Xantrex C12

Xantrex C12 Solar Charge Controller 12 Amps Instruction Manual

Model: C12

1. Introduction

This manual provides essential information for the safe and efficient operation of your Xantrex C12 Solar Charge Controller. The C12 is a sophisticated 12-amp controller designed for charge, lighting, or load management in solar power systems. It features three-stage charging, user-definable voltage parameters, and automatic equalization to optimize battery performance and longevity. Please read this manual thoroughly before installation and use.

2. Safety Information

Always observe the following safety precautions to prevent personal injury and damage to the controller or other equipment.

- Ensure all wiring is correctly sized and properly insulated.
- Always disconnect power from the solar array and battery before installing or servicing the controller.
- Install the controller in a dry, well-ventilated area, away from flammable materials.
- Do not attempt to open or repair the controller. Refer all servicing to qualified personnel.
- Wear appropriate personal protective equipment, including eye protection, when working with batteries.

3. Package Contents

Verify that all items are present in the package:

- Xantrex C12 Solar Charge Controller (1 unit)
- Instruction Manual (this document)

4. Setup and Installation

The Xantrex C12 controller is designed for quick and easy setup. Follow these general steps for installation:

1. **Mounting:** Choose a suitable location for mounting the controller. It should be close to the battery, in a cool, dry, and well-ventilated area, protected from direct sunlight and moisture.
2. **Battery Connection:** Connect the battery to the controller's battery terminals first. Ensure correct polarity (positive to positive, negative to negative). This step is crucial for the controller to sense battery voltage.

3. **Solar Panel Connection:** Connect the solar panel array to the controller's solar input terminals. Again, observe correct polarity.
4. **Load Connection (Optional):** If using the controller for load management, connect your DC loads to the designated load terminals. Ensure the total current draw of the loads does not exceed the controller's rated amperage.
5. **Verification:** Double-check all connections for tightness and correct polarity before applying power.

Important: Always connect the battery first and disconnect it last. Failure to do so may damage the controller.

5. Operating Instructions

The Xantrex C12 controller automatically manages the charging process and load distribution.

- **Three-Stage Charging:** The controller employs a three-stage charging algorithm (bulk, absorption, float) to efficiently charge your battery and prolong its lifespan.
- **User-Definable Voltage Parameters:** The C12 allows for customization of voltage setpoints to match specific battery types and requirements. Refer to the display indicators section for details on HVD (High Voltage Disconnect) and UVD (Low Voltage Disconnect) settings.
- **Automatic Equalization:** The controller can perform automatic equalization cycles, which are crucial for maintaining the health of flooded lead-acid batteries. The "EQUALIZE ACTIVATED" indicator will illuminate during this process.
- **Load Control:** When configured for load control, the controller will disconnect the load if the battery voltage drops below the Low Voltage Disconnect (LVD) threshold to protect the battery from deep discharge.

6. Display Indicators

The front panel of the Xantrex C12 features an intuitive LED display to indicate battery status and operational modes.

Figure 1: Front view of the Xantrex C12 Solar Charge Controller, showing the LED indicator panel.

The LED panel provides visual feedback on the system's status:

- **BATTERY FULL (Solid Green LEDs):** Indicates the battery is fully charged or near full. The specific voltage thresholds for

High Voltage Disconnect (HVD) are displayed on the panel (e.g., HVD - 0.25V, HVD - 0.50V, HVD - 0.75V, ABOVE 12.8V).

- **BATTERY EMPTY (Solid Red LEDs):** Indicates the battery is discharged or near empty. The specific voltage thresholds for Low Voltage Disconnect (UVD) are displayed (e.g., BELOW 12.8V, UVD - 0.50V, UVD - 0.75V, UVD - 1.0V).
- **LOW VOLTAGE DISCONNECT (Orange/Red LEDs):** Illuminates when the battery voltage drops below a critical level, and the load has been disconnected to protect the battery.
- **OVERLOAD (Orange/Red LEDs):** Indicates that the connected load is drawing excessive current, potentially causing the controller to shut down the load output.
- **EQUALIZE ACTIVATED (Green LED):** Lights up when the automatic battery equalization cycle is active.
- **START/STOP EQ (Button):** A push-button located at the bottom of the panel to manually initiate or stop an equalization cycle.

