VOTRONIC VCC 1212-45

VOTRONIC VCC 1212-45 IUoU-Li Isolated 12V 45A B2B Charger

Instruction Manual

1. Introduction

The VOTRONIC VCC 1212-45 is an isolated B2B (Battery-to-Battery) charge booster designed for universal use. It ensures optimal and rapid charging of your leisure battery from the alternator while driving. This device supports various battery technologies, including classic lead-acid, lead-gel, lead-AGM, and modern LiFePO4 lithium batteries, offering selectable charging programs for unsupervised, fast, and gentle full charging from any state of charge.

Unlike simple cut-off relays, the VCC 1212-45 increases the charging voltage to the precise level required by each battery type, as specified by manufacturers, ensuring a complete charge. It effectively compensates for long charging cable losses and alternator voltage fluctuations, common in modern vehicles (e.g., Euro 6 with intelligent alternators). The intelligent microprocessor-controlled charging with IU1oU2oU3 characteristic curves and dynamic charging time calculation guarantees a quick, gentle, and full charge, maintaining the charge of connected batteries while simultaneously supplying power to 12V consumers.

2. Safety Instructions

- Read this manual completely before installation and operation.
- Installation must be performed by qualified personnel in accordance with all applicable safety standards and regulations.
- Ensure all connections are secure and correctly polarized to prevent damage to the device or batteries.
- Always disconnect the power supply before performing any installation, maintenance, or troubleshooting.
- Do not open the device casing. There are no user-serviceable parts inside.
- Keep the device away from moisture, extreme temperatures, and flammable materials.
- Ensure adequate ventilation around the charger to prevent overheating.
- Use appropriate fuses as specified in the wiring diagram to protect the cables and the device.

3. Setup and Installation

3.1. Physical Installation

The VCC 1212-45 features a compact design and low weight due to high-frequency switching technology. Mount the unit in a dry, well-ventilated area, ensuring the rubber feet for vibration reduction are not removed. These feet are crucial for the device's longevity and performance.

3.2. Wiring Diagram

Refer to the diagram below for correct wiring. All fuses should be connected as directly as possible to the batteries for optimal cable protection.

