



Digital Ground Resistance Tester Model 4610 & 4610 Kits



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Model 4610 shown in
standard soft carrying case
Catalog #2114.94



Digital Ground Resistance Tester Model 4610 performs ground resistance and soil resistivity tests. Direct reading tester measures from 10mΩ to 1999Ω, 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 connection 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.

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
- Double Insulation
- CE Mark

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.



Ground Resistance Tester Model 4610 checks the ground rod using the Fall-of-Potential method.

Specifications

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

Accuracies and specifications are given for an ambient temperature of 23°C ± 3K, 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.

Ground Kits

Test Kit for 3-Point testing includes instrument, 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 measurer and carrying bag.
Catalog #2135.16



Test Kit for 4-Point testing includes instrument, 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 measurer and carrying bag.
Catalog #2135.17

Test Kit for 4-Point testing includes instrument, 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 measurer and carrying bag.
Catalog #2135.18



Construction



ORDERING INFORMATION	CATALOG NO.
Ground Resistance Tester Model 4610 (4-Point Digital)	Cat. #2114.94
Includes batteries, soft carrying case and user manual	
Ground Resistance Tester Model 4610 Kit	Cat. #2135.16
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 fork terminals, 100 ft tape measurer and carrying bag.	
Ground Resistance Tester Model 4610 Kit	Cat. #2135.17
Test Kit for 4-Point testing includes 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 fork terminals, 100 ft tape measurer and carrying bag.	
Ground Resistance Tester Model 4610 Kit	Cat. #2135.18
Test Kit for 4-Point testing includes 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 fork terminals, 100 ft tape measurer and carrying bag.	
Accessories (Optional)	
25Ω Calibration Checker	Cat. #2130.59
Tape Measure (100 ft)	Cat. #2130.60
Ground Tester Video/Workbook set	Cat. #2130.64

