

# Multi-Function Ground Resistance Tester Model 6471



AC Current Probes  
Model SR182



The Ground Resistance Tester Model 6471 is a portable measurement instrument designed to measure Ground Resistance with 2 clamps (no auxiliary rods), Bond/Connection Resistance (2-Pole and 4-Pole Kelvin sensing), Ground Resistance (3-Pole or 4-Pole), Ground Coupling Resistance, and Selective Ground Resistance, Soil Resistivity (Wenner or Schlumberger method).

The Model 6471 measures from 0.01 to 99.99k $\Omega$  and is auto-ranging, automatically seeking out the optimum measurement range, test frequency and test current.

Easy-to-use - Simply connect the leads, select the test mode, press Start and read the results. Up to 512 test results can be stored in

internal memory for later recall to the display or downloaded to a PC via DataView<sup>®</sup> software.

The Model 6471 is CAT IV rated to 50V and is over voltage protected to more than 250VAC against accidental connection to live circuits. The voltage is also displayed on the screen. In the event of a system fault, the Model 6471 can withstand 250VAC.

Additional features of the Model 6471 include a heavy-duty field case sealed against dust and water when closed (the test button is also sealed against the elements); manual and automatic test frequency selection from 41 to 513Hz; user selectable 3-Pole Fall of Potential or 4-Pole Soil Resistivity test methods and user selectable 2-Pole or 4-Pole Bond Resistance test method.

The Ground Resistance Tester Model 6471 is rugged, easy-to-use and ideal for maintenance crews performing numerous tests. It exceeds mechanical and safety specifications for shock, vibration and drop tests per IEC standards. The adjustable test frequency provides for rejection of high levels of interference, allowing it to be used under difficult conditions such as high stray currents that affect accuracy.

## Features

- Test ground resistance using the 2 clamp method (no auxiliary rods needed)
- 2- and 4-Pole Bond Resistance/Continuity measurement (DC Resistance) with automatic polarity reversal
- 3-Pole Fall-of-Potential measurement with manual or automatic frequency selection
- 4-Pole Soil Resistivity measurement with automatic calculation of Rho ( $\rho$ ) and user selection of the Wenner or Schlumberger test method
- 3-Pole Earth Coupling measurement
- Manual and Automatic frequency scan from 41 to 513Hz for optimum test accuracy in electrically noisy environments
- Selectable test voltage of 16 or 32V up to 250mA of test current
- Auto-off power management
- Automatic recognition of all electrode connections and their resistance value
- Stores up to 512 complete test results in internal memory
- Optically isolated USB communication
- Remote set up and operation of all measurements using DataView® software
- Rechargeable NiMH batteries from wall charger or vehicle power
- Rugged dustproof and rainproof field case – IP54 rated in closed position
- Grounding standards IEC 61557 parts 4 and 5 compliant
- Includes DataView® software for data storage, real-time display, analysis, report generation and system configuration

## Applications

- Test insulation on cables, transformers, motors, generators, insulators and wiring installations
- High resistance or absorption tests
- Spot reading tests
- Timed resistance measurements
- Dielectric Absorption Ratio (DAR) and Polarization Index (PI) tests
- Test old or water damaged installations over long time runs
- Motor insulation resistance measurements



*The Model 6471 performs a fast and easy way to measure the value of the earth/ground using the 2 Clamp method (no auxiliary rods needed).*

# Specifications

| SPECIFICATIONS                               |   |
|--|---|
| <b>MODEL</b>                                 | <b>6471</b>   |
| <b>ELECTRICAL</b>                            |   |
| <b>2 Clamp Measurement</b>                   |   |
| Range  | 0.10 to 500Ω  |
| Resolution                                   | 0.01 to 1Ω  |
| Measurement Frequency                        | Auto: 1367Hz<br>Manual: 128Hz-1367Hz-1611Hz-1758Hz                                    |
| <b>3-Point Measurement</b>                   |   |
| Range (Auto-Ranging)                         | 0.09Ω to 99.9kΩ   |
| Resolution                                   | 0.01Ω to 100Ω   |
| Test Voltage                                 | Nominal 16 or 32VRMS user selectable  |
| Resistance Measurement Frequency             | 41 to 513Hz automatic or user selectable  |
| Test Current                                 | Up to 250mA   |
| Accuracy                                     | ±2% of Reading + 1ct @ 128Hz  |
| <b>Soil Resistivity 4-Point Measurement</b>  |   |
| Test Method                                  | Wenner or Schlumberger selectable with automatic calculation in Ω-meters or Ω-feet    |
| Range (Auto-Ranging)                         | 0.01 to 99.99kΩ; ρ Max: 999kΩm  |
| Resolution                                   | 0.01 to 100Ω  |
| Test Voltage                                 | 16 or 32V user selectable   |
| Frequency                                    | From 41 to 128Hz selectable   |
| <b>External Voltage Measurement</b>          |   |
| Range (Auto-Ranging)                         | 0.1 to 65.0VAC/DC – DC to 440Hz   |
| Accuracy                                     | ±2% of Reading + 1ct  |
| <b>Resistance Measurement (Bond Testing)</b> |   |
| Measurement Type                             | 2-Pole (with lead resistance compensation) or 4-Pole (Kelvin sensing) user selectable |
| Range (Auto-Ranging)                         | 2-Pole 0.01Ω to 99.9kΩ;<br>4-Pole 0.001Ω to 99.99kΩ                                   |
| Accuracy                                     | ±2% of Reading + 2cts   |
| Test Voltage                                 | 16Vdc (+, - or auto polarity)   |
| Test Current                                 | Up to 250mA max   |
| <b>Data Storage</b>                          |   |
| Memory Capacity                              | 512 test results  |
| Communication                                | Optically Isolated USB  |
| <b>Power Source</b>                          | 9.6V rechargeable battery pack (included)   |
| <b>Recharging Source</b>                     | 110/220 50/60Hz external charger with 18Vdc, 1.9A output or 12V vehicle power         |

