CLAMP-ON GROUND RESISTANCE TESTER
MODELS 3710/3730

- Measure ground rod and small grid resistance
- Use in multi-grounded systems without disconnecting the ground under test
- Measure resistance and continuity of grounding loops around pads and buildings
- Measure leakage current flowing to ground or circulating in ground loops
- Conduct quick field checks
- Conduct field surveys and retrieve and analyze readings at a later time
- UL, CSA listed and CE Mark
Ground Resistance Tester Models 3710 and 3730

Measure ground rod and small grid resistance in any environment without the use of auxiliary ground rods. Clamp-on ground resistance testers are used in multi-grounded systems without disconnecting the ground under test. The Models 3710 and 3730 simply clamp around the ground conductor or rod and measure the resistance to ground. By performing measurements on intact ground systems, the user also verifies the quality of the grounding connections and bonds. Resistance and continuity of grounding loops around pads and buildings may also be measured.

Both models include a current measurement function. The probe’s high sensitivity enables measurement of leakage current flowing to ground or circulating in ground loops down to 1mA and neutral currents to 30Arms. This feature provides additional information which is becoming vital as distribution ground networks carry higher levels of noise and harmonics which affect power quality.

The Model 3730 offers an alarm function and a memory (logging) function. In the alarm mode, the probe will audibly and visually indicate if the reading is beyond an input set point. The user may also have the alarm initiated above or below the set point. This alarm feature permits quick field checks where only “pass” or “fail” readings will suffice.

Features

- Simple and fast clamp-on operation - no leads, no auxiliary rods or spacing requirements
- Direct reading of ground resistance from 1Ω to 1200Ω
- Direct reading of continuity and ground loop resistance
- Direct reading of ground leakage current from 1mA to 30Arms
- Jaw design with large 1.25” (32 mm) window accommodates up to 1000 MCM cables
- Auto-off for power management
- Alarm function with adjustable set point and buzzer for quick field checks
- Memory function to store 99 field measurements for later retrieval and analysis
- UL, CSA and GS listed, meets IEC 1010-2-032 and CE marked.
- Alarm settings and stored memory information saved during shutdown
- US Patent No. 362,639
Product Construction

The Models 3710 and 3730 bodies are built of Lexan® or equivalent for rugged use. The probe heads are encapsulated in a double-walled shell for extra strength and reinforced for enhanced field reliability. Overall construction and mechanical design ratings such as drop test, shock and vibration, weatherproofing against water projections or dust, meet or exceed IEC-1010 Cat. III standards. These products have also been designed to meet UL, CSA and GS safety approvals, and are CE marked.

The probe head, or jaw, is a key component in the measurement and overall product performance.

The large jaw thickness permits use on tight ground conductors on poles and in manholes. The 1.25" (32 mm) opening accommodates not only ground rods, but larger ground conductors (up to 1000 MCM) typically found in telecommunication buildings or railroad applications.

The inner jaw is composed of two independent and individually shielded magnetic cores permitting measurement without noise interference or cross talk common to separate probe instruments.

Thorough mechanical design, including small winglets, ensures repetitive jaw alignment for accuracy and prevents undesirable insertions into the jaw spring assembly.

The ergonomic body design permits one-handed operation. The guard provides additional strength, and prevents the hand from slipping or coming into contact with conductors under test. The LCD lens cover may be easily replaced if scratched. The sealed push-buttons directly access all test functions and are easily operated even with gloved hands.

Functions & Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>3710</th>
<th>3730</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohms Range</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Amperes (TRMS) Range</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Hold Function</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Self Test @ Power Up</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Auto Off</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>LCD Battery Life Indicator</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>LCD Noise Indicator</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>LCD Open Jaw Indicator</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>LCD Closed Loop Indicator</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Multi-Tone Beeper</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Alarm Function</td>
<td>—</td>
<td>YES</td>
</tr>
<tr>
<td>Memory (Logging) Function</td>
<td>—</td>
<td>YES</td>
</tr>
</tbody>
</table>

Overview of Functions

8.8.8.8 3,000 count display
Ω Displayed when measuring resistance
mA, A Displayed when measuring current
100% Percentage of battery life remaining
Flashing indicates low battery condition
HOLD Indicates the auto-off feature is inactive
HOLD pushbutton has been pressed
NOISE Active beeper function
Probe jaws not closed properly
Alarm set points
MEM Memory function active
88 Memory Recall (MR) and register
88 Resistance measured is below 1Ω

Buttons

On/Off
Power ON or power OFF. Activates display self test at power-up.
Ω (▶) Resistance measurement. (Adjusts the alarm set point and the memory position when in programming mode.)
A (▶) Current measurement. (Adjusts the alarm set point and the memory position when in programming mode.)
AL (Model 3730) Activate/deactivate the alarm function. Accesses the value of the alarm setpoint when in programming mode.
MEM (Model 3730) Activate the memory function or read the stored values in MR (Memory Recall). Clears the memory when in programming mode.
Specifications

