

# Ground Resistance Tester Model 3640 & 3640 Kit



Model 3640 Kit (optional)  
Catalog #2114.93

The Digital Ground Resistance Tester Model 3640 performs ground resistance measurement. This 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 lead reversals. The Model 3640 comes with 3 color-coded terminals to aid in easy hookup. Three LED indicators on the front panel continuously warn the user of any measurement problems to ensure accurate and reliable tests.

The Model 3640 is fuse protected up to 250VAC to protect the instrument against voltage into the test leads. 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 3640 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.

Ground Resistance Tester Model 3640 is a rugged, easy-to-use instrument ideal for maintenance crews performing

numerous tests. The Model 3640 is designed to reject high levels of interference, therefore it can be used under difficult conditions such as high stray currents that normally affect measurement accuracy.

The Ground Resistance Tester Model 3640 is available alone or as a complete kit. The kit includes T auxiliary ground electrodes, 16 ft leads, and two 150 ft leads on reels with wind-up handles to facilitate storage, packed in a molded hard carrying case.



Model 3640 shown in  
standard soft carrying case  
Catalog #2114.92

## Features

- Fall-of-Potential method
- Measures ground resistance (2- and 3-Point)
- 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
- Color-coded terminals
- May also be used for continuity tests on bonding

## Applications

- Three-point measurements for measuring resistance to ground of ground rods and grids. Three-point measurements are generally used when the electrode or grid is easily disconnected, if corrosion is suspected, or where ground faults are unlikely to occur.
- 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

<b>ELECTRICAL</b>			
<b>Range</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>	Rejects high levels of interference voltage (DC, 50/60Hz, harmonics) DC voltage in series with X 20VAc 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>	50VAc 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 (approximate)		
<b>Fuse Protection</b>	High breaking capacity 0.1A, 250V, 0.25 x 1.25"		
<b>MECHANICAL</b>			
<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>	3 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, 1min. 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		
<b>SAFETY</b>			
<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



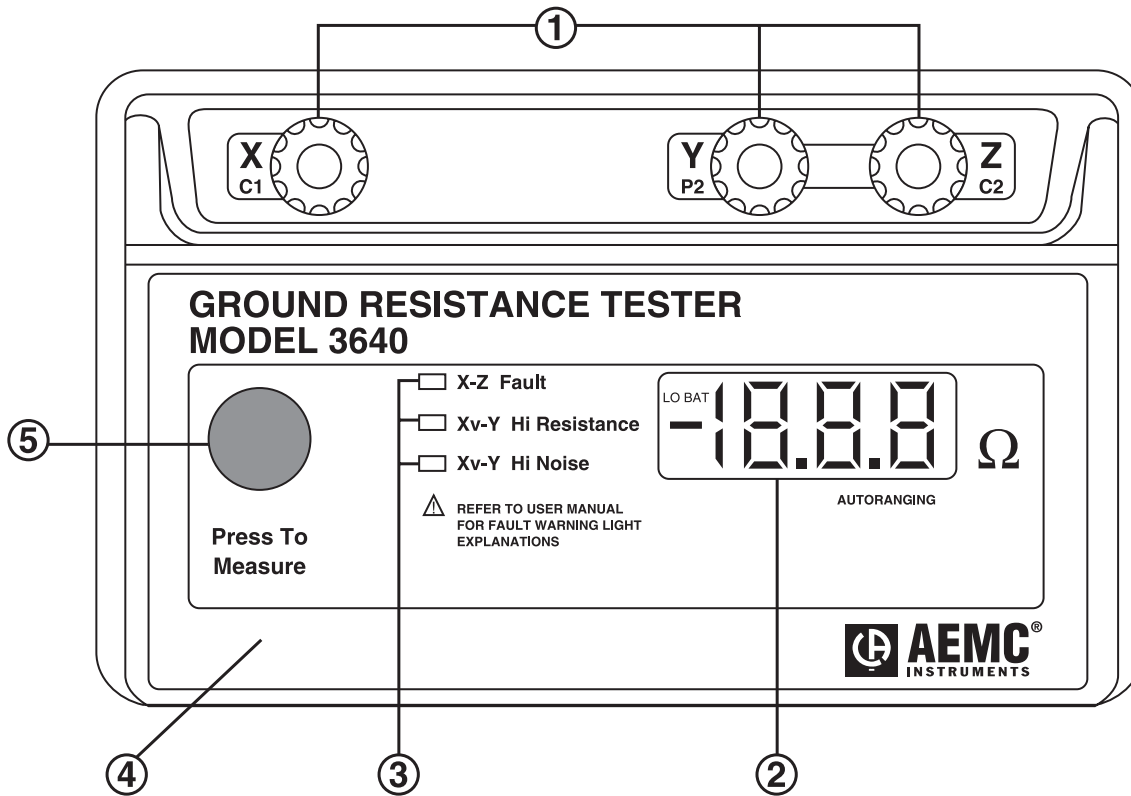
Digital Ground Resistance Tester  
Model 3640 Kit Catalog #2114.93



