

For all of your Ground Testing needs...



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GROUND TESTERS



## Understanding Ground Resistance Testing

The term “ground” is defined as a conducting connection by which a circuit or equipment is connected to the earth. The connection is used to establish and maintain, as closely as possible, the potential of the earth on the circuit or equipment connected to it. A “ground” consists of a grounding conductor, a bonding connector, its grounding electrode(s) and the soil in contact with the electrode.

Grounds have several protection applications: for natural phenomena, such as lightning, grounds are used to discharge the system of current before personnel can be injured or system components damaged.

For foreign potentials due to faults in electric power systems with ground returns, grounds help ensure rapid operation of the protection relays by providing low resistance fault current paths. This provides for the removal of the foreign potential as quickly as possible. The ground should drain the foreign potential before personnel are injured and the power or communications system is damaged.

Ideally, to maintain a reference potential for instrument safety, protect against static electricity, and limit the system to frame voltage for operator safety, a ground resistance should be zero ohms. In reality, this value is difficult to obtain.

Last, but not least, low ground resistance is essential to meet NEC®, OSHA and other electrical safety standards.

### To measure:

- Soil Resistivity — use a 4-Point tester
- Touch Potential — use a 4-Point tester
- Low Ground Resistance ( $5\Omega$  or less) Grids or Mats — use a dual 3- and 4-Point tester
- Individual Ground Rods — use a 3-Point tester
- Ground Resistance testing without the need for auxiliary electrodes or disconnecting neutrals — use a clamp-on tester
- Bonding Resistance — use a Micro-Ohmmeter



Model 6250 conducting bond verification on a grounding system.



Model 4630 performing a 3-Point ground resistance test on an individual rod.

### Applications

- Measure ground rod and grid resistance
- Use in multi-grounded systems without disconnecting the ground under test
- Measure resistance and continuity of grounding loops around pads and buildings
- Measure leakage current flowing to ground or circulating in ground loops
- Conduct quick field checks
- Conduct field surveys and retrieve and analyze readings at a later time
- Measuring earth resistance of the type of single rod or small ground grids often found in remote telecommunication switching sites
- Measuring ground electrode resistance of lightning protection equipment
- Measuring the earth electrode resistance of equipment in recreational areas
- Testing electrode resistance of installed ground rods and grids at new construction sites, when utility supplied power has not been supplied
- Testing earth electrode resistance of grounded towers and counterpoises at cellular phone remote installations
- Three-Point measurement of large grounding grids, counterpoises, ground mats, and grounded equipment
- Locating areas of lowest soil resistivity which is essential for achieving an economical grounding installation

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Whether you are doing a simplified 2-Point, a more complete 3- or 4-Point Fall-of-Potential test, a soil resistivity test or a touch potential test, AEMC® has the right instrument for you. Our revolutionary Clamp-On Ground Resistance Tester will save you both time and money.

Whichever AEMC® ground tester you choose, you can count on it to be the highest quality, the most complete package and the simplest to learn to use.

#### Clamp-On Ground Resistance Testers

The Clamp-On Ground Resistance Testers measure ground rod and grid resistance without the use of auxiliary ground rods. They offer accurate readings from 0.1 to 1200Ω, as well as ground leakage current from 1mA to 30Arms, without disconnecting the ground system under test.

#### 3-Point Ground Resistance Testers

The 3-Point Ground Resistance Testers are available in both analog and digital models. These Fall-of-Potential testers are designed to reject high levels of noise and interference and offer measurement ranges up to 99,000Ω. All models are available in complete kit form which includes leads, auxiliary electrodes, 100 ft tape measure and carrying bag.

#### 4-Point Ground Resistance Testers

The 4-Point Ground Resistance Testers are ideal for both soil resistivity and Fall-of-Potential testing. Models are available as battery powered or with AC power cord. All models are available in complete kit form which includes leads, auxiliary electrodes, 100 ft tape measure and carrying bag.

#### Bond Testers

Micro-Ohmmeter Model 6240 and 6250 perform reliable low resistance measurements with test current to 10A and resolution to 1μΩ. Model 6250 uses a four-wire Kelvin Bridge method, which eliminates test lead resistance for a measurement accuracy of 0.25%.

