

DIGITAL INVERTER

1200 VA-2400 VA

User Manual



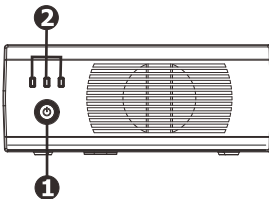
1 Introduction

This inverter is a compact inverter designed to power your home appliances or precious electronics. Its compact size features easy installation and high movability.

Compared with traditional inverters in the market, this inverter provides two operation modes: UPS mode and Inverter mode. At UPS mode, the inverter can provide continuous power to general home appliances. At Inverter mode, the inverter can provide continuous power to lamp and fan load. On the other hand, We provides two charging mode: 10A and 20A, select 10A mode When Connecting Battery 100AH and Lower, select 20A mode When Connecting Battery 100AH and Above.

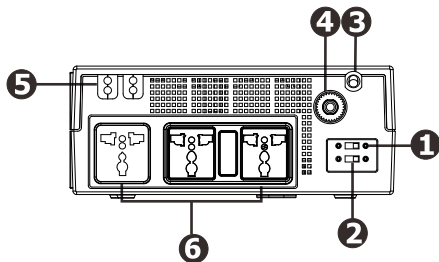
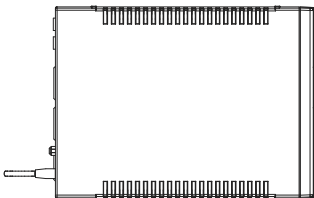
2 Product Overview

Front View:



- 1 Power switch
- 2 Status indicators
(please see the Operation section for the details)

Back View & Top View:



Universal Type

- 1 Operation Mode Selector
- 2 Charging Current Mode Selector
- 3 AC input
- 4 Input breaker
- 5 External Battery Connectors
- 6 Output Receptacles Arrangement

3 Important Safety Warnings

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

General Precaution-

Conventions used:

WARNING! Warnings identify conditions or practices that could result in personal injury;

CAUTION! Caution identify conditions or practices that could result in damaged to the unit or other equipment connected.

CAUTION! The unit is designed for indoor use. Do not expose this unit to rain, snow or liquids of any type.

CAUTION! To reduce risk of injury, only use qualified batteries from qualified distributors or manufacturers. Any unqualified batteries may cause damage and injury. Do NOT use old or overdue batteries. Please check the battery type and date code before installation to avoid damage and injury.

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

Table 1 Minimum Recommended Battery Cable Size versus Length

	Typical Amp.	1 meter (one-way)	Dia-mm	CROSS SECTIONAL AREA (mm ²)
1.2K	75 A	10 AWG	2.59	5.26
2.4K	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 with the qualified service center when service or repair is required.

WARNING! Provide ventilation to outdoors from 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 to reduce the chance of short-circuit when installing or working with the inverter, the batteries, or other equipments attached to this unit.

CAUTION! For battery installation and maintenance, read the battery manufacturer's installation and maintenance instructions prior to operating.

Personnel Precaution -

CAUTION! Careful to reduce the risk or dropping a metal tool on the batteries. It could spark or short circuit the batteries and could cause an explosion.

CAUTION! Remove personal metal items such as rings, bracelets, necklaces, and watches when working with batteries. Batteries can produce a short circuit current high enough to make metal melt, and could cause severe burns.

CAUTION! Avoid touching eyes while working near batteries.

CAUTION! Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

CAUTION! NEVER smoke or allow a spark or flame in vicinity of a battery.

CAUTION! If a remote or automatic generator start system is used, disable the automatic starting circuit or disconnect the generator to prevent accident during servicing.

4 Specifications

Model	1.2K	2.4K
CAPACITY	1200VA/720W	2400VA/1440W
INPUT		
Voltage	220VAC	/ 230VAC
Voltage Range	162-268VAC(UPS mode) 90-280VAC(INV.mode)	/ 170-280VAC(UPS mode) 90-280VAC(INV.mode)
OUTPUT		
Voltage Regulation (Batt. Mode)	220VAC +/-10%	/ 230VAC +/-10%
Transfer Time	20 ms typical	
Waveform	Modified Sine Wave	
BATTERY & CHARGER		
Battery Voltage	12 VDC	24 VDC
Floating Charge Voltage	13.75VDC ±0.25	27.00VDC ±0.5
Charge Current	10/20A	10/20A
PHYSICAL		
Dimension (DxWxH mm)	330 X 227.8 X 92.5	
Net Weight (kgs)	2.6	2.8
Gross Weight (kgs)	3.1	3.3

5 Installation

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged.



Connect to Utility and Charge

Plug in the AC input cord to the wall outlet. The unit will automatically charge the connected external battery even though the unit is off.

1) Single Battery Connection for 1200 VA Single Battery 12 Volt (Refer to Fig 1):

When using a single battery, its voltage must be equal to the Nominal DC Voltage of the unit (see below Table 1).

