COTEK SP-1500-112

COTEK SP-1500-112 Pure Sine Wave Inverter User Manual

Model: SP-1500-112

1. Introduction

This manual provides essential instructions for the safe and efficient operation of your COTEK SP-1500-112 Pure Sine Wave Inverter. This device is designed to convert 12V DC battery power into stable 120V AC household power, making it suitable for a wide range of electronic devices, including sensitive equipment.

2. Safety Information

Please read and understand all safety instructions before installing or operating the inverter. Failure to follow these instructions may result in electric shock, fire, or serious injury.

General Safety Precautions

- **Ventilation:** Ensure the inverter is installed in a well-ventilated area to prevent overheating. Do not block ventilation openings.
- **Moisture:** Do not expose the inverter to rain, moisture, or excessive humidity.
- **Flammable Materials:** Keep the inverter away from flammable materials, gases, or liquids.
- **Wiring:** All wiring must comply with local and national electrical codes. Use appropriate gauge wiring for DC input and AC output connections.
- **Grounding:** The inverter must be properly grounded. Connect the chassis ground terminal to a reliable earth ground.
- **Disconnect Power:** Always disconnect all power sources (DC input and AC output) before performing any maintenance or servicing.
- **Qualified Personnel:** Installation and servicing should be performed by qualified personnel only.

Image: Safety gear including a hard hat, safety glasses, and gloves, emphasizing the importance of personal protection during installation.

Image: A car battery, representing the DC power source for the inverter, highlighting the need for proper battery handling.

3. Product Features

The COTEK SP-1500-112 Inverter offers the following key features:

- Pure sine wave output for sensitive electronics.
- Power ON / OFF remote control capability (Green Terminal).
- Input & output fully isolated for enhanced safety.
- Temperature & load controlled cooling fan for efficient operation.
- User-friendly interface.
- Type 1 Indoor Aluminum Enclosure for durability.

4. Product Overview

Image: Angled view of the COTEK SP-1500-112 Pure Sine Wave Inverter, showcasing its blue and gray casing.

Front Panel

Image: Front view of the COTEK SP-1500-112 Pure Sine Wave Inverter, showing the dual GFCI AC output receptacles, power switch, and indicator lights.

Rear Panel

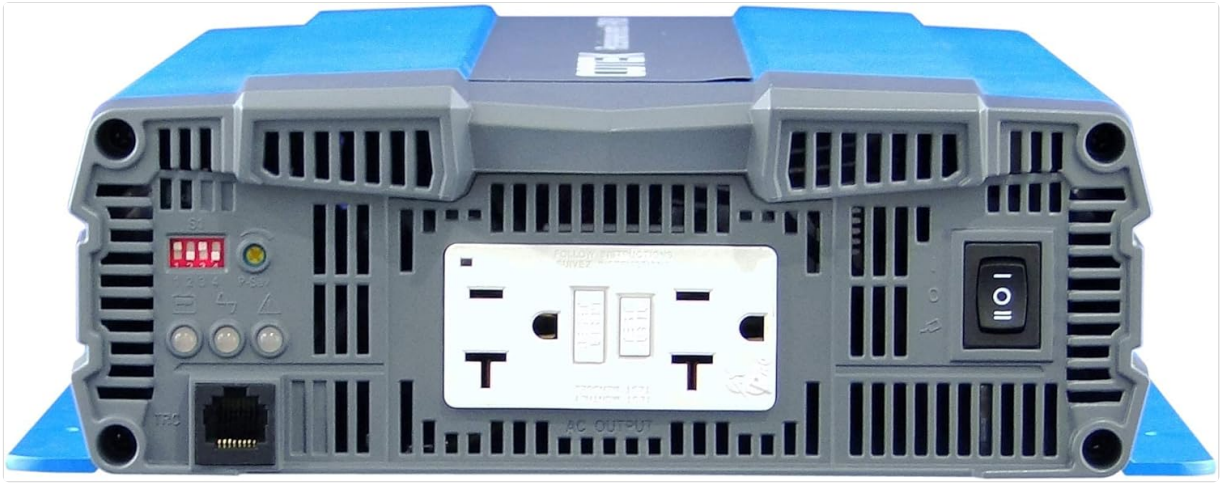

Image: Rear view of the COTEK SP-1500-112 Pure Sine Wave Inverter, displaying the DC input terminals, chassis ground connection, and remote control port.

Side View

Image: Side view of the COTEK SP-1500-112 Pure Sine Wave Inverter, highlighting the cooling fins and robust aluminum enclosure.

5. Installation and Setup

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

Mounting

- Choose a dry, cool, and well-ventilated location.
- Mount the inverter securely to a stable surface.
- Ensure there is adequate clearance around the inverter for proper airflow and cooling.

