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BSIDE ZT-X

BSIDE ZT-X True RMS Digital Multimeter User Manual

Model: ZT-X

1. INTRODUCTION

Thank you for choosing the BSIDE ZT-X True RMS Digital Multimeter. This professional-grade instrument is designed for electricians and hobbyists alike, offering precise measurements of various electrical parameters. Its user-friendly design, featuring an intuitive button layout and a large 3-line display, ensures ease of use and clear readability in diverse environments.

The ZT-X multimeter is equipped with advanced features such as True RMS measurement, automatic range selection, and non-contact voltage (NCV) detection, making it a versatile tool for troubleshooting and testing electrical circuits. Please read this manual thoroughly before operation to ensure safe and effective use of the device.

2. SAFETY INFORMATION

Always adhere to basic safety precautions when using electrical testing equipment to prevent personal injury or damage to the meter or equipment under test.

- Do not exceed the maximum input limits for any function.
- Do not use the meter if it or the test leads appear damaged.
- Ensure the battery cover is securely closed before operation.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Always disconnect the test leads from the circuit before changing functions or ranges.
- Do not operate the meter in explosive gas, vapor, or dust environments.
- Remove test leads from the meter before opening the battery compartment.

3. PACKAGE CONTENTS

Verify that all items listed below are present and in good condition:

- 1 x BSIDE ZT-X Digital Multimeter

- 1 x Pair of Test Probes
- 1 x Thermocouple (for temperature measurement)
- 1 x Alligator Clip Set
- 1 x Protective Pouch
- 1 x User Manual (English and Chinese)



Figure 1: Contents of the BSIDE ZT-X Multimeter package.

Note: 2x AA 1.5V batteries are required and are not included in the package due to aviation safety regulations.

4. PRODUCT FEATURES

The BSIDE ZT-X Multimeter offers a range of features designed for efficiency and accuracy:

- **Large 3-Line Display:** Simultaneously displays three test results, such as voltage, frequency, and an analog bar graph, for comprehensive readings.
- **EBTN LCD Display:** Enhanced Black Twisted Nematic LCD provides excellent readability from any angle,

even in bright sunlight or low-light conditions.

- **All-Button Design:** Eliminates the need for a rotary switch, allowing for easy single-hand operation and quick function switching.
- **True RMS Measurement:** Provides accurate readings for non-sinusoidal AC waveforms.
- **Automatic Switching to Current Test:** Automatically detects and switches to current measurement when test leads are plugged into current jacks.
- **Anti-Break Design:** Features a robust build with an anti-break stand for protection against impacts and pressure.
- **Comprehensive Measurement Functions:** Measures AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Temperature, Diode, Continuity, and NCV.
- **Data Hold & Auto Power Off:** Convenient features for retaining readings and conserving battery life.
- **Low Battery Indicator:** Alerts when battery replacement is needed.



Figure 2: Key features of the BSIDE ZT-X Multimeter, including its display and controls.

5. SETUP

5.1 Battery Installation

The multimeter requires two 1.5V AA batteries (not included). To install or replace batteries:

1. Ensure the multimeter is turned off and disconnect all test leads from the input terminals.
2. Locate the battery compartment cover on the back of the meter.
3. Use a screwdriver to loosen the screw(s) securing the battery cover.
4. Remove the cover and insert two AA 1.5V batteries, observing the correct polarity (+ and -) as indicated inside the compartment.
5. Replace the battery cover and tighten the screw(s) securely.



Figure 3: Battery compartment for two AA 1.5V batteries.

5.2 Connecting Test Leads

To prepare the multimeter for measurement:

1. Insert the black test lead into the "COM" (common) input jack.

2. For most voltage, resistance, capacitance, frequency, diode, and continuity measurements, insert the red test lead into the "VΩHz" input jack.
3. For current measurements (mA or A), insert the red test lead into the appropriate "mA" or "A" input jack. The meter will automatically switch to current test mode when leads are connected to these jacks.

6. OPERATING INSTRUCTIONS

6.1 Power On/Off

Press the red power button () to turn the multimeter on. The meter will automatically enter Auto mode. To turn off, press and hold the power button for approximately 2 seconds.

6.2 Automatic Mode (AUTO)

In AUTO mode, the multimeter automatically identifies the measurement type (AC/DC voltage, resistance, continuity) and selects the appropriate range. This simplifies operation for general testing.

