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UT107 Digital Multimeter

UT107 Digital Multimeter User Manual

Model: UT107 Digital Multimeter

Brand: Generic

1. Introduction

The UT107 Digital Multimeter is a versatile, multi-purpose automotive and general electrical testing instrument designed for measuring AC/DC voltage, temperature, resistance, and frequency. It also includes specialized functions for automotive diagnostics such as dwell angle and RPM measurements. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your UT107 Digital Multimeter.

Key Features:

- 12V Low battery indication, duty cycle measurement.
- Input notification for reducing misplugging risks.
- Low battery indication and over-range display.
- Data hold function.
- Diode and continuity buzzer test.
- Dwell: Measure the dwell angle of points-type ignition systems.
- RPM: Measure engine spindle rotation per minute.

2. Safety Information

Always observe safety precautions when using any electrical testing equipment. Failure to do so may result in injury or damage to the meter or equipment under test.

- **Read this manual thoroughly** before use.
- Do not exceed the maximum input limits for any function.
- Use extreme 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 and discharge all high-voltage capacitors before performing resistance, continuity, diode, or capacitance tests.
- Inspect test leads for damaged insulation or exposed metal before each use. Replace if damaged.
- Ensure the function switch is in the correct position for the desired measurement before connecting test leads to the circuit.
- Do not operate the meter if it appears damaged or if the case is open.
- Replace the battery immediately when the low battery indicator appears to ensure accurate readings.
- Adhere to all local and national safety codes.

3. Product Overview and Package Contents

The UT107 Digital Multimeter is designed for ease of use and durability. Below is an image illustrating the main

components of the device and the typical contents included in the package.



Figure 3.1: Front view of the UT107 Digital Multimeter, showing the display, rotary switch, and input jacks.



Figure 3.2: The UT107 Digital Multimeter alongside its standard accessories: a pair of red and black test leads, and a K-type thermocouple temperature probe.

Package Contents:

- UT107 Digital Multimeter
- Test Leads (Red and Black)

- K-Type Thermocouple Temperature Probe
- User Manual (this document)

4. Setup

4.1 Battery Installation

The UT107 Multimeter requires a 9V battery (not always included). To install or replace the battery:

1. Ensure the multimeter is turned OFF.
2. Locate the battery compartment cover on the back of the unit.
3. Use a screwdriver to remove the screw securing the cover, then lift off the cover.
4. Connect the 9V battery to the battery clip, observing correct polarity.
5. Place the battery into the compartment and replace the cover, securing it with the screw.



Figure 4.1: Rear view of the UT107 Digital Multimeter, showing the battery compartment and integrated kickstand.

4.2 Connecting Test Leads

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

- Insert the black test lead into the "COM" (Common) input jack.
- For most voltage, resistance, frequency, diode, and continuity measurements, insert the red test lead into the "VΩHz" input jack.
- For current measurements (mA/µA), insert the red test lead into the "mA" input jack.
- For high current measurements (10A), insert the red test lead into the "10A" input jack.

Note: The meter features input notification to help reduce misplugging risks. Always double-check your connections before taking a measurement.

5. Operating Instructions

5.1 Powering On/Off and Display Overview

To power on the multimeter, rotate the function switch from the "OFF" position to any desired measurement function. To power off, rotate the switch back to "OFF".



Figure 5.1: Close-up view of the UT107 Digital Multimeter's LCD display, showing numerical readings and various indicators.

The LCD display shows measurement readings, units, and various indicators such as low battery, data hold, and over-range.

5.2 Measuring DC Voltage (V=)

1. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
2. Rotate the function switch to the desired DC Voltage range (e.g., 20V, 200V, 1000V). If the voltage is unknown, start with the highest range and work downwards.
3. Connect the test probes across the component or circuit to be measured, observing polarity.
4. Read the voltage value on the display.

5.3 Measuring AC Voltage (V~)

1. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
2. Rotate the function switch to the desired AC Voltage range (e.g., 200V, 750V).
3. Connect the test probes across the component or circuit to be measured.
4. Read the voltage value on the display.

5.4 Measuring Resistance (Ω)

1. Ensure the circuit is de-energized before measuring resistance.
2. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
3. Rotate the function switch to the desired Resistance range (e.g., 200Ω, 2kΩ, 200kΩ, 2MΩ, 20MΩ).
4. Connect the test probes across the resistor or component.

5. Read the resistance value on the display.

5.5 Continuity Test (Buzzer)

1. Ensure the circuit is de-energized.
2. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
3. Rotate the function switch to the continuity/diode position (often indicated by a speaker icon or diode symbol).
4. Touch the probes together; the meter should beep.
5. Connect the probes across the circuit or component. A continuous beep indicates a good connection (low resistance).

