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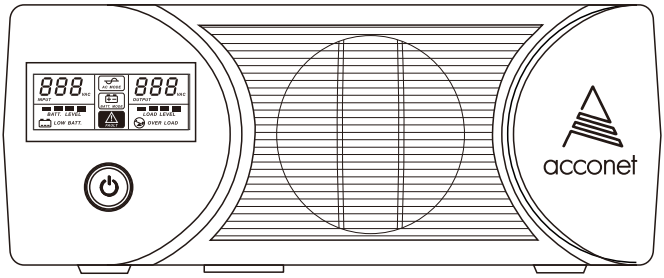


User Manual

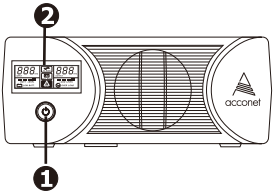
INVERTER

1 Introduction

This compact inverter is designed to power your home appliances and electronics. Its compact size means this product is easy to install and highly mobile. Compared with traditional inverters, this inverter provides two operation modes: Narrow and wide. When selected in either of these modes, the switch will monitor the incoming voltage and switch automatically to external power should the voltage drop or go higher than the specified range of the chosen mode. This is highly beneficial to solutions and appliances which require stable and uninterrupted power during periods of blackouts and inconsistent power supply. 100AH batteries are recommended to be used with the selectable 10/20A charge current for efficient charging.

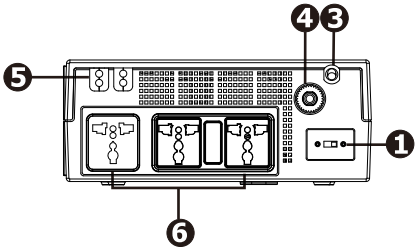
2 Product Overview

Front View:

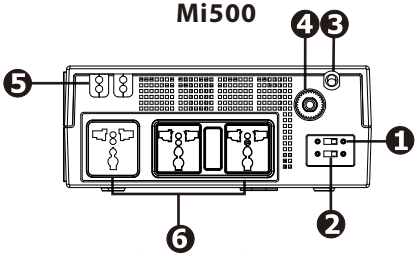


❶ Power switch
❷ LCD

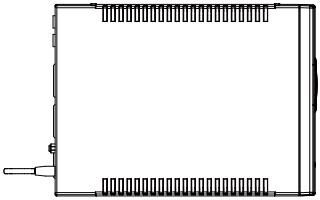
Back View & Top View:



Mi500



Mi1200/Mi2400



❶ Operation Mode Selector
❷ Charging Current Selector
❸ AC input
❹ Input breaker
❺ External Battery Connectors
❻ Output Receptacles Arrangement

3 Important Safety Warnings

Before using this inverter, please read all the instruction and cautionary markings on the unit, in this manual and on the batteries.

General Precaution-

Conventions used:
WARNING! Warnings identify conditions or practices that could result in personal injury;
CAUTION! Caution identifies conditions or practices that could result in damage to either the unit or the connected equipment.

CAUTION! This unit is designed for indoor use only. Do not expose the unit to rain, snow or any other liquids and direct sun light.

CAUTION! To reduce risk of injuries, only use qualified batteries from qualified distributors and/or manufacturers. Any unqualified batteries may cause potential damages and injuries. Do NOT use old, overdue or damaged batteries. Please check the battery type, date and condition before installation and use to avoid any potential damages and injuries.

WARNING! It's very important for efficient operation and system safety that appropriate external battery cable are used. To reduce risk of potential injuries, external battery cables should be UL certified and rated for 75°C or higher. Do not use copper cables with higher AWG than 10AWG. Below is the external battery cable reference according to system requirements.

