Phocos CIS10

Phocos CIS10 IP68 10Amp Solar Charge Controller User Manual

Model: CIS10 | Brand: Phocos

1. INTRODUCTION

This manual provides essential instructions for the safe and efficient operation of your Phocos CIS10 IP68 10Amp Solar Charge Controller. The CIS10 is designed for off-grid solar light systems and battery charging, featuring automatic 12V/24VDC system voltage detection and a robust IP68 waterproof design. Please read this manual thoroughly before installation and use.

2. SAFETY INFORMATION

Important Safety Instructions:

- Always connect the battery to the charge controller first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Ensure all connections are tight and secure to prevent excessive voltage drop and loose connections.
- Install the controller in a well-ventilated area, away from flammable gases.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Wear appropriate personal protective equipment (PPE) when working with batteries and solar panels.
- The controller is IP68 rated for water and dust ingress, but avoid submerging it for extended periods or exposing it to high-pressure water jets.

3. PRODUCT FEATURES

The Phocos CIS10 Solar Charge Controller offers the following key features:

- **IP68 Waterproof Design:** Suitable for outdoor use, resistant to water spray, rain, and condensation.
- **Automatic Voltage Detection:** Automatically detects 12V or 24V DC system voltages.
- **5-Stage PWM Technology:** Provides Soft Start, Bulk, Absorption, Float, and Equalization charging stages for optimal battery health and system performance.
- **Wide Battery Compatibility:** Works with LifePo4, LTO, GEL, AGM, Lead-Acid, Calcium, and EFB batteries.
- **Multi-Protection Features:** Built-in protection against over-temperature, over-voltage, over-current, over-charging,

over-discharging, overload, and short circuits.

- **Compact and Thin Design:** Maximizes solar power utilization with minimal self-power consumption.

4. SETUP AND INSTALLATION

Follow these steps for proper installation of your Phocos CIS10 controller:

1. **Mounting:** Choose a suitable location for mounting the controller. Although IP68 rated, mounting in a shaded or protected area can extend its lifespan. Ensure adequate space for cable connections.

2. **Battery Connection:** Connect the battery cables to the controller's battery terminals first. Ensure correct polarity (positive to positive, negative to negative). The controller will automatically detect the system voltage (12V or 24V).
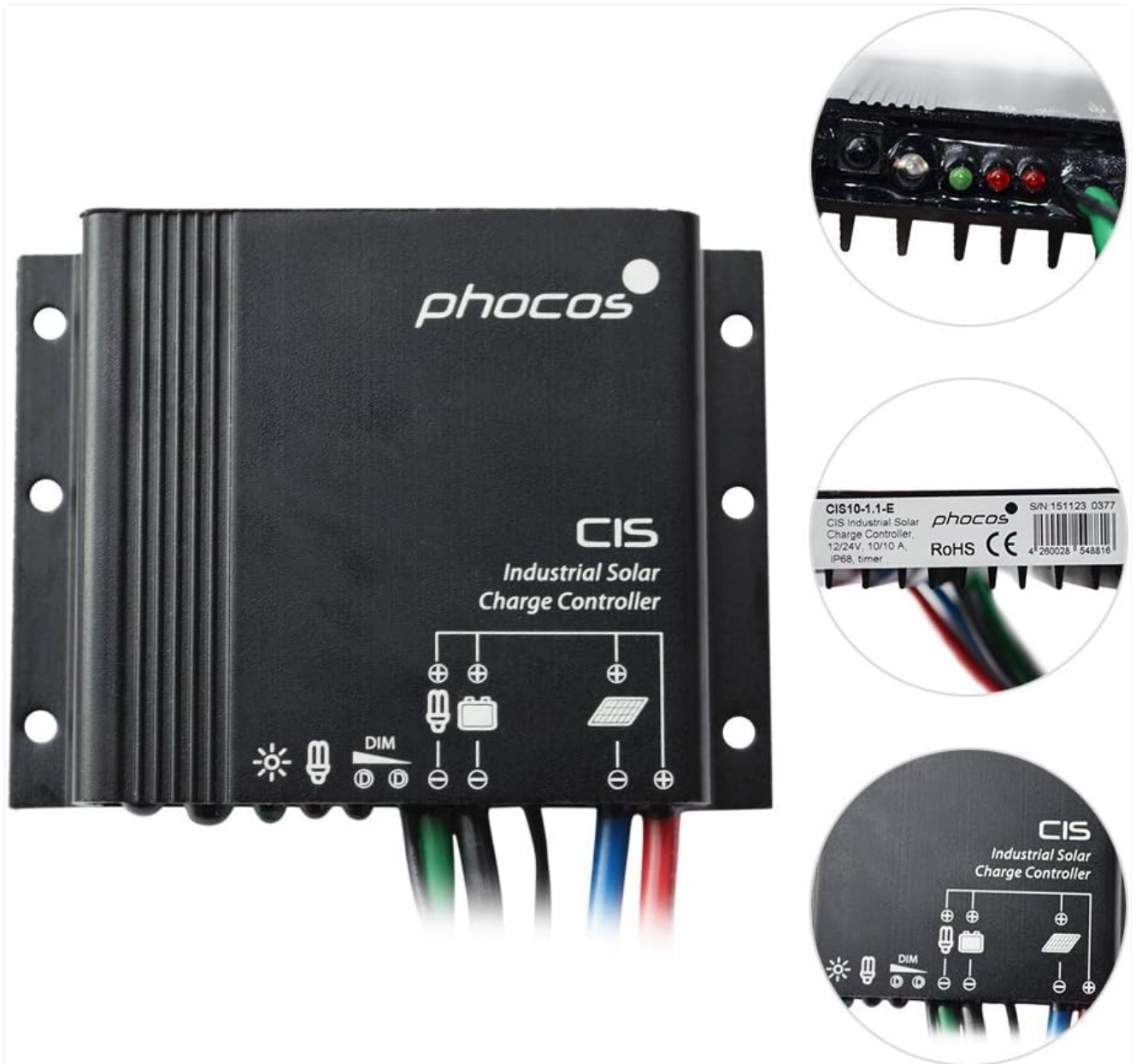

