

VOTRONIC 3102

VOTRONIC Pb 1225 SMT 2B Battery Charger

INSTRUCTION MANUAL

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the VOTRONIC Pb 1225 SMT 2B 12V 25A Battery Charger. This device is designed for charging and maintaining 12V lead-acid (Gel, AGM, Wet) and Lithium LiFePO4 batteries. It features multiple charging programs tailored to specific battery types, ensuring optimal charging and extended battery life.

The charger is equipped with advanced features such as regulated charging voltage, battery temperature sensor compatibility, lead battery regeneration, quiet operation, and comprehensive protection mechanisms against overloading, overheating, overvoltage, short circuit, polarity reversal, and battery back-discharge.

2. Safety Instructions

- Always disconnect the charger from the power supply before making or breaking connections to the battery.
- Ensure proper ventilation during charging, especially for lead-acid batteries, as they can produce explosive gases.
- Do not expose the charger to rain, moisture, or extreme temperatures.
- Avoid short-circuiting the battery terminals or charger outputs.
- Use appropriate cable cross-sections for connections to prevent overheating.
- Install fuses as indicated in the wiring diagram for cable protection.
- The battery temperature sensor (not included) is crucial for LiFePO4 battery function and protection, especially at temperatures below 0°C.
- This device is intended for use with 12V battery systems only.

3. Product Overview



Figure 1: Front view of the VOTRONIC Pb 1225 SMT 2B Battery Charger, showing connection terminals, indicator lights, and battery type selection switch.

3.1. Components and Indicators

- **Main Battery Terminals:** For connecting to the primary service battery.
- **Auxiliary Charging Output 'S':** For supporting and maintaining the starter battery.
- **Temperature Sensor Connection:** Input for optional battery temperature sensor.
- **Remote Control Port:** For connecting an optional remote control unit.
- **Battery Type Selector Switch:** Allows selection of the appropriate charging program (Gel, AGM, Universal, LiFePO4).
- **LED Indicators:**
 - *Battery Full:* Indicates the battery has reached full charge.
 - *Main Charging:* Indicates the charger is actively charging.
 - *Current:* Indicates current flow.

- *Battery I*: Status for Main Battery.
- *Battery II*: Status for Auxiliary Battery.
- *Power*: Indicates the unit is powered on.

3.2. Charging Programs

The charger offers four distinct charging programs, selectable via a switch, to optimize charging for different battery chemistries:

- **"Gel"**: Designed for closed, gas-tight gel/dryfit batteries. This program uses an IU1oU2oU3 characteristic line, providing a higher charge voltage level and longer U1 holding times to ensure full capacity storage and prevent battery sulfation.
- **"AGM"**: Intended for charging closed, gas-proof AGM (Absorbent Glass Mat) batteries. This program features a high U1 level with coordinated holding times for full charge and a moderate U2 level for maintenance charging.
- **"Universal"**: A versatile program for charging and maintaining lead-acid/wet/AGM batteries in various applications. It provides short to medium U1 level charging times, good charging factor, and effective acid stratification prevention for standard, driving, lighting, solar, and heavy-duty batteries.
- **"LiFePO4"**: Specifically adapted for Lithium LiFePO4 batteries with their own BMS (Battery Management System). This program includes a special rest preservation mode that automatically keeps the LiFePO4 battery at a 50-80% charge level, beneficial for battery life. It also features a regular automatic wake-up function to activate battery cell balancing.

4. Installation and Connections

Anschluss-Schema:

Anschluss-Schema:

Das Diagramm zeigt die Anschlüsse des Votronic Pb 1220 SMT 2S Ladegeräts. Es ist ein 12V/5A Ladegerät für Blei- und AGM-Batterien.

Batterie-Type einstellen für Hauptbatt. I:
(Schalterhebel sind weiß dargestellt)

- 1) Lead Acid / AGM 1 14,4V
- 2) Gel 14,4V
- 3) AGM 2 14,7V
- 4) LiFePO4 14,4V

HINWEIS:
Sicherungen möglichst direkt an den Batterien anschliessen (Kabelschutz)!

Wichtige Hinweise:

- Kabelenden 10 mm abisolieren!
- Gummitüllen zur Vibrationsminderung, bitte nicht entfernen!
- Temperatur-Sensor, am Minus-Pol montieren

Verdrahtung:

- 12V/5A:** Rot (1,5 - 2,5 mm²) an Plus, Schwarz (2,5-10 mm²) an Minus.
- 12V:** Rot (2,5-10 mm²) an Plus, Schwarz (2,5-10 mm²) an Minus.
- BORD (Hauptbatterie):** Plus an +, Minus an - (Karosserie).
- STARTBatterie (Option):** Plus an +, Minus an - (Karosserie).

