**ZOYI ZT-1000R**

# ZOYI ZT-1000R 2-in-1 Megohmmeter Digital Multimeter Instruction Manual

Model: ZT-1000R

## 1. Introduction

The ZOYI ZT-1000R is a professional-grade 2-in-1 electrical testing device that combines a high-precision digital multimeter with a professional insulation resistance tester (megohmmeter). This instrument is designed for electricians, engineers, and maintenance technicians, offering comprehensive measurement capabilities including insulation resistance, AC/DC voltage, resistance, capacitance, diode, temperature, and frequency. It features advanced insulation diagnostics such as DAR (Dielectric Absorption Ratio) and PI (Polarization Index) testing, a 19999-count display, auto-ranging, and a backlit LCD screen for enhanced usability in various environments.

## 2. Safety Information

**WARNING: Failure to follow these safety instructions may result in electric shock, fire, or serious injury.**

- Always ensure the device is in good working condition before use.
- Do not apply voltage or current that exceeds the maximum rated values for the meter.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Always disconnect power to the circuit under test and discharge all high-voltage capacitors before performing resistance or continuity measurements.
- Ensure test leads are properly connected and in good condition.
- Do not operate the meter with the battery cover removed or if the case is open.
- Refer to the equipment's nameplate for appropriate test voltages when performing insulation resistance measurements.
- When performing insulation tests, be aware of the high voltage output. Avoid contact with test leads and the circuit under test.

## 3. Package Contents

Verify that all items are present in the package:

- ZOYI ZT-1000R 2-in-1 Megohmmeter Digital Multimeter
- Temperature probe
- Alligator Clips
- Storage Bag
- Test Leads (Red and Black)
- 3 Nonstandard Battery batteries (included)
- Charging Dock (for 14500/18650 batteries)
- User Manual (this document)




*Image: ZOYI ZT-1000R Multimeter with included accessories: test leads, alligator clips, temperature probe, storage bag, and battery charger.*

## 4. Product Overview

### 4.1 Key Features

- **2-in-1 Functionality:** Combines a digital multimeter and an insulation resistance tester.
- **Insulation Resistance:** Up to 20GΩ with test voltages of 50V, 100V, 250V, 500V, 1000V.

- **Advanced Diagnostics:** Dielectric Absorption Ratio (DAR) and Polarization Index (PI) testing.
- **Multimeter Functions:** Measures AC/DC voltage, resistance, capacitance, diode, temperature, and frequency.
- **High Precision:** 19999 counts display for accurate readings.
- **Auto-Ranging:** Simplifies operation by automatically selecting the correct measurement range.
- **Backlit LCD Screen:** Large display for clear visibility in low-light conditions.
- **Durable Design:** Insulated rubber housing for drop protection and dust resistance.

## 4.2 Component Identification

Refer to the product images for visual identification of components.




*Image: Close-up of the ZOYI ZT-1000R's 4½-digit high-precision backlit LCD display, showing various measurement indicators.*

