

USER'S MANUAL (IFU)

SINE WAVE HOME UPS MATRIX 800VA / 12V

Salient features

- ◆ Sine Wave output.
- ◆ Built-in sealed maintenance free (SMF) battery.
- ◆ Fuzzy logic control- a unique & advanced technology.
- ◆ Smart Overload Sense and Short Circuit Protection.
- ◆ Optional No Load Shutdown.
- ◆ Automatic Low Battery Cutout.
- ◆ Smart SMPS based fast battery charger with automatic power factor correction.
- ◆ Instant switch-over to protect sensitive appliances.
- ◆ Battery lasts 50% longer than ordinary battery.
- ◆ User-friendly Graphical LED Display.
- ◆ Future Expandability possible.
- ◆ Automatic No Load Shut down.

GLOBAL CERTIFICATIONS:

ISO 9001 : 2000
ISO 14001:2004

R&D
Recognised
by
MINISTRY OF SCIENCE & TECHNOLOGY
GOVERNMENT OF INDIA

Before connecting, operating, or adjusting this unit, please read this instruction booklet carefully .

Customer Care : +91 - 124 - 4170561 - 566

Dear Customer,

Congratulations for choosing Su-Kam Sine Wave Home UPS! This Sine Wave Home UPS has been developed using state-of-the-art Micro controller based technology.

Some of the distinguishing features of the Su-Kam SineWave Home UPS :

- | | |
|--|---|
| <ul style="list-style-type: none">◆ Sine Wave output to run all the appliances◆ Built-in sealed maintenance free (SMF) battery◆ Smart Overload Sense and Short Circuit Protection◆ Smart SMPS based fast battery charger with automatic power factor correction◆ Automatic No Load Shut down | <ul style="list-style-type: none">◆ Fuzzy logic control- a unique & advanced technology◆ User Friendly Graphical display◆ Peak Power output 3 times◆ Very Fast Switch over time, Provides long power back-up, both for your PC and home appliances◆ Future Expandability possible |
|--|---|

This manual will help you to better understand your Sine Wave Home UPS, increase your convenience in using it and maximize its benefits for you.

Feel free to contact our authorized dealer or us at info@su-kam.com. You can also visit our website www.su-kam.com anytime for any clarification or more information. We value your suggestions and comments. Su-Kam is committed to continual product improvement and the best way to accomplish this task is by listening to our valued customers. This commitment gets strengthened every time you buy a Su-Kam product.

We appreciate the support you have shown us through the purchase of our product. Please read this manual to become familiar with its features and various applications.

**Regards,
Su-Kam Power Systems Limited**

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KNOWING YOUR HOME UPS

Now let's begin the journey to explore various aspects of your Su-Kam Sine Wave Home UPS. Welcome aboard!

Su-Kam's Home UPS is a truly futuristic concept. It works as an offline (Stand-by) UPS having options of user-selectable mains voltage (narrow / wide window) and switch over time from mains to backup mode or vice-versa. It ensures continuous supply of power from the battery bank whenever mains supply from utility power is not available.

FRONT VIEW:



On the front panel of the Home UPS there is one ON/OFF power active switch, and a graphic symbol panel for indications.

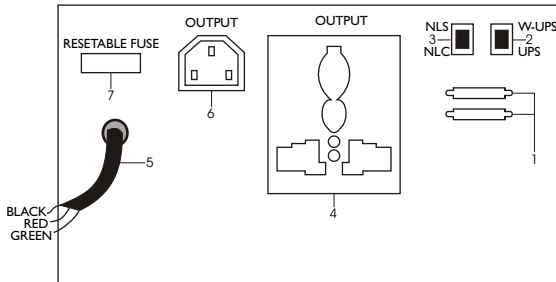
1. **MAINS ON** : This graphical symbol, when lit, indicates that incoming mains is available.
2. **INV. ON** : This graphical symbol, is lit when the incoming mains is not available and the output is from Home UPS.
3. **BATT. CHARGING / CHARGED** : This graphical symbol, shows that the mains line is coming and side by side the charging of batteries is also taking place. This graphical symbol, glows intermittently during charging and glows continuously when battery is charged.
4. **FUSE BLOWN** : Mains fuse blows off when the Home UPS is operating on mains and the load connected through the Home UPS exceeds the specified limits prescribed for the Home UPS. In this case, at once reduce the extra load and replace the glass fuse given at back to restore the mains line. During this stage, the Mains ON graphic symbol glows intermittently with buzzer beeps .

