
HP 4263B LCR Meter

100 Hz to 100 kHz

Product Overview

**Within Budget.
Without Compromise.**

Introducing the HP 4263B LCR Meter

This LCR meter makes fast measurements on components. It is optimized for tests demanding 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 HP-IB
- Automate with built-in handler interface



Fault-free results

- Test with confidence using contact check
- 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 001
- Set signal level in 5mVrms steps
- Monitor actual ac voltage and current levels
- Pick from over 15 HP test fixtures and accessories
- Save and recall up to ten measurement setups

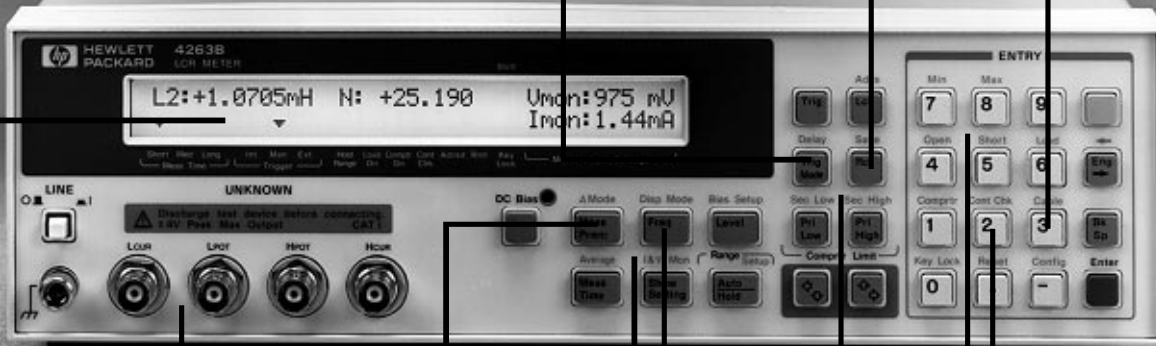
Display:
LCD with back-light.
Displays measurement
values, instrument states,
and comparator results

Trigger Mode:
Choose internal, external
or manual trigger

Save/Recall:
Store and retrieve up to
10 measurement states

Cable:
Extend front panel cable
length from 0 to 4 meters

HP 4263B with Option 001



Four-terminal Pair:
Reduces errors due
to cable extension

Measurement Parameter:
Select the desired
test parameter

I&V Monitor:
Monitor actual
ac voltage and
current levels

Comparator:
Select values for
HIGH, IN, and
LOW testing

Contact Check:
Verify reliability of
test connections

Frequency:
Select one of
five test frequencies

Open/Short/Load:
Correct for test fixture
and cable errors

Key Parameters and Specifications

Test Frequencies:

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

Option 002 adds 20 kHz.

AC Test Signal Levels:

20m - 1 Vrms, 5mVrms steps

Basic accuracy:

0.1%

Impedance Parameters:

$|Z|$, R, X, $|Y|$, G, B, C, L, D, Q, θ

Option 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:

HP-IB and handler interfaces

Measurement time (typical):

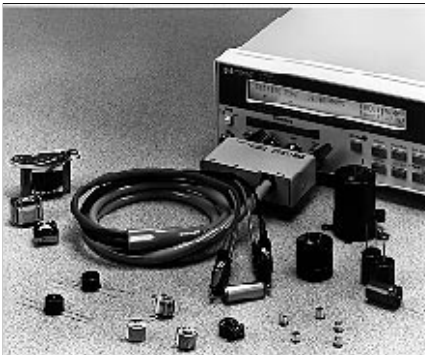
25 ms at best conditions

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



Reliable impedance measurements

System features for test automation

- Maximize accuracy with error correction
- Performance specified with 0, 1, 2, and 4 meter cables
- Test device contact failure with contact check function
- Automate testing with HP-IB interface
- Reduce ground-loops with isolated handler interface
- Continue testing after ac power loss with continuous memory
- Pass/fail testing with comparator function (High/In/Low)