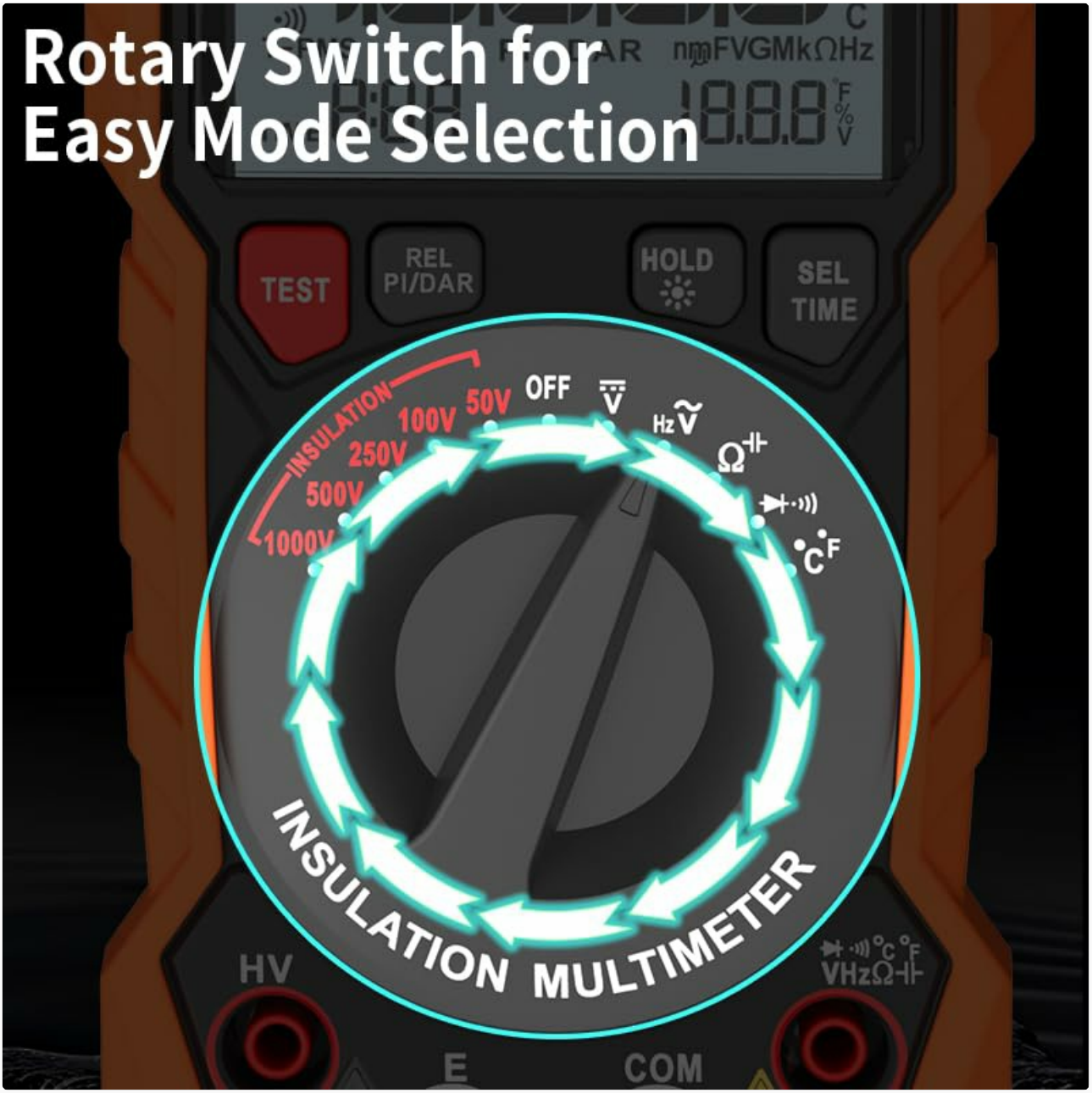



*Image: The rotary switch of the ZOYI ZT-1000R, highlighting the various measurement modes including insulation resistance (50V to 1000V), voltage, frequency, resistance, capacitance, and temperature.*




*Image: The ZOYI ZT-1000R multimeter encased in its durable orange rubber housing, demonstrating its dustproof and drop protection features.*

## 5. Setup

### 5.1 Battery Installation and Charging

The ZT-1000R uses three 14500 rechargeable batteries. These batteries are similar in size to standard AA batteries. The device includes a charging dock for these batteries.

1. Locate the battery cover on the back of the multimeter.
2. Unscrew and remove the battery cover.
3. Insert the 14500 batteries into the provided charging dock. Ensure correct polarity: the negative end of the battery should align with the negative terminal in the charger, and the positive end with the positive terminal.
4. Connect the charging dock to a power source via its Type-C interface.
5. Once charged, insert the batteries into the multimeter, observing correct polarity.
6. Replace the battery cover and secure it with the screw.

*Video: Detailed instructions on how to install and charge the batteries for the ZOYI ZT-1000R multimeter.*

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### 5.2 Connecting Test Leads

Proper connection of test leads is crucial for accurate and safe measurements.

1. For standard multimeter functions (voltage, resistance, capacitance, diode, temperature, frequency, continuity), insert the black test lead into the "COM" (common) jack and the red test lead into the "VHzΩ-H" jack.
2. For insulation resistance testing, insert the black test lead into the "E" (Earth) jack and the red test lead into the "HV" (High Voltage) jack.

## 6. Operating Instructions

### 6.1 General Multimeter Functions

Rotate the central dial to select the desired measurement function. The ZT-1000R features auto-ranging for most functions, simplifying operation.

- **AC/DC Voltage (V):** Select the 'V' position. The meter will automatically detect AC or DC.
- **Resistance (Ω):** Select the 'Ω' position.
- **Capacitance (F):** Select the 'F' position.
- **Diode Test ( ):** Select the diode symbol position.
- **Continuity Test ( ):** Select the continuity symbol position. An audible beep indicates continuity.
- **Temperature (°C/°F):** Select the '°C/°F' position and connect the temperature probe.
- **Frequency (Hz):** Select the 'Hz' position.




*Image: The ZOYI ZT-1000R measuring AC voltage in an electrical panel, demonstrating its capability to measure 0-1000V AC/DC.*




*Image: The ZOYI ZT-1000R measuring liquid temperature using its built-in sensor, capable of measuring from -20°C to 1000°C (-4°F to 1832°F).*

### 6.2 Insulation Resistance Testing (Megohmmeter)

The ZT-1000R offers five test voltages for insulation resistance measurements: 50V, 100V, 250V, 500V, and 1000V.

1. Connect the test leads to the "HV" (red) and "E" (black) jacks.
2. Rotate the central dial to the "INSULATION" section and select the appropriate test voltage (e.g., 500V for household appliances). Refer to the equipment's nameplate for recommended test voltage.
3. Connect the test leads to the circuit or component under test.
4. Press the **TEST** button to initiate the measurement.
    - A single press will perform a momentary test.
    - A long press will continuously output voltage until released.
5. The insulation resistance value will be displayed on the screen.
6. Press the **HOLD** button to retain the displayed reading. Press again to disable.




