

98-876

12V-24V Lead Acid Battery Tester



Introduction

Please read this installation guide carefully before using the product. This manual provides basic information regarding safe use, installation instructions, and proper operation of the device. The device described in this manual is intended only for the use for which it was specifically designed. Any other use is considered improper and dangerous. Keep this instruction sheet.

Product Overview

A battery tester is a device designed to measure the health of lead-acid batteries. It can quickly and accurately assess battery voltage, state of charge, and capacity, helping users determine whether the battery needs replacement or maintenance.

Characteristics

- Real-time voltage measurement: Accurately measures and displays battery voltage in real time.
- State of charge detection: Provides detailed information on the battery's state of charge.
- Ah capacity assessment: Analyzes battery health and remaining capacity.

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- Wear full eye protection and suitable clothing to protect yourself from contact with battery electrolyte. Do not touch your eyes while working with a battery. It is acidic and can cause burns.
- If battery acid contacts your skin or clothing, wash immediately with soap and water. If acid enters your eyes, flush them immediately with cold running water for at least 20 minutes and seek medical attention immediately.
- Do not smoke or use open flames or sparks near the battery or engine, as this may cause a fire or explosion.
- Do not drop metal objects on the battery. The resulting spark or short circuit in the battery or other electrical parts could cause an explosion.
- Remove personal metal objects such as rings, bracelets, necklaces, and watches when working with a lead-acid battery.
- A lead-acid battery can produce a short-circuit current high enough to weld a ring or similar to the metal, causing serious burns.
- Testing should be stopped immediately if the battery is too hot, leaks, or emits a foul odor.
- Never test a frozen battery. If the battery fluid (electrolyte) freezes, move the battery to a warm area to allow it to thaw before starting the test.

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- Never leave the tester on top of a battery.
- Avoid touching the black and red clamps when connected to the battery, as this could cause them to melt or damage other metal objects.
- Keep out of reach of children.
- Do not expose the instrument to direct sunlight or extremely high temperatures.
- Use a soft cloth to clean the meter case. Do not use abrasives or solvents.

Warning

Since the tester **does not have an internal battery**, it will not turn on if the **lead-acid battery being tested is not connected properly**.

- Avoid short circuits:** Make sure the tester and battery are in proper contact during measurement to avoid short circuits, which could cause equipment damage or battery overheating.
- Environmental conditions:** Use the tester in a dry, well-ventilated environment. Avoid using it in humid or extremely hot conditions to avoid equipment damage or inaccurate measurements.
- Avoid high voltage environments:** Take special care when handling high voltage batteries, ensuring that the tester's specifications are compatible with the type and voltage range of the battery being tested.

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- Overload Protection:** Automatic protection against overloads and short circuits.
- Multiple Test Standards:** Equipped with five international test standards, ensuring consistent safety, performance, and quality.
- Battery Internal Resistance Test:** Measures internal resistance to reveal battery health and aging.
- Portability and Ease of Use:** Compact and elegant design with a simple user interface for easy use and portability.
- Compatibility:** Supports four lead-acid battery technologies (Standard, EFB, AGM, GEL) suitable for different application scenarios.

Applications

This product is suitable for the following applications:

- Automotive maintenance and repair
- Electric vehicle battery evaluation and monitoring
- Backup power systems
- Energy storage systems
- Battery research and development
- Laboratory testing

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Input parameters description



Four types of battery:

- STD:** Standard lead battery
- EFB:** Enhanced Flooded battery
- AGM:** Absorbent Glass Mat battery
- GEL:** Gel battery



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Safety information

- To avoid personal injury, damage to the instrument, or damage to the object under test caused by electrical shock, users must observe the following safety tips.
- Before each use, examine the tester's case. Do not use if it is damaged. Check for cracks or missing plastic parts. Pay particular attention to the connector insulation. Inspect the clamps for damage.
- Never use the tester if it has been knocked, dropped, or otherwise damaged.
- Do not touch the top of the clamps (metal part) when the instrument is connected to the battery.
- Do not perform tests outside the measurement range specified by the instrument.
- Do not use the instrument in environments with explosive gases, flammable materials, steam, or dust.
- Always perform tests in a well-ventilated area.
- To avoid damage to vehicle electronics, it is essential to read, retain, and carefully follow the instructions provided by the vehicle manufacturers. This recommendation also applies to the instructions provided by the battery manufacturer.

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Six standards of testing:

- EN:** European Standard
- IEC:** International Electrotechnical Commission
- SAE:** Society of Automotive Engineers (USA)
- CCA:** Cold Cranking Current
- DIN:** German Institute for Standardization
- Ah:** Ampere-hour

Battery capacity indicator:



Description of output parameters:

- VOLT:** current battery voltage according to the selected standard (unit: V).
- EDC:** continuous discharge rate of the battery according to the selected standard (unit: AH)
- I.R:** internal resistance of the battery according to the selected standard (unit: mΩ)
- SO:** estimated battery life according to the selected standard.
- SOH:** current battery charge according to the selected standard.

