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:
- Ls / Lp / Cs / Cp / Rs / Rp / DCR with D/Q/Θ/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% ±5%
- ±0.5% ±10%
- ±1% ±20%
- ±2% -20/+80%

Response time:
- Approx. 1 second/DUT

Temperature coefficient:
- [0.15 x (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
- Carrying case
- Alligator-clip test-lead adapter
  - (4-wire joined at alligator clips)
- Guard lead
- Standard 9 V battery
- Instruction manual

Optional Accessories:
- AC adapter
- SMD tweezers (4-wire)
- Data transfer kit
  - IR to USB Interface Adapter
  - USB cable
  - CD with software for PC

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

Response time:
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### 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>200.00 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>0.001 kΩ</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>20.000 kΩ</td>
<td>0.01 kΩ</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>2.0000 MΩ</td>
<td>0.001 MΩ</td>
<td>1.0%+3</td>
<td>1.0%+3</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>2.000 MΩ</td>
<td>0.01 MΩ</td>
<td>--</td>
<td>--</td>
<td>2.0%+3</td>
<td></td>
</tr>
<tr>
<td>20.00 MΩ</td>
<td>0.01 MΩ</td>
<td>2.0%+3</td>
<td>2.0%+3</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>200.0 MΩ</td>
<td>0.01 MΩ</td>
<td>--</td>
<td>2.0%+3</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

### Capacitance 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>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>2.0000 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>20.000 nF</td>
<td>0.01 nF</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>200.000 nF</td>
<td>0.01 nF</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>2.0000 μF</td>
<td>0.001 μF</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
<td>--</td>
</tr>
<tr>
<td>2.000 μF</td>
<td>0.01 μF</td>
<td>--</td>
<td>--</td>
<td>3.0%+5</td>
<td>(10μF max.)</td>
</tr>
<tr>
<td>20.000 μF</td>
<td>0.01 μF</td>
<td>1.0%+3</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2.000 mF</td>
<td>0.1 μF</td>
<td>--</td>
<td>1.2%+3</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

### Inductance 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 μH</td>
<td>0.001 μH</td>
<td>--</td>
<td>--</td>
<td>2.5%+5</td>
<td></td>
</tr>
<tr>
<td>200.00 μH</td>
<td>0.01 μH</td>
<td>--</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>2.0000 μH</td>
<td>0.01 μH</td>
<td>--</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>20.000 mH</td>
<td>0.01 mH</td>
<td>1.2%+5</td>
<td>1.0%+5</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
</tr>
<tr>
<td>200.00 mH</td>
<td>0.01 mH</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
</tr>
<tr>
<td>2000.0 mH</td>
<td>0.01 mH</td>
<td>0.3%+2</td>
<td>0.6%+3</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
</tr>
<tr>
<td>2000.0 MΩ</td>
<td>0.1 MΩ</td>
<td>0.6%+3</td>
<td>1.2%+5</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>2.000 kΩ</td>
<td>0.001 kΩ</td>
<td>1.2%+5</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

### DCR Accuracy:

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>200.00 Ω</td>
<td>0.01 Ω</td>
<td>1.0%+3</td>
</tr>
<tr>
<td>2.0000 kΩ</td>
<td>0.001 kΩ</td>
<td>0.2%+2</td>
</tr>
<tr>
<td>20.000 kΩ</td>
<td>0.01 kΩ</td>
<td>0.5%+2</td>
</tr>
<tr>
<td>2.0000 MΩ</td>
<td>0.001 MΩ</td>
<td>1.0%+3</td>
</tr>
<tr>
<td>20.000 MΩ</td>
<td>0.001 MΩ</td>
<td>2.0%+3</td>
</tr>
<tr>
<td>200.0 MΩ</td>
<td>0.1 MΩ</td>
<td>2.0%+3</td>
</tr>
</tbody>
</table>

### Secondary Parameters Accuracy:

- Accurate value is calculated by 1÷(2π f C) or 2π f L
- Phase angle Θ accuracy: Θ = ±(180/π)A_D
- The 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.