**RadioShack 22-182**

# RadioShack 22-182 15-Range Digital Multimeter User Manual

Model: 22-182



## 1. Introduction

This manual provides detailed instructions for the safe and effective use of your RadioShack 22-182 15-Range Digital Multimeter. This device is designed for measuring various electrical parameters, including DC voltage, AC voltage, DC current, and resistance, and also features a diode check function. Please read this manual thoroughly before operating the multimeter and retain it for future reference.

## 2. Safety Information

**WARNING: To avoid electric shock or personal injury, and to prevent damage to the meter or to the equipment under test, observe the following safety rules:**

- Always ensure the multimeter is set to the correct function and range before making measurements.
- Do not apply more than the rated voltage, as marked on the meter, between the terminals or between any terminal and earth ground.
- Use extreme caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Keep your fingers behind the probe barriers during measurements.
- Do not use the meter if it appears damaged or if the test leads are damaged.
- Ensure the battery cover is securely closed before operating the meter.
- Remove test leads from the circuit before changing functions or ranges.
- Do not operate the meter in explosive gas, vapor, or dust environments.

## 3. Product Overview

The RadioShack 22-182 Digital Multimeter is a compact and versatile tool for electrical measurements. It features a clear LCD display and a rotary switch for selecting functions and ranges.


*Image: The RadioShack 22-182 Digital Multimeter showing its LCD display, rotary switch, and connected red and black test leads.*

### Key Components:

- **LCD Display:** Shows measurement readings.
- **Rotary Switch:** Selects measurement functions and ranges.
- **Input Jacks:** For connecting test leads (typically COM, VΩmA).
- **Test Leads:** Red (positive) and Black (negative/common) leads with probes.

## 4. Setup

### 4.1 Battery Installation

The multimeter requires a 9V battery (not included). To install:

1. Locate the battery compartment cover on the back of the multimeter.
2. Remove the screw(s) securing the cover and lift it off.
3. Connect a 9V battery to the battery clips, observing correct polarity (+ and -).
4. Place the battery into the compartment and replace the cover, securing it with the screw(s).

### 4.2 Connecting Test Leads

Connect the test leads to the appropriate input jacks:

- Insert the black test lead into the **COM** (Common) jack.
- Insert the red test lead into the **VΩmA** jack for voltage, resistance, and current measurements.

## 5. Operating Instructions

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

### 5.1 Measuring DC Voltage (DCV)

The multimeter offers 4 DCV ranges: 2V, 20V, 200V, 500V.

1. Set the rotary switch to the desired DCV range (e.g., 20V for typical battery checks). If the voltage is unknown, start with the highest range (500V) and decrease as needed.
2. Connect the red test probe to the positive (+) side of the circuit and the black test probe to the negative (-) side.
3. Read the voltage value on the LCD display.

### 5.2 Measuring AC Voltage (ACV)

The multimeter offers 2 ACV ranges: 200V, 500V.

1. Set the rotary switch to the desired ACV range (e.g., 200V or 500V for household outlets).
2. Connect the test probes across the AC voltage source.
3. Read the voltage value on the LCD display.

### 5.3 Measuring DC Current (DCA)

The multimeter offers 3 DCA ranges: 2mA, 20mA, 200mA.

1. **WARNING:** Never connect the multimeter in parallel with a voltage source when measuring current. This can damage the meter and the circuit.
2. Set the rotary switch to the desired DCA range.
3. Open the circuit where you want to measure current.
4. Connect the multimeter in series with the circuit, ensuring the current flows through the meter. The red probe connects to the higher potential side, and the black probe to the lower potential side.
5. Read the current value on the LCD display.

### 5.4 Measuring Resistance (Ohms)

The multimeter offers 5 Ohms ranges: 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ.

1. **WARNING:** Ensure the circuit or component under test is completely de-energized before measuring resistance.
2. Set the rotary switch to the desired Ohms range.
3. Connect the test probes across the component whose resistance you want to measure.
4. Read the resistance value on the LCD display.

### 5.5 Diode Check

This function allows you to test diodes for proper operation.

