# **GROUND RESISTANCE TESTERS MULTI-FUNCTION**

## **MODEL 6471**

Test ground resistance without the need of auxiliary rods or with the 3- and 4- Point methods

## SPECIFICATIONS

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MODEL	6471					
ELECTRICAL						
2 Clamp Measurement						
Range	0.10 to 500Ω					
Resolution	0.01 to 1Ω					
Measurement Frequency	Auto: 1611Hz Manual: 128Hz-1367Hz-1611Hz-1758Hz					
3-Point Measurement						
Range (Auto-Ranging)	0.09Ω to 99.9kΩ					
Resolution	$0.01\Omega$ to $100\Omega$					
Test Voltage	Nominal 16 or 32Vrms user selectable					
Resistance Measurement Frequency	41 to 513Hz automatic or user selectable					
Test Current	Up to 250mA					
Accuracy	$\pm$ 2% of Reading + 1ct @ 128Hz					
Soil Resistivity 4-Point Meas						
Test Method	Wenner or Schlumberger selectable with automatic calculation in $\Omega$ -meters					
Range (Auto-Ranging)	0.01 to 99.99k $\Omega$ ; $\rho$ max: 999k $\Omega$ m					
Resolution	0.001 to 10Ω					
Test Voltage	16 or 32V user selectable					
Frequency	From 41 to 128Hz selectable					
<b>External Voltage Measureme</b>	nt					
Range (Auto-Ranging)	0.1 to 65.0Vac/dc - DC to 440Hz					
Accuracy	$\pm 2\%$ of Reading + 1ct					
<b>Resistance Measurement (Be</b>	ond Testing)					
Measurement Type	2-Pole (with lead resistance compensation) or 4-Pole (Kelvin sensing) user selectable					
Range (Auto-Ranging)	2-Pole 0.12 to 99.99kΩ; 4-Pole 0.02 to 99.99kΩ					
Accuracy	±2% of Reading + 2cts					
Test Voltage	16VDC (+, - or auto polarity)					
Test Current	Up to 250mA max					
Data Storage						
Memory Capacity	512 test results (64KB)					
Communication	Optically Isolated USB					
Power Source	9.6V rechargeable battery pack (included)					
Recharging Source	110/220V, 50/60Hz external charger with 18Vdc, 1.9A output					

Consult factory for NIST Calibration prices

## ACCESSORIES



**MN82 CURRENT PROBE** (2mA to 10Arms) Catalog #2135.71







Catalog #2135.85 Set of (2), for use with ground kit spools DataView<sup>®</sup> cover closed



### **GROUND RESISTANCE MEASUREMENT USING 2 PROBES**

For systems with parallel ground connections, Models 6471 and 6472 are capable of accurately measuring a ground resistance using probes only. This method involves placing 2 probes around the ground conductor to be tested and connecting them each to the instrument. One probe injects a known signal (32V/1367Hz) while the other probe measures the current circulating in the loop. This method saves considerable time when ground testing because it is no longer necessary to set up auxiliary rods or to disconnect the ground connector.

## **PRODUCT INCLUDES**

### CAT #2135.48 MODEL 6471 (without probes)

Carrying bag, 110/240V power adapter with US power cord. optical USB cable, rechargeable NiMH battery, and a USB drive with DataView® software, ground tester workbook and a user manual.

### CAT #2135.49 MODEL 6471 (with probes)

Carrying bag, set of (2) SR182 current probes, 110/240V power adapter with US power cord, optical USB cable, rechargeable NiMH battery, and a USB drive with DataView® software, ground tester workbook and a user manual.

### KIT SHOWN 300 FT KIT: CATALOG #2135.50

Carrying bag for meter, carrying bag for kit, (2) 300 ft color-coded (red/blue) leads on spools, (2) 5 ft color-coded (red/blue) leads, (2) 100 ft hand-tied color-coded (green/black) leads, set of (2) SR182 current probes, 110/240V power adapter with US power cord,

optical USB cable, (4) T-shaped auxiliary around electrodes, set of (5) spaded lugs, 100 ft tape measure, rechargeable NiMH battery, and a USB drive with DataView® software, ground tester workbook and a user manual.



2 probes required to perform stakeless testing.

