COTEK SP-700-148

COTEK SP-700-148 Pure Sine Wave Inverter User Manual

Model: SP-700-148

Introduction

This manual provides essential instructions for the safe and efficient operation, installation, and maintenance of your COTEC SP-700-148 Pure Sine Wave Inverter. Please read this manual thoroughly before installation and use, and retain it for future reference.
The COTEC SP-700-148 is a 700W pure sine wave inverter designed to convert 48VDC battery power to 120VAC household power, featuring dual GFCI outlets for enhanced safety.

Safety Information

WARNING: Improper installation or use can result in electric shock, fire, or damage to the inverter and connected equipment. Always follow safety guidelines.

- Ensure proper ventilation around the inverter.
- Do not expose the inverter to water, rain, or excessive moisture.
- Connect the inverter only to a 48VDC power source.
- Always disconnect the battery before performing any wiring or maintenance.
- Do not open the inverter casing; there are no user-serviceable parts inside.
- This product contains materials that may be subject to California Proposition 65 warnings.

Product Overview

The COTEC SP-700-148 inverter provides reliable AC power from a DC source. Key features include:

- Pure sine wave output for sensitive electronics.
- Dual GFCI 120VAC outlets.
- Remote control capability (Green Terminal).
- Input & output isolation for safety.
- Temperature and load-controlled cooling fan.
- User-friendly interface.

- Type 1 Indoor Aluminum Enclosure.

Figure 1: Angled view of the COTEC SP-700-148 Pure Sine Wave Inverter, showing the blue casing and front panel with AC outlets.

Setup and Installation

1. Mounting the Inverter

Mount the inverter in a dry, well-ventilated area, away from direct sunlight, heat sources, and flammable materials. Ensure sufficient clearance around the unit for proper airflow, especially around the cooling fan vents.

Figure 2: Rear panel of the inverter, displaying the DC input terminals, cooling fan, and remote control terminal.

2. DC Input Connection

1. Ensure the inverter's power switch is in the OFF position.
2. Connect the positive (+) cable from your 48VDC battery bank to the positive (+) DC input terminal on the inverter.
3. Connect the negative (-) cable from your 48VDC battery bank to the negative (-) DC input terminal on the inverter.
4. Ensure all connections are tight and secure to prevent loose connections and arcing.

3. AC Output Connection

The inverter features dual GFCI 120VAC outlets. Plug your AC appliances directly into these outlets. Ensure the total power consumption of your appliances does not exceed the inverter's 700W continuous output rating.