Designed for automated applications

Evaluate transformers and coils with Option 001

- Measure turns-ratio, mutual inductance and dc-resistance
- Easily make connections with HP 16060A Transformer Test Fixture
- Measure parameter responses with variable signal levels



Simplify transformer testing

Make electrolytic capacitor measurements

- Versatile testing with a large capacitance range
- Keep costs down with built-in dc bias
- Protect your investment: high energy protection on terminals
- Increase test throughput with fast system measurements
- Reliable handler measurements with contact check function



Fast electrolytic capacitor evaluation

Specifications

Measurement Accuracy

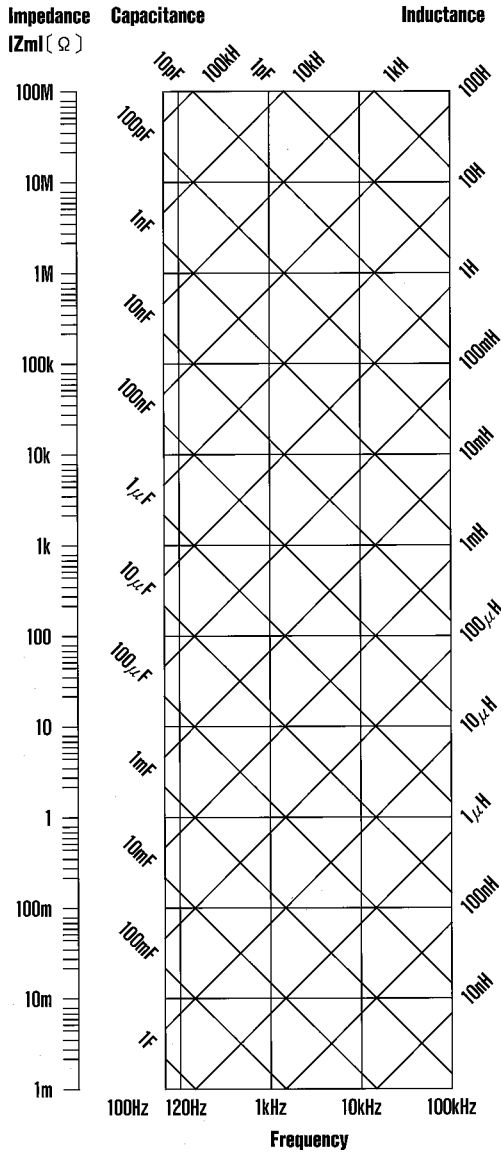


Figure 1.
Conversion Diagram

0.85 + $2.9 \times 10^{-8} / Z_{ml}$	0.15 + $2.9 \times 10^{-8} / Z_{ml}$	0.1 + $5.6 \times 10^{-8} / Z_{ml}$	0.48 + $3.8 \times 10^{-7} / Z_{ml}$	1.9 + $7.7 \times 10^{-7} / Z_{ml}$	Accuracy Not Specified
0.85 + $2 \times 10^{-7} / Z_{ml}$	0.15 + $2 \times 10^{-7} / Z_{ml}$	0.095 + $1.4 \times 10^{-7} / Z_{ml}$	0.36 + $5.1 \times 10^{-7} / Z_{ml}$	1.4 + $1 \times 10^{-6} / Z_{ml}$	1.2 + $1.4 \times 10^{-5} / Z_{ml}$
0.85 + $2 \times 10^{-6} / Z_{ml}$	0.15 + $2 \times 10^{-6} / Z_{ml}$	0.09 + $1 \times 10^{-6} / Z_{ml}$	0.16 + $1.9 \times 10^{-6} / Z_{ml}$	0.8 + $3.7 \times 10^{-6} / Z_{ml}$	
0.85 + $2 \times 10^{-5} / Z_{ml}$	0.15 + $2 \times 10^{-5} / Z_{ml}$	0.09 + $1 \times 10^{-5} / Z_{ml}$	0.16 + $1.5 \times 10^{-5} / Z_{ml}$	0.7 + $3.1 \times 10^{-5} / Z_{ml}$	1.1 + $1 \times 10^{-4} / Z_{ml}$
0.85 + $2 \times 10^{-4} / Z_{ml}$	0.15 + $2 \times 10^{-4} / Z_{ml}$	0.09 + $1 \times 10^{-4} / Z_{ml}$	0.16 + $1.5 \times 10^{-4} / Z_{ml}$	0.7 + $3 \times 10^{-4} / Z_{ml}$	1.1 + $1 \times 10^{-3} / Z_{ml}$
0.85 + $2 / Z_{ml}$	0.15 + $2 / Z_{ml}$	0.09 + $1 / Z_{ml}$	0.16 + $1.5 / Z_{ml}$	0.5 + $3.1 / Z_{ml}$	0.83 + $10 / Z_{ml}$
