



USER MANUAL

Customer Care No. - 9667 123 456
E-mail: customer.care@genusinnovation.com

CON0000007169

WARRANTY CARD

MODEL NO.	SERIAL NO.
DATE OF PURCHASE	DEALER NAME
CUSTOMER NAME	
CONTACT	
ADDRESS	

- Genus Innovation Ltd. Warrants to the original purchaser provided the product is still possession of and used by the original purchaser from the date of purchase.
- The warranty stands on all parts (except LED, Switches, External Body and Battery) for a period of 2 years / 3 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 any other natural calamities. Any other unauthorized repairs done or carried out will have to be borne by the purchaser. The problem of fuse & MOV will not be included in the warranty of the product. The services given for the same will be a paid service.
- The company in no way will be held liable for any loss or injury or damage caused to any form of life for any reason whatsoever.
- The warranty will not apply if any original seal are found broken or tampered.
- The warranty will not apply if point to point wiring not found.

LIMITED WARRANTY STATEMENT

- Genus Innovation Ltd., represents and warrants that the Inverter/HUPS ("PRODUCT") is free from defects in material and workmanship.
- The warranty of the PRODUCT extends for a period of 24 months / 36 months * commencing from the date of installation or 30 months / 42 months* from the date of manufacturing whichever is less.
- During the warranty period Genus Innovation Ltd. or its authorized service network will repair or replace the PRODUCT or any relevant part (Except LCD/LED's, Switches and External Body) thereof in the event found to be defective. The repaired PRODUCT or the product / part provided as a replacement for a defective PRODUCT/ part shall be free from defects. The END USER/Consumer/Purchaser of the PRODUCT of his/her assignee ("CONSUMER") shall not be charged (whether for parts, labour or otherwise) for the repair or replacement of the defective product during the warranty period. All parts/boards or equipments shall become the property of Genus Innovation Ltd.
- The warranty will be void if installed solar panels are more than the maximum recommended capacity (Voc & Power).
- The warranty in respect of a repaired or replaced PRODUCT/part shall extend for the remaining warranty period of the repaired PRODUCT or replacement thereof to the CONSUMER.
- The CONSUMER shall have no coverage or benefits under this warranty in the event that any of the following conditions are applicable:
 - The PRODUCT has been subject to abnormal use or conditions, improper storage, expo to excessive moisture or dampness, expo to excessive temperature (beyond specification), unauthorized modification, unauthorized repair (including but not limited to the use of unauthorized spare parts), abuse accident, acts of God, spills of food or liquids, improper installation and breakage or damage.
 - The CONSUMER has not notified the defect of the PRODUCT to Genus Innovation Ltd, during the applicable warranty period.
 - The PRODUCT serial number code or the accessory date code has been removed, defaced or altered.
 - The PRODUCT has not been with or connected to an accessory:
 - Not supplied by Genus Innovation Ltd or its affiliates.
 - Not fit for use with the PRODUCT
 - Used otherwise than is the manner intended.
 - All plastic surfaces and all other externally exposed parts that are scratched, or damages due to abnormal customer use.
- In order to the derive benefit of this warranty in respect of any defects in the PRODUCT, the CONSUMER shall ship the PRODUCT or part thereof at its cost to the authorized service center of Genus Innovation Ltd. The Genus Innovation Ltd. shall bear the cost of shipping the PRODUCT or part there of back to the CONSUMER after the completion of the service under this limited warranty.
- NO OTHER EXPRESS WARRANTY IS APPLICABLE TO THE PRODUCT. THE DURATION OF ANY IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MARKETABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN GENUS INNOVATION LTD. SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT INCONVENIENCE LOSS OR ANY OTHER CONSEQUENTIAL DAMAGE ARISING OUT OF THE USE OF OR INABILITY OF USE OF THIS PRODUCT OR FOR THE BREACH OF ANY EXPRESS OR IMPLIED WARRANTY INCLUDING THE IMPLIED WARRANTY OF MARKETABILITY OR MERCHANTABILITY OR FITNESS APPLICABLE TO THIS PRODUCT.
- It's a hereby expressly clarified that all warranties (express of implied) in respect of the PRODUCT are provided by the Genus Innovation Ltd.
- All disputes are subject to jurisdiction of JAIPUR only.

