



GPS-3131C

Benchtop LCR Meter



Not Twelve Frequencies. Twenty Thousand.

A bench bridge with five digits on both readings. Inductance, capacitance, resistance or impedance as the main parameter, with reactance, dissipation factor, quality factor, phase angle or equivalent series resistance beside it, and a DC resistance mode and an electrolytic capacitor mode alongside the AC measurement.

The frequency is continuously adjustable from 10 Hz to 20 kHz in steps of 1 Hz. Twelve of the common points sit on a key for speed, but they are shortcuts rather than the whole range, so a part can be measured at the frequency it will work at rather than the nearest one on a list. The drive behaves the same way: anywhere from 100 mV to 2 V in 1 mV steps, with six preset points.

Source impedance is selectable at 30 Ω or 100 Ω , which matters when a reading has to be comparable with one taken elsewhere. An internal bias of up to 1500 mV puts a working voltage across the part while it is measured, and the electrolytic mode handles polarised capacitors with the red clip on the positive lead.

For a batch, the comparator sorts into three pass bins with an auxiliary bin for parts that pass on the main parameter and fail on the second, and an out-of-bin for the rest. List scan takes the same part at up to seven frequencies with a limit at each. Both report through the Handler interface, with a tone for pass and another for fail.

KEY FEATURES

- 10 Hz to 20 kHz, continuous in 1 Hz steps
- Level 100 mV to 2 V in 1 mV steps
- Source impedance 30 Ω or 100 Ω
- Internal bias to 1500 mV
- DC resistance and electrolytic modes
- Comparator, list scan and Handler

IDEAL FOR

- Goods-in and incoming inspection
- Production sorting and binning
- Winding and transformer checks
- Electrolytic capacitor testing
- Laboratory and teaching work

MEASUREMENT RANGES

Range	Accuracy	Resolution	Notes
Measurement range · five digits on the main and the second reading			
Inductance 0.01 μ H to 9999 H	$\pm 0.2\%$ basic	—	Series or parallel · Q, D, X or phase alongside
Capacitance 0.01 pF to 9999 μ F	$\pm 0.2\%$ basic	—	Series or parallel · D, Q or ESR alongside
Resistance, reactance and impedance 0.0001 Ω to 99.99 M Ω	$\pm 0.2\%$ basic	—	R, Z and X · phase to $\pm 180.000^\circ$
DC resistance 0.000 Ω to 99.99 M Ω	$\pm(0.1\% + 2 \text{ counts})$ best	11 ranges	Windings, contacts and terminations
Dissipation and quality 0.0001 to 99999	—	—	Read against the chosen equivalent circuit
Test signal and bias			
Frequency 10 Hz to 20 kHz	$\pm 0.02\%$	1 Hz	Continuous · twelve preset points on a key
Level 100 mV to 2000 mV	$\pm 10\%$	1 mV	Continuous · six preset points on a key
Source impedance 30 Ω or 100 Ω	$\pm 1\%$	—	100 Ω unless changed
Internal bias 0 to 1500 mV	$\pm(5\% + 20 \text{ mV})$	1 mV	Fixed in DC resistance and electrolytic modes

Basic accuracy is stated at 23 °C ± 5 °C and 65% relative humidity or less, with open and short circuit calibration run and more than 30 minutes warming. It degrades away from those conditions through three factors applied in the accuracy tables, one for measurement speed, one for drive level and one for frequency. The drive factor is at its best at 1 V and at its worst at 100 mV, and the frequency factor is flat to 1 kHz and rises above it, so the figure for a given case is built from the tables rather than read off the basic figure.



WHAT'S IN THE BOX

- GPS-3131C meter
- Four-terminal Kelvin test clamp
- AC power cord
- Instruction manual and warranty certificate

AVAILABLE SEPARATELY · RS232, USB and Handler leads. All three interfaces are fitted as standard; it is the cables that are ordered separately.

GENERAL SPECIFICATIONS

Code	Item	Part Number
GPS-3131C	Benchtop LCR meter, 10 Hz to 20 kHz continuously adjustable, L/C/R/Z with a second parameter	500101

MEASURES

Main parameter inductance, capacitance, resistance, impedance or automatic · second parameter reactance, dissipation factor, quality factor, phase angle or ESR

TEST FREQUENCY

10 Hz to 20 kHz, continuously adjustable in 1 Hz steps · twelve preset points from 100 Hz to 20 kHz · accuracy $\pm 0.02\%$

BIAS

Internal 0 to 1500 mV in 1 mV steps at $\pm(5\% + 20 \text{ mV})$

CALIBRATION AND RECORDING

Open and short circuit calibration from the front panel · maximum, minimum and average held while measuring · data hold · deviation against a reference reading

LIST SCAN AND TRIGGER

Seven frequencies, each with its own upper and lower limit · sequential or stepping · trigger internal, manual or external

DISPLAY

3.5 in colour LCD · English interface · backlight 30, 50, 70 or 100% · settings restored at power on or returned to default

ENVIRONMENT AND SIZE

Operating 0 °C to 40 °C · humidity 15% to 85% · storage 5 °C to 40 °C · 265 × 105 × 305 mm, width by height by depth · 2.3 kg

ACCURACY AND SPEED

$\pm 0.2\%$ basic · slow 2, medium 4 and fast 8 readings per second

TEST LEVEL AND SOURCE

100 mV to 2000 mV, continuously adjustable in 1 mV steps, six preset points, $\pm 10\%$ · source impedance 30 Ω or 100 Ω at $\pm 1\%$

MODES AND CIRCUIT

AC measurement, DC resistance and electrolytic capacitor · series or parallel equivalent, switched for you when the main parameter is left on automatic

SORTING

Three pass bins with an auxiliary bin and an out-of-bin · preset limits at 10, 25 and 50% or entered from -99.99% to $+99.99\%$ in 0.01% steps · separate tones for pass and fail

INTERFACES

USB device, RS232 and Handler · SCPI command set · Handler is a nine-pin socket with five sorting outputs, an end of measurement output and a trigger input, 3 V to 25 V

POWER

220 V AC $\pm 10\%$ or 110 V AC $\pm 10\%$, chosen on a rear selector · 45 to 65 Hz · under 20 W

WARRANTY

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