

# 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

## 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



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