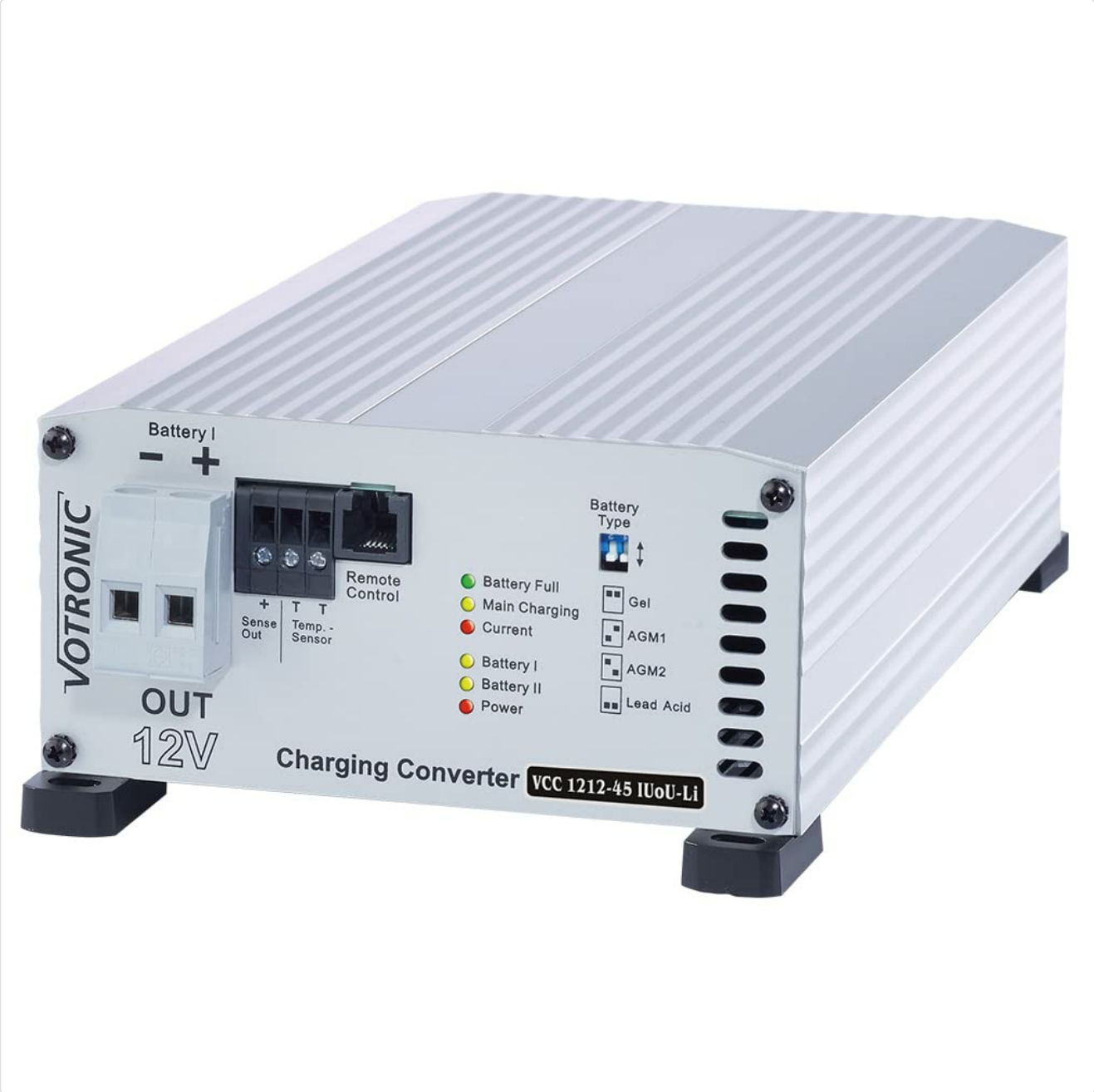

Figure 1: General Connection Diagram for Votronic VCC 1212-45 Charger

Battery II IN (Start): Connects to the Start Battery.

Battery I OUT (Leisure): Connects to the Leisure Battery.

D+ or Terminal 15: This signal must be connected for the charger to activate.

Sense In + (Start) / **Terminal 15/D+**: Connect these small wires (0.5-1.5 mm^2) to the respective terminals. Strip cable ends by 10 mm.

Sense Out + (Leisure): Connect this small wire (0.5-1.5 mm²) to the leisure battery positive terminal. Strip cable ends by 10 mm.

Fuses:

- Fuse II (Start Battery): 30 A - 80 A.
- Fuse I (Leisure Battery): 30 A / 50 A.
- Small Fuses: 3 A for sense lines.

Chassis Ground: Connect both start and leisure batteries to chassis ground.

Input/Output Voltage: The charger supports 12V input to 12V output, or 24V input to 12V output.

3.3. Battery Type Selection

Use the **Slide switch Battery-Type** on the unit to select the appropriate charging program for your leisure battery (Lead-Acid, Lead-Gel, Lead-AGM, or LiFePO4). Refer to the device's labeling for specific switch positions.

3.4. Temperature Sensor Connection

Connect the supplied temperature sensor to the designated port on the charger. For LiFePO4 batteries, mount the temperature sensor on the negative terminal of the battery. This allows for automatic adaptation of charging voltage to battery temperature, optimizing charging efficiency and preventing unnecessary gassing in lead batteries, and protecting LiFePO4 batteries at low temperatures (below 0°C).

