GPS LTD.

GPS-8815C/E

Digital Micro-ohm Meters



Two Readings A Second, Or A Hundred And Forty.

A bench four-terminal micro-ohm meter reading from 1 µΩ on a 30 000 count display. Two models: the GPS-8815C reaches 20 MΩ across ten ranges at 0.05%, the GPS-8815E reaches 30 kΩ across seven at 0.1%.

Measurement rate and accuracy are the same setting seen from two sides. At two readings a second the GPS-8815C is a 0.05% instrument. At twelve it is a 0.1% one, and at thirty-five and above it is 0.5%. The fastest rate, 140 readings a second, blanks the display altogether: it exists to feed a handler on a sorting line, not to be read by anyone.

Below an ohm the fixture is part of the measurement, so a short circuit zero is measured and stored across every range in one operation, and wants running again whenever the leads change. Resistance also moves with temperature: enter the material coefficient, 0.393% per degree for copper, and a reference temperature, and readings are corrected to it.

For a line, thirteen bins sort against tolerance or sequential limits and report through the Handler interface, which is opto-isolated and runs from its own 5 V or an external supply. RS-232 carries a full SCPI command set, and an external trigger input lets the machine presenting the parts decide when each measurement happens.

KEY FEATURES

- Four-terminal · 1 µΩ to 20 MΩ
- 0.05% at the slow rate · 30 000 counts
- Ten ranges · short circuit zero on all
- Temperature compensation, 0 to 80 °C
- Thirteen-bin comparator with Handler
- SCPI over RS-232 · external trigger

IDEAL FOR

- Relay, switch and connector contacts
- Motor, transformer and coil windings
- Cable, cord and strip samples
- Busbars, welds, crimps and rivets
- Production sorting and goods-in

MEASUREMENT RANGES

Range	Accuracy	Resolution	Notes
Measurement ranges · GPS-8815C · accuracy at the slow rate			
30 mΩ	0.1% + 3 digits	1 µΩ	670 mA · open circuit under 1 V
300 mΩ	0.05% + 2 digits	10 µΩ	670 mA · open circuit under 1 V
3 Ω	0.05% + 2 digits	100 µΩ	67 mA · open circuit under 1 V
30 Ω	0.05% + 2 digits	1 mΩ	6.7 mA · open circuit under 1 V
300 Ω	0.05% + 2 digits	10 mΩ	670 µA · open circuit under 5 V
3 kΩ	0.05% + 2 digits	100 mΩ	670 µA · open circuit under 5 V
30 kΩ	0.05% + 2 digits	1 Ω	67 µA · open circuit under 5 V
300 kΩ	0.05% + 2 digits	10 Ω	6.7 µA · open circuit under 5 V
3 MΩ	0.1% + 5 digits	100 Ω	Open circuit under 3 V
20 MΩ	0.1% + 5 digits	1 kΩ	Open circuit under 3 V

The accuracies above are for the slow rate, two readings per second, which is the only rate at which the basic figure holds. Medium, twelve readings per second, is 0.1%; fast, ultra and the display-off rate are 0.5%. All of it assumes 23 °C ±5 °C, 65% relative humidity or less, the open and short correction run, more than 30 minutes warming and a twelve month calibration interval. Test current is accurate to 10%, and the two highest ranges are driven differently and carry no stated current.



WHAT'S IN THE BOX

- GPS-8815C or GPS-8815E 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. A quick-action clamp closes onto the sample in one movement. 1140 × 100 × 130 mm, about 5 kg.

GENERAL SPECIFICATIONS

Code	Item	Part Number
GPS-8815C	Digital micro-ohm meter, 1 µΩ to 20 MΩ · 0.05% at the slow rate · ten ranges	621555
GPS-8815E	Digital micro-ohm meter, 1 µΩ to 30 kΩ · 0.1% · seven ranges	621568
C04A	Cable clamping device, samples 50 to 1000 mm long, 0.1 to 1256 mm²	902655

MEASURES
DC resistance, four-terminal · GPS-8815C 1 µΩ to 20 MΩ across ten ranges · GPS-8815E 1 µΩ to 30 kΩ across seven

DISPLAY
30 000 counts · reading, deviation, percentage deviation and the sorting result · 3.5 in true-colour TFT · English interface · keypad lock

RANGING
Automatic, held, or chosen from a nominal value

TEMPERATURE COMPENSATION
Range 0 to 80 °C · accuracy 0.2 °C · material coefficient and reference temperature entered on the instrument

TRIGGER
Internal, manual, external or bus

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

POWER
110 or 220 V AC · 48.5 to 62.5 Hz · 20 VA maximum · 1 A slow-blow fuse

CABLE CLAMP C04A
Samples 50 to 1000 mm long · 0.1 to 1256 mm² · wire 1 to 40 mm across · current connections rated 100 A · 1140 × 100 × 130 mm, about 5 kg

BASIC ACCURACY
0.05% on the GPS-8815C at the slow rate · 0.1% on the GPS-8815E

MEASUREMENT RATE
Slow 2, medium 12, fast 35 and ultra 67 readings per second · a display-off rate of 140 for handler-fed sorting, where the screen blanks

ZERO
Short circuit zero, measured and stored across all ranges in one operation

SORTING
Thirteen bins: ten pass bins with high, in and low · tolerance limits as an absolute deviation or a percentage, or sequential limits · beep on pass, on fail, or off

INTERFACES
RS-232 with SCPI, 1200 to 115200 baud, eight bits, no parity, one stop · Handler interface · temperature compensation input · USB to serial adapter available

ACCESS
Administrator and user accounts with an optional password

ENVIRONMENT
Operating 0 °C to 55 °C · humidity 15% to 85% · altitude to 2000 m · 3.5 kg net

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