

enovate
MEDICAL

Medical Computer Cart



MANUAL 07.17.14

IM013-01

The Enovate Medical Computer Cart was designed to set a new standard in quality. Enovate Medical's goal is to provide a cart that is built right, ready for years of use, and backed by a commitment of exemplary service and support.

Thank you for purchasing the Enovate Medical Computer Cart



Distributed by:
Enovate Medical
US Headquarters
1152 Park Avenue
Murfreesboro, TN 37129
Support t@enovatemedical.com
Toll free 888.909.8930

For laptop compatibility please check with your local
Enovate Medical Representative or call us toll-free (888) 909-8930

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Congratulations on your purchase of the Enovate Medical cart. Please do not use your medical cart until you have read this manual in its entirety as it contains important safety and use information. The Enovate Medical cart should only be used as outlined in this manual. Be sure to keep the manual in a safe place for future reference. If at any time you have questions or concerns about the contents of this manual or the use of your Enovate Medical cart, please contact Enovate Medical Customer Service toll free at 888.909.8930

This manual and the accompanying product labels and safety labeling materials of the Enovate Medical cart frequently employ the use of symbols with or without accompanying text. Health products regulatory agencies require the use of symbols, often in place of textual statements, to enhance the legibility of labeling and thus improve the conspicuousness of required information such as important safety information. Your attention to the presence and content of symbols used in this manual will help to ensure the safe use of your Enovate Medical cart. The following chart depicts the symbols used and provides a definition for each symbol found in this manual and in the labels and labeling materials of the Enovate Medical cart.

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The term “symbols” refers to the use of graphical symbols without equivalent accompanying text. Symbols are used by medical device manufacturers to create uniform labels and labeling for the United States, European Union, and any other countries that may permit their use in medical products. By using symbols in place of some textual statements, manufacturers may enhance the legibility of labeling and thus improve the conspicuousness of required information; especially where information is contained upon product labels that are restricted in their space available.

The use of symbols on the product labels are intended to conform to international consensus standards. The following chart depicts the symbols used and provides a definition for each symbol found in the labels.



CAUTION, CONSULT ACCOMPANYING DOCUMENTS



CONSULT INSTRUCTIONS FOR USE



ELECTRIC SHOCK WARNING SYMBOL



MANUFACTURER



SERIAL NUMBER



CATALOG NUMBER



TYPE B APPLIED PART



AUTHORIZED REPRESENTATIVE IN THE EUROPEAN COMMUNITY



The CE mark on this product indicates it has been tested to and conforms with the provisions noted within the

93/42/EEC Medical Device Directive



Accredited testing laboratory has evaluated a sample of the product and determined that it complies with applicable national standards, <enter , as applicable, Canadian and US>.

Warnings



Important Warnings



Electrical Shock Warning

The above symbols represent safety warnings that require significant attention when seen on the EMC cart or in the user manual. Failure to do so could result in minor injury, major injury, or even death.



Do not use in the presence of an anesthetic mixture with air or with oxygen or nitrous oxide.

SERVICE AND REPLACEMENT

Do not attempt to service or replace any part of the Enovate Medication Cart unless directed to do so through Enovate Medical approved documentation (i.e., this User Manual or other instructions). Only Enovate Medical or an Enovate-certified entity may service or replace the cart components. If any component on the cart is missing or damaged, the cart must not be used. Contact Enovate Medical immediately to request service.



Maintenance

During preventive maintenance cart should be turned off



SAFE WORKING LOADS

Safe working loads labels must be abided by for all parts of EMC



MAXIMUM WEIGHTS

- Standard Monitor 16lbs.
- Dual Monitors 8lbs. on each VESA
- Fixed monitor 16lbs.
- Laptop tray 7lbs.
- Keyboard tray 1lbs.



GROUNDING

Connect the Enovate Medication Cart to an equivalent receptacle marked "Hospital Only" or "Hospital Grade" to ensure ground.



DANGEROUS VOLTAGE

Do not remove battery drawer—there may be live parts inside, even when the Enovate Medication Cart is turned off.



DO NOT OPEN THE BATTERY AND POWER SYSTEM COMPARTMENT

Unauthorized personnel opening the power system compartment may cause injury and/or death. If the unit is not working properly, please contact Enovate.



DO NOT USE THE UNIT IN OR NEAR WATER OR OTHER LIQUIDS

If the unit becomes wet, unplug it immediately, wipe away any excess liquid and allow it to dry before use.





DO NOT OPEN MORE THEN ONE DRAWER AT A TIME

Cart worksurface and monitor must be in lowered position and all drawers must be closed during transport.



DO NOT TRANSPORT THE CART UP OR DOWN STAIRS



Multiple Portable socket-Outlets (MPSO) shall not be placed on the floor.



Additional MPSO or extension cord shall not be connected to the system.



MPSO provided with the system shall only be used for powering equipment which forms part of the system.



