

★ Overview

Thank you for purchasing this UPS. It is an intelligent and compact line interactive UPS which is designed to protect your personal computer or sensitive electronic equipments from all forms of power interference, including complete power failures. It is equipped with many features that allow any attached equipment to operate longer and more reliability.

★ Safety Caution

SAVE THESE INSTRUCTION-This manual contains important instructions that should be followed during installation and maintenance of the UPS and batteries.

- This UPS utilizes voltage that may be hazardous. Do not attempt to disassemble the unit. The unit contains no user replaceable parts. Only factory service personnel may perform repairs.
- This pluggable type A equipment with battery already installed by the supplier is operator installable and may be operated by laymen.
- The mains socket outlet that supplies the UPS shall be installed near the UPS and shall be easily accessible.
- During the installation of this equipment it should be assured that the sum of the leakage currents of the UPS and the connected loads does not exceed 3.5mA.
- Connection to any other type of receptacle other than a two-pole, three-wire grounded receptacle may result in shock hazard as well as violate local electrical codes.
- In the event of an emergency, press the "OFF" button and disconnect the power cord from the AC power supply to properly disable the UPS.
- Do not allow any liquids or any foreign object to enter the UPS. Do not place beverages or any other liquid-containing vessels on or near the unit.
- This unit intended for installation in a controlled environment (temperature controlled, indoor area free of conductive contaminants). Avoid installing the UPS in locations where there is standing or running water, or excessive humidity.
- Do not plug the UPS input into its own output.
- Do not attach a power strip or surge suppressor to the UPS.
- Do not attach non-computer-related items, such as medical equipment, life-support equipment, microwave ovens, or vacuum cleaners to UPS.
- Do not dispose of batteries in a fire as they may explode.
- Do not open or mutilate the battery or batteries. Release electrolyte is harmful to the skin and eyes. It may be toxic.

- A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:
 - 1) Remove watches, rings, or other metal objects from the hands.
 - 2) Use tools with insulated handles.
 - 3) Wear rubber gloves and boots.
 - 4) Do not lay tools or metal parts on top of batteries.
 - 5) Disconnect charging source prior to connecting or disconnecting batteries terminal.
- Internal battery voltage is 12VDC.Sealed, lead-acid, 6-cell battery.
- 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 batteries, replace with the same number and type of sealed lead-acid battery.
- Attention, hazardous through electric shock. Also with disconnection of this unit from the mains, hazardous voltage still may be accessible through supply from battery. The battery supply should be therefore disconnected in the plus and minus pole at the connectors of the battery when maintenance or service work inside the UPS is necessary.
- To reduce the risk of overheating the UPS, do not cover the UPS' cooling vents and avoid exposing the unit to direct sunlight or installing the unit near heat emitting appliances such as space heater or furnaces.
- Unplug the UPS prior to cleaning and do not use liquid or spray detergent.

★ Installation

① Inspection

The following items are inside the box:

- UPS unit
- User Manual

Remove the UPS from its package and inspect it for damage that may have occurred during shipping. If any damage is discovered, re-pack the unit and return it to the place of purchase.

② Placement

Install the UPS in a protected area that is free of excessive dust and has adequate air flow. Place the UPS away from other units at least 20 cm to avoid interference. For best performance, keep the indoor temperature between 0° C and 40° C.

③ Connect to Utility Power

Connect AC power cord to utility power. Then, the UPS will start to charge inside battery. For best result, charge the battery for 6 hours prior to initial use.

④ Plug in Equipment

Plug your equipment to Battery Backup Outlets on the rear panel of the UPS.

NOTE: Make sure that the UPS is powered on to protect all important devices from data loss during power failure.

CAUTION: NEVER connect a laser printer or scanner to the battery backup outlets of UPS. The equipment may draw significantly power to overload the UPS.

⑤ Turn On the UPS

To turn on the UPS unit, press the power switch lightly. Then, the LED will light up. When the UPS is off and there is no power utility, it's still possible to cold start the UPS unit to power the loads.

⑥ Turn Off the UPS

To turn off the UPS unit, press the power switch again. Then, the LED will go off.

