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Instapark INCC1205

Instapark INCC1205 12V/5A Waterproof PWM Solar Charge Controller User Manual

Model: INCC1205

Overview Safety Setup Operation Maintenance Troubleshooting Specifications Warranty Support

1. Product Overview

The Instapark INCC1205 is a 12V/5A Waterproof Pulse Width Modulation (PWM) Solar Charge Controller designed to manage power flow from a solar panel to a battery and DC load. This controller ensures efficient charging, protects the battery from overcharge and over-discharge, and extends battery life. Its waterproof design makes it suitable for various outdoor and marine applications.



Figure 1: Instapark INCC1205 Solar Charge Controller. This image displays the compact, black, waterproof controller unit with its integrated input and output cables. A separate DC barrel connector to screw terminal adapter is also shown, indicating connection flexibility.

1.1 Key Features

- 12V system voltage.
- 5A maximum charge/load current.
- Waterproof design for outdoor use.
- Pulse Width Modulation (PWM) charging for optimal battery health.
- Overcharge and over-discharge protection.
- Reverse polarity protection for solar panel and battery.
- Load overcurrent protection.
- LED indicators for system status.

1.2 Package Contents

- Instapark INCC1205 Solar Charge Controller
- DC barrel connector to screw terminal adapter (may vary)
- User Manual (this document)

2. Safety Information

Please read all instructions carefully before installation and operation. Failure to follow these instructions may result in damage to the unit, battery, or other components, and may cause personal injury.

- Ensure all connections are correct before powering on the system.
- Connect the battery to the controller first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Do not exceed the maximum input voltage or current ratings of the controller.

- Install the controller in a well-ventilated area, even though it is waterproof, to prevent heat buildup.
- Avoid short-circuiting the solar panel, battery, or load terminals.
- This controller is designed for 12V lead-acid batteries (Flooded, GEL, AGM). Do not use with other battery types unless specified by the manufacturer.
- Keep out of reach of children.

3. Installation and Setup

Follow these steps for proper installation of your solar charge controller.

3.1 Wiring Sequence

1. **Connect the Battery:** Connect the battery to the controller's battery terminals (usually marked with a battery symbol). Ensure correct polarity. The controller will power on.
2. **Connect the Solar Panel:** Connect the solar panel to the controller's solar panel terminals (usually marked with a solar panel symbol). Ensure correct polarity.
3. **Connect the DC Load:** Connect your DC load (e.g., LED lights, small appliances) to the controller's load terminals (usually marked with a light bulb symbol). Ensure correct polarity.

Important: Always connect the battery first and disconnect it last. This sequence protects the controller from potential damage due to voltage spikes from the solar panel or load.

3.2 Mounting

Mount the controller in a location that is protected from direct sunlight and excessive heat, even though it is waterproof. Ensure adequate air circulation around the unit. Use appropriate fasteners for the mounting surface.

4. Operation

The INCC1205 operates automatically once connected. Its LED indicators provide visual feedback on the system's status.

4.1 LED Indicators

Indicator	Status	Description
OUTPUT (Green LED)	Solid On	DC load is active and receiving power.
	Off	DC load is off (e.g., due to low battery voltage or manual control).
CHARGE (Green LED)	Solid On	Battery is being charged by the solar panel.
	Off	No charging (e.g., no solar input, battery full, or night time).
WARNING (Red LED)	Solid On	Indicates a fault or protection state (e.g., over-discharge, overcurrent, reverse polarity). Refer to troubleshooting.
	Off	Normal operation, no warnings.

4.2 Charging Process

The controller uses PWM (Pulse Width Modulation) technology to charge the battery. This method efficiently regulates the voltage and current from the solar panel to the battery, preventing overcharging and desulfation, thereby prolonging battery life.

4.3 Load Control

The controller automatically disconnects the DC load when the battery voltage drops below a certain level (low voltage disconnect, LVD) to prevent over-discharge. It will automatically reconnect the load once the battery has recharged to a safe level (low voltage reconnect, LVR).

5. Maintenance

The Instapark INCC1205 is designed for minimal maintenance. However, regular checks can ensure optimal performance and longevity.

- **Visual Inspection:** Periodically inspect the controller and all wiring for any signs of damage, corrosion, or loose connections.
- **Cleaning:** Keep the controller free from dust, dirt, and debris. Wipe the exterior with a damp cloth if necessary. Do not use harsh chemicals or abrasive cleaners.
- **Connections:** Ensure all cable connections are secure and tight.
- **Battery Check:** Regularly check your battery's condition and electrolyte levels (for flooded batteries) as per the battery manufacturer's recommendations.

6. Troubleshooting

If you encounter issues with your INCC1205 controller, refer to the following table for common problems and solutions.

Problem	Possible Cause	Solution
No LEDs are lit.	No power from battery or solar panel.	Check battery connections and voltage. Ensure solar panel is receiving sunlight and connected correctly.
CHARGE LED is off during daylight.	Battery is full, no solar input, or reverse polarity.	Check solar panel connections and ensure it's in direct sunlight. Verify battery is not fully charged. Check solar panel polarity.
OUTPUT LED is off.	Low battery voltage (LVD), load overcurrent, or load disconnected.	Allow battery to charge. Reduce load. Check load connections and ensure load current does not exceed 5A.
WARNING LED is solid on.	Battery over-discharge, load overcurrent, or reverse polarity.	Check battery voltage. Reduce load. Verify all connections for correct polarity (battery, solar, load). Disconnect and reconnect in correct sequence (battery first).

If the problem persists after attempting these solutions, please contact customer support.

7. Specifications

Parameter	Value
Model	INCC1205
System Voltage	12V DC
Max. Charge/Load Current	5A
Charging Type	PWM (Pulse Width Modulation)

Parameter	Value
Waterproof Rating	Yes (designed for outdoor use)
Battery Type	Lead-acid (Flooded, GEL, AGM)
Weight	4 ounces (approx. 113 grams)

8. Warranty Information

The Instapark INCC1205 Solar Charge Controller comes with a**90-day limited warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by misuse, accident, unauthorized modification, or improper installation.
For warranty claims, please retain your proof of purchase and contact customer support.

9. Customer Support

For technical assistance, troubleshooting not covered in this manual, or warranty inquiries, please contact Instapark customer support through their official channels.
Please have your model number (INCC1205) and purchase date available when contacting support.

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