



**SUNPORT**  
PRO 3200

**USER MANUAL**

CON0000007415

Customer Care No. - 9667 123 456

E-mail: customer.care@genusinnovation.com

**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 of system) for a period of 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 36 months commencing from the date of installation or 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, exposure to excessive moisture or dampness, exposure 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 CONDQUENTIAL 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.

**OVERVIEW**

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

- In-Built MPPT Solar Charger
- Energy Saver Modes
- Charging from Solar
- Li-ion / Lead Acid Compatible
- Sine Wave Output suitable for PCs
- DSP Based Intelligent Control Circuit
- LED + LCD Dual Display (Message and Faults)
- DSP Based Smart Charger
- ASIC Technology
- Great Power Saving
- Future Expand ability possible
- Eco - Friendly and High Safety
- Easy to Service
- Smarter Overload Sensing & Short Circuit Protection

This manual has been specially created to give you a thorough understanding of your inverter and its optimum use. Do spare some time to read it carefully. In case you need help at any time, please feel free to contact 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 INVERTER**

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

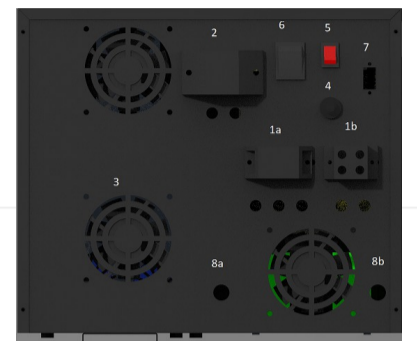
**FRONT & BACK PANEL DESIGN**

On the front panel of the Inverter there are 5 switches and 4 LED's and on the back panel of inverter all wiring related points like Input output TB, Solar TB given. Battery wire and Bypass switch are also given.

**FRONT**



**BACK**



\* Above Picture is for reference purpose, Actual product may differ.

Position	Side	Function	Remark
1a	Back Side	Input TB	Connect your mains here to give input to inverter
1b		Output TB	Connect your load wire here to take output from inverter
2		Solar TB	Connect your solar panel here to give solar input to inverter
3		Cooling Fan	Maintains temperature by forced cooling; avoid blockage
4		Input AC Mains Resettable Fuse	Protection from overload and short circuit at AC input
5		Battery selection switch	Select Li-ion or Lead Acid
6		Mains Bypass Toggle Switch	Use mains bypass in case of system failure
7	Front Side	COMM. Port	Used To Interface with System
8a		Battery Black Wire	Connect to battery negative (-) terminal
8b		Battery Red Wire	Connect to battery positive (+) terminal
9		Mains LED	Continuous glow when mains available
10		Solar LED	Continuous glow when solar available
11		Backup LED	Blinks during backup
12		Fault LED	Continuous glow when fault occurs
13		Power ON-OFF Switch	Load ON-OFF during backup mode
14		UPS / NOR Mode Selection Switch	Select between UPS or Normal mode
15		Energy Saver Selection Switch	Select between different energy saver modes
16	Solar Charging Selection Switch	Select solar current between 10-50A	
17	Slide Hold Switch	Holds the LCD slides	

**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 Inverter is not liable for any consequences arising from faulty installation of the inverter.**

- Such consequences may include, but are not limited to:
  - Damage to the display and keyboard foil, leading to reduced readability.
  - Fading of the print on the housing, resulting in deterioration of the inverter's appearance.
  - Therefore, select the installation location carefully to ensure that the inverter is not directly or indirectly exposed to UV radiation.
  - The device must not be exposed to direct sunlight.
  - The device must be protected from reflected sunlight, such as reflections from glass facades.

**EXPLANATION OF THE SYMBOLS USED ON THE NAMEPLATE**



**Attention & Danger !**

AC Input output TB and Solar TB carrying high voltage, and it remain even after being disconnected. Please be sure to wait until the capacitor have fully discharged (discharge period).



**Attention**

Do not operate near water or place with excessive humidity, moisture or fume.

