

Eclipse Plus 250

250VA UPS and Surge Suppressor
User's Manual



Compact UPS/Surge Suppressor
for Home Office or
Small Office Use

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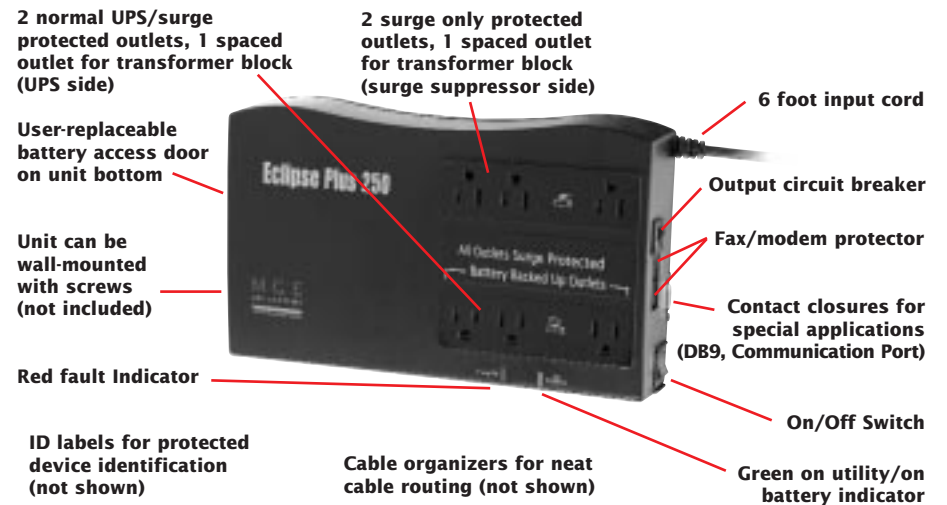


Figure 1

Maintenance

Clean the UPS with a dry cloth after turning off all power to the UPS and switching off the power switch. The UPS performs weekly automatic battery tests. However, it is recommended that 6 month tests be performed on the UPS for battery condition. Perform all tests off peak hours with applications shut down.

1. Turn off power to the UPS via the circuit breaker to the UPS. It is not recommended to disconnect the plug from the UPS to the utility power due to disconnection of the safety ground.
2. Allow UPS to run on battery power for 1 minute. Monitor the UPS for any fault LEDs and if none are observed, return power to UPS and log results below in the maintenance log.

Service and Parts

In USA or Canada, call 1-714-557-1636 x 578. State your name, request, and phone number. Your call will be returned the next business day. You may also visit our web site at: www.mgeups.com

UPS Recycling

In USA or Canada, call 1-714-557-1636 x 578. Ask for a return goods authorization for free UPS or battery recycling. MGE does not cover return freight charges for recycling and will not accept items without a return goods authorization number.

US and Canada Domestic Warranty

2 years parts and labor for the original owner. One way shipping charges are provided by MGE by surface freight. Proof of purchase may be requested by MGE before any service can be performed. Refer to separate circular for \$10K connected equipment warranty.

Maintenance Log

UPS serial number	Date of installation	Location	Notes
Date	Check	Comments	
6th month			
12th month			
18th month			
24th month			
30th month			
36th month			
42nd month			
48th month			
54th month			
60th month			

Instructions for Operation

CAUTION: Always turn off all power to computer prior to making any Pulsar Eclipse Plus 250 connections.

See **Figure 1** (on page 1) and **Figure 2** (on this page) for connection details.

1. Unpack UPS and accessories from shipping carton.
2. Connect input cord into a properly sized AC outlet. Allow eight hours for batteries to recharge.
3. Connect critical devices (computer, monitor, modem) on battery backed up outlets keeping load within the maximum of 250 VA. The battery backed up outlets are identified by a computer icon (**do not plug laser printers or surge strips into this side of the UPS**).
4. Peripherals are plugged into surge filtered outlets that are identified by a printer icon.
5. Connect fax/modem cable if utilized (RJ11 cord is provided for fax/modem protector only). See **Figure 2** at left.
6. Switch on and allow UPS to recharge 8 hours for full battery capacity.

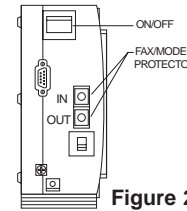


Figure 2

Communication Port (DB9, see Figure 1, page 1)

Ratings are limited to 16ma @ +12 VDC with respect to Pin 5 (common).

