

AMPI-530

HIGHEST ACCURACY & LOWEST COST



Multifunction Electrical Installations Meter

AMPI-530

- Short-circuit loop measurement.
- Testing of general and selective RCD with the rated differential current.
- Measurement of insulation resistance: Up to 10GΩ.
- Voltages: 50 V, 100 V, 250 V, 500 V, 1000 V.
- Measurement of earthing resistance.
- Bi-directional testing of PE wire continuity.
- Phase sequence testing.
- Measurement and recording of voltage, frequency, AC, cosφ, power, harmonics, THD.

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Possible measurements:

Short-circuit loop measurement:

- Impedance measurement with 23A (44A phase-to-phase) short-circuit resistor $R_{zw} = 10\Omega$.
- Measurement range: 95...440V, frequency 45...65Hz.

Short - circuit loop measurement with resolution 0,01 Ω , in distribution network without triggering RCD ($I_{\Delta n} \geq 30\text{mA}$):

- Automatic calculation of short-circuit, detection of phase and phase-to-phase voltage.
 - Additional UNI-Schuko plug for automatic measurement, AGT adapter for 3 phase network measurement.
- ### Testing of general and selective RCD with the rated differential current of 10, 30, 100, 300, 500 and 1000mA. (Type AC, A and B).

Measurement of insulation resistance:

- With test voltage 50V, 100V, 250V, 500V, 1000V.
- Measurement range up to 10G Ω .
- UNI-Schuko plug for insulation measurement.
- Automatic discharging after measurement.
- Automatic measurement of all resistances in 3,4,5-wire cables using optional adapter AUTO-ISO.
- Acoustic signals in 5sec intervals for insulation resistance characteristic.
- Safety measurement - protection against overvoltage.

Bi-directional testing of PE wire continuity using 200mA current:

- Autocalibration of test leads.

Phase sequence testing

Battery charge indicator

AUTO-OFF function

USB interface

Earth resistance measurements

- Measurement with 3- and 4-pole methods with 2 additional electrodes.
- Measurement with the 3-pole method with and additional clamp.
- Measurement with 2-clamp method.

Soil resistivity measurements.

Illuminance measurements.

Quick check of PE connection correctness

Measurement and recording of voltage, frequency, AC, $\cos\phi$ and power (active, reactive and apparent), voltage and current harmonics up to 40, THD.

Checking reactive phase sequence and motor direction of rotation.

Innovative memory with possibility of description of measurement points, facilities, names of customers.

Power supply from rechargeable or disposable batteries (optional).

Low voltage test of the circuit and insulation continuity

Test of PE wire continuity using a $\pm 200\text{mA}$ current.

Range	Resolution	Accuracy
0,00...19,99 Ω	0,01 Ω	$\pm(2\% \text{ m.v.} + 3 \text{ digits})$
20,0...199,9 Ω	0,1 Ω	
200...400 Ω	1 Ω	

Voltage on open terminals: 4...9V.

Test current at $R < 25\Omega$: min. 200mA at rated battery voltage.

Autocalibration of test leads.

Measurements for both polarizations of the current.

"m.v." – measured value

RCD trigger and response time test t_A (for t_A mode)

Measurement ranges in acc. with IEC61557: 0ms ... up to the upper bound of the displayed value.

Breaker Type	Test Current Multiplier	Measurement Range	Resolution	Accuracy
Standard	0,5* $I_{\Delta n}$	0...300ms	1ms	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
	1* $I_{\Delta n}$	0...150ms		
	2* $I_{\Delta n}$	0...40ms		
	5* $I_{\Delta n}$	0...500ms		
Selective	0,5* $I_{\Delta n}$	0...500ms	1ms	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
	1* $I_{\Delta n}$	0...200ms		
	2* $I_{\Delta n}$	0...150ms		
	5* $I_{\Delta n}$	0...150ms		

Precision of the differential current: for 0,5* $I_{\Delta n}$: $\pm 8\%$; for 1* $I_{\Delta n}$, 2* $I_{\Delta n}$, 5* $I_{\Delta n}$: $\pm 0,8\%$.