* for selected models only.

OVERVIEW

At the very outset, allow us to congratulate you on your excellent choice of Solar PCU. In a world of me-too-products, you will find Genus Sure Sine Wave™ Solar PCU a generation ahead of the entire category. That's because our break through 'chip embedded sine wave' technology delivers the same current as you get from your mains. The distinguishing features of Genus Sure Sine Wave™ Solar PCU are:

- Sine Wave Output suitable for PC
- DSP Based Intelligent Control Circuit
- Graphical (LED) / LCD Display (Message and Faults)
- DSP Based Smart Charger
- Smarter Overload Senses & Short Circuit Protection
- Easy to Service
- Battery State Monitoring
- ASIC Technology
- Great Power Saving
- Future Expandability possible
- Charging from Solar (PV)
- Energy Saving Modes
- Selectable Solar Charging Current

This manual has been specially created to give you a thorough understanding of your Solar PCU and its optimum use. Do spare some time to read it carefully. In case you need help at any time, please feel free to contract our dealer or mail us at customer.care@genusinnovation.com Any suggestions, comments or grievances are welcomed, after all, the ultimate 'Quality Manager' of any product is the customer. Your insights guide our innovations.

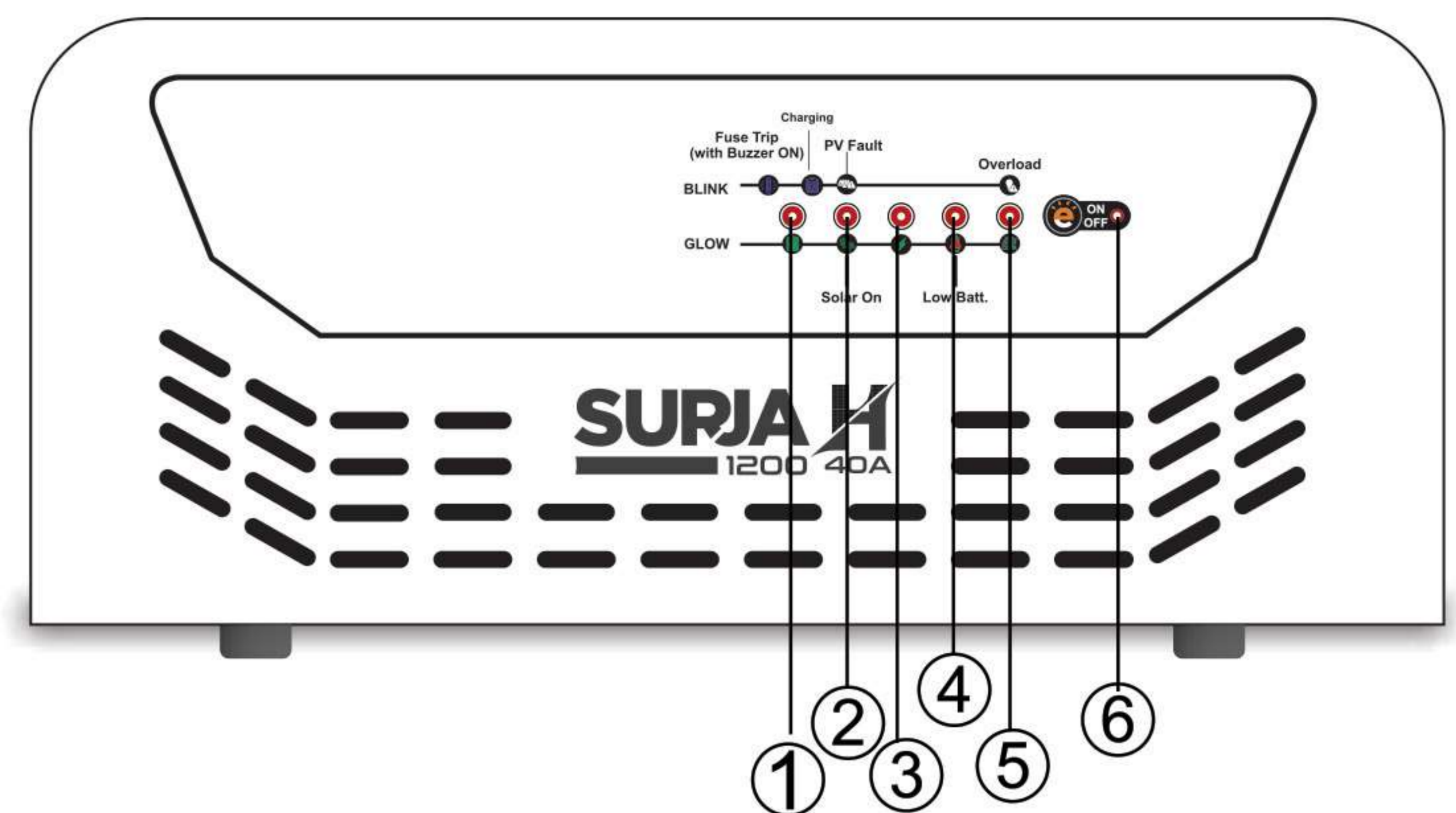
KNOWING YOUR SOLAR PCU

Now let's begin the journey to explore various aspects of our Genus Sure Sine Wave™ Solar PCU Welcome abroad. In its most basic form, a Solar PCU transforms Direct Current (DC) to Alternating Current (AC). The battery pack with the Solar PCU acts as a reserve to ensure continuous supply of power whenever mains supply from utility power is not available.

FRONT & BACK PANEL DESIGN

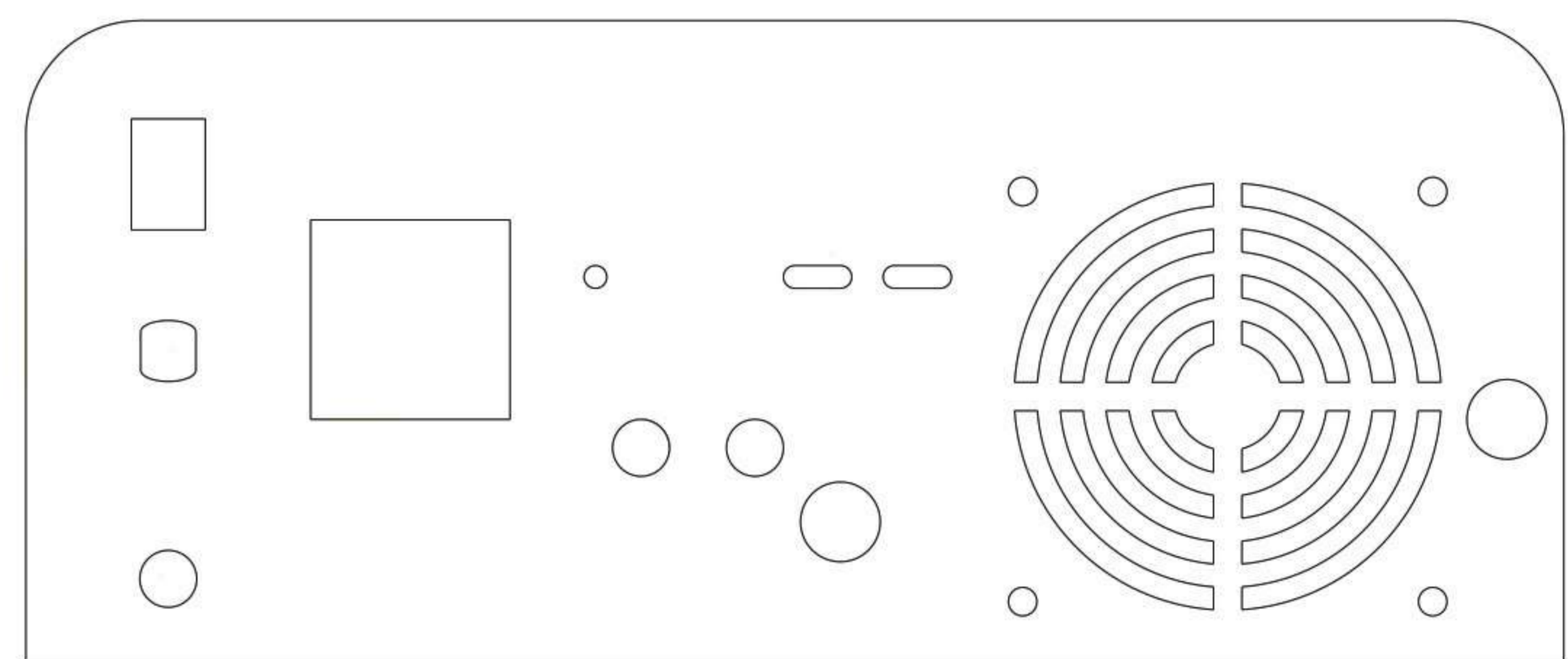
On the front panel of the Solar PCU there is ON/OFF switch and LED display for indications.