- Pin 3: UPS shutdown control, >5 VDC for 5 seconds, 5 ma
 Pin 4: On battery contact, opens
 Pin 5: Common
 Pin 7: Low battery contact, closes
 Pin 9: On battery contact, closes

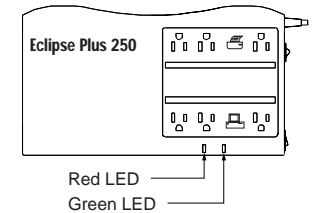
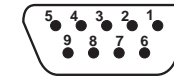


Figure 3

LED Operation Table (see Figure 3)

LED	Status	Comment
Green LED lit continuous	UPS on and utility power is available	Normal operation
Green LED flashes once every 4 seconds and audible alarm beeps once every 4 seconds	UPS on battery power	Utility power has failed
Green LED flashes once every second and audible alarm beeps once every second	UPS on battery power	Battery near exhaustion
Red LED flashes 3 times every 2 seconds and audible alarm beeps 3 times every 2 seconds	Faulty battery	Replace battery (see "Battery Replacement" below)
Red LED flashes twice every second and audible alarm beeps twice every second	Overload	Reduce load, restart UPS
Red LED lit continuous and continuous audible alarm	Internal failure or overload shutdown	Reduce load, restart UPS, if red LED reappears, call for assistance

Notes:

1. Always leave UPS "on". Do not use UPS as master switch. You do not have to switch on the UPS for the batteries to remain charged.
2. If the utility power failure exceeds the battery back-up time, Pulsar Eclipse Plus 250 shuts off to prevent excessive battery discharge and will re-start up as soon as power returns.
3. The overload protection breaker (**Figure 1**) trips off during a severe overload. If this occurs, unplug excess loads and reset circuit breaker by pressing its reset button.

Instructions for Operation

Getting Maximum Battery Life From the Pulsar Eclipse Plus 250

1. Prior to first use, charge the Pulsar Eclipse Plus 250 battery for 8 hours. This helps condition the battery for long life.
2. After a complete discharge, a few hours are required to reach full recharge.

Notes:

1. Pulsar Eclipse Plus 250 is equipped with a 12V/4.2Ah lead acid battery, which must be disposed of in accordance with local regulations. MGE will accept UPS and/or batteries for recycling free of charge. Contact us at the phone number shown in the recycling section of this manual.
2. Battery life is cut in half for every 15 degrees above 75°F. Plug in and recharge the UPS at least every six months if the UPS is taken out of service and not plugged in.

ID Labels and Cable Organizers

Eclipse Plus 250 includes ID labels to label each item plugged into the UPS. Simply peel off the label which matches the device you have plugged in (or type the name on the blank labels) and attach it to the recess next to the outlets. Attach the matching label to the cord of the device. In this way, you can always return each device to its proper location should you need to remove it.

The cable organizers are provided to "clean up" the installation. Locate the cable organizer where it will restrain the cables to the UPS in optimum locations. Clean the location where the organizer will be mounted to remove any traces of oil or dirt. Remove the covering on the self-adhesive backing. Press into position and allow to set overnight for adhesion to properly set. Be sure to attach organizer when temperatures are above 70°F. Press cables into organizer and close cover.

Battery Replacement

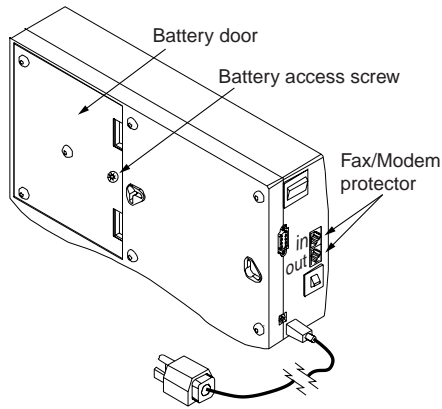


Figure 4

Caution: read and follow safety instructions before removing batteries. This must be done by knowledgeable personnel due to risk of electric shock and high energy.