DO NOT connect non-medical equipment, which has been supplied as part of the system, directly to a wall outlet.



DO NOT connect electrical equipment which, has not been supplied as a part of the system, to the MPSO

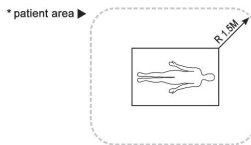


The leakage current could increase when connected to other equipment.

The operator should take precautions to avoid touching the rear panel input and output circuitry and the patient at the same time.

To isolate the system from the mains supply remove the mains plug from the wall socket.

NOTE: The power outlet provided in the system is powered from an isolation transformer. The maximum output rating of this outlet is 300 Watts.



The medical system device as supplied by Enovate Medical is suitable for use within a patient environment.

CAUTION: Non-medical equipment which may have been supplied as part of the system should only be connected to the cart MPSO which is powered from an isolation transformer. Connection of non-medical equipment to other outlets may lead to an increase of leakage current.

STATEMENT OF USE:

The Enovate Medical Computer Cart was designed to set a new standard in quality, ease of use, and customer satisfaction. Our goal is to provide a product that is built to exacting standards and is ready for years of durable service in a healthcare environment. This product is designed to be safely used within general patient areas and is meant to aid in the entering or retrieving of clinical data, and it complies with UL 60601-1 electromagnetic leakage and safety requirements if used in accordance with the boundaries and suggestions of this manual.

THIS PRODUCT IS CLASSIFIED AS:

- Class I internally powered UPS type B
- This product is designed for continuous operation
- IPX0 for water ingress

TESTED TO COMPLY WITH:

- UL60601-1: Issued: 2003/04/25 Ed:1 Rev: 2006/04/26 UL Standard for Safety Medical Equipment, Part 1: General Requirements for Safety

RECOMMENDED SHIPPING AND OPERATING CONDITIONS:

- Temperature Range 25°F- 120°F
- Humidity Range 10% - 80%

TERMS OF USE:

Removing or damaging the serial number and barcode label will void all cart warranties.

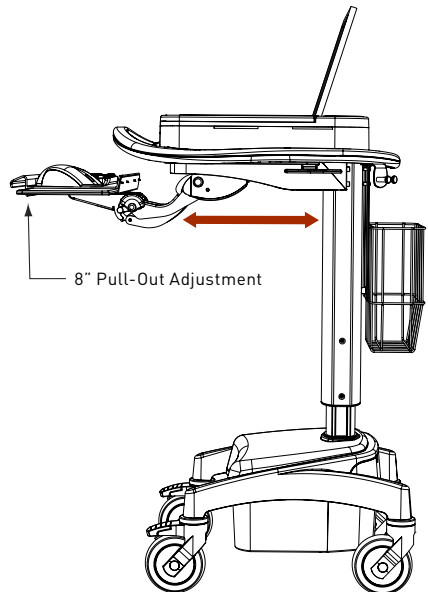
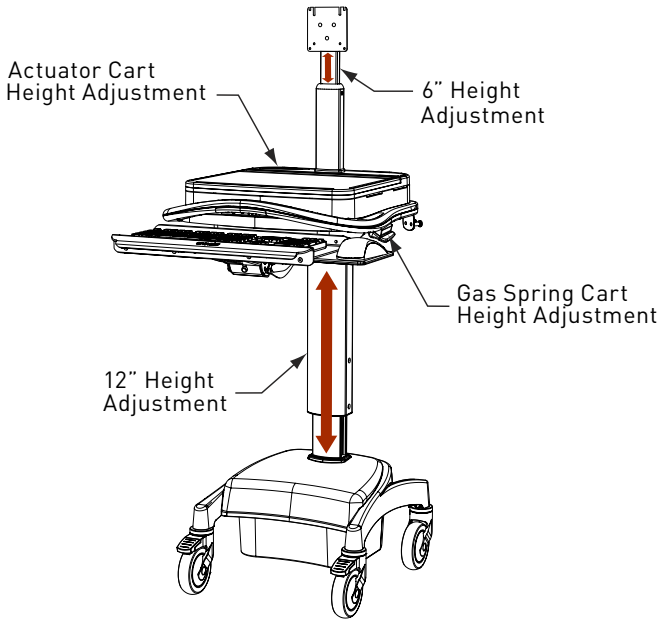
For laptop compatibility please check with your local Enovate Medical Representative or call us toll-free (877) 890-6131.

Unauthorized personnel opening the battery may cause injury and/or death.

If the unit is not working properly, please contact Enovate Medical Customer Service toll free at 877.258.8030

Contact Us
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Cart Features



Technical Data

60601 COMPLIANT POWER SYSTEMS

350 AC POWER SYSTEM

105 - 120 VAC, 50-60Hz Input 300w maximum output

105 - 120 VAC, 60Hz combined 300w maximum output

The powered EMC includes a hospital grade 3-input 5-15 NEMA AC power cord set.

