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› COTEK SP-3000-148 High Frequency Pure Sine Wave Inverter User Manual

COTEK SP-3000-148

COTEK SP-3000-148 High Frequency Pure Sine Wave Inverter User Manual

Model: SP-3000-148

1. INTRODUCTION

This manual provides essential instructions for the safe and efficient installation, operation, and maintenance of your COTEK SP-3000-148 High Frequency Pure Sine Wave Inverter. Please read this manual thoroughly before attempting any installation or operation to ensure proper use and to prevent potential hazards. Keep this manual for future reference.

2. SAFETY INSTRUCTIONS

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

- **Read all instructions:** Before operating the inverter, read all instructions and cautionary markings on the inverter, the batteries, and all appropriate sections of this manual.
- **Qualified personnel:** All electrical work should be performed by qualified personnel familiar with battery and inverter systems and their installation.
- **Ventilation:** Ensure adequate ventilation around the inverter. Do not install in a zero-clearance compartment.
- **Avoid moisture:** Do not expose the inverter to rain, snow, spray, or bilge water.
- **Proper grounding:** The inverter must be properly grounded.
- **Battery safety:** Work in a well-ventilated area when working with batteries. Wear eye protection and protective clothing. Avoid touching eyes while working near batteries.
- **Disconnect power:** Before performing any maintenance or cleaning, disconnect all power to the inverter.



Image: Always use appropriate safety equipment when working with electrical systems.

3. PRODUCT FEATURES

The COTEK SP-3000-148 inverter offers the following key features:

- Pure sine wave output for sensitive electronics.
- Power ON / OFF remote control capability via green terminal.
- Input & output fully isolation for enhanced safety.
- Temperature & load controlled cooling fan for optimal performance and longevity.
- User-friendly interface for ease of operation.
- Type 1 Indoor Aluminum Enclosure for durability and protection.

4. PRODUCT OVERVIEW

The COTEK SP-3000-148 is a high-frequency pure sine wave inverter designed to convert 48VDC battery power into stable 120VAC electricity, suitable for a wide range of applications.



Image: Overall view of the COTEK SP-3000-148 Pure Sine Wave Inverter.

