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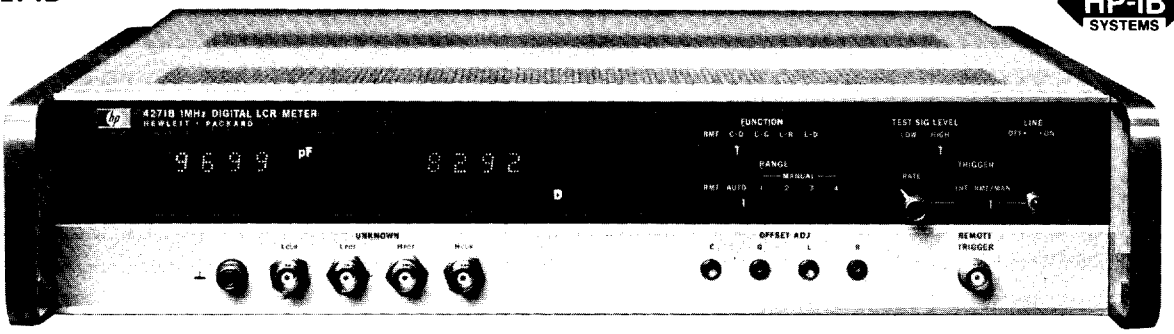
Find the *Keysight / Agilent 4271B* at our website: ***Click HERE***

COMPONENT MEASUREMENT

1 MHz Digital LCR Meter

Model 4271B

DESIGNED FOR HP-IB SYSTEMS



Description

The HP 4271B 1 MHz LCR Meter meets the requirements of the lab, manufacturing and where automatic high speed and accuracy measurements are essential. The four-pair measurement technique has the advantage of reducing errors due to residual inductance, stray capacitance, and electromagnetic coupling of leads. Offset adjustments are provided to cancel the residuals of the test fixtures.

Typical applications include microcircuit measurements, C-V characteristics of semiconductor devices and passive component tests.

Specifications

Full scale ranges and accuracy: (When conductance reading is less than 100 counts and resistance reading is less than 1000 counts.) Accuracy listed in the following table applies over a temperature range of 23°C ±5°C.

Capacitance and conductance/dissipation factor: using parallel equivalent circuit.

Range	Test Sig Level	Capacitance: (Overrange 90%)		Conductance: (Overrange 90%)		Dissipation Factor*: (Overrange 60%)	
		Full Scale Display	Accuracy**	Full Scale Display	Accuracy**	Full Scale Display	Accuracy**
1	HIGH	10.000 pF	0.1 + 7	100.00 µS	0.2 + (7 + Nc/1000)	1.0000	1.0 + (10 + 20000/Nc)
	LOW		0.2 + 8		0.3 + (7 + 2 Nc/1000)		1.0 + (15 + 30000/Nc)
2	HIGH	100.00 pF	0.1 + 3	1000.0 µS	0.2 + (3 + Nc/1000)	1.0000	1.0 + (10 + 10000/Nc)
	LOW		0.2 + 4		0.3 + (3 + 2 Nc/1000)		1.0 + (15 + 20000/Nc)
3	HIGH	1000.0 pF	0.1 + 2	10.000 mS	1.2 + (2 + 2 Nc/1000)	1.0000	10 + (10 + 10000/Nc)
	LOW		0.2 + 3		1.2 + (2 + 2 Nc/1000)		1.0 + (15 + 20000/Nc)
4***	LOW	10.000 nF	0.4 + 3	100.00 mS	1.2 + (2 + 2 Nc/1000)	1.0000	1.0 + (15 + 30000/Nc)

Inductance and resistance/dissipation factor: using series equivalent circuit.

