



Rhino Solar®

RHINO SOLAR

3kw Direct Solar Inverter

Our Service

- Lower electricity bills
- Eco-friendly & sustainable
- Reliable year-round power
- Increases home value

The future is bright,
let's harness
the sun together.



www.rhinosolar.in

INDEX CONTENT

- 1) Product Overview**
- 2) Safety Information**
- 3) Product Features**
- 4) Technical Specifications**
- 5) System Components**
- 6) Installation Guidelines**
- 7) Electrical Connections**
- 8) Operating Instructions**
- 9) Fault Error Code**
- 10) Display Buttons & LED Indication**
- 11) LED Indicators**
- 12) Working Principle**
- 13) Operating Modes**
- 14) Protection Features**
- 15) Auto Change Over**

1) PRODUCT OVERVIEW

Rhino Solar Direct inverter is designed to efficiently convert solar DC power into usable AC power for domestic and agricultural use. The inverter ensures reliable performance, high efficiency, and advanced protection features.

The inverter uses MPPT (Maximum Power Point Tracking) technology to extract maximum energy from solar panels, even under varying sunlight conditions. It provides stable output voltage and includes built-in protections against overload, short circuit, over-temperature, and low solar voltage.

High Efficiency MPPT – Ensures maximum power extraction from solar panels throughout the day. Pure Sine Wave Output – Safe for motors, pumps, fans, lights, and electronic equipment.

Wide Solar Voltage Range – Operates efficiently even during low sunlight conditions.

Fast Start-Up – Automatically starts when sufficient solar power is available.

Low Operating Cost – No battery replacement, resulting in long-term cost savings.

Environment Friendly – Zero emissions and reduced electronic waste due to no batteries.

2) SAFETY INFORMATION

- Important safety instructions.
- Installation must be done by a qualified electrician only.
- Always switch OFF solar input before wiring.
- Do not touch live terminals during operation.
- Proper earthing is mandatory.
- Keep inverter away from water, moisture, and flammable materials.
- Do not open inverter cover; no user-serviceable parts inside.
- Install MCB for protection purposes.

3) PRODUCT FEATURES

- Battery-less direct solar operation
- High efficiency power conversion
- Advanced MPPT technology
- Wide input voltage range
- Overload & short-circuit protection
- Automatic thermal protection
- Low maintenance design

4) TECHNICAL SPECIFICATIONS

- Model: 3 kW Off-Grid Inverter
- Rated AC Output Power: 3,000 W
- AC Output Voltage Range: 230 Volt
- AC Frequency Range: 50 Hz
- Maximum AC Output Current: 16 A
- Power Factor: 0.9 Leading to 0.9 Lagging
- Output Waveform: Pure Sine Wave
- Operating DC Voltage Range: 330 V DC – 450 V DC
- Maximum DC Voltage: 450 V DC
- Start-Up DC Voltage: 280 V DC
- Maximum Efficiency: Up to 99%
- DC to AC & AC to DC power auto changeover features available
- When DC power is low, the inverter repeats auto start 3 times; if it does not start, the inverter will automatically shift to AC power
- Soft start feature
- Protection Features: Over/Under Voltage, Short Circuit, Thermal Protection, Reverse Polarity
- Protection Degree: IP65 (Outdoor Rated)
- Always connect MCB BOTH input and output side .
- Cooling Method: Forced Air Cooling (Cooling Fan)
- Operating Temperature Range: –25°C to +90°C
- Display: LCD Display with Control Buttons
- Warranty: 1 Year • Solar Inverter with Auto Changeover
- Input AC Voltage: 230V Single Phase

