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Saoer BLUE 20A

Saoer 20A Solar Charge Controller User Manual

Model: BLUE 20A

INTRODUCTION

This manual provides essential information for the safe and efficient operation of your Saoer 20A Solar Charge Controller. This intelligent regulator is designed to manage the working of solar panels and batteries in a solar system, featuring dual USB ports for mobile device charging. It is compatible with 12V and 24V systems and includes multiple protection functions to ensure system efficiency and prolong battery lifespan.



Figure 1: Front view of the Saoer 20A Solar Charge Controller.

SAFETY INSTRUCTIONS

- Ensure all connections are correct before powering on the controller. Incorrect wiring can damage the device or connected components.
- The controller is designed for indoor use or in a protected environment. Avoid exposure to direct sunlight, high temperatures, or moisture.
- Do not attempt to disassemble or repair the controller yourself. Refer to qualified personnel for service.
- Keep out of reach of children.
- This controller is only suitable for lead-acid batteries: OPEN, AGM, GEL. Do not use with other battery types like Lithium-ion or LiFePO4, as this may cause damage or safety hazards.
- Always connect the battery first, then the solar panel, and finally the load. When disconnecting, reverse the order: disconnect the load, then the solar panel, and finally the battery.

PRODUCT FEATURES

- **Automatic System Voltage Identification:** Automatically detects 12V/24V system voltage.
- **PWM Charging:** Efficient Pulse Width Modulation charging mode.
- **Dual USB Ports:** Provides 5V/2A output for charging mobile devices.
- **LCD Display:** Clear display of status and data, allowing for convenient mode switching and parameter configuration.
- **Multiple Protection Functions:** Includes short-circuit protection, open-circuit protection, reverse protection, and over-load protection.
- **Adjustable Parameters:** User-adjustable charge and discharge parameters.
- **Temperature Compensation:** Automatic temperature compensation for optimal charging.

SETUP AND INSTALLATION

Follow these steps carefully to install your solar charge controller. Incorrect installation can lead to damage or malfunction.

1. **Prepare Wiring:** Ensure all wires are properly stripped and have appropriate connectors if necessary. Use wires of sufficient gauge for your system's current.
2. **Connect the Battery:** Connect the battery to the charge regulator first. Observe correct polarity (+ to + and - to -). The controller will automatically recognize the battery voltage (12V or 24V).



Figure 2: Side view showing the connection terminals for battery, solar panel, and load.

3. **Connect the Solar Panel:** Connect the solar panel to the solar charge controller. Ensure correct polarity.
4. **Connect the Load:** Connect the consumer or load to the charge controller regulator. Ensure correct polarity.

Important Note: Always connect the battery first, then the solar panel, and finally the load. When disconnecting the controller, please remove the solar panel, then the load, and finally the battery. This sequence helps the controller recognize the battery voltage correctly and prevents damage.

OPERATING INSTRUCTIONS

LCD Display and Buttons



Figure 3: Angled view showing the LCD display and control buttons.

The controller features an LCD display and three buttons for operation:

- **Menu Button:** Used to cycle through display modes and enter parameter setting mode.
- **Up Button:** Used to increase values or navigate upwards in menus.
- **Down Button:** Used to decrease values or navigate downwards in menus.

Display Modes

Press the Menu button to cycle through the following display modes:

- Battery Voltage (V)
- Solar Panel Voltage (V)
- Load Current (A)
- Battery Temperature (°C)
- Charge Current (A)
- Discharge Current (A)
- Load Working Mode (24H, 0-23H, 0H)

Parameter Settings

To enter parameter setting mode, press and hold the Menu button for 5 seconds. Use the Up and Down buttons to adjust values, and the Menu button to confirm and move to the next parameter. Press and hold Menu again to exit setting mode.

Adjustable Parameters

Parameter	Description	Default (12V)	Range (12V)
B01/B02/B03	Battery Type Selection (B01=Lead-acid, B02=Lithium Ion, B03=LiFePO4)	B01	N/A
Charge Off Voltage	Voltage at which charging stops	14.4V	13.0V - 15.0V
Discharge Reconnect Voltage	Voltage at which load reconnects after low voltage disconnect	12.6V	11.0V - 13.5V
Discharge Stop Voltage	Voltage at which load disconnects to protect battery	10.7V	9.0V - 11.5V
Load Working Time	Timer for load output (24H, 0-23H, 0H)	24H	N/A

Note: For 24V systems, multiply the 12V values by two.

MAINTENANCE

- **Regular Inspection:** Periodically check all wiring connections for tightness and corrosion.
- **Cleanliness:** Keep the controller clean and free from dust. Use a dry cloth for cleaning.
- **Ventilation:** Ensure adequate ventilation around the controller to prevent overheating.
- **Battery Health:** Monitor battery voltage and health regularly. Replace batteries as needed.

TROUBLESHOOTING

Common Issues and Solutions

Problem	Possible Cause	Solution
Controller not powering on / LCD blank	Battery not connected or reverse polarity; Battery voltage too low.	Check battery connections and polarity. Ensure battery has sufficient charge.
Solar panel not charging battery	Solar panel not connected or reverse polarity; Insufficient sunlight; Damaged solar panel.	Check solar panel connections and polarity. Ensure panel is in direct sunlight. Test solar panel output.
Load not working	Load not connected or reverse polarity; Battery voltage too low (low voltage disconnect); Overload protection activated.	Check load connections and polarity. Charge battery. Reduce load or check for short circuit.
USB ports not charging	Battery voltage too low; Device not compatible; Faulty USB cable.	Ensure battery is charged. Try a different device or cable.
Controller gets hot	Overload; Poor ventilation.	Reduce load. Ensure controller has adequate airflow and is not in an enclosed space.

SPECIFICATIONS

Feature	Detail
Model	BLUE 20A
System Voltage	12V/24V Auto
Max Charge/Discharge Current	20A
USB Output	Dual USB, 5V/2A (Max)
Battery Type Compatibility	Lead-acid (OPEN, AGM, GEL)
Product Dimensions	5.12 x 2.76 x 1.5 inches (133mm x 70mm x 38mm approx.)
Item Weight	5 ounces
Display	LCD
Operating Temperature	-35°C to +60°C



Figure 4: Product dimensions of the solar charge controller.

WARRANTY AND SUPPORT

For warranty information or technical support, please contact the manufacturer, Saoer, through their official channels. Refer to your purchase documentation for specific warranty terms and contact details.

Manufacturer: Saoer

ASIN: B095764VB7

UPC: 605832982977

You can visit the [Saoer Store on Amazon](#) for more information or to contact support.