**VOTRONIC 100-S**

# Votronic 100-S Battery Capacity Indicator

User Manual

## 1. Introduction

The Votronic 100-S Battery Capacity Indicator is an advanced instrument designed for precise monitoring of battery systems. It provides accurate data on battery voltage, charging and discharging currents, and the remaining amp-hours (Ah) of your battery bank. This device is ideal for use in solar systems, marine applications, recreational vehicles, and other off-grid power setups, acting as a "fuel gauge" for your battery.

## 2. Safety Instructions

- Always disconnect the battery's negative terminal before beginning any installation or maintenance work to prevent electrical shock or short circuits.
- Ensure all connections are secure and properly insulated to avoid loose contacts and potential hazards.
- Work in a well-ventilated area when dealing with batteries, as they can emit explosive gases.
- Wear appropriate personal protective equipment, including safety glasses and gloves.
- This device should be installed by qualified personnel or individuals with sufficient knowledge of electrical systems.
- Do not expose the device to moisture, extreme temperatures, or direct sunlight for prolonged periods.

## 3. Package Contents

Verify that all components are present in your Votronic 100-S package:

- Votronic 100-S Display Unit
- 100 Amp Measuring Shunt
- Connecting Cables (for display and shunt)
- Mounting Hardware


Image: The Votronic 100-S display unit, 100 Amp shunt, and connecting cables neatly packaged in their box.

## 4. Product Overview

The Votronic 100-S system consists of two primary components: the display unit and the measuring shunt.

### 4.1. Display Unit

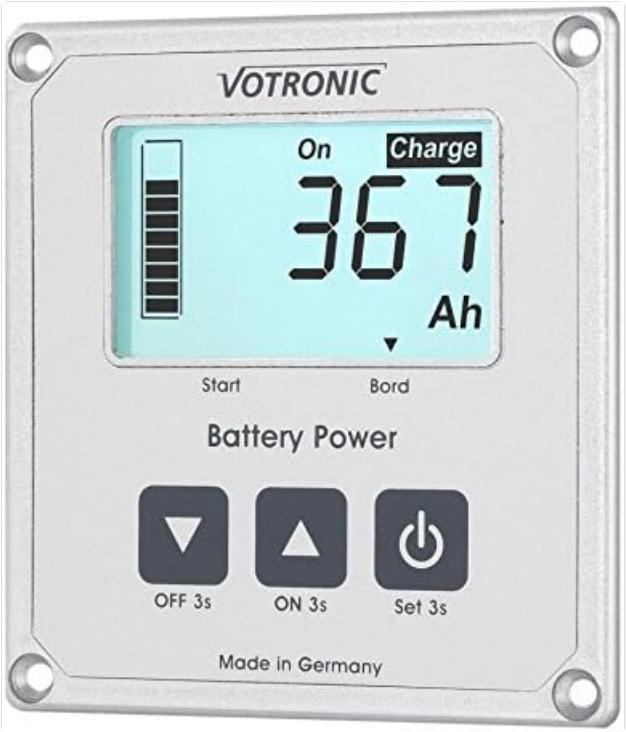


Image: Close-up of the Votronic 100-S display unit, showing the digital screen and control buttons.

The display unit provides real-time information about your battery status. It shows:

- **Remaining Capacity (Ah):** The most prominent display, indicating the amp-hours left in your battery.
- **Current (Amps):** Shows the instantaneous charging or discharging current.
- **Voltage (Volts):** Displays the voltage of the main battery.
- **Second Battery Voltage:** Can also display the voltage of a second battery, such as a starter battery.

Control buttons on the display allow for navigation and initial setup.

### 4.2. Measuring Shunt


Image: The 100 Amp measuring shunt, a critical component for current measurement.

The 100 Amp measuring shunt is a precision resistor that measures the current flowing into and out of your battery. All current consumers and chargers connected to the main battery bank must be routed through this shunt for accurate measurement and calculation of amp-hours.


Image: The complete Votronic 100-S system, including the display unit, 100 Amp shunt, and connecting cables.

## 5. Setup

Careful installation and initial configuration are crucial for the accurate operation of your Votronic 100-S.

