

ZOTEK ZT-702S

ZOTEK ZT-702S Portable 2-in-1 Digital Oscilloscope and Multimeter

USER MANUAL

Model: ZT-702S | Brand: ZOTEK

1. Introduction

The ZOTEK ZT-702S is a versatile 2-in-1 device combining the functionalities of a digital oscilloscope and a full-featured multimeter. Designed for a wide range of applications including automotive diagnostics, industrial equipment maintenance, sensor testing, and general electrical measurements, this instrument offers high accuracy, robust safety features, and user-friendly operation.

Its compact design, IPS color screen, and comprehensive measurement capabilities make it an essential tool for professionals and hobbyists alike. This manual provides detailed instructions for the safe and effective use of your ZT-702S.

2. Safety Information

Always adhere to safety precautions when operating electrical testing equipment. Failure to do so may result in injury or damage to the device.

- This device complies with safety levels CAT III 1000V and CAT II 600V, and CE certification requirements.
- Equipped with dual ceramic fuses (200mA-10A) for overload protection. Ensure fuses are correctly rated when replacing.
- Do not exceed the maximum input voltage of 1400V for oscilloscope measurements.
- Always inspect test leads for damage before use. Do not use if insulation is compromised.
- Ensure the device is powered off and disconnected from the circuit before changing functions or connecting/disconnecting test leads.
- Avoid operating the device in wet environments or with wet hands.

- The device features a double injection molding process (ABS + TPE) for durability and safety.



Figure 2.1: Internal safety features including ceramic fuses and the IPS full-color screen.

This image illustrates the internal construction of the ZT-702S, highlighting key safety components such as the ceramic fuses and the robust design of the circuit board and display driver. The IPS full-color screen is also visible, emphasizing its clarity and wide viewing angle.

3. Product Components

The ZOTEK ZT-702S package typically includes the following items:

- ZOTEK ZT-702S Digital Oscilloscope Multimeter Unit
- Test Leads (Multimeter probes)
- Oscilloscope Probe
- USB Charging Cable (Type-C)
- Carrying Pouch

- Temperature Probe
- Screwdriver (for fuse/battery access)



Figure 3.1: ZT-702S unit and its accessories.

This image displays the ZOTEK ZT-702S device along with all standard accessories, including the main unit, test leads, oscilloscope probe, USB cable, and carrying case, providing a visual overview of what is included in the product package.

4. Setup

4.1 Initial Charging

The ZT-702S is equipped with a 2000mAh lithium-polymer battery. Before first use, it is recommended to fully charge the device. Connect the supplied USB Type-C cable to the device's TP-C port and the other end to a standard USB power adapter (not included) or a computer USB port.

The device can be used while charging. A charging indicator on the screen will show the battery status.



Figure 4.1: Charging and communication interface.

This image highlights the USB Type-C port on the ZT-702S, which serves both for charging the internal 2000mAh battery and for data communication with a computer. It also shows the oscilloscope input port and the 1kHz/3V square wave signal output.

4.2 Connecting Probes

- **Multimeter Probes:** Insert the red test lead into the "VΩHz-+" jack and the black test lead into the "COM" jack for voltage, resistance, frequency, and diode measurements. For current measurements, insert the red lead into the "10A" or "mA" jack depending on the expected current, and the black lead into "COM".
- **Oscilloscope Probe:** Connect the BNC connector of the oscilloscope probe to the dedicated BNC input port on the top of the device. Ensure a secure connection.
- **Temperature Probe:** Insert the temperature probe into the appropriate jacks as indicated in the manual for temperature measurements.

5. Operating Instructions

5.1 Power On/Off and Basic Navigation

Press and hold the **REL/POWER** button to power the device on or off. Use the directional buttons and the **MENU** button to navigate through settings and functions on the 2.8-inch IPS color screen.

5.2 Switching Modes (Multimeter / Oscilloscope)

The ZT-702S features a one-button switch between oscilloscope and multimeter modes. Press the **MODE** button to toggle between the two primary functions.