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Battery status according to the selected standard:

- **SUPERB:** estimated lifespan above 80% is excellent.
- **GOOD:** estimated lifespan between 79% and 60% is good.
- **BAD:** estimated duration between 59% and 45% is poor
- **REPLACE:** estimated lifespan less than 44% suggests replacement.
- **NEED CHARGE:** when the current measured battery voltage is too low.

Operating instructions

Warnings before performing the test:

- If the vehicle is still running, turn off the engine and turn the key to the OFF position. When the car stops, the battery is fully charged; in this case, the battery voltage will be slightly higher than normal (surface charge). Turn on the headlights for about 3 minutes until the voltage drops to normal, and then perform the test.
- Verify that the battery terminals are clean.
- Before testing a vehicle battery, be sure to remove the ignition key, turn off the lights, disconnect all accessories, and close the doors and trunk.

Checking for malfunctions

- Cannot power on: Check that the positive and negative terminals are intact and that the connections between the tester's clamps and the battery terminals are properly matched.
- Display anomalies: Make sure the device is connected correctly, clean the screen, and restart the device.
- Inaccurate measurements: Check that the connection clamps are making proper contact.

Technical note

Alpha Elettronica S.r.l. reserves the right to make technical/dimensional changes to improve the features and the performance of the product without prior note.

Limitation of liability

The installation, use and maintenance of the Battery Tester item code 98-876 (hereinafter referred to as the "device") are the sole responsibility of the user.

Test procedure:

1. Connect the red clamp to the positive (+) terminal of the battery and the black clamp to the negative (-) terminal. The tester turns on automatically.
Two clamp symbols will appear on the display interface: red (red clamp positive), white (black clamp negative). If there is poor contact, the corresponding clamp will flash to indicate the alarm, followed by an audible signal.
2. Press the **TYPE** button to select the battery type to be tested.
3. Press the **D-STD** button to choose the test standard .
4. Press the **AH** button to set the nominal battery capacity (Ah).
5. Press the **TEST** button to start the measurement.

Wait about 2 seconds, then the following parameters will appear on the display.
Press the ▲ (up) or ▼ (down) buttons to scroll.

Alpha Elettronica s.r.l. is not responsible for any direct or indirect damages resulting from the use or malfunction of the device. Alpha Elettronica s.r.l. declines all responsibility if the device is damaged due to human factors that cause damage, injury or loss. Alpha Elettronica s.r.l. declines all responsibility for damage or injury resulting from improper use or failure to maintain the device. Alpha Elettronica s.r.l. is not responsible for any type of damage, whether direct or indirect, moral, incidental, special or consequential, such as loss of data, business interruption or financial damage. The liability of Alpha Elettronica s.r.l. is limited to the purchase price of the device. It is advisable to carefully follow the instructions provided in the manual. It is important to comply with local regulations and follow the specific instructions for installation and use.

Warranty

This device is covered by a 24 months warranty from the purchase date in case of any defect on the materials or during the production. The warranty is not valid in case of improper use or misuse or alteration of any kind. The product must be returned to the retailer in order to arrange the repair. The warranty is valid only in case the damaged product is sent back with the invoice or receipt.

- VOLT - Battery voltage (V)
- EDC - Continuous discharge capacity (Ah)
- I.R - Internal resistance (mΩ)
- SOC - Remaining state of charge (%)
- SOH - State of health (%)

Note: if the SOH value is X the battery health status is:

- X ≥ 80%: Superb
- X ≥ 60%: Good
- X ≥ 45%: Bad
- X < 44%: Suggests Replacement

If you need to take a new measurement, press the **ESC** button to go back and start another test.
To end the measurement and turn off the device, remove the positive (red) and negative (black) clamps.

Package contents

1 x Tester 1 x User manual

Technical specifications

Battery voltage	12V - 24V
Voltage range	0~24V

Product conformity - CE compliance

This equipment carries the CE mark and complies with the following Directives:
Directive 2014/30/EU for Electromagnetic Compatibility
Directive 2014/35/EU for Electrical Safety
Directive 2011/65/EU, 2015/863/EU on the restriction of the use of hazardous substances in electronic devices (RoHS)
Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

For more information visit the website
www.alphaelettronica.com

The user is prohibited from making changes or modifications of any kind to the device. Variations or modifications will cancel the conformity of the product in relation to the above standards.

Instructions for the disposal

According to the Directive 2012/19/EU (Legislative Decree 49/2014 EN62321:2009) and European Law 2018 - Law 3 May 2019, n. 37, the mark of the crossed bin on the product indicates that at the end of its life this product must be

Precision	±1%
Battery type	Standard/EFB/AGM/GEL
EN-IEC-SAE-CCA-DIN	50~1999 A
Ah range	1~249 Ah
Protections	Overload, Short Circuit, Reverse Polarity
Display	LDC 2.78"
Temperature, Humidity	Operating -10~50°C, 20~60% RH Storage -20~60°C, 5~80% RH
Shell material	ABS
Dimensions WxHxD	150 x 80x 30mm
Weight	200g
Protection rating	IP54

handled separately from household waste. It must be disposed of in a responsible manner to a collection point in order to enter the recycling process. For any information about the collecting points please contact the local authority or the local recycling areas.

Scan the QR code to access the product page.

