AUTOOL 602860596565

AUTOOL DM Mini Digital Pocket Multimeter User Manual

Model: 602860596565

1. Introduction

Thank you for choosing the AUTOOL DM Mini Digital Pocket Multimeter. This compact and reliable auto-ranging multimeter is designed for precise electrical measurements in various applications. Its portable size and comprehensive features make it an essential tool for hobbyists, technicians, and professionals.

Figure 1.1: The compact size of the AUTOOL DM Mini allows it to fit easily into a pocket, making it highly portable for use anywhere.

2. Product Overview

The AUTOOL DM Mini features a clamshell design for protection and portability. It integrates test leads within its compact body, ensuring convenience and readiness for use.

Figure 2.1: Front view of the AUTOOL DM Mini Digital Multimeter, showing the display, rotary switch, and integrated test leads.

2.1 Key Components

Figure 2.2: Detailed diagram illustrating the main components of the multimeter, including the LCD display, data hold button, rotary knob, manual switch, test leads, and pen compartment.

- **LCD Display:** Shows measurement readings and indicators.
- **Knob Switch:** Used to select measurement functions and ranges.
- **Data Hold Key (H):** Freezes the current reading on the display.
- **Manual Switch Button (RANGE):** Allows manual range selection in auto-ranging modes.
- **Test Leads:** Integrated red and black leads for connecting to circuits.
- **Pen Compartment:** Storage area for the test leads.

2.2 Main Features

- Auto-ranging capability.
- 550V protection in resistance and capacitance ranges.
- Large LCD display with a maximum count of 4000.
- Sampling rate: 3 times per second.

- Data hold function.
- Polarity identification and low voltage indication.
- Low current measurement.
- Automatic power-off to conserve battery life.

Figure 2.3: Visual representation of the multimeter's core functions, including DC/AC Voltage, Resistance, Continuity, Capacitance, Diode, Frequency, and Data Hold.

3. Setup

3.1 Battery Installation

The multimeter requires 2 AAA batteries (not supplied) for operation. Follow these steps to install them:

1. Locate the battery compartment on the back of the multimeter.
2. Loosen the screw securing the battery cover using a Phillips head screwdriver.

3. Slide off the battery cover.
4. Insert 2 AAA alkaline batteries, ensuring correct polarity (+ and -).
5. Replace the battery cover and tighten the screw.

Figure 3.1: Illustration of the battery compartment on the back of the multimeter, showing where to insert the two AAA batteries.

Warning: Always ensure the multimeter is turned OFF and disconnected from any circuits before opening the battery compartment.

4. Operating Instructions

4.1 Power On/Off

To turn on the multimeter, rotate the knob switch from the 'OFF' position to any desired measurement function. To turn off the multimeter, rotate the knob switch back to the 'OFF' position. The device features an automatic power-off function to save battery life if left idle for a period.

4.2 Basic Measurements

The DM Mini is an auto-ranging multimeter, simplifying operation by automatically selecting the appropriate measurement range.

4.2.1 Voltage Measurement (AC/DC)

To measure voltage:

1. Rotate the knob switch to the 'V=' (DC Voltage) or 'V~' (AC Voltage) position.
2. Connect the red test lead to the positive (+) side of the circuit and the black test lead to the negative (-) side (for DC) or across the points for AC.
3. Read the voltage value on the LCD display.

Figure 4.1: Examples of measuring DC voltage from a 9V battery and AC voltage from a power outlet using the multimeter.

4.2.2 Resistance Measurement (Ω)

To measure resistance:

1. Rotate the knob switch to the 'Ω' (Resistance) position.
2. Ensure the circuit is de-energized before connecting the test leads across the component to be measured.
3. Read the resistance value on the LCD display.

4.2.3 Continuity Test (♫)

To perform a continuity test:

1. Rotate the knob switch to the '♫' (Continuity) position.
2. Connect the test leads across the circuit or component.
3. If there is continuity (low resistance), the multimeter will emit an audible beep.