*Front
Panel
(1)*

5. **BATT. LOW** : This graphical symbol, when glows indicates that the battery voltage has gone down to the lower limit during discharge. After this indication HOME UPS will shut down automatically after few minutes. During this the buzzer gives a continuous beep.
6. **OVERLOAD/SHORT CIRCUIT** : This graphical symbol, when glows indicates that either Short circuit has occurred or there is Overload on the Home UPS . The Home UPS resets itself automatically and makes 8 attempts in case of overload and 4 attempts in case of short circuit to turn on again, if the overload or short circuit continues even after these attempts, it turns off permanently and will turn on only after ON/OFF power active switch is turned OFF and then turned ON. In the event of unsuccessful attempts it automatically shuts down. During overload or short circuit, graphical symbol lights up and the buzzer gives beep. The beep is intermittent in case of overload and short circuit. If there is short circuit at the output, the HOME UPS will turn off permanently after a few attempts. It can be reset by removing short circuit and then switching off and on the power active switch.
7. **NO LOAD SHUT DOWN INDICATION** : No load shut down can be activated by positioning the switch(given at back panel) towards NLS position. In this case, if load is < 5% then system will shut down automatically. In this condition Inverter ON LED glows continuously and charge LED blinks once in 5 seconds. System will reconnect the load after 20 seconds if load > 5%. No load shut down can be disabled by positioning the switch towards NLC position.

BACK PANEL:

The Home UPS has two battery wires coming out from the rear side, a Fuse Holder, two toggle switches, an output Socket and an input mains Cable (or input terminal block). Connect the two battery wires to the terminals of the battery, the red colored to the positive terminal and black colored to the negative one. A three core input cable is used to connect the home UPS to the incoming AC Mains. Ensure that incoming phase (or line) is connected to line (Red wire), neutral is connected to neutral (Black Wire) and earth is connected to earth (Green Wire). After this the output is connected through the output socket at the rear of the Home UPS.

REAR VIEW:


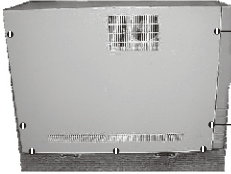
- 1. Auto DC Fuse 2 X 40 A**
- 2. Toggle Switch for Narrow Window (UPS) / Wide Window (W-UPS) mode**
- 3. Toggle Switch for No Load Continue (NLC) / No Load Shut down (NLS) mode.**
- 4. Output Socket 6A / 250V AC (Universal Type).**
- 5. Core Input Wire (Mains Input for Home UPS).**
- 6. Output Socket 10A / 250V AC (D Type)**
- 7. Resettable Fuse (6 A/250V AC).**

Note : 1. Position the Toggle Switch(2) at the back panel to NarrowWindow (UPS) mode if you want to run PC load otherwise you can place the switch to WideWindow (W-UPS) mode.

2. Position the Toggle switch(3) to No Load Shutdown (NLS) mode (optional) if you want to switch off the system in case of no load or load < 4%. Place the switch to No Load Continue (NLC) mode if you want to run the system in case of no load condition or any other load.

FOR UNINSTALLING THE BATTERY

Step A: -



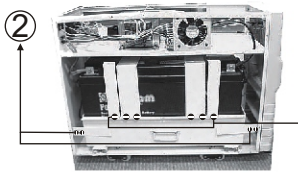
- ① 1. Open all screws, remove cover.
2. Open tray locks & remove it.
3. Open screws of support clips for battery tray.

Step D: -



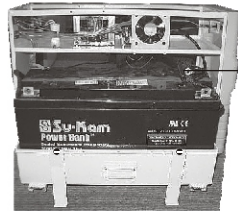
4. Tight support clamps downward as shown.

Step B: -



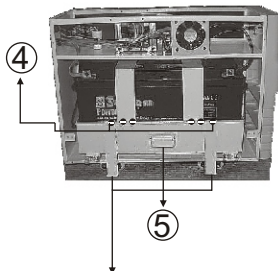
5. Pull the battery tray slowly so that it will rest on the floor through supporting clamps.