1. In accordance with local regulations and proper disposal of Pulsar Eclipse Plus 250 battery(s), it is necessary to remove them from UPS chassis for recycling and replacement.
2. Turn off and unplug UPS and all critical devices.
3. Open the door located on the bottom of the UPS. A torx T15 screwdriver is required for this procedure.
4. Remove screw and follow operations described in **Figure 4** to open the door and slide out the battery.
5. Unplug the battery for replacement. Replace with only exact matching battery available from MGE.
6. Insert new battery and reconnect.
7. Close door and reinstall screw.
8. Plug in UPS to utility power and all critical devices. Restart.

Sizing Guide

"Computer Outlets"	Monitor	Back up Time
486, Pentium, Celeron, Pentium Pro, K6	14, 15" monitor	10 minutes
iMac	14, 15" monitor	8 minutes
486, Celeron, Pentium, Pentium Pro, K6	16, 17" monitor	7 minutes
Pentium II, Pentium III	14, 15" monitor	5 minutes
Pentium II, Pentium III	17" monitor	3 minutes

Back up Time

Load	Back up Time
50 VA	30 minutes
100 VA	21 minutes
150 VA	10 minutes
200 VA	7 minutes
250 VA	5 minutes

Product Specifications

UPS rating: 250 VA/168 W (2.1 A)	Battery: 1 system, 12 volt/4.2 Ah
Surge suppressor rating: 950 VA (8 A)	Battery life: 5 years with normal use
Input voltage: 120 VAC, 50/60 Hz	Operating temperature: 32 – 104°F up to 1500M
Output voltage: 120 VAC 50/60 Hz	Storage temperature: -5 – 122°F
UPS back-up time: 5-30 minutes	Size: 10" L X 7" W X 2.6" H
UPS output wave shape: Modified sine	Weight: 6.6 lbs.
Surge suppressor joule rating: 450	Warranty: 2 years parts and labor
Input cord: 6 foot with NEMA 5-15 plug	Accessories: ID labels, cable organizers, fax/modem cable
Circuit breaker: 10 amp	Agency: UL, cUL, FCC
UPS (on battery) current limit: >250 VA	
Recharge time: 8 hours	

Troubleshooting

UPS has no output and no LED display	Check to be sure UPS is plugged in, AC power is "on" to UPS and UPS is turned "on".
UPS has little or no back-up time	Charge UPS overnight and retry. After 3-5 years, consider replacing batteries if back-up time is short.
UPS transfers to battery, flashes green and audible alarm beeps often	Many low voltage events or poor voltage regulation at receptacle. Try another receptacle.
LED lights red, continuous audible alarm	Potential internal failure. Restart UPS, if red LED reappears. Call for assistance.
LED flashes red twice a second with beep twice a second	UPS lightly or heavily overloaded. Reset circuit breaker on UPS if necessary. Reduce load and restart UPS.

MGE maintains a phone number for technical support for US and Canadian customers. Call for assistance as shown in the "Service and Parts" section of this manual or visit our web site at: www.mgeups.com

Thank You!

Thank you for your purchase of the Eclipse Plus 250 "UPS" from MGE. The Eclipse Plus 250 "UPS" will provide many years of accurate, trouble-free power protection for your PC and/or other device(s). Please read this manual fully, to familiarize yourself with the safety and many other features of the Eclipse Plus 250 product.

MGE UPS Systems

MGE, one of the largest UPS manufacturers in the world, has a power protection solution for every power problem. Our product range includes UPSs 220 VA to over 4.5 MVA in single and three phase configurations. Other products include Power Management Software, DC to AC inverters, line conditioners and isolation transformers. Contact your sales representative today for additional information about MGE's other fine products. Our web address is: www.mgeups.com

Why the Need for Uninterruptible Power?

PCs and other electronic devices, due to their design, are subject to the effects of power outages or short interruptions. They do not store sufficient energy to overcome outages or short interruptions and these events occur on a daily basis. Any interruption of the utility power will stop the operation of a computer and cause loss of data, potential hardware damage and inconvenience.

A "UPS" is an uninterruptible power supply. The UPS has an internal battery to provide power back-up when the utility power is lost or a short outage occurs. In addition, the Eclipse Plus 250 UPS provides surge protection from indirect lightning strikes, power surges and short high voltage transients (spikes) created by machinery or common office equipment. A fax/modem suppressor with cable is provided with every MGE Eclipse Plus 250 UPS to also protect the incoming data line to the PC.