Sicherungen:

- Sich. 1: 25 - 40 A (Kabelschutz)
- Sich. 2: 15 A (Kabelschutz)

Hinweis: Das Gerät arbeitet aus Sicherheitsgründen bei LiFePO4-Batterien nur mit angeschlossenem Temperatur-Sensor! Sensor am Minus-Pol der Batterie anschrauben.

Figure 2: Wiring diagram for the VOTRONIC Pb 1225 SMT 2B Battery Charger, illustrating connections to main and starter batteries, and optional temperature sensor.

4.1. Mounting Location

The charger can be installed in various locations, ensuring it is protected from direct moisture and excessive heat. Allow for adequate air circulation around the unit.

4.2. Electrical Connections

1. **Main Battery Connection (Hauptbatterie):** Connect the positive (+) terminal of the charger to the positive terminal of the main battery (BORD Hauptbatterie) using a 2.5-10 mm² red cable. Connect the negative (-) terminal of the

charger to the negative terminal of the main battery or vehicle chassis (Karosserie) using a 2.5-10 mm² black cable. Install a 25-40 A fuse (Sich. 1) on the positive line near the battery for cable protection.

2. **Auxiliary Charging Output 'S' (Startbatterie - Option):** For optional connection to a starter battery. Connect the 'S' output (red cable, 1.5-2.5 mm²) to the positive terminal of the starter battery (START). Connect the negative terminal of the starter battery to the vehicle chassis (Karosserie). Install a 15 A fuse (Sich. 2) on the positive line near the battery.
3. **Temperature Sensor Connection:** If using a temperature sensor (not included), connect it to the designated terminals. For lead batteries, the sensor adjusts charging voltage based on temperature, optimizing charge in cold conditions and preventing overgassing in hot conditions. For LiFePO₄ batteries, the sensor is essential for proper function and protection, especially below 0°C. Mount the sensor on the negative pole of the battery.
4. **Remote Control Connection:** If using an optional remote control, connect it to the 'Remote Control' port.
5. **Battery Type Selection:** Before connecting to power, set the battery type selector switch to the appropriate position for your main battery (1: Lead Acid/AGM 14.4V, 2: Gel 14.4V, 3: AGM 2 14.7V, 4: LiFePO₄ 14.4V).

Note: The device operates with safety features for LiFePO₄ batteries only when the temperature sensor is connected. The temperature sensor must be mounted on the negative pole of the battery.

5. Operation

5.1. Initial Start-up

Once all connections are securely made and the battery type is selected, connect the charger to a suitable AC power source. The 'Power' LED will illuminate, indicating the unit is active. The charger will automatically begin the charging process based on the selected battery type and the battery's current state of charge.

5.2. Charging Process

The 'Main Charging' LED will indicate active charging. As the battery approaches full charge, the charging current will decrease. The 'Battery Full' LED will illuminate when the battery has reached its full capacity according to the selected charging program.

5.3. Parallel and Buffer Operation

The charger supports parallel and buffer operation. This means that if consumers are simultaneously drawing power from the battery, the charger will continue to supply power and maintain the battery's charge level. The battery will be fully charged or maintained even under load.

5.4. Quiet Run Function

The charger features a 'Quiet Run' function, allowing for sound-optimized operation. This can be activated via a switch (1s Silent Run / 4s Li Storage) for reduced noise levels.

5.5. Power Supply Function

The charger can function as a power supply, enabling direct power to consumers without a connected battery. This is useful for powering 12V devices directly from the charger.

5.6. Charging Aid for Deep Discharged Lead Batteries

For deeply discharged lead batteries (down to 8V), the charger provides a gentle charging start. Once the voltage rises, it delivers powerful support to bring the battery back to a usable state, even if some devices are still connected and drawing power.

6. Maintenance and Care

6.1. Lead Battery Regeneration

For lead batteries, the charger performs regeneration cycles twice a week over long periods. This helps to counteract harmful acid stratification, extending the battery's lifespan.

6.2. LiFePO4 Maintenance Phase

For LiFePO4 batteries, the charger includes a maintenance phase that regularly activates battery cell balancing every ten days. This ensures a full charge of the battery and contributes to its longevity.

6.3. General Care

Keep the charger clean and free from dust. Do not use abrasive cleaners. Ensure ventilation openings are not obstructed.

