

# Digital Ground Resistance Tester Model 4610 & 4610 Kit



Model 4610 Kit (optional)  
Catalog #2114.95



Digital Ground Resistance Tester Model 4610 performs ground resistance and soil resistivity tests. Direct reading tester measures from 10m $\Omega$  to 1999 $\Omega$ , and is Auto-Ranging, so it automatically seeks out the optimum measurement range. Easy to use — simply connect the leads, Press-to-Measure and read.

The large LCD (nearly 3/4" high) is easy to read, and also indicates low battery status, overrange, and test lead shorts and lead reversals. Three LED indicators on the front panel continuously warn the user of measurement problems to ensure accurate and reliable tests.

The Model 4610 is fuse protected up to 250VAC against Accidental connec-

tion to live circuits. In the event of a system fault, it can withstand 250VAC with spikes of 3000VAC or 1000VDC.

The heavy duty ABS case is O-ring sealed against dust and water and the Press-to-Measure button is also sealed. Model 4610 is battery powered for convenient use in remote field applications. Mechanical and safety specifications, such as vibration and drop test, meet or exceed IEC standards, to ensure safe and reliable field use.

The Ground Resistance Tester Model 4610 is a rugged, easy-to-use instrument ideal for maintenance crews performing numerous tests. The Model

4610 is designed to reject high levels of interference, so it can be used under difficult conditions such as high stray currents that normally affect accuracy.

The Ground Resistance Tester Model 4610 is available alone or as a complete kit. The kit includes T auxiliary ground electrodes, 16 and 90 ft leads, and two 300 ft leads on reels with wind-up handles to facilitate storage packed in a hard molded carrying case.



Model 4610 shown in  
standard soft carrying case  
Catalog #2114.94

## Features

- Fall-of-Potential method
- Measures ground resistance (2- and 3-Point) and soil resistivity (4-Point)
- Step voltage tests and touch potential measurements
- Auto-Ranging: automatically selects the optimum range
- Designed to reject high levels of noise and interference
- Extremely simple to operate: connect – press – read
- LED on faceplate informs operator of high input noise, high auxiliary rod resistance and fault connections
- Battery powered
- Rugged dustproof and rainproof field case
- May be used also for continuity tests on bonding
- Color-coded terminals

## Applications

- Three-point measurements of resistance to ground of ground rods and grids. Three-point measurements are generally used when the electrode or grid can be easily disconnected, if corrosion is suspected, or in circumstances where ground faults are unlikely to occur.
- Four-point tests, or soil resistivity measurements. Locating areas of lowest soil resistivity is essential for achieving an economical grounding installation.
- Touch potential measurements, an alternative to 3-Point tests in evaluating electrical safety. This test is recommended when the ground cannot be disconnected, where ground faults are highly likely to occur, or when the “footprint” of grounded equipment (the outline of the part of equipment in contact with the earth) is comparable to the size of the ground to be tested.
- Two-point tests for continuity tests on bonding or on pre-established grounds. This test is commonly performed in urban environments where proper auxiliary electrode placement may be obscured by confined real estate. Measurements are referenced against a good local ground conductor.

