

## User Manual

# *Fusion* Series



**2.2 kVA/36 V**

1 phase input - 1 phase output

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

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# USER MANUAL

## FUSION SERIES

### WELCOME

Dear Customer,  
Congratulations!

Thank you for selecting Su-Kam fusion series uninterruptible power supply (UPS) Designed to meet requirements concerning reliability and quality of electrical supply in the most demanding applications. Su-Kam fusion series is based on DSP Sine Wave PWM technology. During mains availability, the AC input voltage is bypass to the load and also converted to the DC voltage to charge the battery and then reconverted to AC voltage to supply to the load when mains fail.

This design and product topology is recognized as the only one able to match the highest requirements of power reliability for critical applications. High output power quality, excellent behavior with dynamic load variation; adequate protections and filtering are some of the most important features of this UPS.

Regards,  
Su-Kam Power Systems Ltd.

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### Salient Features of the Product

- User Selector switch for “Computer application (UPS)/other electrical appliances (Wide UPS)” operation.
- User Friendly Graphical Symbol LED display for status and fault messages.
- Dual selection for “LA Battery/Tubular & SMF Battery”.
- Run computer along with other appliances.
- Generator Compatible.
- Pure Sinewave Output.
- Great power savings.
- Instant Switchover.

## INSTRUCTIONAL ICON

Before you start, familiarise yourself with the icons you will see in this manual:



Caution/Warning (Read instruction before use).



Conformity of European Norm.



Manufacturer Logo.



Serial No.



Authorized European Representative.



Start or ON/Stop or OFF.



Temperature Limitation.



Humidity Limitation.



Consult for User Manual.



Warning: To avoid risk of injury from electric shock, do not open this enclosure.



Do not use if package damaged.



Keep Dry.



Earthing.



Protect from heat and radioactive sources.

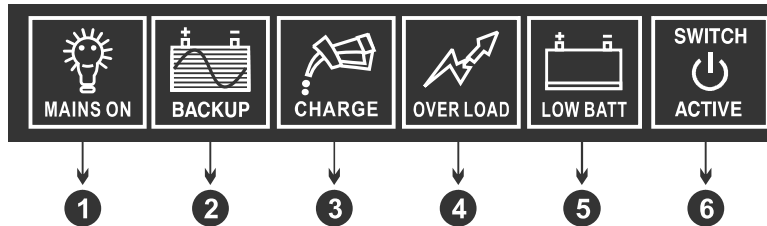


Audible noise.

## KNOWING YOUR UPS

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

### DESCRIPTION OF FRONT PANEL



On the front panel of the UPS there is one ON/OFF "Power Active" switch with LED and a graphic symbol panel for indications.

1. **MAINS ON** : This graphical symbol indicates that incoming mains is available display glows continuously.

**MCB TRIP** : Mains MCB trip when the UPS is operating on mains and the load connected through the UPS exceeds the specified limits prescribed for the UPS. In this case, at once, reduce the extra load and restore MCB in "ON" position given at back to restore the mains line. If mains MCB trip then display blinking with buzzer beep.

2. **BACKUP** : This graphical symbol indicates that incoming mains is not available or is out of the specified voltage range and the output is from 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. **OVERLOAD/OVER TEMPERATURE & SHORT CIRCUIT** : This graphical symbol, when glows indicates that either Short circuit has occurred or there is overload/over temperature on the UPS. The UPS resets itself automatically and makes 8 attempts in case of overload/over temperature to turn on again, if the overload/over temperature 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. If there is short circuit at the output, the UPS will turn off permanently after 4 attempts. It can be reset by removing short circuit and then switching off and on the "Power Active" switch.

5. **BATTERY LOW** : This graphical symbol, when glows indicates that the battery voltage has gone down to the lower limit during discharge. After this indication UPS will shut down automatically after few minutes. During this the buzzer gives a continuous beep.
5. **SWITCH ACTIVE** : This LED glow if power switch is in ON position.

