

AMPI-530

Multifunction electrical installation meters



Every electric shock protection measurement in a single instrument

AMPI-530

Multifunction installation meter

amperis

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Fault loop, RCD, insulation, earth and continuity testing to IEC 61557 with a mains recorder.

Product overview



The AMPI-530 with its measuring leads

Complete diagnostics to IEC 61557

The AMPI-530 verifies electrical installations in accordance with IEC 61557 and covers the measurements described in HD 60364-6. It measures Z L-PE, Z L-N and Z L-L fault loop impedance with a 23 A current (44 A phase-to-phase), also in RCD-protected circuits without tripping the breaker, and it tests general and selective RCDs of AC, A and B types from 10 to 1000 mA, measuring both the tripping time and the tripping current.

Insulation, earth and light in one case

Insulation resistance is measured up to 10 G Ω with test voltages of 50 to 1000 V, automatically through the UNI-Schuko plug or on 3-, 4- and 5-core cables with the AutoISO-1000C adapter. Earth resistance is covered by four methods plus soil resistivity by Wenner, PE continuity is verified with ± 200 mA in both directions and an external probe measures light intensity. A single-phase recorder logs voltage, current, powers, harmonics up to the 40th and THD.

Main features

- Fault loop measurement from 0.13 Ω , also in RCD circuits without tripping.
- Testing of AC, A and B type RCDs, general and selective, 10 to 1000 mA.
- Insulation up to 10 G Ω at 50/100/250/500/1000 V with automatic discharge.
- Earth by 3p, 4p, 3p+clamp and 2-clamp methods; Wenner soil resistivity.
- Recorder with harmonics up to the 40th, THD, powers and $\cos\phi$.
- Tree memory of 6000 cells and 10 000 records; USB 2.0 and Bluetooth.



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Applications and design

Applications

- Verification of domestic and industrial installations to IEC 61557.
- Commissioning and periodic electric shock protection measurements.
- RCD testing, PE continuity and earth resistance surveys.
- Basic mains diagnostics with harmonics, THD and phase sequence.

Robust and autonomous design

The IP54 housing with CAT IV 300 V measuring category withstands site conditions from 0 to +50 °C, in a case of 288 × 223 × 75 mm and about 2.5 kg. Power comes from five LR14 cells or a 4.8 V 4.2 Ah NiMH battery, with a built-in charger that also works from a 12 V car socket.



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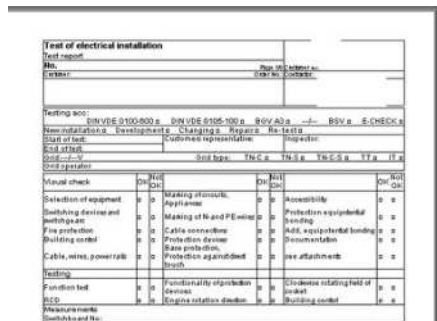
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The measurements downloaded from the meter become complete verification protocols of the installation.

Software & applications



The documentation software manages reports, inspectors, test points and downloaded data



Preview of a verification report of the installation, ready to print or export

Reading the tree memory

The free PC reading software empties the tree memory of the AMPI-530 — clients, objects and measuring points — through the USB 2.0 port or the Bluetooth link, shows every result on screen and prints it or exports it to popular formats on any Windows computer.

Documentation software

A documentation package turns the downloaded data into complete verification reports: it manages inspectors, owners of the installation, test points and fuses, attaches the measurements to each circuit and produces the protocol of the acceptance or periodic test, ready to print or to save as a PDF file.

What the software provides

- Free reading software plus a report generation package.
- Database of clients, objects, inspectors and test points.
- Verification protocols ready to print or export to PDF.
- Works with the results of all the meter functions.



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AMPI-530 – TECHNICAL SPECIFICATIONS

Standards	IEC 61557; measurements described in HD 60364-6
Fault loop	Z L-PE, L-N, L-L: 0.13...1999.9 Ω ; 23 A (44 A ph-ph)
Loop with RCD	Without tripping: 0.50...1999 Ω with 15 mA
RCD testing	AC, A and B types; 10...1000 mA; tA and IA
Insulation	50/100/250/500/1000 V; up to 10 G Ω ; AutoISO-1000C
Continuity	PE and bondings with ± 200 mA; 0.12...400 Ω
Earth	3p, 4p, 3p+clamp and 2 clamps; Wenner resistivity
Light intensity	With external probe; reading in lx or fc
Recorder	U up to 500 V; I up to 3 kA; harmonics to 40th; THD
Memory	6000 cells and 10 000 records; tree structure
Communication	USB 2.0 and Bluetooth
Power supply	5 $\times$ LR14 cells or NiMH 4.8 V 4.2 Ah; charger
Measuring category	CAT IV 300 V / CAT III 600 V; IP54
Operating temperature	0...+50 $^{\circ}\text{C}$
Dimensions and weight	288 $\times$ 223 $\times$ 75 mm; approx. 2.5 kg



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AMPI-530 – MEASUREMENT DATA (1/2)

