

Uninterruptible power supply



Product-description

MI-Series

400 VA - 1200 VA

MIRM-Series

600 VA / 1200 VA

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TÜV Safety statement (English)

CAUTION

1. The sound pressure level at the operators position according to IEC 704-1:1982 is equal or less than 70dB (A).
2. This unit should be installed from service personnel.
3. With the installation of this equipment it should be prevented, that the sum of the leakage current of the UPS and the connected consumer does not exceed 3.5mA.
4. The socket-outlet shall be near the equipment and easily accessible.
5. The UPS contains voltage which are potentially hazardous.
All repairs should be performed by qualified service personnel.
The UPS has its own internal energy source(battery). The output receptacles may be alive even when the UPS is not connected to the mains.
6. Do not dispose of batteries in a fire, the battery may explode.
7. Do not open or mutilate the battery or batteries, released electrolyte is harmful to the skin and eyes.
8. A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries.
 - ☐ Remove watches, rings or other metal objects.
 - ☐ Use tools with insulated handles.

TÜV Safety statement (German)

ACHTUNG

1. Der Arbeitsplatzbezogene Schalldruckpegel diese Gerätes nach DIN 45635 beträgt 70dB(A) oder weniger.
2. Dieses Gerät ist durch Elektrofachkräfte zu installieren.
3. Bei der Installation dieses Gerätes ist darauf zu achten, daß die Ableitströme der USV und der angeschlossenen Verbraucher den Maximalwert von 3.5mA nicht überschreiten.
4. Die Gerätesteckdose muß nahe dem Gerät angebracht und leicht zugänglich sein.
5. Die USV enthält Spannungen die möglicherweise gefährlich sind. Alle Reparaturen sollten nur von ausgebildeten Monteuren durchgeführt werden. Die USV hat eine interne Stromversorgung (batterien). Die Ausgangsanschlüsse können daher unter Strom stehen auch wenn die USV nicht an das Versorgungsnetz angeschlossen ist.
6. Werfen sie niemals die Batterien in das Feuer, die Batterien könnten explodieren
7. Öffnen oder beschädigen Sie nicht die Batterien, ausfließendes Elektrolyt ist schädlich für Haut und Augen.
8. Eine Batterie kann eine Gefahr eines elektrischen Schlages und sehr großer Kurzschlußströme beinhalten. Folgende Vorkehrungen sollten getroffen werden, wenn Sie mit der Batterie arbeiten.
 - ☐ Entfernen Sie Uhren, Ringe und andere metallische Objekte.
 - ☐ Verwenden Sie Werkzeug mit isolierten Griffen.
9. Dieses Gerät ist nur durch unterwiesenes Personal zu bedienen.

1. Introduction

The product is STANDBY UPS with the newest technology and powerful function.

