

Test Equipment Solutions Datasheet

Test Equipment Solutions Ltd specialise in the second user sale, rental and distribution of quality test & measurement (T&M) equipment. We stock all major equipment types such as spectrum analyzers, signal generators, oscilloscopes, power meters, logic analysers etc from all the major suppliers such as Agilent, Tektronix, Anritsu and Rohde & Schwarz.

We are focused at the professional end of the marketplace, primarily working with customers for whom high performance, quality and service are key, whilst realising the cost savings that second user equipment offers. As such, we fully test & refurbish equipment in our in-house, traceable Lab. Items are supplied with manuals, accessories and typically a full no-quibble 2 year warranty. Our staff have extensive backgrounds in T&M, totalling over 150 years of combined experience, which enables us to deliver industry-leading service and support. We endeavour to be customer focused in every way right down to the detail, such as offering free delivery on sales, covering the cost of warranty returns BOTH ways (plus supplying a loan unit, if available) and supplying a free business tool with every order.

As well as the headline benefit of cost saving, second user offers shorter lead times, higher reliability and multivendor solutions. Rental, of course, is ideal for shorter term needs and offers fast delivery, flexibility, try-before-you-buy, zero capital expenditure, lower risk and off balance sheet accounting. Both second user and rental improve the key business measure of Return On Capital Employed.

We are based near Heathrow Airport in the UK from where we supply test equipment worldwide. Our facility incorporates Sales, Support, Admin, Logistics and our own in-house Lab.

All products supplied by Test Equipment Solutions include:

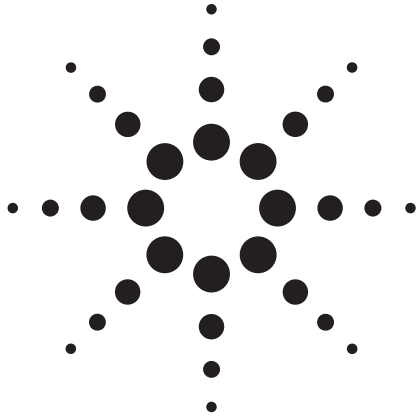
- No-quibble parts & labour warranty (we provide transport for UK mainland addresses).
- Free loan equipment during warranty repair, if available.
- Full electrical, mechanical and safety refurbishment in our in-house Lab.
- Certificate of Conformance (calibration available on request).
- Manuals and accessories required for normal operation.
- Free insured delivery to your UK mainland address (sales).
- Support from our team of seasoned Test & Measurement engineers.
- ISO9001 quality assurance.

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Agilent 4263B LCR Meter 100 Hz to 100 kHz

Technical Overview

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

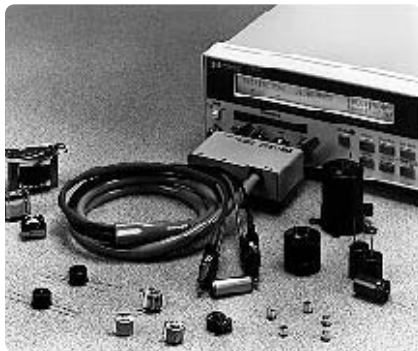
- Select from 11 impedance parameters
- Add three complex transformer parameters with Option 4263B-001
- Set signal level with 5 mVrms resolution
- Monitor actual ac voltage and current levels
- Pick from many test fixtures and accessories
- Save and recall up to ten measurement setups



Agilent Technologies

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



Make reliable impedance measurements.

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)