4.1 Rear Panel

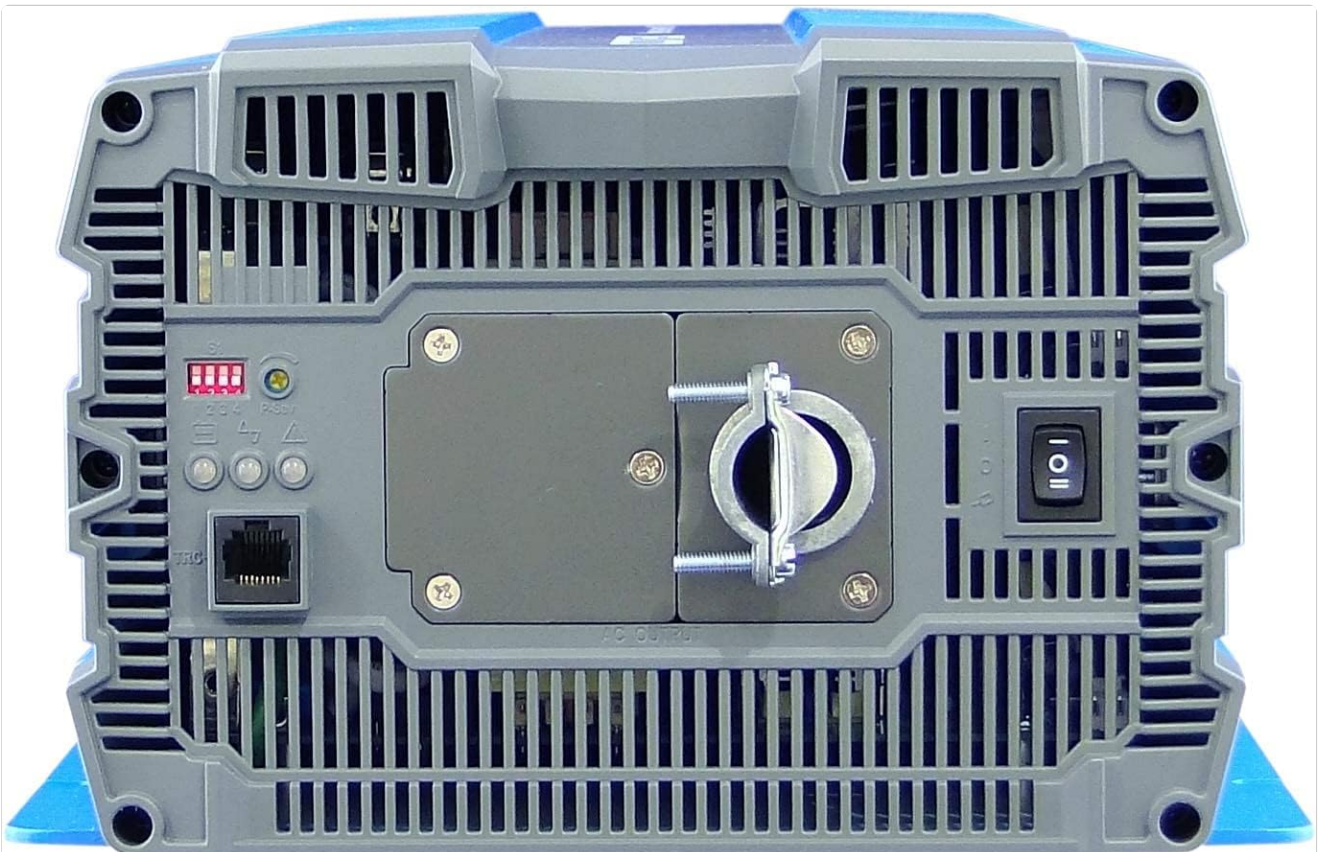


Image: Rear panel of the COTEK SP-3000-148 inverter.

- **AC Output Terminal:** Hardwire connection for 120VAC output.
- **DIP Switches:** Used for configuring output voltage and frequency.
- **Remote Control Port (Green Terminal):** For connecting an optional remote ON/OFF switch.
- **Power Switch:** Main ON/OFF switch for the inverter.
- **LED Indicators:** Display operational status and fault conditions.

4.2 Front Panel



Image: Front panel of the COTEK SP-3000-148 inverter.

- **DC Input Terminals:** Positive (+) and Negative (-) terminals for 48VDC battery connection.
- **Chassis Ground Terminal:** For connecting the inverter to earth ground.

5. INSTALLATION

Proper installation is crucial for the safe and efficient operation of your inverter.

5.1 Mounting

- **Location:** Choose a dry, well-ventilated area, away from direct sunlight, heat sources, and flammable materials.
- **Orientation:** Mount the inverter horizontally on a flat, stable surface. Ensure adequate clearance around the unit for proper airflow.
- **Secure Mounting:** Use appropriate fasteners to securely mount the inverter to prevent movement or vibration.

5.2 Wiring

All wiring must comply with local and national electrical codes.

5.2.1 DC Input Connection (48VDC)

- Connect the positive (+) terminal of the inverter to the positive terminal of your 48VDC battery bank.
- Connect the negative (-) terminal of the inverter to the negative terminal of your 48VDC battery bank.
- Use appropriately sized cables and fuses/breakers for the DC input circuit to prevent overcurrent.

5.2.2 AC Output Connection (120VAC Hardwire)

- Connect your AC loads to the hardwire AC output terminal block on the rear panel.
- Ensure proper polarity (Line, Neutral, Ground) for all AC connections.
- Consult a qualified electrician for hardwiring AC circuits.

5.2.3 Grounding

- Connect the chassis ground terminal on the inverter's front panel to a reliable earth ground.
- This connection is essential for safety and to minimize electrical noise.

5.2.4 Remote Control Connection

- Connect an optional remote ON/OFF switch to the green terminal block on the rear panel.
- Refer to the remote control's specific instructions for wiring details.

6. OPERATION

6.1 Powering On/Off

- **To Power On:** Ensure all connections are secure. Flip the main power switch on the rear panel to the 'ON' position. The LED indicators will illuminate to show operational status.
- **To Power Off:** Flip the main power switch to the 'OFF' position. If using a remote switch, ensure it is also in the 'OFF' position.