150 AC POWER SYSTEM

105 - 120 VAC, 50-60Hz Input

105 - 120 VAC, 60Hz combined 150w maximum output

The powered EMC includes a hospital grade 3-input 5-15 NEMA AC power cord set.

OTHER POWER SYSTEMS

120 DC POWER SYSTEM

105 - 120 VAC, 50-60Hz Input

1 Fixed 12vDC, 1 Variable 12VDC-19VDC, Maximum 120w output

150 INTERNATIONAL

230 vac 50-60Hz input

230 vac 50-60Hz combined 150w Maximum output

BATTERIES

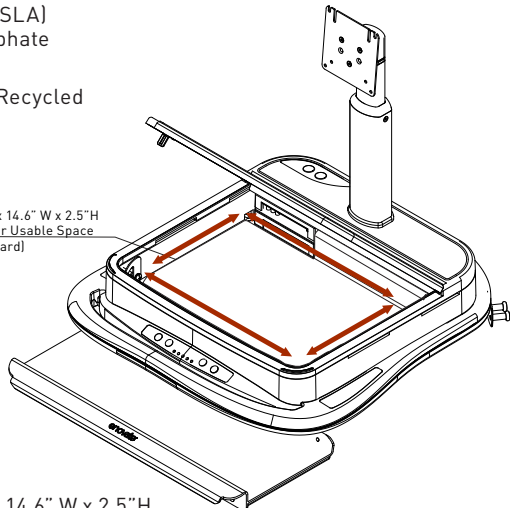
40 Amp hour Sealed Lead Acid (SLA)

40 Amp hour Lithium Iron Phosphate



Lead Battery Must be Recycled

12" D x 14.6" W x 2.5"H
Interior Usable Space
(Standard)



LAPTOP DIMENSIONS

Standard EMC tray has a 12" D x 14.6" W x 2.5" H interior usable dimensions for laptop or CPU storage.

or

optional large EMC tray has 13" D x 16.5" W x 3" H

interior usable dimensions for laptop or CPU storage.

FLAT PANEL DISPLAY DIMENSIONS

The EMC accommodates most 15" to 21" Flat Panel Displays

Integration

INTEGRATION KIT

Rubber bumpers for keyboard retention

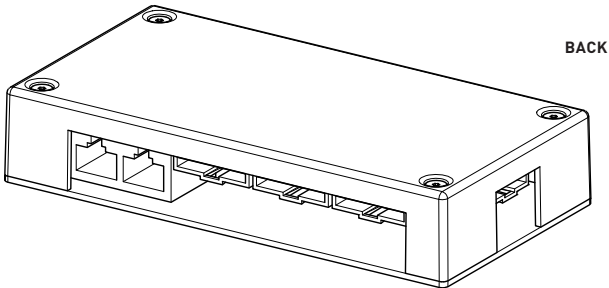
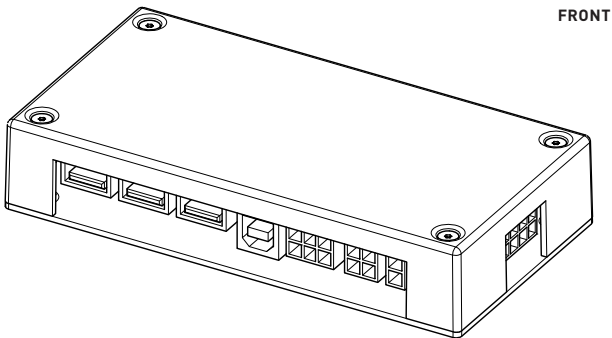
18" USB A to USB B Cable

8" zip ties

Pair of keys

Cable management cover (for LCD units only)

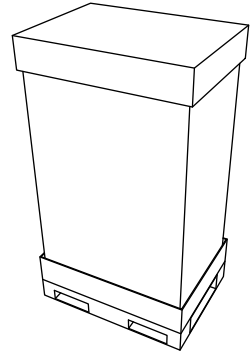
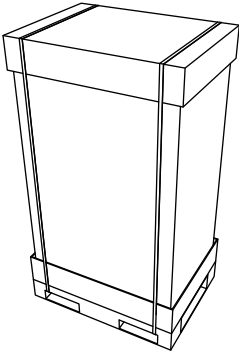
Powered Control Board *(See Below)*



Powered Control Board and USB Hub – Each powered cart includes a 3 input USB adapter. In laptop versions this USB hub also functions as risers to adjust the height of the screen.