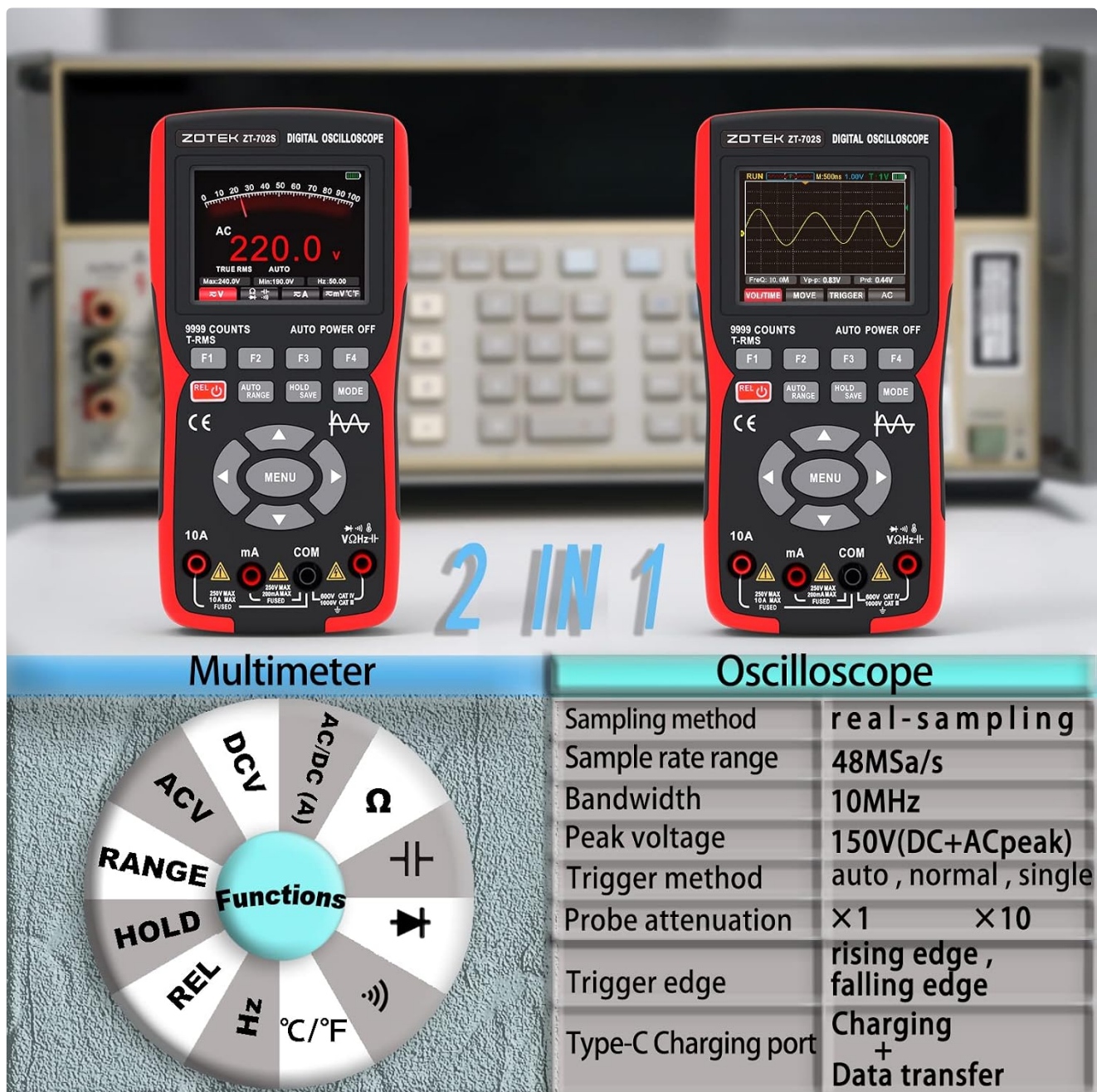


Figure 5.1: Dual mode display (Multimeter and Oscilloscope).

This image illustrates the ZT-702S's ability to function as both a multimeter and an oscilloscope, showcasing the distinct display interfaces for each mode. The left side shows the multimeter interface with voltage readings, while the right side displays a waveform in oscilloscope mode.

5.3 Multimeter Mode Operation

In Multimeter mode, the device offers 9999 counts and various measurement capabilities:

- **AC Voltage:** 0–750 V
- **DC Voltage:** 0–999.9 V
- **DC/AC Current:** 0–9.999 A
- **Resistance:** 0–99.99 MΩ
- **Capacitance:** 0–9.999 mF
- **Frequency:** 0–99.99 kHz
- **Temperature:** -20 °C to 1000 °C
- **Diode Test:** For checking diode forward voltage drop.
- **Continuity Test:** For checking circuit continuity with an audible buzzer.

Use the function buttons (F1-F4) and directional pad to select specific measurement types and ranges. The **AUTO RANGE** function simplifies operation by automatically selecting the appropriate measurement range.

5.4 Oscilloscope Mode Operation

In Oscilloscope mode, the ZT-702S provides waveform visualization and analysis:

- **Automatic Waveform Acquisition:** Press the **AUTO RANGE** button for one-key automatic waveform acquisition, simplifying setup.
- **Trigger Functions:** Select between Auto, Normal, or Single trigger modes to stabilize waveforms.
- **Vertical Sensitivity:** Adjustable from 200mV/div to 10V/div.
- **Horizontal Sweep Range:** Adjustable from 8/50ns/div to 20S/div.
- **Input Voltage:** Up to 1400V.
- **Time Base Accuracy:** 20ppm.

Charging while using ultra-long standby



Figure 5.2: One-key operation and screen interface.

This image highlights the user-friendly interface of the ZT-702S, demonstrating its one-key automatic waveform acquisition and easy selection of multi-function interfaces. It also shows the device's dimensions and the clear display of the IPS full-color screen.