Table 1 Minimum Recommended Battery Cable Size versus Length

MODEL	Typical Amp.	1 meter (one-way)	Dia-mm	CROSS SECTIONAL AREA (mm^2)
Mi500	40A	10 AWG	2.59	
Mi1200	75 A	10 AWG	2.59	5.26
Mi2400	75 A	10 AWG	2.59	5.26

Table 2 External Battery Cable Size Reference

AWG (American Wire Gauge Size)	Dia-mm (Diameter in millimeters)	CROSS SECTIONAL AREA (mm^2)
5	4.62	16.77
6	4.11	13.30
7	3.67	10.55
8	3.26	8.37
9	2.91	6.63
10	2.59	5.26
11	2.30	4.17
12	2.05	3.332
13	1.82	2.627

CAUTION! Do not disassemble the inverter. Contact a qualified service center when service or repair is required.
WARNING! Provide sufficient ventilation for the battery compartment. The battery enclosure should be designed to prevent accumulation and concentration of hydrogen gas at the top of the compartment.
CAUTION! Use insulated tools and cables to reduce the risk of short circuit's when installing or working with the inverter, the batteries, or any other equipment connected to this unit.
CAUTION! For battery installation and maintenance, please read the battery's installation and maintenance instructions prior to operating and/or installation.

Personnel Precaution -
CAUTION! Be careful and avoid dropping a metal tool on the batteries, it could spark or short circuit the batteries leading to fire hazards or other damages to the batteries.
CAUTION! Remove all personal metal items such as rings, bracelets, necklaces, and watches when working with the batteries as they can produce a short circuit current high enough to melt metal leading to severe burns.
CAUTION! Avoid touching your eyes while working near batteries as there can be potential hazardous chemicals on or leaking from the batteries.
CAUTION! Ensure access to sufficient fresh water and soap in case battery acid encounters skin, clothes or eyes.
CAUTION! NEVER smoke or allow a spark or flame to appear in vicinity of batteries.
CAUTION! If a remote or automatic generator start system is being used, disable the automatic starting circuit or disconnect the generator to prevent accidents from happening during any servicing.

4 Specifications

	500VA	1000VA	2400VA
CAPACITY	500VA/300W	1000VA/700W	2000VA/1400W
INPUT			
Voltage	220/230/240VAC		
Voltage Range	162/170/177-268/280/280VAC(Narrow mode) 90/90/95-280VAC(Wide mode)		
OUTPUT			
Voltage Regulation (Batt. Mode)	220/230/240VAC +/-10%		
Transfer Time	30 ms typical		
Waveform	Simulated Sine Wave		
BATTERY & CHARGER			
Battery Voltage	12 VDC	12 VDC	24 VDC
Floating Charge Voltage	13.75VDC ±0.25	13.75VDC ±0.25	27.00VDC ±0.5
Charge Current	10A	10/20A	10/20A
PHYSICAL			
Dimension (DxWxH mm)	330 X 227.8 X 92.5		

5 Installation

NOTE: Before installation, please inspect the unit, to ensure that nothing inside the package is damaged and/or missing.

Connect to Utility Power and Charge
Plug the AC input cord into the wall outlet. The unit will automatically start charging any connected external batteries even though the unit is switched off.

Single Battery Connection Voltage (Refer to Fig 1):
When using any batteries, the voltage must be equal to the Nominal DC Voltage of the unit (see below Table 1).

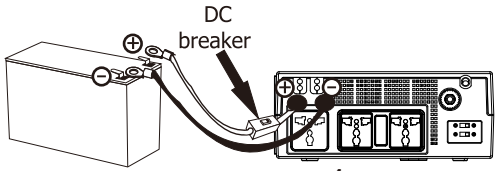


Fig. 1

Table 1

Model	Nominal Battery DC Voltage
500VA	12VDC
1000VA	12VDC
2000VA	24VDC

Mounting the Unit
The unit can be mounted onto a wall surface by following the below steps:
1. Turn off and disconnect the unit before attempting to mount the unit.
2. After selecting an appropriate mounting location, use a horizontal line with a length of 205 mm and mark the ends of the line on the wall. (See chart 1)
3. Drill and insert two mounting screws at these marks, one each.
4. Mount the unit by positioning the key-hole slots over the mounting screws and sliding the unit till securely attached.