LED Indicators & Back Panel

Alarm and Indicator:

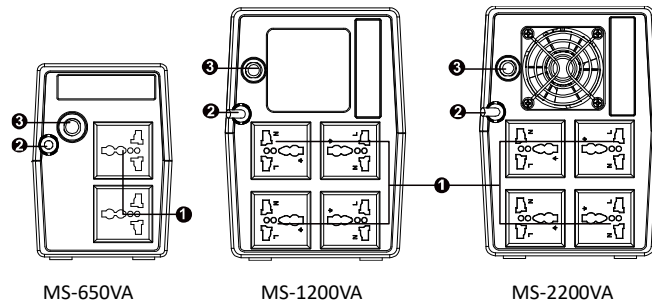
650VA

| LED | Alarm | UPS Status |
|-----|---------------------------|---|
| ● | Off | The mains is normal and UPS is operated normally. |
| ★ | Sounding every 10 seconds | Power failure occurs and UPS is on battery mode. |
| ★ | Sounding every second | Low battery |
| ○ | Off | UPS is off. |
| ● | Continuously sounding | UPS fault |

● LED on ○ LED Off ★ LED flashing

1200VA/2200VA

| LED | Alarm | UPS Status |
|---------|---------------------------|---|
| ●Green | Off | The mains is normal and UPS is operated normally. |
| ★Yellow | Sounding every 10 seconds | Power failure occurs and UPS is on battery mode. |
| ★Yellow | Sounding every second | Low battery |
| ○Green | Off | UPS is off. |
| ●Red | Continuously sounding | UPS fault |



- ① Battery backup outlets
- ② AC input
- ③ Circuit breaker

★ Trouble Shooting

| Problem | Possible Cause | Solutions |
|---------------------------------|-----------------------------|--|
| LED not lit. | The UPS is not on. | Press the power switch again to turn on the UPS. |
| | Battery voltage is too low. | Charge the battery at least 6 hours. |
| | Battery fault. | Replace the battery. |
| The UPS always on battery mode. | Power cord loose. | Re-plug the power cord. |
| The UPS continuously beeps. | Overload. | Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in the specs. |
| Backup time too short. | Battery voltage is too low. | Charge the battery at least 6 hours. |
| | Overload. | Remove some unnecessary loads. Before reconnecting equipment, please verify that the load matches the UPS capability specified in the specs. |
| | Battery defect. | Replace the battery. |

If any abnormal situations occur that are not listed above, please call for service immediately.

★ Specifications

| | |
|---------------------------|------------------------------------|
| MODEL | MS-650VA |
| CAPACITY | 650VA/360W |
| Input Voltage | 220VAC |
| Input Voltage Range | 140~300V |
| Output Voltage Regulation | ± 10 % (Bat. mode) |
| Transfer Time | Typical 4-8 ms |
| Waveform | Simulated Sine Wave |
| Battery Type & Number | 12V/7.5Ah x 1 |
| Charging Time | 4-6 hours recover to 90% capacity |
| Dimension (DxWxH) | 279 x 101 x 142 mm |
| Net Weight (kgs) | 4.25 |
| Humidity | 0-90% RH @ 0-40°C (non-condensing) |
| Noise Level | Less than 40dB |

| | | |
|---------------------------|------------------------------------|--------------|
| MODEL | MS-1200VA | MS-2200VA |
| CAPACITY | 1200VA/600W | 2200VA/1200W |
| Input Voltage | 220VAC | |
| Input Voltage Range | 140~300V | |
| Output Voltage Regulation | ± 10 % (Bat. mode) | |
| Transfer Time | Typical 4-8 ms | |
| Waveform | Simulated Sine Wave | |
| Battery Type & Number | 12V/7.5Ah x 2 | 12V/9Ah x 2 |
| Charging Time | 4-6 hours recover to 90% capacity | |
| Dimension (DxWxH) | 320 x 130 x 182 mm | |
| Net Weight (kgs) | 7.8 | 10.6 |
| Humidity | 0-90% RH @ 0-40°C (non-condensing) | |
| Noise Level | Less than 40dB | |

*Specifications are subject to change without notice.

MASU[®]
Quality from Japan

USER MANUAL

english|bahasa

Uninterruptible power supply