25Ω Calibration Checker  
Catalog #2118.58



Test Kit for Model 3640 includes one 16 ft lead,  
two 150 ft leads on spools, two wind-up handles, two auxiliary  
ground electrodes and molded hard carrying case with slot for meter  
Catalog #2114.96



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|--|--|---|
| <p>1. Input terminals</p> <p>2. Large LCD with low battery indicator</p> | <p>3. LED measurement fault indicators<br/> <i>Model 3640 LED Indicators</i><br/>           X-Z Fault:<br/>           LED signals that there is excessive (&gt;30V peak) voltage between terminals X and Z.<br/>           X-Y High Resistance:<br/>           LED signals that the resistance in the voltage circuit (between X and Y) is too high or that the circuit may be open.<br/>           X-Y High Noise:<br/>           LED signals the presence of excessive noise in the voltage circuit.</p> | <p>4. Front panel sealed to IP50</p> <p>5. Rugged Press-to-Measure button</p> |
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ORDERING INFORMATION	CATALOG NO.
<b>Ground Resistance Tester Model 3640</b> (3-Point Digital) . . . . .	<b>Cat. #2114.92</b>
Includes batteries, soft carrying case and user manual	
<b>Ground Resistance Tester Model 3640 Kit</b> . . . . .	<b>Cat. #2114.93</b>
Includes meter, one 16 ft lead, two 150 ft leads on spools with wind-up handles, two auxiliary ground electrodes, molded hard carrying case, batteries and user manual	
<b>Accessories (Optional)</b>	
Test Kit for Models 3620, 3640 & 4610 includes one 16 ft lead, two 150 ft leads on spools with wind-up handles, two auxiliary ground electrodes and molded hard carrying case with slot for meter . . . . .	Cat. #2114.96
25Ω Calibration Checker . . . . .	Cat. #2118.58

## Contact Us

### United States & Canada:

Chauvin Arnoux®, Inc.  
d.b.a. AEMC® Instruments  
200 Foxborough Blvd.  
Foxborough, MA 02035 USA  
(508) 698-2115 • Fax (508) 698-2118  
www.aemc.com

**Customer Support – for placing an order, obtaining price & delivery:**  
customerservice@aemc.com

**Sales Department – for general sales information:**  
sales@aemc.com

**Repair and Calibration Service – for information on repair & calibration, obtaining a user manual:**  
repair@aemc.com

**Technical and Product Application Support – for technical and application support:**  
techinfo@aemc.com

**Webmaster – for information regarding www.aemc.com:**  
webmaster@aemc.com

### South America, Central America, Mexico, Caribbean, Australia & New Zealand:

Chauvin Arnoux®, Inc.  
d.b.a. AEMC® Instruments  
15 Faraday Drive  
Dover, NH 03820 USA  
(978) 526-7667 • Fax (978) 526-7605  
export@aemc.com  
www.aemc.com

### All other countries:

Chauvin Arnoux SCA  
190, rue Championnet  
75876 Paris Cedex 18, France  
33 1 44 85 45 28 • Fax 33 1 46 27 73 89  
info@chauvin-arnoux.com  
www.chauvin-arnoux.com