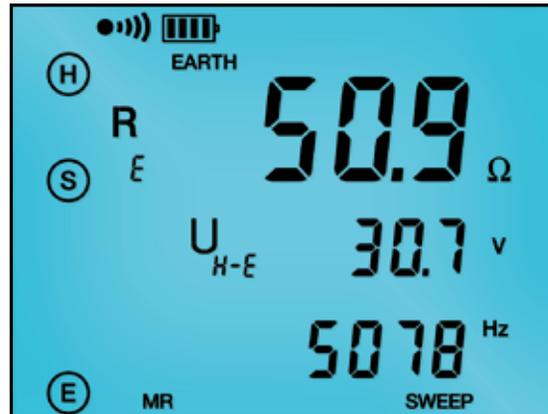
# Functional Displays

## 2-Point Bond Test



The 2-Point Bond test displays lead connections, bond resistance test results, test voltage and current.

## 3-Point Fall-of-Potential Test



The 3-Point Fall-of-Potential test displays test lead connection, grounding electrode resistance, test voltage and frequency.

## Two Clamp Test



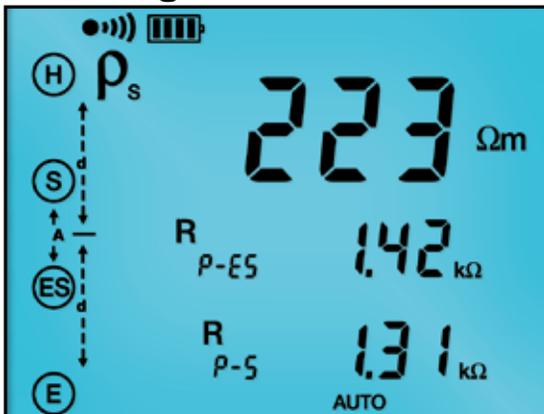
The 2 Clamp method displays clamp connection resistance, test current and frequency.

## Data Storage



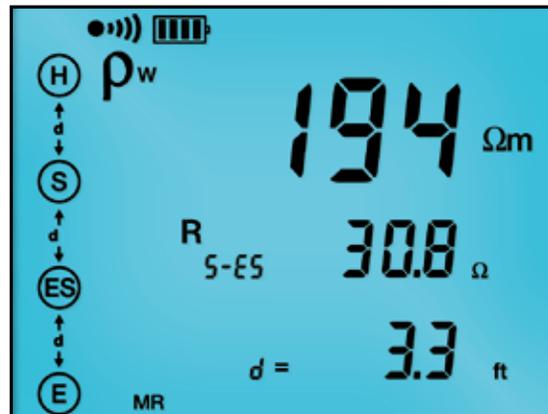
Memory Recall displays test results stored at a specific memory location.

