

# MEG

## USES:

- Production Testing of Insulation on Switches, Connectors, Cables, Printed Circuit Boards, Transformers, Motors and other Devices
- Insulation Properties of Natural and Synthetic Materials such as Oils, Plastics, Rubber or Porcelains
- Screening and Sorting of High Resistance Components
- Incoming Inspection and Quality Assurance Testing
- Product Design and Evaluation of Insulation Properties

## FEATURES:

- Measurement Range to 100T $\Omega$
- Programmable Test Voltage from 1 to 1000 V DC
- 0.5% Measurement Accuracy
- Automatic Ranging
- Programmable Test Times
- High Resolution LCD Display
- Storage of Test Setup and Results
- Automatic Zeroing of Test Leads
- Limit Entry for Pass/Fail Testing
- Direct Reading of Measured Current
- Keypad Lockout with Password Protection
- RS-232 and I/O Interfaces
- Optional IEEE-488 Interface

# 1865 Megohmmeter/IR Tester

## High Resistance Meter

### Introduction

The 1865 Megohmmeter/IR tester, with digital display, is used for high accuracy measurements of insulation resistance on a wide variety of components, materials and electronic devices. Resistance values greater than 100 teraohms can be measured with a basic accuracy of 0.5% at DC voltages up to 1000V. A programmable limit makes the unit ideal for pass/fail testing in a production environment and is also adaptable for use in automated system applications with its optional IEEE-488 interface.

### Description

**Precision Measurements:** The 1865 provides resistance measurement capability over a range of 1k $\Omega$  to 100T $\Omega$  (test voltage dependent), with a basic accuracy of 0.5%. To meet the test requirements for a wide range of devices, the test voltage is fully programmable up to 1000V DC. Sensing the proper resistance measurement range is done automatically, thus eliminating setup errors: and in order to eliminate lead or fixture errors, the operator can easily initiate an automatic zeroing routine of test leads.

**Easy To Use:** The 1865's menu programming system, simple controls and indicators combine for efficiency of test and productivity. It's multi-function keypad provides the operator with an easy way to program and make measurements.

**Pass/Fail:** Measured results are automatically compared to an operator programmed limit for pass/fail testing. Pass/Fail indicator lights or a pass/fail output from the instruments I/O interface give a clear indication of the measurement results.

**Program Data Storage:** Test setup conditions and measured results can be stored in instrument memory or on 3 1/2" disk when using the extended program storage option.

**Automated Testing:** For automated system applications, the 1865 includes an I/O interface connection with remote start and pass/fail outputs. An optional IEEE-488 interface is also available (or added later) which enables the 1865 to be used under computer control.

**Current Display Mode:** Besides a readout of insulation resistance in ohms, the operator can select a display mode for reading the measured current directly.

**Safety Features:** The 1865 provides safety features such as current limiting, a warning indicator when high voltage is active, and safety interlock, all for protection of the operator.

**Component Test Fixture:** An accessory fixture is available for use with the 1865 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.



For more detailed specifications,

visit

[www.quadtech.com](http://www.quadtech.com)