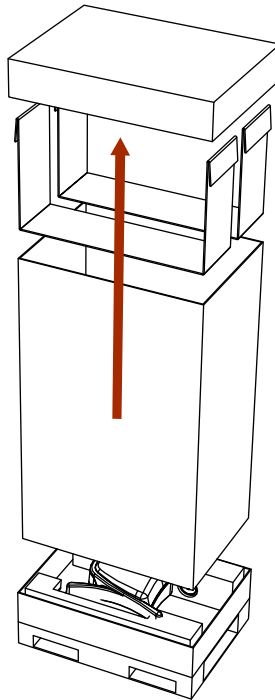
Unpacking

Promptly unpack your products to check for completeness and damage caused by shipping. Immediately after receiving your carts, ALL batteries must be fully charged to ensure the duration of their warranty.

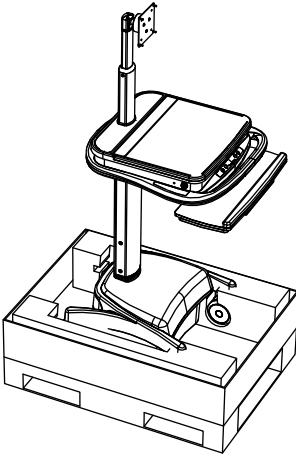


- 1 Before removing the EMC from a shipping container check over the packaging and pallet to prevent accepting an item with shipping damage.

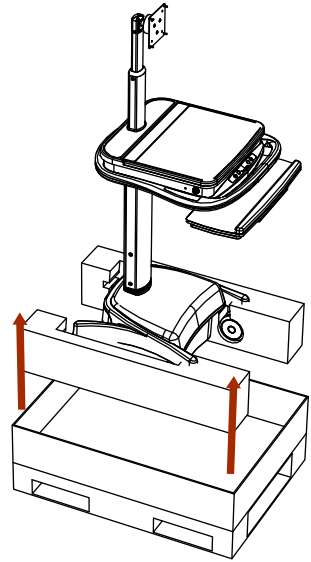
- 2 Use scissors or a utility knife to cut and remove the two outer straps.



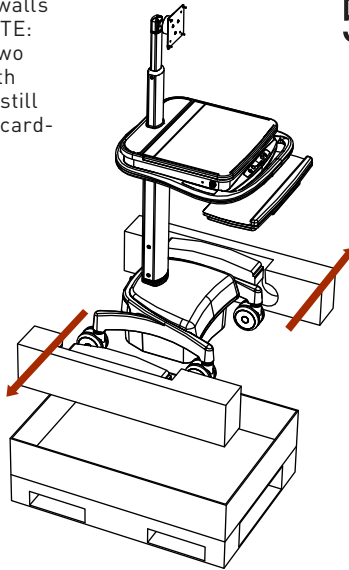
- 3 Remove cardboard lid and cardboard spacers.



- 4** Remove cardboard walls and plastic bag. NOTE: This step requires two people. Lift cart (with foam castor braces still attached) out of the cardboard base.

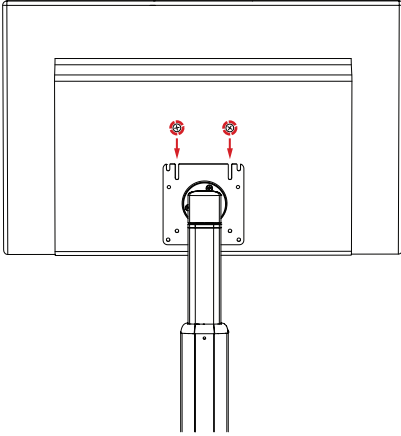


- 5** Remove foam castor braces.



- 6** Open tray and check for integration kit and locate all optional accessories.

Initial Setup



STEP 1

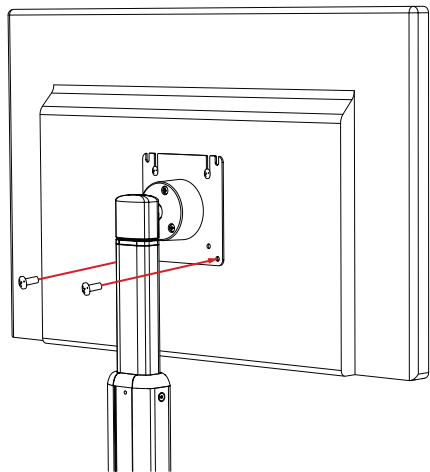
Loosely insert two screws into the top two holes of the VESA pattern on the back of the monitor

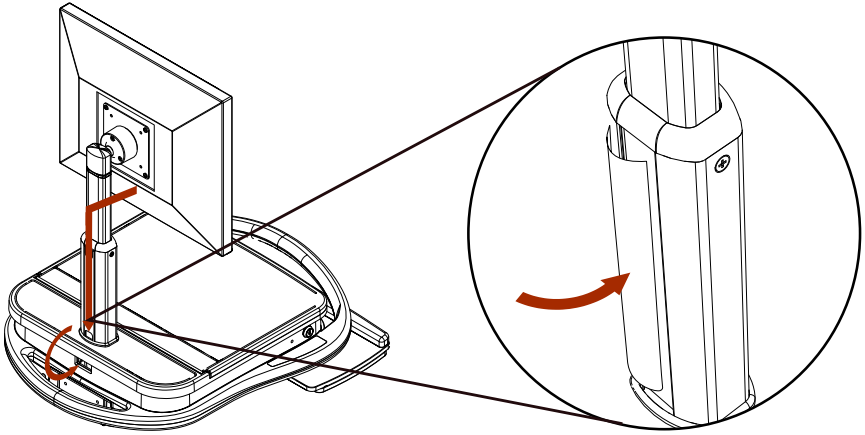
STEP 2

Align screws with the quick mount slots in the monitor pole VESA plate. Slide the monitor into place and tighten the screws.

