Besantek BST-MT708

BST-MT708 True RMS Digital Multimeter User Manual

Model: BST-MT708 | Brand: Besantek

1. Introduction

The Besantek BST-MT708 is a True RMS Digital Multimeter designed for accurate measurement of various electrical parameters. It features a 6000 display count, a black EBTN screen for clear readability in dark environments, and both auto and manual ranging capabilities. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your BST-MT708 multimeter.

Figure 1: Front view of the BST-MT708 True RMS Digital Multimeter, showing the display, function dial, and input jacks.

2. Safety Information

Always adhere to the following safety precautions to prevent personal injury and damage to the multimeter or equipment under test.

- Read and understand all instructions in this manual before using the multimeter.
- Do not exceed the maximum input limits for any function.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Before measuring current, ensure the circuit is de-energized and the multimeter is connected in series.
- Always disconnect test leads from the circuit before changing functions or ranges.
- Do not operate the multimeter if it appears damaged or if the case is open.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.
- Ensure the correct input terminals are used for the selected measurement function.

3. Product Features

The BST-MT708 multimeter offers a comprehensive set of features for various electrical measurements:

- True RMS measurement for accurate readings of non-sinusoidal waveforms.
- 6000 display count for high resolution.
- Black EBTN screen for excellent visibility, especially in low-light conditions.
- Automatic and manual range selection.
- LoZ (low impedance input) function for detecting ghost voltages.
- Measurement capabilities: AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Frequency, Diode, Duty Ratio, Continuity, Type K Temperature.
- Non-contact voltage (NCV) detection.
- 31-segment analog bar graph for visual representation of measurement trends.
- Max./Min. function to record extreme readings.
- Low battery warning indicator.
- Includes instruction manual, test leads, K-type thermocouple, and batteries.

4. Components and Display Overview

Familiarize yourself with the main components of the BST-MT708 multimeter.

Figure 2: The BST-MT708 Multimeter being used in an industrial setting, highlighting its robust design and clear display.

4.1. Front Panel Layout

1. **Display:** Large EBTN display showing measurement values, units, and function indicators.
2. **Function Dial:** Rotary switch to select desired measurement function (e.g., V~, V-, A~, A-, Ω, F, Hz, °C/°F, Diode, Continuity, NCV, LoZ).

3. **Function Buttons:**
    - **RANGE/HOLD/LIGHT:** Toggles between auto/manual range, holds current reading, activates backlight.
    - **MAX/MIN/RELA:** Records maximum/minimum values, activates relative measurement mode.
    - **Hz/%/SELECT/LPF:** Toggles frequency/duty cycle, selects sub-functions, activates Low Pass Filter.
4. **Input Jacks:**
    - **VΩHz°C:** Input for voltage, resistance, frequency, capacitance, diode, continuity, and temperature measurements.
    - **mAμA:** Input for milliampere and microampere current measurements.
    - **A:** Input for ampere current measurements.
    - **COM:** Common (ground) input for all measurements.

5. Setup

5.1. Battery Installation

The BST-MT708 is powered by batteries (included). To install or replace batteries:

1. Ensure the multimeter is turned OFF and test leads are disconnected.
2. Locate the battery compartment cover on the rear of the unit.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert new batteries, observing correct polarity (+ and -).
5. Replace the battery compartment cover and secure it with the screw(s).

5.2. Connecting Test Leads

Always connect the black test lead to the COM jack. Connect the red test lead to the appropriate input jack based on the measurement function:

- For Voltage, Resistance, Capacitance, Frequency, Diode, Continuity, and Temperature: Connect the red lead to the **VΩHz°C** jack.
- For mA/μA Current: Connect the red lead to the**mAμA** jack.
- For A Current: Connect the red lead to the**A** jack.

6. Operating Instructions

6.1. Power On/Off

Turn the function dial from OFF to any desired measurement function to power on the multimeter. To power off, turn the function dial to the OFF position.

6.2. AC/DC Voltage Measurement (V~ / V-)

1. Connect the black test lead to the COM jack and the red test lead to the VΩHz°C jack.
2. Turn the function dial to the V~ (AC Voltage) or V- (DC Voltage) position.
3. Connect the test leads in parallel to the circuit or component to be measured.
4. Read the voltage value on the display.

6.3. Resistance Measurement (Ω)

1. Connect the black test lead to the COM jack and the red test lead to the VΩHz°C jack.

2. Turn the function dial to the Ω position.
3. Ensure the circuit or component is de-energized before connecting the test leads across the component.
4. Read the resistance value on the display.

6.4. Continuity Test

1. Connect the black test lead to the COM jack and the red test lead to the VΩHz°C jack.
2. Turn the function dial to the continuity/diode position. Use the SELECT button if needed to choose continuity.
3. Connect the test leads across the circuit or component.
4. A continuous beep indicates a good connection (low resistance). The display will show the resistance value.

6.5. Non-Contact Voltage (NCV) Detection

1. Turn the function dial to the NCV position.
2. Move the top front part of the multimeter close to the conductor being tested.
3. The multimeter will beep and the NCV indicator will light up if AC voltage is detected. The intensity of the beeping and light indicates the strength of the electric field.

6.6. LoZ (Low Impedance) Measurement

The LoZ function helps detect and eliminate "ghost voltages" that can appear on unused wires due to capacitive coupling. It provides a low input impedance to drain away these false readings.

1. Connect the black test lead to the COM jack and the red test lead to the VΩHz°C jack.
2. Turn the function dial to the LoZ position.
3. Connect the test leads across the circuit or component.
4. Read the true voltage value on the display.

6.7. Max./Min. Function

This function allows you to capture the maximum and minimum readings over a period.

1. Select the desired measurement function (e.g., Voltage, Current).
2. Press the **MAX/MIN** button once to activate Max mode. The display will show "MAX" and the maximum value recorded.
3. Press the **MAX/MIN** button again to activate Min mode. The display will show "MIN" and the minimum value recorded.
4. Press and hold the **MAX/MIN** button to exit Max/Min mode.

7. Maintenance

7.1. Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the multimeter is completely dry before use.

7.2. Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in the Setup section (5.1. Battery Installation). Always use the specified battery type.

7.3. Storage

If the multimeter is not used for an extended period, remove the batteries to prevent leakage and damage. Store the device in a cool, dry place away from direct sunlight and extreme temperatures.

8. Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Dead or low batteries; Incorrect battery installation.	Replace batteries; Check battery polarity.
"OL" (Overload) displayed	Input value exceeds selected range; Open circuit (for resistance/continuity).	Select a higher range (if in manual range); Check circuit for breaks.
Inaccurate readings	Low battery; Incorrect function/range selected; Damaged test leads.	Replace batteries; Verify function/range; Inspect and replace test leads if damaged.
No continuity beep	Open circuit; High resistance; Incorrect function selected.	Check circuit for breaks; Ensure resistance is below threshold; Select continuity function.

9. Specifications

Parameter	Value
Model	BST-MT708
Measurement Type	True RMS Digital Multimeter
Display Count	6000 Counts
Display Type	Black EBTN Screen
Ranging	Auto/Manual
Power Source	Battery Powered
Manufacturer	BESANTEK
First Available Date	November 22, 2019

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact Besantek customer service. Keep your purchase receipt as proof of purchase for warranty claims.

Contact Information: Please visit the official Besantek website for the most up-to-date contact details for support and service.