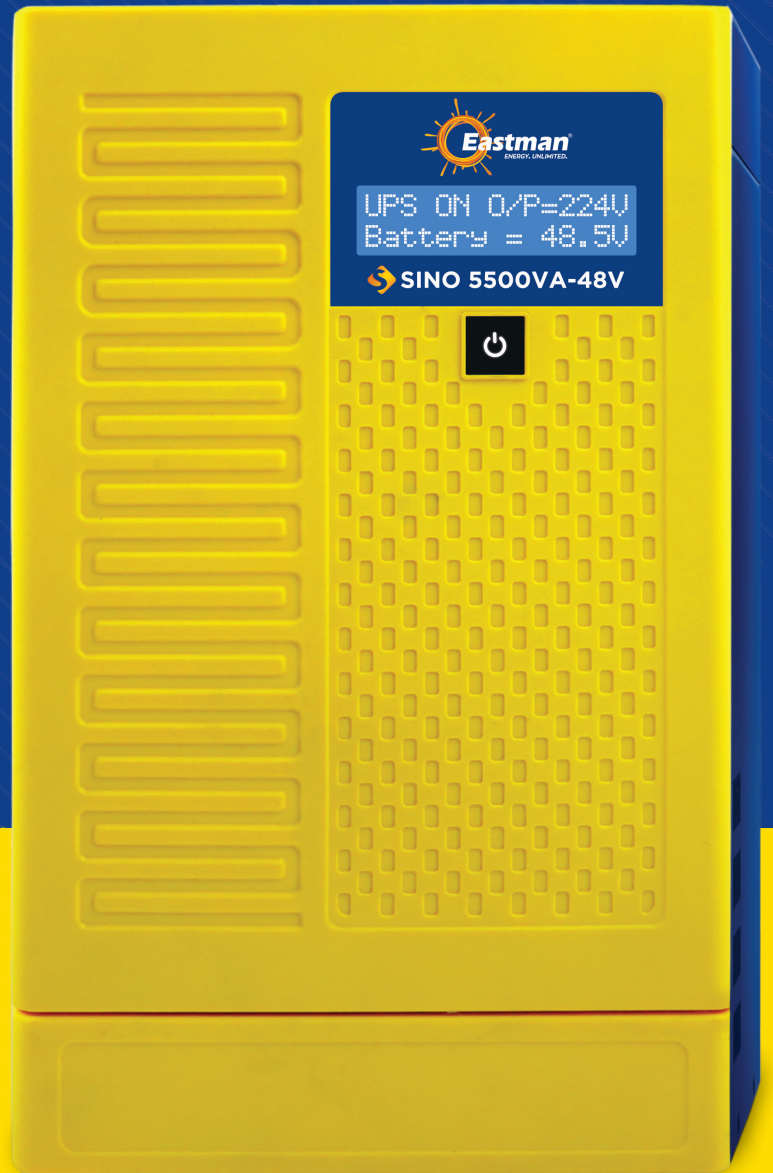




The Power of **ONE**



EASTMAN SINO SERIES

User manual

SINO2500VA - 5500VA

About This Manual

Purpose

This manual describes the assembly, installation, operation and troubleshooting of this unit. Please read this manual carefully before installations and operations. Keep this manual for future reference.

Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

Safety Instructions

WARNING

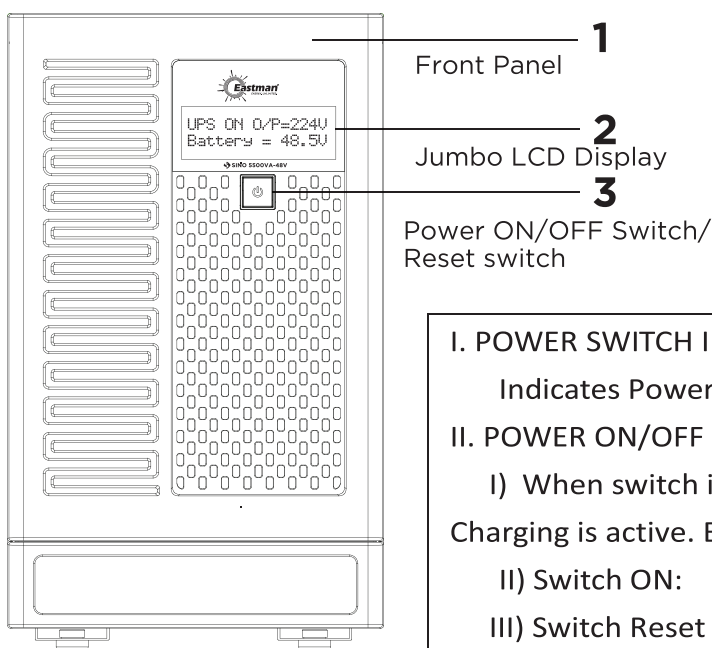
This chapter contains important safety and operating instructions. Read and keep this manual for future reference.

1. Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.
2. Do not disassemble the unit. Take it to a qualified service centre when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.
3. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
4. CAUTION - Only qualified person can install this device with battery.
5. For optimum operation of this UPS, please follow required spec to select appropriate cable size. It's very important to correctly operate this UPS.
6. Be very cautious when working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
7. Please strictly follow installation procedure when you want to disconnect AC or DC terminals. Please refer to INSTALLATION section of this manual for the details.
8. Fuses are provided as over-current protection .
9. GROUNDING INSTRUCTIONS -This UPS should be connected to a permanent grounded wiring system. Be sure to comply with local requirements and regulation to install this UPS.
10. NEVER cause AC output and DC input short circuited. Do NOT connect to the mains when DC input short circuits.
11. Warning!! Only qualified service persons are able to service this device. If errors still persist after following troubleshooting table, please send this UPS back to local dealer or service centre for maintenance.

Do's and Don'ts

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<ol style="list-style-type: none"> 1. Install proper cooling systems in UPS room or ensure proper cross ventilation for better performance of UPS and batteries. 2. Ensure no reptiles like mouse, lizard in UPS room. 3. UPS batteries should be kept in a dry and enclosed place in a rack. 4. Keep the UPS and battery bank away from sparks, heat source or fire. 5. Site should have sufficient space for maintenance of UPS and batteries. 6. Maintenance power plug socket is available nearer to the UPS panel. 	<ol style="list-style-type: none"> 1. There should NOT be water seepage near the UPS and batteries. 2. There should NOT be heat in the UPS and battery 3. UPS should NOT be kept in dusty environment. 4. In UPS room, do not keep any food item, or any kind of garbage. 5. In case of any issue, Call authorized supplier immediately. 6. UPS Should not be turned off without the permission of manufacturer/ Supplier as due guidance required by trained engineer while switching off the UPS.