Step E: -

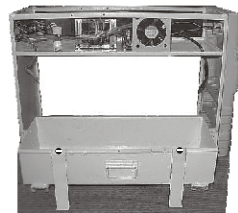


6. Open battery (+ & -) terminals.
7. Open screws of holding clamps of battery and remove it.
8. Pull the battery completely & lift the battery with the help of lifting straps.

Step C: -

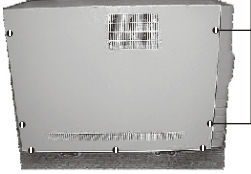


Battery tray resting on the floor through supporting clamps.



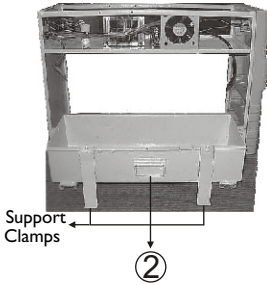
FOR INSTALLING THE BATTERY

Step A: -



1. Open all screws remove top & side cover, if already open than start from next step.

Step B: -



2. Pull the battery tray & tight support clamps downward as shown.

3. Place the battery carefully in tray with the help of lifting straps.

Step C: -



4. Place the holding clamps of battery and tight screws(8 Nos) from front & back side of the battery.

5. Push the tray slowly so that battery goes inside by 70%.

6. Tight battery terminals.

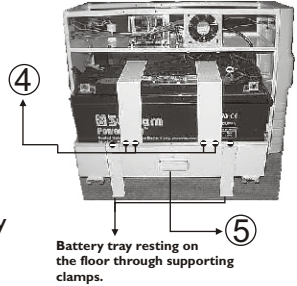
7. Open the support clamps & tight again in Upward position as shown.

8. Push battery tray carefully.

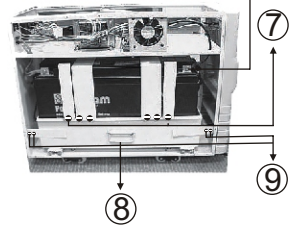
9. Place the tray lock at their position & tight it.

10. Place the cover of the UPS & tight all screws.

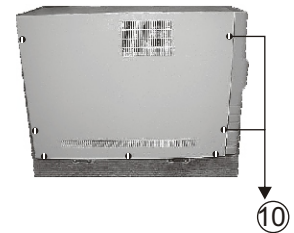
Step D: -



Step E: -



Step F: -



IMPORTANT SAFETY INSTRUCTIONS

Before proceeding further kindly go through the safety instructions carefully.

General Precautions:

1. Before using the Home UPS read all instructions and cautionary markings on the Home UPS, the Battery, all appropriate section of this instruction manual.
2. Do not expose Home UPS to rain, liquids of any type. The Home UPS is designed for interiors only. Handle it very carefully while moving Home UPS from one place to another place because it is very heavy (74 Kg) and have internal SMF Battery.
3. Do not disassemble the Home UPS, take it to a Su-Kam Engineering Service Centre when service or repair is required. Opening by unqualified personnel entails electric shock or fire hazard.
4. To reduce risk of electric shock, disconnect all wiring before cleaning.
5. Provide ventilation to outdoors from the Battery compartment.
6. Do not cover your Home UPS with any cover or cloth.
7. Do not install this Home UPS on or near flammable materials (plywood, Chemicals, gasoline etc.).
8. Be extra cautious when working with metal tools on and around battery. It could short-circuit the batteries or other electrical parts, producing a spark that could cause an explosion.
9. Remove conductive jewelry such as rings, bracelets, necklaces and watches when working with a battery. A battery can produce a short-circuit current high enough to weld a ring or causing severe burns.

IMPORTANT PRECAUTIONS:

The output side of the Home UPS AC wiring should never be connected to a generator or incoming utility power. This condition is far worse than a short circuit. If the unit survives this condition, it will shut down until correction is made.

Note : Never disconnect the battery cables while the Home UPS is delivering power or battery charger is operating. The Power Active Switch has no effect on the charger; it turns off only the power output during backup mode. To disconnect the batteries for service:

- (a) turn off the power switch.
- (b) disconnect all AC power.
- (c) disconnect all the battery cables.