## Schlumberger Test



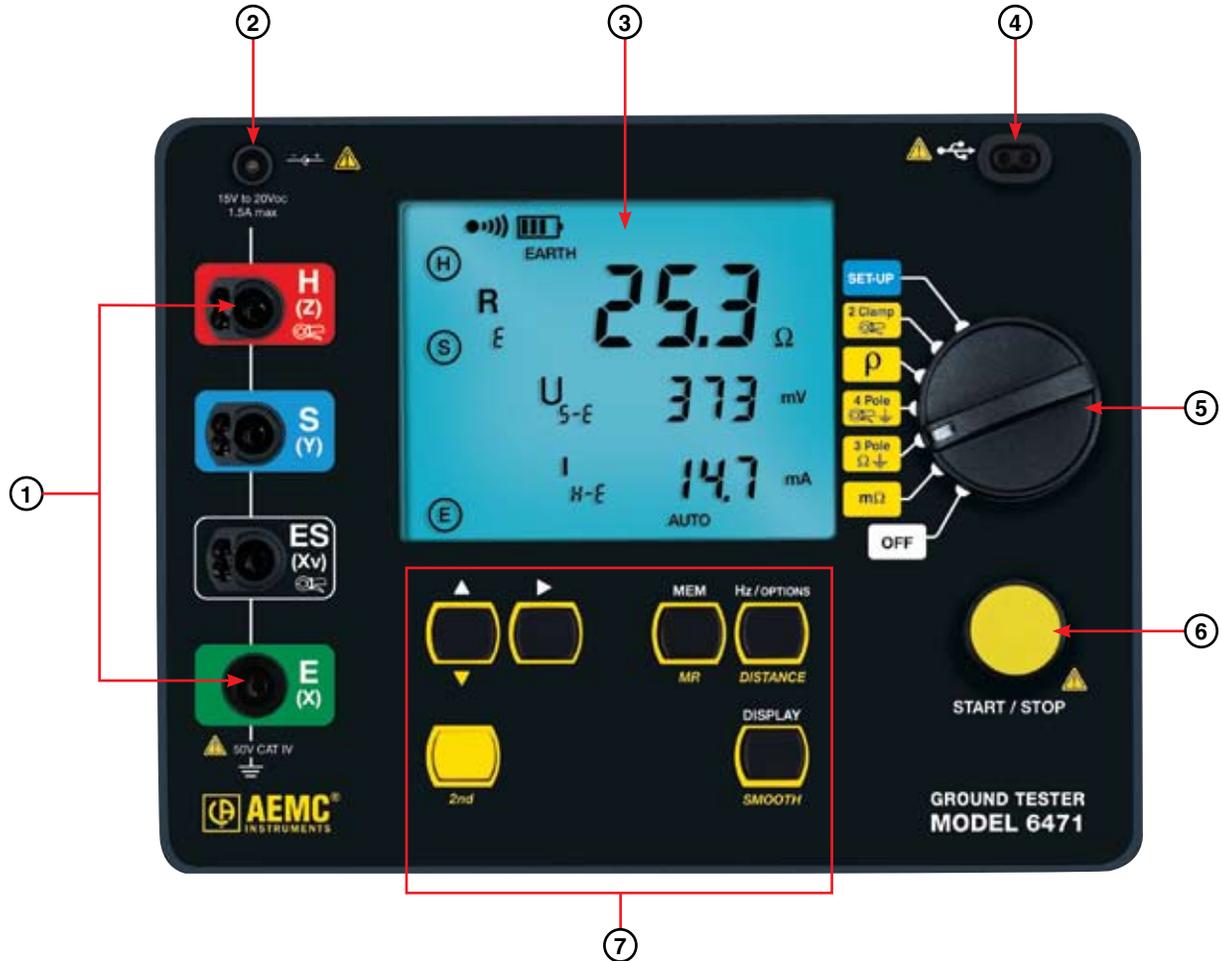
The Schlumberger test displays test lead connection, soil resistivity ( $\rho$ ) test results, test electrode resistance and more.

## Wenner Test



The Wenner test displays test lead connection, soil resistivity ( $\rho$ ) test results, electrode spacing and resistance.

## Construction



1. Four terminals: H (Z) (auxiliary electrode), S (Y) (electrode), ES (Xv) (earth/ground electrode) and E (X) (earth/ground electrode)  
All terminals accept 4mm Ø banana plugs. Terminals H (Z) and ES (Xv) also accept special plugs for current clamps. S (Y) will take a shielded cable.

2. Connector for charging the battery.

3. 256 segment multi-line backlit LCD.

4. Connector for an optical interface to a PC. Either an RS-232 or USB connection can be used.

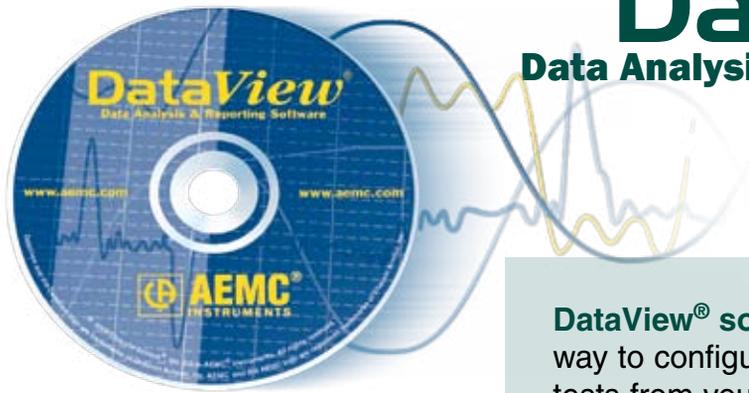
5. Rotary switch: OFF position, 5 measurement functions and SET-UP function.