STEP 3

Insert screws into bottom two holes of the monitor pole VESA plate to properly secure the monitor.





STEP 4

Connect the monitor's power cable and video cable (DVI, VGA). Route the cable through the channel on the back of the monitor pole. Slide the cable management cover into place over the wires. Leave enough slack above the cable management strip to allow the monitor to extend fully upward

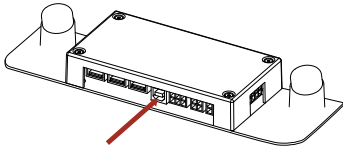
STEP 5

Put the CPU side of the power and video cables through the hole in the center rear of the tray. Pull any extra cable length into the tray.

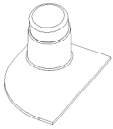
STEP 6

Set the CPU into the tray. Two pieces of Dual Lock (Velcro) are provided to secure the CPU to the tray. *NOTE: Take care in CPU placement; consider orientation based on direction of cable inputs and sizes INCLUDING monitor input, power input, mouse, keyboard and any peripherals. Make cable connections within the tray.*

LAPTOP CART INTEGRATION



Powered Laptop Riser



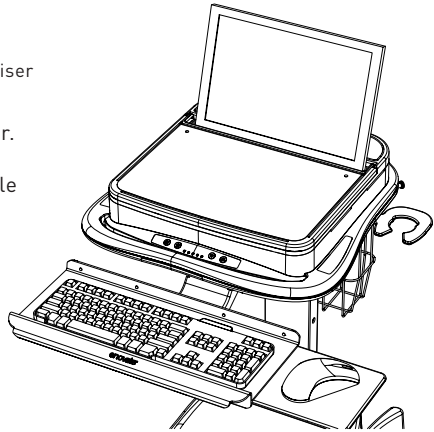
Non-Powered Laptop Riser

STEP 3

Estimate location of USB hub/Laptop riser. Moving the riser towards the front of the tray will lift the Laptop screen higher while moving the riser towards the back of the tray will drop the laptop screen lower.

STEP 4

Slide the Laptop screen through the tray top (as shown). Set the laptop into place upon the riser and close the lid.



STEP 1 (For Non-powered cart skip to step 3)
Open tray by lifting lid. Plug in Laptop power brick to power source and plug into the Laptop.

STEP 2

Using the provided USB A to USB B connects the Laptop ("A" connector) to the USB hub ("B" connector).

KEYBOARD INSTALLATION

STEP 1

Apply silicone bumpers to rear corners of the key board tray for retention (when negative tilt).

STEP 2

Pull the keyboard tray forward to full extension. This will simulate the full length requirement of Keyboard cable length.

STEP 3

Set the Keyboard upon the Keyboard tray

STEP 4

Route the cable under and through the tray, plug into appropriate location on CPU/Laptop and zip tie into place

MOUSE INSTALLATION

STEP 1

Pull the keyboard tray forward to full extension. This will simulate the full length requirement of Mouse cable length.

STEP 2

Route the cable under and through the tray, plug into appropriate location on CPU/Laptop and zip tie into place.

STEP 3

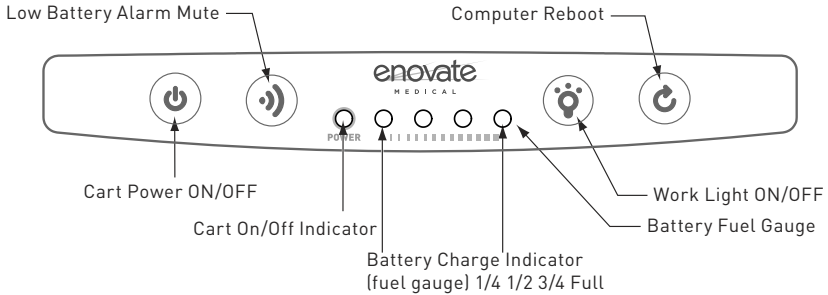
Stow mouse in mouse holder.

Power Systems

INITIAL POWER-UP

Before the initial power up and use the EMC cart must be charged for 24 continuous hours to insure maximum battery life. Equipment may be connected during this time.