6.2 DIP Switch Settings

The DIP switches on the rear panel allow configuration of the inverter's output voltage and frequency. Refer to the diagram below for specific settings. **Always power off the inverter before changing DIP switch settings.**



Image: COTEK SP-3000 series specifications and DIP switch settings.

6.2.1 Output Voltage Selection

The inverter supports various output voltages (100V, 110V, 115V, 120V AC). Adjust DIP switches according to the desired output voltage as indicated in the specifications diagram.

6.2.2 Output Frequency Selection

The inverter can operate at 50Hz or 60Hz. Set the DIP switches to match the required frequency for your region or application.

6.2.3 Power Saving Mode

The inverter features a power saving mode (High Efficiency). Refer to the diagram for enabling or disabling this feature via DIP switches.

6.3 LED Indicators

The inverter is equipped with LED indicators to display its operational status and alert you to potential issues. Consult the specifications diagram for a detailed explanation of each LED's meaning.

7. MAINTENANCE

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Connections:** Regularly check all DC and AC connections for tightness. Loose connections can cause overheating and poor performance.
- **Battery Inspection:** Inspect your battery bank regularly for corrosion, damage, or signs of leakage.

8. TROUBLESHOOTING

The SP-3000-148 inverter includes several protection features. If the inverter stops operating or indicates a fault, refer to the table below for common issues and solutions.

Problem	Possible Cause	Solution
No AC Output / Inverter Off	Main switch off, low battery voltage, overload, internal fuse.	Check power switch, charge batteries, reduce load, check DC input fuse.
Input Under-Voltage Alarm	Battery voltage too low.	Charge or replace batteries.
Input Over-Voltage Alarm	Battery voltage too high.	Check charging system, ensure correct battery voltage.
Output Overload	Connected load exceeds inverter's capacity.	Reduce the total load connected to the inverter.
Over Temperature	Inverter overheating due to poor ventilation or excessive load.	Ensure adequate ventilation, reduce load, allow inverter to cool.
Short Circuit	Short circuit detected on AC output.	Identify and clear the short circuit on the AC output wiring or load.

9. SPECIFICATIONS

The following table details the technical specifications for the COTEK SP-3000-148 Pure Sine Wave Inverter:

Feature	Specification
Model	SP-3000-148

Feature	Specification
AC Voltage	120VAC (Selectable via DIP switch)
AC Regulation	±5%
Rated Power	3000W
Surge Power (1 Sec)	6000W
Maximum Output Power (1 Min)	3450W
Output Waveform	Pure Sine Wave (THD<3% at nominal load)
Frequency	60Hz (Selectable via DIP switch)
DC Voltage	48VDC
Voltage Range	42.0 ~ 66.0VDC
No Load Current	<1.0A @48VDC
Power Saving Mode	<0.4A @48VDC
Efficiency (Max.)	92%
Input Under-Voltage Protection	42.0 ± 0.5VDC
Input Under-Voltage Alarm	44.0 ± 0.5VDC
Input Under-Voltage Recovery	50.0 ± 0.5VDC
Input Over-Voltage Protection	66.0 ± 1.0VDC
Input Over-Voltage Recovery	64.0 ± 1.0VDC
Output Overload	Shutdown output, restart to recover.
Output Short	Shutdown output, restart to recover.
Over Temperature	Shutdown output, auto-recovery after cooling.
DC Input Reverse Polarity	By fuse
Operating Temp.	-20°C ~ +40°C
Storage Temp. & Humidity	-30°C ~ +70°C, 10 ~ 95% RH
Dimensions (W x H x D)	442 x 239 x 102.5 mm (17.4 x 9.4 x 4.0 inches)
Weight	8.2kg (18.08 lbs)
Warranty	2 Year Manufacturer

10. WARRANTY INFORMATION

The COTEK SP-3000-148 Pure Sine Wave Inverter comes with a **2-Year Manufacturer Warranty**. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims. For detailed warranty terms and conditions, refer to the official COTEK warranty statement or contact customer support.

11. CUSTOMER SUPPORT

If you encounter any issues not covered in this manual or require technical assistance, please contact COTEK customer support. Have your product model number (SP-3000-148) and purchase information ready when contacting support.