FRONT PANEL (SOLAR UPS MODELS)



SR NO	LED	State	Meaning
1	Charging / Fuse Trip (Buzzer) Charged	Blinking	Mains available and battery charging (either by mains or Mains+Solar)
		Continuous Glow	Mains available and battery charged
2	Solar	Blinking with beep of buzzer	Mains Reset Fuse Trip protection (Reset The Fuse)
		Continuous Glow	Solar available (use for either charging battery or run load or both)
3	Backup	Continuous Glow	Backup mode
4	Low Battery	Continuous Glow with beep of buzzer	Battery low warning
		Continuous Glow (No beep of buzzer)	Battery low protection (reset by front switch or by mains)
5	Over Load / Short Circuit	Blinking with beep of buzzer	Over load warning
		Blinking (No beep of buzzer)	Over load protection (reset by front switch or by mains)
		Continuous Glow with beep of buzzer	Short circuit protection
6	Front Switch Status	ON	Power Switch Pressed
		OFF	Power Switch not Pressed
ES Mode Running Condition	LED 1 : Charging / Charged LED 2 : Solar LED 3 : Backup	Continuous Glow	Energy Saver Mode Running

BACK PANEL (SOLAR UPS MODELS)



SR NO	Function	Remark
1	Output Socket	Connect Your Load Wire to get AC output from UPS
2	Mains input Lead	Used to connect UPS to AC input Grid Supply
3	Cooling FAN outlet	To maintain temperature by Forced Cooling Avoid blockage to this point
4	Input AC Grid Circuit Breaker (Resettable Fuse)	Used for protection from overload-AC grid Supply
5	UPS / Normal Mode Selection Switch	Used to select UPS or Normal (Inverter) Mode
6	Battery Wires	To connect Batteryterminal, RED wire to positive terminal and Black wire to negative terminal
7	Solar (PV) DC input (Wires/Terminals)	To connect positive and Negative terminals of Solar (PV) Panels

Switch Operations

Switch	Operation	Action/Result
UPS / NOR	Press to UPS mode	System is in UPS mode (can run computers as load)
	Press to NOR mode	System is in Inverter (Normal) mode (can't run computers as load)

SAFETY IN GENERAL

Please read the following safety information and instructions before you put the Genus Solar PCU into operation for the first time, in order to avoid personal injuries and/or property damage. These instructions must be compiled with at all times. Do not attempt to install or put the Genus Solar PCU into service until you have read through all the documentation supplied thoroughly. Read through these safety instructions and all other user instructions and tips before you begin work with this device. This device must be used only for the purpose described in this User Manual. All safety regulations must be compiled with. All installation work must be carried out precisely as described in this manual. No modification of any kind to or in this device or to its external wiring is permitted. Any such modification could lead to serious safety problems and danger to life and limb.

NON-OBSERVANCE OF THIS USER MANUAL

- Trouble-free and safe operation of this inverter presumes proper, professional and workmanlike transportation, storage, mounting and installation as well as careful operation and thorough maintenance.