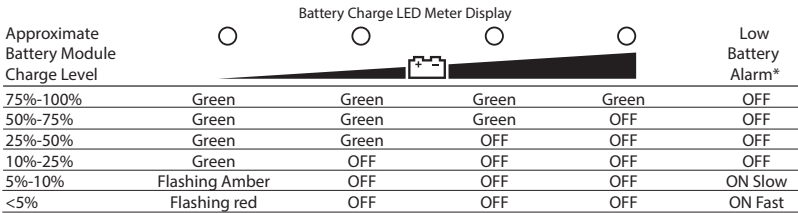
EMC FUEL GAUGE



***Important* Do not use sharp objects such as pens or pencils to depress/actuate the cart's buttons.**

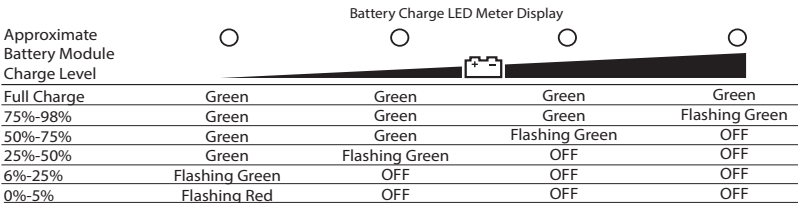
- **Cart Power Button** – press and hold for 2-3 seconds to turn cart power ON or OFF. The Cart On/Off indicator LED will light green, when cart power is ON. On a cold startup (all LEDs dark), all four battery charge LEDs will light green about 10 seconds. When startup is complete, the Cart On/Off indicator LED will remain Green, and the battery charge indicators will reflect the battery charge level. (See above image)
- **Low Battery Alarm Mute Button** A beeper will sound on low battery or severe (red) fault alarms. The mute button silences the beeper. (Note, the power system can also be configured for silent operation, through MPM Techview software.
- **Battery Fuel Gauge** - The first LED displays power on/ power off. LEDs two through five indicate charge level. All four LEDs green -- battery is full. One LED flashing Green means battery is charging. When LED 2 flashes yellow or red, battery charge is low, cart should be connected to AC power. (NOTE: If LEDs 2 & 3 flash yellow or red at the same time, there is a fault in the power system. If both flash Yellow -- service soon. If both flash Red -- service now; turn off computer, turn cart power off.)
- **Work Light Button** - On/Off toggle for LED work light. If left on, the light will auto-shutoff after five minutes.
- **Computer Reboot Button (OPTIONAL)** Can function as a remote reboot button or a power toggle button. Extra hardware, found in OPTIONAL ACCESSORIES, and compatible hardware are required for function.

CHARGE LEVEL INDICATORS (DISCHARGING, CART UNPLUGGED FROM AC POWER)



* The four fuel gauge LEDs represent even 25% portions of the full charge capacity of the battery.
 During discharge from full charge, all 4 LEDs will light Green until the battery charge has dropped below 75% full.
 When the battery charge has dropped below 5% charge level, the bottom LED will flash red 1 time each second, and the beeper will sound 2 times each second. Shutdown is imminent.
 The user should connect the cart in to AC immediately, or save any open computer files, turn off the computer and power down the cart

CHARGE LEVEL INDICATORS (CHARGING, CART PLUGGED INTO AC POWER)



* We recommend that the power supply be plugged into a wall outlet, charging the battery as often as possible. Charging the battery for brief intervals DOES NOT adversely affect battery performance. However, leaving the battery fully discharged for long periods of time DOES adversely affect battery performance.

Recharging status can be viewed on LED readout described above. The last (5th) LED will stop flashing when charge is complete.

While charging, the components of the cart may be used. The Power Supply of the EMC will simultaneously charge the batteries and run the connected components.

Recharge Time Required

- SLA 3-4 hours depends on battery size
- Lithium 2.5 Hours



FUSES

Two external fuses protect the EMC’s power system from irregular or potentially dangerous power surges. The fuses are in a dangerous area and should be replaced by Enovate authorized personnel only.

FUSE SPECIFICATIONS:

- 10A Fast Acting Mini Fuse 5mm X 20mm
- 30A Fast Acting Fuse 10mm X 38mm



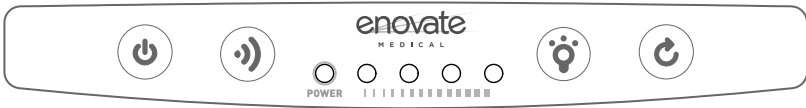
All power connections should be disconnected before any service

MOBILE POWER MANAGER SOFTWARE

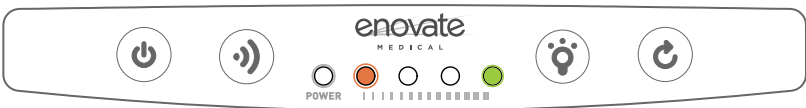
Visit <http://connectivity.powervar.com/mpm> for Mobile Power Manager Software full instructional manual, login and download

BATTERY CHARGE/DISCHARGE CYCLE

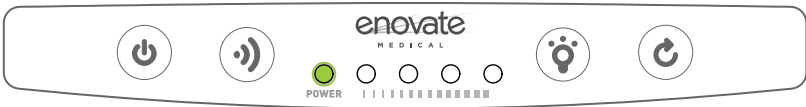
The following are general guidelines for fuel display. Variations may apply depending on the power system model. If you have any questions please contact customer support.