4.2.4 Diode Test (†)

To test a diode:

1. Rotate the knob switch to the '†' (Diode) position.
2. Connect the red test lead to the anode and the black test lead to the cathode of the diode.
3. Observe the forward voltage drop on the display. Reverse the leads to check for open circuit (OL) in reverse bias.

4.2.5 Capacitance Measurement (F)

To measure capacitance:

1. Rotate the knob switch to the 'F' (Capacitance) position.
2. Ensure the capacitor is fully discharged before connecting the test leads.
3. Connect the test leads across the capacitor.
4. Read the capacitance value on the LCD display.

4.2.6 Frequency and Duty Cycle Measurement (Hz/DUTY)

To measure frequency or duty cycle:

1. Rotate the knob switch to the 'Hz/DUTY' position.
2. Connect the test leads to the signal source.
3. The display will show the frequency (Hz). Press the 'RANGE' button to toggle to duty cycle measurement.

4.3 Data Hold Function

Press the 'H' (Data Hold) button to freeze the current reading on the display. Press it again to release the hold and resume live readings.

Figure 4.2: The multimeter in use, demonstrating its ease of operation for various electrical tests, such as checking a car battery.

5. Maintenance

5.1 Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the device is dry before use.

5.2 Battery Replacement

When the low battery indicator appears on the display, replace the batteries as described in Section 3.1. Always use fresh AAA alkaline batteries.

5.3 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.

6. Troubleshooting

This section addresses common issues you might encounter with your AUTOOL DM Mini Multimeter.

Problem	Possible Cause	Solution
Display is blank or dim.	Low or dead batteries.	Replace batteries (refer to Section 3.1).
No reading or "OL" displayed.	Open circuit; measurement range exceeded; incorrect function selected.	Check test lead connections; ensure value is within range; select correct function.
Inaccurate readings.	Poor test lead contact; external interference; damaged leads.	Ensure firm contact; move away from strong electromagnetic fields; inspect and replace damaged leads.
Multimeter turns off automatically.	Automatic power-off feature activated.	This is normal behavior to save battery. Turn the knob to 'OFF' and then back to the desired function to restart.

7. Specifications

Detailed technical specifications for the AUTOOL DM Mini Digital Pocket Multimeter.

Figure 7.1: Dimensions of the portable digital multimeter, including its length (12.5 cm) and height (19.5 cm), along with images of the instruction manual and outer box.

Parameter	Range / Value	Accuracy
DC Voltage	400 mV / 4 V / 40 V / 400 V / 600 V	± (0.5% + 4) for 400mV-40V, ± (0.8% + 4) for 400V-600V
AC Voltage	400 mV / 4 V / 40 V / 400 V / 600 V	± (1.5% + 4) for 400mV, ± (1.2% + 4) for 4V-400V, ± (1.5% + 4) for 600V
Resistance	400 Ω / 4 KΩ / 40 KΩ / 400 KΩ / 4 MΩ / 40 MΩ	± (0.8% + 4) for 400Ω-4MΩ, ± (2.0% + 4) for 40MΩ
Capacitance	4 nF / 40 nF / 400 nF / 4 µF / 40 µF / 400 µF / 1000 µF / 4000 µF	± (5.0% + 4) for 4nF, ± (2.5% + 4) for 40nF, ± (3.5% + 4) for others
Frequency	99.5 Hz to 9.999 MHz	± (0.08% + 2)

Parameter	Range / Value	Accuracy
Duty Cycle	0.1% to 99.9%	± (0.08% + 2)
Display	4000 Counts LCD	
Sampling Rate	3 times/second	
Operating Environment	0~40°C, Relative Humidity <80%	
Power Supply	3V (2 x AAA Batteries)	
Dimensions (L x W x H)	12.5 x 8 x 1.95 cm	
Weight	Approx. 131.54 grams (without batteries)	

8. Warranty and Support

AUTOOL 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 AUTOOL website. Keep your purchase receipt as proof of purchase for any warranty claims.

For further assistance, please contact AUTOOL customer service through the contact information provided on their official website or through your retailer.