Special Notices:

- Do not switch on the heavy load TV, Refrigerators, Motor, Cooler, etc when Home UPS is running on battery backup and is in UPS mode. This may cause rebooting of your computer.
- Avoid connecting the stabilizer between utility power and Home UPS. The AVR of stabilizer may cause your computer to reboot.
- We recommend that you have point to point wiring of the Home UPS.
- **GROUNDING INSTRUCTIONS:** This Home UPS must be connected to a grounded, permanent wiring system.

TROUBLE SHOOTING

Symptoms	Rectifications
Main Power is coming. Home UPS shows mains fuse blown/Trip on its display panel	Reduce the load and reset the fuse or circuit breaker given at the rear side of the Home UPS.
No Power during backup mode	Check if low battery symbol is glowing, switch OFF the Home UPS by power active switch. Allow the battery to charge before running the Home UPS on battery again.
	Check if overload/short circuit symbol is glowing. Reduce load and reset the Home UPS by Power Active switch. Also Check the reset fuse or circuit breaker given at the back panel
Home UPS does not operate	Check the internal battery connections, DC Fuse and power active switch position.
Home UPS trips frequently at back up mode	Reduce the load and restart the Home UPS through the power active switch.

Symptoms	Problem	Remedy
There is no output power	Low Battery	Check condition of battery & recharge
	Loose battery connections	Check and clean all connections
	Loose AC output connections, AC Fuse trip	Check all AC output connections & reset the AC Fuse
System shut down after 20 sec, no display	Output of Home UPS is wired back to its own input	Check the proper AC input and output wiring
Low/High AC output voltage	Measuring with the wrong voltmeter	Meter must be a true RMS reading meter
Low surge power	Weak battery or Loose internal Battery Connection	Check Battery & all connections

TECHNICAL SPECIFICATIONS

MODEL	MATRIX
CAPACITY	800VA/12V

VOLTAGE LIMITS NARROW WINDOW (UPS MODE)

Mains A.C. Low Cut	185 ± 10V
Mains A.C. Low Cut Recovery	190 ± 10V
Mains A.C. High Cut	265 ± 10V
Mains A.C. High Cut Recovery	260 ± 10V

VOLTAGE LIMITS WIDE WINDOW (W-UPS MODE)

Mains A.C. Low Cut	105 ± 10V
Mains A.C. Low Cut Recovery	120 ± 10V
Mains A.C. High Cut	285 ± 10V
Mains A.C. High Cut Recovery	275 ± 10V

OUTPUT PARAMETER

Mains Output	Same as Input (45Hz-55Hz)
Output Frequency	50.0 Hz. ± 0.1 Hz
Output Voltage with Full Load	220V/200V ± 10V
Waveform	Sine Wave
Overload	Above 100%
Short Circuit Protection	>250% Load (Few msec)

BATTERY CHARGING

SMPS based charger with Automatic Power Factor Correction	
Maximum Charging Current Limit	14 ± 2.0 Amp
Charging Boost Voltage	13.9V ± 0.2v
Charging Float Voltage	13.6V ± 0.2V
Battery Lower Voltage Limit	10.2V ± 0.2V
Recommended Battery Capacity	135AH /165AH
Number of Batteries	1

MODEL	MATRIX
CAPACITY	800VA/12V

TECHNOLOGY

Microcontroller based state-of-the-art technology using MOSFETs

Fuzzy Logic Control Technology

ENVIRONMENT

Storage Temp.	0-50°C
Operating Temp.	0-40°C
Humidity	0-90% Non-condensing

Dimension (W X D X H) in mm	250X610X460	250X610X460
Weight (Kg)	66 Kg with 135 Ah battery	74 Kg with 165 Ah battery

Note : Specifications subject to change without prior notice.

