (Figure 3 and 4)

4) Slide the old battery module(s) out of the battery cage and replace it with the new battery module(s). (Figure 5)

5) Replace the battery retention bracket and replace the screws. Reconnect the battery modules before replacing the font cover of the UPS housing.

8.0 Troubleshooting

8.1 Alarms:

8.1.1 On Battery:
When the UPS goes to Battery Mode, the front panel LED bar will change to Orange. On the LCD Display, "Battery Mode" will appear and the UPS will sound a single beep once every 5 seconds until the UPS reaches **Low Battery Warning** or AC power returns.

8.1.2 Low Battery Warning:
Once the UPS reaches **Low Battery Warning**, the front panel LED bar will change to Red and the UPS will sound 1 beep per second. "Low Battery Warning" will be displayed on the LCD panel until the UPS reaches **Low Battery Cut-off** and shuts down or AC power returns.

8.1.3 Weak/Bad Battery:
When the UPS detects a weak, bad or disconnected battery, the front panel LED bar will change to Red. The audible alarm will sound 3 beeps every 5 seconds and "Replace Battery" will be displayed on the LCD panel. This alarm will remain until the battery is recharged, replaced or connected.

8.1.4 Overload:
When the UPS detects an overload, the front panel LED bar will turn Red. The audible alarm will sound a constant alarm and "Overload" will be displayed on the LCD panel. This alarm will continue until the UPS shuts down or the overload is removed. If the UPS shuts down due to an overload condition, remove one or all of the connected devices and restart the UPS to remove the alarm.

8.1.5 Fault:
When the UPS detects an internal fault, the front panel LED bar will turn Red. The audible alarm will sound and the respective error message will be displayed on the LCD panel. This alarm will remain until the UPS is powered off and serviced.
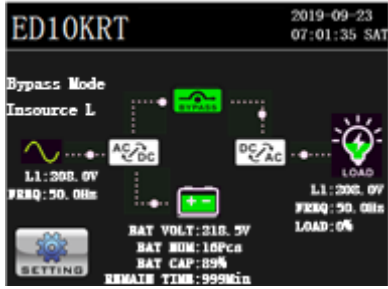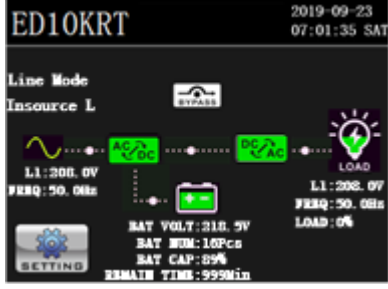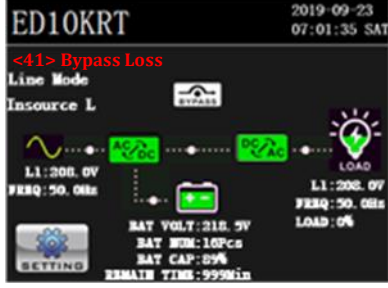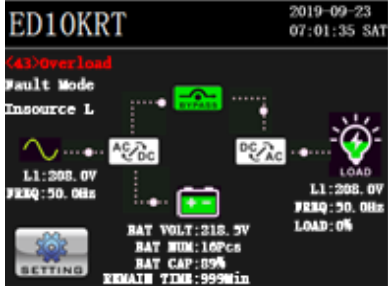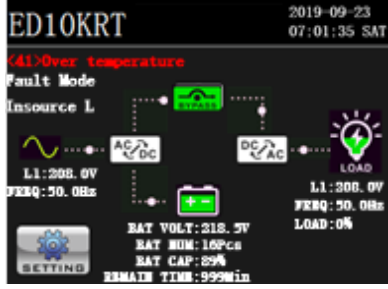
8.1.6 Alarm Silence:
When the UPS is operating in battery mode, the audible alarm can be silenced. Press the icon on the main LCD display, select and enter the **User-Level** or **Administrator** Password then press the **Mute** option from the menu list. The following menu will appear:
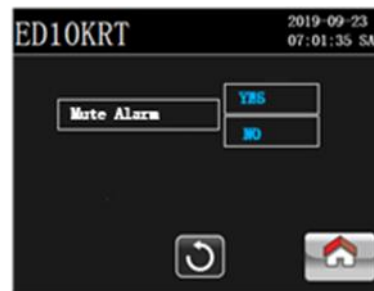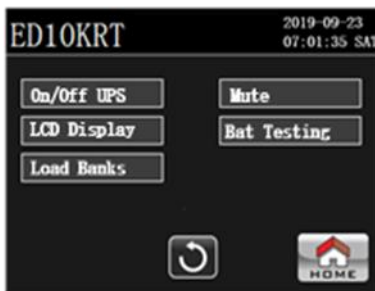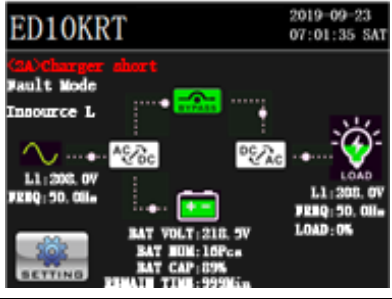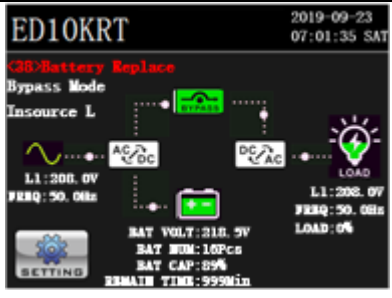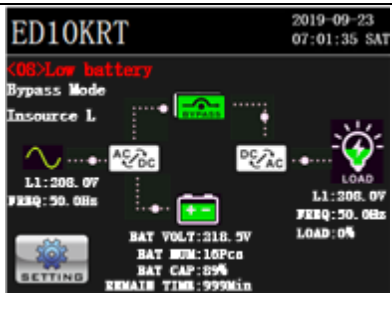
Press the "Yes" option to mute the UPS. The UPS will maintain this status until it reaches Low Battery Warning or a general fault occurs. The alarm cannot be silenced during these stages.

