Introduction
The Agilent Technologies LCR meter makes fast measurements on components. It is optimized for applications that require precision and versatility. The instrument’s performance ranges from general bench-top impedance measurements to complex transformer, coil and electrolytic capacitor measurements. The LCR meter offers fast, reliable, and versatile testing at a low cost.

Satisfy your needs for...
Fast system test throughput
• Maximize testing with rapid 25 ms measurements
• Minimize user intervention with pass/fail testing
• Communicate results with display and GPIB
• Automate testing with built-in handler interface

Fault-free results
• Test with confidence using contact check function
• Remove parasitics with error correction
• Get the best data with 0.1% basic accuracy
• Eliminate trigger timing errors with trigger delay function

Versatile measurements
• Select from 11 impedance parameters
• Add three complex transformer parameters with Option 4263B-001
• Set signal level with 5 mVrms resolution
• Monitor actual ac voltage and current levels
• Pick from many test fixtures and accessories
• Save and recall up to ten measurement setups
Key Parameters and Specifications

Test frequencies:
100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz
Option 4263B-002 adds 20 kHz

AC test signal levels:
20 m–1 Vrms, 5 mVrms steps

Basic accuracy:
0.1%

Impedance parameters:
|Z|, R, X, |Y|, G, B, C, L, D, Q, u

Option 4263B-001 adds transformer measurement functions: turns-ratio, mutual-inductance and dc-resistance

Cable length settings:
0, 1, 2, 4 meters

Bias:
1.5 and 2.0 Vdc

Error correction:
Open, short, and load

Built-in system features:
GPIB and handler interfaces

Measurement time (typical):
25 ms at best conditions

Contact check time (typical):
5 ms per measurement
High-quality results
- See five digits of data
- Make precise measurements with 0.1% basic accuracy
- Select from 11 impedance parameters
- Verify device performance at simulated operating conditions
- Monitor actual test signal voltage and current levels

System features for test automation
- Maximize accuracy with error correction
- Use performance specified with 0, 1, 2, and 4 meter cables
- Test device contact failure with contact check function
- Automate testing with GPIB interface
- Reduce ground-loops with isolated handler interface
- Continue testing after ac power loss with continuous memory
- Perform pass/fail testing with comparator function (High/In/Low)

Evaluate transformers and coils with Option 4263B-001
- Measure turns-ratio, mutual inductance and dc-resistance
- Easily make connections with 16060A transformer test fixture
- Measure parameter responses with variable signal levels

Make reliable impedance measurements.

The 4263B LCR meter is designed for automated applications.

Evaluate transformers and coils with Option 4263B-001
- Measure turns-ratio, mutual inductance and dc-resistance
- Easily make connections with 16060A transformer test fixture
- Measure parameter responses with variable signal levels

Simplify transformer testing.

Make electrolytic capacitor measurements
- Obtain versatile testing with a large capacitance range
- Keep costs down with built-in dc bias source
- Protect your investment: high energy protection on terminals
- Increase test throughput with fast system measurements
- Make reliable handler measurements with contact check function

Quickly evaluate electrolytic capacitors.
Specifications

Measurement accuracy

Table 1. Measurement accuracy (±% of reading)

<table>
<thead>
<tr>
<th>Impedance (Ω)</th>
<th>Capacitance (µF)</th>
<th>Inductance (µH)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>100M</td>
<td>100mF</td>
<td>100µH</td>
<td>0.85 + 2 x 10⁻⁷ Ωm</td>
</tr>
<tr>
<td>10M</td>
<td>10µF</td>
<td>100µH</td>
<td>0.15 + 2 x 10⁻³ Ωm</td>
</tr>
<tr>
<td>1M</td>
<td>1µF</td>
<td>100µH</td>
<td>0.1 + 10⁻⁵ Ωm</td>
</tr>
<tr>
<td>100k</td>
<td>1000pF</td>
<td>100µH</td>
<td>0.095 + 1.4 x 10⁻⁷ Ωm</td>
</tr>
<tr>
<td>10k</td>
<td>100pF</td>
<td>100µH</td>
<td>0.36 + 5.1 x 10⁻⁷ Ωm</td>
</tr>
<tr>
<td>1k</td>
<td>10pF</td>
<td>100µH</td>
<td>1.4 + 10⁻⁶ Ωm</td>
</tr>
<tr>
<td>100Ω</td>
<td>10µF</td>
<td>100µH</td>
<td>0.16 + 1.3 x 10⁻⁶ Ωm</td>
</tr>
<tr>
<td>10Ω</td>
<td>1µF</td>
<td>100µH</td>
<td>0.8 + 3.7 x 10⁻⁶ Ωm</td>
</tr>
<tr>
<td>1Ω</td>
<td>100nF</td>
<td>100µH</td>
<td>0.8 + 1.4 x 10⁻⁵ Ωm</td>
</tr>
</tbody>
</table>

Figure 1. Conversion diagram
Measurement conditions

1. Warm-up time: ≥15 min.
2. Ambient temperature: 23 ±5 °C
3. Test signal voltage: 1 Vrms
4. Test cable length: 0 meter
5. Open and short corrections performed
6. Measurement time: Medium or Long
(Other test condition data is available in the operation manual.)

For |Z|, |Y|, L, C, R, X, G, and B accuracy (A_e), refer to Table 1. Table 1 equations yield accuracy based on frequency and DUT characteristic impedance (Z_m). Z_m is from Figure 1, Conversion Diagram.

