

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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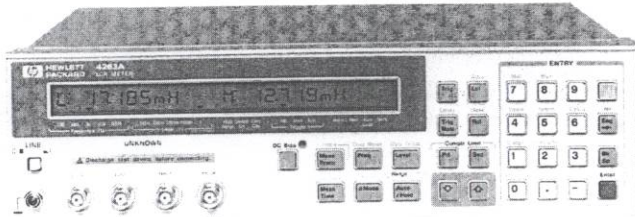
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LCR & RESISTANCE METERS

LCR Meter HP 4263A

- 0.1% basic accuracy
- 100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz test frequencies
- 50 m, 100 m, 250 m, 500 m, 1 V rms test levels
- High-speed measurement: 25 ms
- High-speed contact check
- Quick test recovery
- Wide capacitance test range
- Front-end protection
- Built-in comparator
- Transformer parameter measurements (optional)



HP4263A



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HP 4263A LCR Meter

The HP 4263A LCR meter is Hewlett-Packard's most cost-effective low-end LCR meter, designed for both component evaluation on the production line and fundamental impedance testing for bench-top applications. The HP 4263A has five test frequencies that allow you to simulate testing under the correct conditions: 100 Hz, 120 Hz, 1 kHz, 10 kHz, and 100 kHz. An optional 20 kHz test frequency can be added to those five frequencies (Opt 002).

High-Speed Measurements

The HP 4263A can boost throughput with a measurement speed of 25 ms at any test frequency. This ability improves the throughput of electrolytic capacitor and transformer testing. The HP 4263A can check the contact condition between the test terminals and the device under test (DUT). This function ensures the reliability of PASS/FAIL testing with automatic handlers in production. The quick recovery system of the HP 4263A improves throughput. Normal operation is resumed the instant a faulty DUT is removed from the handler, so the handler can always be operated at its full speed.

Electrolytic Capacitor Measurements

The HP 4263A's accuracy and wide measurement range are the right tools to make precise measurements of electrolytic capacitors. Charged capacitors can discharge through the front end and destroy an instrument. The HP 4263A's front end is designed for protection and maintains test integrity.

Transformer Parameter Measurements

With the HP 4263A's ability to make turns ratio (N), mutual inductance (M), and dc resistance (DCR) measurements, data calculations and changing test setups are no longer time-consuming tasks. (Opt 001)

Specifications (Refer to data sheet for complete specifications.)

Measurement Functions

Measurement parameters: $|Z|$, $|Y|$, θ , R, X, G, B, L, C, Q, D, ESR
Opt 001: Add DCR (dc resistance), N (turns ratio), and M (mutual inductance) measurement

Measurement circuit mode: Series and parallel

Mathematical Functions: Deviation and percent deviation

Ranging: Auto and manual

Trigger: Internal, external, manual, and HP-IB

Delay Time: 0 to 9999 ms in 1 ms steps

Test Cable Lengths: 0 m, 1 m, 2 m, 4 m (freq = 100/120/1k Hz); 0 m, 1 m, 2 m (freq = 10k/20k Hz); 0 m, 1 m (freq = 100 kHz)

Measurement Time: Short, medium, and long

Averaging: 1 to 256

Test Signal Information

Test frequency: 100 Hz, 120 Hz, 1 kHz, 10 kHz, and 100 kHz

Opt 002: Add 20 kHz test frequency

Frequency accuracy: $\pm 0.01\%$ (freq = 100 Hz, 1 kHz, 10 kHz, 20 kHz), 100 kHz, $\pm 1\%$ (freq = 120 Hz)

Output impedance: 100 $\Omega \pm 10\%$, 25 $\Omega \pm 10\%$ ($\leq 1 \Omega$ range)

AC test signal level: 50 mV, 100 mV, 250 mV, 500 mV, and 1 V rms

Accuracy: $\pm(10\% + 10 \text{ mV})$

Internal dc bias

Level: 1.5 and 2 V **Accuracy:** $\pm(5\% + 2 \text{ mV})$

External dc bias: 0 to +2.5 V

Measurement Range

Parameter	Measurement range
$ Z $, R, X	1 m Ω to 100 M Ω
$ Y $, G, B	10 nS to 1000 S
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°
DCR	1 m Ω to 100 M Ω
N	0.9 to 200 (unspecified)
L, M	1 μ H to 100 H (unspecified)
$\Delta \%$	-999.99% to +999.99%

Measurement Accuracy: $\pm 0.1\%$ (basic) (for $|Z|$, R, X, $|Y|$, G, B, C, L)

Measurement Time

Mode	Time (typical)
Short	25 ms
Medium	65 ms
Long	500 ms

Front-End Protection: Internal circuit protection when a charged capacitor is connected to the input terminals. The maximum capacitor voltage is: $V_{max} = \sqrt{(8/C)}$ typical @ $V_{max} \leq 250 \text{ V}$; $V_{max} = \sqrt{(2/C)}$ typical @ $V_{max} \leq 1000 \text{ V}$, C is in Farads

Display: 5 digits (max)

Correction Function

Zero OPEN/SHORT: Eliminates measurement errors due to stray parasitic impedances in the test fixtures.

Load: Improves measurement accuracy by using a calibrated device as a reference. Available only via HP-IB.

Comparator Function: HIGH/IN/LOW for each primary measurement parameter and secondary measurement parameter.

Contact Check Function: Contact failure between the test fixture and device can be detected. Additional time for contact check: 5 ms.

Other Functions

Save/recall: Ten instrument setups can be saved/recalled from the internal nonvolatile memory.

Continuous memory capability: If the instrument is turned off, or if a power failure occurs, instrument settings (except dc bias on/off) are automatically memorized (≤ 72 hours at $23^\circ \pm 5^\circ \text{ C}$).

HP-IB interface: All control settings, measured values, and comparator information.

Handler interface: All output signals are negative-logic, optically isolated open collectors. Output signals include: HIGH/IN/LOW, no contact, index, end of measurement, and alarm. Input signals include: key-lock and external trigger.

General Specifications

Power Requirements: 90 to 132 V or 198 to 264 V, 47 to 66 Hz, 45 VA max.

Operating Temperature: 0° to 55° C

Size: 320 mm W \times 100 mm H \times 300 mm D (12.6 in \times 3.94 in \times 11.81 in)

Weight: 4.5 kg (9.9 lb)

Key Literature

HP 4263A LCR Meter Data Sheet, p/n 5091-2144E.

LCR Meters, Impedance Analyzers and Test Fixtures Selection Guide, p/n 5952-1430.

Ordering Information

HP 4263A LCR Meter

Opt 001 Add N/M/DCR Measurement Function

Opt 002 Add 20 kHz Test Frequency

Opt 009 Delete Operation Manual

Opt W30 Extended Repair Service (see page 588)

HP 16060A Transformer Test Fixture

HP 16065C External Bias Adapter (up to 40 Vdc)

HP 16089A Kelvin Clip Leads (1 m, 2 large clips)

HP 16089B Kelvin Clip Leads (1 m, 2 medium clips)

HP 16089C Kelvin Clip Leads (1 m, 2 IC clips)

HP 16089D Alligator Clip Leads (1 m, 4 medium)

HP 16064B LED Display/Trigger Box (pass/fail display and trigger)

☎ See inside back cover.