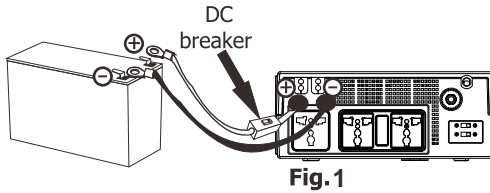


Fig.1

Table 1

Model	Nominal Battery DC Voltage
1.2K	12VDC
2.4K	24VDC

2) Double Battery Connection for 2400 VA Double Battery 24 Volt (Refer to Fig 2):

All batteries must be equal in voltage and amp hour capacity. The sum of their voltages must be equal to the nominal DC Voltage of the unit.

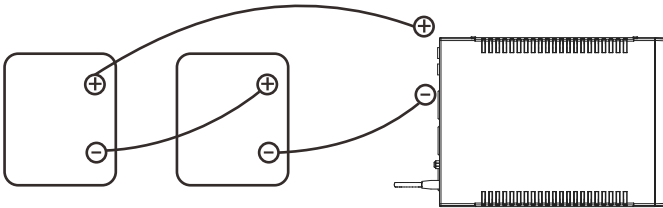


Fig. 2

Mounting the Unit

The unit can be mounted to a wall surface. Please follow below steps:

1. Turn off the unit before mounting.
2. Select an appropriate mounting location. Use a horizontal line and the length of the line must be 205 mm and mark the two ends on the wall. (see chart 1)
3. Drill two marks by screws.
4. Mount the unit by positioning the key-hole slots over the mounting screws. (see chart 2)

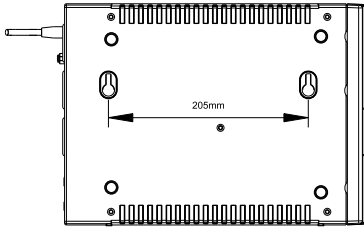


Chart 1

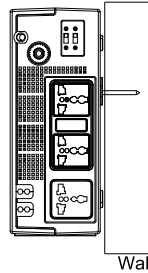


Chart 2

6 Operation

Power On/Off

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

LED Indicators & Audible Alarms

There are three indicators (Green/Red/Yellow) in the front panel of the unit.

Status	Indicator	Alarm
Line Mode	Green LED lighting	Off
Battery Mode	Yellow LED lighting	Off
Shutdown Mode	Yellow LED flashing every 5 seconds.	Off
Battery charging at power on.	Green LED flashing every 2 sec.	Off
Battery fully charged at power on.	Green LED lighting	Off
Battery charging at power off.	Green LED flashing every 5 sec.	Off
Battery fully charged at power off.	Green LED flashing every 10 sec.	Off
Battery weak at battery mode.	Yellow LED flashing every 2 sec.	Sounding every sec.
Fault mode.	Red LED lighting	Continuously sounding
The unit is overload.	Red LED flashing every sec.	Sounding every sec.
The unit is over charged.	Red LED flashing every 5 sec.	Continuously sounding

Operation Mode Selector

a). "Narrow" : setting for conventional electrical appliance.

If you select this mode, the unit's input utility range is narrow .If the utility is higher or lower than this range, the unit will transfer to battery mode automatically. And you can connect the general home appliances when you select this operation mode.

b). "Wide" : setting for energy saving.

If you select this mode, the unit's input utility range is wide .If the utility is higher or lower than this range, the unit will transfer to inverter mode automatically. So, you can connect lamp and fan load.

Charging Current Mode Selector

a)."10A" : The maximum charging current is 10A, select 10A mode When Connecting Battery 100AH and Lower.

b)."20A" : The maximum charging current is 20A, select 20A mode When Connecting Battery 100AH and Above.

Trouble Shooting

Use the table below to solve minor problems.

Problem	Probable Cause	Solution
Utility power is normal but the unit is in battery mode.	AC input power cord is not connected well.	Check AC input power connection.
	Input breaker is activated.	Reset the input breaker.
When power fails, the backup time is shorten.	The unit is overload.	Remove some non-critical loads.
	Battery voltage is too low.	Charge the unit at least 8 hours.
	Battery capacity is not full even after charge the unit for at least 8 hours.	Check the date code of the battery. If the batteries are too old, replace the batteries.
No LED display on the front panel when the utility power is normal.	The unit is not turned on.	Press power switch to turn on the unit.
	Battery is not connected well.	Check the external battery cable and terminal. Make sure all the battery connections to the unit are all correct.
	Battery defect.	Replace the batteries.
	Battery voltage is too low.	Charge the unit at least 8 hours.
The unit is in fault mode and restart frequently.	The unit is overload.	Verify that the load matches the capability specified in the specification.
	Output is short circuited.	Check the loads and remove the loads which cause short circuit.