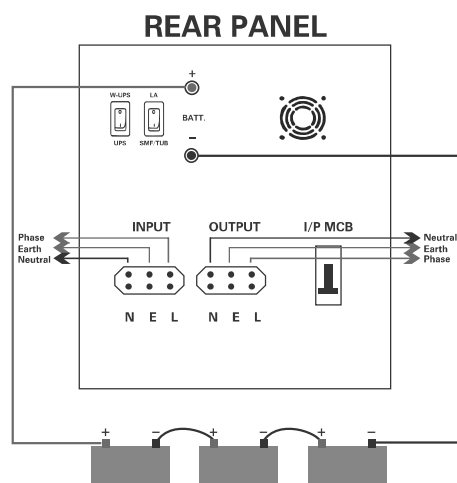
### DESCRIPTION OF REAR PANEL



- 1) **Battery Charging Selection Switch** : You must select the appropriate charging option (SMF / Tubular / Flate Plate Flooded Lead Acid) based on the battery connected to the UPS during the installation through a selector switch given on the back panel of the system.
- 2) **Selection of Switch for UPS/W-UPS Mode** : If you want to run PC load select the switch to UPS mode. Other wise keep the switch to W-UPS mode.
- 3) Output Terminal Block.
- 4) Input Terminal Block.
- 5) Battery Wires Red & Black.
- 6) **Mains Input MCB** : This isolates mains input from UPS.

## QUICK INSTALLATION GUIDE

1. Mount the UPS securely in horizontal position in a clean, dry and ventilated enclosure.
2. Ensure that the front panel "Power Active" switch and battery MCB at the rear panel are in OFF position before you begin the installation.
3. Connect the positive terminal for the battery to the positive wire (RED) of the UPS and negative terminal to negation wire (BLACK) of the UPS. Immediately check the connections & switch ON Battery MCB.
4. Now connect the Output terminal to the load.
5. Switch ON the front panel switch and run the load without AC input Power. Place a load on th UPS and make sure it works.
6. Connect AC input supply to the input terminal such that Line is connected to the terminal marked "L" Neutral is connected to terminal marked 'N' and Earth is connected to the earth terminal marked 'E'.
7. Switch on the mains MCB & UPS should now show 'Mains Present Battery Charging ' on the Graphic Display LED. After the delay for mains synchronization (approx.. 30 Sec) The load is connected to mains & Simultaneously the Battery starts charging.
8. Now disconnect the AC input power, the UPS should run the load on the battery backup mode immediately. Back-up LED should glow.
9. Install battery as recommended in the diagram.
10. Install battery type recommended on the "Our Recommendation" page.
11. Select the options of battery charging selector switch and the option of UPS/W-UPS mode switch on the back panel



## RECOMMENDED APPLICATIONS FOR 2.2 KVA

- FAX MACHINE      • ROOM COOLER      • PRINTER
- REFRIGERATOR      • FAN      • TV
- TUBE LIGHT      • CFL      • PC

### RECOMMENDED LOAD\*\* ON 2.2 KVA

APPLICATIONS	A	B
COMPUTER	1	3
FAN	1	3
TUBELIGHT	1	2
TV	1	1
CFL (15W)	3	2
REFRIGERATOR upto 300 liters	1	0
AIR COOLER upto 500VA	1	0

#### NOTE :-

- 19 – 29`` TV
- CFL OF 15 WATTS
- Tube light of 40W
- Refrigerator upto 300 liters
- When PC is running TV is not recommendable
- 48mm Ceiling Fan (3 Blades, 1000-1200 mm sweep)
- Indicative values only, actual calculation depends on manufacturer specification.



## PREVENTING MAINTENANCE

SYMPTOMS	RECTIFICATION
Main Power is coming. UPS shows mains MCB trip on its display panel	Reduce the load and restore MCB in ON position given at the rear side of the UPS.
No Power during backup mode	Check if low battery LED is glowing, switch OFF the UPS by "Power Active" switch. Allow the battery to charge before running the UPS on battery again. If problem arises, please get your batteries checked.
	Check if overload/short circuit LED is glowing. Reduce load and reset the UPS by Power Active switch.
UPS does not operate	Check the battery connections.
UPS trips frequently at back up mode	Reduce the load and restart the UPS through the "Power Active" switch.

SYMPTOMS	PROBLEM	REMEDY
There is no output power	Low Battery	Check condition of batteries & recharge
	Loose or corroded battery connections	Check and clean all connections
	Loose AC output connections	Check all AC output connections
System shut down after 20 sec, Mains on, backup & over load LEDs is glowing	Output of 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 batteries or battery cables too long	Refer to cable and battery recommendations

Note: In case of product not performing a function. Please contact your authorised dealer/customer care.

## **DO's & DONT's**

### **DO's**

- To reduce risk of electric shock, disconnect all wiring before cleaning.
- Provide ventilation to outdoors from the battery compartment.
- Clean the panel at least once in 30 days with the help of dry cotton cloth.
- Ensure that there are no loose contact anywhere in the utility output powering the home UPS.
- Premises is dry and clean.

