

## COTEK SD3500-112 GFCI

# COTEK SD3500-112 GFCI Pure Sine Wave Inverter User Manual

Model: SD3500-112 GFCI

## 1. INTRODUCTION

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This manual provides essential information for the safe and efficient operation of your COTEK SD3500-112 GFCI Pure Sine Wave Inverter. The SD3500 series offers advanced features such as parallel connectivity, an integrated AC circuit breaker, and an automatic transfer switch (ATS) for a reliable and secure power supply. Please read this manual thoroughly before installation and use to ensure proper functionality and to prevent damage to the unit or connected devices.

## 2. SAFETY INFORMATION

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Always observe the following safety precautions to reduce the risk of electric shock, fire, or injury.

- **Electrical Safety:** Do not open the inverter casing. There are no user-serviceable parts inside. Refer all servicing to qualified personnel.
- **Ventilation:** Ensure adequate ventilation around the inverter. Do not block ventilation openings.
- **Environment:** Install the inverter in a dry, cool, and well-ventilated area, away from flammable materials, corrosive chemicals, and direct sunlight.
- **Battery Connection:** Connect the inverter directly to a 12V DC battery bank using appropriate gauge cables. Ensure correct polarity (+ to + and - to -). Reverse polarity will damage the inverter.
- **Grounding:** Properly ground the inverter chassis to a reliable earth ground.
- **Load Capacity:** Do not exceed the inverter's rated output power (3500W continuous). Overloading can cause damage and fire hazards.
- **GFCI Protection:** The integrated GFCI outlets provide protection against ground faults. Test the GFCI regularly as per local electrical codes.

## 3. PRODUCT FEATURES

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The COTEK SD3500-112 GFCI Inverter is designed with advanced functionalities for robust performance:

- **Pure Sine Wave Output:** Provides clean and stable AC power suitable for sensitive electronics.
- **Parallel Redundancy Design:** Allows for power expansion and enhanced reliability by connecting multiple inverters.
- **Automatic Master Mechanism:** Optimizes reliability and eliminates single points of failure in multi-inverter setups.
- **Built-in Automatic Transfer Switch (ATS):** Seamlessly switches between grid power and battery power for uninterrupted supply.
- **Integrated AC Circuit Breaker:** Provides protection for the AC output.
- **Remote Control & Monitoring:** Supports optional remote control (CR-10) and internet connectivity via built-in Ethernet for control from anywhere.
- **Selectable Output Voltage/Power Saving Mode:** Configurable via DIP switches or remote control.
- **Comprehensive Protections:** Includes reverse polarity (fuse), under/over voltage, short circuit, overload, over temperature, and over voltage protection.
- **Wide DC Input Voltage Range:** Accommodates various applications and extreme conditions.

## 4. PRODUCT OVERVIEW

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Familiarize yourself with the components and connections of your SD3500-112 GFCI inverter.



Figure 4.1: Top-front view of the COTEK SD3500-112 GFCI Inverter, showing the main casing and output receptacles.



Figure 4.2: Rear panel of the inverter, detailing the DC input terminals, AC input/output, GFCI outlets, RS-232 remote port, and circuit breaker.



Figure 4.3: Side view showing the cooling fans, essential for maintaining optimal operating temperature.

## 5. SETUP AND INSTALLATION

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Proper installation is crucial for the inverter's performance and safety.

1. **Mounting:** Choose a secure, dry, and well-ventilated location. Ensure sufficient clearance for airflow around the inverter, especially near the cooling fans.
2. **DC Input Connection:**
  - Connect the positive (+) terminal of the 12V battery bank to the positive (+) DC input terminal on the inverter.
  - Connect the negative (-) terminal of the 12V battery bank to the negative (-) DC input terminal on the inverter.
  - Use appropriately sized cables to minimize voltage drop and ensure safe operation. Refer to electrical guidelines for cable sizing based on current and distance.
  - Ensure all connections are tight and secure.

3. **Grounding:** Connect the inverter chassis to a reliable earth ground using a suitable grounding wire.
4. **AC Output Connection:**
  - Plug your AC appliances directly into the GFCI outlets on the inverter.
  - For hardwired applications, consult a qualified electrician to connect to the AC output terminals.
5. **AC Input Connection (for ATS function):** If using the automatic transfer switch, connect a reliable AC power source (e.g., shore power, generator) to the AC input terminals.
6. **Remote Control (Optional):** If using a remote control unit (e.g., CR-10), connect it to the designated RS-232 port.