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## **GROUND RESISTANCE TESTERS** MULTI-FUNCTION

## **MODEL 6472**

Use under difficult conditions such as the presence of high stray currents that normally affect accuracy

## **SPECIFICATIONS**

SPECIFICATIONS							
MODEL	6472						
ELECTRICAL							
2 Clamp Measurement							
Range	0.1 to 500Ω						
Resolution	0.01 to 1Ω						
Measurement Frequency	Auto: 1611Hz Manual: 128Hz-1367Hz-1611Hz-1758Hz						
3-Point Measurement							
Range (Auto-Ranging)	0.09Ω to 99.9kΩ						
Resolution	0.01Ω to 100Ω						
Test Voltage	Nominal 10, 16, 32 or 60Vrms user selectable						
Resistance Measurement Frequency	41 to 5078Hz automatic or user selectable						
Test Current	Up to 250mA						
Accuracy	±2% of Reading + 1ct @ 128Hz						
Soil Resistivity 4-Point Meas							
Test Method	Wenner or Schlumberger selectable with automatic calculation of test results in $\Omega\text{-meters}$						
Range (Auto-Ranging)	0.01 to 99.99k $\Omega$ ; $\rho$ max: 999k $\Omega$ m						
Resolution	0.01 to 100Ω						
Test Voltage	16 or 32V user selectable						
Frequency	From 41 to 128Hz selectable						
External Voltage Measureme	nt						
Range (Auto-Ranging)	0.1 to 65.0Vac/dc – DC to 440Hz						
Accuracy	$\pm 2\%$ of Reading + 1ct						
Resistance Measurement (B							
Measurement Type	2-Pole (with lead resistance compensation) or 4-Pole (Kelvin sensing) user selectable						
Range (Auto-Ranging)	2-Pole 0.12Ω to 99.99kΩ; 4-Pole 0.02Ω to 99.99kΩ						
Accuracy	±2% of Reading + 2cts						
Test Voltage	16Vbc (+, - or auto polarity)						
Test Current	Up to 250mA max						
Data Storage							
Memory Capacity	512 test results (64KB)						
Communication	Optically Isolated USB						
Power Source	9.6V rechargeable battery pack (included)						
Recharging Source	110/220V, 50/60Hz external charger with 18Voc, 1.9A output						



## ACCESSORIES

**MN82 CURRENT PROBE** 

(2mA to 10Arms) Catalog #2135.71



SR182 CURRENT PROBE (0.5MA TO 40ARMS) Catalog #2135.72



**REEL CADDY** Catalog #2135.85 Set of (2), for use with ground kit spools









The Model 6472 provides an automated way to measure the value of the earth/ground using the Fall-of-Potential method and storing measurements.

## **PRODUCT INCLUDES**

Carrying bag, 110/240V power adapter with US power cord, optical USB cable, rechargeable NiMH battery, DataView® software, ground tester workbook and a user manual.

# TEST KITS

6472 METER 300 ft Kit: Catalog #2135.53 500 ft Kit: Catalog #2135.54 (shown)

Refer to page 78 for Model 6472 Kit descriptions Catalog #2135.35, #2135.36 and #2135.37

2 probes required to perform stakeless testing.



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# LARGE FUNCTIONAL DISPLAYS

## **FEATURES**

- Ground Integrity Measurement
- · Ground Resistance testing using the 2 clamp method (no auxiliary rods needed)
- 2- and 4-Point Bond Resistance/Continuity measurement (DC Resistance) with automatic polarity reversal
- 3-Point Fall-of-Potential measurement with manual or automatic frequency selection
- 4-Point Soil Resistivity measurement with automatic calculation of Rho (r) and user selection of the Wenner or Schlumberger test method
- 3-Point Earth Coupling measurement
- Manual and Automatic frequency scan from 41 to 5078 Hz for optimum test accuracy in electrically noisy environments
- Selectable test voltage of 16 or 32V up to 250mA of test current
- Auto Power OFF feature
- Automatic recognition of all electrode connections and their resistance value
- Stores up to 512 complete test results in internal memory
- Display with automatic backlight when entering a function
- Optically isolated USB communication cable included
- · Rechargeable NiMH batteries from wall charger or vehicle power
- Rugged dustproof and water-resistant field case (IP53 rated in closed position)
- Grounding standards IEC 61557 parts 4 and 5 compliant
- Includes DataView<sup>®</sup> software for set up, data retrieval, real-time display, analysis, report generation and system configuration
- · Can also be used for continuity tests on bonding

2 probes required to perform stakeless testing.