4. Operation

4.1. Automatic Operation

The VCC 1212-45 operates fully automatically. Once connected, the device is activated by the alternator when the vehicle engine is running. When the engine is off, the batteries are not discharged. The charger continuously charges or maintains the battery even with simultaneous consumption, with charging times automatically calculated and monitored by the device.

4.2. Charging Characteristics

- **Voltage Regulation**: The charging voltage is free of spikes and regulated to prevent battery overcharging.
- **Line Loss Compensation**: The device fully compensates for line losses and alternator voltage fluctuations, ensuring stable charging.
- **12V Consumer Protection**: Connected 12V consumers are protected against overvoltages and voltage fluctuations.
- **Deeply Discharged Lead Batteries**: Supports gentle pre-charging of deeply discharged lead batteries up to 8V, then provides powerful support even with active consumers.

4.3. Protection Features

The VCC 1212-45 offers multiple protections for unsupervised charging:

- Overload protection
- Overheating protection
- Overvoltage protection
- Short-circuit protection
- Incorrect behavior protection

- Battery discharge protection (electronic regulation up to complete separation of the device and battery)

Parallel operation with other charging sources on a single battery is possible without issues.

5. Maintenance

The VOTRONIC VCC 1212-45 charger is designed for maintenance-free operation. To ensure optimal performance and longevity, consider the following:

- **Regular Inspection**: Periodically check all cable connections for tightness and corrosion. Ensure fuses are intact.
- **Cleaning**: Keep the device clean and free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners or solvents.
- **Ventilation**: Ensure that the ventilation openings are not obstructed to allow for proper heat dissipation.
- **Environmental Conditions**: Operate the device within its specified temperature and humidity ranges.

6. Troubleshooting

If the charger is not functioning as expected, perform the following basic checks before contacting support:

Problem	Possible Cause	Solution
Charger not activating	D+ or Terminal 15 signal not present or faulty connection. Engine not running.	Ensure engine is running. Check D+ or Terminal 15 connection and wiring.
No charging current	Blown fuse. Incorrect battery type selection. Loose connections.	Check and replace any blown fuses. Verify battery type switch setting. Tighten all connections.
Overheating	Insufficient ventilation. Overload.	Ensure clear airflow around the unit. Reduce load if possible. Check for short circuits.
Battery not fully charged	Incorrect battery type setting. Faulty temperature sensor. Battery degradation.	Verify battery type switch. Check temperature sensor connection. Have battery tested.

If the problem persists after performing these checks, please contact VOTRONIC customer support.

7. Specifications

Feature	Specification
Brand	VOTRONIC
Model	VCC 1212-45
Input Voltage	12 Volts (supports 12V or 24V input for 12V output)
Output Voltage	12 Volts (DC)

Feature	Specification
Max. Charging Current	45 A
Recommended Battery Capacity	90-400 Ah
Dimensions (D x W x H)	7.1 x 16 x 24.5 cm
Weight	1.7 Kilograms
Color	White
Number of Ports	1
Battery Types Supported	Lead-acid, Lead-gel, Lead-AGM, LiFePO4
Isolation	Galvanic Isolation

8. Warranty Information

VOTRONIC products are manufactured with high-quality materials and undergo strict quality control. This product comes with a standard manufacturer's warranty against defects in materials and workmanship. The warranty period typically begins from the date of purchase. Please retain your proof of purchase for warranty claims.

The warranty does not cover damages resulting from improper installation, misuse, unauthorized modifications, accidents, or normal wear and tear. For detailed warranty terms and conditions, please refer to the official VOTRONIC website or contact their customer service.

9. Customer Support

For technical assistance, troubleshooting, or warranty inquiries, please contact VOTRONIC customer support. You can typically find contact information, including phone numbers and email addresses, on the official VOTRONIC website or through your authorized dealer.

When contacting support, please have the following information ready:

- Product Model: VCC 1212-45
- Date of Purchase
- Description of the issue
- Any troubleshooting steps already performed