Terms and conditions of warranty

- ★ SU-KAM POWER SYSTEMS LIMITED warrant to the original purchaser provided the product is still in possession of and used by the original purchaser from the date of purchase.
- ★ The warranty stands on all Electronics, Metal parts (except LCD, switches and external body) for Home UPS will be for a period of 24 months & for batteries 12 months from the date of Manufacturing.
- ★ The warranty will be automatically terminate on the expiry of the warranty period, even in case of the Home UPS not being in use in the specified period.
- ★ This warranty is valid only if it is duly signed by the authorized dealer.
- ★ The warranty will be invalidated if defects arising in company's opinion by reasons of accident, abuse, misuse, neglect, improper installation (if not undertaken by the company or its representative), fire, flood, or other act of GOD and any other natural calamities and any other unauthorized repairs done or carried out will have to be borne by the purchaser. The problem of fuse blown will not be included in the warranty of the product. The services given for the same will be paid service.
- ★ The company will not be held liable in any condition for any loss or injury or damage caused to life or property or death and disability caused to any form of life for any reason whatsoever.
- ★ The warranty will not apply if the original seals are found broken or tampered with.
- ★ Free service under the terms of warranty will be provided only by authorized representatives/dealers of the company anywhere in India.
- ★ The company expressly denies the right of any person to incur or assure for it any other liability or obligation in connection with the sale of Home UPS.
- ★ Claims if any, to this warranty shall be made only before courts having jurisdiction in New Delhi.
- ★ Please send your query or Complaint to info@su-kam.com



Model No. :-----
 Serial No. :-----
 Name of Purchaser :-----
 Address :-----
 Date of Purchase :-----
 Dealer's Name :-----



SU-KAM OFFICES ADDRESSES



<p>BANGALORE</p> <p>H.No.449, Ground Floor, 7 th Cross, 6th Main, MICO Layout, BTM II Stage, Bangalore 560076 Karnataka Tel.: 080-32961610, 41506332 E-mail : bangalore@su-kam.com</p>	<p>BHUBANESHWAR</p> <p>389, Bomikhal, Cuttack Puri Road, Bhubaneswar- 751006 Orissa Tel.: 0674-2585120, 09937014979</p>	<p>CHANDIGARH</p> <p>SCO-215-217, 3rd Floor, Office No. 302, Sector-34 A, Chandigarh-160019 Tel.: 0172-4648509, 09878694005 E-mail: chandigarh@su-kam.com</p>
<p>CHATTISGARH</p> <p>Flat No. 1, Govind Kunj, Civil Line, Near Jabal Fabricator, Raipur-492001 Chattisgarh Tel.: 0771-3209092, 09981541645</p>	<p>CHENNAI</p> <p>Old No. 87 & New No-23, Valluvar Salai, Arumbakkam Chennai- 600106 Tel: 044-32984497, 09952966135, 09940634442 E-mail: chennai@su-kam.com</p>	<p>COCHIN</p> <p>Door No-27/77; Plot No-188, 8th Cross Road Girinagar, Cochin, Ernakulam-682020, Kerala Tel: 0484-2316141, 09995882575 Fax: 0484-2316141 E-mail: cochin@su-kam.com</p>
<p>DEHRADUN</p> <p>Vedwalia, Ward No-15, Bhusa Store, Near Shiv Mandir, Sharanpur Road, Village & P.O. Majra, Deharadun-248001 Uttarakhand Tel: 09999399605 Email: dehradun@su-kam.com</p>	<p>DELHI</p> <p>WZ-1401/02, Nangal Raya, Near Lajwanti Garden, New Delhi-110046 Tel: 011-32560709, 32533361, 09971497598 Email: delhiservicecenter@su-kam.com</p>	<p>GHAZIABAD</p> <p>13/7, Site No. 3, Meerut Road, Industrial Area-3, Near Uttam Toyota, Ghaziabad-201001 Uttar Pradesh Tel: +91-120-3239910, 9810434566, 9997797852 E-mail: ghaziabadservice@su-kam.com</p>
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<p>PATNA</p> <p>D-3, Jula Niketan, West Boring Canal Road, Anand Puri, Patna-800001, Bihar Tel: 0612-3200776, 09934015347 Email: patna@su-kam.com</p>	<p>PUNE</p> <p>940, 2nd Floor, Synagogue Street, Near Railway Reservation Centre Camp, Pune-1, Maharashtra Tel: 020-32303900, 30523788, 09975496268 Email: pune@su-kam.com</p>	<p>RANCHI</p> <p>74/D, Plot No. 1, Park Road 3, Ashok Nagar, Ranchi-834002 Jharkhand Tel: 0651-3203277, 09934015338 Email: ranchi@su-kam.com</p>

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