7. Troubleshooting and Protection

The VOTRONIC Pb 1225 SMT 2B Battery Charger is equipped with multiple integrated protection mechanisms to ensure safe operation and protect both the charger and connected batteries:

- **Overloading Protection:** Prevents damage from excessive current draw.
- **Overheating Protection:** Shuts down the unit if internal temperatures become too high.
- **Overvoltage Protection:** Safeguards against voltage spikes.
- **Short Circuit Protection:** Protects against accidental short circuits at the output.
- **Polarity Misbehavior Protection:** Prevents damage from incorrect polarity connections.
- **Battery Back-discharge Protection:** Prevents current from flowing back from the battery to the charger when the power supply is disconnected.
- **Battery Separation:** In case of power outages, overheating, or failure behavior, the charger includes safety switches per charging output to separate the battery.
- **Charging Cable Compensation:** The charger regulates voltage losses that occur in charging cables, ensuring the correct voltage reaches the battery.
- **Parallel Operation with Other Sources:** The charger can operate in parallel with solar systems, wind generators, petrol generators, and other charging sources connected to the same battery.

If the charger is not functioning as expected, first check all cable connections, fuses, and ensure the correct battery type is selected. If issues persist, consult the manufacturer's support.

8. Technical Specifications

Feature	Specification
Brand	VOTRONIC
Model	3102 (Pb 1225 SMT 2B)
Charging Power V/A	12V / 25A
Recommended Battery Capacity	100 Ah - 180 Ah
Auxiliary Charging Output 'S'	2A
Charging Quality	IU1oU2

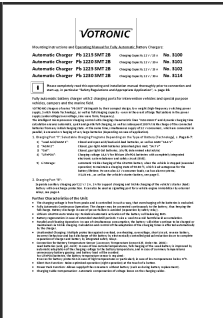
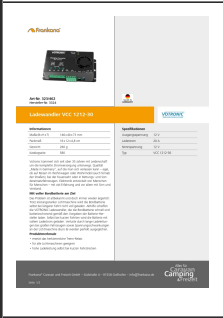
Feature	Specification
Input Voltage	12 Volts (AC Power)
Output Voltage	12 Volts (DC)
Installation Location	Optional
Temperature Range	-20°C to +45°C
Dimensions (L x W x H)	205 x 160 x 72 mm
Weight	1300 g (1.3 kg)
Batteries Included	No
Batteries Required	No
Package Dimensions	25.9 x 19.8 x 8.2 cm
Package Weight	1.69 kg
Date First Available	28 Jan. 2019

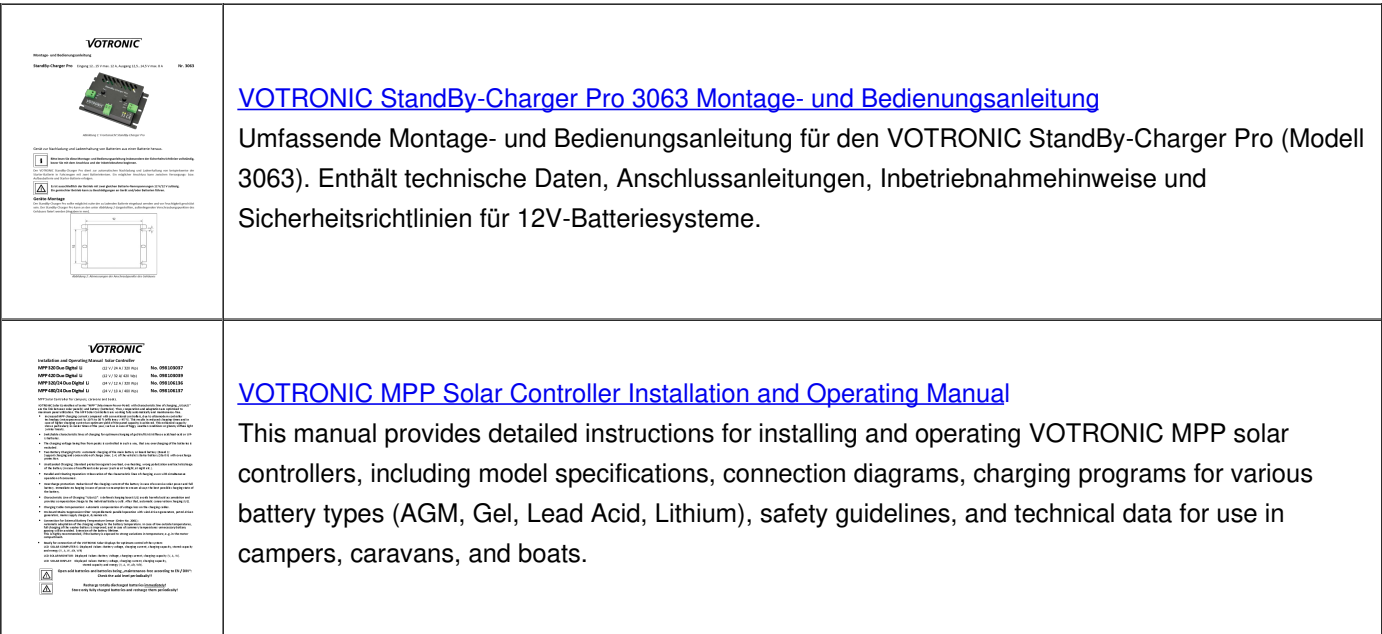
9. Warranty and Support

For information regarding product warranty, please refer to the documentation provided with your purchase or contact the seller directly. For technical support or inquiries not covered in this manual, please contact VOTRONIC customer service or an authorized service center.

