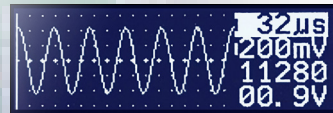


LCR-Reader-MPB[®]



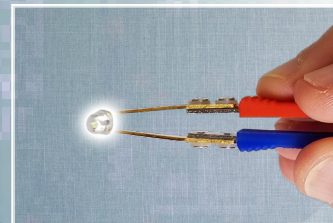
All-in-One Professional Multimeter



Oscilloscope mode



Diode mode



Testing LED

LCR-Reader MPB: Professional Benchtop LCR-Meter in Your Pocket

The LCR-Reader MPB is the latest model in the popular LCR-Reader family of LCR/ESR meters. In addition to its highly accurate **0.1% LCR measurements**, it offers an unrivalled number of features and an exceptionally wide measurement range. With the addition of a **250 kHz test frequency**, the device provides unique capabilities for measuring **capacitances down to 0.1 pF** and **inductances in the nH range**, with resolutions as fine as **0.001 pF** and **0.1 nH**, respectively.

The MPB is an easy-to-use, portable solution for accurate testing and sorting of **surface-mount devices (SMDs)** with just a touch. This lightweight multimeter automatically identifies components and measures them with high speed and precision. It is also an efficient tool for troubleshooting PCBs, offering additional functions such as **AC/DC voltage and current measurements, oscilloscope mode, signal generation, and frequency measurement**.

As electronics continue to shrink in size, so do their components—making it increasingly difficult to identify, test, and sort parts. Traditional multimeters with long cables and bulky test leads can make these tasks cumbersome. The **LCR-Reader MPB** offers a compact and elegant solution. Its sharp, gold-plated tweezer probes can securely grasp components as small as **0201**, even on densely populated circuit boards.

Time Efficient Automatic Measurements

The MPB eliminates the need for trial and error when testing and sorting multiple components. Once the probes contact a component, the device automatically determines the optimal test parameters and instantly displays all measurement values, including the main and secondary impedance values (**ESR, D, Q**), component type, test frequency, and signal level. For advanced applications, users can access extensive menus to customize measurements for any task. Options include multiple **automatic and manual test modes** (L, C, R, ESR, Z, D, Diode, and LED), frequency settings from **100 Hz to 250 kHz**, adjustable test signal levels for in-circuit measurements, **pass/fail indication** for electrolytic capacitors using a built-in rejection table, **frequency meter, automatic diode polarity and short-circuit detection, DC resistance and capacitance measurements up to 1 F, oscilloscope mode, AC/DC voltage measurements, and a signal generator with sine, triangle, and meander (square) waveforms, and more.**

Component Sorting / Tolerance Control / Relative Measurements

To facilitate quality control in production environments, the **Relative Measurement** feature allows users to quickly compare a component's value against a reference. Once a reference component is stored in memory, the MPB displays the percentage deviation when measuring other components of the same type.

Oscilloscope Mode and Kelvin Probe Connector

The **oscilloscope mode** is especially powerful when used with the **Kelvin Probe Connector**, which is compatible with all Smart Tweezers and LCR-Reader devices. This shielded, two-wire connector with replaceable attachments connects in place of one of the tweezer probes, creating a shielded Kelvin two-wire extension. This setup effectively transforms the LCR-Reader into a **low-frequency probe station**, enabling impedance testing across an entire PCB or waveform analysis at any node.

Lightweight and Easy-to-Use

The ergonomic design of the **LCR-Reader MPB** allows comfortable one-handed operation without cumbersome leads. Weighing only **1.35 oz (38 g)**, it is light enough for prolonged use without fatigue and leaves the other hand free for taking notes or manipulating components. The display automatically rotates depending on the hand being used. Its **long-lasting Li-Po battery** and **backlit LCD screen** ensure usability in fieldwork and low-light environments. The **gold-plated tweezers** provide stable contact, while the **shielded four-wire connection** minimizes measurement offsets.