## Ground Resistance Tester Model 6471

**NEW!**

**AUTOMATIC REPORT GENERATION**

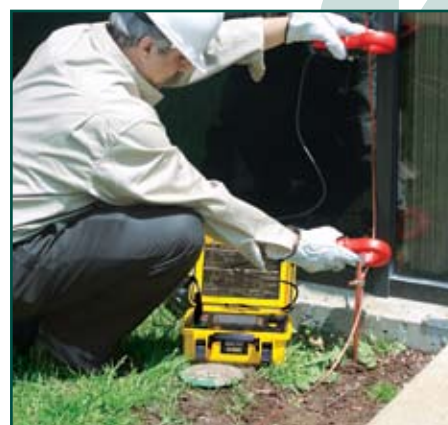


AC Current Probes Model SR182



3-Point Test	✓
4-Point Test	Direct soil resistivity measurement
Bond Test (2- and 4-wire)	✓
Earth Coupling Test	✓
External Voltage Measurement	0.1 to 65.0V
Measurement Range	99,000Ω
Ranging	Auto-Ranging
Test Current	Up to 250mA
Test Frequency	Selectable from 41 to 513Hz
Power Source	Rechargeable 9.6V NiMH battery pack
Display	Digital/backlight
Dimensions	10.7 x 9.76 x 5.12"
Weight	7.5 lbs
Catalog No.	2135.49

Also available as kit. See Ground Testing kits.



### Model 6471 comes with a Large Display!

#### 4-Point Bond Test



#### 3-Point FOP Test



#### Frequency Selection



#### Data Storage



#### Schlumberger Test



#### Wenner Test



## Ground Resistance Tester Model 6471 Kit (300 ft)

Also available in 300 ft kit. See Ground Testing Kits.



DataView® is included with the Model 6471.



Includes meter, set of two SR182 current probes, rechargeable NiMH batteries, optical USB cable, power adapter 110/240V with power cord 115V US, two 300 ft color-coded leads on spools (red/blue), two 100 ft color-coded leads (hand-tied, green/black), four T-shaped auxiliary ground electrodes, set of five spaded lugs, one 100 ft AEMC® tape measure, DataView® software, ground tester workbook CD, carrying bag for meter, carrying bag for kit, product warranty and registration card and a user manual. Catalog #2135.50



## Analog Ground Resistance Tester Model 3620



2-Point Test	✓
3-Point Test	✓
4-Point Test	—
Measurement Range	0.5 to 1000Ω
Ranging	Automatic
Test Current	Auto up to 10mA
Noise Protection	Enhanced filtering with LED indication
Power Source	Eight 1.5V AA Alkaline batteries
Display	Analog
Dimensions	8.7 x 5.4 x 5.9"
Weight	2.9 lbs
Catalog No.	2114.90

Also available as Complete Test Kits.

## Digital Ground Resistance Tester Model 3640



2-Point Test	✓
3-Point Test	✓
4-Point Test	—
Measurement Range	0.00 to 1999Ω
Ranging	Automatic
Test Current	Auto up to 10mA
Noise Protection	Enhanced filtering with LED indication
Power Source	Eight 1.5V AA Alkaline batteries
Display	Digital
Dimensions	8.7 x 5.4 x 5.9"
Weight	2.9 lbs
Catalog No.	2114.92

Also available as Complete Test Kits.

## Digital Ground Resistance Tester Model 4610



2-Point Test	✓
3-Point Test	✓
4-Point Test	✓
Measurement Range	0.00 to 1999Ω
Ranging	Automatic
Test Current	Auto up to 10mA
Noise Protection	Enhanced filtering with LED indication
Power Source	Eight 1.5V AA Alkaline batteries
Display	Digital
Dimensions	8.7 x 5.4 x 5.9"
Weight	2.9 lbs
Catalog No.	2114.94

Also available as Complete Test Kits.

## Ground Resistance Tester Kit 150 ft



Test Kit for 3-Point testing includes meter, two 150 ft color-coded leads on spools (red and blue), one 30 ft lead (green), two 14.5" T-shaped auxiliary ground electrodes, one set of five spaded lugs, 100 ft tape measure and carrying bag.

