House of Green Energy

LENTO INDUSTRIES PVT. LTD.

1100 VA 12.8V Lithium Battery Inverter

Model No - LI-ION SOLAR 1415

Thank You for Choosing Lento

Dear Customer,

Thank you for purchasing the [LI-ION SOLAR 1415] Lithium Battery Inverter. We appreciate your trust in our products and are committed to delivering safe, reliable, and efficient power backup for your home or business.

Please read this manual carefully before installation and operation to ensure safe use and to get the most out of your product. Keep this manual for future reference.

For any queries, support, or service requirements, please contact our customer care team using the details below.

Warm regards,

LENTO
House of Green Energy

Customer Support	[+91-9311811396]
Email	[service@lentoindia.com]
Website	[www.lentoindia.com]

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STANDARD DEFINITION

Inbuilt Lithium-Ion Battery Inverter/UPS

An inbuilt lithium-ion battery inverter is an integrated power backup device that combines a power inverter and a lithium-ion battery within a single enclosure. It converts DC (Direct Current) power stored in its internal lithium-ion battery into AC (Alternating Current) power to run electrical appliances during a power outage or as a standalone power source. Unlike conventional inverters that require an external battery, this unit houses the battery, inverter circuitry, charge controller, and Battery Management System (BMS) together, offering a compact, maintenance-free, and space-saving solution with faster charging, longer life cycles, and higher energy efficiency compared to traditional lead-acid battery inverters.

Key Features

1. Pure sine wave AC output for all kind of loads and appliances.

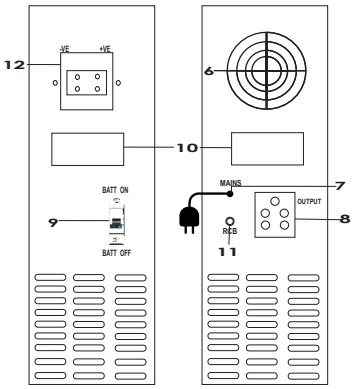
2. Multi-stage protection: overload, short-circuit, over/under-voltage, over-temperature, reverse polarity

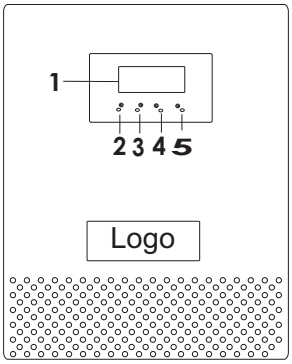
Product Overview

The [LI-ION Solar 1415] is a pure sine wave, standalone lithium battery inverter designed to convert DC power stored in a lithium (LiFePO4) battery bank into stable AC power for home, commercial, backup, or off-grid applications. Built with intelligent battery management compatibility, multi-stage protection, and a compact,fan-cooled design, it delivers reliable power for essential loads during outages or continuous off-grid use.

LI-ION SOLAR INVERTER

Front / Right Left Side Panel





Position No.	*Function*	*Remarks*
1	LCD Display	Wide Display for better system information
2	Switch for Setting Menu	For Function Setting with its led
3	Switch for Function Change	For Function Change with its led
4	ON/OFF Switch	Use to Inv/UPS turn on/off with its led
5	Switch for default RESET setting	For factory reset of all settings.
6	Cooling fan	For maintaining temperature.
7	Mains Input	For mains input connection.
8	Inverter Output	For inverter O/P connection.
9	Battery mcb	To connect the battery.
10	Handle	To carry this product.
11	RCB (Resetable current breaker)	For input protection.
12	Solar Terminal	To be add solar pannel

ABOUT THE Li-ion Solar 1415

Message displayed on LCD	Description
DSP SINEWAVE SOLAR PCU/HOME UPS/ MPPT SOLAR PCU	Initializing the system as soon as the DC MCB is turned on
UPS Switch : Off Mains : Off	Inverter switch is OFF. Also if the AC Mains is OFF(mains disconnected from grid)
UPS Switch : On Mains : Off	Inverter switch is ON. The AC mains is OFF(mains disconnected from grid.)
UPS Switch : On Mains : Low	Inverter switch is ON. The AC mains is Low (Mains voltage low at input)
UPS Switch : On Mains : Hi	Inverter switch is ON. The AC mains is High(Mains voltage high at input)
UPS Switch : On Mains : Cut	Inverter switch is ON. The AC mains is Cut (Mains voltage cut by UPS)
I/P Volt : 220.0 V I/P Freq : 50.0 Hz	Displays status of AC mains voltage and frequency at the input.
O/P Volt : 220.0 V O/P Freq : 50.0 Hz	Displays the Output voltage status and frequency given at the output.
Batt Volt : 12.5V O/P Load : 000%	Displays the Battery voltage and load %.
Batt Volt : 13.5V Battery Charging/Charged	Display of the battery voltage during Mains charging along with status
SOLAR(V) : 090.1V SOLAR (I) : 020.3A	Display of the Solar Voltage and current in MPPT Solar PCU.
Today Pwr : 0000WH Totl Pwr : 000.0KW	Display of the Solar generated today and total power in MPPT Solar PCU.