### 5.1. Installation of the Shunt

1. Identify the negative terminal of your main battery bank.
2. Disconnect all negative connections from the battery.
3. Connect the main negative cable from your system (all loads and chargers) to one side of the 100 Amp shunt (typically marked 'LOAD' or '-SYSTEM').
4. Connect the other side of the shunt (typically marked 'BATTERY' or '-BAT') directly to the negative terminal of your main battery bank.
5. Ensure all negative current paths for the main battery pass through the shunt.

### 5.2. Connecting the Display Unit

1. Mount the display unit in a suitable, easily visible location.
2. Connect the provided cable from the display unit to the small terminals on the shunt.
3. Connect the positive supply for the display unit (usually a fused connection to the main battery's positive terminal).
4. If monitoring a second battery, connect its positive voltage sense wire to the designated input on the display unit.

### 5.3. Initial Configuration

Upon first power-up, the device will prompt you to enter key battery parameters:

- **System Voltage:** Select 12V or 24V, corresponding to your battery system.

- **Battery Type:** Choose the correct battery chemistry (e.g., Gel, AGM, Lead Acid, LiFePO4). This setting affects the charging characteristics and voltage thresholds.
- **Battery Capacity (Ah):** Enter the nominal amp-hour capacity of your main battery bank. This value is typically printed on the battery label.

**Important: For the most accurate initial calibration, ensure your main battery bank is fully charged before performing the initial setup and entering the Ah value. If the battery is not fully charged, the initial Ah reading may be inaccurate.**
Perform a "Null-Abgleich" (zero calibration) as described in the detailed manual to ensure precise current measurement when no current is flowing.

## 6. Operating

Once installed and configured, the Votronic 100-S operates continuously, providing real-time battery status.

- **Reading the Display:** The large numerical display shows the remaining amp-hours (Ah). Smaller indicators show current (A) and voltage (V).
- **Charge/Discharge Indication:** The display will indicate whether the battery is currently charging or discharging.
- **Button Functions:** The buttons below the display typically allow you to cycle through different display modes (e.g., main battery voltage, second battery voltage, current), access settings, or turn the display on/off. Refer to the specific button labels (e.g., "OFF 3s", "ON 3s", "Set 3s") for their functions.

The device continuously calculates the remaining capacity by integrating the current flowing in and out of the battery. This provides a much more accurate representation of battery state-of-charge than simple voltage-based meters.

## 7. Maintenance

The Votronic 100-S is designed for long-term, reliable operation with minimal maintenance.

- **Cleaning:** Clean the display unit with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connection Checks:** Periodically inspect all electrical connections to the shunt and display unit to ensure they remain tight and free from corrosion.
- **Firmware:** There are no user-serviceable parts or firmware updates typically required for this model.

## 8. Troubleshooting

If you encounter issues with your Votronic 100-S, consider the following:

- **Display Not Working:** Check the power supply connection to the display unit and ensure the fuse (if installed) is intact.
- **Inaccurate Ah Readings:**
  - Ensure the initial battery capacity (Ah) was correctly entered during setup.
  - Verify that the battery type setting matches your battery chemistry.
  - Confirm that all significant charging and discharging currents pass through the 100 Amp shunt. Any current bypassing the shunt will lead to inaccurate readings.
  - Perform a zero calibration ("Null-Abgleich") if current readings are inaccurate when no load is present.

- For optimal accuracy, periodically fully charge your battery. The Votronic 100-S automatically synchronizes to 100% when the battery reaches a full charge state.

- **Voltage Readings Incorrect:** Check the voltage sense wire connections to the main and second batteries.

If problems persist after following these steps, contact Votronic customer support or your authorized dealer for further assistance.

## 9. Specifications

| Feature | Specification |
|---|---|
| Brand | VOTRONIC |
| Model | 100-S |
| Part Number | 1262 |
| Voltage Compatibility | 12 Volts (and 24V configurable) |
| Power Source Type | Battery Powered |
| Current Measurement | Via 100 Amp Shunt |
| Display Style | Digital |
| Color | Silver |
| Package Dimensions | 20.8 x 14 x 5 cm |
| Item Weight | 639.99 g |
| First Available Date | 3 April 2013 |

## 10. Warranty and Support

For information regarding the product warranty, please refer to the documentation provided at the time of purchase or visit the official VOTRONIC website. For technical support, troubleshooting beyond this manual, or spare parts, please contact VOTRONIC customer service directly or consult your authorized dealer.

**VOTRONIC Contact Information:**

- Please refer to the manufacturer's official website for the most current contact details.