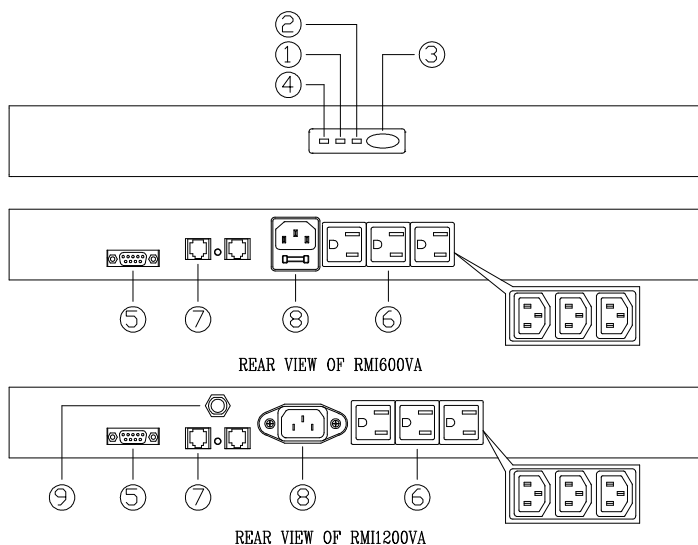
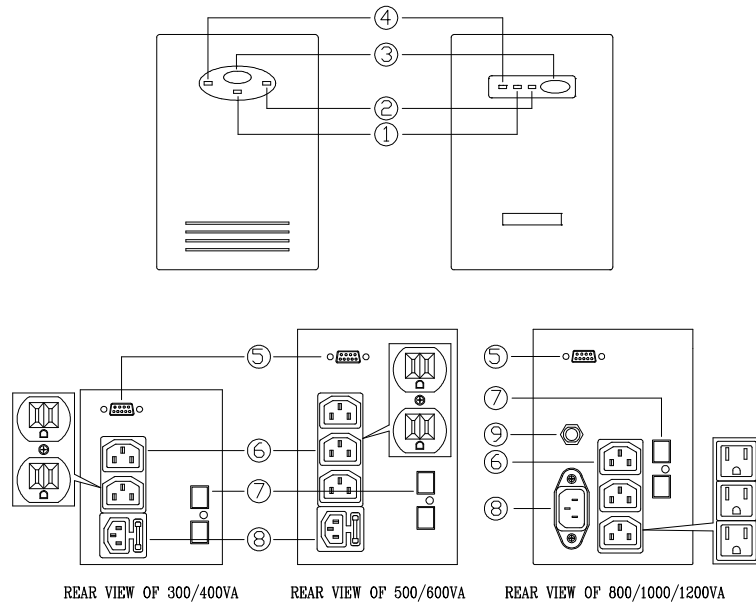
All these series are with AVR function allows wide input voltage range, including on line voltage boost-up and buck-down. An ideal protection equipment for critical connected loads. It is based on microprocessor controls, with utility power connected, the charging is ongoing; no need to switch ON the UPS. Also at back-up mode, UPS can be automatically turned OFF if none of the connected loads is operating to save the battery energy. Self-testing function is included to verify both the operations of the UPS and the condition of the battery. The UPS provides communication signal through RS232 with user's computer allows to monitoring the condition of the UPS.

The intelligent UPS provides you with the ability of perfect protection of your critical devices.

The UPS also provides the telephone surge protector to protect the telecommunication equipment.

2. Description and Indicators

2-1 Front and rear panel descriptions



1. LINE: On-line mode.
2. BATT: INV mode.
3. ON/OFF/TEST/SILENT key
4. FAULT: UPS in faulty or overload condition.
5. Communication port.
6. Output sockets.
7. Phone jack for telephone line surge protection (option).
8. Inlet with fuse holder and spare fuse.
9. Input Breaker.

2-2 Indicators and buzzer

LINE	BATT	FAULT	Buzzer	Condition
ON				Line normal
FLASH				Auto-restart
		ON	Continuously	Inverter fault or Over load
	ON		Twice in every 10 sec	Inverter on
	FLASH		Twice in every 10 sec	No load, shutdown after 30±5 sec
	ON		Twice in every 1 sec	Low battery warning
		FLASH		INV shutdown with restart timer on

3. Accessories

1. One user's manual
2. One AC power cord
3. One IEC cord (optional with IEC outlet)
4. One spare fuse
5. One bundle software package (option)
6. One telephone cable (option with telephone line surge protector)

4. Installation

- 4-1. Install the UPS in a protected area with adequate air flow and free of excessive dust. Do not operate the UPS where the temperature and humidity are outside the specified limits.
- 4-2. Check if the voltage as shown on the model label (on the rear cover) corresponds to your local power supply. If it does not, consult your dealer.
- 4-3. Initial battery charging
The UPS is shipped from the factory with its internal battery in a fully charged state. However, the battery may be lose some power during shipping and storage. The battery should be recharged before conducting the following test for proper operation and to assure that UPS will provide expected run time. The battery is automatically charge by the UPS whenever it is plugged in (no need to start-up the UPS). You can be sure that the battery is fully recharged if the UPS were left plugged over 8 hours.
- 4-4. Connecting equipment(s) to the UPS
To ensure that your computer equipment will be protected during a utility failure and that you receive expected run time, it is important that you determine the total power loading of the equipment you wish to protect by the UPS. The power requirements of your equipment should be less than or equal to the capacity of the UPS. Once you have determined that your equipment and the UPS are compatible, put your equipment's plug into the UPS's rear panel output sockets.