7. Maintenance

The Xantrex C12 Solar Charge Controller requires minimal maintenance.

- **Regular Inspection:** Periodically check all wiring connections for tightness and corrosion.
- **Cleaning:** Keep the controller's exterior clean and free of dust. Use a dry cloth; do not use liquid cleaners.
- **Ventilation:** Ensure that the ventilation openings are not obstructed to prevent overheating.

8. Troubleshooting

If you encounter issues with your Xantrex C12 controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No display/No power	Loose battery connection, reversed polarity, blown fuse (external)	Check battery connections and polarity. Inspect external fuses.
Battery not charging	No solar input, reversed solar polarity, faulty solar panel, battery already full	Check solar panel connections and polarity. Verify solar panel output. Monitor battery status.
Load disconnected (Low Voltage Disconnect LED on)	Battery voltage too low	Allow battery to charge. Reduce load.
Overload LED on	Excessive current draw from load	Reduce the connected load. Check for short circuits in the load wiring.

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

9. Specifications

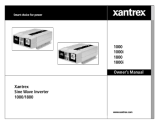
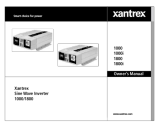
Feature	Detail
Brand	Xantrex
Model	C12
Amperage	12 Amps
Voltage	12 Volts
Display Type	LCD (LED indicators on front panel)

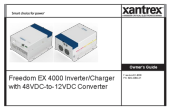
Feature	Detail
Item Weight	1.35 pounds (0.61 kg)
Package Dimensions	6.7 x 4.8 x 1.8 inches (17 x 12.2 x 4.6 cm)
Material	Metal, Plastic
UPC	687873000520

10. Warranty and Support

For detailed warranty information, please refer to the warranty card included with your product or visit the official Xantrex website. If you require technical assistance or have questions not covered in this manual, please contact Xantrex customer support through their official website or designated support channels.

Related Documents - C12

	Xantrex Sine Wave Inverter Owner's Manual: Installation, Operation & Troubleshooting Comprehensive owner's manual for Xantrex Sine Wave Inverters (models 1000, 1000i, 1800, 1800i). Provides detailed instructions on installation, operation, safety precautions, troubleshooting, and specifications for reliable power conversion.
	Xantrex Gateway Touchscreen Quickstart Guide Provides essential setup, safety, and disposal information for the Xantrex Gateway Touchscreen, including connection diagrams and contact details.
	Xantrex Sine Wave Inverter 1000/1800 Owner's Manual Owner's manual for Xantrex Sine Wave Inverter models 1000, 1000i, 1800, 1800i. Provides comprehensive guidance on installation, operation, safety, troubleshooting, and specifications for reliable AC power conversion.
	Xantrex Power Solutions Guide: Inverters, Chargers, and Solar Systems A comprehensive guide to Xantrex's advanced power solutions, detailing true sine wave inverters, inverter/chargers, battery chargers, lithium-ion batteries, backup power systems, and solar products for RVs, boats, heavy-duty trucks, and specialty vehicles.
	C12 Wireless Earbuds User Manual and Specifications Comprehensive guide for C12 wireless earbuds, covering features, operation, specifications, troubleshooting, and FCC compliance. Learn how to pair, control, and maintain your earbuds.

	Xantrex Freedom EX 4000 Inverter/Charger Owner's Guide Owner's guide for the Xantrex Freedom EX 4000 Inverter/Charger with 48VDC-to-12VDC Converter, detailing its features, operation, safety, and specifications for RV, marine, and commercial vehicle applications.