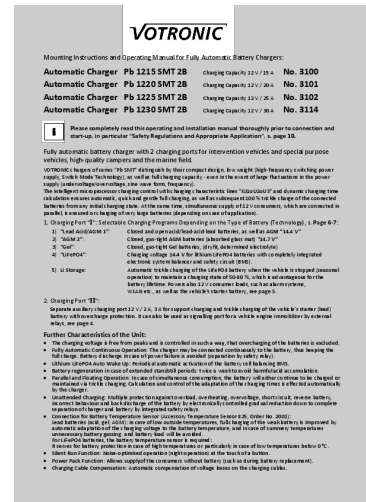
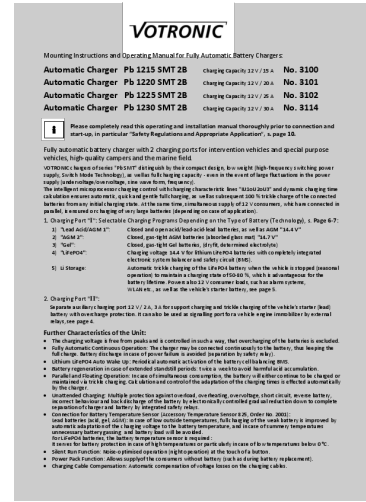
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	VOTRONIC VCC 1212-30 Charging Converter for RVs and Special Vehicles Detailed information on the VOTRONIC VCC 1212-30 charging converter, a high-performance solution for charging vehicle batteries in RVs, mobile homes, and emergency vehicles. Learn about its features, technical specifications, and benefits for optimal battery management.



Documents - VOTRONIC – 3102



[VOTRONIC StandBy-Charger Pro 3063 Montage- und Bedienungsanleitung](#)

Umfassende Montage- und Bedienungsanleitung für den VOTRONIC StandBy-Charger Pro (Modell 3063). Enthält technische Daten, Anschlussanleitungen, Inbetriebnahmehinweise und Sicherheitsrichtlinien für 12V-Batteriesysteme.

[VOTRONIC MPP Solar Controller Installation and Operating Manual](#)

This manual provides detailed instructions for installing and operating VOTRONIC MPP solar controllers, including model specifications, connection diagrams, charging programs for various battery types (AGM, Gel, Lead Acid, Lithium), safety guidelines, and technical data for use in campers, caravans, and boats.

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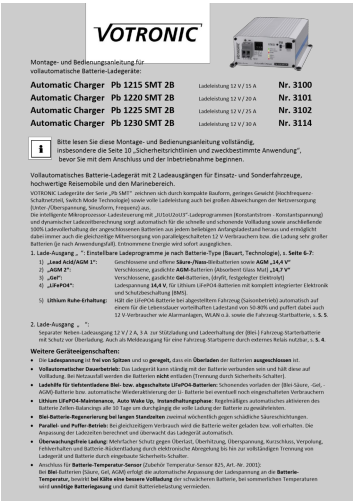
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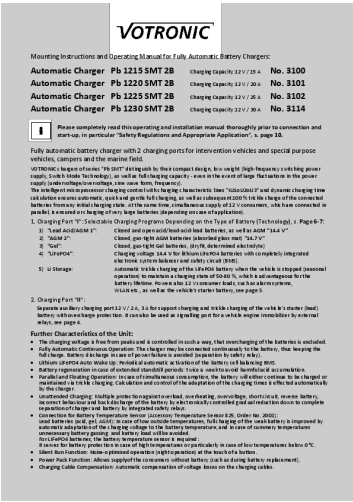
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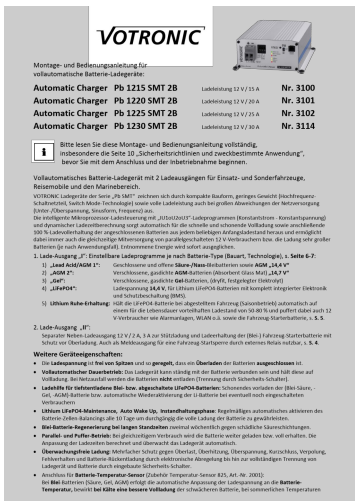


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