5.5 Data Management and Settings

- **Data Storage and Export:** The device supports data storage and export functions. Connect the device to a computer via the Type-C USB port to transfer recorded data.
- **Language Selection:** Access the menu to change the display language.
- **Auto-off Setting:** Configure the automatic power-off time to conserve battery life.
- **Backlight Adjustment:** Adjust the screen backlight intensity for optimal visibility in various lighting conditions.
- **Square Wave Output:** The device can output a 3V-1kHz square wave signal, useful for testing and calibration.

6. Maintenance

6.1 Cleaning

Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure the device is powered off and disconnected from any power source before cleaning.

6.2 Fuse Replacement

The ZT-702S uses dual ceramic fuses (200mA and 10A) for protection. If the device fails to measure current or shows incorrect readings, the fuse may need replacement. Refer to the internal diagram for fuse locations. Use only fuses with the specified ratings.

A screwdriver is included for opening the case to access the fuses and the replaceable 18650 battery.

Safety protection and Screen features

SMD fuse



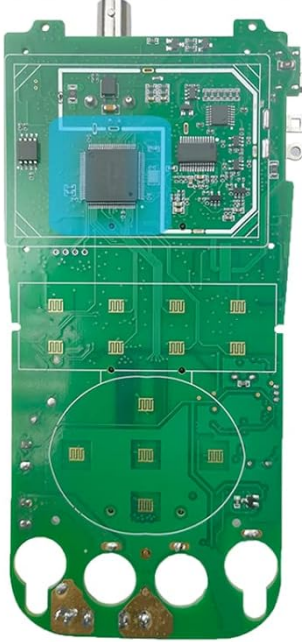
plug-in fuse



Ceramic fuse



New A/D converter and display driver



IPS full-angle color screen



Ordinary broken code screen



Features	Material	Ceramic	SMD	plug-in
High temperature resistance		✓	✗	✓
Strong impact resistance		✓	✗	✓
Wide voltage range		✓	✓	✓
Wide current limit range		✓	✗	✓
Accurate standard		✓	✓	✓
Convenient replacement easy to replace		✓	✗	✗
Small in size		✗	✓	✗
Low manufacturing costs		✗	✓	✗

IPS full-angle color screen features

Resolution: 320*240 (2.8Inch)

Better color accuracy and wide viewing angle

Faster response speed

less residual and blurring

Suitable for image and video editing

Often used in:
laptop screen, mobile phone screen, TV, etc.

Figure 6.1: Exploded view of the ZT-702S.

This exploded view provides a detailed look at the internal components and layered construction of the ZT-702S, illustrating how the display, control panel, main circuit board, and casing fit together. This can be helpful for understanding internal layout during maintenance.

6.3 Battery Care

To prolong battery life, avoid fully discharging the battery frequently. Recharge the device when the low battery indicator appears. If storing the device for an extended period, charge it to approximately 50% and store in a cool, dry place.

7. Troubleshooting

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Device does not power on.	Low battery; Power button not held long enough.	Charge the device; Press and hold the power button for a few seconds.
No current measurement.	Blown current fuse; Incorrect probe connection.	Replace the 10A or 200mA ceramic fuse; Ensure red lead is in "10A" or "mA" jack and black in "COM".
Unstable or no oscilloscope waveform.	Incorrect trigger settings; Probe not connected properly; Signal too weak/strong.	Adjust trigger mode (Auto, Normal, Single); Check oscilloscope probe connection; Adjust vertical sensitivity or horizontal sweep.
Short battery life.	Battery degradation; High backlight setting.	The internal 18650 battery is replaceable; Reduce backlight brightness.

8. Specifications

Feature	Specification
Model	ZT-702S
Display	2.8-inch IPS Full-Color Screen (320*240 resolution)
Multimeter Counts	9999 Counts
Multimeter Update Rate	3 Times/Second
Oscilloscope Bandwidth	10MHz
Oscilloscope Sample Rate	48MSa/s (Real-sampling)
Oscilloscope Channels	1
Max Input Voltage (OSC)	1400V (DC+AC Peak)
Vertical Sensitivity (OSC)	200mV/div - 10V/div
Horizontal Sweep Range (OSC)	8/50ns/div - 20S/div
Time Base Accuracy (OSC)	20ppm
AC Voltage Range	0-750V
DC Voltage Range	0-999.9V
DC/AC Current Range	0-9.999A
Resistance Range	0-99.99 MΩ
Capacitance Range	0-9.999 mF
Frequency Range	0-99.99 kHz
Temperature Range	-20 °C to 1000 °C

Feature	Specification
Battery	1 x 2000mAh Lithium-Polymer (replaceable 18650 type)
Charging Port	USB Type-C (also for data transmission)
Dimensions (L x W x H)	17.7 x 8.9 x 4 cm (6.97 x 3.51 x 1.57 inches)
Weight	700 Grams
Safety Rating	CAT III 1000V, CAT II 600V, CE Certified

9. Warranty and Support

ZOTEK products are manufactured to high quality standards. For information regarding warranty coverage, technical support, or service, please refer to the warranty card included with your product or visit the official ZOTEK website. Please have your model number (ZT-702S) and purchase information ready when contacting support.

For firmware updates and additional resources, please check the manufacturer's official support channels.