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

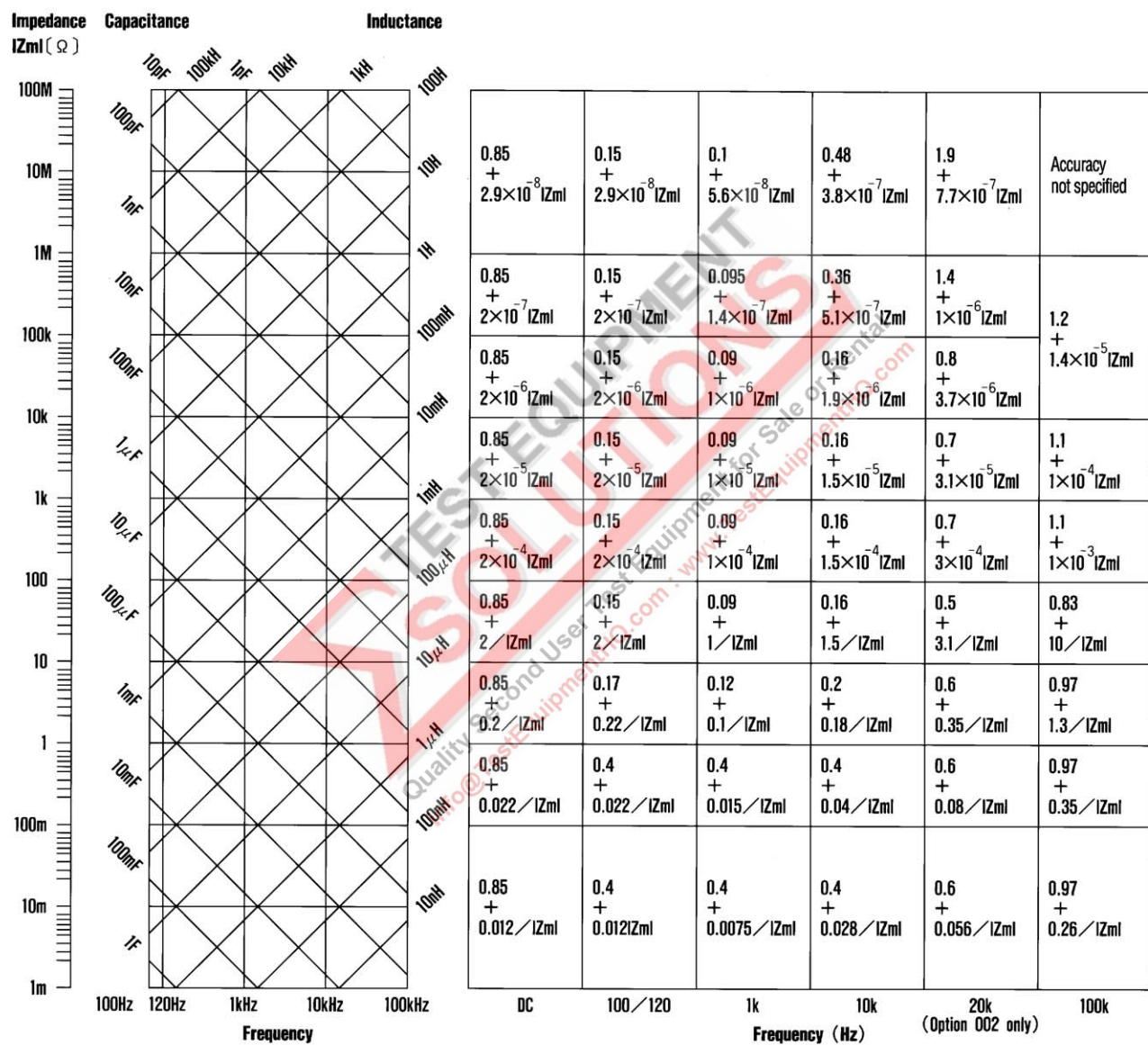


Figure 1. Conversion diagram

Table 1. Measurement accuracy (±% 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 is 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 (Z_m). Z_m is from Figure 1, Conversion Diagram.

D accuracy(D_e) = $\pm Ae/100$

Q accuracy(Q_e) = $\pm \frac{(Q_m)^2 \times D_e}{1 - / + (Q_m \times D_e)}$
where ($Q_m \times D_e < 1$)

u accuracy (u_e) = $0.573 \times Ae$

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

D_e = D accuracy

D_m = Measured value of D

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

Parameter	Range
$ Z $, R, X	1 m Ω to 100 M Ω
$ 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
u	-180 ° to + 180 °
Δ	-999.99% to 999.99%

Option 4263B-001: DC resistance 1 m Ω to 100 M Ω

Mutual inductance 1 μ H to 100 H (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 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 @ $f \leq 100$ kHz

2 meter @ $f \leq 10$ kHz (20 kHz)

4 meter @ $f \leq 1$ 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:

$V_{max} = \sqrt{8/C}$ @ $V_{max} \leq 250$ V

$V_{max} = \sqrt{2/C}$ @ $V_{max} \leq 1000$ V

C in Farads

Handler interface: Negative logic and isolated.

Signals are HIGH/IN/LOW, No-Contact, EOM, Index, Alarm, Keylock, Ext. Trigger.

GPIO interface: Instrument control, TALK-only mode for LISTEN-only printers using GPIO or Centronics/GPIO 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. $V_{max} \leq 40$ 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 ¹

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 ²

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 ³ Test fixture

Options

16044A-ABA U.S. - English localization

16044A-ABJ Japan - Japanese localization

16047A/E ³ 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

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.

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Revised: March 27, 2008

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Printed in USA, April 15, 2008

5964-6181E



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