Front Panel Description

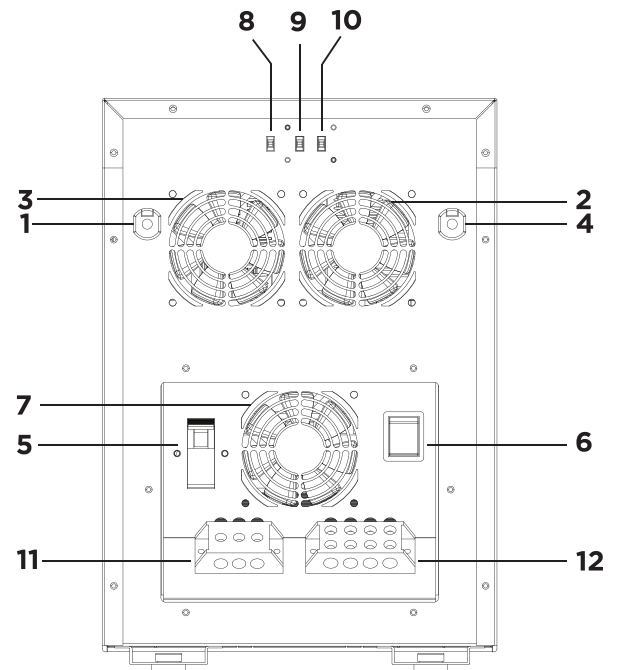


- I. POWER SWITCH INDICATION**
Indicates Power Switch is ON or OFF.
- II. POWER ON/OFF AND RESET SWITCH**
- I) When switch is OFF backup mode is inactive, Mains bypass and Charging is active. Buzzer is muted.
 - II) Switch ON: All functions of Product works.
 - III) Switch Reset : Resets the system from all fault conditions.

III. Jumbo LCD Display Indications		
1	Welcome Message	" " WELCOMES YOU Initialising... System Settings
2	UPS ON	UPS ON O/P= ...V Battery = ...V O/P Freq. = ...Hz
3	Mains ON	AC Input = ...V Battery Charging Input Freq. = ...Hz Battery = ...V Battery charged
4	Overload Indication	OVERLOAD PLS REDUCE LOAD
5	Overload Shutdown	UPS OFF Overload
6	Low Battery Indication	LOW BATTERY = ...V PLS REDUCE LOAD
7	Low Battery Shutdown	UPS OFF LOW BATTERY

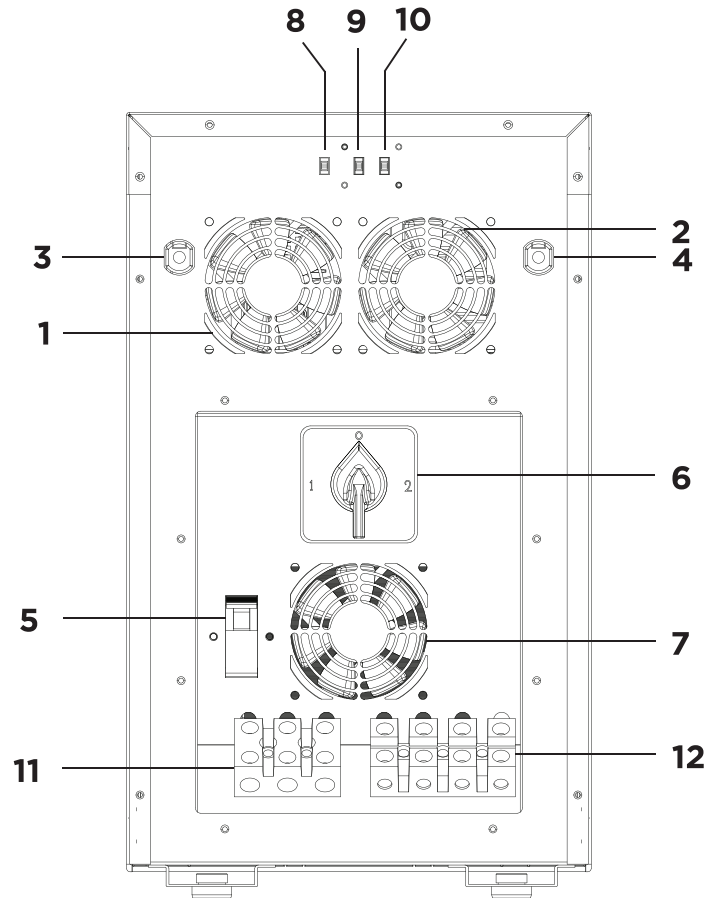
Back Panel Description (SINO 2500VA-24V)