MODE	PRIORITY	WORKING
NO HY (Normal hybrid)	Battery	1. System will charge Battery from Grid + Solar. 2. Maximum charging current from Grid is 20A. If solar current is greater than 20A then it will not take any current from Grid. otherwise it take remaining current from grid to charge upto 20A. 3. System will give backup when Grid is not available.
ES 1 (Energy Saver 1)	Solar + Battery	1. System will cut the Grid from system 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 reach below 11.1+/-0.2V per Lead Acid battery (or 25.2 +/- 0.4V for Li-ion), System will again connect grid to inverter. 6. If grid or Solar is not available, then Energy Saver mode will not operate. System will work its normal functions. 7. Maximum charging current from Grid is 10A. If solar current is greater than 10A then it will not take any current from Grid. otherwise it take remaining current from grid to charge upto 10A.
ES 2 (Energy Saver 2)	Solar	1. As System reach to 14.0+/-0.2V per Lead Acid battery (or 27.7+/-0.4V for Li-ion) it disconnect the grid automatically, Load will run on Solar and Battery. 2. When System reach to the 10.6+/-0.2V per Lead Acid Battery (or 24.4 +/- 0.4V for Li-ion) it connects the Grid automatically. 3. Grid will bypass to the load not charge the batteries.
ES 3 (Energy Saver 3)	Solar	1. As System reach to 14.0+/-0.2V per Lead Acid battery (or 27.7+/-0.4V for Li-ion) it disconnect the grid automatically, Load will run on Solar and Battery. 2. When System reach to the 10.6+/-0.2V per Lead Acid battery (or 24.4 +/- 0.4V for Li-ion) it connects the Grid automatically. 3. Maximum charging current from Grid is 10A. If solar current is greater than 10A then it will not take any current from Grid. otherwise it take remaining current from grid to charge upto 10A.

\*Specifications are subjected to change without any prior notice

Max. Total Panel Power (W)	Single Panel Power (W)	Max. Total No. of Panel	Voc per Panel	Panels Configuration
2180	545	4	49	Parallel 2 strings of 2 series
2010	335	6	45	Parallel 3 strings of 2 series

## CONCEPT OF CHARGING

### Lead Acid mode:

**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 wh

### Lithium ion Mode:

#### Charging Process

##### 1- Constant Current (CC) Phase:

During this phase, the charger supplies a steady current while the voltage gradually increases. This continues until the battery reaches its maximum charge voltage, typically 27.8V ± 0.4V / 14.1V ± 0.2V.

##### 2- Constant Voltage (CV) Phase:

Once the battery reaches 27.8V ± 0.4V / 14.1V ± 0.2V, the charger switches to constant voltage mode. The voltage is held steady at 27.6V / 14.10V, and the current gradually decreases as the battery approaches full capacity. Charging is complete when the current drops to a low threshold, indicating the battery is fully charged.

#### Safety Features

**Battery Management System (BMS):** The battery is equipped with a BMS to protect against overcharging, over-discharging, short circuits, and overheating. The BMS ensures each cell is balanced and operates within safe limits.

**Temperature Monitoring:** Charging should occur within the recommended temperature range (typically 0°C to 40°C). Avoid charging if the battery is too hot or too cold.

#### Special Notice:

The Home UPS charger is for use with nominal battery supply voltage of 25.6V (Li-ion) and 24V Lead acid.

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

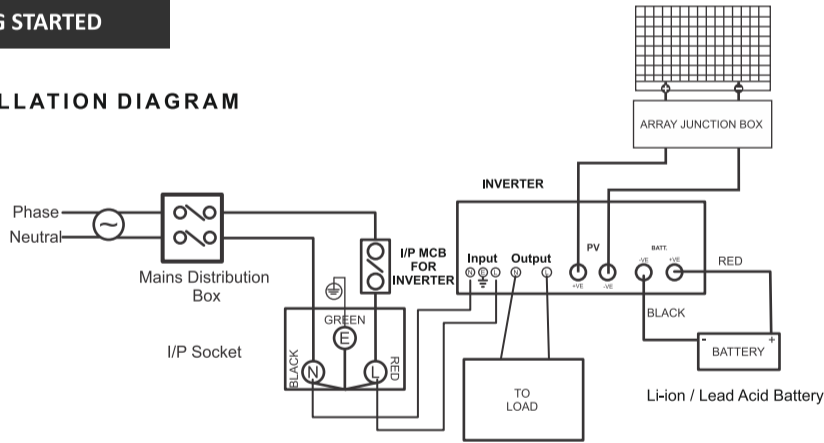
No over-current protection for the battery supply is provided as an integral part of this UPS. Over-current protection for the battery cables must be provided as part of the system installation.

