GOOLOO S4

GOOLOO S4 Smart Battery Charger User Manual

Model: S4 | Brand: GOOLOO

1. Safety Information

Please read and understand all safety information before using the GOOLOO S4 Smart Battery Charger. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always wear eye protection and protective clothing when working with batteries.
- Ensure adequate ventilation when charging batteries to prevent gas accumulation.
- Do not smoke or allow sparks or flames in the vicinity of the battery or charger.
- Keep the charger away from children and unauthorized persons.
- Never charge a frozen battery.
- Disconnect the AC power before connecting or disconnecting the battery clamps.
- Do not use the charger if it has been damaged in any way.

2. Product Overview

The GOOLOO S4 is an all-in-one universal charging solution designed for various 6-volt and 12-volt lead-acid batteries, including WET, SLA, GEL, AGM, FLOODED, VRLA, and 12V LiFePO4 batteries. It functions as a battery charger, maintainer, trickle charger, float charger, and battery desulfator. The intelligent 10-stage charging program optimizes battery power precisely and gently, even charging batteries as low as 3 volts. It intelligently adapts to ambient temperatures to prevent over-charging in hot climates and under-charging in cold climates.



Figure 2.1: The GOOLOO S4 Smart Battery Charger and included accessories, featuring the main unit, battery clamps, and ring terminals.

What's Included:

- GOOLOO S4 Smart Battery Charger Unit
- Battery Clamp Connectors (Red and Black)
- Ring Terminal Connectors (Red and Black)
- AC Power Cord
- User Manual
- Carrying Bag



Figure 2.2: Detailed view of the GOOLOO S4 package contents, including the charger, various connectors, and storage bag.

Product Video Overview:

[redacted]

Video 2.1: A brief overview of the GOOLOO S4 Smart Battery Charger, demonstrating its compact size and included accessories.

3. Specifications

Feature	Value
Manufacturer	GOOLOO
Brand	GOOLOO

Item Weight	1.32 pounds
Product Dimensions	3.35 x 9.06 x 1.97 inches
Item Model Number	S4
Manufacturer Part Number	speed4
Amperage	4 Amps
Voltage (AC Input)	120 Volts (AC)
Wattage	60 Watt-hours
Output Voltage	12 Volts (DC)
Color	red

4. Setup

Before connecting the charger, ensure the battery terminals are clean and free of corrosion. The GOOLOO S4 comes with both battery clamps and ring terminal connectors for versatile connection options.

Connecting to a Vehicle Battery:

1. Ensure the charger is unplugged from the AC power outlet.
2. Connect the red positive (+) clamp or ring terminal to the positive (+) battery terminal.
3. Connect the black negative (-) clamp or ring terminal to the negative (-) battery terminal.
4. For vehicle batteries, it is recommended to connect the negative clamp to a metal part of the vehicle chassis away from the battery and fuel lines, if the battery is not easily accessible.
5. Plug the charger's AC power cord into a suitable wall outlet.



Figure 4.1: A person connecting the red positive clamp of the GOOLOO S4 charger to the positive terminal of a car battery, with the black clamp connected to the negative terminal.

Connecting to Various Battery Types:

The GOOLOO S4 is compatible with a wide range of 6V and 12V lead-acid batteries, including AGM/C, GEL, LFP, EFB, STD, and WET types. The charger automatically detects the battery type and voltage, but you can manually select modes if needed.



Figure 4.2: The GOOLOO S4 charger connected to different types of lead-acid batteries, illustrating its versatility across various battery chemistries.

5. Operating Modes and Display

The GOOLOO S4 features an intuitive LCD display and a "MODE" button to cycle through different charging programs. The charger intelligently adapts to various battery conditions and environmental temperatures.

LCD Display Introduction:

- **Charging Voltage:** Displays the current voltage of the battery.
- **Charging Mode:** Indicates the active charging program (e.g., 6V STD, 12V STD, 12V AGM/C, 12V GEL, 12V LFP, SUPPLY).
- **Battery Levels:** Shows the battery's charge progress (20%, 40%, 60%, 80%, 100%).
- **Maintenance Mode:** 'V' blinking on the screen indicates the charger has entered maintenance mode.
- **Error Codes:** Displays error codes like 'Err', 'bad', '000' for troubleshooting.



Figure 5.1: Close-up of the GOOLOO S4's LCD display, showing the current voltage and battery charge status.

Compensation Charging Process:

The charger employs a compensation charging process to recondition, restore, and maintain batteries. This includes automatic detection of battery sulfation, repair of slightly damaged batteries, pulse current charge to restore lost battery performance, and compensation charge for prolonged battery life.