6. START/STOP button: Starts the measurement and compensates for the leads (in the mΩ measurement function).

7. Six function buttons.

# DataView<sup>®</sup>

## Data Analysis and Reporting Software



DataView is included with Model 6471.

DataView<sup>®</sup> software provides a convenient way to configure and control ground resistance tests from your computer. Through the use of clear and easy-to-use tabbed dialog boxes, the Model 6471 functions can be configured and tests can be initiated. Results can be displayed in real time and stored in your PC. Reports may be printed along with the operator's comments and analysis.



- ▶ Run tests and analyze real-time data from your PC
- ▶ Configure all test functions and parameters from your PC
- ▶ Customize views, templates and reports to your exact needs
- ▶ Create and store a complete library of configurations that can be used with the Ground Resistance Tester as needed
- ▶ Display Fall-of-Potential plots, tabular listings of test results, resistance vs. frequency plots, soil resistivity and bonding tests
- ▶ Print reports using standard or custom templates you design
- ▶ Free updates are available through our website [www.aemc.com](http://www.aemc.com)

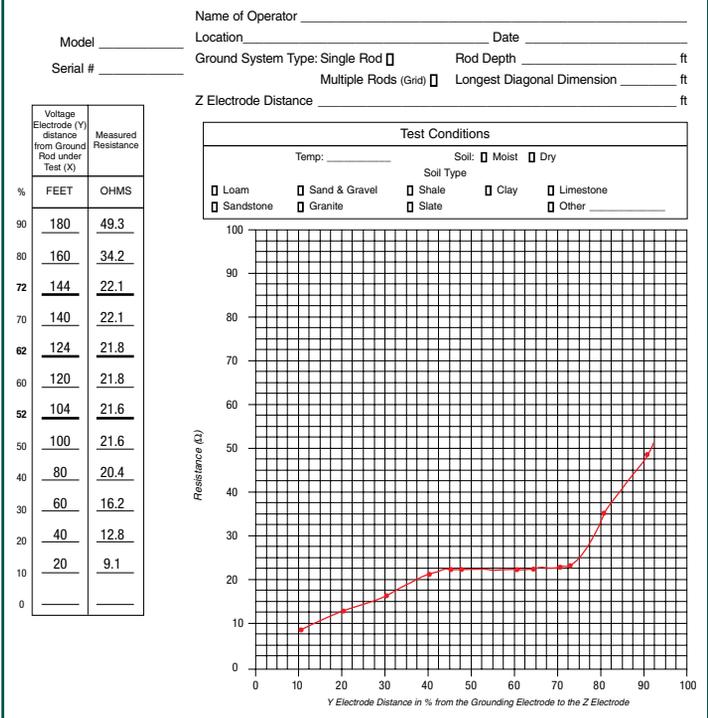
## DataView<sup>®</sup>

### Minimum Computer Requirements:

- ▶ Windows XP / Windows Vista & Windows 7 (32/64 bit)
- ▶ 256MB of RAM for Windows XP
- ▶ 1GB of RAM for Windows Vista & Windows 7 (32 bit)
- ▶ 2GB of RAM for Windows Vista & Windows 7 (64 bit)
- ▶ 80MB of hard disk space (200MB recommended)

Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.

### Fall-of-Potential Plot



Typical report showing Fall-of-Potential plot using DataView<sup>®</sup> software.

## Accessories



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

### Current Probe accessory options (For use in two clamp and selective ground testing methods)



AC Current Probe Model MN82  
Catalog #2135.71



AC Current Probe Model SR182  
Catalog #2135.72

| ORDERING INFORMATION  | CATALOG NO.   |
|---|---------------|
| <b>Multi-Function Ground Resistance Tester Model 6471</b><br>Ground Resistance Tester Model 6471 (set of two SR182 current probes, 2-Point, 3-Point, 4-Point, Bond Test, Digital, Rechargeable Battery, DataView® software) .....   | Cat. #2135.49 |
| <b>Multi-Function Ground Resistance Tester Model 6471 Kit-300 ft</b><br>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. .... | Cat. #2135.50 |
| <b>Accessories (Optional)</b>   |               |
| AC Current Probe Model MN82 for use with Model 6471* .....  | Cat. #2135.71 |
| AC Current Probe Model SR182 for use with Model 6471* .....   | Cat. #2135.72 |

\*2 probes required for two clamp testing method.

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