Image 4.1: Phocos CIS10 controller showing battery, solar panel, and load connection points, along with LED indicators for status.

3. **Solar Panel Connection:** Connect the solar panel cables to the controller's solar panel terminals. Observe correct polarity. The controller will begin charging the battery.

4. **Load Connection (Optional):** If using the controller for a DC load (e.g., solar light), connect the load cables to the controller's load terminals. Ensure correct polarity.

5. **Verify Connections:** Double-check all connections for tightness and correct polarity before powering on the system.

The controller's compact design and integrated wiring simplify installation. Its IP68 rating ensures durability in various outdoor conditions.

Image 4.2: The Phocos CIS10 controller demonstrating its compact size with a ruler and highlighting its IP68 waterproof capability.

5. OPERATING INSTRUCTIONS

The Phocos CIS10 operates automatically once connected. It utilizes advanced 5-stage Pulse Width Modulation (PWM) charging technology to optimize battery charging and extend battery life.

5.1. Charging Stages

- **Soft Start:** Gradually increases current to the battery.
- **Bulk Charge:** Delivers maximum current to rapidly charge the battery to approximately 80% capacity.
- **Absorption Charge:** Charges the battery at a constant voltage to bring it to 100% capacity.
- **Float Charge:** Maintains the battery at a full charge by providing a small, constant voltage.
- **Equalization:** Automatically performs equalization every 28 days for calcium/EFB batteries to prevent sulfation and ensure cell balance.

5.2. Work Mode (Optional)

The CIS10 controller supports configurable work modes, such as time control and light control, which can be set using an optional external unit like the CIS-CU (sold separately). This allows for customized operation of connected loads, such as solar lights.

6. MAINTENANCE

The Phocos CIS10 is designed for minimal maintenance due to its robust IP68 rating and epoxy-encapsulated PCB. However, periodic checks are recommended:

- **Visual Inspection:** Periodically inspect the controller and all connections for any signs of damage, corrosion, or loose wiring.
- **Cleaning:** If necessary, gently clean the exterior of the controller with a damp cloth. Do not use harsh chemicals or abrasive materials.
- **Battery Health:** Monitor your battery's performance. The controller's equalization feature helps maintain battery health for compatible types.

