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VOTRONIC VCC 1212-70



VOTRONIC VCC 1212-70 12V to 12V 70A B2B Charging Converter Instruction Manual

Model: VCC 1212-70

1. INTRODUCTION

This manual provides comprehensive instructions for the VOTRONIC VCC 1212-70 B2B Charging Converter. It covers installation, operation, and maintenance to ensure optimal performance and longevity of your battery system. The VCC 1212-70 is designed for universal use with 12V onboard batteries, including traditional lead-acid, lead-gel, AGM, and modern Lithium-LiFePO4 technologies. Its selectable charging programs ensure a complete, fast, and gentle charge from any state of charge, while also maintaining battery health. The converter automatically supplies power to connected 12V consumers, even under high load, and its automatic power control ensures vehicle starting capability and system safety.

The VCC 1212-70 is a non-galvanically isolated B2B charge booster designed to charge 12V service batteries from a 12V alternator/starter battery. It delivers a charging current of 70A and is suitable for recommended battery capacities between 100-460 Ah.

2. SAFETY INSTRUCTIONS

Please read and understand all safety instructions before installing or operating the device. Failure to follow these instructions may result in injury, damage to the device, or other property damage.

- **Qualified Personnel:** Installation and maintenance should only be performed by qualified personnel familiar with electrical systems and battery handling.
- **Electrical Shock Hazard:** Do not open the device. There are no user-serviceable parts inside. Disconnect all power sources before making any connections or performing maintenance.
- **Battery Safety:** Batteries can produce explosive gases. Ensure adequate ventilation during charging. Avoid sparks and open flames near batteries. Wear appropriate personal protective equipment (PPE), including eye protection.
- **Overcurrent Protection:** Ensure proper fusing is installed on all input and output lines as specified in the installation section.
- **Temperature:** Do not expose the device to extreme temperatures, direct sunlight, or moisture. Ensure

sufficient airflow around the unit for cooling.

- **Correct Voltage:** Ensure the input and output voltages match the specifications of your system (12V to 12V).

3. PRODUCT OVERVIEW

The VOTRONIC VCC 1212-70 is a compact and efficient charging converter designed to optimize the charging of your service battery while driving. It features high-frequency switch-mode technology for a lightweight and robust design.



Figure 1: Front view of the VOTRONIC VCC 1212-70 Charging Converter, showing connection terminals, display, and status LEDs.

Key Features:

- **Optimized Charging:** Ensures optimal and rapid charging of the service battery from the alternator during driving.
- **Voltage Compensation:** Fully compensates for line losses and alternator voltage fluctuations, including those from Euro 6 intelligent alternators.
- **Multi-Battery Compatibility:** Supports lead-acid, lead-gel, AGM, and LiFePO4 batteries with selectable charging programs.
- **Automatic Operation:** Automatically activated by the vehicle's alternator when the engine is running. Prevents discharge of batteries when the engine is off.
- **Integrated Protections:** Multiple protections against overcharge, overheating, overvoltage, short circuits, and reverse discharge.
- **Temperature Sensor:** Includes a battery temperature sensor for temperature-compensated charging of lead batteries and low-temperature protection for LiFePO4 batteries.
- **Simultaneous Consumption:** Allows simultaneous power supply to 12V consumers while charging the service battery.

4. SETUP AND INSTALLATION

Proper installation is critical for the safe and efficient operation of the VCC 1212-70. Refer to the wiring diagram provided with the product for detailed connection instructions.

4.1 Mounting Location

- Mount the converter in a dry, well-ventilated area, protected from moisture, dust, and direct heat.
- Ensure sufficient space around the unit for proper heat dissipation.
- Mount securely using appropriate fasteners to prevent movement during vehicle operation.

4.2 Electrical Connections

All connections must be made with appropriate cable gauges to handle the 70A current. Use high-quality crimp terminals and ensure secure connections.

- 1. Disconnect Batteries:** Before making any connections, disconnect the negative terminals of both the starter battery and the service battery.
- 2. Input Connection (Starter Battery):** Connect the input terminals (Start IN) of the VCC 1212-70 to the starter battery. Ensure an appropriate fuse (e.g., 80A-100A) is installed on the positive line as close to the starter battery as possible.
- 3. Output Connection (Service Battery):** Connect the output terminals (Bord OUT) of the VCC 1212-70 to the service battery. Install an appropriate fuse (e.g., 80A-100A) is installed on the positive line as close to the service battery as possible.
- 4. Ground Connection:** Connect the ground terminals (Vs-, Vb-) to a common ground point or directly to the negative terminals of the respective batteries.
- 5. D+ Signal (Optional but Recommended):** Connect the D+ terminal to the alternator's D+ signal or an ignition-switched positive source. This ensures the converter only operates when the engine is running.
- 6. Temperature Sensor:** Connect the included battery temperature sensor to the designated terminals (T). Mount the sensor directly on the service battery for accurate temperature readings. This is crucial for optimal charging of lead-acid batteries and protection of LiFePO4 batteries.