1. Set the rotary switch to the Diode Check symbol (usually a diode icon).
2. Connect the red test probe to the anode of the diode and the black test probe to the cathode. A forward voltage drop (e.g., 0.5V to 0.7V for silicon diodes) should be displayed.
3. Reverse the probes. The display should show "OL" (Overload) or a very high resistance, indicating an open circuit. If both directions show a reading or "OL", the diode may be faulty.

## 6. Maintenance

### 6.1 Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents.

### 6.2 Battery Replacement

When the battery low indicator appears on the display, replace the 9V battery as described in the "Battery Installation" section (4.1). Always use a fresh 9V alkaline battery.

### 6.3 Fuse Replacement

If the current measurement function stops working, the fuse may need replacement. Refer to the specifications for the correct fuse type. Fuse replacement typically involves opening the back casing of the multimeter. If unsure, consult a qualified technician.

## 7. 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; open circuit (for resistance/continuity) | Select a higher range or check for an open circuit. |
| Incorrect readings | Incorrect function/range selected; poor test lead connection; faulty component | Verify function/range; ensure secure connections; test a known good component. |
| Current measurement not working | Blown fuse | Replace the internal fuse (refer to fuse specifications). |

## 8. Specifications

| Measurement Type | Range | Accuracy |
|---|---|---|
| DC Voltage (DCV) | 2V, 20V, 200V, 500V | ±2% of reading, 0.8% of full scale, ±1 in last digit |
| AC Voltage (ACV) | 200V, 500V | ±3% of reading, 1.5% of full scale, ±5 of last digit |
| DC Current (DCA) | 2mA, 20mA, 200mA | ±2.5% of reading, 2% of full scale, ±1 of last digit |
| Resistance (Ohms) | 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ | ±2.5% of reading, 2% of full scale, ±3 of last digit |
| Diode Check | Yes | Forward voltage drop indication |

### General Specifications:

- **Display:** 3 1/2 digit LCD
- **Power Source:** 9V Battery (not included)
- **Item Weight:** 4.8 ounces
- **Package Dimensions:** 4.8 x 3.4 x 1 inches
- **Model Number:** 22-182

## 9. Warranty and Support

RadioShack products are designed for reliability and performance. For specific warranty information, please refer to the warranty card included with your purchase or visit the official RadioShack website. For technical support or inquiries, please contact RadioShack customer service.
**Online Resources:** www.radioshack.com



## Related Documents - 22-182

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|---|---|
|  | RadioShack 4001942 & 4001944 Dual PA Speaker User Manual<br>User manual for RadioShack 4001942 and 4001944 Dual 10-inch and 15-inch 2-way PA Speakers. Includes specifications, packing contents, amplifier control panel details, MP3 player functions, remote control guide, Bluetooth pairing, and important safety/FCC information. |
|  | RadioShack 15-1924 7-in-1 Remote Control Owner's Manual<br>User manual for the RadioShack 15-1924 7-in-1 Remote Control with Lighted Keypad. Learn how to set up, operate, and troubleshoot this versatile universal remote. |
|  | RadioShack 8-in-1 LCD Remote 15-100 User Manual<br>Comprehensive user manual for the RadioShack 8-in-1 LCD Remote (Model 15-100). Learn how to set up, program, and use this universal remote to control up to eight home entertainment devices, including features like My System Mode, Macros, and Learning. |
|  | RadioShack 4-In/1-Out A/V Selector Switch User Guide<br>User guide for the RadioShack 4-In/1-Out A/V Selector Switch (Model 15-313). Learn how to connect and use your audio/video devices with your TV. Includes setup instructions, features, and limited warranty information. |
|  | RadioShack 15" 2-Way P.A. Speaker User Manual (Models 4001924, 4001925)<br>User manual for the RadioShack 15-inch 2-Way P.A. Speaker, covering packing contents, specifications, player controls, remote functions, and safety precautions for models 4001924 and 4001925. |

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|---|---|
|  | [RadioShack Low-Cost 3-in-1 Remote Control User Guide and Codes]<br>Comprehensive user guide for the RadioShack Low-Cost 3-in-1 Remote (Cat. No. 15-2147), including setup instructions, programming guides, troubleshooting tips, and extensive device code lists for TVs, VCRs, DVD players, and satellite receivers. |

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