D accuracy (D_e) = ± A_e/100
Q accuracy (Q_e) = ± (Q_m x Q_e < 1) \( \sqrt{\frac{1}{T}} \)
where u phase angle accuracy (u_e) = 0.573 x A_e

A_e = Accuracy of |Z|, |Y|, L, C, R, X, G, and B
D_e = D accuracy
Q_e = Q accuracy
Q_m = Measured value of Q
u_e = u phase angle accuracy
Z_m = DUT impedance at test frequency in Hertz

Other Specifications

Measurement parameters/ranges

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z</td>
</tr>
<tr>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>C</td>
<td>1 pF to 1 F</td>
</tr>
<tr>
<td>L</td>
<td>10 nH to 100 kH</td>
</tr>
<tr>
<td>D</td>
<td>0.0001 to 9.9999</td>
</tr>
<tr>
<td>Q</td>
<td>0.1 to 9999.9</td>
</tr>
<tr>
<td>u</td>
<td>-180° to + 180°</td>
</tr>
<tr>
<td>∆</td>
<td>-999.99% to 999.99%</td>
</tr>
</tbody>
</table>

Option 4263B-001: DC resistance 1 mΩ to 100 MΩ

Mutual inductance 1 µH to 100 H
(Typical)

Turns ratio 0.9 to 200 (typical)

Test frequency: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz. (Option 4263B-002 adds 20 kHz.)

AC test signal level: 20 m - 1 Vrms,
5 mVrms steps

Bias:
Internal: + 1.5 and +2.0 Vdc
External: 0 to + 3.0 Vdc

Ranging: Auto and Hold

Trigger: Internal, Manual, and External

Trigger delay time: 0 to 9999 ms in 1 ms steps

Test cable lengths:
0, 1 meter @ f ≤ 100 kHz
2 meter @ f ≤ 10 kHz (20 kHz)
4 meter @ f ≤ 1 kHz

Measurement time:
SHORT MEDIUM LONG
25 ms 65 ms 500 ms

Other instrument functions

Test signal level monitor:
Voltage, current

Error Correction: Open, Short, Load

Comparator: HIGH, IN, and LOW for each displayed parameter

Save/recall: 10 instrument states from non-volatile memory

Front-end Protection:
V_max = \( \sqrt{\frac{V_f}{C}} \) @ V_max ≤ 250 V
V_max = \( \sqrt{\frac{V_f}{C}} \) @ V_max ≤ 1000 V
C in Farads

Handler interface: Negative logic and isolated. Signals are HIGH/IN/LOW, No-Contact, EOM, Index, Alarm, Keylock, Ext. Trigger.

GPIB interface: Instrument control, TALK-only mode for LISTEN-only printers using GPIB or Centronics/GPIB converter

Physical characteristics

Power: 90-132 Vac or 198-264 Vac. 47-66 Hz. 45 VA typical.

Operating temperature: 0 to 45 °C

Dimensions: 320 (W) x 100 (H) x 300 (H) mm

Weight: 4.5 kg (typical)
Test Fixtures/Accessories for the Agilent 4263B

**16060A transformer test fixture**
Allows fast connections to transformers

**16065C external bias adapter**
For external dc bias of DUT. $V_{\text{max}} \leq 40$ Vdc.

**16089C Kelvin IC clip leads**
IC package clip. 1 meter length.

**16089A Kelvin clip leads**
Large clip. 1 meter length.

**16089B Kelvin clip leads**
Medium clip. 1 meter length.

**16089D Alligator clip leads**
Four clips. 1 meter length.

**16034G Test fixture**
For SMD components.
Component dimensions (L x W):
0.6 mm x 0.3 mm to 5.0 mm x 1.6 mm
Ordering information

Agilent 4263B LCR Meter
Furnished accessory: power cable

Options
4263B-001 Add N/M/DCR Measurement Function
4263B-002 Add 20 kHz Test Frequency
Test fixtures are not furnished as standard.

Manual options
4263B-ABA U.S. - English localization
4263B-ABJ Japan - Japanese localization
4263B-0BW Add service manual

Cabinet options
4263B-1CM Rackmount kit
4263B-1CN Handle kit (Rack flange and handle kit are not compatible.)

Calibration certificate option
4263B-1A7 ISO 17025 compliant calibration

Test fixtures and accessories
16034E/G/H SMD component test fixture
16043-60011/12 3-terminal SMD test fixture
16044A Test fixture

Options
16044A-ABA U.S. - English localization
16044A-ABJ Japan - Japanese localization
16047A/€ Axial and radial test fixture

Options
16047E-ABA U.S. - English localization
16047E-ABJ Japan - Japanese localization
16334A SMD tweezer test fixture
16048A 0.94-meter/BNC test leads
16048-60030 0.94-meter/SMC test leads
16048D 1.89-meter/BNC test leads
16048E 3.8-meter/BNC test leads
16060A Transformer test fixture
16065A 200-Vdc external voltage bias fixture
16065C 40-Vdc external voltage bias adapter
16089A Large Kelvin clip leads
16089B Medium Kelvin clip leads
16089C Kelvin IC clip leads
16089D Alligator clip leads
16089E Kelvin clip leads

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1 Accessories and options are priced individually.
2 Manual is not furnished as standard
3 Must specify one of language options (ABA or ABJ) for operation manual of 16047E for shipment with product.
Remove all doubt

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