# Specifications

ELECTRICAL			
<b>Ranges</b> (Auto-Ranging 0 to 2000Ω)	20Ω	200Ω	2000Ω
<b>Measurement</b>	0.00 to 19.99Ω	20.0 to 199.9Ω	200 to 1999Ω
<b>Resolution</b>	10mΩ	100mΩ	1Ω
<b>Open Voltage</b>	≤42V peak		
<b>Resistance Measurement Frequency</b>	128Hz square wave		
<b>Test Current</b>	10mA	1mA	0.1mA
<b>Accuracy</b>	±2% of Reading ± 1ct	±2% of Reading ± 1ct	±3% of Reading ± 3cts
<b>Auxiliary Electrode Influence</b>			
Range	20Ω	3kΩ	50kΩ
Current Circuit	200Ω	30kΩ	50kΩ
Voltage Circuit	2000Ω	50kΩ	50kΩ
<b>Interference</b>	Model 4610 rejects high levels of interference voltage (DC, 50 to 60Hz, harmonics): DC voltage in series with X: 20V; AC voltage in series with Y: 13V peak; AC voltage in series with Z: 32V peak		
<b>Response Time</b>	Approximately 6 seconds for a stabilized measurement		
<b>Withstanding Voltage</b>	250VAC with spikes of 3000VAC or 1000VDC		
<b>Power Source</b>	Eight 1.5V "AA" batteries; Alkaline recommended; "LO BAT" indication on LCD		
<b>Battery Life</b>	1800 15-second measurements		
<b>Fuse Protection</b>	High breaking capacity 0.1A, 250V, 0.25 x 1.25"		
MECHANICAL			
<b>Display</b>	7-segment LCD, 0.71" (18mm) high (3 1/2 digit); 2000-counts; LCD also indicates overrange, test lead shorts and lead reversals		
<b>Connection</b>	Color-coded terminals accept spade lugs with min. gap of 6mm or standard 4mm banana jacks		
<b>LED Indication</b>	Three LEDs indicate high input noise, high auxiliary rod resistance, open leads, blown fuse		
<b>Operating Temperature</b>	14° to 131°F (-10° to 55°C), 0 to 90% RH		
<b>Storage Temperature</b>	-40° to 158°F (-40° to 70°C), 0 to 90% RH with batteries removed		
<b>Dimensions</b>	8.7 x 5.4 x 5.9" (220 x 136 x 150mm)		
<b>Weight</b>	2.9 lbs (1.3kg)		
<b>Case</b>	Heavy-duty ABS		
<b>Colors</b>	Case: safety yellow; Front panel: gray		
<b>Mechanical Shock</b>	IEC 68-2-27		
<b>Vibration Test</b>	IEC 68-2-6		
<b>Drop Test</b>	IEC 68-2-32		
<b>Dielectric Test</b>	3kV, 50/60Hz, 1 min. between four interconnected measuring terminals and any external metal ground		
<b>Environmental</b>	O-ring sealed against dust and water to IP50 (Protection Index)		
<b>Electrostatic</b>	IEC 801-2		
<b>Electromagnetic</b>	IEC 801-3		
<b>Electric Shock</b>	IEC 801-5		
SAFETY			
<b>Rating</b>	EN 61010-1, Cat. III, Pollution Degree 2, 42V		
<b>Agency Approval</b>	Emission (EN 50081-1) Immunity (EN 50082-1)		
<b>CE Mark</b>	Yes		

Accuracies and specifications are given for an ambient temperature of 23°C ± 3°K, RH of 45 to 55%, battery power at 8V, auxiliary resistance at the measurement terminals <200Ω, no stray voltage and a magnetic field from 0 to 40A/m.