### **DON`T**

- Do not cover your sine wave UPS with any cover or cloth.
- Do not expose UPS to rain, liquids of any type. The UPS is designed for interiors only.
- Do not install this UPS on or near flammable materials ( plywood, chemicals, gasoline etc.)
- Do not place UPS on an uneven surface.
- Do not place UPS under direct sunlight or close to heat emitting sources.
- Do not place UPS power cord in an area where it may get damaged by heavy objects.
- Do not touch the battery terminals as they can have high risk of electric shock.
- Don`t overload UPS .

## OUR RECOMMENDATIONS

1. Never use Automobiles Batteries With your UPS. They are not suitable for these applications.
2. Always use Deep cycle batteries that are best suited for UPS.
3. The recommended battery capacity is 120Ah to 200Ah.
4. The recommended cable for the input & output wiring of the unit & the battery wire are:

Capacity	DC Voltage	Input	Output	Battery Wire
2.2 KVA	36	4 mm <sup>2</sup>	2.5 mm <sup>2</sup>	12 mm <sup>2</sup>

- Never disconnect battery wire of switch OFF battery MCB while UPS or battery charger is operating.

## THE BOX CONTAINS :

- Product
- Battery link cables (0.75 mtr x 2 no's)
- DC fuse ( 2 no's )
- User manual

## WARNING

- To prevent the risk of fire or electric shock, install the UPS in a temperature and humidity controlled room, free of conductive contaminants.
- Operate the UPS properly from a grounded / earthed AC supply only.
- To reduce the risk of electric shock, do not remove the UPS cover, as it has no user serviceable parts inside. Some components are live even when AC power is disconnected. For service contact a Su-Kam engineer.

## CAUTION

Although this UPS has been designed and manufactured to assure personal safety, please observe the following rules :-

- The Product (UPS) must be used in the recommended applications only as suggested on page no 8 of the user manual.
- The product (UPS) must be disposed off as per country law of Bio-waste management rules.
- The output side of the 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.
- Never disconnect the battery cables while the UPS is delivering power or battery charging operation. 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.

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.

- Remove conductive jewellery 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.
- In case 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 other unauthorized repairs done or carried out will have to be borne by the purchaser.
- Su-kam Power system ltd. does not hold any responsibility for any consequences from: mishandling, in-proper installation, in-proper transport, in-proper storage, misuse, abuse, accident, unauthorized repair.

# WARRANTY POLICY

We thank you for purchasing this Su-Kam product and we are sure you will enjoy it. In the event of your product requiring service, please contact the nearest Su-Kam Service Centre. In case there is no such service centre in your city, please contact our **Toll Free No. 1800-102-4423** for assistance. We advise that you read the Terms and conditions carefully.

## Warranty Terms & Conditions

- 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 indications, switches, fuse and external body) for Commercial UPS will be for a period of 24 months.
- The warranty will be automatically terminate on the expiry of the warranty period, even in case of the Commercial 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 invalid 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 Commercial UPS.
- Claims if any, to this warranty shall be made only before courts having jurisdiction in New Delhi.
- Now register your product or launch online complaints at [www.su-kam.com](http://www.su-kam.com) for prompt after sales services.

Warranty Registration Card

<p><b>Mfg. Code/Serial No.</b></p>
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Date of Purchase		
Customer Name		
Address 1		
Address 2		
City	State	PIN code
Phone _____		Mobile _____
E-mail		

Dealer's Name: \_\_\_\_\_

<p><b>Dealer sign &amp; stamp</b></p>
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**CUSTOMER SIGNATURE**



WHY CHOOSE AN INVERTER TO  
**RUN AC**  
INSTEAD OF A GENSET?

Because Su-Kam gives you a reason to do so!

5 KVA  
to  
100 KVA



- Safe for sensitive appliances
- Silent performer
- Low running cost
- In-built monitoring software
- No preventive maintenance required
- Compliant with Pollution control norms.

AVAILABLE RANGE

**1 Phase input - 1 Phase output**

5 kVA/48V	5 kVA/96V	7.5 kVA/120V
10 kVA/180V	15 kVA/240V	

**3 Phase input - 3 Phase output**

5 kVA/96V	10 kVA/360V	40 kVA/360V
5 kVA/360V	15 kVA/360V	50 kVA/360V
7.5 kVA/180V	20 kVA/360V	65 kVA/360V
7.5 kVA/360V	25 kVA/360V	80 kVA/360V
10 kVA/180V	30 kVA/360V	100kVA/360V

## Su-Kam Power Systems Ltd.

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SMS: 'SUKAM' to 57007 | Helpline No.: 1800-102-4423 (Toll Free)

### Certifications

ISO 9001:2008    ISO 14001:2004