Wiring

1. **DC Input Connection:** Connect the DC input cables from your 12V battery bank to the inverter's DC input terminals. Ensure correct polarity (positive to positive, negative to negative) and secure connections. Use appropriately sized cables to minimize voltage drop.
2. **Chassis Ground:** Connect the inverter's chassis ground terminal to a reliable earth ground or vehicle chassis using a suitable ground wire.
3. **AC Output Connection:** Plug your AC loads directly into the inverter's AC output receptacles. Ensure the total wattage of your connected devices does not exceed the inverter's continuous power rating.

Remote Control (Optional)

If using a remote control, connect it to the designated remote control port on the inverter. Refer to the remote

control's specific instructions for setup and operation.

6. Operation

Follow these steps for basic operation of your COTEK SP-1500-112 Inverter.

Powering On/Off

- To turn on the inverter, press the power switch on the front panel to the 'ON' position. The power indicator light should illuminate.
- To turn off the inverter, press the power switch to the 'OFF' position.
- If using a remote control, use its power button to control the inverter.

Connecting Loads

Once the inverter is powered on, you can connect your AC devices to the output receptacles. Always ensure the total power consumption of your devices does not exceed the inverter's continuous power rating of 1500W.

Indicator Lights

The inverter features indicator lights to provide status information:

- **Power Indicator:** Illuminates when the inverter is operating normally.
- **Fault/Warning Indicator:** Illuminates or flashes to indicate a fault condition (e.g., overload, over-temperature, low battery voltage). Refer to the troubleshooting section for details.

7. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Do not use liquid cleaners or solvents.
- **Ventilation:** Ensure that all ventilation openings are free from dust, debris, or obstructions. The cooling fan should operate freely.
- **Connections:** Regularly check all DC input and AC output connections for tightness. Loose connections can cause overheating and poor performance.
- **Battery Maintenance:** Maintain your battery bank according to the battery manufacturer's recommendations.

8. Troubleshooting

This section provides solutions to common issues you might encounter with your inverter.

Issue	Possible Cause	Solution
Inverter does not turn on	No DC input power; Low battery voltage; Loose DC connections; Blown DC fuse.	Check battery connections and voltage; Ensure battery is charged; Inspect and replace DC fuse if necessary.
No AC output	Inverter in fault mode (overload, over-temperature, low voltage); AC output circuit breaker tripped.	Reduce AC load; Allow inverter to cool down; Recharge battery; Reset AC circuit breaker.

Issue	Possible Cause	Solution
Overload warning/shutdown	Connected load exceeds inverter's rating.	Reduce the total wattage of connected AC devices.
Over-temperature warning/shutdown	Poor ventilation; High ambient temperature; Excessive load.	Improve ventilation; Reduce ambient temperature; Reduce AC load.
Low battery voltage warning/shutdown	Battery voltage has dropped below safe operating level.	Recharge or replace the battery bank.

9. Specifications

Key technical specifications for the COTEK SP-1500-112 Pure Sine Wave Inverter:

Specification	Value
Model Name	SP-1500-112
Wattage (Continuous)	1500 watts
Input Voltage	12VDC
Output Voltage	120VAC
Output Waveform	Pure Sine Wave
Item Weight	11.76 pounds
Package Dimensions	19.02 x 11.97 x 5.91 inches
Power Source	Battery Powered
Recommended Uses	Vehicle

COTEK **1500W Pure Sine Wave Inverter** **SP-1500 series**

Features:

- Pure sine wave output
- Power ON / OFF remote control (Green Terminal)
- Remote controller CR-8 / CR-16 (optional)
- Input & Output fully isolation
- Temperature & Load controlled cooling fan
- Built in advance microprocessor to provide friendly interface
- Output frequency 50 / 60 Hz selectable by DIP switch
- Output voltage DIP switch selectable
- Adjustable power saving mode by variable resister
- 3-color LED status indicators
- Input protection: Reverse Polarity (Fuse) / Under Voltage / Over Voltage
- Output protection: Short Circuit / Overload / Over Temperature
- E-13 / UL / CE / FCC approved