0.85 + $0.2 / Z_{ml}$	0.17 + $0.22 / Z_{ml}$	0.12 + $0.1 / Z_{ml}$	0.2 + $0.18 / Z_{ml}$	0.6 + $0.35 / Z_{ml}$	0.97 + $1.3 / Z_{ml}$
0.85 + $0.022 / Z_{ml}$	0.4 + $0.022 / Z_{ml}$	0.4 + $0.015 / Z_{ml}$	0.4 + $0.04 / Z_{ml}$	0.6 + $0.08 / Z_{ml}$	0.97 + $0.35 / Z_{ml}$
0.85 + $0.012 / Z_{ml}$	0.4 + $0.012 / Z_{ml}$	0.4 + $0.0075 / Z_{ml}$	0.4 + $0.028 / Z_{ml}$	0.6 + $0.056 / Z_{ml}$	0.97 + $0.26 / Z_{ml}$
DC	100/120	1k	10k	20k (Option 002 only)	100k

Table 1.
Measurement Accuracy ($\pm\%$ of reading)

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 available in the operation manual.)

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

D accuracy (De) = ± Ae/100

Q accuracy (Qe) = ± $\frac{(Qm)^2 \times De}{1 + (Qm \times De)}$

where (Qm x De < 1)

θ accuracy (θe) = 0.573 x Ae

Ae = Accuracy of |Z|, |Y|, L, C, R, X, G, and B.

De = D accuracy.

Dm = Measured value of D.

Qe = Q accuracy.

Qm = Measured value of Q.

θe = θ phase angle accuracy.

Zm = DUT impedance at test frequency in Hertz.

Other Specifications

Measurement Parameters/Ranges

Parameter	Range
Z , R, X	1 mΩ to 100 MΩ
Y , G, B	10 nS to 1000S
C	1 pF to 1 F
L	10 nH to 100 kH
D	0.0001 to 9.9999
Q	0.1 to 9999.9
θ	-180° to + 180°
Δ	-999.99% to 999.99%

Option 001: DC resistance 1 mΩ to 100 MΩ

Mutual inductance 1μH to 100H (typical)

Turns-ratio 0.9 to 200 (typical)

Measurement Conditions and Functions

Test Frequency: 100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz. (Option 002 adds 20 kHz.)

AC Test Signal Level: 20m - 1Vrms, 5mVrms 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:
Vmax = $\sqrt{8/C}$ @ Vmax ≤ 250V,
Vmax = $\sqrt{2/C}$ @ Vmax ≤ 1000V.
C in Farads.

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

HP-IB Interface: Instrument control, TALK-only mode for LISTEN-only printers using HP-IB or Centronics/HP-IB converter.

Physical Characteristics

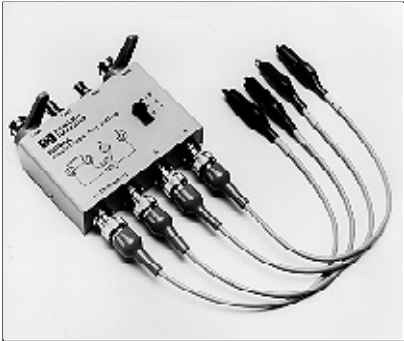
Power: 90-132 Vac or 198-264 Vac. 47-66 Hz. 45 VA typical.

