



Impedance meter: Performs preventive testing and exposes hidden flaws

Special features

- 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
- Is highly accurate and simple to operate

Description

With up to 1kA test current, the NIM 1000 measures the 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.

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 the installations, ensure a consistently good power quality, and prevent downtimes.

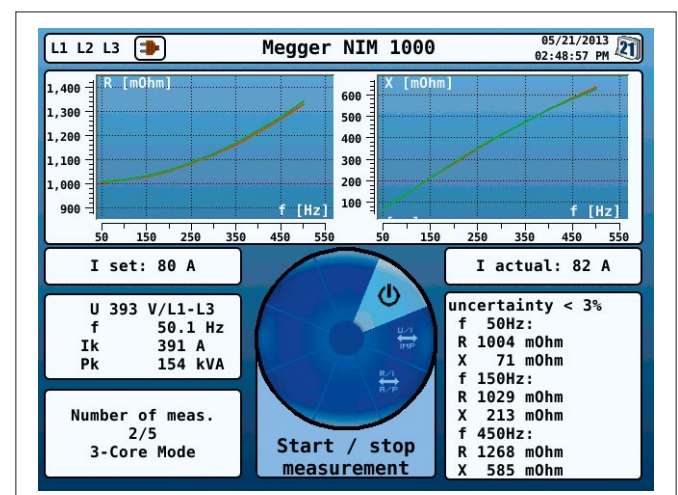
The collected data provide a comprehensive and reliable evaluation of the power grid in terms of current load capacity and voltage fluctuations under load.

A common cause for voltage fluctuations are electronic loads and converters. Those 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 the 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.





NIM 1000

Technical data

Test current range	80 A ... 1000 A (adjustable)	
Maximum current (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 und Z_{PEN} 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	
Op. / storage temperature	-20°C ... 55°C / -30°C ... 70°C	
Operating humidity	Max. relative humidity 93% at 30°C	
Dimensions	410 x 175 x 335 mm	
Protection class (IEC 61140, DIN VDE 0140-1)	Insulated acc. to protection class II	
IP-Protection (IEC 60529, DIN VDE 0470-1)	IP 50 (lid open)	
	IP 53 (lid closed)	

Function description

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 pre-selected 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 pre-selected value. Hidden and load-dependent faults can be detected by comparing different impedance values (between different load currents or different phases).

ORDERING INFORMATION

Item	Cat. No.
NIM 1000	128312147
Power Kelvin clamps with 3 m connection leads	
Adapter NIM 1000-A for tests on Schuko outlets	
USB-Stick 2 GB for transfer of data to PC	
Set of spare fuses and clamps	
Options	
User's manual NIM 1000 English	82941
User's manual NIM 1000 German	82940
Kelvin clamp small with 2.5 m leads (4 es. required)	138315892