**ELECTRICAL**

**Resistance Measurement Frequency:**
1.689kHz

**Current Measurement Frequency:**
47 to 800Hz

**Current Overload:**
OL displayed above 30Arms

**Power Supply:** 9V Alkaline battery
(IEC 6LF22 or NEDA 1604A)

**Battery Life:** typical: 8 hours or approx.
1,000 measurements of 30 seconds

**SAFETY**

UL, CSA, GS Listed

IEC 1010-2-032 Double Insulation

Environmental: IP30, IEC 359 Group III

Vibration Test: IEC 68-2-6

Shock Test: IEC 68-2-27

Drop Test (1m): IEC 68-2-32

Dielectric Test: 2500VAC

**Working Voltage:**
IEC1010 150V, Cat. III - Pollution Degree 2
IEC1010 300V, Cat. III - Pollution Degree 1

**Max Overload (A or Ω Function):**
100A continuous, 200A (<5s) 50/60Hz

**MECHANICAL**

**Dimensions:** 9.25” x 3.94” x 2.17”
(235 mm x 100 mm x 55 mm)

**Weight:** 2.2 lbs. (1 kg)

**Case Material:** Lexan® 920A (UL94V2)

**Jaw Window Diameter:** 1.25” (32 mm)

**Jaw Opening:** 1.38” (35 mm)

**Operating Temperature:**
14°F to 131°F (-10° to 55°C)

**Jaw Cover Material:** Lexan® 500R with
10% fiberglass charge (UL94V0)

**LCD Cover Material:**
Lexan® 920A (UL94V1)

**Color:** Gray body, red jaws

**Calibration Check Loop:**
Autoranging 1mA to 30.00 Arms

**Autoranging 1.0 to 1200Ω**

**GROUND RESISTANCE**

<table>
<thead>
<tr>
<th>Measurement Range</th>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 to 50.0Ω</td>
<td>0.1Ω</td>
<td>± (1.5% + 0.1Ω)</td>
<td></td>
</tr>
<tr>
<td>50.0 to 100.0Ω</td>
<td>0.5Ω</td>
<td>± (2.0% + 0.5Ω)</td>
<td></td>
</tr>
<tr>
<td>100 to 200Ω</td>
<td>1Ω</td>
<td>± (3.0% + 1Ω)</td>
<td></td>
</tr>
<tr>
<td>200 to 400Ω</td>
<td>5Ω</td>
<td>± (6.0% + 5Ω)</td>
<td></td>
</tr>
<tr>
<td>400 to 600Ω</td>
<td>10Ω</td>
<td>± (10% + 10Ω)</td>
<td></td>
</tr>
<tr>
<td>600 to 1200Ω</td>
<td>50Ω</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

* Reference conditions: 23°C ± 3K, 50% RH ± 10%, battery at 8V ± 0.2V, external magnetic field
< 40 A/m, external electrical field < 1 V/m, conductor centered, loop resistance noninductive. Accuracy % of reading.

**GROUND OR LEAKAGE CURRENT**

<table>
<thead>
<tr>
<th>Autoranging 1mA to 30.00 Arms</th>
<th>1 to 300mA</th>
<th>1mA</th>
<th>± (2.5% + 2mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.300A to 3.000A</td>
<td>0.001A</td>
<td>± (2.5% + 2mA)</td>
<td></td>
</tr>
<tr>
<td>3.00A to 30.00A</td>
<td>0.01A</td>
<td>± (2.5% + 20mA)</td>
<td></td>
</tr>
</tbody>
</table>

**Operating Humidity:** 0 to 90% RH @
14°F to 104°F (-10° to 40°C),
75% RH @ 131°F (55°C)

**Storage Temperature:**
-40°F to 158°F (-40° to 70°C)

**LCD:** 3 3/4 Digit, 1.73” x 1.10” (44 x 28 mm)

**U.S. Patent:** No. 362,639

**NSN:** 6625-01-377-8030

Call the AEMC® Instruments Technical Assistance Hotline for immediate consultation with an applications engineer: (800) 343-1391

Visit our website at www.aemc.com

950.BR - 3710/30 05/99

**ORDERING INFORMATION**

**Catalog No.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Includes</th>
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<tbody>
<tr>
<td>3710</td>
<td>Clamp-on Ground Resistance Tester</td>
<td>hard carrying case, 9V Alkaline battery, 25Ω calibration check loop, and user manual</td>
</tr>
<tr>
<td>3730</td>
<td>Clamp-on Ground Resistance Tester</td>
<td>hard carrying case, 9V Alkaline battery, 25Ω calibration check loop, and user manual</td>
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