Measurement of the RCD triggering current (I_A) for sine waveform testing current

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	3,3...10,0mA	0,1mA	0,3*I _{Δn} ...1*I _{Δn}	±5% I _{Δn}
30mA	9,0...30,0mA			
100mA	33...100mA	1mA		
300mA	90...300mA			
500mA	150...500mA			
1000mA	330...1000mA			

It is possible to start the measurement from the positive or negative half of the forced leaking current.

Measurement of the RCD triggering current (I_A) for a unidirectional half period sine waveform test current with a 6mA direct current offset

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	4,0...20,0mA	0,1mA	0,4* $I_{\Delta n}$...2* $I_{\Delta n}$	$\pm 10\% I_{\Delta n}$
30mA	12,0...42,0mA			
100mA	40...140mA	1mA	0,4* $I_{\Delta n}$...1,4* $I_{\Delta n}$	
300mA	120...420mA			
500mA	200...700mA			

A measurement is possible for a positive or negative forced leakage current.

Measurement of the RCD triggering current (I_A) for direct testing current

Selected Current	Range	Resolution	Test Current	Accuracy
10mA	4,0...20,0mA	0,1mA	0,4*I _{Δn} ...2*I _{Δn}	±10% I _{Δn}
30mA	12,0...60,0mA	1mA		
100mA	40...200mA			
300mA	120...600mA			
500mA	200...1000mA			

A measurement is possible for a positive or negative forced leakage current.

Also can make following:

Phase sequence

- Phase sequence indicator: forward, reverse.
- Mains voltage range U_{LL} : 100...440V (45...65Hz).
- Display of phase-to-phase voltages.

Measurement of the active P, passive Q and apparent S power and $\cos\phi$

- Range of voltages U_{L-N} : 100...440V.
- Nominal frequency of the network: 45...65Hz.
- Frequency measurement for voltage 50...440V in range 45,0...65,0Hz (accuracy max. $\pm 0,1\%$ m.v. + 1 digit).
- Measurement $\cos\phi$: 0,00...1,00 (resolution 0,01).

Analysis and recording of single-phase system

- Voltage measurement U : 0...500 V.
- Frequency range for measured voltages: 45,0...65,0 Hz.
- Frequency measurement range for 50...500 V voltages: 45,0...65,0 Hz (basic uncertainty max. $\pm 0,1\%$ m.v. + 1 digit).
- $\cos\phi$ measurement: 0,00...1,00 (resolution 0,01).
- Measurement and recording in single-phase system.

Current measurement (True RMS)

Clamps	Range	Resolution	Accuracy*
C-3, C-6	0,0...99,9 mA	0,1 mA	$\pm(5\% \text{ m.v.} + 3 \text{ digits})$
	100...999 mA	1 mA	
C-3, C-6 F-1, F-2, F-3	1,00...9,99 A	0,01 A	$\pm(5\% \text{ m.v.} + 5 \text{ digits})$ (C-3, C-6) $\pm(0,1\% \text{ I} + 2 \text{ digits}) \text{ n}$ (F-1, F-2, F-3)
	10,0...99,9 A	0,1 A	
	100...999 A	1 A	
F-1, F-2, F-3	1,00...3,00 kA	0,01 kA	

* - the accuracy of current clamps must also be taken into account.

Measurement of active P, reactive Q and apparent power S and $\cos\phi$

Range [W], [VA], [var]	Resolution [W], [VA], [var]	Accuracy*
1,00...9,99 k	0,01 k	$\pm(7\% \text{ m.v.} + 3 \text{ digits})$
10,0...99,9 k	0,1 k	
100...999 k	1 k	
1,00...1,50 M	0,01 M	$\pm(7\% \text{ m.v.} + 5 \text{ digits})$
10,0...19,9 klx	0,1 klx	

Voltage range: 0...500V.
Current range: 0...1000A (3000A).
Mains rated frequency f: 50Hz, 60Hz.

Illuminance measurement

Range	Resolution	Accuracy
0,1...99,9 lx	0,1 lx	$\pm(5\% \text{ m.v.} + 2 \text{ digits})$
100...999 lx	1 lx	
1,00...9,99 klx	0,01 klx	
10,0...19,9 klx	0,1 klx	

Measurement in luxes (lx) or feet-candles (fc).

