

# USER'S MANUAL (IFU)

## DIGITAL HOME UPS

### Salient features

- ◆ Micro controller based technology using MOSFETs
- ◆ Fuzzy logic control - a unique & advanced technology
- ◆ Smart overload sense and short circuit protection
- ◆ Automatic low battery cutout
- ◆ PWM controlled efficient fast charging
- ◆ Great power saving
- ◆ User-friendly LED indication

#### 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

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*Dear Customer,*

Congratulation as choosing Su-Kam Digital Home UPS! This Digital Home UPS has been developed using state-of-the-art Micro controller based technology.

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

◆ Micro controller based technology using MOSFETs	◆ PWM controlled efficient fast charging
◆ Fuzzy logic control-a unique & advanced technology	◆ Great power saving
◆ Smart overload sense and short circuit protection	◆ User-friendly LED indication
◆ Automatic low battery cutout	

This manual will help you to better understand your Digital 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** or 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 feel the best way to accomplish this task is by listening 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**

# CONTENT

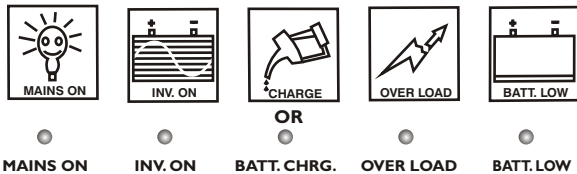
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## KNOWING YOUR HOME UPS

Now lets begin the journey to explore various aspect of your Su-Kam Digital Home UPS. Welcome aboard!

In its most basic form, an Digital Home UPS transforms Direct Current (DC) to Alternating Current (AC). The battery bank with the Digital Home UPS acts as a reservoir to ensure continuous supply of power whenever mains supply from utility power is not available.

### FRONT VIEW:



On the front panel of the digital Home UPS there is one Power Active switch and a graphical symbol panel, for indications.

1. **MAINS ON** : This white graphical symbol, when lit, indicates that incoming mains is available.
2. **INV. ON** : This white graphical symbol shows that incoming mains is not available and the output is from Home UPS.
3. **BATT. CHARGING / CHARGED** : This white graphical symbol, shows that the incoming mains is available and simultaneously the battery is also being charged . This white 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 graphical symbol, glows intermittently with buzzer beeps .

5. **LOW BATT.:** This graphical symbol, appears when battery voltage goes down to a low limit during discharge. The Digital home UPS will shut down automatically after a few minutes. During this stage the graphical symbol glows and the buzzer gives continuous beep.
6. **O.L. / SHORT CIRCUIT :** This graphical symbol, shows that either Short circuit has occurred or there is overload on the Home UPS. The Digital Home UPS resets itself automatically and makes 8 attempts in case of overload and 4 attempts in case of short circuit to switch ON. If the overload or short circuit continues even after these attempts, the Digital Home UPS switches OFF and will switch ON only after the power active switch is first OFF and then put ON. In the event of unsuccessful attempts the Digital Home UPS automatically shuts down. During overload or short circuit the graphical symbol glows and the buzzer gives a intermittent beep. If there is short circuit at the output, the Digital Home UPS will switch OFF permanently after a few attempts. It can be reset by repairing the short circuit and then switching OFF and ON the power active switch.
7. **POWER ACTIVE SWITCH :** The latching ON/OFF switch in the front is to be pressed to ensure that the Digital Home UPS switch on in the event of mains failure and connected load is energised by Digital Home UPS.

## BACK PANEL:

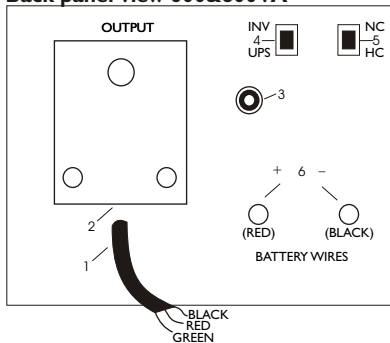
The Digital Home UPS has two battery wires coming out from the rear side, a Fuse holder, 2 toggle switches, an output Socket and an input mains or 3 way cable. We connect the two battery wires to the terminals of the battery, the red coloured to positive terminal and the black coloured to the negative. A three core input cable has to be used to connect the home UPS to 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.

**Note :** 1. Position the Toggle Switch(4) at the rear panel of the Home UPS to Narrow window (UPS) mode if you want to run PC load otherwise always place the switch to WideWindow(INV) mode.

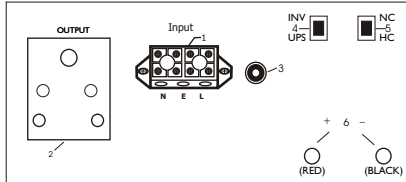
2. Position the Toggle switch(5) to HC mode during frequent power cuts for fast charging of battery otherwise place to NC mode.

## REAR VIEW:

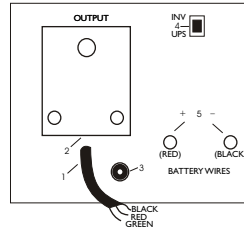
### Back panel view 600&800VA



1. 3 Core Input Wire (Mains Input for Home UPS).
2. 15A AC Output Socket.
3. F6.3A/250V (Fast Blow) Fuse upto 800VA.
4. Toggle Switch Narrow Window(UPS) / Wide Window (INV) mode.
5. Toggle Switch Normal Charging Current (NC) / High Charging Current (HC) mode
6. Battery Wires.

**Back panel view 1400VA**


1. Input Terminal Block (Mains Input for Home UPS).
2. 15A AC Output Socket.
3. T 10A/250V (Slow Blow ) Fuse.
4. Toggle Switch Narrow Window (UPS)/Wide Window (INV) mode.
5. Toggle Switch Normal Charging Current (NC)/High Charging Current (HC) mode
6. Battery Wires.