Notice !

- Genus Solar PCU is not liable for the consequences arising from faulty installation of the Solar PCU. Among these consequences are: -

- Damage to the display and keyboard foil, deterioration of the readability.
- Fading of the print on the housing, the look of the housing deteriorates. Therefore, chose the place of installation for the inverter so that the device is not directly or indirectly exposed to UV radiation: -
- The device must not be exposed to direct sun light.
- The device must be protected from reflections by glass facades.

SAFETY INSTRUCTIONS FOR THE UPS COMPARTMENT

- If it is necessary to remove any battery, always remove the grounded terminal from the battery first. Make sure all the accessories are off, so as not to cause arcing.
- Be sure that the area around the battery is well ventilated.
- Clear battery terminals. Be careful not to allow corrosion to come in contact with eyes.
- Study all battery manufacturer's specific precautions and recommended rates of charge.
- Add only distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without caps, carefully follow manufacturer's recharging instructions.

Genus is not responsible for any kind of battery related problems.

EXPLANATION OF THE SYMBOLS USED ON THE NAMEPLATE



Attention & Danger !

O/P Socket, AC Fuse, AC Input Power Cord carrying high voltage, and it has been remain even after disconnected. Please be sure to Wait until the capacitor have fully discharged (discharge period)



Attention

DC Voltage via battery wires. Ensures correct polarity of these wires. Incorrect polarity may cause physical injury or death, or damage to the equipment.

CONCEPT OF CHARGING

Five State ATM Pulse Charging

Bulk : Batteries are charged at maximum allowed continuous constant charging current at constant voltage for speedy charging battery up to 13.6V (For a 12V Battery)

Boost : The charger checks the charging current when the battery voltage reaches 13.6V for 12V batteries. The boost mode of the charger will be activated, which will boost the battery up to 20% more than its rated voltage (14.4V for 12V batteries) and charging current reduce to 50% of bulk charging rate (i.e. 4 to 5AMP).

Taper : When the voltage level of battery is 20% more than its rated voltage, the taper mode of the charger will be activated, which will keep the charging current about 4AMP to achieve the specific gravity of electrolyte for fully charged battery.

Float : In float stage, the charger keeps the charging voltage current level at its trickle charging set point maximum 13.8V (For a 12V Battery) with minimum charging current of 1.0Amp.

Pulse (Reset) : To maintain the float level, the charger resets to zero current at 13.6V for some time and starts again with pulse charging for <1AMP current at same voltage. This keeps the battery in full charge condition even when not in use.

Special Notice:

The Solar PCU charger is for use with nominal battery supply voltage, i.e. multiplier of 12V (upto 120V)

No AC or DC disconnects are provided as an integral part of this Solar PCU. Both AC and DC disconnects must provided as part of system installation.