5.6 Diode Test

1. Ensure the circuit is de-energized.
2. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
3. Rotate the function switch to the continuity/diode position.
4. Connect the red probe to the anode and the black probe to the cathode of the diode. A forward voltage drop (e.g., 0.5V to 0.8V for silicon diodes) will be displayed.
5. Reverse the probes. The display should show "OL" (Open Loop) for a good diode.

5.7 Measuring DC Current (A=)

1. **IMPORTANT:** Ensure the circuit is de-energized before connecting the meter in series.
2. Insert the black test lead into the "COM" jack.
3. For currents up to 200mA, insert the red test lead into the "mA" jack. For currents up to 10A, insert the red test lead into the "10A" jack.
4. Rotate the function switch to the appropriate DC Current range (e.g., 200mA, 10A).
5. Open the circuit and connect the meter in series with the load.
6. Apply power to the circuit and read the current value.

5.8 Measuring Frequency (Hz)

1. Insert the black test lead into the "COM" jack and the red test lead into the "VΩHz" jack.
2. Rotate the function switch to the "Hz" position.
3. Connect the test probes across the signal source.
4. Read the frequency value on the display.

5.9 Measuring Temperature (Temp)

1. Ensure the multimeter is OFF.
2. Connect the K-type thermocouple temperature probe to the appropriate input jacks (usually marked with temperature symbols or sharing VΩHz/COM). Observe polarity if indicated.
3. Rotate the function switch to the "Temp" or "°C/°F" position.
4. Place the tip of the thermocouple on or near the object whose temperature is to be measured.
5. Read the temperature value on the display.

5.10 Dwell Angle Measurement (Automotive)

This function measures the dwell angle of points-type ignition systems.

1. Connect the test leads as per the specific instructions for dwell measurement (refer to the meter's input markings, often sharing voltage inputs).
2. Rotate the function switch to the "DWELL" position, selecting the appropriate cylinder setting (4CYL, 6CYL, 8CYL).
3. Connect the probes to the ignition system as required (e.g., to the distributor's primary circuit).
4. Read the dwell angle on the display.

5.11 RPM Measurement (Automotive)

This function measures engine spindle rotation per minute.

1. Connect the test leads as per the specific instructions for RPM measurement (refer to the meter's input markings, often sharing voltage inputs).
2. Rotate the function switch to the "RPM" position, selecting the appropriate cylinder setting (4CYL, 6CYL, 8CYL).
3. Connect the probes to the ignition system or engine component as required.
4. Read the RPM value on the display.

5.12 Data Hold Function

Press the "HOLD" button to freeze the current reading on the display. Press it again to release the hold and resume live readings.

6. Maintenance

6.1 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.

6.2 Battery Replacement

When the low battery indicator appears on the display, replace the 9V battery as described in Section 4.1. Prompt battery replacement ensures measurement accuracy.

6.3 Fuse Replacement

The UT107 Multimeter is equipped with internal fuses to protect against overcurrent in current measurement modes. If the meter does not read current, the fuse may be blown. Refer to the markings near the current input jacks for fuse specifications (e.g., "10A MAX FUSED", "200mA MAX FUSED"). Fuse replacement typically requires opening the back case, similar to battery replacement. Always replace with a fuse of the exact same type and rating.

6.4 Storage

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

7. Troubleshooting

This section addresses common issues you might encounter with your UT107 Digital Multimeter.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Meter does not power on.	Dead or improperly installed battery.	Check battery installation; replace battery if necessary.
"OL" (Over Load) displayed.	Input value exceeds selected range; open circuit in resistance/continuity mode.	Select a higher range; check for open circuit or broken test leads.
Inaccurate readings.	Low battery; incorrect range selected; poor test lead connection.	Replace battery; select appropriate range; ensure secure test lead connections.
No current reading.	Blown fuse; incorrect input jack used; meter not in series with load.	Check/replace fuse; ensure red lead is in "mA" or "10A" jack; connect meter in series.
Continuity buzzer not working.	Open circuit; meter not in continuity mode.	Check circuit for continuity; ensure function switch is on continuity mode.

8. Specifications

The following table outlines the general specifications for the UT107 Digital Multimeter.

Specification	Detail
Model Number	UT107 Digital Multimeter
Brand	Generic
Power Source	Battery Powered (9V)
Style	Digital
Measurement Type	Multimeter, Voltmeter (AC/DC Voltage, DC Current, Resistance, Frequency, Temperature, Dwell, RPM, Diode, Continuity)
ASIN	B07P8CFSXR
UPC	738944851265
Manufacturer	China
Date First Available	March 1, 2019
Safety Rating	CAT III 600V, CAT II 1000V (as indicated on product image)

9. Warranty and Support

For information regarding warranty coverage, technical support, or service inquiries, please refer to the contact information provided by your retailer or the product packaging. Keep your purchase receipt as proof of purchase for any warranty claims.

For additional resources or frequently asked questions, you may visit the manufacturer's or seller's official website if available. Always ensure you are using official channels for support.

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