

# SEAMLESS POWER

UNINTERRUPTED LIVING

## PWM PCU -300VA



### EFFICIENT POWER PERFORMANCE

High efficiency with low energy consumption.

### CRGO LAMINATED CORE

Premium quality for improved performance and durability.

### PURE COPPER TRANSFORMER

Ensures optimal power conversion.

### Solar Features

- Auto switchover between Solar and Main charging
- Zero drop solar charger (Max. 50A)
- Simultaneous charging through mains as well as solar panel
- Short charging time
- Long battery backup

### Additional Features

- Zero Grid Power Consumption on Idle Stage
- Battery Grid Charging even at low grid Voltage
- Special charging algorithm to enhance battery life
- Intelligence charging adapts itself to low, high battery, more and less power cut areas, battery health condition.
- Forced Grid to Solar Mode Shifting Facility
- Constant Noise Free DSP Pure Sine Wave Output
- 4 Line Multifunctional LCD Front Panel display
- Intelligent true multi stage smart solar and grid charging (Bulk, Absorption, Float)
- High over load and surge load handling capacity
- MCB Short Circuit Protection for Grid Power
- Easy to operate
- No maintenance cost
- Fumeless

**INVERTER**  
**12V -300VA**

**PWM 20AMP/20Voc**  
**120W PV PANEL**

**GRID CHARGER**  
**Max. 3.0 AMP**

# SPECIFICATIONS

## Product Overview

The "LIGEN POWER" inverter is a robust commercial-grade solution designed for small to medium-sized businesses, offices, and shops. With its advanced features and sturdy build, it ensures uninterrupted power supply during outages, enabling smooth operations. Key highlights include:

Description	Details
Model No	LIGEN-INV 300VA
Product	Solar PWM PCU Inverter
Functionality	Works with Grid, Solar & Integrated LFP Battery
Technology	DSP Based — Less components, small size, less electricity bill, more efficiency
Soft Start Features	Protects appliances at start-up
Usage	Reliable power backup for residential & commercial applications. Built-in PWM solar charge controller for optimized performance. Utilizes Sine Wave Technology for safe & efficient power delivery.
Battery Support	Internal 25.6 V LiB Battery integrated with B51P BMS
Intelligent Processing	DSP technology enables advanced control algorithms for precise output regulation, adaptive learning for optimized battery management, and fault detection for enhanced reliability. Efficient power management and quick fault response ensure uninterrupted operation in offline applications.
Smart Display	Offers unique indications for mains status, output status, system faults, load status, temperature status, charging and battery status.
Operation Modes	Switching from mains power to battery power and solar power during outages, ensuring uninterrupted supply to connected devices. Ideal for sensitive appliances like computers.
Protection Features	Includes MCB/Fuse for input mains protection and a bypass switch for direct main supply in case of inverter faults.
Grid Protection	AC input low and high voltage cut-off protections in both inverter and UPS modes.
Noiseless Operation	Low harmonic distortion ensures quiet operation. This inverter prioritizes reliability, efficiency, and safety, making it ideal for commercial establishments requiring dependable backup power solutions.

Specification	Details
Model	300VA PWM PCU Inverter
Rated Power	300VA/240W (1-Phase Input 1-Phase Output)
Input Voltage (Battery Mode)	12.8V DC
Battery Chemistry	Lithium Iron phosphate (LFP)
Battery Pack	Internal integrated with 451P BMS
Battery Capacity	15Ah
Grid Input Voltage (Vmp)	100V - 260V AC
Solar Input Voltage (Vmp)	14.5V – 19V DC
Solar Voc	≤ 23V DC
Maximum PV Connected	(7.5*Vmp) (Recommended ≤ 135W, Vmp @ 18V)
Solar Controller Type	PWM (Pulse Width Modulation)
Charging Modes	Solar, Grid, Solar + Grid (If Solar CHG ≤ 5.0A ± 0.5A)
Output Waveform	Pure Sine Wave
Efficiency	> 80%
Max Solar Charging Current	7.5A1A (Boost Mosfet based)
Max Grid Charging Current	8A11A (CCCV)
Operation Logic for Charging	Solar Priority (By default) / Grid Priority
Output Voltage (Backup Mode)	220V AC ± 2%
Output Voltage (Grid Mode)	Same as input
Output Frequency on Battery	50Hz ± 0.05Hz
Chargeover Time	< 8ms
Protection	Yes (Automatic Cut-off)
Protection Supported	Overload, Deep Discharge, Over Charge, Short Circuit, Over Temperature
Over Load Capacity	> 120%: 3 times auto reset (4th time shut down) > 200% Output goes down
LED Indication	Solar (SR Red LED) LOW BATT, BATT VOLTAGE, CHG CURRENT, CHG MODE, AC IN, AC OUT, LOAD
DISPLAY ON UPS/INVERTER	OVERLOAD, TEMPERATURE, INV ON/OFF STATUS
Operating Temperature Range	-20°C to 65°C
Cooling Mechanism	Intelligent Fan Cooling
Cooling Fan Start/Stop	60°C or Load above 50% / 50°C & Load below 50%
Audible Alarm	Yes
Bypass Feature	NA

### SOLAR INVERTER V/S POWER CONDITIONING UNIT (PCU)

The Solar Inverter is designed to give priority to solar energy for charging the battery. During the day, the battery primarily charges using solar power. However, if the AC mains supply is available, the system automatically switches to bypass mode, supplying power directly to the load while keeping the battery reserved. The stored solar energy remains unused until the mains power is interrupted, at which point the inverter seamlessly transitions to battery mode. This smart energy management approach helps in maximizing solar utilization while ensuring an uninterrupted power supply.

In a Solar PCU, battery charging is given top priority during the daytime when solar energy is available. The battery continues to charge via solar power until it reaches its full charge voltage. Once fully charged, the system switches to inverter mode, supplying power to the load directly from the battery, ensuring that AC mains power remains unused as long as solar energy is sufficient. If the battery gets fully discharged, the system automatically shifts to mains mode, where both the load and battery charging are managed through the AC supply. This setup ensures that solar power is always utilized first, while mains power acts as a backup, only stepping in when solar energy is completely depleted.