

# MI 3123 SMARTEC Earth / Clamp

**Professional  
solution for  
smart operator**



## 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  
Measuring range according to EN61557 is 0.67 Ω ÷ 9999 Ω

| Measuring range R (Ω) | Resolution (Ω) | Accuracy                     |
|-----------------------|----------------|------------------------------|
| 0.00 ÷ 19.99          | 0.01           | ±(3 % of reading + 3 digits) |
| 20.0 ÷ 199.9          | 0.1            | ±(3 % of reading + 3 digits) |
| 200 ÷ 1999            | 1              | ± 5 % of reading             |
| 2000 ÷ 9999           | 1              | ± 10 % of reading            |

|                                    |         |
|------------------------------------|---------|
| 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

| Measuring range (Ω) | Resolution (Ω) | Accuracy                        |
|---------------------|----------------|---------------------------------|
| 0.00 ÷ 19.9         | 0.01           | ± (10 % of reading + 10 digits) |
| 20.0 ÷ 30.0         | 0.1            | ± (20 % of reading)             |
| 30.1 ÷ 39.9         | 0.1            | ± (30 % of reading)             |

|                              |        |
|------------------------------|--------|
| Test voltage frequency       | 125 Hz |
| Noise current indication     | yes    |
| Low clamp current indication | yes    |

### Specific earth resistance

| Measuring range (Ωm) | Resolution (Ωm) | Accuracy  |
|----------------------|-----------------|---|
| 0.0 ÷ 99.9           | 0.1             | Calculated value, consider earth resistance 4-wire method |
| 100 ÷ 999            | 1               |   |
| 1.00k ÷ 9.99k        | 0.01k           |   |
| 10.0k ÷ 99.9k        | 0.1k            |   |
| >100k                | 1k              |   |

Wenner method principle with equal distances between test probes:  
 $\rho = 2 \cdot \pi \cdot \text{distance} \cdot R$ , with R as measured resistance in 4-wire method.

### TRMS Clamp current

| Measuring range (I) | Resolution (mA) | Accuracy                     |
|---------------------|-----------------|------------------------------|
| 0.0 mA ÷ 99.9 mA    | 0.1mA           | ±(3 % of reading + 3 digits) |
| 100 mA ÷ 999 mA     | 1 mA            | ±(3 % of reading + 3 digits) |
| 1.00 A ÷ 19.99 A    | 0.01 A          | ±(3 % of reading + 3 digits) |

|                       |   |
|-----------------------|---|
| 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) / 256000 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  |

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## 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

| Photo | Order No. | Description   |
|-------|-----------|---|
|       | A 1018    | Current clamp (low range, leakage)                                      |
|       | A 1019    | Current clamp   |
|       | A 1160    | Fast battery charger with a set of 6 pcs NiMH rechargeable AA batteries |
|       | A 1271    | Small soft carrying bag   |
|       | A 1289    | Soft carrying bag   |
|       | A 1290    | PC SW EuroLink PRO Plus with USB and RS232/PS2 cable                    |
|       | A 1291    | PC SW EuroLink PRO with USB and RS232/PS2 cable                         |
|       | S 2041    | Earth test set 50 m   |
|       | S 2009    | Test lead set 2 m, 4 colours, 4 pcs                                     |

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