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

**Grounding Instructions:** This UPS must be connected to a grounded, permanent wiring system.

## GETTING STARTED

### INSTALLATION DIAGRAM



- Point to point wiring required.
- Max. 0.8 PF of rated capacity bulb load)

#### Installing Steps for Your Inverter

To be done by a professional service person.

#### Note:

**Environment:** Inverter are sophisticated devices and must be treated accordingly. Keep the inverter in a non-condensing, well-ventilated environment. Ensure that there is no ingress of moisture or foreign material.

**Location:** Do not locate the inverter in the same compartment in which non-sealed batteries, flammable materials, or any kind of gas/fume-generating materials are present. These generate gases which are very corrosive to electronic equipment. Always ensure there is sufficient distance between the inverter and the back wall so that hot air from the fan has space to dissipate.

**Step 1:** Switch off the supply at the distribution point to which the inverter unit is to be connected. Make absolutely sure by measurement that there is no power.

**Step 2:** Connect the AC input supply to the power cord/terminal of the inverter such that:- Phase is connected to L (Red) / Neutral is / connected to N (Black) / Earth is connected to E (Green). Make sure the AC supply/Grid/Mains switch is in the OFF condition.

**Step 3:** Connect the output load wires to the socket/terminal of the inverter such that:- Phase is connected to L (Red) / Neutral is connected to N (Black) / Earth is connected to E (Green)

**Step 4:** Connect the 24V battery +ve terminal to the inverter red battery wire, battery -ve terminal to the inverter Black battery wire. Select the battery type by given switch back side of chassis.

**Step 5:** Switch ON the power ON/OFF switch located on the front panel of the inverter. Check the load LED indication on the display and the LCD representation, and verify that the load is running.

**Step 6:** Check that the Input AC Mains Resettable Fuse (Fuse/MCB) is in the ON condition. If it is OFF, turn it ON. by press the Resettable Fuse button from back side.

**Step 7:** Switch ON the AC supply/Grid/Mains switch and check the mains LED indication and LCD representation.

**Step 8:** Connect the solar panel wire in back side of chassis at solar TB. Connect red wire at +ve and black wire at -ve of solar TB.

## CAUTION

- Before buying a battery other than Genus, the consumer should match the specifications of the battery with the specifications of the system(UPS).
- Wrong specifications of battery may cause technical problems, when used with the system. Refer to Genus Technical Specifications or you can contact to the Genus Technical Team to know the suitable battery.
- Under warranty, If the fault in the system is due to other component such as Battery (other than GENUS provided) including BMS and installation or other component malfunction, service visit and component replaced will be on chargeable basis.
- If the Battery gets disconnected or In order to Revive the Deep Discharged Battery from the system, user have to provide GRID to the system for at least 15 min. Further time depends on Battery Condition.



**No user serviceable part inside.  
Do not operate near water or place near excessive humidity wet or fume.  
Hazardous live parts inside this system are energized from battery supply, even when the input AC power is disconnected.  
Observe correct polarity of wires.  
Call authorised service engineer, if required.**

**RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER.**

**Caution: For optimal battery lifespan, adjust the solar charging current to 20A when using Lead Acid Mode.**

## TROUBLESHOOTING

SYMPTOMS	REMEDY / RECTIFICATION
Grid is available, display is showing mains AC / MCB trip	Reduce or disconnect the load and reset the resettable fuse provided at the rear side of the inverter
Grid is available, but unit is operating in backup mode and display is showing low battery indication or AC Fuse/MCB Trip	Wait until grid supply is available in the operating range
Back-up mode but no power	Remove corrosion and make proper contact with input terminal pins. Check the display for low battery condition. If 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 inverter on battery again
Inverter trips frequently in back-up mode	Check display for overload or short-circuit condition. Reduce the load and switch OFF/ON the power switch
There is no output power	Check condition of batteries and recharge. Check and clean all AC output connections
Inverter shuts down after 20 seconds with no display	Check for proper AC input and output wiring
Unit overheats	Reduce load and let the unit cool down. Contact authorized service engineer/centre
Grid is available, unit is in backup and LCD showing low cut	Automatically restarts when battery voltage reaches the defined level
Not getting sufficient current from PV panels	Clean panels regularly, reduce wire length, and use proper wire size as recommended by the panel manufacturer

## TECHNICAL SPECIFICATIONS

MODEL	3200 Sunport Pro
System Rating (KVA / KW)	2400 VA (1900W bulb load)
Nominal Input Battery Voltage	25.6V Li-ion / 24V Lead acid (12V per battery)
Grid Range	Normal mode : (90 V-290V)± 15VAC UPS mode : (180V-265V) ± 5VAC
Solar Voc range	42-105 V
Solar Power	upto 2700W
Grid Charging Current	20 Amps
Solar Charging current	10-50 Amps
MPPT tracking efficiency	>99%
Modes	
Power Switch	ON /OFF Via Switch (Front Side)
UPS/NORMAL Mode	Via Switch (Front Side)
Energy saver modes	NOHY/ES1/ES2/ ES3 Wa Switch (front side)
Solar Charging current selection	10-50 A Via switch
Output Parameters	
Wave form type	Pure Sine Wave
Output Voltage Regulation throughout Battery range/load	220V±10%
Output Phase	Single Phase
Output Frequency	50Hz+/-0.5Hz
Full load output current	6.9 ± 0.2 Aac
Peak Efficiency (with linear load)	>84%
Distortion (THD)	< 3% (At Linear Load)
Overload Protection	Provided at >110% with manual reset
Low Battery Protection	Provided at 23.6V+/-0.4V Li-ion ( 10.4V per Lead Acid Battery)
Low battery cut recovery	automatic recovery > 26.0V+/-0.4V Li-ion ( > 12.8+/-0.2V per Lead Acid Battery)
Short circuit Protection	Provided at >250% with manual reset
Over Temperature Protection	Provided at >85 deg. C
Change Over Time (Approx.)	
In UPS Mode	<15 millisecond
In Normal Mode	<50 millisecond
Battery Parameter	
Battery Compatible	Li-ion / Lead Acid
Boost Voltage	27.8V+/-0.4V Li-ion (14.4 V per Lead Acid Battery)
Float Voltage	27.6V+/-0.4V Li-ion (13.5 V per Lead Acid Battery)
Low Battery Warning	24.0V+/-0.4V Li-ion (10.6V per Lead Acid Battery)
Low Battery Cut	23.6V+/-0.4V Li-ion (10.4V per Lead Acid Battery)
Min. Battery Capacity	100Ah Li-ion (180Ah Lead Acid battery)
Environment	
Forced cooling	Through DC Cooling FAN
Humidity	0-90% non condensing
Operating & Storage Temperature	0°-45° C
Display Type	LED + LCD
Dual Display LCD + LED	LCD shows - Mains Voltage, O/P voltage, Battery voltage, Battery current, protection display, Mains HI, Mains Low status, Load Percentage Solar Voltage, Solar current Mains LED :- Constant glow when mains available Solar LED :- Constant glow when solar available Backup LED :- Blink when backup Fault LED - constant glow when any protection occur with continuous buzzer Switches Switch 1 : Power ON/OFF Switch 2 : UPS/NOR Mode Switch 3 : Energy saver mode Switch 4 : Solar charging current Switch 5 : LCD slide hold
Weight	Approx 21 Kg

\*Specifications are subject to change without any prior notice.



**Genus Innovation Limited**  
(A Kailash Group Company)

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