5. Operation

- 5-1. **Turning on the UPS** - Press and hold the "TEST" button till the first beeps sound over, and then the UPS is ready to work. Otherwise the UPS will not work as if misstouch the switch only for a very short time.
- 5-2. **Turning off the UPS** - Press and hold the "TEST" button till the alarm beeps, then all the LEDs go off and the UPS has been turned off.
- 5-3. **Silent mode** - On "BATTERY" mode, press the "TEST" button to stop the alarm until the low battery state, the alarm will be active again.
- 5-4. **Self test** - Press the "TEST" button on "LINE" mode could force the UPS to enter the self test sequence. It returns to "LINE" mode after pass the test.
- 5-5. **Load level** - Normally, the "POWER FACTOR" of the UPS is designed at about 60%. That is, (if we put a 300VA for example) the total loading can not exceed 180W for PF=1 or 300VA for PF=0.6.

5-6. **Loading condition** - Turn on the equipment(s) which connected with the UPS one by one to reduce the inrush current at the turn-on moment Operating at overload, state shown at the table below.

Load	Over 110%	Over 130%	Over 200%
Line mode	Normal operation	shut down within 30sec	shut down within 2sec.
Battery mode	Short circuit protection		

Note: Charge over night after discharge the battery.

6. Maintenance

The unit is designed for easy maintenance. Only a little care must be taken,

- Vacuum the dust from the ventilation openings.

- Clean the unit with a damp cloth.

Storage :

-Recharge the UPS every 90 days, if the UPS was in the storage state.

7.Specifications (NOTE : Engineering specification)

MODEL		MI300	MI400	MI500	MI600	MI800	MI1000	MI1200	RMI600	RMI1200
POWER RATING		180W	240W	300W	360W	480W	600W	720W	330W	660W
INPUT	VOLTAGE	170-280V								
	FREQUENCY	45-65Hz								
	CURRENT	1.8A	2.4A	3.0A	3.6A	4.7A	5.9A	7.1A	3.6A	7.1A
OUTPUT	VOLTAGE	230V								
	CURRENT	1.3A	1.7A	2.2A	2.6A	3.5A	4.4A	5.3A	2.6A	5.3A
	AVR	BUCK	266V							
	ACT.POINT	BOOST	198V							
	FREQUENCY	50/60Hz Auto select								
	Waveform	Step wave								
	Overload	Over 130% delay 30 seconds								
	Transfer	Line/Battery	Under 5 millisecond							
Total efficiency		Over 94%								
Standard battery voltage		12VDC				24VDC			12VDC	24VDC
Battery Quantity		1				2 in series connection			6V7.2AH *2	6V7.2AH *4
Charging current		0.40A								
Environments	Temperature	0-40°C								
	Humidity	0-95% (non-condensing)								
Dimensions (WxHxD)		98x127x280		110x168x280		110x168x365			423x44x242	423x44x337
Weight(W/Battery)kgN.W./G.W.		5.0/6.0	5.2/6.2	7.1/8.1	7.6/8.6	11.9/13.1	11.9/13.1	11.9/13.1	8.3/10.0	13.9/15.6
CE Marking		*	*	*	*	*	*	*	*	*
TUV/GS Marking		*	*	*	*	*	*	*	*	*
C-Tick AS-NZS 3548		*	*	*	*	*	*	*	*	*

*Characteristics subject to change without prior notice. **NOTE : For reference "Safety CE electrical rate"**

*Special specification . **NOTE : The GS mark does not imply for the RMI600/1200.**

*Standard : LVD-EN 50091-1-1, EN 62040-1,IEC 60950 EMC- EN 50091-2 , EN 62040-2, C-Tick AS-NZS 3548

8. Troubleshooting guide

PROBLEM	POSSIBLE CAUSE	ACTION
The UPS can only work on battery mode even if the utility is normal	1. A loose power plug 2. Fuse burn out	1. Re-plug the power core tightly 2. Replace the fuse
The UPS working normally but with a short backup time and can not be charged fully	Bad battery	Return to service
Press down the sw but no response with the UPS	Internal fuse burn out	Return to service
Fault condition after press the ON/OFF key.	UPS Failure	Return to service
Working at normal LINE mode but shutdown immediately as transfer to battery mode	1. Bad connection of batt. Cable 2. battery empty 3. Charger failure	1. Check the batt. Cable 2. Charge the batt. Over 12 hours 3. Return to service
UPS at normal condition but no output	Bad output connection	Re-connect the output cable
INV LED off, Fault light and alarm beeps continuously	Output short circuit	Remove the short circuit condition or equipment

9. MI Block Diagram