7. TROUBLESHOOTING

The CIS10 controller includes multiple built-in protections to prevent damage. If you encounter issues, consider the following:

- **No Charging/Load Output:**

  - Check all wiring connections for tightness and correct polarity.
  - Ensure the solar panel is receiving adequate sunlight.
  - Verify battery voltage is within the operating range (12V/24V).
  - Check for any blown fuses in the system (if applicable).

- **Over-Temperature Protection:** If the controller becomes excessively hot, it may temporarily reduce or stop charging/output. Ensure it's not installed in an area with poor ventilation or direct, intense heat.
- **Over-Voltage/Under-Voltage Protection:** The controller will protect the battery from overcharging or deep discharge. If the battery voltage is too low, the load may be disconnected.
- **Short Circuit/Overload Protection:** If a short circuit or overload occurs on the load or solar input, the controller will temporarily shut down to protect itself and the system. Remove the fault and the controller should resume normal operation.

If problems persist, refer to the detailed specifications or contact Phocos customer support.

8. SPECIFICATIONS

Detailed technical specifications for the Phocos CIS10 Solar Charge Controller:

Feature	Specification
Brand	Phocos
Model Number	CIS10
System Voltage	12V / 24V (Automatic Detection)
Max. Charge/Load Current	10 Amp

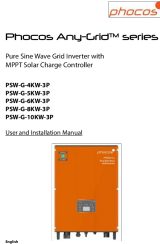| Feature	Specification
Max. Panel Voltage	50 Volts
Protection Rating	IP68
Product Dimensions	3.23 x 2.28 x 0.79 inches (82 x 58 x 20 mm)
Item Weight	5.3 ounces (0.33 Pounds)
Battery Types Supported	LifePo4, LTO, GEL, AGM, Lead-Acid, Calcium, EFB
Charging Technology	5-Stage PWM (Soft Start, Bulk, Absorption, Float, Equalization)
Operating Temperature	-60 to +60 °C

9. WARRANTY AND SUPPORT

Phocos is a German brand known for quality assurance in solar power products. For warranty information, technical support, or service inquiries, please contact your authorized Phocos dealer or visit the official Phocos website. Keep your purchase receipt for warranty claims.

For additional resources and product updates, you may visit the Phocos official website.

Related Documents - CIS10

	Phocos CIS-N-MPPT 85/15 MPPT Solar Charge Controller Manual User manual for the Phocos CIS-N-MPPT 85/15 MPPT solar charge controller. Provides detailed information on features, installation, operation, and safety guidelines for optimizing solar PV systems.
	Phocos Any-Bridge AB-PLC-CAN Monitoring & Control Gateway User and Installation Manual This manual provides detailed instructions for installing and operating the Phocos Any-Bridge AB-PLC-CAN Monitoring & Control Gateway, enabling connection of Phocos Any-Grid PSW-H devices to the PhocosLink Cloud for remote monitoring and control. Includes safety information, setup guide, LED indicators, troubleshooting, and warranty details.
	Phocos Any-Grid™ Series PSW-G User and Installation Manual Comprehensive user and installation manual for the Phocos Any-Grid™ series PSW-G Pure Sine Wave Grid Inverters with MPPT Solar Charge Controllers. Covers installation, operation, maintenance, troubleshooting, and technical specifications for models PSW-G-4KW-3P through PSW-G-10KW-3P.

	[Phocos CIS-N-LED Industrial Solar Charge Controller User Manual](#) User manual for the Phocos CIS-N-LED industrial solar charge controller, detailing its features, installation, safety guidelines, technical specifications, and operation for solar energy systems and LED lighting.
	[Phocos CXNup Solar Charge Controller User Manual](#) User manual for the Phocos CXNup solar charge controller, detailing its features, installation, operation, and safety for efficient solar energy management in 12V/24V systems.
	[Phocos CIS-N-MPPT 100/30 MPPT Solar Laderegler Bedienungsanleitung](#) Umfassende Bedienungsanleitung für den Phocos CIS-N-MPPT 100/30 MPPT Solar Laderegler, der fortschrittliche MPPT-Technologie, mehrstufige Ladeverfahren und LFP-Batterie-Aufweckfunktion bietet. Enthält Installations-, Betriebs- und Sicherheitsinformationen.