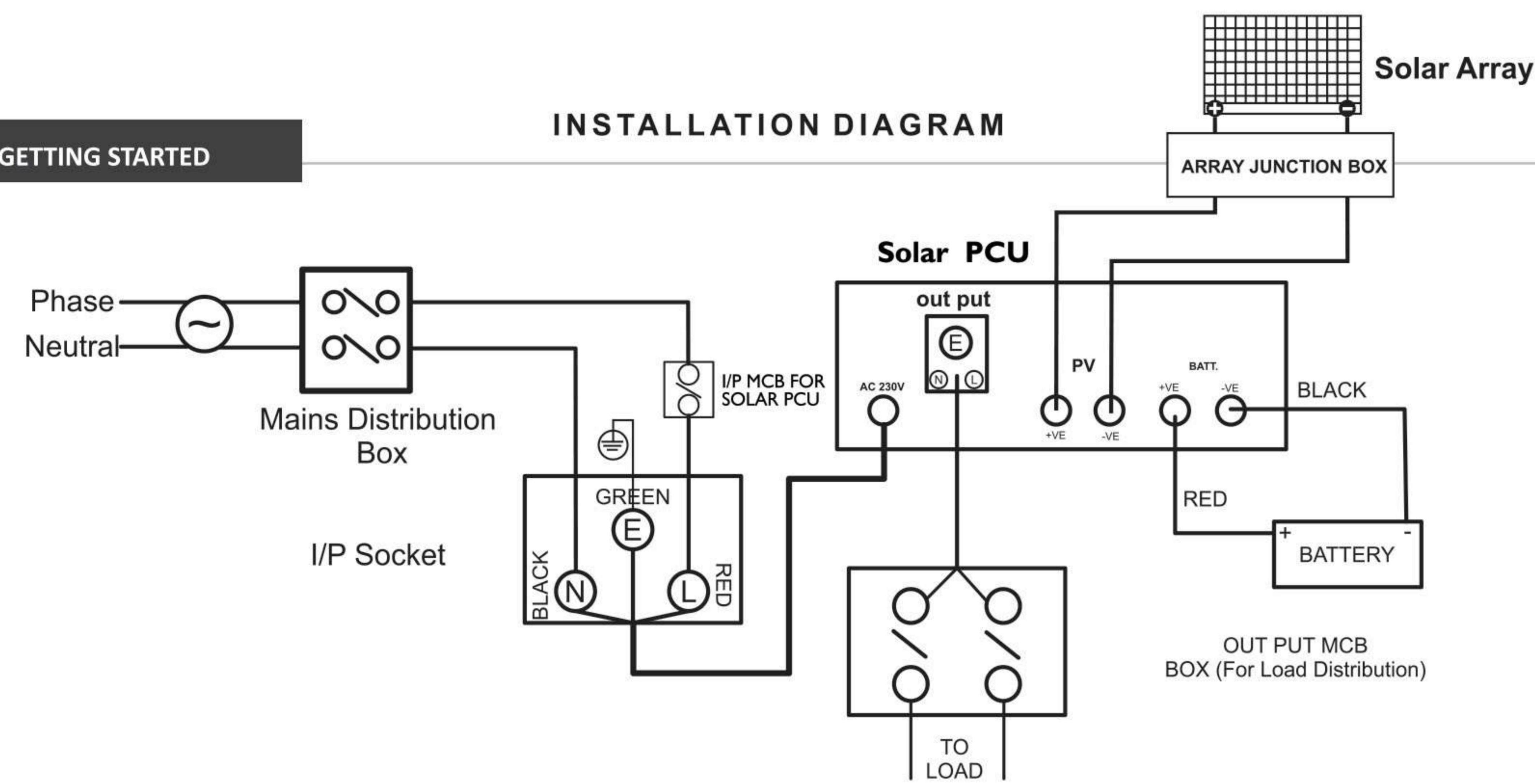
No over current protection for the battery supply is provided as an integral part of this Solar PCU Over current protection for the battery cables must be provided as part of the system installation.

No over current protection for the AC output wiring is provided as an integral part of this Solar PCU. Over current protection for the AC output wiring must be provided as part of the system installation.

Grounding Instructions: This Solar PCU must be connected to a grounded, permanent wiring system.

Charging from Solar:

INSTALLATION DIAGRAM



- *1. Point to point wiring required.
- 2. Max. 0.8 PF of rated capacity bulb load

INSTALLING YOUR SOLAR UPS

Step:1

Environment : Solar PCU are sophisticated devices and must be treated accordingly. Keep the Solar PCU in non-condensing, well-ventilated environment, ensuring that there is no ingress of moisture of foreign material.

Location : Solar PCU should be kept as close as possible to the battery in order to keep the battery cables short, however do not locate the Solar PCU in the same compartment as non-sealed batteries. Batteries generated gases, which are very corrosive to electronic equipment and everything else.

Step:2

Before connection of Battery wire ensure battery voltage should be greater than 8.5V per battery minimum

DC Cabling :

- Ensure that the ON/OFF switch on the front panel is in the OFF Position before you begin the installation.
- Connect the positive terminal of the battery bank to the positive (Red) wire of the Solar PCU, it is a advised to no to use any other extra cable for batteries other than those supplied By the Company.
- Connect the negative terminal of the battery bank to the negative (Black) wire of the Solar PCU.