For more information about special purchase, rent & lease options, call

1-800-253-1230

Fax 1-978-461-4295

Intl. 1-978-461-2100

## 1865 Megohmmeter

<b>Resistance Range:</b>	7 ranges (automatic or manual) $1 \times 10^3 \Omega$ to $>1 \times 10^{14} \Omega$ (voltage dependent) $1 \times 10^6 \Omega$ to $>1 \times 10^{14} \Omega$ at 1000V DC $1 \times 10^5 \Omega$ to $1 \times 10^{13} \Omega$ at 100V DC $1 \times 10^4 \Omega$ to $1 \times 10^{12} \Omega$ at 10V DC $1 \times 10^3 \Omega$ to $1 \times 10^{11} \Omega$ at 1V DC
<b>Resistance Accuracy:</b>	$\pm [0.45\% + \{(Rx/Vx)(0.0005 \text{ FS} + 2\text{pA}) + 30 \Omega / Rx\}100\%]$ Rx: Measured resistance in ohms Vx: Programmed voltage in volts FS: Full scale current range in amperes
<b>Voltage Range:</b>	1 to 1000 volts programmable in two ranges
<b>Voltage Accuracy:</b>	1 - 100V: 1% of setting + 1V, 25mV resolution 100 - 1000V: 1% of setting + 2V, 250mV resolution
<b>Output Voltage Impedance:</b>	1kV, $\pm 5\%$
<b>Current Limited:</b>	< 2mA
<b>Current Measure:</b>	$1 \times 10^{-13}$ - $1 \times 10^{-3} \text{A}$
<b>Current* Accuracy:</b>	1nA- 1mA $\pm [0.5\% + (0.0005\text{FS} + 2 \text{pA})]$ 100pA- 1nA $\pm [1\% + (0.0005\text{FS} + 2\text{pA})]$ 1pA - 100pA $\pm [10\% + (0.0005\text{FS} + 2 \text{pA})]$ *Specified at front panel connectors
<b>Input Impedance:</b>	5k $\Omega$ , $\pm 5\%$
<b>Measure Limits:</b>	Pass/Fail (1 limit)
<b>Display:</b>	<ul style="list-style-type: none"> <li>• LCD graphics display</li> <li>• Voltage warning indicator</li> <li>• Pass/Fail indicator</li> </ul>
<b>Test Cycle:</b>	Manual: Charge, Measure, Discharge Automatic: Charge: (0 - 300 sec), Measure: (0 - 300 sec), Dwell: (0 - 300 sec), Discharge: (0 - 300 sec)
<b>Interfaces:</b>	Standard: RS-232, I/O Port (w/safety interlock) Optional: IEEE-488 & Data/ Program Storage 3 1/2" disk
<b>Input Terminals:</b>	Four sheathed banana jacks, front or rear (optional) mount <ul style="list-style-type: none"> <li style="width: 50%;">• + unknown (red)</li> <li style="width: 50%;">• guard (blue)</li> <li style="width: 50%;">• - unknown (black)</li> <li style="width: 50%;">• ground (green)</li> </ul>

<b>Other Features:</b>	<ul style="list-style-type: none"> <li>• Menu Programming</li> <li>• Automatic Zeroing</li> <li>• Stored Test Conditions</li> <li>• Measurement units (engineering or scientific)</li> <li>• Measurement averaging (1 - 400)</li> <li>• Stop on Pass</li> <li>• Safety Interlock</li> <li>• Keypad Lockout</li> </ul>
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<b>Dimensions:</b>	Benchtop unit with tilt back bail (w x h x d) : (17.5 x 5.25 x 16in) (444.5 x 133.4 x 406.4mm)
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<b>Weight:</b>	18 lbs (8.2kg) - Net 26 lbs (11.8kg) - Shipping
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<b>Power:</b>	90 to 250V, 47 or 63 Hz 60W max
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<b>Environmental:</b>	In accordance with MIL-T-28800D, Type 3, Class 5, Syle E & F Operating: 0°C to +50°C, Storage: -40°C to +70°C
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## 1865-52 Component Test Fixture

<b>Components Accomodated:</b>	<table border="0"> <tr> <td>Leaded Module:</td> <td>Body Size &lt; 1inch Lead Size &lt; 1.4mm dia</td> </tr> <tr> <td>SMD Module:</td> <td>Width: 0.5 to 10mm Height: 0.5 to 10mm (Diameter 0.5 to 3.0mm) Length: 0.1 to 8mm</td> </tr> <tr> <td>Alligator Clips:</td> <td>&lt; 5mm diameter</td> </tr> </table>	Leaded Module:	Body Size < 1inch Lead Size < 1.4mm dia	SMD Module:	Width: 0.5 to 10mm Height: 0.5 to 10mm (Diameter 0.5 to 3.0mm) Length: 0.1 to 8mm	Alligator Clips:	< 5mm diameter
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SMD Module:	Width: 0.5 to 10mm Height: 0.5 to 10mm (Diameter 0.5 to 3.0mm) Length: 0.1 to 8mm						
Alligator Clips:	< 5mm diameter						
<b>Dimensions:</b>	(w x h x d): (8 x 5.5 x 9in), (203 x 140 x 230mm)						
<b>Weight:</b>	5 lbs (2.3kg) - Net, 9 lbs (4kg) - Shipping						

## Ordering Information

<b>1865-00 Megohmmeter/IR Tester</b>	<b>Optional Accessories:</b>
<b>Includes:</b>	1865-01 IEEE Interface Option (factory installed)
150073 Instruction Manual	1865-02 Data/Extended Program Storage Option (factory installed)
XX Calibration Certificate Traceable to NIST	1865-03 Rear Panel Input Option (factory installed)
700070 AC Power Cable	1865-50 Rack Mount Kit
800014 100k $\Omega$ Capacitor Adaptor	1865-51 Shielded Lead Set
800015 1M $\Omega$ Capacitor Adaptor	1865-52 Component Test Fixture
520049 Spare T2.5A, 250V Power Line Fuse	1865-70 IEEE Interface Option (field retrofit)
	Calibration Data

For more detailed specifications, visit [www.quadtech.com](http://www.quadtech.com)

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