MODEL		SP-1500-112	SP-1500-124	SP-1500-148	SP-1500-212	SP-1500-224	SP-1500-248
Output	AC Voltage	100 / 110 / 115 / 120VAC			200 / 220 / 230 / 240VAC		
	AC Regulation	±5%			±3%		
	Rated Power	1500VA					
	Surge Power (1 Sec)	<2650VA					
	Maximum Output Power (1 Min)	>1500VA~1730VA (100%~115%)					
	Output Waveform	Pure Sine Wave (THD<5%@Normal Load NOTE1)			Pure Sine Wave (THD<3%@Normal Load NOTE2)		
	Frequency	50 / 60 Hz ±0.5%					
Input	DC Voltage	12VDC	24VDC	48VDC	12VDC	24VDC	48VDC
	Voltage Range	10.5 ~ 16.5VDC	21.0 ~ 33.0VDC	42.0 ~ 66.0VDC	10.5 ~ 16.5VDC	21.0 ~ 33.0VDC	42.0 ~ 66.0VDC
	NO Load Current	≤1.8A@12VDC	≤1.0A@24VDC	≤0.5A@48VDC	≤1.8A@12VDC	≤1.0A@24VDC	≤0.5A@48VDC
	Power Saving Mode	<0.1A@12VDC	<0.05A@24VDC	<0.05A@48VDC	<0.1A@12VDC	<0.05A@24VDC	<0.05A@48VDC
	Efficiency (Max.)	91%	92%	93%	93%	94%	94%
Protection	Input Under - Voltage Protection	10.5 ±0.3VDC	21.0 ±0.5VDC	42.0 ±1.0VDC	10.5 ±0.3VDC	21.0 ±0.5VDC	42.0 ±1.0VDC
	Input Under - Voltage Alarm	11.0 ±0.3VDC	22.0 ±0.5VDC	44.0 ±1.0VDC	11.0 ±0.3VDC	22.0 ±0.5VDC	44.0 ±1.0VDC
	Input Under - Voltage Recovery	12.5 ±0.3VDC	25.0 ±0.5VDC	50.0 ±1.0VDC	12.5 ±0.3VDC	25.0 ±0.5VDC	50.0 ±1.0VDC
	Input Over - Voltage Protection	16.5 ±0.3VDC	33.0 ±0.5VDC	66.0 ±1.0VDC	16.5 ±0.3VDC	33.0 ±0.5VDC	66.0 ±1.0VDC
	Input Over - Voltage Recovery	14.5 ±0.3VDC	29.0 ±0.5VDC	58.0 ±1.0VDC	14.5 ±0.3VDC	29.0 ±0.5VDC	58.0 ±1.0VDC
	Output Overload	Shutdown output voltage, restart to recover					
	Output Short	Shutdown output voltage, restart to recover					
	Over Temperature	Heat sink temperature over 80°C ±5°C, shutdown output voltage, recover automatically after heat sink temperature goes down to 60°C ±5°C					
	DC Input Reverse Polarity	By fuse					
Environment	Operating Temp.	-20°C ~ +40°C					
	Storage Temp.	-30°C ~ +70°C					
	Storage Temp. & Humidity	10 ~ 95% RH					
Safety & EMC	Safety Standards	Certified UL 458 NOTE3		----	Certified EN 60950-1		
	EMC Standards	Certified FCC class B			Certified EN 55022; EN 55024 EN 61000-3-2, -3-3 EN 61000-4-2, 3, 4, 5, 6, 8, 11		
	E-mark	----			Certified CISPR 25 ISO 11452-2; ISO 7637-2		
Control & Signal	Remote Control (Optional)	CR-8 / CR-16					
	LED Indicator	Input voltage level, output load level and faulty status					
	Dry Contact Terminal	By relay					
	Remote Control Terminal	6-port green terminal					
Others	Dimension (W x H x D)	248x83x421 mm / 9.76x3.27x16.57 inch					
	Packing	4.14kg; 4pcs / 17.56kg / 3.58CUFT					
	Cooling	Temperature & load controlled cooling fan					
	Application	Home and office appliances, portable power equipment, vehicle, yacht and off-grid Solar power systems ...etc.					
	Socket Type	North America (GFCI) / North America (NEMA 5-20RI)			Continental European (SCHUKO) / Australia / New Zealand / United Kingdom / Universal		

Note1 - Normal Condition: Vin=12.5V / 25V / 50V Vo=100 / 110 / 115 / 120 VAC 80% Full load (PF=1.0)
Note2 - Normal Condition: Vin=12.5V / 25V / 50V Vo=200 / 220 / 230 / 240 VAC 80% Full load (PF=1.0)
Note3 - UL only for GFCI receptacles

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Image: Detailed specifications sheet for the COTEK SP-1500 series inverters, showing electrical parameters, environmental ratings, and certifications.

COTEK 1500W Pure Sine Wave Inverter SP-1500 series

■ Mechanical Drawings:

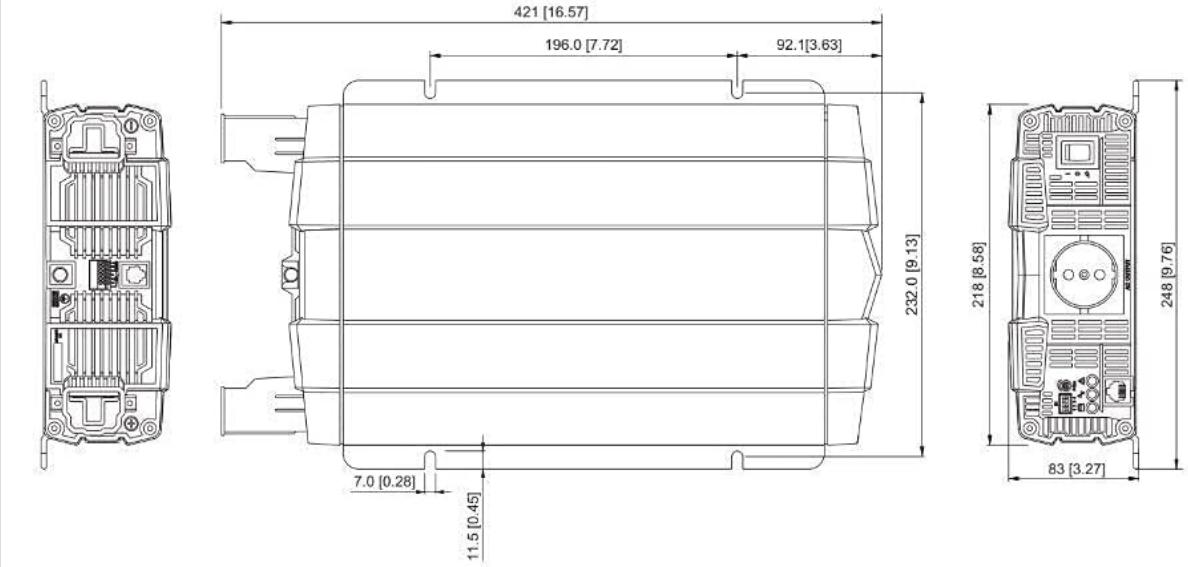


Image: Mechanical drawings and dimensions of the COTEK SP-1500 series inverter, useful for installation planning.

10. Applications

The COTEK SP-1500-112 Pure Sine Wave Inverter is suitable for various applications requiring reliable AC power from a DC source.

Image: Mobile homes or an RV park at dusk, illustrating typical off-grid or mobile power applications for the inverter.

Image: A glowing lightbulb, symbolizing energy and power solutions provided by the inverter for various electrical needs.

11. Warranty Information

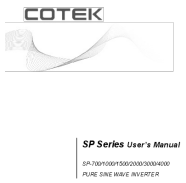
The COTEK SP-1500-112 Pure Sine Wave Inverter is covered by a **2-year manufacturer's warranty**. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase. For full terms and conditions, refer to the warranty card included with your product or visit the official COTEK website.

12. Customer Support

For technical assistance, troubleshooting guidance, or service inquiries regarding your COTEK SP-1500-112 Inverter, please contact COTEK customer support. You can typically find contact information, including phone numbers and email addresses, on the official COTEK website or in the product packaging.

When contacting support, please have your product model number (SP-1500-112) and purchase date available.

Related Documents - SP-1500-112

	[COTEK SP Series Pure Sine Wave Inverter User's Manual] Comprehensive user's manual for COTEK SP Series Pure Sine Wave Inverters (SP-700 to SP-4000). Learn about installation, operation, safety, technical specifications, and advanced features like pure sine wave output and robust protection.
	[COTEK SP Series Pure Sine Wave Inverter User's Manual] Comprehensive user's manual for COTEK SP Series Pure Sine Wave Inverters (SP-700, SP-1000, SP-1500, SP-2000, SP-3000, SP-4000). Covers specifications, installation, operation, safety, and RS-232 communication for reliable power conversion.
	[COTEK SPT Series Pure Sine Wave Inverter User Manual - SPT1200/2000/3000] Comprehensive user manual for COTEK SPT Series Pure Sine Wave Inverters (SPT1200, SPT2000, SPT3000). Covers safety instructions, functional characteristics, specifications, installation, maintenance, RS-485 communication, troubleshooting, and warranty information.
	[COTEK SPT Series Pure Sine Wave Inverter with Transfer Switch - Product Introduction and Specifications] A concise overview of the COTEK SPT Series Pure Sine Wave Inverters with Transfer Switch, detailing their technical specifications, product appearance, installation guidelines, and warranty information for various models.
	[COTEK SK Series Pure Sine Wave Inverter User's Manual] This user manual provides comprehensive instructions for the COTEK SK Series Pure Sine Wave Inverters. It covers essential safety information, product features, detailed electrical and mechanical specifications, installation guidelines, operational procedures, troubleshooting steps, maintenance advice, and warranty details for models SK700, SK1000, SK1500, SK2000, and SK3000.

	COTEK SE Series Pure Sine Wave Inverter User Manual (200W, 350W, 400W) Comprehensive user manual for the COTEK SE Series Pure Sine Wave Inverters, covering models 200W, 350W, and 400W. This guide provides detailed information on safety precautions, product features, electrical specifications, installation procedures, operation, maintenance, troubleshooting, and warranty details.