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# **USER MANUAL**

## **Micro Net UPS**

1st Edition, 2001

**Uninterruptible Power System**

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# **Micro Net UPS User's Manual**

To insure safe installation and assure the best possible benefit from the product, please read this manual before installing and using your UPS.

## **1. Introduction**

Micro Net Series is a high performance UPS with USB agent for internet users. Each unit is bundled with smart software to control and monitor UPS. The line of UPS provides 4-step AVR to stabilize wide input voltage and full protection to your computers and peripheral devices such as scanners, monitors, modems, etc. from losing valuable data as a result of power failures. In the event of a utility failure such as a blackout, brownout, or power sag (when the lights in a room dim for a moment), the UPS rapidly transfers your computer equipment to an alternative power source. This allows you adequate time to save files, exit programs, and properly shut down your system.

Under normal conditions, when the available AC voltage is within limits that are appropriate for your equipment, the Micro Net UPS maintains it's battery charge, and otherwise remains invisible in it's operation.

When the power supply is transferred from utility (AC) power to backup (battery-DC) power, the waveform is altered, with minimal transfer time from a normal sine wave to a step sine wave. According to research, a rough wave transition or an imperfect step sine wave could cause a voltage transient. Eventually, this voltage transient could damage the MOS circuitry within the UPS, and decrease its life. The UPS surpasses the competition in producing the smoothest transition from sine wave to step sine wave.

On the other hand, its multi-function power switch design simplifies outside case. You can easily realize UPS status and load level by simple color-LED display. This highly reliable Micro Net UPS guarantees your computer a clean and reliable power source.

Major features of Micro Net Series are listed as follows:

- Microprocessor control guarantees high reliability.
- Provide 4-step AVR to stabilize wide input voltage.
- Built-in Smart RS-232 Communication Port with Smart Monitoring UPS Software.
- Smart battery charger management.
- UPS status and load level LEDs for real data display.
- No load auto shut down.
- Auto restart when AC recovery.
- Audible Alarm Mute.
- Multi-function micro power switch for easy use.
- USB option.
- Provide lightning, surge, overload, and short-circuit protection.
- Perfect USB UPS with highest performance for your best choice.

### 3. Safety – CAUTION!

- This UPS utilizes voltages that may be hazardous. Do not attempt to disassemble the unit. The unit contains no user serviceable parts. Only factory service personnel may perform repairs.
- Connection to any other type of receptacle other than a two-pole, three-wire grounding receptacle may result in a shock hazard as well as violate local electrical codes.
- In the event of an emergency, turn the power switch to the "off" position and disconnect the power cord from the AC power supply to properly disable the UPS.
- Do not allow liquids or any foreign object to enter the UPS. Do not place beverages or any other liquid-containing vessels on or near the unit.
- Avoid installing the UPS in locations where there is standing or running water, or excessive humidity.
- Do not plug the UPS' power cord into itself.
- 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.

- 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 heaters or furnaces.
- Unplug the UPS prior to cleaning and do not use liquid or spray detergent.
- Do not dispose of battery or batteries in a fire. The battery may explode.
- Do not open or mutilate the battery or batteries. Released 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.
  - 2) Use tools with insulated handles.
  - 3) Wear rubber gloves and boots.
- 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 of the sealed lead-acid batteries.

### ★Wichtige Sicherheitshinweise

Bitte lesen Sie diese Hinweis sorgfältig durch.

- Vor jedem reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
- Das Gerät ist vor Feuchtigkeit zu schützen.
- Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
- Bei der Installation ist darauf zu achten, das der Gesamtbleitstrom der USV und der and der USV angeschlossenen Verbraucher den Maximalwert von 3.5mA nicht überschreiten.
- VORSICHT: Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

## 4. System Description

### LED Indicators & Audible Alarms

Condition	LED			Audible Alarm
	Normal Green	Backup Yellow	Cutoff Red	
AC Mode	■	□	□	□
Battery Mode	□	■	□	■
Battery Defect	■	□	■	□
Overcharge	■	□	■	■
Battery Low	□	■	□	■
Standby	□	□	■	□