Cart is in the OFF/Standby mode.



When the power button is pressed, two LEDs will briefly illuminate, the 2nd LED red, and 5th LED green), then all 4 LED fuel gauge LED will light green for about 10 seconds.



The first LED will illuminate green indicating the cart has been powered up; and the fuel gauge LEDs will illuminate to reflect the present level of charge in the battery.

BATTERY CHARGE/DISCHARGE CYCLE CONT.



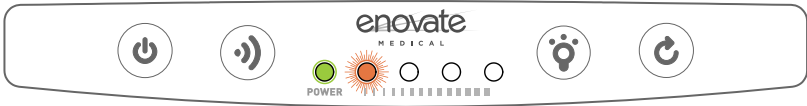
Five illuminated green LEDs indicate battery output is ON and the battery is fully charged.



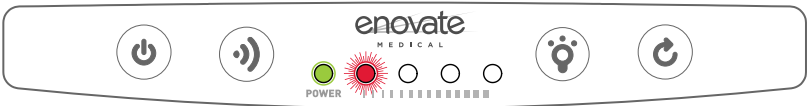
Four illuminated green LEDs indicate battery cart power is ON, the battery is discharging and has between 50% and 75% charge remaining.



Three illuminated green LEDs indicate battery cart power is on, battery is discharging with between 25%-50% of the battery charge remaining.

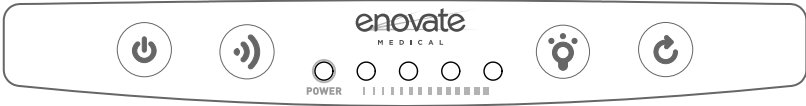


Green power LED and a flashing amber LED indicates low battery warning; a low battery warning alarm will sound to indicate the battery needs to be charged.

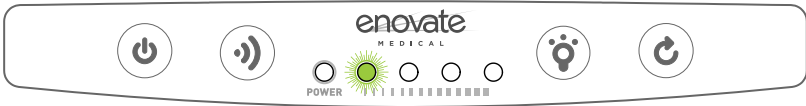


The amber LED will change to flashing red and the alarm will sound twice as fast when the battery has reached critical low power (less than 5% charge remaining). The alarm will sound every second until the battery fails to power the cart or the cart is plugged into AC wall power.

BATTERY CHARGE/DISCHARGE CYCLE CONT.



Battery is completely discharged. Cart will not power on or a combination of LEDs will momentarily illuminate when power button is pressed.



Once plugged into AC wall power, the position of the flashing LED indicates the level of recharge in process. If battery was fully discharged, the 2nd LED will flash red until at least 6% of the battery charge has been recovered. The first LED will be illuminated only when the cart is powered on.




Additional LEDs illuminate as the level of battery charge increases.



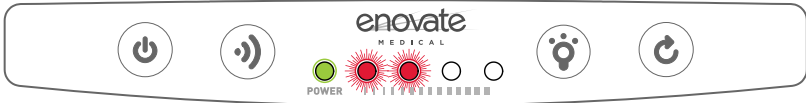
Three illuminated green LEDs indicate battery is more than 75% charged, but still charging the top 25%.



Four illuminated green LEDs indicate battery is 100% charged.

 Indicates Flashing

COMMON PHOSPHATE BATTERY TROUBLE ISSUES



If the cart is plugged in to charge, and LED 2 & 3 continually flash red together, this indicates that the battery voltage is lower than the charging system will recognize. This may require a some time for the power system to recover the battery on its own. If the battery has been on a in recovery mode for too long, and the cart still will not charge, the battery needs to be replaced.



Two amber LEDs on and then off without the cart powering up can be an indication of a few different conditions. A communication error between the battery and the charging system possibly due to a wrong battery firmware matchup. It can also mean the RJ45 connection between the battery and charging system is bad. Note: if it is found that the connection between the SL Phosphate battery and the power system is bad and has been restored; the yellow Anderson connection between the battery and the power system must be disconnected for 10 seconds to allow the charging system to reset! If you don't, the same problem may continue even after the RJ45 connection has been restored. This could also indicate the battery is too low to power up the cart. If you plug the cart into the wall to charge and no lights show up on the key pad to indicate charging and the cart won't power up, the problem is most likely the connection between the battery and the TRIPP•LITE, or wrong firmware for the battery in use.