PV (Solar) Cabling:

- According to capacity of Solar PCU, select the PV panels (Voltage & power as recommended).
- Connect the positive terminal of PV (Solar panels) to the positive (+ve) of PV (Solar) terminal block and connect negative terminal of PV (Solar panels) to the negative (-ve) of PV (Solar) terminal block on the rear side of Solar PCU.

Step:3

AC Cabling :

- Connect AC input supply to the power cord / terminal of Solar PCU such that the phase is connected to L (Red), neutral is connected to N (Black) and Earth is connected to E (Green).
- Connect output load wires to the output socket / terminal of Solar PCU, such that the phase is connected to L (Red), neutral is connected to N (Black) and Earth is connected to E (Green).

AC and DC Wiring Separation:

-Do not mix AC and DC wiring in the same conduit. A separate conduit should be used for each, where DC wiring must cross AC and vice versa. Make the wires at the crossing point 90 degrees to one another.

*It is recommended that wiring should be point to point otherwise warranty will be void.

PANEL SELECTION GUIDE

Max. Total Panel Power (W)	Single Panel Power (W)	Max. Total No. of Panel	Voc per Panel	Panel Config.
600	100	6	22	6 String (parallel)
660	165	4	22	4 String (parallel)

*Specifications are subjected to change without any prior notice

SELECTION OF CABLE SIZE

Current (A)	Distance (Meter)	Wire Rating (Sq. mm)
≤10	<10	2.5
≤10	>10 & <25	4
>10 & <20	<10	4
>10 & <20	>10 & <25	6
>20 & <30	< 10	6
>20 & <30	>10 & < 25	8
>30 & <40	< 10	8
>30 & <40	>10 & < 25	10
>40 & <50	< 10	10
>40 & <50	>10 & < 25	16
>50 & ≤ 60	< 10	16
>50 & ≤ 60	>10 & < 25	25

WARM UP

-Secure all the wiring with ties or other non-conductive fasteners to prevent damage.

-Check to see that Solar PCU, front switch in the OFF position.

-Switch ON DC MCB for battery (if any).

OPERATION : Once the AC and DC wiring have been installed and connected, take a moment to re-examine all the connections and make sure they are secured and in the proper terminals.

Check to see that the Solar PCU is turned off, and then apply battery (DC) power to it. Ensure that all wiring has been installed properly. It is recommended that wiring should be point to point. Next turn on the battery bank DC, disconnects or connect the proper fuse in line to the battery to complete the battery circuit.

Put ON/OFF switch to the ON position. The Solar PCU should run a load without AC input (battery only). Place a load on the Solar PCU and make sure it works.

To charge your batteries connect AC power to the Solar PCU by plugging in the AC power and turning on the Main line. This shows that charger is working properly. Any AC load powered by the Solar PCU should also work at this point since a portion of the AC power is passed through the Solar PCU to power the loads. The delay before connecting is provided within acceptable frequency and voltage limits.

Disconnect the AC power. The Solar PCU should transfer to backup mode immediately. This will be indicated by a clickin should as the internal transfer relay changes position. The Solar PCU will begin to take power from batteries and use it. At solar available condition switch ON the PV MCB (if any), now solar PCU will take power from PV panel also via PV wiring and work accordingly.

To Power the load and the load continuous to operate uninterrupted. The above steps will complete a functional test of the Solar PCU if all area pass, the Solar PCU is ready for use, if anything fail, figure out by taking troubleshooting table help.

INBUILT ENERGY SAVER MODE (BY DEFAULT)

Mode	Mains	Solar	Battery	Action
Energy Saver ON	Available	Available	Available	1. This mode by-default enable only if Solar is available. 2. SURJA will cut the Mains from Inverter after Battery will reach Float condition 2. Load will run on Solar and Battery 3. If Load requirement is greater than Solar available then balance will be taken by Battery 4. If Load requirement is less than Solar available then balance will charge the Battery. 5. When Battery Voltage is below 11.1 ± 0.2 V, SURJA will again connect Mains to Inverter. 6. IF Mains or Solar is not available, then Energy Saver mode will not operate. Inverter will work its normal functions.