8.2 Troubleshooting Tips

Symptom / Error Code		What to Do
UPS will not turn on		Confirm the Input Circuit Breaker is closed, utility power is available and the internal batteries are connected. Through the LCD panel, press "Setting" > "Control" > "Turn On/Off UPS".
UPS operates in battery mode only, even with AC present.		Confirm the input utility voltage and frequency is within the nominal input range of the UPS and verify the Input Circuit Breaker is closed.

The UPS does not provide the expected runtime.		Charge the batteries for a minimum of 8 hours and retest. If the runtime is still less than expected, the batteries may need to be replaced.48
The AC Normal Icon is illuminated but there is no output.		Check the output status of each Load Bank to confirm it is On. 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 UPS issues Error Code: 41 "**Bypass Loss**" alarm		Check the input and/or output voltage settings for the various UPS Modes of Operation which are incompatible with the current Bypass Mode settings.
The "ERROR!" Icon is illuminated and there is a constant alarm.		The UPS has an internal problem. Call for service.
The UPS shuts off and will not restart.		The UPS has detected an overload or a short circuit on its output. Check the attached load(s).
Error Code: 43 **Overload**		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.
Error Code: 41 **Over-temperature**		The internal or ambient temperature has exceeded the safe operating range for the UPS. Refer to the product specifications.
Error Code: 2A **Invert/Output failure - shutdown**		The UPS has an internal fault. Call for service.

Error Code: 2A **Charger Short Circuited**		The battery charger has failed. Call for service.
Error Code: 38 **Battery Replace**		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.49
Error Code: 08 **Low Battery**		The UPS battery reserve is low. This condition will continue until AC power returns or the UPS shuts down from battery exhaustion.

9.0 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 the customer support page on our Web site at www.minutemanups.com/contact. Before contacting 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 technician 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 Technician 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, daytime 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.
6) Return the unit by insured, prepaid carrier to:

> Para Systems Inc.
> MINUTEMAN UPS
> 2425 Technical Drive
> Miamisburg, OH 45342
> ATTN: RMA #

10.0 *Specifications:

UPS Model	ED5KRT	ED6KRT	ED8KRT	ED10KRT
General Features				
Topology	Double-conversion, Online			
Number of Phases	Single (1φ 2W + G)			
VA Rating	5,000VA	6,000VA	8,000VA	10,000VA
Load Capacity	4,500 Watts	5,400 Watts	7,200 Watts	9,000 Watts
Output Receptacles	(3) L6-30R / (2) L6-20R (1) 3-wire Terminal Block	(3) L6-30R / (2) L6-20R (1) 3-wire Terminal Block	(4) L6-30R / (2) L6-20R (1) 3-wire Terminal Block	(4) L6-30R / (2) L6-20R (1) 3-wire Terminal Block
Installation Format(s)	Rack or Tower			
Input				
Nominal Voltages	208 (Default), 220, 230, 240VAC			
Acceptable Input Voltage	0 - 300VAC			
Voltage Range	155-286VAC			
Power Factor Correction (PFC)	≥99% at Full Load			
Frequency Range	40 to 70Hz at Full Load			
Input Plug Type (Cord Length)	Hardwire w/optional NEMA L6-30P (6-ft.)		Hardwire only	
Input Surge Protection	Resettable Circuit Breaker			
Maximum Input Current	31 Amps	38 Amps	51 Amps	63 Amps
Minimum Surge Joule Rating	3,140 Joules			
Output (AC Normal)				
Voltage Range	208 (Default), 220, 230, 240VAC			
Voltage Regulation	208,220,230,240VAC (±2%)			
Frequency Range	50/60Hz, auto selecting, +/-3Hz (unless synchronized to utility)			
Efficiency (AC-AC)	93% at full-rated non-linear load			
Output (Battery)				
Output Waveform (Battery Mode)	True Sine-wave			
Nominal Voltages	208 (Default), 220, 230, 240VAC			
Voltage Regulation	Nominal +/-2% (until Low Battery warning)			
Frequency Range	50/60Hz, +/-0.1Hz			
Voltage T.H.D.	≤2% (Linear Load)			
Overload Capacity	≤110% for 10 min (±4s) / ≥111% - ≤125% for 5 min (±4s) / ≥125% - ≤150% for 30 sec (±4s)			

Batteries				
Replacement Module	BM0097		BM0098	
Tool-less Module Connection	Yes (Front panel replacement)			
Runtime (Full/Half Load)	3 Minutes / 11 Minutes	2 Minutes / 7 Minutes	3 Minutes / 11 Minutes	2 Minutes / 7 Minutes
Ind. Battery Bypass	Yes			
DC Startup	Yes			
Hot-swappable Batteries	Yes			

Display & Communications				
Front Panel Display	Multi-color, Touchscreen LCD			
Alarm Silencer	Yes			
Shutdown Software	SentryHD (available via download)			
Communication Port(s)	USB/RS232 (Simultaneous access)			
Comm. Cables Included	Yes			
Remote Emergency Power Off Port	Yes51			

Environmental				
Operating Temperature Range	+32° to +104°F (0° to +40°C)			
Storage Temperature Range	+5° to +131°F (-15° to +55°C)			
Operating (Storage) Humidity Range	0 to 95%, non-condensing			
Operating Elevation	0 to +15,000 ft. (0 to +3,000m)			
Storage Elevation	0 to +50,000 ft. (0 to +15,000m)			

Physical		
Unit Dimensions (L x W x H)	23.27" x 17.24" x 6.81" (591*438*173 mm)	28.74" x 17.24" x 8.54" (730*438*217 mm)
Shipping Dimensions (L x W x H)	36.0" x 36.0" x 18.8" (915*915*478 mm)	36.0" x 36.0" x 20.6" (915*915*95 mm)
Unit Weight	122.32 lbs. (55.5 Kgs.)	170.81 lbs. (77.5 Kgs.)
Shipping Weight	160.0 lbs. (72.6 Kgs.)	209.0 lbs. (94.8 Kgs.)

Warranty & Certifications	
Standard Warranty	3 Years (Electronics and Batteries)
Connected Equipment Guarantee	$250,000
Safety Agency Approvals	cUL (UL1778)
Certifications and Compliancy	CE, FCC Class A, Energy Star 2.0, RoHS2

(*Specifications are subject to change without notice)

11.0 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 three years from the date of purchase. 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.

Please go to our website at www.minutemanups.com/warranty/ to fill out the Warranty Registration.

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.

<u>Life Support Policy</u>
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.

RoHS2
FCC Class B
cULus (UL1778 5th Edition)
CE Compliant

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Para Systems, Inc.
1455 LeMay Drive
Carrollton, TX 75007
800.238.7272
www.minutemanups.com

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Rev. C 20240430

A1. Declaration of Conformity

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

Standard(s) to which Conformity is declared: 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, IEC62040-1-1, IEC/EN62040-2, UL1778 (5th Edition), CSA 22.2 no. 107.3-05, FCC Class A

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: ED5KRT (Y), ED6KRT (Y), ED8KRT (Y), ED10KRT (Y)

Year of Manufacture: Beginning December 2023

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

Kevin Canole
Director of New Business Development

Place: Carrollton, Texas, USA
Date: December 1, 2023