The 4-Point Bond test shows lead connections, bond resistance test results, test voltage and current

### SCHLUMBERGER TEST

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The Schlumberger test displays test lead connection, soil resistivity (p) test results and electrode spacing

### DATA STORAGE



Memory Recall displays test results stored at a specific memory location

### **3-POINT FALL-OF-POTENTIAL TEST**



The 3-Point Fall-of-Potential test displays test lead connection, grounding rod resistance and test electrode resistances

### **TWO CLAMP TEST**



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

### WENNER TEST



The Wenner test displays test lead connection, soil resistivity (p) test results, electrode spacing and resistance

CATALOG NO.	DESCRIPTION			
2135.48	Ground Resistance Tester Model 6471 (	Digital, 3-Point, 4-Point, Clamp-on (SR182 probes not include	d), DataView® Software)	
2135.49	Ground Resistance Tester Model 6471 (E	Digital, 3-Point, 4-Point, Clamp-on, (includes 2-SR182 probes	), DataView® Software)	
2135.50	Ground Resistance Tester Model 6471 K	it – 300 ft (Catalog #2135.49 and Catalog #2135.36)		
2135.51	Ground Resistance Tester Model 6472 (I	Digital, 2-Point, 3-Point, 4-Point, Bond Test, DataView® softwa	are)	
2135.53	Ground Resistance Tester Model 6472 K	it – 300 ft (Catalog #2135.51 and Catalog #2135.36)		
2135.54	Ground Resistance Tester Model 6472 K	it – 500 ft (Catlog #2135.51 and Catalog #2135.37)		
2135.60	Ground Resistance Tester Model 6471 K	it – 300 ft w/o Probes (Catalog #2135.48 and Catalog #2135	.36)	
2135.61	Ground Resistance Tester Model 6471 K	it – 500 ft w/o Probes (Catalog #2135.48 and Catalog #2135	.37)	
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# **GROUND TESTERS MODELS 6471 & 6472 — TYPICAL DATAVIEW® FUNCTIONAL DISPLAYS**

### 2 CLAMP METHOD SETUP



### **SELECTIVE 3-POINT TESTING OF MULTIPLE RODS**



BONDING



## **OPTIONAL KITS**

### 150 FT KIT

Catalog #2135.35 Test Kit for 3-Point testing includes carrying bag, (2) 150 ft color-coded (red/ blue) leads on spools,



(2) 5 ft color-coded (red/blue) leads,
(1) 30 ft lead (green), (2) 14.5" T-shaped auxiliary ground electrodes, a set of (5) spaded lugs and
(1) 100 ft tape measure.

#### **300 FT KIT** Catalog 2135.36

Test Kit for 4-Point testing includes carrying bag, (2) 300 ft color-coded (red/blue) leads

on spools, (2) 5 ft color-coded (red/blue) leads, (2) 100 ft hand-tied color-coded leads (green/black), (4) 14.5" T-shaped auxiliary ground electrodes, a set of (5) spaded lugs and (1) 100 ft tape measure.



500 FT KIT Catalog #2135.37 Test Kit for 4-Point testing includes carrying bag, (2) 500 ft color-coded (red/blue) leads on



spools, (2) 5 ft color-coded (red/blue)leads, (2) 100 ft hand-tied color-coded (green/black) leads, (1) 30 ft lead (green), (4) 14.5" T-shaped auxiliary ground electrodes, a set of (5) spaded lugs and (1) 100 ft tape measure.



### FALL-OF-POTENTIAL, STEP-TOUCH POTENTIAL



### 4-POINT BONDING FOR VERY LOW RESISTANCE

Ground Tester Control Panel le View Instrument Tools		2 Clamo (Sound Fig.)	-		×
	) 🚓 ρ ြ		START	ST	0P
Configuration					ж
Load From File	4-Wire Kelvin	<ul> <li>-/- Auto Current</li> </ul>	~		
Save To File					
Set Instrument Clock					
Buzzer Disabled 🛞 Enabled	40	DC 41wire Auto			
	- <u>E</u>				
	Show H Input (	Input Noise			
	V S-ES = 0.00342V DC				