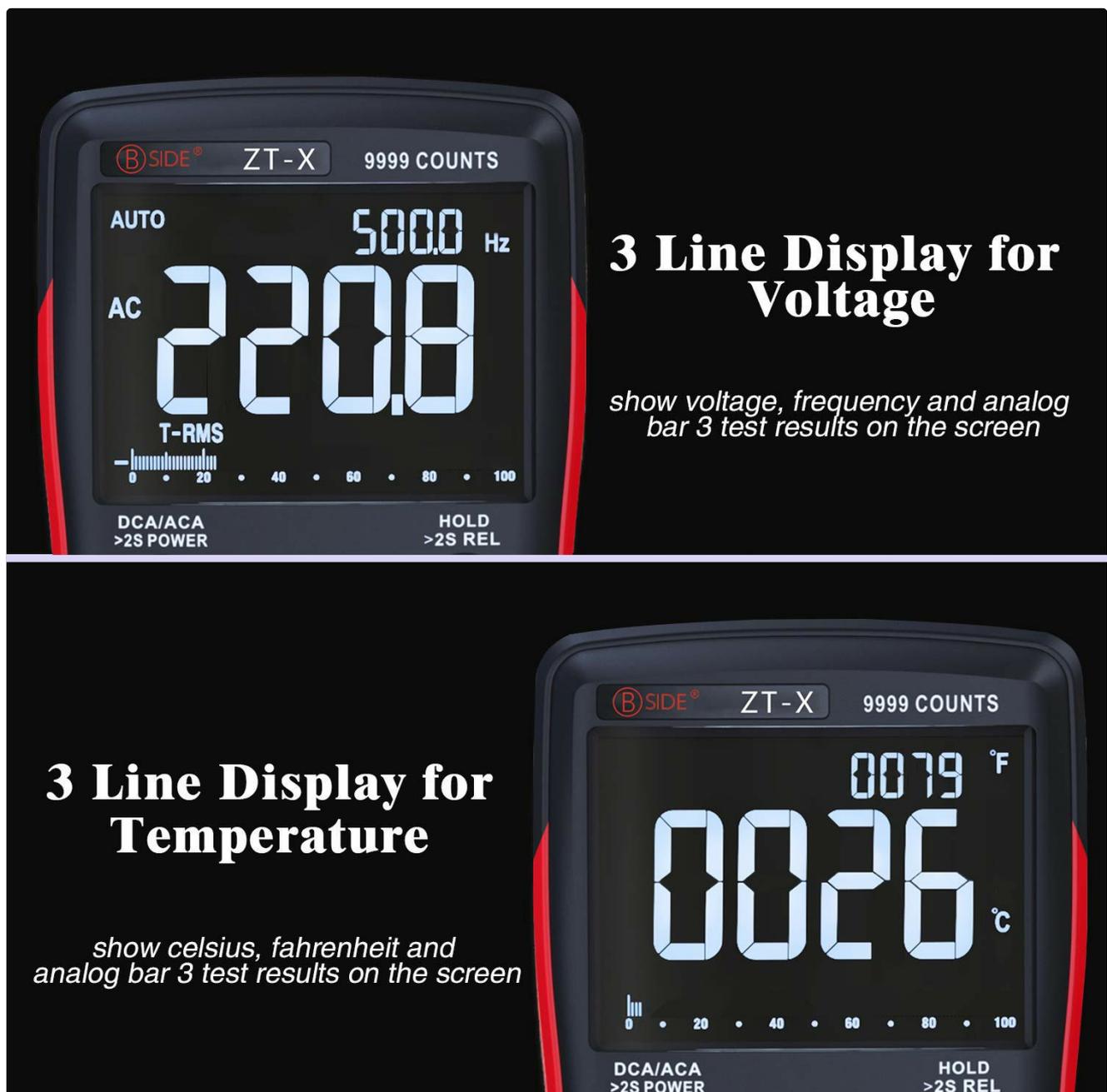


Figure 4: Example of a 3-line display showing voltage and frequency.

6.3 Manual Function Selection

Press the "FUNCTION" button (often labeled with symbols like VΩHz, NCV, °C/°F, etc.) to cycle through different measurement modes. The selected mode will be indicated on the display.