Open and Short Calibration Boards

The included calibration boards eliminate measurement offsets when testing very small capacitances (open calibration board) and inductances (short calibration board). Their use effectively extends the MPB's measurement range to below **1 pF** and **10 nH** (patent pending).

LCR-Reader Bluetooth Data Logger with Visual Component Selection

The LCR-Reader with Bluetooth is a time-saving tool that records measurements in real time over a Bluetooth connection. This feature is available for the LCR-Reader MPA, MPB, R2, and R3 models. The latest LCR-Reader Data Logger software for Windows allows users to import component data from a BOM (CSV file) and link it to an image of the assembled PCB. Clicking a part in the BOM list highlights its location on the PCB—and vice versa—simplifying component identification. The LCR-Reader BT connects to a PC via the included Bluetooth dongle and displays live measurements in the Data Logger software. Users can create custom test profiles with parameters such as frequency, signal level, equivalent circuit, and secondary values. During testing, the software automatically assigns a pass/fail status and displays it on-screen, reducing human error. Test results can be exported to CSV for further analysis in Excel or other software.



Resistance, Impedance

Range	Resolution	Test Frequency					Circuit Equivalent
		100 Hz, 120 Hz	1 kHz	10 kHz	100kHz	250kHz	
10Ω	0.001Ω	0.5 %±20	0.2 %±20	0.5 %±20	1 %±20	1 %±20	Series
100Ω	0.01Ω	0.1 %±3	0.1 %±3	0.1 %±3	0.5 %±3	0.5 %±3	Series
1kΩ	0.1Ω	0.1 %±2	0.1 %±3	0.1 %±3	0.2 %±3	0.2 %±3	Series
10kΩ	0.001kΩ	0.1 %±2	0.1 %±3	0.1 %±3	0.2 %±3	0.2 %±3	Series, Parallel
100kΩ	0.01kΩ	0.1 %±2	0.1 %±3	0.1 %±3	0.5 %±3	0.5 %±3	Parallel
1MΩ	0.1kΩ	0.2 %±3	0.2 %±3	0.2 %±3	1 %±3	1 %±3	Parallel
10MΩ	0.001MΩ	1 %±5	0.5 %±5	1 %±5	-	-	Parallel
20MΩ	0.01MΩ	3 %±5	3 %±5	-	-	-	Parallel

Accuracy for the ranges 1 R ~ 100 R is specified after subtract of the offset resistance

Inductance

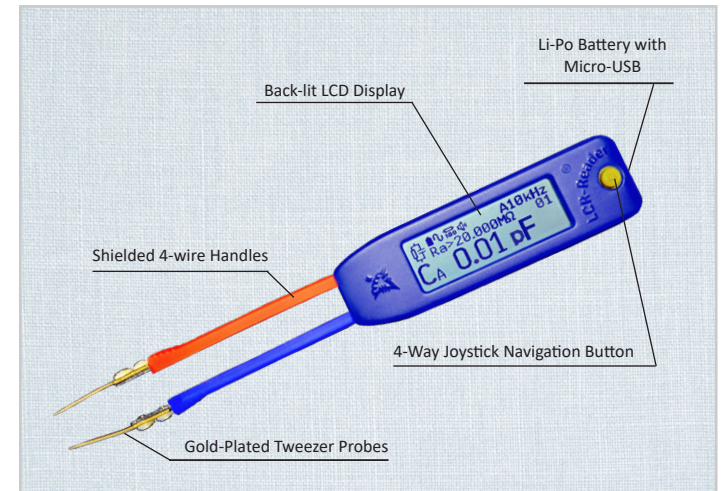
Range	Resolution	Test Frequency				
		100Hz, 120Hz	1kHz	10kHz	100kHz	250kHz
1000 nH	1 nH	-	-	-	3 % +5	3 % +5
10 μH	10 nH	-	-	0.5 % +30	2 % +30	3 % +2
100 μH	0.001 μH	-	1 % +3	0.3 % +5	0.5 % +5	2 % +3
1000 μH	0.01 μH	1 % +3	0.5 % +3	0.1 % +3	0.5 % +2	1 % +2
10 mH	0.1 μH	0.3 % +3	0.1 % +3	0.1 % +3	0.5 % +2	1 % +2
100 mH	0.001 μH	0.2 % +3	0.1 % +3	0.2 % +3	1 % +2	2 % +2
1000 mH	0.01 mH	0.2 % +3	0.5 % +3	0.3 % +3	3 % +5	-
10 H	0.1 mH	2 % +3	2 % +3	2 % +3	-	-
100 H	0.001 H	2 % +3	5 % +3	-	-	-
200 H	0.01 H	5 % +3	-	-	-	-