Message displayed on LCD	Description
Charging Mode: Hi/Lo Batt Mode : LiFePo4	Displaying that Charging mode Hi Or Lo and Battery Type Which is selected LiFePo4.
UPS Mode : On/Off	Displaying that UPS Mode Status ON or Off. Default Mode is Off.
Grid Charge : On/Off Inv Type:Solar/Normal	Displaying that Grid charge Mode Status ON or Off and Inverter type which is selected.
Charge Mode:HC/SC/EC	Displaying that Charge Mode Status HC/SC/EC. Default Mode is HC
Solar : On/Off Solar (I) : 00.0A	Displaying that Solar status on or off and Solar current measurement for PWM PCU.

Front panel Selection parameter

Sr. No.	*Function*	*Remarks*
1	On Pressing "MENU" button once - Charging Current present Setting will be displayed.	**High** **Low** While "Charging Current"setting is displayed pressing the "CHANGE" button will alternate between the available charging current options. Charging current will have two options "LO" and "HI" as displayed above.
2	On pressing "MENU" button again, selected "BATTERY TYPE" will be displayed.	This is a Lithium ion based product, so there is no bettery selection option.
3	On Pressing "MENU" button once - Grid Charging Enable disable present Setting will be displayed.	**Enable** **Disable** While "Grid Charging Mode" setting is displayed, pressing the "CHANGE" button will alternate between the available charging mode options. Charging mode will have two options "GCE(Grid Charging Enable)" and "GCD(Grid Charging Disable)" as displayed above.Default value "GCE".

4	On Pressing "MENU" button once - UPS/Inverter present Setting will be displayed.	**Enable** **Disable** While "UPS/INVERTER MODE" setting is displayed, pressing the "CHANGE" button will alternate between the available Setting options. UPS MODE will have two options "UPD" and "UPE" as displayed per battery above.Default Selection is "UPD".
5	On Pressing "MENU" button once - Battery Low alarm setting.	**11V** This is a Lithium ion based product, so battery default low alarm setting is 11.5v.
7	On Pressing "MENU" button once - Solar mode present Setting will be displayed.	**HC** **SC** **EC** While "Solar Mode" setting is displayed, pressing the "CHANGE" button will alternate between the available solar mode options. Solar Mode will have Three options "HC" (Quick Charging Mode), "EC"(Ecomomic Charging Mode) and "SC" (Smart Charging Mode) as displayed above.Default value "SC".
8	On Pressing "MENU" button once - Grid Reconnect voltage present Setting will be displayed.	**11.8** **11.2** While "Grid Reconnect voltage Mode" setting is displayed, pressing the "CHANGE" button will alternate between the available Reconnect battery voltage options. Reconnect battery voltage will have two options "11.8" and "11.2" as displayed per battery above.Default value "11.8". If the Li-ion battery is selected then the default reconnect voltage is 12.0 per battery which is default.
9	On Pressing "MENU" button once - Grid Reconnect voltage present Setting will be displayed.	**20A** **30A** While "MAX CHARGING CURRENT TO BATTERY BY SOLAR OR SOLAR +GRID" setting is displayed, pressing the "CHANGE" button will alternate between the available Setting options. Max Charging Current to Battery by Solar or Solar+Grid will have two options "20A" and "30A" as displayed. Default Selection is "20A".

Some Safety Measures

Important Precautions

The Output Side of the Li-ion Inverter AC Wiring should never be connected to domestic power or a generator. This condition is far worse than a short circuit. If the unit survives this condition, it will shut down until corrections are made.

Installer should ensure that the DSP S/W UPS/SOLAR PCU (PWM/MPPT)/DIGITAL(SQ) UPS's AC output should not be connected to its AC input.

Never disconnect the battery cable or PV Cable while the DSP Li-ion solar Inverter PCU (PWM/MPPT) is delivering power or battery charger is operating. Always turn the switch off first and disconnect input from mains.

