GPS LTD.

GPS-3861C

Insulation Resistance Meter



KEY FEATURES

- Test voltage 1.0 to 1000 V DC, 0.1 V steps
- 100 kΩ to 10 TΩ · six ranges
- Resistance and leakage current together
- 3, 25 or 55 readings per second
- Charge timer to 999.9 s · fast discharge
- PASS, UPPER, LOWER with Handler

Up To 1000 V, Out To 10 TΩ.

A bench insulation resistance meter that sets its own test voltage anywhere from 1.0 V to 1000 V DC in 0.1 V steps and reads from 100 kΩ to 10 TΩ across six ranges. Resistance, leakage current and the test voltage are shown together on a 3.5 in colour display, with a maximum reading of 9999.

Test voltage and range go together: at 100 V the meter reads 1 MΩ to 1 TΩ, and the top decade, 1 TΩ to 10 TΩ, is reached at 1000 V. At the slow rate accuracy is ±1% from 1 MΩ, ±3% above 1 GΩ, ±5% above 10 GΩ and ±10% above 1 TΩ, with an open circuit zero stored for every range in one operation.

Every test runs charge, test, discharge. A charge timer of up to 999.9 s lets a capacitor, a cable or a winding settle before the reading is taken, and the residual voltage is discharged quickly at the end. A contact check catches a poor connection to a capacitive part above 100 pF before it can pass as a high reading.

For a line, the comparator sorts to PASS, UPPER and LOWER at up to 55 readings a second and reports through an optocoupler-isolated Handler interface that also takes the trigger and returns an end of test signal. RS-232 carries a full SCPI command set, and results can be logged straight to a USB flash drive as CSV files.

IDEAL FOR

- Capacitors and other components
- Wire, cable and harnesses
- Insulating and dielectric materials
- Equipment and assembly insulation
- Production sorting and goods-in

MEASUREMENT RANGES

Test voltage	Range 1	Range 2	Range 3	Range 4	Range 5	Range 6
Insulation resistance measurement range at eleven typical test voltages · k = 10^3 Ω, M = 10^6 Ω, G = 10^9 Ω, T = 10^{12} Ω						
1 V	Not specified	1M – 10M	10M – 100M	100M – 1G	1G – 10G	10G – 100G
10 V	100k – 1M	1M – 10M	10M – 100M	100M – 1G	1G – 10G	10G – 100G
25 V	250k – 2.5M	2.5M – 25M	25M – 250M	250M – 2.5G	2.5G – 25G	25G – 250G
50 V	500k – 5M	5M – 50M	50M – 500M	500M – 5G	5G – 50G	50G – 500G
75 V	750k – 7.5M	7.5M – 75M	75M – 750M	750M – 7.5G	7.5G – 75G	75G – 750G
100 V	1M – 10M	10M – 100M	100M – 1G	1G – 10G	10G – 100G	100G – 1T
125 V	2.5M – 12.5M	12.5M – 125M	125M – 1.25G	1.25G – 12.5G	12.5G – 125G	125G – 1.25T
250 V	5M – 25M	25M – 250M	250M – 2.5G	2.5G – 25G	25G – 250G	250G – 2.5T
500 V	10M – 50M	50M – 500M	500M – 5G	5G – 50G	50G – 500G	500G – 5T
750 V	10M – 75M	75M – 750M	750M – 7.5G	7.5G – 75G	75G – 750G	750G – 7.5T
1000 V	10M – 100M	100M – 1G	1G – 10G	10G – 100G	100G – 1T	1T – 10T

Accuracy at the slow rate: ±5% below 1 MΩ, ±1% above 1 MΩ, ±3% above 1 GΩ, ±5% above 10 GΩ and ±10% above 1 TΩ. Test voltage accuracy is ±10% below 10 V and ±1% above. All figures assume 23 °C ±5 °C, 65% relative humidity, the open circuit zero run, more than 60 minutes warm-up and a twelve month calibration interval.



WHAT'S IN THE BOX

- GPS-3861C meter
- Test cable
- RS-232 communication cable
- Power cord
- Spare 1 A slow-blow fuse
- Instruction manual and calibration certificate

OPTIONAL INTERFACES · RS485 and USB-to-RS-232 interfaces are available to order. The Handler interface works in external trigger mode and runs from an external 3.3 to 24 V DC supply; without one, only its comparator relay contacts are active.

GENERAL SPECIFICATIONS

Code	Item	Part Number
GPS-3861C	Insulation resistance meter, 1.0 to 1000 V DC · 100 kΩ to 10 TΩ · six ranges	621745

MEASURES
Insulation resistance and leakage current, shown with the test voltage · 100 kΩ to 10 TΩ across six ranges

DISPLAY
3.5 in true-colour TFT · maximum reading 9999 · resistance, leakage current, voltage and the sorting result · English interface · keypad lock

RANGING
Automatic, held, or nominal, chosen from the lower limit when sorting

TEST VOLTAGE
−1.0 to −1000 V DC in 0.1 V steps, negative output · accuracy ±10% below 10 V, ±1% above · maximum charging current 30 mA ±5 mA

TRIGGER
Internal, manual, external on a rising or falling edge, or bus · trigger delay 1 ms to 60 s

HANDLER
PASS and NG, open circuit and end of test outputs · comparator relay contacts · charge, discharge, trigger and key lock inputs · optocoupler isolated · external 3.3 to 24 V DC supply

POWER
198 to 242 V AC · 50/60 Hz · 30 VA maximum · 250 V 1 A slow-blow fuse

CHARGE TIMER
0 to 999.9 s · accuracy ±0.5% · counts up or down · automatic discharge after each reading, on or off

ACCURACY
At the slow rate: ±5% below 1 MΩ · ±1% above 1 MΩ · ±3% above 1 GΩ · ±5% above 10 GΩ · ±10% above 1 TΩ

MEASUREMENT RATE
Slow 3, medium 25 and fast 55 readings per second

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

SORTING
PASS, UPPER and LOWER · beep on good, on fail, or off · contact check for capacitive parts above 100 pF

INTERFACES
RS-232 with SCPI, 1200 to 115200 baud, eight bits, no parity, one stop · Handler · USB flash drive, CSV logging · RS485 and USB-to-RS-232 optional

ACCESS
Administrator and user accounts with an optional password

ENVIRONMENT
Operating 10 °C to 40 °C · humidity 10% to 80% RH · storage 0 °C to 50 °C · 264 × 107 × 350 mm · 5 kg

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