Capacitance

Range	Resolution	Test Frequency				
		100Hz, 120Hz	1kHz	10kHz	100kHz	250kHz
10 pF	0.001pF	-	-	0.5%±5	1%±10	1%±20
100pF	0.01pF	-	-	0.3%±5	0.3%±5	0.5%±3
1000pF	0.1pF	4%±5	0.3%±3	0.2%±5	0.3%±3	0.4%±3
10nF	0.001nF	0.2%±4	0.1%±3	0.1%±3	0.3%±2	0.5%±2
100 nF	0.01nF	0.2%±2	0.1%±3	0.1%±3	0.5 %±2	0.5%±2
1000nF	0.1nF	0.2%±2	0.1%±3	0.2%±3	1 %±3	3%±3
10μF	0.001 μF	0.3%±2	0.2%±3	0.2%±3	3 %±5	-
100μF	0.01μF	0.5%±2	0.2%±3	3%±5	-	-
1000μF	0.1μF	2%±5	3%±5	-	-	-
10mF	0.01 mF	5%±5	-	-	-	-
40mF	0.01 mF	10%±5	-	-	-	-

Accuracy for the ranges of 10 pF~1000 pF is specified after subtract of the stray capacitances for test leads.

- Automatic and manual L, C, R, Z, D, Q and ESR Measurements
- 0.1% Basic accuracy
- Test frequency 100 Hz to 250 kHz
- LED/Diode test and DC Resistance
- AC/DC Voltage measurements
- Oscilloscope Mode up to 100 kHz
- Frequency Meter
- Component Tolerance/Sorting
- Signal Generator: Sine, Triangle and Meander Waveforms up to 500 kHz
- Test signal of 0.1, 0.5 and 1.0 Vrms
- Automatic signal reduction for in-circuit measurements
- Automatic component identification
- Automatic range selection
- Supercap testing up to 1 F
- 4-Way joystick navigation
- Backlit LCD display
- Automatic power off
- Li-Po battery with micro-USB charging
- Sound Indicator
- Automatic/Manual Left/Right screen orientation
- Pass/NoPass Electrolytic Cap indication with built-in rejection table
- Easy Short/Open calibration and offset removal
- Optional Bluetooth upgrade with Data Logger for Windows
- Data Logger with BOM import and visual component selection on the board image



Technical Specifications

AC Test Mode Test Frequency:

100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz, 250 kHz

Test Signal Level:

1, 0.5, 0.1 Vrms +/- 5%

Test Frequency Accuracy:

±(0.005%+5) Hz

Source Impedance:

100, 500 Ω +/- 1%

Measurement Ranges

Resistance R:

10 mΩ to 20 MΩ

Capacitance C:

0.1 pF to 1 F

Inductance L:

10 nH to 100 H

Quality factor Q:

0.001 to 1000

Dissipation factor D:

0.001 to 1000

Physical Specifications

Size:

166x23x14 mm (6.5 x 0.9 x 0.55 in.)

Weight:

39 grams(1.3 Oz.)

Operating temperature:

10°C to 40°C

Battery Type:

3.7V LiPo rechargeable 250mAh

Battery Life (continuous):

7 hours, 2 hours charging cycle