General Precautions

- Before installing, connecting any wiring, or using the DSP Li-ion SOLAR PCU (PWM/MPPT) read all instructions of this instruction manual.
- Solar Panels should be regularly cleaned in order to obtain higher efficiency.
- CAUTION-Do not use any kind of acid or cleaner to clean the solar panels, it can be done with water.
- CAUTION-Do not install or connect any extra battery(s) to this unit unless instructed to do so. Failure to comply with this instruction can cause damage or complete failure of the unit.
- CAUTION- To reduce risk of injury, use only deep-cycle lead acid batteries.
- Do not expose the system to rain, snow or liquids of any type.
- Do not disassemble the system; take it to a authorized service centre when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- WARNING: WORKING IN VICINITY OF A LEAD ACID BATTERY IS DANGEROUS. BATTERY(S) GENERATES EXPLOSIVE GASES DURING NORMAL OPERATION.
- Be extra cautious when working with metal tools on, or around batteries. The potential exists to drop a tool and short-circuit the battery(s) or other electrical parts resulting in sparks that could cause an explosion.

GROUNDING INSTRUCTIONS:
The DSP Li-ion Solar Inverter / SOLAR PCU PWM/MPPT)/ should be connected to a ground (Earth Terminal) with the permanent. wiring.

Personal Precautions

* Someone should be within range of your voice to come to your aid when you work on inverter.
* Have plenty of fresh water and soap nearby in case battery acid contacts skin clothing or eyes.
* Wear complete eye protection and clothing protection. Avoid touching eyes while working on inverter. Wash hands when done.
* Do not connect the external charger to charger one battery.
* Before touching the terminal makes sure that the system is OFF and AC Mains to the inverter is also OFF.
* Never smoke or allow a spark or flame in vicinity of the batteries.
* Be sure that the area around the inverter is well ventilated. Be sure inverter terminals should be always clean; Be careful not to allow corrosion to come in contact with eyes.

Slient Features

* Wide LCD display for better system information as well as LED indication.
* DSP/MCU based design with absolute and stable sine wave output voltage & frequency.
* State of art MOSFET based PWM technology with greater efficiency at lower cost with dynamic stability.
* Three Stage solar charging (TSSC) suitable for all types of battery charging.
* Combined mains and solar intelligent constant current charging with solar power priority.
* Maximum Solar Power Utilization during charging and backup mode.
* PV availability, battery charging from solar power and PV pole reversal protection with display on LCD and LED.
* User friendly, feather touch control and selection switches with LED indication on front panel.
* Deep discharge battery charging from mains as well as solar.
* More back-up being a sine wave Li-ion solar inverter (ASIC Control).
* No humming Noise (Silent operation)
* Selector switch for UPS mode / Normal mode.
* Protections such as Mains Fuse Trip, Overload, Short circuit, Battery low available with LCD available.
* Mains available, battery charging/Charged and its voltage indication provided on LCD display as well as LED.
* Quite operation of AC motor as well as the other inductive load unlike modified sine wave.

How to bypass: DSP Li-ion SOLAR PCU (PWM/MPPT)

If it is required to bypass your DSP S/W UPS/SOLAR PCU (PWM/MPPT)/DIGITAL(SQ) UPS and feed the mains directly to the load, follow these steps given below.

Normal/Bypass switch (at rear panel) selection should be normal mode, If inverter/UPS faulty, then select Bypass selection.
This will bypass the DSP SOLAR PCU(PWM/MPPT) UPS sine wave UPS and the mains power will be fed directly to the load.

*For DSP Li-ion SOLAR HYBRID UPS

Solar Mode Info

*For Solar HC mode:-20/30A ±1A Solar + Mains till battery boost voltage with maximum Solar Sharing. System will not be disconnect Grid in any case

*For Solar EC mode:-20/30A ±1A Solar + Mains till boost voltage, System will cut off the mains when battery voltage reaches boost voltage level and output load is transferred to Solar + Battery and Grid reconnected <=11.8V/11.2V per Battery.

*For Solar SC mode:-20/30A ±1A Solar + Mains till boost voltage, System will cut off the mains when battery voltage reaches boost voltage level and output load is transferred to Solar + Battery and Grid reconnected <=12.0V per Battery or Solar fails or if Solar <5A check
if Solar < discharging connect grid

INSTALLATION

- **Where to Install:**

  The system should be installed in a location that meets the following requirements:

  Dry- DSP LI-ION SOLAR PCU (PWM/MPPT) UPS should be Kept Away from the contact of water.

- **Cool and Ventilated-** The ambient air temperature around the system should be between 0º C and 40º C (32º F and 104º F), the cooler the environment is the better it is for the system. At least 2 inches (5 cm) of clearance should be provided around the system for air flow.

  SAFE- Do not install the LI-ION solar 1415 UPS in the same compartment capable of storing flammable liquids such as gasoline.

  CAUTION: TO PREVENT FIRE, DO NOT COVER OR OBSTRUCT VENTILATION OPENINGS. DO NOT INSTALL THE SYSTEM IN A ZERO CLEARANCE COMPARTMENT. OVERHEATING MAY RESULT.