**Important:** Always ensure the inverter is OFF before making any connections.

## 6. OPERATION

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Follow these steps to operate your COTEK SD3500-112 GFCI inverter:

1. **Power On:** Ensure all DC and AC connections are secure. Switch the inverter's main power switch to the "ON" position.
2. **Status Indicators:** Observe the LED indicators on the inverter (if present) for status such as power, fault, or overload. Refer to the full manual for detailed indicator meanings.
3. **Connecting Loads:** Plug your AC appliances into the GFCI outlets. Ensure the total wattage of connected appliances does not exceed 3500W.
4. **GFCI Test:** Periodically press the "TEST" button on the GFCI outlets to ensure they are functioning correctly. Press "RESET" after testing.
5. **Power Saving Mode:** If configured, the inverter may enter a power-saving mode when no load or a very light load is detected, reducing quiescent current draw.
6. **Automatic Transfer Switch (ATS):** If an AC input source is connected, the inverter will automatically switch to that source when available, prioritizing it over battery power. When the AC input is lost, it will switch back to inverter (battery) power.
7. **Power Off:** Disconnect all AC loads, then switch the inverter's main power switch to the "OFF" position.

## 7. MAINTENANCE

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Regular maintenance ensures the longevity and reliable operation of your inverter.

- **Cleaning:** Keep the inverter clean and free from dust and debris. Use a dry cloth to wipe the exterior. Do not use liquid cleaners.
- **Ventilation:** Ensure cooling vents are clear and unobstructed. Periodically check for dust buildup in the fan areas.
- **Connections:** Periodically check all DC and AC connections for tightness. Loose connections can cause overheating and poor performance.
- **Battery Health:** Monitor the health of your battery bank. A weak battery can affect inverter performance.
- **GFCI Test:** Test the GFCI outlets monthly to ensure proper function.

## 8. TROUBLESHOOTING

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This section addresses common issues you might encounter with your inverter.

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No AC output	Inverter OFF, low battery voltage, overload, internal fault, tripped AC breaker.	Ensure inverter is ON. Check battery voltage. Reduce load. Reset AC breaker. If fault persists, contact support.
Overload alarm/shutdown	Connected load exceeds inverter's continuous or surge rating.	Disconnect some appliances. Restart inverter. Ensure total load is within specifications.
Low battery alarm/shutdown	Battery voltage is too low.	Recharge batteries. Check battery connections and health.
Inverter overheating	Poor ventilation, excessive ambient temperature, prolonged high load.	Ensure clear airflow around vents. Reduce ambient temperature. Reduce load.
GFCI trips frequently	Ground fault in connected appliance or wiring.	Disconnect appliances one by one to identify the faulty device. Inspect wiring for damage.

For issues not listed here or if troubleshooting steps do not resolve the problem, please contact COTEK customer support.

## 9. SPECIFICATIONS

Technical specifications for the COTEK SD3500-112 GFCI Pure Sine Wave Inverter.

Feature	Detail
Brand	COTEK
Model Name	SD Series (SD3500-112 GFCI)
Input Voltage	12 Volts DC
Output Voltage	120 Volts AC
Continuous Output Power	3500 Watts
Surge Power	6000 VA
Output Waveform	Pure Sine Wave
Output Frequency	60 Hz
Peak Efficiency at Full Load	90%
Normal Operating Temperature Range	-20°C to 60°C (-4°F to 140°F)
Storage Temperature Range	-40°C to 70°C (-40°F to 158°F)
Item Weight	26.5 Pounds
Dimensions	11.14" x 5.04" x 19.53"
Recommended Uses	Vehicle
Power Source	Battery Powered

## 10. WARRANTY AND SUPPORT

The COTEK SD3500-112 GFCI Pure Sine Wave Inverter comes with a **2 Year Manufacturer Warranty**.

For technical assistance, warranty claims, or further information, please contact COTEK customer support through their official website or authorized distributors. Please have your model number (SD3500-112 GFCI) and purchase details ready when contacting support.