**Back panel view 400VA**


1. 3 Core Input Wire (Mains Input for Home UPS).
2. 6A AC Output Socket.
3. F6.3A/250V (Fast Blow).
4. Toggle Switch Narrow Window(UPS) /Wide Window (INV) mode.
5. Battery Wires.

### 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 Batteries, 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.
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. **Warning-Risk of Explosive gases**

WORKING IN THE VICINITY OF A LEAD ACID BATTERY MAY BE DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL OPERATION.

### **Provide ventilation to outdoors from the Battery compartment.**

The battery enclosures should be designed to prevent accumulation and concentration of hydrogen gas in “pockets” at the top of the compartment.

Vent the battery compartment from the highest point. A sloped lid can also be used to direct the flow to the vent opening location. To reduce the risk of battery explosion, follow all the instructions of batteries supplier or any equipment you intend to use in the vicinity of batteries.

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 batteries. 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
<b>Main power is coming. Home UPS shows mains fuse blown on its display panel.</b>	Reduce the load and replace the glass fuse of specified ratings given at rear side of the home UPS.
<b>No power during backup mode.</b>	(1) Check if low battery graphic symbol is glowing, switch OFF the Home UPS by power active switch. Allow the battery to charge when the mains is resumed before running the Home UPS on battery again. (2) Check if overload/short circuit graphic symbol is glowing. Reduce load and reset the Home UPS by Power Active switch.
<b>Home UPS does not operate.</b>	Check the battery connections and the mains connections
<b>Home UPS trips frequently at backup mode.</b>	Reduce the load and restart Home UPS through Power Active Switch.

Symptoms	Problem	Remedy
<b>There is no output power</b>	(1) Low Battery.	Check condition of batteries and recharge.
	(2) Loose or corroded batt. Connections.	Check and clean all connections.
	(3) Loose AC output connection.	Check all AC output connections.
<b>System shuts down after 20 sec no display at all</b>	Output of home UPS is wired back to its own input.	Check for proper AC input and output wiring.
<b>Low/High AC output voltage</b>	Measuring with the wrong type Voltmeter.	Meter must be a true RMS reading meter.
<b>Low surge power</b>	Weak batteries, battery cable too long.	Refer to cable and battery recommendations in this manual.

**TECHNICAL SPECIFICATIONS**

MODEL	FRENDY	SONIK	COSMIC/ COSMIC DX	SWAN	TRUSTY*
<b>CAPACITY</b>	400VA/12V	600VA/12V	800VA/12V	800VA/12V	1400VA/24V

**VOLTAGE LIMITS (NARROW WINDOW-UPS MODE)**

Mains A.C. Low cut	185 ± 5V
Mains A.C. Low cut Recovery	190 ± 5V
Mains A.C. High cut	265 ± 5V
Mains A.C. High cut Recovery	260 ± 5V

**VOLTAGE LIMITS (WIDE WINDOW-INV MODE)**

Mains A.C. Low cut	105 ± 5V
Mains A.C. Low cut Recovery	120 ± 5V
Mains A.C. High cut	285 ± 5V
Mains A.C. High cut Recovery	275 ± 5V

**OUTPUT PARAMETER**

Mains Output Frequency	Same as Input (45 Hz-55Hz)
Output Frequency	50.0 Hz. ± 0.1 Hz
Output Voltage with Full Load	220V/200V ± 10V
Overload	Above 110%
Short Circuit protection	>250% Load (Few msec)

**BATTERY CHARGING**

Microprocessor based Controlled SCR charging with Soft start over full range of mains 130V to 290V					
Maximum Charging Current Limit	6.0±1.0 Amp	9.0 ± 1.0 Amp, 11 ± 1.0 Amp For HC mode			
Charging Boost Voltage	13.9 V ± 0.2 V per battery				
Charging Float Voltage	13.6 V ± 0.2 V per battery				
Battery Lower Voltage Limit	10.0 V ± 0.2 V per battery				
Recommended Battery capacity	80 AH-120AH	135AH-180AH			
Number of Batteries	1	1	1	1	2

<b>MODEL</b>	<b>FRENDY</b>	<b>SONIK</b>	<b>COSMIC/ COSMIC DX</b>	<b>SWAN</b>	<b>TRUSTY *</b>
<b>CAPACITY</b>	<b>400VA/12V</b>	<b>600VA/12V</b>	<b>800VA/12V</b>	<b>800VA/12V</b>	<b>1400VA/24V</b>

### 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

<b>Dimension (W XDX H) in mm</b>	<b>148X250X220</b>	<b>272X275X122</b>	<b>300X300X130</b>	<b>272X275X122</b>	<b>392X310X170</b>
<b>Weight(Kg)</b>	<b>8.0Kg</b>	<b>9.20Kg</b>	<b>10.10Kg</b>	<b>9.50 Kg</b>	<b>17.65 Kg</b>

\*Trusty don't have dual charging current setting (NC/HC) options.

Note : Specifications subject to change without prior notice.

**WARRANTY CARD**

- ★ **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 parts (except LED's, switches and external body) for a period of **2 years**.
- ★ The warranty will not apply to 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 in no way will be held liable 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.
- ★ All disputes are subject to jurisdiction of Delhi only.

**Model No.** : .....**Serial Number** : .....**Name of Purchaser** : .....**Address** : .....**Date of Purchase** : .....**Dealer's Name** : .....**DEALER'S STAMP**

# SU-KAM OFFICES ADDRESSES

## Hyderabad

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## Ghaziabad

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