Range	Test Sig Level	Inductance: (Overrange 90%)		Resistance: (Overrange 90%)		Dissipation Factor*: (Overrange 90%)	
		Full Scale Display	Accuracy**	Full Scale Display	Accuracy**	Full Scale Display	Accuracy**
1***	LOW	1000.0 nH	1.0 + 15	10.000 Ω	1.2 + (8 + 2 N_L/1000)	1.0000	1.0 + (20 + 30000/N_L)
2	HIGH	10.000 µH	0.6 + 4	100.00 Ω	1.2 + (2 + 2 N_L/1000)	1.0000	1.0 + (15 + 10000/N_L)
	LOW		0.6 + 6		1.2 + (2 + 2 N_L/1000)		1.0 + (20 + 20000/N_L)
3	HIGH	100.00 µH	0.2 + 4	1000.0 Ω	0.3 + (2 + 2 N_L/1000)	1.0000	1.0 + (15 + 10000/N_L)
	LOW		0.3 + 6		0.5 + (2 + 2 N_L/1000)		1.0 + (20 + 20000/N_L)
4	HIGH	1000.0 µH	0.2 + 4	10.000 kΩ	0.3 + (2 + 2 N_L/1000)	1.0000	1.0 + (15 + 20000/N_L)
	LOW		0.3 + 6		0.5 + (2 + 2 N_L/1000)		1.0 + (20 + 30000/N_L)

*When reading of L or C is more than 1500 counts.

Test frequency: 1 MHz + 0.01%

Test signal level:

RANGE	C measurement		L measurement	
	HIGH	LOW	HIGH	LOW
1	0.5 V rms ±10%	20 mV rms ±10%	2 mA rms ±20%	2 mA rms ±20%
2			5 mA rms ±10%	200 µA rms ±10%
3			500 µA rms ±10%	20 µA rms ± 10%
4	20 mV rms ±20%	20 mV rms ±20%	50 µA rms ±10%	2 µA rms ±10%

Display: dual 4½ digit LED displays.
Ranging: automatic and manual. Remote control with Opt 101.
Measurement terminals: four-terminal pair construction.
Offset adjustment ranges: capacitance ≤1 pF, conductance ≤1 µS, inductance ≤100 nH, resistance ≤ 100 mΩ.

DC bias (optional)

Internal source: available; Opt 001, 00.0 V to 39.9 V, 0.1 V steps.
External source: ± 200 V max to BNC connector.

General

Measuring Speed

Fixed range: 100 ms to 250 ms for C–G and L–R measurement. 160 ms to 400 ms for C–D and L–D measurements.
Autorange: 100 ms/range step added to above values.

Power: 100/120/220 V ±10%, 240 V + 5% − 10%, 48–66 Hz, 80 VA max.

**± (% of reading + counts), Nc and N_L are capacitance and inductance readouts in count.
***Test Level is low on range 4 for C and range 1 for L measurements.

Size: 88 mm H x 425 mm W x 496 mm D ($3^{15}/_{32}$" x $16^{3}/_{4}$" x $19^{9}/_{16}$").
Weight: 10 kg (22 lb).
Accessory furnished: 16038A Test Fixture for radial and axial lead components.

Ordering Information*	Price
16022A General Purpose Test Fixture	$625
16023A DC Bias Voltage Controller (used with Opt 001)	$665
16032A Test Leads (BNC)	$265
16033A Test Leads with miniature coaxial connectors	$290
16034A Test Fixture for chip capacitor measurement	$550
16039A Test Fixture with "D" offset.	$385
Opt 001: DC Bias supply; 0.0 V to 39.9 V	add $330
Opt 002: C/L BCD output; may be used with Opt 003 for simultaneous outputs +8421 Code	add $165
Opt 003: G/R/D BCD output. +8421 Code (see Opt 002)	add $165
Opt 004: Parameter Serial BCD output	add $300
Opt 101: HP-IB Data Output and Remote Control	add $945
Opt 908: Rack Flange Kit	add $25.00
Opt 910: Extra manual	add $50
Combined use of Opt 001 and Opt 101 not allowed.	
4271B 1 MHz Digital LCR Meter	**$6735**

*HP-IB cable not supplied. See page 29.

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