4.3 Battery Type Selection

The VOTRONIC VCC 1212-70 features selectable charging programs for different battery types. Refer to the product's specific dip switch or button configuration for selecting the correct battery type (Lead-Acid, Gel, AGM1, AGM2, LiFePO4). Selecting the correct battery type is essential for proper charging and battery longevity.

5. OPERATING INSTRUCTIONS

The VOTRONIC VCC 1212-70 operates largely automatically once correctly installed and configured.

5.1 Automatic Operation

- When the vehicle engine starts and the alternator provides sufficient voltage, the VCC 1212-70 will automatically activate and begin charging the service battery.
- The intelligent microprocessor-controlled charging ensures a rapid and gentle charge according to the selected battery type (IU1oU2oU3 charging characteristic).
- Dynamic charging time calculation automatically adjusts to the battery's state of charge.
- If the engine is switched off, the converter will cease operation, preventing discharge of the starter battery.

5.2 Status Indicators

The device features LED indicators to show its operational status:

- **Power LED:** Indicates the device is powered on.
- **Start IN LED:** Indicates voltage is detected from the starter battery/alternator.
- **Bord OUT LED:** Indicates voltage is being supplied to the service battery.
- **Main Charge LED:** Indicates the battery is in the main charging phase.
- **Battery Full LED:** Indicates the service battery is fully charged and in maintenance mode.

5.3 Simultaneous Consumption

The VCC 1212-70 allows 12V consumers to be powered simultaneously from the service battery while it is being charged. The device manages the power distribution to ensure both charging and consumption needs are met without compromising battery health or vehicle starting capability.

6. MAINTENANCE

The VOTRONIC VCC 1212-70 is designed for reliable operation with minimal maintenance. Regular checks can help ensure its longevity and performance.

- **Visual Inspection:** Periodically inspect the device and its connections for any signs of damage, corrosion, or loose wiring.
- **Cleanliness:** Keep the unit clean and free from dust and debris. Use a dry, soft cloth for cleaning. Do not use liquid cleaners.
- **Ventilation:** Ensure that the ventilation openings are not obstructed to allow for proper cooling.
- **Battery Terminals:** Check battery terminals for cleanliness and tightness. Corroded terminals can impede charging efficiency.

7. TROUBLESHOOTING

If the VCC 1212-70 is not functioning as expected, review the following common issues before contacting support.

- **No Charging / Power LED Off:**
 - Check all input and output fuses. Replace if blown.
 - Verify all electrical connections are secure and free from corrosion.
 - Ensure the starter battery voltage is sufficient (engine running).
 - Check the D+ signal connection (if used) for proper activation.
- **Slow Charging:**
 - Confirm the correct battery type is selected on the converter.
 - Check cable gauges; undersized cables can lead to voltage drop and reduced charging current.
 - Ensure the temperature sensor is correctly installed on the service battery.
- **Overheating:**
 - Ensure adequate ventilation around the unit. Clear any obstructions from cooling fins.
 - Verify the ambient temperature is within the operating range.
- **LiFePO4 Battery Not Charging Below 0°C:**
 - The VCC 1212-70, when set to LiFePO4, may significantly reduce charging current below 0°C to protect the battery. This is a safety feature. If your LiFePO4 battery has integrated heating mats, ensure they are functioning. The converter's temperature sensor will prevent charging if the battery temperature is too low for safe LiFePO4 charging.

If problems persist after following these steps, please contact VOTRONIC customer support.

8. TECHNICAL SPECIFICATIONS

Specification	Value
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Specification	Value
Brand	VOTRONIC
Model Number	VCC 1212-70
Input Voltage	12 Volts
Output Voltage	12 Volts
Charging Current	70 A
Recommended Battery Capacity	100 - 460 Ah
Dimensions (D x W x H)	7.1 x 16 x 23.5 cm
Item Weight	1.3 Kilograms
Color	White
Certifications	CE, TÜV

9. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided with your purchase or contact your retailer. VOTRONIC products are designed for durability and performance. In case of technical issues or questions not covered in this manual, please contact VOTRONIC customer support or an authorized service center for assistance.

Manufacturer: VOTRONIC