Operating Temperature: 0-45° C

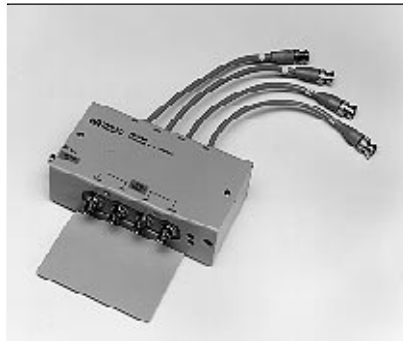
Dimensions: 320 (W) x 100 (H) x 300 (H) mm

Weight: 4.5 kg (typical)

Test Fixtures/Accessories



HP 16060A Transformer Test Fixture Allows fast connections to transformers



HP 16065C External Bias Adapter. For external dc bias of DUT. $V_{max} \leq 40$ Vdc.



HP 16089C Kelvin IC Clip Leads IC package clip. 1 meter length.



HP 16064B LED Display/Trigger Box Displays comparator status. 1.5 meter cable. External trigger.



HP 16089A Kelvin Clip Leads Large clip. 1 meter length.

HP 16089B Kelvin Clip Leads Medium clip. 1 meter length.

HP 16089D Alligator Clip Leads Four clips. 1 meter length.

Ordering Information**HP 4263B LCR Meter**

Furnished accessories: Operation manual, power cable.

Instrument Options:

- 001** Add N/M/DC-R Measurement Function
- 002** Add 20 kHz Test Frequency

Manual Options:

- ABA** English Operation Manual
- ABJ** Japanese Operation Manual
- 0B0** Delete Operation Manual
- 0B1** Extra Operation Manual

Service Options:

- W30** Three Year Customer Return Repair
- W32** Three Year Customer Return Calibration
- W34** Three Year Customer Return Standards Compliant Calibration

Cabinet Options:

- 1CN** Front Handle Kit
- 1CM** Rack Mount Kit
(Rack flange and handle kit is not compatible)

Test Fixtures and Accessories

HP 16034E SMD Component Test Fixture

HP 16047A Axial And Radial Test Fixture

HP 16334A SMD Tweezer Test Fixture

HP 16048A 0.94 meter/BNC Test Leads

HP 16048B 0.94 meter/SMC Test Leads

HP 16048D 1.89 meter/BNC Test Leads

HP 16048E 3.8 meter/BNC Test Leads

HP 16060A Transformer Test Fixture

HP 16064B LED Display/Trigger Box

HP 16065A 200 Vdc External Voltage Bias Fixture

HP 16065C 40 Vdc External Voltage Bias Adapter

HP 16089A Large Kelvin Clip Leads

HP 16089B Medium Kelvin Clip Leads

HP 16089C Kelvin IC Clip Leads

HP 16089D Alligator Clip Leads

For more information on Hewlett-Packard Test and Measurement products, applications, or services please call your local Hewlett-Packard sales office. A current listing is available via the Web through AccessHP at <http://www.hp.com>. If you do not have access to the internet, please contact one of the HP centers listed below and they will direct you to your nearest HP representative.

United States:

Hewlett-Packard Company
Test and Measurement Organization
5301 Stevens Creek Blvd.
Bldg. 51L-SC
Santa Clara, CA 95052-8059
1 800 452 4844

Canada:

Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(905) 206 4725

Europe:

Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands

Japan:

Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-cho, Hachioji-shi,
Tokyo 192, Japan
(81) 426 48 3860

Latin America:

Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive
9th Floor
Miami, Florida 33126
U.S.A.
(305) 267 4245/4220

Australia/New Zealand:

Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
131 347 ext. 2902

Asia Pacific:

Hewlett-Packard Asia Pacific Ltd
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
(852) 2599 7070