Theory of Operation

Eclipse Plus 250 is an off-line or stand-by UPS which normally operates in the bypass

mode. Surge suppression and filtering are also provided in this mode.

The UPS transfers the load quickly to the battery when a power failure occurs. If the power returns before the battery is exhausted, the operation returns to normal and the battery is recharged.

The Eclipse Plus 250 UPS is comprised of three major systems: the inverter, the battery charger/ battery and the bypass.

All logic and supervision in the UPS are provided by a state-of-the-art micro-controller.

Inverter

The inverter is the heart of the UPS and inverts direct current (DC) from the battery into alternating current (AC) at 120 volts. The DC voltage from the batteries (12 volts DC) is switched on and off at a high frequency and transformed to a higher voltage (DC to DC conversion). After conversion, the high voltage is converted into a pseudo-sine wave by a pulse width modulated (PWM) inverter to 120 volts AC RMS. This unique MGE technique, eliminates all bulky 60 HZ components and reduces size, heat, and greatly enhances reliability.

Battery Charger/battery

The battery charger maintains the battery and the battery provides the source of back-up energy when a power failure occurs. The battery charger converts 120 volt AC utility power to filtered and regulated DC specific for battery charging. The battery is a recombinant, sealed, lead acid-type which provides the high current required for UPS use and long life. It requires no additions of water during its life.

Bypass

The bypass is the electro-mechanical hardware providing a transfer to or from the inverter. This is done rapidly and synchronized to the utility power sine wave in order to provide continuity to the PC and not cause a re-boot.

Notes

Save These Important Safety Instructions

This manual contains important instructions for Pulsar Eclipse Plus 250 that should be followed during installation and maintenance of the UPS and batteries.

- ▶ This equipment can be operated by an individual, with no previous training.
- ▶ All repairs should be performed by qualified service personnel.
- ▶ The UPS contains voltages which are potentially hazardous.

CAUTION: Risk of electrical shock, even with unit disconnected from AC power source. Hazardous voltage still may be present through operation from battery. The battery supply should be disconnected at the plus (+) and minus (-) terminals using the fast-on connectors of the battery when maintenance or service work inside the UPS is necessary.

- ▶ Do not place Pulsar Eclipse Plus 250 near water or in environment of excessive humidity.
- ▶ Do not allow liquids or any foreign objects to get inside Pulsar Eclipse Plus 250.
- ▶ Do not plug household appliances such as hair dryers to Pulsar Eclipse Plus 250 receptacles.
- ▶ Do not place Pulsar Eclipse Plus 250 under direct sunlight or close to heat-emitting source.
- ▶ The AC power receptacle shall be near the equipment and easily accessible. To isolate Pulsar Eclipse Plus 250 from AC input, remove the input power cord from the AC power receptacle.
- ▶ If Pulsar Eclipse Plus 250 is to be stored for a long time, it is recommended to recharge the batteries (by connecting AC power source to Pulsar Eclipse Plus 250, switch "ON" or "OFF"), once a month for 8 hours to avoid a full battery discharge.
- ▶ Pulsar Eclipse Plus 250 contains batteries that should be disposed of or recycled in accordance with local laws.
- ▶ Prior to installation, store Pulsar Eclipse Plus 250 in a dry location.
- ▶ Ambient temperature for operation 32°F (0°C) and 104°F (40°C).

- ▶ Storage temperatures must be between -5°F (-15°C) and 122°F (50°C).
- ▶ Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.
- ▶ When replacing the batteries, use MGE part number 112-00065-00 batteries (12V-4.2Ah lead acid), use of any other battery may present a risk of fire or explosion.
- ▶ ~ : Alternating current supply symbol.

CAUTION: Do not dispose of battery or batteries in a fire. The battery may explode. Do not open or willfully damage the battery or batteries, since the released electrolyte is harmful to the skin and eyes. It may be toxic. A battery can present a risk of electric shock and high short circuit current.

The following precautions should be observed when working with batteries for disposal or replacement:

- Switch off the UPS (on/off switch) and disconnect it from utility power;
- remove watches, rings or other metal objects,
- use tools with insulated handles,
- wear rubber gloves, boots and safety glasses.

Federal Communication Commission (FCC) Statement

Note: This equipment has been tested and found to comply with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a residential 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. Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits.

Notes