- **How to Install**

Wiring Of Inverter to Mains

1. Connect wire from inverter output to the load you can use inverter output (L) & (N) Nuteral to the load oro if wiring nuteral (N) is common with mains nuteral (N) then you can use output line(L) form the inverter.

2. Connect inverter input (L) & (N) to the main line which is come form grid.

3. Ensure that AC input supply is properly connected to the 3 way terminal of the system such that the line is connected to 'L' , neutral is connected to 'N' and Earth connected to 'E'. AC input supply should remain ON once the system is installed. Take out from 15A output socket.

Start Operation

Once the AC, input & output wiring have been installed and connected,take a moment to re-examine all the connections and make sure they are secured and connected to proper terminals.

1. Turn on the inverter battery MCB and system energies check LCD display is turn on.

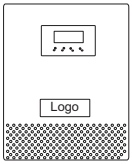
2. Press ON/OFF switch to turn it ON. The system should run a load without the AC input now you can turn on some load to check proper output.If the Solar Power is connected and is available with sufficient energy then the solar display will be available on screen with LED blink.

3. To charge your batteries with the mains, connect AC power to the system by plugging in AC power and turning on the mains line. This LCD shows the mains voltage status and battery status and charging sections working properly. Any AC load powered by the system should also work at this point since portion of the AC power is passed through this **Li-on 1415.**

4. Disconnect or turn Off the Mains AC Power. The system should transfer to battery mode immediately. This will be indicated by a clicking sound as the internal transfer relay changes the position. The system will begin to take power from the battery(s) and use it to power the load. And the load continues to operate uninterrupted.

The above steps will complete a functional test of the LI-ION 3000 UPS. If all areas pass, the system is ready for use. If any of the above mentioned area fails, figure out reason before proceeding or contact to the service support.

LI-ION Solar 1415



Input wire	output wire	solar wire
1.5 square mm	1 square mm	6 square mm

Maintenance

Very little maintenance is required to keep your DSP Li-ion SOLAR PCU (PWM)UPS operating properly. You should clean the exterior of the unit periodically with a damp cloth to prevent accumulation of dust and dirt. Though the connected Solar Panels are required to be washed regularly to avoid accumulation of dust particles on them and to obtain higher efficiency.

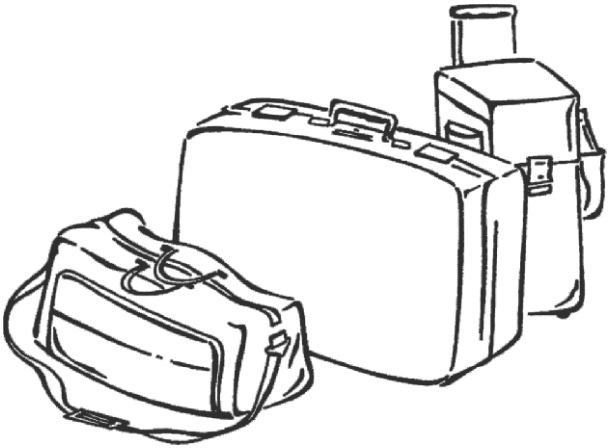
Troubleshooting Guide

Problem and Symptoms	Possible Cause	Solution
No output voltage, no display on	Poor battery condition or battery connections are loose	Use new battery or make proper connection
No output voltage, display shows overload	Overload	Disconnect the excessive load from the inverter & get the house wiring checked
No output Voltage display shows over temperature	Thermal shutdown	Check air ventilation than call the service support. There is overheat problem in the system
Mains display fuse trip with buzzer beep	Mains fuse trip	Check the mains fuse/MCB at the back panel and reduce the load connected to the system. Beep sound will be no more when the switch is in off condition
No output voltage; display shows short circuit	Output short circuit	Check wiring and remove all loads from UPS, than set the front ON/OFF switch
Battery mode but no power	Battery Low	Check display if low battery condition is present. Remove all loads and reset the ON/OFF switch. Allow the battery to charge when the mains is resumed before running the system on the battery again
Low surge power	Weak battery(s), battery (s) cables too long	Refer to cable and battery recommendation in this manual
PV Reverse fault	PV terminals reversed in connections	The connection of solar panel to the inverter should be removed and connected again at proper terminals
Solar Power available but LCD not detecting	Wires may not be connected properly	Remove the wires and reconnect them properly, or clean the panels and again check the LCD Display

Applications

* Power Backup for Household as well as the computer. Emergency Power System.
* Small water pumps and all motor based applications. Small Drills
* T.V. set, Fan, Tube lights etc. Conditions Apply

GOING ON VACATIONS



Switch Off the Inverter ON/OFF Switch placed on front Panel
Battery will continue to charge

WIRING LAYOUT

