1888 Megohmmeter/High Resistance Meter

A Megohmmeter/High Resistance meter with color touch-screen is used for accurate measurements of high resistance and insulation resistance.

USB, Ethernet and GPIB interfaces allow for easy integration into an automated test system.

1888+ Megohmmeter/IR Tester

General Features

- Based upon the IET 1865 Plus
- Measurement range up to 1000 TΩ
- 0.30% basic measurement accuracy
- Large color touchscreen and intuitive interface
- Direct reading of volume and surface resistivity when used with the 1888-11 Resistivity Cell
- GPIB, Ethernet and USB interfaces
- Programmable test voltage from 1 to 1000 Vdc
- Similar SCPI commands to the 1865+
- Automatic ranging
- Automatic zeroing of test leads
- Programmable test times
- Limit entry for Pass/Fail testing
- Resolution 6.5 digits

1888 Megohmmeter/IR Tester with standard cables

DESCRIPTION

Precision measurements:

The 1888+ provides resistance measurement capability over a range of 1 kΩ to 1000 TΩ (test voltage dependent), with a basic accuracy of 0.30%.

To meet the test requirements for a wide range of devices, the test voltage is fully programmable from 1 V to 1000 Vdc.

Sensing the proper resistance measurement range is done automatically, eliminating setup errors.

The operator can initiate an automatic test leads zeroing routine in order to eliminate lead or fixture errors.

Easy to use:

The 1888's user interface provides simple controls and various displays to increase productivity. Its multi-function keypad provides the operator with an easy way to program and perform measurements.

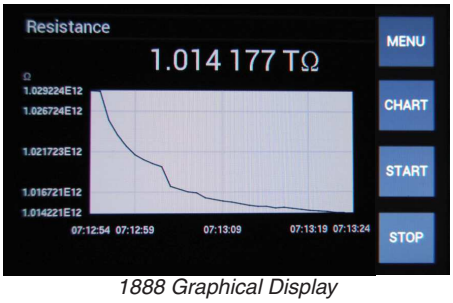
Automated testing:

For automated system applications, the 1888+ includes USB, Ethernet and GPIB interfaces which enables the 1888 to be remotely controlled by a computer.

The SCPI commands are similar to the commands for the 1865 Plus. This minimizes changes and makes it easy to replace an existing 1865 Plus with an 1888 Megohmmeter/High Resistance Meter.

Graphical or Tabular Display

The 1888 makes full use of the graphical color touch screen to display data in both graphical and tabular format. This allow the user to view resistance over time.



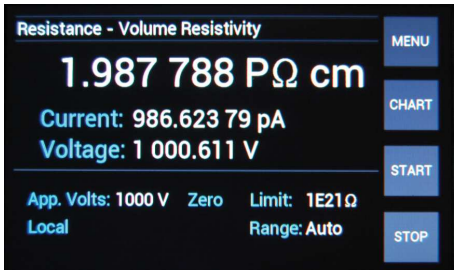
1888 Graphical Display

Display (Resistance or Resistivity):

The operator may select the display mode to show either measured resistance, or volume/surface resistivity. The current and voltage are also shown on the display.

Safety features

For protection of the operator, the 1888+ provides safety features such as current limiting, a safety interlock, and a screen indicator of when high voltage is active.



1888 Volume Resistivity Display

OPTIONAL ACCESSORIES

Rack Mount Kit (1888-50):

This kit allows the 1888 unit to be installed in a standard 19" rack mount fixture.

Volume/Surface Resistivity Test Fixture (1888-11):

Resistivity Test Fixture for volume and surface resistivity per ASTM D257 and IEC 60093.

Component Test Fixture (1888-52):

An accessory fixture which accommodates a variety of component types, including radial, axial, and chip components. Its shielded case reduces electrical noise and interference and includes a cover interlock switch and remote start for maximum operator safety.