STORAGE



CAUTION! Even after the Power Supply Module is unplugged, its outlets may still deliver current, until it is disconnected from the Battery Module and completely turned OFF (deactivated). Before storing your Power Supply Module, make sure the Battery Module is fully charged. Next, turn the Power Supply Module completely OFF by following these steps:



- Unplug the Power Supply Module from the wall outlet (all LEDs and outlets should be OFF);
- Disconnect the battery module from the system. If the cart has a medication cabinet, disconnect the battery in the medication cabinet as well. Press and hold the "Power" button for at least one second to dissipate any hazardous electrical charges that might remain inside the Power Supply Module (the Power Supply Module will click and the alarm may beep briefly).
- If you store the Power Supply Module and Battery Module for an extended period of time, recharge the Battery Module once per month. If the cart has a medication cabinet, **the cart must be left on while charging, and must be charged for at least 12 hours.** This ensures the backup battery gets a full charge.
- Follow the connection and recharge procedure in the "Connection / Start-Up" section. If you leave the Battery Module discharged for an extended period of time, it will suffer a permanent loss of capacity.

No AC output power available at outlets.

Turn Unit On: Turn the Power Supply Module ON using the "Power" button.

Check Connections: Check to make sure the Power Supply Module and Battery Module are properly connected. Also, make sure the RUI is connected to the Power Supply Module. The Power Supply Module will not supply AC power without these connections. The user may need to turn on the Power Supply Module manually (using the RUI's "Power" button) after reconnection.

Recharge Battery Module: if the Battery Module is fully discharged, the Power Supply Module will be unable to supply output power through its AC Outlets. Allow the battery fully charge.

Battery Module not recharging even with AC utility power present.

Check Connection: Check to make sure the Power Supply Module and Battery Module are properly connected. Also, make sure the Power Supply Module's power cord is plugged into a live AC wall outlet.

Replace Battery Module: The Battery Module will reliably supply backup power for several years with the Lithium Ion and several months for the SLA. When the battery module reaches then of its service life it will supply progressively diminishing capacity. Contact Enovate Medical for additional information.

Low battery alarm sounding.

Check Battery Charge Level LED Meter: Silence the alarm, if desired, with the "Alarm Mute" button. Check LED meter to determine the percentage of charge remaining. When the charge level falls below 10%, the Battery Module is nearly depleted and Power Supply Module shutdown is imminent. The user should save open files and safely shutdown connected equipment immediately. If the cart is unattended and PowerAlert Software is loaded on a computer connected to the Power Supply Module, PowerAlert will automatically save open files prior to automatic shutdown.

FREQUENTLY ASKED QUESTIONS

What is the LED Fuel Gauge

The LED Fuel Gauge has 5 LEDs: One On/Off LED on the far left and four battery level LEDs, position 1 – 4 from left to right and indicating low to high from left to right.

What is the status of the unit when the unit is plugged in, AC LED is on and 4 Battery lights (solid green) are on?

With the LEDs in this configuration and the unit plugged in, it is indicated that the unit is on and that the battery is fully charged (98 – 100%). The unit will pass power to the connected equipment using utility power. Your unit is functioning properly.

What is the status of the unit when it is plugged in, AC LED is off and 4 Battery lights (solid green) are on?

With the LEDs in this configuration and the unit unplugged it is indicated that the unit is off and that the battery is fully charged (98 – 100%). The unit will **not** pass power to the connected equipment using battery power. Your unit is functioning properly.

What is the status of the unit when it is plugged in, AC LED is on, 3 Battery lights (solid green – position 1, 2 and 3) are on and the 4th position Battery light flashing?

With the LEDs in this configuration and the unit plugged in, it is indicated that the unit is on and that the battery is 75% – 98% charged. The unit is currently charging and will pass power to the connected equipment using utility power. Your unit is functioning properly.

What is the status of the unit when the unit is plugged in, AC LED is off, 3 Battery lights (solid green – position 1, 2 and 3) are on and the 4th position Battery light flashing?

With the LEDs in this configuration and the unit unplugged it, is indicated that the unit is off and that the battery is 75% – 98% charged. The unit will **not** pass power to the connected equipment using battery power. Your unit is functioning properly.

What is the status of the unit when the unit is plugged in, the AC LED is off, 2 Battery lights (solid green – position 1 and 2) are on and the 3rd position Battery light flashing?

With the LEDs in this configuration and the unit unplugged indicates that the unit is off and that the battery is 50% – 75% charged. The unit will **not** pass power to the connected equipment using battery power. Your unit is functioning properly.

What is the status of the unit when the unit is plugged in, the AC LED off, 1 Battery light (solid green – position 1) is on and the 2nd position Battery light is flashing?

With the LEDs in this configuration the unit is charging but will **not** pass power to the connected equipment using battery power. To pass power to the connected equipment the unit must be turned on (Online mode). Your unit is functioning properly.



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