TROUBLESHOOTING

SYMPTOMS	REMEDY / RECTIFICATION
Grid is available, display is showing Mains Fuse Blown / AC MCB Trip	Reduce / disconnect the load and replace the glass fuse or reset the AC MCB given at rear side of Solar PCU
Grid is available, but unit is operating in backup mode and display is showing low battery indication / Mains MCB Trip	Wait till grid supply or Sun intensity corrects. Remove corrosion and make proper contact with Input terminal pins.
Back-up mode but no power	Check display if low battery condition is present, remove all load and switch OFF/ON the power switch. Allow the battery to charge when the mains/sun light is resumed before running the Solar PCU on battery again Check display if overload/short-circuit condition is present, reduce load and ON/OFF power switch.
Solar PCU does not operate & no message on display	Check the battery / Solar PV and incoming grid supply connections.
Solar PCU trips frequently at back-up mode	Reduce the load and reset the Solar PCU
There is not output power	Check condition of batteries and recharge Check and clean all AC output connections
Solar PCU shuts down after 20 seconds no display at all	Check for proper AC Input and Output wiring
Low surge power	Refer the cable and battery recommendations
Unit Overheats	Reduce load and let the unit cool down contact authorized service engineer / centre
Not getting sufficient current from PV panels	Clean panels regularly, reduce wire length and use proper wire size as recommended by panel manufacturer.

TECHNICAL SPECIFICATIONS

1200 SURJA H 40 AMP Specifications	
Model Name	1200 SURJA H
System Rating (VAW)	900 VA (720 W Bulb Load)
Nominal Input Battery Voltage	12 V
Solar Charger Rating	40 A
Input Parameters	
Nominal Input Battery Voltage	12 V
Main Input Voltage Range (UPS Mode)	180 VAC - 265 VAC ± 5 VAC
Main Input Voltage Range (Normal Mode)	90 VAC - 290 VAC ± 15 VAC
Battery Charging	
Max. Grid Charging Current to Battery	15 A
Max. Solar Charging Current to Battery	20 A
Modes	
Energy Saver Mode	By Default (No Switch)
UPS/NORMAL Mode	Via Switch (Back Side)
Output Parameters	
Wave Form Type	SURE SINE WAVE
Output Voltage Regulation	200 VAC ± 10%
Output Frequency	50 Hz ± 0.5 Hz
Peak Efficiency (with linear load)	≥ 73%
Distortion (THD)	<3% on linear load
Overload Protection	Provided at >100% with Auto Reset
Low Battery Protection	Provided at < 10.4V (Per Battery) with Auto Reset
Short Circuit Protection	Provided at ≥300% with Manual Reset
Over Temperature Protection	Provided at ≥85deg. C
Change Over Time	
In UPS Mode	≤12 milliseconds
In Normal Mode	≤50 milliseconds
Battery Parameter (Per Battery)	
Boost Voltage	14.4 VDC ± 0.2 VDC
Float Voltage	13.6 VDC ± 0.2 VDC
Low Battery Cut	10.4 VDC ± 0.2 VDC
Battery Type	12 V (150AH to 240AH)
Solar Charge Controller	
Type	PWM
Solar Input Voltage range (Vmpp)	15V - 30V
Max Solar DC Input Voltage (Voc)	37 V
Maximum Solar Array	660 W
Max. Solar Current	40 A
Environment	
Forced Cooling	Through Cooling FAN
Humidity	0-90% Non Condensing
Operating & Storage Temperature	0-45deg. C
Display Parameters	
Display Type	LED Display
Parameters	Solar ON, Mains On/ Reset Fuse Trip Indication, Battery Charging / Charged, Back-up Mode, Low Battery Protection, Overload/Short Circuit Protection , PV Fault , ES mode

Note : Specifications and models subject to change without prior notice



Genus Innovation Limited
(A Kailash Group Company)

Plot No. 22, IP-IV, Begumpur Industrial Area, Bahadradab, Haridwar-249402 (Uttarakhand), India
Helpline: 9667 123456 | www.genusinnovation.com,