IET LABS, INC. in the GenRad Tradition

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1888 Megohmmeter/High Resistance Meter

SPECIFICATIONS

Resistance range:

1 kΩ (10^3 Ω) to 1000 TΩ (10^{15} Ω)

No of ranges:

7 manually settable ranges plus auto-ranging

Resistance range for set voltage

Voltage Setting	Rmin	Rmax [1]
1 Vdc	1 kΩ (10^3 Ω)	100 GΩ (10^{11} Ω)
10 Vdc	10 kΩ (10^4 Ω)	1 TΩ (10^{12} Ω)
100 Vdc	100 kΩ (10^5 Ω)	10 TΩ (10^{13} Ω)
1000 Vdc	1 MΩ (10^6 Ω)	1000 TΩ (1x10^{15} Ω)

[1] Rmax is stated for > 25% accuracy and resistive load only.

Capacitance and/or noise will reduce useful resistance range.

Voltage range:

1 to 1,000 volts, programmable in two ranges

Voltage accuracy at front panel bnc:

1 - 100 V: ±[(1% of setting + 1 V) Resolution: 100 mV
100 - 1,000 V: ±[(1% of setting + 2 V) Resolution: 1 V

Resistance accuracy* (k=2):

$\pm[0.25\% + \{(R_X/V_X)(0.0005^* FS + 0.2pA) + 30\Omega/R_X\}100\%]$
where:
R_X = Measured resistance in ohms
V_X = Programmed voltage in volts
FS = Full scale current range in amperes

[1] Accuracy is stated for 18 - 28 °C < 50% RH, measurement time > 5 seconds, Avg = 3

Measuring current :

0.1 pA (10^{-13} A) to 1 mA (10^{-3} A)

Current accuracy* (k=2):

1 nA to 1 mA ±[0.25% + (0.0005 FS + 0.2 pA)]
100 pA to 1 nA ±[0.5% + (0.0005 FS + 0.2 pA)]
1 pA to 100 pA ±[5% + (0.0005 FS + 0.2 pA)]

Temperature Coefficient (< 18°C and > 28 °C):

±(0.1*Accuracy/°C from 23 °C) (10 - 17 °C and 29 to 40 °C)
Add to resistance and current accuracy

Humidity Coefficient (> 50% RH):

±(0.1*Accuracy) * (RH% - 50% RH) from 50% RH to 80%RH
Add to resistance and current accuracy

Short-circuit current:

<2 mA

Test cycle:

Automatic: Charge time: 0 - 300 seconds
Measure time: 1 - 999 seconds
Discharge time: 0 - 300 seconds

Measurement limits:

Pass/Fail (1 limit)

Display:

Resistance, Current, Voltage, Volume Resistivity, Surface Resistivity
Note: resistivity measurements require input of cell constant and material thickness.

Input/Output terminals:

Detector: Triaxial (Input, Guard, GND)
Source: BNC (Output, GND)

Remote control:

USB:

USB Type B connector standard on rear panel and uses standard MCP2200 chip set

GPIB:

GPIB standard 24 pin connector, conforms to IEEE-488.2; SCPI 1994.0 command set
Addressing range of 1 to 30

Ethernet:

IEEE 802.3 compliant, Speeds 10 BaseT (10 Mb/s) and 100 BaseT (100 Mb/s), IP Address Static or DHCP,
Factory setting: 192.168.1.254 static

Power requirements:

100 - 240 Vac ± 10%, 50 - 60 Hz., 30 Watts Max.
Fuse: T 0.8A, 250V, 5 x 20 mm

Environmental conditions:

Operating: 10°C to 40°C; <70% RH non-condensing
Storage: -40°C to 70°C; <90% RH non-condensing
Altitude: < 2000 m

Dimensions:

Bench model: 43 cm W x 8.9 cm H x 33 cm D (17" x 3.5" x 13") in front of panel: 3.8 cm (1.5").
Rack Mount: 47 cm W x 8.9 cm H x 33 cm D (19" x 3.5" x 13") in front of panel: 3.8 cm (1.5")

Weight: 5.5 kg (12 lb) nominal

ORDERING INFORMATION

1888+ Megohmmeter/IR Tester
Includes:

- Instruction manual
- Calibration certificate traceable to SI
- AC power cable
- 1888-01 Triaxial to alligator clip leads
- 1888-02 bnc-m to alligator clip leads
- 1888-03 Interlock

Optional Accessories

- 1888-11 Volume/Surface Resistivity Cell
- 1888-50 Rack mount kit
- 1888-52 Component test fixture
- 1888-04 100 kΩ capacitor adaptor
- 1888-05 1 MΩ capacitor adaptor