The DE-5000 is a portable, high-performance LCR meter that is full-featured yet cost effective. It measures in true 4-wire Kelvin mode and rivals the capabilities and options of many of its bench counterparts. This LCR meter features automatic L-C-R selection, a Sorting mode, and selectable test frequencies. It can transfer data to a PC via a fully isolated, optical IR-USB interface.

**Features:**
- 4-wire measurement
- Automatic L-C-R selection
- Component sorting function with selectable PASS/FAIL tolerances
- Selectable test frequencies:
  - 100 Hz / 120 Hz / 1 kHz / 10 kHz / 100 kHz
- Selectable test model: series or parallel
- Backlit, 20,000/2,000 count display
- Relative mode
- Low-battery indicator
- USB interface

**Specifications**

**Parameters measured:**
- $L_s / L_p / C_s / C_p / R_s / R_p / DCR$ with $D/Q/\Theta/ESR$ measurement
- Automatic L-C-R selection

**Accuracy:**
See next page

**Selectable test model:**
- Series or Parallel

**Display:**
- Backlit
- 20,000/2,000 count

**Terminals:**
- 4-wire spring-loaded sockets and binding post jacks
- Accepts normal or shrouded banana plugs

**Automated LCR ranges:**
- $L$: 20.000 μH -- 2000 H
- $C$: 200.00 pF -- 20.00 mF
- $R$: 20.000 Ω -- 200.0 MΩ
- $DCR$: 200.00 Ω -- 200.0 MΩ

**Selectable test frequencies:**
- 100 Hz / 120 Hz / 1 kHz / 10 kHz / 100 kHz

**Measurement rate:**
- 1.2/second nominal

**Available tolerances for sorting function:**
- ±0.25%
- ±0.5%
- ±1%
- ±2%
- ±5%
- ±10%
- ±20%
- -20/+80%

**Response time:**
- Approx. 1 second/DUT

**Temperature coefficient:**
- $[0.15 \times (specified \ accuracy)]/°C$
- 0-18°C, 28-50°C

**Test signal level:**
- 0.5 Vrms Typical

**Environmental:**
- **Operating temperature:** 0°C to 50°C; <70% RH
- **Storage temperature:** -20°C to 60°C; <80% RH

**Battery:**
- Uses a standard 9V alkaline battery
- Display includes battery level indicator

**Mechanical:**
- **Dimensions:** 18.8 cm H x 9.5 cm W, 5.3 mm D (7.4" x 3.75" x 2")
- **Weight:** 350 g (0.75 lb)

**Ordering Information**

**DE-5000 Standard Package:**
- LCR meter DE-5000-LCR
- Carrying case DE-5000-CS
- Alligator-clip test-lead adapter TL-21
- (4-wire joined at alligator clips)
- Guard lead TL-23
- Standard 9 V battery DE-5000-9V
- Instruction manual DE-5000-IM

**Optional Accessories:**
- AC adapter DE-5000-AC
- SMD tweezers (4-wire) TL-22
- Data transfer kit DE-5000-DTK
  - IR to USB Interface Adapter
  - USB cable
  - CD with software for PC
Accuracy Specifications

Accuracy is specified at 23°C ± 5°C, <75% RH.

All accuracy is specified as ±[(% of reading) + (value of least significant digit)].

For the most precise measurement results, the meter has to be zeroed before taking a reading.

### Resistance Accuracy:

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>100/120Hz</th>
<th>1kHz</th>
<th>10kHz</th>
<th>100kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.000 Ω</td>
<td>0.001 Ω</td>
<td>--</td>
<td>1.0%+3</td>
<td>1.0%+3</td>
<td>2.0%+3</td>
</tr>
<tr>
<td>200.0 Ω</td>
<td>0.01 Ω</td>
<td>1.0%+3</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>2.0000 kΩ</td>
<td>0.0001 kΩ</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
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<td>0.01 kΩ</td>
<td>0.5%+2</td>
<td>0.5%+2</td>
<td>1.0%+3</td>
<td>--</td>
</tr>
<tr>
<td>2.0000 MΩ</td>
<td>0.0001 MΩ</td>
<td>1.0%+3</td>
<td>1.0%+3</td>
<td>--</td>
<td>--</td>
</tr>
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Accuracy is specified at 23°C ± 5°C, <75% RH.

All accuracy is specified as ±[(% of reading) + (value of least significant digit)].

For the most precise measurement results, the meter has to be zeroed before taking a reading.

### Capacitance Accuracy:

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<thead>
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<tbody>
<tr>
<td>200.00 pF</td>
<td>0.01 pF</td>
<td>--</td>
<td>--</td>
<td>1.2%+5</td>
<td>2.5%+5</td>
</tr>
<tr>
<td>2000.0 pF</td>
<td>0.1 pF</td>
<td>--</td>
<td>2.0%+3</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>20.000 nF</td>
<td>0.001 nF</td>
<td>2.0%+3</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>200.0 nF</td>
<td>0.1 nF</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+2</td>
<td>2.0%+5</td>
</tr>
<tr>
<td>2.000 μF</td>
<td>0.01 μF</td>
<td>0.3%+2</td>
<td>0.6%+2</td>
<td>1.0%+3</td>
<td>--</td>
</tr>
<tr>
<td>20.0 μF</td>
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<td>0.1 μF</td>
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<tr>
<td>2.0 mF</td>
<td>0.01 mF</td>
<td>--</td>
<td>1.2%+3</td>
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</tbody>
</table>

### Inductance Accuracy:

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>20.000 μH</td>
<td>0.001 μH</td>
<td>--</td>
<td>--</td>
<td>2.5%+5</td>
<td>--</td>
</tr>
<tr>
<td>200.0 μH</td>
<td>0.01 μH</td>
<td>--</td>
<td>1.2%+5</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>2000.0 μH</td>
<td>0.1 μH</td>
<td>2.0%+5</td>
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<tr>
<td>20.00 mH</td>
<td>0.001 mH</td>
<td>1.2%+5</td>
<td>0.6%+3</td>
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</tr>
<tr>
<td>200.0 mH</td>
<td>0.01 mH</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
<td>--</td>
</tr>
<tr>
<td>2.000 H</td>
<td>0.001 H</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
<td>--</td>
</tr>
<tr>
<td>20.0 H</td>
<td>0.01 H</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2.0 kH</td>
<td>0.001 kH</td>
<td>1.2%+5</td>
<td>--</td>
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</tr>
</tbody>
</table>

### DCR Accuracy:

<table>
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<tr>
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<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>200.00 Ω</td>
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<tr>
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</tbody>
</table>

### Secondary Parameters Accuracy:

A.Z = impedance (Z) accuracy

Definition: Q = 1/D & Rp = ESR * (1+1/D²)

D value accuracy: D.Z = ± A.Z * (1+D)

ESR accuracy: R.Z = ± Z.M * A.Z (Ω)

ie., Z.D = impedance calculated by 1÷(2πƒC) or 2πƒL

Phase angle Θ accuracy: Θ.Z = ±(180/π)*A.Z (deg)