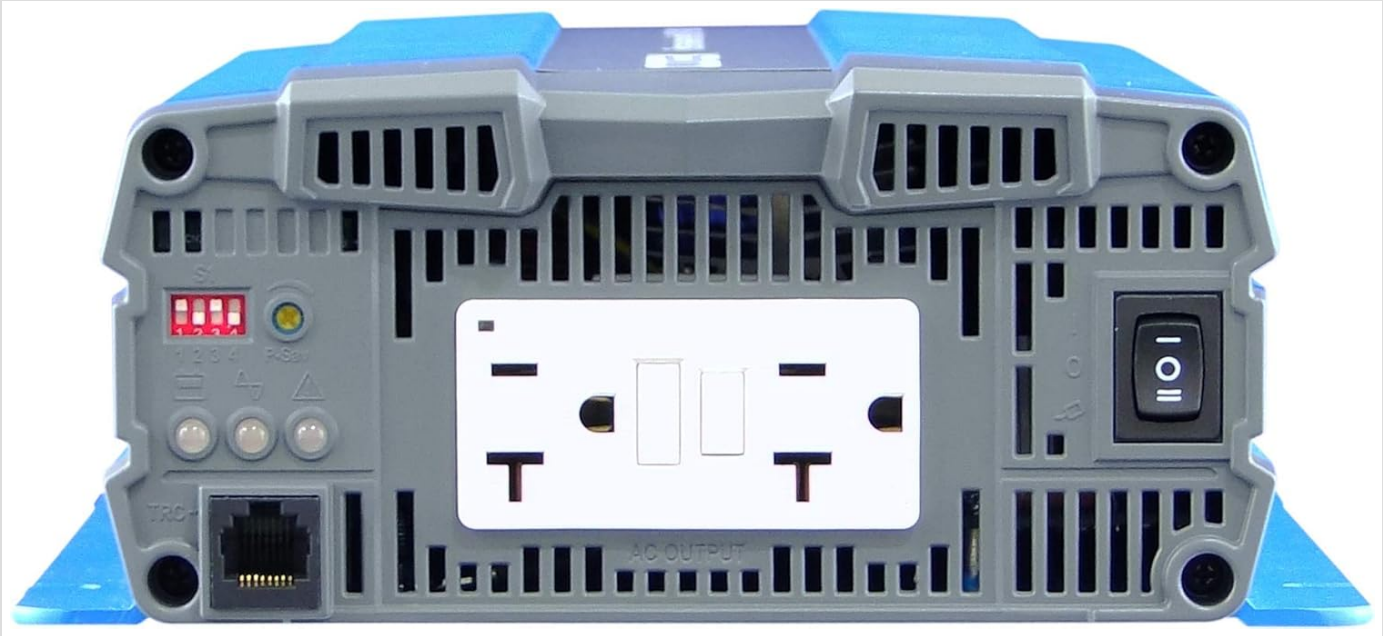

Figure 3: Front panel of the inverter, showing the dual GFCI AC output receptacles and the main power switch.

4. Remote Control (Optional)

The inverter supports a remote ON/OFF control via the green terminal block. Refer to the detailed specifications for wiring instructions if using this feature.

Operating Instructions

1. After all connections are secure, switch the inverter's main power switch to the ON position.
2. The inverter will perform a self-test, and the indicator lights will show its status.
3. Plug your AC appliances into the GFCI outlets.
4. To turn off the inverter, first disconnect all AC loads, then switch the inverter's main power switch to the OFF position.

Power Saving Mode

The inverter features an adjustable power-saving mode. Consult the full technical specifications or contact support for details on configuring this feature via the DIP switches or variable resistor.

Maintenance

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris.

- **Connections:** Regularly check all DC and AC connections for tightness. Loose connections can cause overheating and damage.
- **Battery Maintenance:** Ensure your battery bank is properly maintained according to the battery manufacturer's instructions.
- **Internal Components:** Do not attempt to service internal components. Refer all servicing to qualified personnel.

Troubleshooting

Problem	Possible Cause	Solution
No AC output, indicator lights off.	Inverter not powered on, low battery voltage, faulty DC connection.	Check power switch, verify battery voltage, inspect DC cables and connections.
Inverter shuts down, fault indicator on.	Overload, over-temperature, input over/under voltage.	Reduce AC load, ensure proper ventilation, check battery voltage. Allow inverter to cool down.
GFCI outlet trips.	Ground fault detected in connected appliance or wiring.	Disconnect appliance, reset GFCI. If it trips again, the appliance or its wiring may be faulty.

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

Specifications

Detailed technical specifications for the COTEC SP-700-148 Pure Sine Wave Inverter are provided below. For a comprehensive list, refer to the product's technical data sheet.

- **Model:** SP-700-148
- **Continuous Power:** 700W
- **Input Voltage:** 48VDC (Nominal)
- **Output Voltage:** 120VAC
- **Output Waveform:** Pure Sine Wave
- **Frequency:** 60Hz
- **Dimensions:** Approximately 14.84 x 9.84 x 5.87 inches
- **Weight:** Approximately 6 pounds

COTEK **700W Pure Sine Wave Inverter** **SP-700 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-700-112	SP-700-124	SP-700-148	SP-700-212	SP-700-224	SP-700-248
Output	AC Voltage	100 / 110 / 115 / 120VAC			200 / 220 / 230 / 240VAC		
	AC Regulation	±5%			±3%		
	Rated Power	700VA					
	Surge Power (1 Sec)	<1230VA					
	Maximum Output Power (1 Min)	>700VA~810VA (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	≤1.5A@12VDC	≤0.8A@24VDC	≤0.5A@48VDC	≤1.5A@12VDC	≤0.8A@24VDC	≤0.5A@48VDC
	Power Saving Mode	<0.1A@12VDC	<0.06A@24VDC	<0.05A@48VDC	<0.1A@12VDC	<0.06A@24VDC	<0.05A@48VDC
	Efficiency (Max.)	91%	93%	93%	91%	93%	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)	200x83x330 mm / 7.87x3.27x12.99 inch					
	Packing	2.6kg; 6pcs / 16.6kg / 3.59CUFT					
	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 5-15RI)			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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Figure 4: Comprehensive technical specifications table for the SP-700 series, including electrical parameters, protection features, and environmental conditions.