Model 3620 Kit:	Catalog #2135.10
Model 3640 Kit:	Catalog #2135.13
Model 4610 Kit:	Catalog #2135.16
Model 4620 Kit:	Catalog #2135.19
Model 4630 Kit:	Catalog #2135.22
Model 6470-B Kit:	Catalog #2135.02
Model 6472 Kit:	Catalog #2135.52

## Ground Resistance Tester Kit 300 ft



Test Kit for 4-Point testing includes meter, two 300 ft color-coded leads on spools (red and blue), two 100 ft color-coded leads (green and black), four 14.5" T-shaped auxiliary ground electrodes, one set of five spaded lugs, 100 ft tape measure and carrying bag.

Model 3620 Kit:	Catalog #2135.11
Model 3640 Kit:	Catalog #2135.14
Model 4610 Kit:	Catalog #2135.17
Model 4620 Kit:	Catalog #2135.20
Model 4630 Kit:	Catalog #2135.23
Model 6470-B Kit:	Catalog #2135.03
Model 6471 Kit:	Catalog #2135.50
Model 6472 Kit:	Catalog #2135.53

## Ground Resistance Tester Kit 500 ft



Test Kit for 4-Point testing includes meter, two 500 ft color-coded leads on spools (red and blue), two 100 ft color-coded leads (green and black), one 30 ft lead (green), four 14.5" T-shaped auxiliary ground electrodes, one set of five spaded lugs, 100 ft tape measure and carrying bag.

Model 4610 Kit:	Catalog #2135.18
Model 4620 Kit:	Catalog #2135.21
Model 4630 Kit:	Catalog #2135.24
Model 6470-B Kit:	Catalog #2135.04
Model 6472 Kit:	Catalog #2135.54

## Ground Resistance Tester Model 6472



DataView®  
Software is  
included with the  
Model 6472.



<b>3-Point Test</b>	✓
<b>4-Point Test</b> Direct soil resistivity measurement	✓
<b>Bond Test</b> (2- and 4-wire)	✓
<b>Earth Coupling Test</b>	✓
<b>Earth Potential Measurement</b>	✓
<b>External Voltage Measurement</b>	0.1 to 65.0V
<b>Measurement Range</b>	99,000Ω
<b>Ranging</b>	Auto-Ranging
<b>Test Current</b>	Up to 250mA
<b>Test Frequency</b>	Selectable from 40 to 5078Hz
<b>Power Source</b>	Rechargeable 9.6V NiMH battery pack
<b>Display</b>	Digital/backlight
<b>Dimensions</b>	10.7 x 9.76 x 5.12"
<b>Weight</b>	7.5 lbs
<b>Catalog No.</b>	2135.51

Also available as kits. See Ground Testing kits.

## Multi-function Ground Resistance Tester Model 6470-B



DataView®  
Software is  
included with the  
Model 6470-B.



<b>3-Point Test</b>	✓
<b>4-Point Test</b> Direct soil resistivity measurement	✓
<b>Bond Test</b> (2- and 4-wire)	✓
<b>Earth Coupling Test</b>	✓
<b>Measurement Range</b>	99,000Ω
<b>Ranging</b>	Auto-Ranging
<b>Test Current</b>	Up to 250mA
<b>Test Frequency</b>	Selectable from 40 to 513Hz
<b>Power Source</b>	Rechargeable 9.6V NiMH battery pack
<b>Display</b>	Digital/backlight
<b>Dimensions</b>	10.7 x 9.76 x 5.12"
<b>Weight</b>	7.5 lbs
<b>Catalog No.</b>	2135.01

Also available as kits. See Ground Testing kits.

## Digital Ground Resistance Tester Model 4620 & 4630



<b>MODELS</b>	<b>4620</b>	<b>4630</b>
<b>2-Point Test</b>	✓	
<b>3-Point Test</b>	✓	
<b>4-Point Test</b>	✓	
<b>Measurement Range</b>	0.00 to 1999Ω	
<b>Ranging</b>	Automatic	
<b>Test Current</b>	Auto up to 10mA	
<b>Noise Protection</b>	Enhanced filtering with LED indication	
<b>Power Source</b>	Eight C cell Alkaline batteries	Rechargeable 9.6V NiMH battery pack
<b>Display</b>	Digital/backlight	
<b>Dimensions</b>	10.7 x 9.76 x 5.12"	
<b>Weight</b>	7.75 lbs	
<b>Catalog No.</b>	2130.43	2130.44

Also available as kits. See Ground Testing kits.