Electrical installation measurements

Measurement function	Measuring range	Display range	Resolution	Accuracy
Fault loop impedance				
$Z_{L-PE}, Z_{L-N}, Z_{L-L}$	0.13 Ω ...1999.9 Ω (IEC 61557)	0.000 Ω ...1999.9 Ω	from 0.001 Ω	from $\pm(5\% \text{ m.v.} + 0.03 \Omega)$
Z_{L-PE} RCD (without tripping the RCD)	from 0.50 Ω ...1999 Ω (IEC 61557)	0.00 Ω ...1999 Ω	from 0.01 Ω	from $\pm(6\% \text{ m.v.} + 5 \text{ digits})$
RCD parameters – t_A at 0.5 / 1 / 2 / 5 $I_{\Delta n}$; I_A at 0.2...2.0 $I_{\Delta n}$				
t_A – general and short-time delay RCDs (TN/TT)	0 ms...300 ms	0 ms...300 ms	1 ms	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
t_A – selective RCDs	0 ms...500 ms	0 ms...500 ms	1 ms	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
I_A – sinusoidal residual current (type AC)	3.3 mA...1000 mA	3.3 mA...1000 mA	from 0.1 mA	$\pm 5\% I_{\Delta n}$
I_A – unidirectional current, also with 6 mA DC bias (type A)	3.5 mA...700 mA	3.5 mA...700 mA	from 0.1 mA	$\pm 10\% I_{\Delta n}$
I_A – direct residual current (type B)	2.0 mA...1000 mA	2.0 mA...1000 mA	from 0.1 mA	$\pm 10\% I_{\Delta n}$
Earth resistance and soil resistivity				
3- and 4-pole method	from 0.50 Ω ...1.99 k Ω (IEC 61557-5)	0.00 Ω ...1.99 k Ω	from 0.01 Ω	from $\pm(2\% \text{ m.v.} + 3 \text{ digits})$
3-pole + clamp method	0.00 Ω ...1.99 k Ω	0.00 Ω ...1.99 k Ω	from 0.01 Ω	$\pm(8\% \text{ m.v.} + 4 \text{ digits})$
2-clamp method	0.00 Ω ...99.9 k Ω	0.00 Ω ...99.9 k Ω	from 0.01 Ω	from $\pm(10\% \text{ m.v.} + 4 \text{ digits})$
Soil resistivity	0.0 Ωm ...99.9 k Ωm	0.0 Ωm ...99.9 k Ωm	from 0.1 Ωm	depends on the accuracy of the R_E measurement
Insulation resistance				
$U_{ISO} = 50 \text{ V}$	50 k Ω ...250 M Ω (IEC 61557-2)	0 k Ω ...250 M Ω	from 1 k Ω	from $\pm(3\% \text{ m.v.} + 8 \text{ digits})$
$U_{ISO} = 100 \text{ V}$	100 k Ω ...500 M Ω (IEC 61557-2)	0 k Ω ...500 M Ω	from 1 k Ω	from $\pm(3\% \text{ m.v.} + 8 \text{ digits})$
$U_{ISO} = 250 \text{ V}$	250 k Ω ...999 M Ω (IEC 61557-2)	0 k Ω ...999 M Ω	from 1 k Ω	from $\pm(3\% \text{ m.v.} + 8 \text{ digits})$
$U_{ISO} = 500 \text{ V}$	500 k Ω ...2.00 G Ω (IEC 61557-2)	0 k Ω ...2.00 G Ω	from 1 k Ω	from $\pm(3\% \text{ m.v.} + 8 \text{ digits})$
$U_{ISO} = 1000 \text{ V}$	1000 k Ω ...9.99 G Ω (IEC 61557-2)	0 k Ω ...9.99 G Ω	from 1 k Ω	from $\pm(3\% \text{ m.v.} + 8 \text{ digits})$

"m.v." – measured value.



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AMPI-530 – MEASUREMENT DATA (2/2)

Electrical installation measurements (continued)

Measurement function	Measuring range	Display range	Resolution	Accuracy
Continuity of protective conductors and equipotential bondings				
With ± 200 mA test current	0.12 Ω ...400 Ω (IEC 61557-4)	0.00 Ω ...400 Ω	from 0.01 Ω	$\pm(2\% \text{ m.v.} + 3 \text{ digits})$
Low-current measurement	0.0 Ω ...1999 Ω	0.0 Ω ...1999 Ω	0.1 Ω	$\pm(3\% \text{ m.v.} + 3 \text{ digits})$
Light intensity				
In lux (lx)	0 lx...399.9 klx	0 lx...399.9 klx	from 0.001 lx	from $\pm(2\% \text{ m.v.} + 5 \text{ digits})$
In foot-candles (fc)	0 fc...39.99 kfc	0 fc...39.99 kfc	from 0.001 fc	from $\pm(2\% \text{ m.v.} + 5 \text{ digits})$

Phase sequence indication: same direction (correct) / opposite direction (incorrect); U_{L-L} 95...500 V, 45...65 Hz.

Single-phase power quality recorder

Parameter	Measuring range	Max. resolution	Accuracy
Alternating voltage (TRMS)	0.0...500 V	0.1 V	from $\pm(2\% \text{ m.v.} + 2 \text{ digits})$
Alternating current (TRMS)	depending on the clamp*	0.1 mA	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$
Frequency	45.0...65.0 Hz	0.1 Hz	$\pm(0.1\% \text{ m.v.} + 1 \text{ digit})$
Active, reactive, apparent and distortion power	0...1.5 MW / Mvar / MVA	1 W / var / VA	from $\pm(7\% \text{ m.v.} + 3 \text{ digits})$
$\cos\phi$ and power factor (PF)	0.00...1.00	0.01	unspecified
Voltage harmonics	0.0...500 V	0.1 V	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$
Current harmonics	depending on the clamp*	as for current (TRMS)	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$
THD of voltage and current	0.0...999.9% (relative to the fundamental)	0.1%	$\pm 5\%$

* F-1A, F-2A, F-3A clamps: 0...3000 A AC (10 000 Ap-p); C-3: 0...1000 A AC (3600 Ap-p); C-6A: 0...12 A AC (36 Ap-p). The current accuracy does not include the clamp error. Recorder for 110/190 V...240/415 V single-phase mains, 50/60 Hz.

"m.v." – measured value.



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