MI 3123 SMARTEC Earth / Clamp

Main Features:
- Supports all types of earthing resistance measurements:
  - Standard earthing resistance measurement with spikes
  - Selective earthing resistance test with one current clamp
  - Selective (contact less) earthing resistance with two current clamps
  - Specific earth resistance measurement
- Leakage current tests with current clamps
- Load current tests with current clamps
- High accuracy, high immunity against external noise
- Preprogrammed limits
- PASS/FAIL evaluation of measurement result
- Bright GREEN/RED indicators provides visual evaluation of results
- Suited for testing on CAT IV installations
- Magnetic holder enables hands-free operation
- Built-in battery charger
- Two level memory structure for saving test results and parameters
- Basic downloading with EuroLink PRO PC SW package
- Compatible with EuroLink PRO Plus PC SW package
- USB and RS232 ports
- Robust and ergonomic design

Suitable for:
- Testing earthing resistance
- Testing main earthing of objects
- Testing resistance of individual earthing rods in large systems
- Testing lightning systems
- Determination of soil resistivity
- Designing of earthing systems
- Testing on CAT IV installations (outside installations, main distribution boards, industrial plants)

Standards:
- Instrument: IEC/EN 61557 Parts 1,5,10
  - IEC/EN 61010-1
  - IEC/EN 61326

Applications:
- IEC/EN 60364
- VDE 100
- BS 7671 17th edition
- CEI 64.8

Two clamps method for testing ground resistance of object on TN system

Large LCD screen with backlight and PASS/FAIL indicators
### Technical specifications

#### Earth resistance
Earth resistance 4-wire method and Earth resistance one clamp method

<table>
<thead>
<tr>
<th>Measuring range R (Ω)</th>
<th>Resolution (Ω)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 = 19.99</td>
<td>0.01</td>
<td>±3 % of reading + 3 digits</td>
</tr>
<tr>
<td>20.0 = 199.9</td>
<td>0.1</td>
<td>±3 % of reading + 3 digits</td>
</tr>
<tr>
<td>200 = 1999</td>
<td>1</td>
<td>± 5 % of reading</td>
</tr>
<tr>
<td>2000 = 9999</td>
<td>1</td>
<td>± 10 % of reading</td>
</tr>
</tbody>
</table>

Automatic test of probe resistance: yes
Automatic test of voltage noise: yes
Open-terminal test voltage: 40 VAC
Test voltage frequency: 125 Hz
Short-circuit test current: < 20 mA
Low clamp current indication: yes
Noise current indication: yes

#### Earth resistance two clamps method

<table>
<thead>
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<th>Measuring range R (Ω)</th>
<th>Resolution (Ω)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 = 19.99</td>
<td>0.01</td>
<td>± (10 % of reading + 10 digits)</td>
</tr>
<tr>
<td>20.0 = 30.0</td>
<td>0.1</td>
<td>± (20 % of reading)</td>
</tr>
<tr>
<td>30.1 = 39.9</td>
<td>1</td>
<td>± (30 % of reading)</td>
</tr>
</tbody>
</table>

Test voltage frequency: 125 Hz
Low clamp current indication: yes
Noise current indication: yes

#### Specific earth resistance

<table>
<thead>
<tr>
<th>Measuring range (Ωm)</th>
<th>Resolution (Ωm)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 = 99.9</td>
<td>0.1</td>
<td>Calculated value, consider earth resistance 4-wire method</td>
</tr>
<tr>
<td>100 = 999</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1.00k = 9.99k</td>
<td>0.1k</td>
<td></td>
</tr>
<tr>
<td>10.0k = 99.9k</td>
<td>0.1k</td>
<td></td>
</tr>
</tbody>
</table>

Wenner method principle with equal distances between test probes:

\[ p = 2 \cdot \text{distance} \cdot R, \quad \text{with } R \text{ as measured resistance in 4-wire method.} \]

#### TRMS Clamp current

<table>
<thead>
<tr>
<th>Measuring range (mA)</th>
<th>Resolution (mA)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 mA + 99.9 mA</td>
<td>0.1mA</td>
<td>±3 % of reading + 3 digits</td>
</tr>
<tr>
<td>100 mA + 999 mA</td>
<td>1mA</td>
<td>±3 % of reading + 3 digits</td>
</tr>
<tr>
<td>1.00 A + 19.99 A</td>
<td>0.01 A</td>
<td>±3 % of reading + 3 digits</td>
</tr>
</tbody>
</table>

Input resistance: 100 Ω
Maximum input current: 30 mA (+30 A @ current clamp with ratio 1000:1)
Measurement principle: current clamp, ratio 1000:1
Nominal frequency: 40 Hz + 500 Hz

#### General data

- **Power supply voltage:** 6 x 1.5 V battery or rechargeable battery, size AA
- **Operation:** typical 20 h
- **Overvoltage category:** 50 V CAT IV
- **Protection classification:** double insulation
- **Pollution degree:** 2
- **Protection degree:** IP 40
- **Display:** 128 x 64 dots matrix display with backlight
- **Communication transfer speed:** 115200 baud (RS 232) / 266000 baud (USB)
- **Memory:** 1900 measurements
- **Dimensions (w x h x d):** 14 cm x 8 cm x 23 cm
- **Weight (without battery cells):** 0.85 kg

### Ordering information

**MI 3123 Standard set**

- Instrument MI 3123 Earth / Clamp
- Soft hand strap
- Earth test lead 4,5 m (blue)
- Earth test lead 4,5 m (red)
- Earth test lead 20 m (green)
- Earth test lead 20 m (black)
- Earth test rod, 4 pcs
- Power supply adapter + 6 NiMH rechargeable AA batteries
- Instruction manual on CD
- Short instruction manual
- Product verification data
- Handbook “Guide for testing and verification of low voltage installations” on CD

### Optional Accessories

<table>
<thead>
<tr>
<th>Photo</th>
<th>Order No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Current clamp" /></td>
<td>A 1018</td>
<td>Current clamp (low range, leakage)</td>
</tr>
<tr>
<td><img src="image2.png" alt="Current clamp" /></td>
<td>A 1019</td>
<td>Current clamp</td>
</tr>
<tr>
<td><img src="image3.png" alt="Fast battery charger" /></td>
<td>A 1160</td>
<td>Fast battery charger with a set of 6 pcs NiMH rechargeable AA batteries</td>
</tr>
<tr>
<td><img src="image4.png" alt="Small soft carrying bag" /></td>
<td>A 1271</td>
<td>Small soft carrying bag</td>
</tr>
<tr>
<td><img src="image5.png" alt="Soft carrying bag" /></td>
<td>A 1289</td>
<td>Soft carrying bag</td>
</tr>
<tr>
<td><img src="image6.png" alt="PC SW EuroLink PRO Plus with USB and RS232/PS2 cable" /></td>
<td>A 1290</td>
<td>PC SW EuroLink PRO Plus with USB and RS232/PS2 cable</td>
</tr>
<tr>
<td><img src="image7.png" alt="PC SW EuroLink PRO with USB and RS232/PS2 cable" /></td>
<td>A 1291</td>
<td>PC SW EuroLink PRO with USB and RS232/PS2 cable</td>
</tr>
<tr>
<td><img src="image8.png" alt="Earth test set 50 m" /></td>
<td>S 2041</td>
<td>Earth test set 50 m</td>
</tr>
<tr>
<td><img src="image9.png" alt="Test lead set 2 m, 4 colours, 4 pcs" /></td>
<td>S 2009</td>
<td>Test lead set 2 m, 4 colours, 4 pcs</td>
</tr>
</tbody>
</table>

Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery. Subject to technical change without notice.