1. Negative (-ve) Battery Lead.
2. DC FAN 1
3. DC FAN 2
4. Positive (+ve) Battery lead.
5. Input MCB AC.
6. Bypass Switch (1. UPS, 2. BYPASS)
7. DC FAN 3
8. Charging Current Selection Slide Switch (1. High Current 2. Std current)
9. Mains Input Voltage Selection Slide Switch (WIDE/ NARROW)
10. Battery Voltage Selection Slide Switch (HIGH / STD OR TUB/LC/FLE).
Select Appropriate Voltage as Recommended by Battery Manufacturer/supplier.
11. Input Terminal Block (NEUTRAL, EARTH, LINE)
12. Output Terminal Block (AC Output For Domestic Load) & TDR Output For Compressor Load



Back Panel (SINO 4000VA-48V, SINO 5000VA-48V, SINO 5500VA-48V)

1. DC Fan 1
2. DC Fan 2
3. Negative (-ve) Battery Lead.
4. Positive (+ve) Battery lead.
5. Input MCB AC.
6. Bypass Switch (1. UPS 2. BYPASS).
7. DC Fan3
8. Charging Current Selection Slide Switch (1. High Current 2. Std Current)
9. Mains Input Voltage Selection Slide Switch (WIDE/ NARROW)
10. Battery Voltage Selection. (HIGH /STD)
11. Input Terminal Block (NEUTRAL ,EARTH, LINE)
12. Output Terminal Block (AC Output For Domestic Load) & TDR Output For Compressor Load.



Steps For Ups Installation

TO BE DONE BY AN AUTHORISED SERVICE PERSON.

- Switch off the supply to the distribution point to which the UPS unit to be connected.
- A readily accessible disconnect device (like MCB or MCCB) must be incorporated in all fixed input wiring. The disconnect device shall have a contact separation of at least 3mm. The UPS has automatic back feed isolation but for extra safety a warning label can be added on the primary power isolator installed remote from the UPS to warn electrical maintenance.
- Connect the battery/ batteries to UPS as per its requirement.
- Keep the front switch of UPS on OFF Position.
- Connect the Load wire to the right hole of output Terminal Block located on the rear panel of UPS.
- Switch on the front switch of the UPS.
- Connect AC input wire to commercial mains Socket.

Important

In the event of any instrument requiring service at our authorized service Centre, the following procedure should be adopted:-

1. The instrument must be securely packed, preferably in its original packaging. Also ensure that nothing inside packing is damaged. Please transport the product in its original packaging to protect against shock, damage & Impact.
2. We reserve the right to charge the consignee for any damage incurred during transit.
3. The output of the UPS should never be connected to a generator or incoming utility power source.

This situation is far worse than a short circuit. If the unit survives the condition, it will shut down until correction is made.

Troubleshooting

Problem	Possible Cause/ Action Suggested
UPS Does not operate when mains fail. MSG:- "AC OUT OF RANGE" "UPS OFF"	<ol style="list-style-type: none"> a) Check display status b) Check the output connections. c) Reset UPS front switch by making it OFF then ON, if still problem persist bypass UPS by bypass switch & call service centre.
Mains Normal but working ON backup mode. MSG:- MCB TRIP/ SELECT BYPASS/ PLS RESET	<ol style="list-style-type: none"> a) Check the input AC for loose connection, check the MCB on the back panel if trips then reset MCB or check the rotary switch, if in OFF position b) AC out of range/ check for dead wall socket. c) Internal problem, bypass UPS by rocker switch & call service centre.
UPS trips frequently with MSG: overload, please reduce load	Please reduce load & reset UPS as it may be overloaded.
UPS Trips. MSG:- UPS OFF, LOW BATTERY	Battery is discharged or reduce the load, reset the front ON/OFF switch to get the output.
"Short Circuit" continuous beep MSG:- UPS OFF overload.	Switch off the power ON/OFF switch to stop the beep, Reduce the load.
Less Backup	Check battery water, charge the battery at least 15 hrs. If still backup is less get battery checked by service Centre.
Mains backup, continuous operation with no output	Check for the wiring of input & output for phase reverse.
During mains/ Backup mode MSG:- (TEMPERATURE FAULT)	<ol style="list-style-type: none"> a) Over temperature protection wait for unit to all cool down it will automatically reset to the normal operation. b) Reset UPS front panel switch by making it off then ON, if still problem persist internal problem. Bypass UPS by rotary switch & call service centre.