*Image: The ZOYI ZT-1000R conducting a high voltage insulation resistance test on an electric motor, showing the test leads connected and a reading on the display.*

## 6.3 DAR and PI Testing

The ZT-1000R supports advanced insulation diagnostic tests: Dielectric Absorption Ratio (DAR) and Polarization Index (PI).

1. Connect the test leads for insulation resistance testing as described above.

2. Rotate the central dial to the "INSULATION" section and select the desired test voltage.
3. Press the **REL PI/DAR** button to cycle through DAR and PI test modes.
4. Press the **TEST** button to start the measurement. The meter will automatically perform the timed measurements required for DAR (1 minute vs. 30 seconds) and PI (10 minutes vs. 1 minute).
5. The calculated DAR or PI value will be displayed. These values help assess insulation quality and predict potential failures.




*Image: The ZOYI ZT-1000R's display showing indicators for Dielectric Absorption Ratio (DAR) and Polarization Index (PI) testing, which compare insulation resistance values over time to assess insulation quality and performance.*
*Video: A detailed guide on using the ZOYI ZT-1000R for insulation resistance measurements, including DAR and PI testing.*

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## 7. Maintenance

- **Cleaning:** Wipe the meter with a damp cloth and mild detergent. Do not use abrasives or solvents.
- **Battery Care:** Recharge batteries regularly. If the meter is not used for an extended period, remove the batteries to prevent leakage.
- **Storage:** Store the meter in a cool, dry place, away from direct sunlight and extreme temperatures.

- **Calibration:** For professional use, periodic calibration by a qualified service center is recommended to ensure accuracy.

## 8. Troubleshooting

- **No Display/Power On:** Check battery charge and proper installation.
- **Inaccurate Readings:** Ensure test leads are correctly connected and in good condition. Verify the correct measurement function and range are selected. Check for external interference.
- **"OL" (Overload) Display:** The measured value exceeds the selected range. Switch to a higher range or verify the circuit is within the meter's capabilities.
- **No Continuity Beep:** Check if the circuit is open or if the resistance is too high for the continuity threshold.

## 9. Specifications

### 9.1 General Specifications

- **Model:** ZT-1000R
- **Brand:** ZOYI
- **Style:** 2-in-1 Megohmmeter & Digital Multimeter
- **Display:** 19999 Counts, Backlit LCD
- **Power Source:** 3 Nonstandard Battery batteries (14500mAh)
- **Min. Operating Voltage:** 1.99 Volts
- **Package Dimensions:** 10.04 x 8.39 x 2.91 inches
- **Weight:** 1.7 Pounds
- **Color:** Orange & Black

### 9.2 Technical Specifications

| Measurement Function | Range | Accuracy |
|---|---|---|
| DC Voltage | 1000.0V/199.99V/19.999V/1.9999V | ±(0.05%+3) |
| AC Voltage | 750.0V/199.99V/19.999V/1.9999V | ±(0.5%+3) |
| Resistance | 199.99Ω/1.9999KΩ/19.999KΩ/199.99KΩ/1.9999MΩ/199.9MΩ | ±(0.5%+3) to ±(1%+3) |
| Capacitance | 999.9μF/99.99μF/9.999μF/999.9nF/99.99nF/9.999mF/99.99mF | ±(2.0%+5) to ±(5.0%+5) |
| Frequency | 999.9KHz/99.99KHz/9.999KHz/999.9Hz/99.99Hz/9.999Hz | ±(0.1%+2) |
| Temperature | -20°C ~ 1000°C (-4°F ~ 1832°F) | ±(2.5%+2) |
| Continuity | ✓ | |
| Diode | ✓ | |

| Rated Test Voltage | Measuring Range | Measurement Accuracy |
|---|---|---|
| 50V | 0.001MΩ-1GΩ | ±(5%+5) |
| 100V | 0.001MΩ-2GΩ | ±(5%+5) |
| 250V | 0.001MΩ-5GΩ | ±(5%+5) |
| 500V | 0.001MΩ-10GΩ | ±(5%+5) |
| 1000V | 0.001MΩ-20GΩ | ±(10%+5) |

| Rated Voltage | Auto Range | Display Resolution |
|---|---|---|
| 50V | 4M/40M/400M/1GΩ | 0.001M~0.001GΩ |
| 100V | 4M/40M/400M/2GΩ | 0.001M~0.001GΩ |
| 250V | 4M/40M/400M/5GΩ | 0.001M~0.001GΩ |
| 500V | 4M/40M/400M/10GΩ | 0.001M~0.001GΩ |
| 1000V | 4M/40M/400M/4G/20GΩ | 0.01M~0.01GΩ |

## 10. Warranty and Support

Specific warranty information is typically provided with the product packaging or on the manufacturer's official website. For technical support, troubleshooting assistance, or warranty claims, please contact ZOYI customer service through their official channels or the retailer where the product was purchased.

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**Details**

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**Submit question**