- **Voltage Measurement (AC/DC):** Connect test leads to COM and VΩHz. Select AC V or DC V mode.
- **Current Measurement (AC/DC):** Connect test leads to COM and mA or A jacks. Select AC A or DC A mode.
- **Resistance Measurement (Ω):** Connect test leads to COM and VΩHz. Select Ω mode.
- **Capacitance Measurement (F):** Connect test leads to COM and VΩHz. Select F mode.
- **Frequency Measurement (Hz):** Connect test leads to COM and VΩHz. Select Hz mode.
- **Temperature Measurement (°C/°F):** Connect the thermocouple to the input jacks. Select °C/°F mode. The display shows both Celsius and Fahrenheit simultaneously.
- **Diode Test:** Connect test leads to COM and VΩHz. Select Diode mode.
- **Continuity Test:** Connect test leads to COM and VΩHz. Select Continuity mode. An audible beep indicates continuity.
- **NCV (Non-Contact Voltage) Detection:** Select NCV mode. Bring the top of the meter close to an AC voltage source. The meter will indicate the presence of voltage without direct contact.



Figure 5: Multimeter in use for automotive electrical testing.



Figure 6: Multimeter used for measurements in an electrical panel.

6.4 Data Hold (HOLD)

Press the "HOLD" button to freeze the current reading on the display. Press it again to release the hold function.

6.5 Relative Measurement (REL)

Press and hold the "HOLD" button for 2 seconds to activate the relative measurement function. This allows you to measure changes relative to a stored reference value.

7. MAINTENANCE

7.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the input terminals free of dirt and moisture.

7.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 5.1. Remove batteries if the meter is not used for an extended period.

7.3 Fuse Replacement

The multimeter is protected by internal fuses. If the current measurement function stops working, the fuse may need replacement. Fuse replacement should only be performed by qualified personnel. Refer to the specifications for fuse type and rating.

8. TROUBLESHOOTING

- **No Display:** Check battery installation and ensure batteries are not depleted.
- **Incorrect Readings:** Verify correct function selection, proper test lead connection, and ensure the circuit is within the meter's measurement range.
- **Current Measurement Not Working:** Check if the fuse is blown. Replace if necessary (refer to Section 7.3).
- **"OL" or "OVER" on Display:** Indicates an overload or out-of-range measurement. Select a higher range or ensure the input is within the meter's limits.

9. SPECIFICATIONS

Parameter	Range / Value	Accuracy
Display	9999 Counts	-
DC Voltage	9.999mV / 99.99mV / 999.9mV / 9.99V / 99.99V / 999.9V	$\pm(0.5\%+3)$
AC Voltage	9.999mV / 99.99mV / 999.9mV / 9.99V / 99.99V / 750.0V	$\pm(1.0\%+3)$
DC Current	99.99mA / 999.9mA / 9.999A	$\pm(1.0\%+3)$ for mA/A; $\pm(0.8\%+3)$ for μ A
AC Current	99.99mA / 999.9mA / 9.999A	$\pm(1.2\%+3)$ for mA/A; $\pm(1.0\%+3)$ for μ A
Resistance	99.99 Ω / 999.9 Ω / 9.999k Ω / 99.99k Ω / 999.9k Ω / 9.999M Ω / 99.99M Ω	$\pm(0.5\%+3)$ up to 999.9k Ω ; $\pm(1.5\%+3)$ for 9.999M Ω ; $\pm(3.0\%+5)$ for 99.99M Ω
Capacitance	9.999nF / 99.99nF / 999.9nF / 9.99 μ F / 99.99 μ F / 999.9 μ F / 9.999mF	$\pm(5.0\%+20)$ for 9.999nF; $\pm(2.0\%+5)$ up to 999.9 μ F; $\pm(5.0\%+5)$ for 9.999mF
Frequency	99.99Hz / 999.9Hz / 9.999kHz / 99.9kHz / 2.000MHz	$\pm(0.1\%+2)$
Temperature	-20°C ~ 1000°C (-4°F ~ 1832°F)	$\pm(2.5\%+5)$
Duty Cycle	1% ~ 99%	$\pm(0.1\%+2)$
Diode	Yes	-
Continuity	Yes	-

Parameter	Range / Value	Accuracy
NCV	Yes	-
Power Supply	2 x 1.5V AA Batteries	-
Dimensions	146 x 72 x 33 mm (5.75 x 2.83 x 1.3 inches)	-
Weight	171 g (0.38 lbs)	-

10. WARRANTY AND SUPPORT

BSIDE products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the contact details provided with your purchase or visit the official BSIDE website. Keep your purchase receipt as proof of purchase for warranty claims.