5) SYSTEM COMPONENTS

Component – Function

Inverter Unit – Power Conversion

LED Display – Status Indication

Cooling Fan – Temperature Control

Terminal Block – Electrical Connection

6) INSTALLATION GUIDELINES

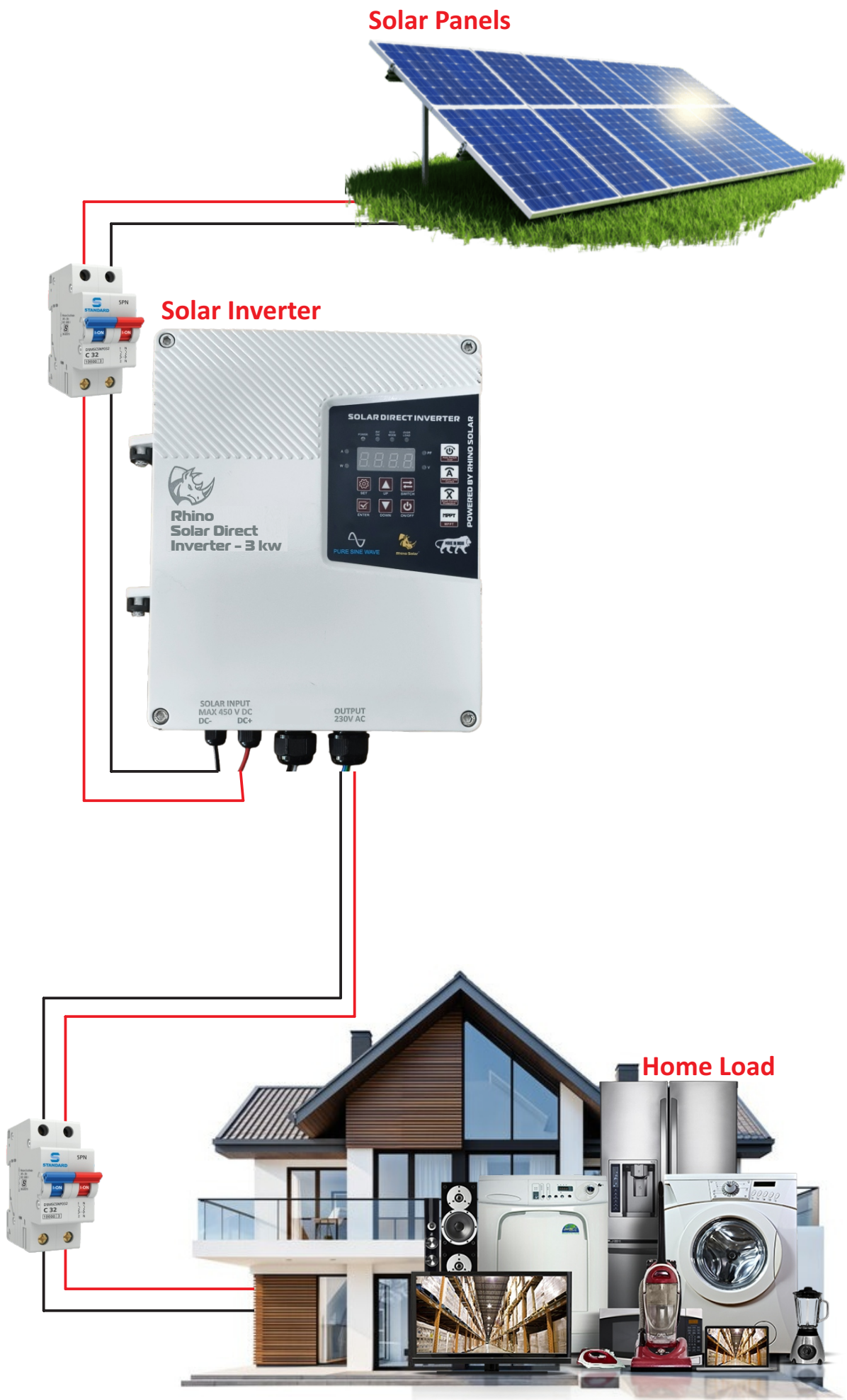
- Install in a dry, dust-free, ventilated location.
- Avoid direct sunlight and rain exposure.
- Mount vertically on a strong wall.
- Maintain clearance for airflow.
- Follow local electrical safety standards.