## Clamp-On Ground Resistance Testers Models 3711 & 3731



<b>MODELS</b>	<b>3711</b>	<b>3731</b>
<b>Clamp-On Test</b>	✓	
<b>Measurement Range</b>	0.1 to 1200Ω	
<b>Ranging</b>	Automatic	
<b>Current Range</b>	1mA to 30Arms	
<b>Test Current</b>	Automatic	
<b>Noise Protection</b>	Enhanced filtering	
<b>Other Features</b>	Hold function	Alarm&memory
<b>Power Source</b>	9V Alkaline	
<b>Display</b>	Digital	
<b>Dimensions</b>	9.25 x 3.94 x 2.17"	
<b>Weight</b>	2.2 lbs	
<b>Catalog No.</b>	2117.60	2117.61

## Digital 10A Micro-Ohmmeter Model 6250



DataView®  
Software is  
included with the  
Model 6250.



<b>4-Point, Kelvin Bridge</b>	✓
<b>Measurement Range</b>	0.1μΩ to 2500.0Ω
<b>Test Current</b>	1mA to 10A selectable
<b>Measurement Mode</b>	Inductive/Resistive/Auto
<b>Metal Alpha</b>	Adjustable to 99.9
<b>Temperature Correction</b>	Manual or Auto
<b>Power Source</b>	Rechargeable 6V battery pack
<b>Display</b>	Digital/backlight
<b>Dimensions</b>	10.7 x 9.76 x 7.17"
<b>Weight</b>	8 lbs
<b>Catalog No.</b>	2129.81

Accessory 1A and 10A Kelvin Probes available.

## 10A Micro-Ohmmeter Model 6240



DataView®  
Software is  
included with the  
Model 6240.



<b>4-Point, Kelvin Bridge</b>	✓
<b>Measurement Range</b>	5μΩ to 400Ω
<b>Test Current</b>	10mA to 10A selectable
<b>Resolution</b>	1μΩ to 100mΩ
<b>Temperature Correction</b>	Manual
<b>Power Source</b>	Rechargeable NiMH 6V battery
<b>Display</b>	Digital/Backlit
<b>Dimensions</b>	10.7 x 9.76 x 7.17"
<b>Weight</b>	9.9 lbs
<b>Catalog No.</b>	2129.80

Accessory 1A and 10A Kelvin Probes available.



Since its creation in 1893, Chauvin Arnoux® has continued to innovate and develop new products in response to customer needs and applications. Over the years, Chauvin Arnoux® has developed extensive expertise and knowledge in many product lines, including: current probes, multimeters (they invented the first multimeter in 1937!), ground testers, insulation testers, environmental testers and many others in the portable test instrument realm.

**One product line that stands out is Earth/Ground Testers.**

The ground tester line finds its roots in the early 1930s. Limited technology was available, so a null balance galvanometer, a decade resistance box and a DC power source combined to make one of the first ground testers. Years later hand-cranked technology, first using a generator, provided the test voltage. Electronics set in the 1950s and 60s gave birth to electronic ground testers with electronic amplifiers. Eventually, digital displays came to the scene, though analog meters remained due to customer habits and taste. Over 20 years ago, AEMC® revolutionized the ground testing market by offering clamp-on ground testers. After several generations, the AEMC® clamp-on ground tester (Models 3711 and 3731) remains the industry standard.

Today, ground testers are digital and incorporate many intelligent features. Timers, alarms and variable test voltages are becoming common. AEMC® recently introduced a unique line of professional ground testers built into field cases. The Model 6470-B is the first product in this new line. These units simplify the measurement by automatically selecting the right test signal range and frequency. This new meter also indicates circuit noise and connection faults to ensure reliable measurements. Earth coupling along with 2- and 4-wire bond tests can also be performed. Data can be stored and downloaded to a PC for automatic report generation. All AEMC® manufactured ground testers are designed to the latest international safety and testing standards and are CE marked.



First Ground Tester  
introduced 1935

Introduced 2008



The AEMC® website offers a wide assortment of technical product information, software and firmware updates, user manuals and printable data sheets or brochures for all AEMC® products. View AEMC® 's upcoming trade shows and training seminars that take place across the country, read about AEMC®'s NEW products and register purchased AEMC® products.

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