



GPS-135A

Handheld LCR Meter



KEY FEATURES

- L, C, R and Z with a second parameter
- Five test frequencies to 100 kHz
- Basic accuracy $\pm 0.2\%$
- 100 Ω source impedance at 0.6 Vrms
- 2.8 in colour touch screen, 50,000 counts
- Open and short correction · comparator

Bench Accuracy, Off The Bench.

A handheld bridge that measures two things at once. Inductance, capacitance, resistance or impedance as the main reading, and alongside it the dissipation factor, quality factor, equivalent series resistance, phase angle or reactance, both taken in the same measurement cycle rather than one after the other.

Five test frequencies run from 100 Hz to 100 kHz, and the source impedance is held at 100 Ω with a 0.6 Vrms drive. Holding the source constant is what makes a reading repeat: the same part, on the same setting, reads the same next week and on the next instrument.

The 2.8 inch colour screen is a touch screen, so a nominal value is typed in rather than dialled up a digit at a time, or taken directly from a part you are happy with. Set a tolerance against it and the comparator sorts, showing the deviation as a percentage and beeping on the result you choose.

Open and short circuit correction is run from the front panel and applied across the frequency points, which takes the test leads back out of the reading. Five impedance ranges can be left automatic or held on one, and a held range measures faster, particularly at the bottom of the frequency list.

IDEAL FOR

- Goods-in and incoming inspection
- Characterising parts across frequency
- Production sorting against a nominal
- ESR checks on electrolytic capacitors
- Laboratory and teaching work

MEASUREMENT RANGES

Range	Accuracy	Resolution	Notes
Main parameters · series or parallel equivalent circuit			
Inductance 0.001 μ H to 999.9 H	$\pm 0.2\%$ basic	0.001 μ H	Quality factor or reactance alongside
Capacitance 0.001 pF to 999.9 mF	$\pm 0.2\%$ basic	0.001 pF	Dissipation factor or ESR alongside
Resistance, reactance and impedance 0.0001 Ω to 99.99 M Ω	$\pm 0.2\%$ basic	0.1 m Ω	Phase angle alongside
Second parameters			
Dissipation 0.0001 to 9.999 · quality 0.0001 to 999.9	—	0.0001	Quality factor is the reciprocal of dissipation
Phase angle $\pm 179.99^\circ$ or ± 3.1416 rad	—	0.01 $^\circ$	Degrees or radians, selectable
Test conditions			
100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz	$\pm 0.02\%$	—	The 120 Hz point is 120.048 Hz at $\pm 0.05\%$
0.6 Vrms	$\pm 10\% \pm 2$ mV	—	Source impedance 100 $\Omega \pm 5\%$
1.5 or 4 readings per second	—	—	The slower rate gives the steadier reading
Sorting			
Tolerance 1, 5, 10 or 20%, or entered directly	—	—	Deviation shown as a percentage, with pass or fail

Basic accuracy applies with open and short circuit correction run, at 23 °C ± 5 °C and 65% relative humidity or less, on the slower measurement rate, after 30 minutes warming, and within a one year calibration interval. It holds across the middle of the ranges and falls away towards the extremes of frequency and impedance, so the figure that applies to a particular range and frequency is read from the accuracy tables rather than from the basic figure alone.



WHAT'S IN THE BOX

- GPS-135A meter, lithium battery fitted
- Four-terminal Kelvin test clip
- Mini USB communication lead
- 9 V DC power adapter
- Data acquisition software
- Instruction manual and warranty certificate

TEST TERMINALS · A five-terminal slot and a three-terminal slot are fitted side by side, with a guard terminal. The Kelvin clip goes into the five-terminal slot for four-terminal measurement, or a through-hole component can be pushed straight into the slot instead.

GENERAL SPECIFICATIONS

Code	Item	Part Number
GPS-135A	Handheld LCR meter, five test frequencies to 100 kHz, $\pm 0.2\%$ basic accuracy, touch screen	501358

MEASURES

Inductance, capacitance, resistance and impedance · second reading from dissipation factor, quality factor, ESR, phase angle or reactance · either can be left on automatic

TEST FREQUENCY

100 Hz, 120.048 Hz, 1 kHz, 10 kHz and 100 kHz

EQUIVALENT CIRCUIT

Series, parallel or automatic

CORRECTION

Open circuit and short circuit correction from the front panel, applied across the frequency points

DISPLAY

2.8 in true-colour TFT with touch screen · English interface · 50,000 counts on the main and the second reading · brightness 30, 50, 70 or 100% · reading hold and keypad lock

POWER

Rechargeable lithium battery · 9 V DC adapter, 90 to 250 V input · about 2 hours to charge · 14 hours at 30% brightness, 8 hours at full · dims and powers down after 5 to 30 minutes

COMPLIANCE

IEC 61010-1 · IEC 61326-2-1

BASIC ACCURACY

$\pm 0.2\%$

TEST LEVEL

0.6 Vrms $\pm 10\% \pm 2$ mV · source impedance 100 $\Omega \pm 5\%$

RANGING AND SPEED

Automatic or held, five impedance ranges · slow 1.5 or fast 4 readings per second

SORTING

One comparator set on the main parameter · nominal typed in or taken from a reference part · tolerance 1, 5, 10 or 20%, or entered directly · beep on pass or on fail

INTERFACE

Mini USB to a computer, no driver required · acquisition software supplied · documented command set for writing your own

ENVIRONMENT

Operating 0 °C to 40 °C · relative humidity 90% or less · altitude to 2000 m · storage -10 °C to 70 °C · mass 350 g

WARRANTY

1 year, subject to product registration with GPS LTD · service and calibration available