

NIM 1000

Impedance meter: Performs preventive testing and exposes hidden flaws

Megger[®]



- Measures the grid impedance of the phase and neutral conductor up to the 10th harmonic
- Triggers load-sensitive and neutral faults
- Performs multi-phase measurements and switches automatically between the test points
- Highly accurate and simple to operate
- High test current up to 1000A

DESCRIPTION

With up to 1kA test current, the NIM 1000 measures loop impedance to detect malfunctions in the LV grid at an early stage. The impedance meter triggers load-sensitive and neutral faults, detects weak contacts, and exposes hidden flaws. Depending on the grounding conditions of the tested grid, a multi-phase measurement calculates the impedance of the neutral conductor to detect defects that can cause severe safety issues. The NIM 1000 is a versatile device: it measures the current capacity under real-life conditions, determines the voltage dip resulting from a given load, and performs tests on cables, power supply lines, and bus-bars. Those tests help determine the correct dimensioning of installations, ensure a consistently good power quality, and prevent downtimes. The collected data provides a comprehensive and reliable evaluation of the power grid in terms of current load capacity and voltage fluctuations under load.

Common causes of voltage fluctuation include electronic loads and converters. These generate strong harmonic currents that add to the base frequency, elevating the load significantly. To find out how the grid performs under load, the NIM 1000 measures complex impedance up to the 10th harmonic. With its simple operation, handy size, and bright color display, NIM 1000 is a user-friendly device, developed specifically for the needs of LV utilities and their testing technicians who work in today's demanding and competitive market conditions.

FUNCTIONS

The NIM 1000 is connected to the LV grid by fused test leads. Those, in turn, supply the impedance meter with power. The connection is single- to multi-phase. The impedance meter can perform single measurements, multiple measurements with averaging, or automatic long-term measurements. To prepare a test sequence, the user can enter either a defined time frame or a specific amount of tests.

To determine the grid impedance, a solid-state relay with a load resistor generates the preselected load current. A/D converters are employed to record the voltage and current traces before and during the measurement. The internal processing unit evaluates the data and the results are displayed graphically and numerically. For multi-phase measurements the impedance meter switches automatically between the test points.

For troubleshooting, the NIM 1000 has an additional operation mode, where the load current is gradually increased to the nominal preselected value. Hidden and load-dependent faults can be detected by comparing different impedance values (between different load currents or different phases).

TECHNICAL DATA*

Test current range	80 A ... 1000 A (adjustable)
Maximum current I_{max} (peak; I_{max} depends on the grid impedance)	≤ 1000 A at 400 V ≤ 600 A at 230 V ≤ 300 A at 115 V
Test parameter	
Z	Impedance (value and phase)
R	Resistance (real part)
X	Reactance (imaginary part)
Z_{PEN}	Impedance value PEN (calculated)
U_{rms}	RMS voltage
I_{max}	Max. test current
I_s	Short circuit current
S_{kv}	Continuous short circuit power
f	Net frequency
V_D	Voltage drop at nominal connected power (in %)
P_{max}	Max. connected power at nominal voltage drop
Z, R, X and ZPEN are displayed for the power frequency up to the 10th harmonic (phase-N, phase-phase)	
Input voltage (serves as supply voltage)	90 V ... 480 V, 50/60 Hz (at test clamps) 90 V ... 230 V, 50/60 Hz (at power outlet)
Operational accuracy B (acc. to EN 61557-3)	3 % \pm 1 digit (at sufficient test current)

Test range (at the above accuracy)	10 m Ω ... 5 Ω (230 V / 400 V) 10 m Ω ... 2.5 Ω (115 V)
Resolution	1 m Ω
Test category	300V CAT IV
Safety functions	Temperature monitoring, fused clamps
Display	Sunlight-readable 5,7" TFT; 640 x 480 Pixel
Memory	Min. 1000 test records
Interface	USB 2.0
Operating temperature	-20 °C ... 55 °C -4 °F ... 131 °F
Storage temperature	-30 °C ... 70 °C -22 °F ... 158 °F
Operating humidity	max. relative humidity 93% at 30°C
IP-Protection	IP 50 (lid open) IP 53 (lid closed)
Protection class	Insulated acc. to protection class II
Weight	10 kg
Dimensions	410 x 175 x 335 mm 16.1 in. x 6.9 in. x 13.2 in.

ORDERING INFORMATION

 Product (Product/set consists of two articles!)	Order no.
NIM 1000 base instrument Also included in the scope of delivery: Power Kelvin clamps with 3 m connection leads, AC socket adapter, USB stick for transfer of data to PC, set of spare fuses	128312147
NIM 1000 standard set of cables and accessories	1006123

 AC socket adapter (please select at least one adapter)	Order no.
EU socket (schuko) adapter for NIM 1000	128311627
AUS socket adapter for NIM 1000	2005385
CH socket adapter for NIM 1000	2005384
UK socket adapter for NIM 1000	2005383
US socket adapter for NIM 1000	2005382

ORDERING INFORMATION

Optional accessoires	Order no.
1 pc. of small Kelvin clamp with connection leads (2.5 m)	138315892

* We reserve the right to make technical changes.

SALES OFFICE

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