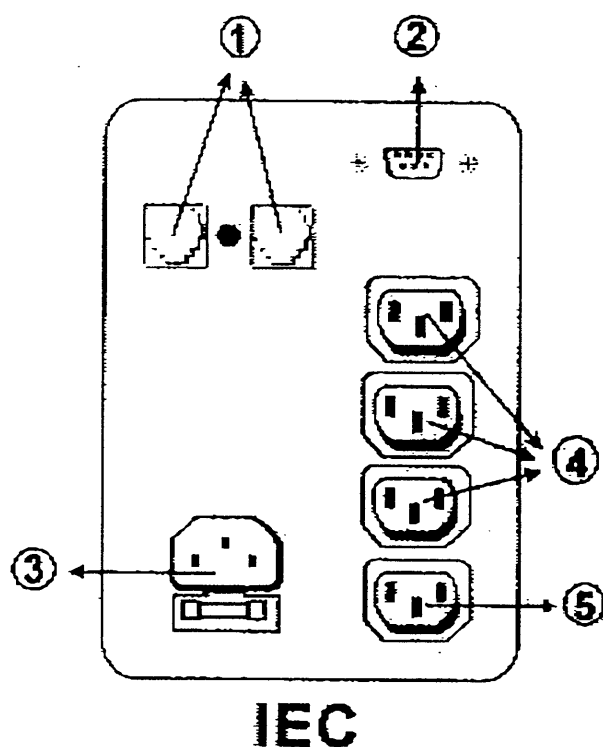
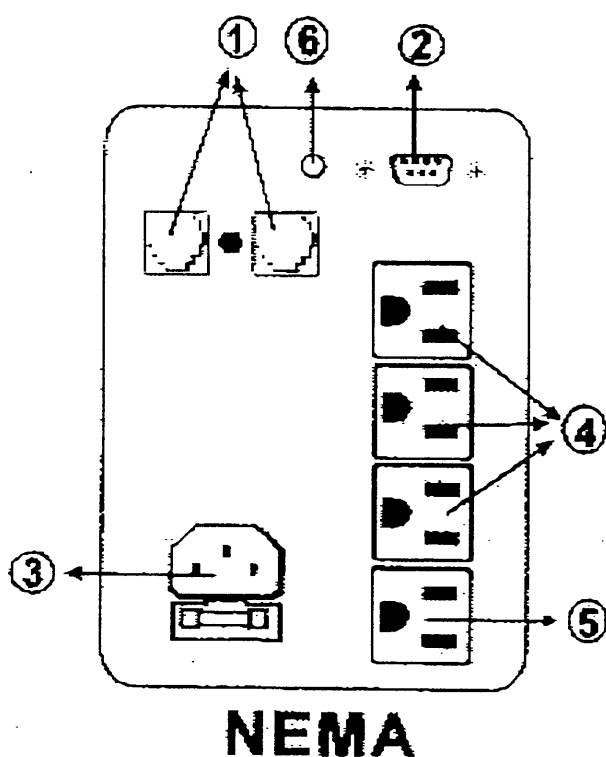
### Multi-Function Power Switch Operation

Operation	AC Mode	Battery Mode
Power On/Off	Press and Hold for 3 seconds	Press and Hold for 3 seconds
Test	Press less than 3 seconds	
Mute On/Off		Press less than 3 seconds

**PS. When battery failed, UPS will stop testing function.**

## Back Panel—

1. Phone/Modem Surge Protection
2. Communication Port
3. AC input with AC fuse
4. Output receptacles
5. Output receptacles (surge protection only)
6. Building Fault



## 5. Installation and Operation

### 1. Inspection

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

## 2. Charging

This unit is shipped from the factory with its internal battery fully charged, however, some charge may be lost during shipping and the battery should be recharged prior to use. Plug the unit into an appropriate power supply and allow the UPS to charge fully by leaving it plugged in for at least 8 – 10 hours.

## 3. Placement

Install the UPS unit in any protected environment that provides adequate airflow around the unit, and is free from excessive dust, corrosive fumes and conductive contaminants. Do not operate your UPS in an environment where the ambient temperature or humidity is high. On the other hand, place the UPS unit away from monitor at least 20cm to avoid interference.

## 4. Connection

Plug the UPS into a 2-pole, 3-wire grounded receptacle. Then connect one computer-related device into each of the power receptacles supplied on the back of the UPS.

## 5. Turn On

To turn on the UPS unit, press and hold power switch for 5 seconds lightly. Please **DO NOT** punch it for extended life of the micro switch.

## 6. DC Start

All iUPS Pro Series are built-in DC start function. To start the UPS when AC utility power is not available and battery is fully charged, hold the power switch for 5 seconds.

## 7. Mute Operation and Test Function

When UPS is on AC mode, press and hold the power switch for less than 3 seconds, then UPS will proceed self-testing for 10 seconds. When UPS is on Battery mode, audible alarm will beep 8 times and then enter Mute Mode. If manually pressing and holding the power switch for less than 3 seconds, then UPS will stop beeping and enter Mute Mode.