## Accessories



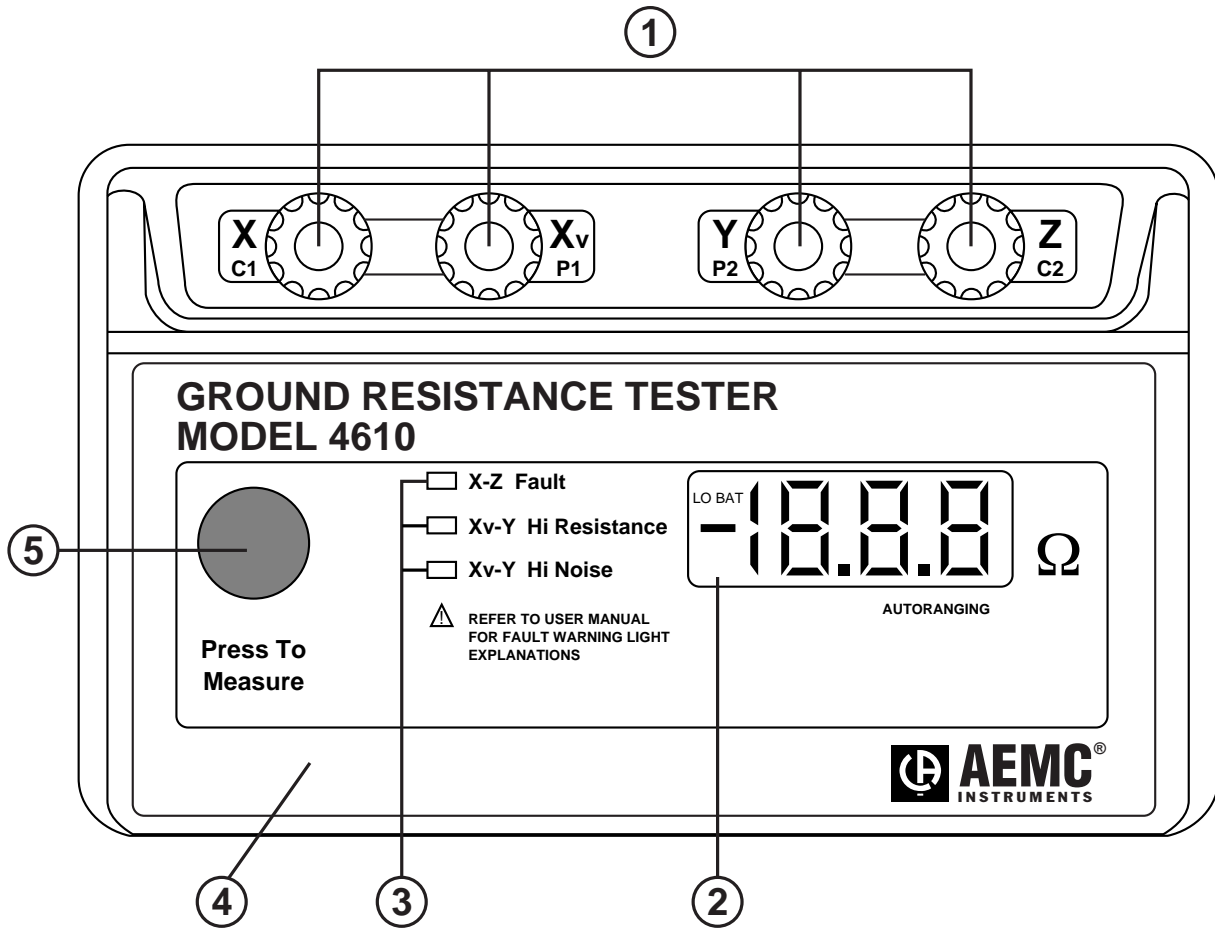
Test Kit for Models 4600 & 4610 includes four auxiliary ground electrodes, two 300 ft leads on reels with wind-up handles, one 90 ft lead and one 16 ft lead in hard carrying case (Catalog #2118.31)



25Ω Calibration Checker  
Catalog #2118.58



Digital Ground Resistance Tester  
Model 4610 Kit (Catalog #2114.95)



- 1. Input measurement terminals
- 2. Large LCD with low battery indicator
- 3. LED measurement fault indicators  
*Model 4610 LED Indicators*  
 X-Z Fault:  
 LED signals that there is excessive (>30V peak) voltage between terminals X and Z. Xv-Y High Resistance:  
 LED signals that the resistance in the voltage circuit (between Xv and Y) is too high or that the circuit may be open.  
 Xv-Y High Noise:  
 LED signals the presence of excessive noise in the voltage circuit.
- 4. Front panel sealed to IP50
- 5. Rugged Press-to-Measure button

**ORDERING INFORMATION**

**CATALOG NO.**

<b>Ground Resistance Tester Model 4610 (4-Point Digital)</b> . . . . .	<b>Cat. #2114.94</b>
Includes batteries, soft carrying case and user manual	
<b>Ground Resistance Tester Model 4610 Kit</b> . . . . .	<b>Cat. #2114.95</b>
Includes meter, one 16 ft lead, two 100 ft colo-coded leads, two 300 ft leads on reels, four auxiliary ground electrodes, molded hard carrying case, batteries and user manual	
<b>Accessories (Optional)</b>	
Test Kit for Models 4600/4610 includes four auxiliary ground electrodes, two 300 ft leads on reels with wind-up handles, one 90 ft lead and one 16 ft lead in hard carrying case. . . . .	Cat. #2118.31
25Ω Calibration Checker . . . . .	Cat. #2118.58

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