Technical Specification

Input Voltage (Wide Mode)	120V-275V±10V
Input Voltage (Narrow Mode)	180V-260V±10V
Mains Mode Input frequency	Same as Mains
Output Voltage on Mains Mode	Same as input voltage
Output voltage on Backup Mode	220V ± 15%
Output waveform on UPS mode	Pure Sine Wave
Switching from Mains to UPS and from UPS to Mains	Automatic
Battery charging current	Constant charging approx. 10% of the rated battery current in AH
Charger topology	Boost Based PWM Control Multi-Stage Technology with GPM
Overload / Short Circuit	110% / 300%
UPS transfer time	<=15msec
Operating Temperature	-10°C to + 45°C
Technology	Microcontroller Based Design
Auto Reset Feature	Yes
Mains bypass	Bypass Switch

Safety Instructions

- **WARNING:** This chapter contains important safety and Operating instructions. Read and keep this manual for future reference.
- Before using the product, read all instructions and cautionary markings on the product, the batteries, and all appropriate sections of this manual.
- To reduce risk of injury, charge only deep-cycle lead acid type rechargeable batteries.
- Do not disassemble or open the product. Take it to a qualified service centre when service or repair is required.
- Incorrect re-assembly may result in a risk of electric shock or fire.
- To reduce the risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.
- Only qualified people can install this product with battery.
- For optimum operation of this product, please follow BIS specification to select appropriate cable size.
- Be very cautious while working with metal tools on or around batteries. A potential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion.
- Please strictly follow the installation procedure mentioned in this manual.
- The product should be connected to a permanent grounded wiring system.
- Only qualified service person will service this product. If errors persist after following troubleshooting table, please process service request to service Centre for maintenance.

Features

- State of the art technology using High End Micro controller for optimized performance and reliability.
- High-end micro controller based PWM technology using MOSFET: High end micro controller used where the internal digital frequency control is at a speed of as high as 40 MIPS (Million Instruction per second).
- ACEC (Analog Compare error correction) technology based PWM for the generation of pure SINEWAVE: Using ACEC technology the PWM is corrected.
- Boost based PWM controlled intelligent multistage Battery Management charging technology, the input power factor maintains 0.85 which reduces the electricity bills.
- Wiring fault, overload, short circuit, battery low, reverse phase, reverse battery protections.
- ASC (Assessing system configuration) software technique is being incorporated. The software verifies all the critical system parameters before the system starts & keep on assessing the system parameter while the system is running.
- Deliver unmatched noise free performance.

- UPS MODE: Very useful with computer type of application, music studio or medical equipment etc.
- CBT (Control battery temperature) technique is our innovation, with the help of this technique the battery temperature never exceeds the standard limit of the temperature inside the battery.
- REPLICATES MAINS: Ensure same power quality as from mains with a Crest factor of as high as 3:1.
- Customer friendly Jumbo LCD display.
- PLPO: Peak Load Peak Output ensures high peak load handling capacity.
- Generator Compatible.
- Static changeover by using SCR, SCR module improves life and reliability and reduces the change over time, change over time is 10ms.
- Special output with TDR (Time Delay Relay) for smooth running of compressor type load like Air Conditioner, Deep freezers etc.

Going On Vacations

Must put the UPS ON/OFF switch in the off position.

Instrument Description:-

Eastman SINO external battery UPS.

UPS SINO 2500VA-24V
RECOMMENDED AH (200Ah & Above)

UPS SINO 4000VA-48V
RECOMMENDED AH (180Ah & Above)

UPS SINO 5000VA-48V
RECOMMENDED AH (200Ah & Above)

UPS SINO 5500VA-48V



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