7) AUTO CHANGE OVER

A solar inverter auto changeover is a feature in a solar power system that automatically switches the power source between solar and grid (mains) supply without manual intervention.

8) ELECTRICAL CONNECTIONS

- Solar Panel Connection
- Connect panels as per voltage range.
- Ensure correct polarity (+ / -).
- Use recommended DC cables.
- Load Connection
- Connect AC load to output terminals.
- Do not exceed rated power.
- Earthing Proper earthing is compulsory for safety.
- AC Input DC Input Power Connection



9) OPERATING INSTRUCTIONS

- Switch ON solar input.
- Turn ON inverter switch.
- Inverter starts automatically when solar power is sufficient.
- Monitor LED indicators.

10) FAULT ERROR CODE

ERROR	Description
LO P	Low Input Power – Inverter auto shut down due to insufficient DC input power.
C FL	Short Circuit Fault – Short circuit detected at the output.
U FL	Over Voltage Error – Input voltage exceeded the maximum limit.
HEAT	Over Temperature – Inverter shut down due to overheating.
OFF	Inverter OFF Mode – Inverter is switched OFF (not an error).
INEF	Over Load

11) DISPLAY BUTTONS & LED INDICATION

- **TERMINAL NAME DESCRIPTION**
- **Set** - Saves The Parameters To Memory
- **Enter** - Moves To The Next Parameter
- **UP** - Increases The Parameter Value
- **Down** - Decreases The Parameter Value
- **Switch** - Changes The LED Segment Display
- **ON/OFF** - To Turn On Or Turn Off The Inverter

12) LED INDICATORS

POWER	Input Power On
INV ON	Inverter On Mode
ECO MODE	Inverter Work 1 Amp To 8 Amp
OVERLOAD	Inverter Work 9 Amp To 16 Amp
A	AMPERE
W	WATT
PF	POWER FACTOR
V	INPUT VOLTAGE

13) WORKING PRINCIPLE

Solar panels generate DC electricity, which is optimized by MPPT. The inverter converts DC to AC power and supplies it directly to connected loads without battery storage.

8) ELECTRICAL CONNECTIONS

Mode	Description
Standby	Waiting for Solar Power
Normal Supplying	Power to Load
Protection	Fault detected
Shutdown	Inverter Off

8) ELECTRICAL CONNECTIONS

Over Voltage Protection

Under Voltage Protection

Overload Protection

Short Circuit Protection

Over Temperature Protection

Soft Start

16) TROUBLESHOOTING

Problem	Cause	Solution
Inverter Not On	Low Solar Voltage	Check PV Panels
Red LED On	Overload	Reduce Load
No Output	Loose Wiring	Tighten Connections
Auto Shutdown	Overheating	Improve Ventilation

17) MAINTENANCE & CARE

- Clean inverter using dry cloth.
- Inspect wiring periodically.
- Ensure cooling fan works properly.
- Do not use water or chemicals.

18) DO'S AND DON'TS

Do's

- ✓ Use proper earthing
- ✓ Follow installation guidelines
- ✓ Keep inverter ventilated

Don'ts

- X Do not overload
- X Do not expose to rain
- X Do not open inverter body

19) APPLICATIONS

- Residential homes
- Agricultural pumps
- Shops and Rural Electrification

20) INSTALLATION CLEARANCE

Side	Minimum Distance
Top	30 cm
Bottom	30 cm
Left	20 cm
Right	20 cm

21) WARRANTY INFORMATION

The inverter is covered by a limited warranty against manufacturing defects.

Warranty does not cover damages due to improper installation, misuse, lightning, or natural disasters.

22) CUSTOMER SUPPORT

For installation, service, or technical assistance, contact your authorized dealer or service center.

23) DISCLAIMER

Specifications are subject to change without prior notice. Manufacturer is not responsible for damages caused by improper use or installation.

RHINO SOLAR

With solar energy, we're harnessing the abundant and renewable power of the sun to create a brighter, greener future for all

Our Services

- Long-Term Savings
- Energy Independence
- Renewable & Sustainable

Book Now

