



GPS-8815D

Precision Micro-ohm Meter



Ten Decades, One Instrument.

A four-terminal micro-ohm meter that covers ten decades without changing instrument: 0.1 $\mu\Omega$ at one end, 1.2 G Ω at the other, on a 1 200 000 count display across twelve ranges.

Accuracy is not one number across a span that wide. At the slow rate it is 0.01% from 100 m Ω to 10 k Ω , which is the heart of the range; it loosens to 0.05% on the lowest range, and to whole percents above 10 M Ω . The table overleaf gives the figure for every range so the one that applies can be read rather than assumed.

Rate and accuracy are the same setting seen twice. Five are available, from two readings a second up to 220. The fastest blanks the display and prints DISP OFF on the screen, because at 4.5 milliseconds a reading it exists to feed a handler rather than a person. The best figures belong to the slowest rate.

For a line, thirteen bins sort against absolute, percentage or sequential limits and report through an opto-isolated Handler interface. An external trigger input takes a delay and a choice of rising or falling edge, so the meter can be synchronised with a machine that is still settling.

KEY FEATURES

- 0.1 $\mu\Omega$ to 1.2 G Ω · twelve ranges
- 0.01% at the slow rate · 1 200 000 counts
- Five rates, 2 to 220 readings per second
- Four-terminal · short circuit clear zero
- Temperature compensation to a reference
- Thirteen-bin comparator · Handler · SCPI

IDEAL FOR

- Relay, switch and connector contacts
- Motor, transformer and coil windings
- Riveted, bonded and welded joints
- Resistors from milliohms to gigohms
- Production sorting and advanced QA

MEASUREMENT RANGES

Range	Accuracy	Resolution	Notes
Measurement ranges · four-terminal · 1 200 000 count display			
10 mΩ · to 12.0000 mΩ	Slow 0.05% + 3 · fast 0.5% + 5	0.1 μΩ	1 A · open circuit under 1 V
100 mΩ · to 120.000 mΩ	Slow 0.01% + 2 · fast 0.1% + 5	1 μΩ	1 A · open circuit under 1 V
1 Ω · to 1.000000 Ω	Slow 0.01% + 2 · fast 0.1% + 5	10 μΩ	100 mA · open circuit under 1 V
10 Ω · to 12.00000 Ω	Slow 0.01% + 2 · fast 0.1% + 5	100 μΩ	10 mA · open circuit under 1 V
100 Ω · to 120.0000 Ω	Slow 0.01% + 2 · fast 0.1% + 5	1 mΩ	1 mA · open circuit under 5 V
1 kΩ · to 1.200000 kΩ	Slow 0.01% + 2 · fast 0.1% + 5	10 mΩ	1 mA · open circuit under 5 V
10 kΩ · to 12.00000 kΩ	Slow 0.01% + 2 · fast 0.1% + 5	100 mΩ	100 μA · open circuit under 5 V
100 kΩ · to 120.0000 kΩ	Slow 0.05% + 2 · fast 0.2% + 5	1 Ω	10 μA · open circuit under 5 V
1 MΩ · to 1.20000 MΩ	Slow 0.1% + 5 · fast 0.5% + 5	10 Ω	1 μA · open circuit under 10 V
10 MΩ · to 12.0000 MΩ	Slow 0.5% + 5 · fast 1% + 5	100 Ω	100 nA · open circuit under 10 V
100 MΩ · to 120.000 MΩ	Slow 1% + 5 · fast 2% + 5	1 kΩ	10 nA · open circuit under 10 V
1 GΩ · to 1200.00 MΩ	Slow 2% + 5 · fast 5% + 5	10 kΩ	1 nA · open circuit under 10 V

Two of the five rates are shown. Medium, ten readings per second, sits between them at 0.05% + 3 digits on the ranges where slow gives 0.01%. The ultra rate shares the fast figures, and so does the 220 reading rate, which blanks the display. All of it assumes 23 °C ± 5 °C, 65% relative humidity or less, the short circuit clear zero run, more than 30 minutes warming and a twelve month calibration interval, with test current accurate to 10%. Rates are quoted with the range held; automatic ranging adds the time it takes to find the range.



WHAT'S IN THE BOX

- GPS-8815D meter
- Four-terminal Kelvin test clip
- RS-232 communication cable
- Acquisition software
- Power cord
- Instruction manual and calibration certificate

CABLE CLAMP C04A · Part number 902655. A wrap-resistant light metal rail carrying one fixed and one movable clamping head, for the resistance of cable, cord and strip samples 50 to 1000 mm long and 0.1 to 1256 mm² in section, 1 to 40 mm across. Current connections are rated 100 A and the potential taps are brought out to 4 mm terminals through low thermoelectric material, 38 mm from the current connections. 1140 × 100 × 130 mm, about 5 kg.

GENERAL SPECIFICATIONS

Code	Item	Part Number
GPS-8815D	Precision micro-ohm meter, 0.1 μΩ to 1.2 GΩ · twelve ranges · 0.01% at the slow rate	621623
C04A	Cable clamping device, samples 50 to 1000 mm long, 0.1 to 1256 mm ²	902655

MEASURES

DC resistance, four-terminal · 0.1 μΩ to 1.2 GΩ across twelve ranges · 1 200 000 count display

MEASUREMENT RATE

Slow 2, medium 10, fast 50 and ultra 130 readings per second · a display-off rate of 220, one reading every 4.5 ms, where the screen blanks

ZERO

Short circuit clear zero, measured across all twelve ranges in one operation

SORTING

Thirteen bins: ten pass bins with high, in and low · absolute, percentage or sequential limits · beep on pass, on fail, or off

INTERFACES

RS-232C with SCPI, 1200 to 115200 baud, eight bits, no parity, one stop · Handler · temperature compensation input · USB host socket on the front for a memory stick · USB to serial adapter available

DISPLAY AND ACCESS

3.5 in true-colour TFT · English interface · keypad lock · administrator and user accounts with an optional password

ENVIRONMENT

Operating 0 °C to 55 °C · accuracy specified over 15 °C to 35 °C below 80% relative humidity · altitude to 2000 m

BASIC ACCURACY

0.01% + 2 digits at the slow rate, on the ranges from 100 mΩ to 10 kΩ

RANGING

Automatic, held, or chosen from a nominal value

TEMPERATURE COMPENSATION

Reading corrected to a reference temperature from an entered material coefficient · dedicated probe input on the rear panel

TRIGGER

Internal, manual, external or bus · trigger delay, and a choice of rising or falling edge on the external input

HANDLER

Ten bin outputs with high, in and low and an end of measurement signal · opto-isolated · internal 5 V or an external 3.3 to 35 V supply

POWER AND SIZE

110 or 220 V AC · 48.5 to 62.5 Hz · 20 VA maximum · 1 A slow-blow fuse · 216 × 88 × 323 mm, width by height by depth · 3.5 kg net

WARRANTY

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