### SOIL RESISTIVITY



# **GROUND RESISTANCE TESTERS SELECTION CHART**

AEMC Model Number	AEMC CATALOG NUMBER	RESISTANCE Range	POWER SOURCE	2 3 POINT POI TEST TES	NT POINT/	SOIL RESISTIVITY E TEST	EARTH Coupling	2 Clamp	BONDING	DISPLAY	VOLTAGE INDICATION	INDUCTANCE INDICATION	SWEEP Frequency
6416	2141.01	0.01 to 1500Ω	Battery	Clamp-On Ground Resistance Tester w/Alarm and Memory				$\checkmark$	<b>√</b> **	Digital	Voltage	$\checkmark$	-
6417	2141.02	0.01 to 1500Ω	Battery	Clamp-On Ground Resistance Tester w/Alarm, Memory and Bluetooth communication				~	✓**	Digital	Displayed (noise icon, buzzer)	$\checkmark$	-
6418	2141.03	0.01 to 1200Ω	Battery		Ground Resi Alarm and Me	stance Tester emory	-	$\checkmark$	<b>√</b> **	Digital	Noise Icon	_	
6422	2135.55	0.05 to 50kΩ	Battery	$\checkmark$		-			$\checkmark$	Digital	Noise Icon –		-
6422 Kit 150FT	2135.56	0.05 to 50kΩ	Rechargeable Battery	$\checkmark$		_			$\checkmark$	Digital	Noise Icon	Noise Icon –	
6424	2135.57	0.05 to 50kΩ	Rechargeable Battery	$\checkmark$		-			$\checkmark$	Digital	Noise Icon	e Icon –	
6424 Kit 150FT	2135.58	0.05 to 50kΩ	Rechargeable Battery	$\checkmark$		_			$\checkmark$	Digital	Noise Icon	Noise Icon –	
6424 Kit 300FT	2135.59	0.05 to 50kΩ	Rechargeable Battery	<ul> <li>✓</li> </ul>					$\checkmark$	Digital	Noise Icon –		-
GroundFlex® Field Kit Model 6474	2136.03	0.001Ω to 99.99kΩ	Rechargeable Battery	-		$\checkmark$		_	~	Digital	Voltage Displayed	-	$\checkmark$
6471 (SR182 probes not included)	2135.48	0.01 to 99.99kΩ	Rechargeable Battery	$\checkmark$				<b>√</b> ***	~	Digital	Voltage Displayed	-	-
6471	2135.49	0.01 to 99.99kΩ	Rechargeable Battery	$\checkmark$				✓	$\checkmark$	Digital	Voltage Displayed	-	-
6471 Kit 300FT	2135.50	0.01 to 99.99kΩ	Rechargeable Battery		1			$\checkmark$	$\checkmark$	Digital	Voltage Displayed	-	-
6472	2135.51	0.01 to 99.99kΩ	Rechargeable Battery					<b>√</b> ***	✓	Digital	Voltage Displayed	v	/
6472 Kit 300FT	2135.53	0.01 to 99.99kΩ	Rechargeable Battery		1			<b>√</b> ***	✓	Digital	Voltage Displayed	v	/
6472 Kit 500FT	2135.54	0.01 to 99.99kΩ	Rechargeable Battery		1			<b>√</b> ***	$\checkmark$	Digital	Voltage Displayed	v	/
4620	2130.43	0.0 to 1999Ω	Battery	$\checkmark$	-	$\checkmark$		-		Digital	LED/Buzzer	-	-
4620 Kit 150FT	2135.19	0.0 to 1999Ω	Battery	$\checkmark$	-	√*		-		Digital	LED/Buzzer	-	-
4620 Kit 300FT	2135.20	0.0 to 1999Ω	Battery	$\checkmark$	-	✓		-		Digital	LED/Buzzer	-	-
4620 Kit 500FT	2135.21	0.0 to 1999Ω	Battery	$\checkmark$	✓ – ✓			_		Digital	LED/Buzzer	-	
4630	2130.44	0.0 to 1999Ω	Rechargeable Battery	$\checkmark$	✓ - ✓			_		Digital	LED/Buzzer	-	
4630 Kit 150FT	2135.22	0.0 to 1999Ω	Rechargeable Battery	$\checkmark$	-		-		Digital	LED/Buzzer	_		
4630 Kit 300FT	2135.23	0.0 to 1999Ω	Rechargeable Battery	$\checkmark$	-			-		Digital	LED/Buzzer	-	-
4630 Kit 500FT	2135.24	0.0 to 1999Ω	Rechargeable Battery	$\checkmark$	-			_		Digital	LED/Buzzer	_	

\* Performing soil resistivity tests with this kit requires two additional auxiliary electrodes not supplied in the 150 ft kit and one additional test lead.

\*\* Clamp-on Ground Resistance Tester can measure system continuity inclusive of all bonding points.

\*\*\* Must purchase an additional (2) SR182 or (2) MN82 accessory clamps