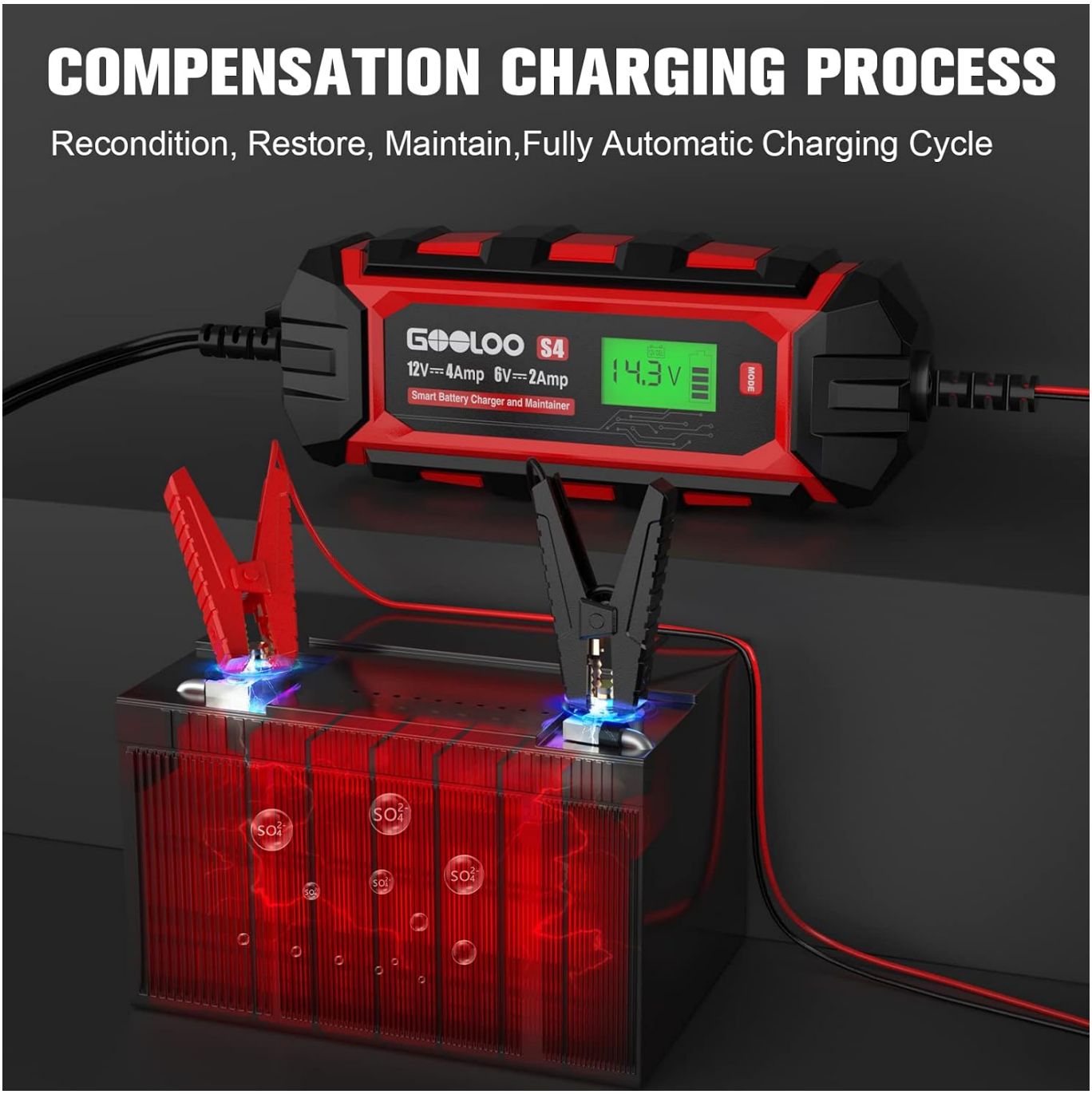


Figure 5.2: Visual representation of the GOOLOO S4's compensation charging process, showing the charger connected to a battery undergoing reconditioning.

Temperature Adaptation:

The S4 intelligently adapts to different ambient temperatures. This feature prevents over-charging in hot climates and under-charging in cold climates, ensuring optimal battery health and performance year-round.



Figure 5.3: Illustration of the GOOLOO S4's temperature adaptation, showing its ability to adjust charging in both cold (-4°F) and hot (104°F) weather conditions.

6. Maintenance

The GOOLOO S4 is designed to prolong battery lifespan through its advanced 10-stage charging process. This process includes devulcanization, repair, pulse current charge, and compensation charge, all optimizing battery power precisely and gently.

Trickle Charging and Battery Health:

For long-term battery maintenance, especially during periods of inactivity, the S4 acts as a reliable trickle charger. It prevents self-discharge and sulfation, keeping your battery in optimal condition without overcharging.



Figure 6.1: The GOOLOO S4 connected to a motorcycle battery, demonstrating its use as a maintainer for various vehicle types.

7. Troubleshooting

The GOOLOO S4 is equipped with multiple security protections to ensure safe operation. If you encounter issues, refer to the LCD display for error codes and consult the troubleshooting guide (available as a PDF document on the product page) for detailed solutions.

Common Issues and Protections:

- **Short Circuit Protection:** Prevents damage from accidental short circuits.
- **Overload Protection:** Safeguards against excessive current draw.
- **Low Voltage Protection:** Ensures safe charging of deeply discharged batteries.
- **High Voltage Protection:** Protects against damage from input voltage spikes.
- **Overcharge Protection:** Automatically stops charging when the battery is full.

- **Over Temperature Protection:** Prevents overheating of the charger and battery.
- **Reverse Connection Protection:** Alerts and prevents damage from incorrect polarity connections.
- **Over Current Protection:** Limits output current to safe levels.



Figure 7.1: Visual representation of the GOOLOO S4's comprehensive safety features, including protections against short circuits, overloads, and reverse connections.

8. Warranty and Support

GOOLOO provides an 18-month warranty for the S4 Smart Battery Charger. If you have any questions or require technical assistance, please do not hesitate to contact our customer service team. We are committed to providing prompt support and warranty services.

For further assistance, please refer to the official GOOLOO website or contact their customer support directly.

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