**Note:** The Power Switch must be kept in the 'ON' position, otherwise, the UPS will be disabled and your equipment will not be protected during a power failure.



## 6. Trouble Shooting

Symptom	Possible Cause	Remedy
No LED display on the front panel.	1. Missing battery.	1. Charge battery up to 8 hours.
	2. Battery defect.	2. Replace with the same type of battery.
	3. Power switch is not pressed at least 5 seconds.	3. Press and Hold power switch f at least 5 seconds.
When turn on UPS, LED is light and then go out.	Output short circuit.	Remove load first and then turn c UPS again.
Alarm buzzer beeps continuously when AC supply is normal.	Overload of the UPS.	Verify that the load matches the UPS capability specified in the specs.
When power failure, back-up time is shorten.	1. Overload of the UPS.	1. Remove some noncritical load
	2. Battery voltage is too low.	2. Charge battery 8 hours or more
	3. Battery defect due to high temperature operation environment, or improper operation to battery.	3. Replace with the same type of battery.
Communication lost between UPS and computer.	1. Software is not installed well.	1. Check the setting of the software.
	2. Cable is not properly connected.	2. Check the RS-232 cable is firmly connected to COM1/COM2 of the computer and confirm the setting again.
UPS can't recover to AC mode.	1. Fuse is blown.	1. Replace the same type of fuse
	2. Power cord is loose.	2. Reconnect the power cord properly.
	3. PCB is damaged.	3. Replace PCB.
	4. Input voltage is too high or too low.	4. Check if input voltage is out of range.
Smoke and smell produce	MOSFET or VARISTOR are burned out.	Replace PCB.

## 7. Specification

MODEL		$\mu$ Net 1K	$\mu$ Net 1.2K	$\mu$ Net 1.5K	$\mu$ Net 2K
CAPACITY	VA	1000VA/600W	1500VA/720W	1500VA/975W	2000VA/1300W
INPUT	VOLTAGE	115VAC/230VAC			
	VOLTAGE RANGE	$\pm 30\%$ (WITH 4-STEP AVR)			
	FREQUENCY	47-63Hz (AUTO DETECTION)			
OUTPUT	VOLTAGE	115VAC/230VAC			
	VOLTAGE REGULATION (Batt. Mode)	$\pm 10\%$			
	FREQUENCY	50Hz or 60Hz			
	FREQUENCY REGULATION (Batt. Mode)	$\pm 1$ Hz			
	POWER FACTOR	0.6		0.65	
	OUTPUT WAVEFORM	MODIFIED SINEWAVE			
	BATTERY	BATTERY TYPE	1221	12V7	1221
	BATTERY NO.	2	2	3	4
	BACK UP TIME	7-50 MINUTES			
	RECHARGE TIME	8 HOURS TO 90% AFTER COMPLETE DISCHARGE			
TRANSFER TIME	NORMAL TO INVERTER	3-10MS			
	INVERTER TO NORMAL	2.8MS			
INDICATOR	LED	ON LINE: NORMAL LED (GREEN) ON ON BATTERY OR LOW BATTERY: BACKUP LED (YELLOW) ON OVERCHARGE OR BATTERY DEFECT: BOTH CUTOFF LED (RED) AND NORMAL LED (GREEN) ON UPS STANDBY: CUTOFF LED (RED) ON			
AUDIBLE ALARM	ON BATTERY	SOUNDING EVERY 10 SECONDS			
	LOW BATTERY	SOUNDING EVERY 0.5 SECOND			
	OVERCHARGE	CONTINUOUS BEEPING			
PROTECTION	FULL PROTECTION	UNDER/OVER VOLTAGE, SPIKE SUPPRESSION, OVERLOAD, SHORT CIRCUIT, AC/DC FUSE, BATTERY OVERCHARGE/DISCHARGE, AND SURGE PROTECTION			
PHYSICAL	DIMENSION (MM), DXWXH	390X130X185		480X130X185	
WEIGHT	NET WEIGHT INCLUDING BATTERY (KG)	11	13	29.5	31.5
ENVIRONMENT	OPERATING ENVIRONMENT	0°C - 40°C AT FULL LOAD, 0-90 % RELATIVE HUMIDITY (NON-CONDENSING)			
	NOISE LEVEL	LESS THAN 40dB			
INTERFACE	SMART RS-232	SUPPORT WINDOWS 95/98, WINDOWS NT/2000, NOVELL AND LINUX			

# **IMPORTANT SAFETY INSTRUCTIONS**

**SAVE THESE INSTRUCTIONS** – This manual contains important instructions for **Micro Net Series** that should be followed during installation and maintenance of the UPS and batteries.