COTEK 700W Pure Sine Wave Inverter SP-700 series

Mechanical Drawings:

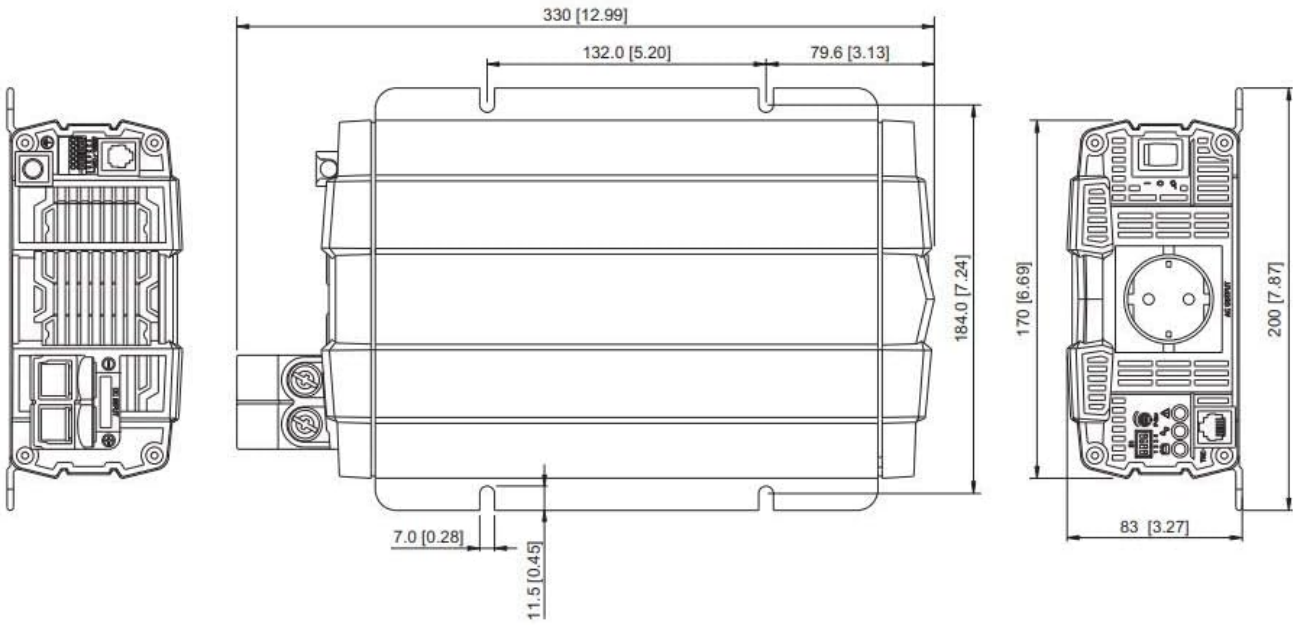

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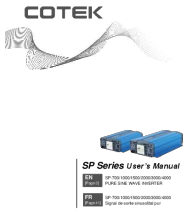
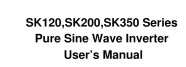
Figure 5: Mechanical drawings providing dimensions and mounting details for the SP-700 series inverters.

Warranty and Support

COTEC products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the official COTEC website or contact your authorized dealer.
Please have your product model number (SP-700-148) and purchase date available when contacting support.

Related Documents - SP-700-148

	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 SR-1600 PLUS Rack Mount Pure Sine Wave Inverter: Quick Introduction A concise overview of the COTEK SR-1600 PLUS series rack-mount pure sine wave inverters, detailing specifications, product appearance, installation, and warranty information.
	COTEK SK120, SK200, SK350 Series Pure Sine Wave Inverter User Manual This user manual provides detailed information on the COTEK SK120, SK200, and SK350 series pure sine wave inverters, covering safety, features, installation, operation, troubleshooting, and warranty.

	[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 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.