ES ATD-5536

Electronic Specialties 380 Digital Multimeter User Manual

Model: ATD-5536 | Brand: ES

Introduction

This manual provides comprehensive instructions for the safe and effective operation, maintenance, and troubleshooting of your ES 380 Digital Multimeter. This device is designed for measuring various electrical parameters, including voltage, current, and resistance. Please read this manual thoroughly before use to ensure proper functionality and to prevent potential hazards.

Safety Information

Always adhere to the following safety precautions to avoid electric shock or damage to the multimeter:

- Do not exceed the maximum input values specified for each function.
- Exercise extreme caution when working with voltages above 60V DC or 30V AC RMS.
- Ensure test leads are in good condition and properly seated before making measurements.
- Never connect the multimeter to a voltage source when the function switch is set to current, resistance, or diode/continuity test.
- Replace the battery immediately when the low battery indicator appears.
- Do not operate the multimeter if it appears damaged or if the case is open.

Product Overview and Components

The ES 380 Digital Multimeter is a versatile tool for electrical measurements. Familiarize yourself with its main components:

Figure 1: ES 380 Digital Multimeter with its included test leads. The image displays the red multimeter unit, a digital display showing '000', a central rotary switch, input jacks, and the red and black test probes.

- **Digital Display:** Shows measurement readings.
- **Rotary Switch:** Selects measurement functions and ranges.
- **Input Jacks:** Connect test leads for various measurements.
  - **COM Jack:** Common (negative) input for all measurements.
  - **VΩmA Jack:** Positive input for voltage, resistance, and small current measurements.
  - **10A Jack:** Positive input for high current (up to 10A) measurements.
- **Test Leads:** Red and black probes for connecting to circuits.
- **Holster:** Protective casing for the multimeter.

Setup

1. Battery Installation

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

1. Ensure the multimeter is turned OFF and disconnect all test leads.

2. Locate the battery compartment cover on the back of the unit.
3. Remove the screw(s) securing the cover and carefully lift it off.
4. Connect a new 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(s).

2. Connecting Test Leads

For most measurements, connect the test leads as follows:

- Insert the black test lead into the **COM** (common) jack.
- Insert the red test lead into the **VΩmA** jack for voltage, resistance, and low current measurements.
- For high current measurements (up to 10A), insert the red test lead into the **10A** jack.

Operating Instructions

Before taking any measurement, ensure the test leads are correctly connected and the rotary switch is set to the appropriate function and range.

1. Measuring DC Voltage (V–)

1. Connect the red lead to the **VΩmA** jack and the black lead to the **COM** jack.
2. Set the rotary switch to the desired DC Voltage (V–) range (e.g., 20V, 200V). If the voltage is unknown, start with the highest range and decrease as needed.
3. Connect the test probes across the component or circuit to be measured.
4. Read the voltage value on the digital display.

2. Measuring AC Voltage (V~)

1. Connect the red lead to the **VΩmA** jack and the black lead to the **COM** jack.
2. Set the rotary switch to the desired AC Voltage (V~) range (e.g., 200V, 750V).
3. Connect the test probes across the AC voltage source.
4. Read the voltage value on the digital display.

3. Measuring DC Current (A–)

1. For currents up to 200mA, connect the red lead to the **VΩmA** jack. For currents up to 10A, connect the red lead to the **10A** jack. Connect the black lead to the **COM** jack.
2. Set the rotary switch to the desired DC Current (A–) range (e.g., 200mA, 10A).
3. **Important:** To measure current, the multimeter must be connected in series with the circuit. Break the circuit and insert the multimeter.
4. Read the current value on the digital display.

4. Measuring Resistance (Ω)

1. Connect the red lead to the **VΩmA** jack and the black lead to the **COM** jack.
2. Set the rotary switch to the desired Resistance (Ω) range (e.g., 200Ω, 2kΩ).
3. Ensure the circuit or component is de-energized before measuring resistance.
4. Connect the test probes across the component.
5. Read the resistance value on the digital display.

5. Diode and Continuity Test

1. Connect the red lead to the **VΩmA** jack and the black lead to the **COM** jack.
2. Set the rotary switch to the Diode/Continuity symbol (often a diode symbol and a sound wave symbol).
3. **For Diode Test:** Connect the red probe to the anode and the black probe to the cathode. The display will show the forward voltage drop. Reverse the probes; the display should show 'OL' (Open Loop) for a good diode.
4. **For Continuity Test:** Connect the probes across the circuit or component. If there is continuity (low resistance), the multimeter will emit an audible beep.

Maintenance

Cleaning

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

Battery Replacement

Refer to the "Battery Installation" section under Setup. Replace the 9V battery when the low battery indicator appears on the display to ensure accurate readings.

Fuse Replacement

If the current measurement function stops working, the fuse may need replacement. This typically requires opening the multimeter case. Refer to the specifications for the correct fuse type and rating. If unsure, consult a qualified technician.

Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Dead or low battery	Replace the 9V battery.
"OL" (Overload) displayed	Measurement exceeds selected range or open circuit	Select a higher range or check for open circuit/broken connection.
Incorrect current readings	Blown fuse or incorrect lead connection	Check and replace fuse if necessary. Ensure red lead is in the correct current jack (VΩmA or 10A).
No continuity beep	Open circuit or high resistance	Check connections and component for continuity.

Specifications

Feature	Detail
Brand	ES
Model	ATD-5536
Power Source	9V Battery (Battery Powered)
Measurement Type	Multimeter (Voltage, Current, Resistance, Diode, Continuity)
Item Weight	13.6 ounces

Feature	Detail
Safety Rating	CAT II 500Vmax
DC Voltage Range	Up to 1000V
AC Voltage Range	Up to 750V
DC Current Range	Up to 10A
Resistance Range	Up to 20MΩ

Warranty Information

Specific warranty details for the ES 380 Digital Multimeter are typically provided with the product packaging or available on the manufacturer's official website. Generally, Electronic Specialties products come with a limited warranty covering defects in materials and workmanship for a specified period from the date of purchase. Please retain your proof of purchase for warranty claims.

Support and Contact

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please contact Electronic Specialties customer support. Visit the official ES website for the most current contact information, including phone numbers and email addresses.
You can also visit the ES Store on Amazon for additional product information and resources.