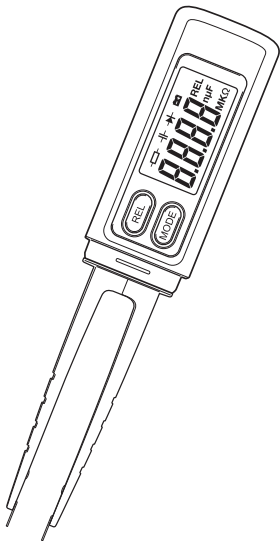


User's Guide
EXTECH[®]
INSTRUMENTS

R/C SMD Tweezers
Model RC100




Introduction

Congratulations on your purchase of the Extech RC100 SMD Tweezers. This device offers rapid and accurate capacitance and resistance measurements of chip components. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

Precautions and Safety measures

When using this meter, the user must observe all normal safety rules

- Allow a 30 seconds warm-up before use.
- If the meter is used near noise generating equipment the display may become unstable or indicate large errors.
- Do not use the meter if it appears damaged.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.
- Do not operate the meter near explosive gas, vapor, or dust.
- To avoid damages to the instrument, do not exceed the maximum limits of the input values.
- Caution: Don't use this device if working voltage is above 50V DC or 36 V AC rms. Such voltages pose a shock hazard and damage the meter
- When using this meter, keep your fingers away from the metal of the meter.
- Before changing functions, disconnect the test clip from the circuit under test.
- Replace the battery when the  symbol appears. With a low battery, the meter might produce false readings.

Symbols:

Symbols used in this manual and on the meter:

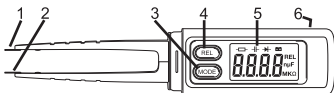


Caution: refer to the instruction manual.
Incorrect use may result in damage to the device or its components.



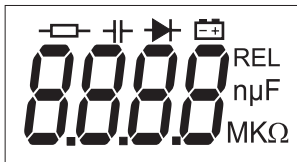
Conforms to IEC1010

Product Description



- 1 Cathode "-" input (negative)
- 2 Anode "+" input (positive)
- 3 POWER and MODE key
This key is used to power the meter and to select the measurement function. Press the key for >4 seconds to turn power off.
- 4 REL key
Press this key once to enter into the Relative mode, press again to return to the normal mode.
- 5 LCD display
- 6 Battery cover (on rear)

LCD Display




Operation

Resistance



To avoid electrical shock or damage to the meter, disconnect circuit power and discharge all high-voltage capacitors before measuring resistance.

1. Press the MODE key to select the  mode.
2. Connect the test tips to the object being tested and read the measured value on the display.


NOTE:

- a. When measuring the high-resistance ($> 1\text{M}\Omega$), it may take a few seconds for the reading to stabilize, this is normal.
- b. When the input is not connected, i.e. an open circuit, the "OL" (overrange) icon will be displayed.

Capacitance



To avoid electrical shock or damages to the meter under test, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance.

1. Press the MODE key to select the  mode.
2. Connect the test clips to the capacitor being tested and read measured value on the display.


NOTE:

- a. When measuring large valued capacitors (200uF range), it may take up to 30 seconds for the reading to stabilize, this is normal.
- b. To improve the accuracy of measurements less than 4nF, subtract the residual capacitance of the meter and tips by pressing the REL key with the tips open circuited.

Diode measurement




To avoid electrical shock or damage to the meter, disconnect circuit power and discharge all high-voltage capacitors before testing diodes.

1. Press the MODE key to select the  mode.
2. Connect the + tip to the anode and the - tip to the cathode of the diode under test.
3. The meter will show the approx. forward voltage of the diode. If the lead connection is reversed "OL" displayed.

Specifications

General specifications

| | |
|-------------------------|--|
| MAX. Voltage | 50V MAX between terminals and earth ground |
| Sample Rate: | 3 times/sec for digital data |
| Display | 4000 count (3 3/4 digits) LCD display |
| Over Range | "OL" indication |
| Low battery |  indication |
| Auto power off | 15 minutes if there are no key presses |
| Power source | (2) AG13 button cell or equivalent |
| Pollution degree | 2 |
| Altitude | < 2000 m |
| Operating temp | 32 to 104°F (0~40 °C) |
| Operating RH | <80% RH, non-condensing |
| Storage temp | 14 to 140°F (-10~60°C) |
| Storage RH | <70% RH, battery removed |
| Temperature Coefficient | 0.5×(specified accuracy) / °C (<18 °C or >28 °C) |
| Dimensions | 181(L)×35(W)×20(H) mm |
| Weight | 65g. Approx. (battery included) |

Range specifications

* Accuracy: \pm (% of reading + number of digits) at 18°C to 28°C (64°F to 82°F) with relative humidity to 80%.



Caution: Don't use this device if the working voltage is above 50V DC or 36 V AC rms.

Resistance

| Range | Resolution | Accuracy |
|-------|------------|-------------------------------|
| 400Ω | 0.1Ω | \pm (1.2% of rdg +3digits) |
| 4kΩ | 1Ω | |
| 40kΩ | 10Ω | |
| 400kΩ | 100Ω | |
| 4MΩ | 1kΩ | |
| 40MΩ | 10kΩ | \pm (2.0% of rdg +5 digits) |

Capacitance

| Range | Resolution | Accuracy |
|-------|------------|-------------------------------|
| 4nF | 1pF | \pm (5.0% of rdg +5 digits) |
| 40nF | 10pF | \pm (3.0% of rdg +5 digits) |
| 400nF | 100pF | |
| 4μF | 1nF | |
| 40μF | 10nF | \pm (3.0% of rdg +5 digits) |
| 200μF | 100nF | |

Diode Test

| Range | Description | Test Condition |
|-------|-------------------------------|--|
| | Displays forward voltage drop | Forward DC Current: approx. 1mA Reversed DC Voltage: approx. 1.5V |

Maintenance

General Maintenance


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

Battery replacement



Before replacing the battery, disconnect test tips from any circuit under test

Use the following procedure:

When the battery voltage drop below proper operation range the  symbol will appear on the LCD display and the battery need to be replaced.

1. Slide the battery cover in the direction of the arrow to open the battery cover.
2. Replace the battery with two new 1.5V batteries (AG13).
3. Replace the battery cover.

Warranty

EXTECH INSTRUMENTS CORPORATION warrants the basic instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 EXTENSION 210 for authorization or visit www.extech.com for more information. **A Return Authorization (RA) number must be issued before any product is returned to Extech.** The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Calibration and Repair Services

Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



Support line (781) 890-7440

Technical Support: Ext. 200; E-mail: support@extech.com

Repair & Returns: Ext. 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User's Guide and other up-to-the-minute product information, visit our website:

www.extech.com

Extech Instruments Corporation, 285 Bear Hill Rd., Waltham,
MA 02451

RC100 V1.0 4/07