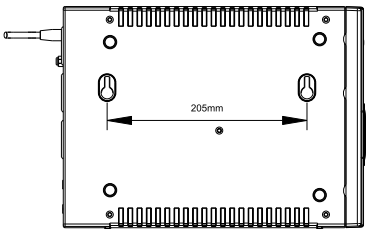


Chart 1

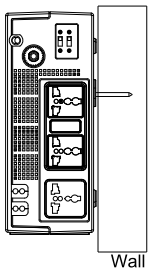


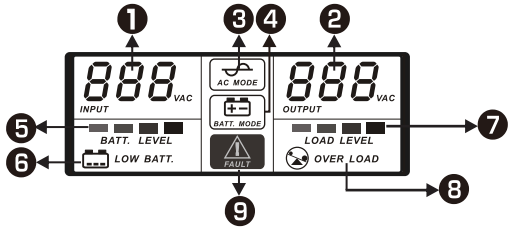
Chart 2

6 Operation

Power On/Off

Once the inverter has been properly installed, press the power switch to power on the unit. The unit will automatically work in line mode or inverter mode according to utility power's status. When pressing the power switch again, the unit will be switched off.

LCD



1.Input voltage

2.Output voltage

3.AC mode (unit operating in line mode, this LCD symbol will be lit)

4.Battery mode (when operating in inverter mode, this LCD symbol will be lit)

5.Battery level (Battery capacity)

6.Low battery (when battery voltage is low, this LCD symbol will be flashing)

7.Load level (Load percentage used)

8.Overload (when the load exceeds max load capacity, this LCD symbol will be flashing)

9.Fault mode(this LCD symbol will be lit when inverter is in fault mode, such as a short circuit or system overload)

Operation Mode Selector

Narrow Mode: 162 V to 280 V, the unit will not switch over to battery backup if utility power is available and the utility voltage is higher than 162 V and lower than 280 V.
Wide Mode: 90 V to 280 V, the unit will not switch over to battery backup if utility power is available and the voltage is higher than 90 V and lower than 280 V.

a). "Narrow": setting for conventional electrical appliances such as computers, TVs etc. as narrow mode reduces the switch over time from utility to battery backup.
b). "Wide: setting for energy saving, with lower line sensitivity and longer switch over times during power failures.

Charging Current Mode Selector

10/20A: The maximum charging current determines the recommended battery capacity which can be connected to the unit as it will effect charging time periods required to fully recharge the connected batteries for example the 10A current is recommended for 100AH or lower batteries.

7 Trouble Shooting

Use the below table to solve common errors/problem:

Problem	Probable Cause	Solution
When utility power is available and within the selected operating range, yet the unit in inverter mode.	AC input cord might not be properly connected.	Secure and properly connect the AC input cord.
	Input breaker switch might be activated.	Reset the input breaker switch.
When the power fails the backup time is shorter than previously.	The unit might be overloaded.	Remove non-critical loads.
	Battery voltage might be too low.	Let the unit charge for a sufficient time period.
	Battery capacity might not be full even after 8+ hours of charging.	Check the date and condition of the batteries, replace if needed.
LCD display is dark whilst utility power is available and within selected range.	The inverter might be switched off.	Press the power switch to power on the unit.
	The battery might not be properly connected.	Check the battery connection and secure all connections.
	There might be defects/ faults in the battery.	Replace the batteries.
	Battery voltage might be too low.	Let the unit charge for a sufficient time period.
The unit is constantly in fault mode and restarts frequently.	The unit might be overloaded.	Verify that the load does not exceed the max load capacity of the inverter.
	The output might be short circuited.	Check the connected loads and disconnect/resolve the connected load causing the short circuit.