Voltage harmonics measurement

Range	Resolution	Harmonics num.	Accuracy
0,0...500 V	0,1 (1*) V	1,2,...15	$\pm(5\% \text{ m.v.} + 3 \text{ digits})$
		16,...40	$\pm(5\% \text{ m.v.} + 10 \text{ digits})$

In addition display of h_{02} ... h_{40} values as percent of h_{01} (up to 999%).
*) from 300V to 500V.

Medición de armónicos de la corriente

Range	Resolution	Harmonics num.	Accuracy
0,0...1000 A*	results from the I measurement ranges	1,2,...15	$\pm(5\% \text{ m.v.} + 3 \text{ digits})$
		16,...40	$\pm(5\% \text{ m.v.} + 10 \text{ digits})$

In addition display of h_{02} ... h_{40} values as percent of h_{01} (up to 999%).
*) for C-3 clamp, for C-6 - 10A, for F clamp up to 3000A.

THD (in relation to the 1st harmonics)

		Resolution	Accuracy
THD-F voltage (h = 2...40)	0,0...999,9% for $U_{RMS} \geq 1\% U_{nom}$	0,1%	$\pm 5\%$
THD-F current (h = 2...40)	0,0...999,9% for $I_{RMS} \geq 1\% I_{nom}$	0,1%	$\pm 5\%$

Soil resistivity measurement (p)

Range	Resolution	Accuracy
0,0...99,9 Ωm	0,1 Ωm	Depending on accuracy of R_E measurement
100...999 Ωm	1 Ωm	
1,00...9,99 k Ωm	0,01 k Ωm	
10,0...99,9 k Ωm	0,1 k Ωm	

Measurement with Wenner's method.
Distance settable in metres or feet.
Distance range: 1...30 m (1...90 feet).

Selective earth resistance measurement with clamp (3p + clamp)

Measuring range acc. to IEC 61557-5: 0,5...1999 Ω

Range	Resolution	Accuracy
0,00...9,99 Ω	0,01 Ω	$\pm(8\% \text{ m.v.} + 4 \text{ digits})$
10,0...99,9 Ω	0,1 Ω	
100...999 Ω	1 Ω	
1,00...1,99 k Ω	0,01 k Ω	

Measurement with additional current clamp.
Interference current measuring range: up to 9,99 A.

Selective earth measurement with two clamps

Resolution and Accuracy Settings and Test Example		
Range	Resolution	Accuracy
0,00...9,99 Ω	0,01 Ω	±(10% m.v. + 4 digits)
10,0...19,9 Ω	0,1 Ω	
20,0...99,9 Ω		±(20% m.v.+ 4 digits)

Measurement with transmitting and receiving clamps.
Interference current measuring range: up to 9,99 A.

AMPI-530 Specifications

Electric security:

Type of insulation	Double, according to EN 61010-1 and IEC 61557, EMC
Measurement category	CAT IV 300V acc. to EN 61010-1
Protection class acc. to EN 60529	IP54

Other technical data:

Power supply	Alkaline batteries LR14 (5 szt.) or battery package Ni-MH (additional option)
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Rated operational conditions:

Operation temperature	0...+50°C
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Standard accesories:

Adapter with START button UNI-Schuko (WS-03)
 Test lead with banana plug; 1,2m; yellow
 Test lead with banana plug; 1,2m; blue
 Test lead with banana plug; 1,2m; red
 Test lead on a reel with banana plugs; 30m; red
 Test lead on a reel with banana plugs; 15m; blue
 USB cable
 Pin probe with banana connector; yellow
 Pin probe with banana connector; red
 Pin probe with banana connector; blue
 "Crocodile" clip K02; red
 "Crocodile" clip K02; yellow
 Earth contact test probe (rod); 0,30m
 Carrying case L1
 Set of hanging straps
 Cable for battery charge with car plug 12V
 Calibration Certificate
 Software "Reader"
 Power supply adaptor Z7
 Cable for battery charger
 NiMH 4,8V 4,2Ah rechargeable battery

Optional accesories:

Test lead with banana plug 5m; red
 Test lead with banana plug 10m; red
 Test lead with banana plug 20m; red
 Test lead on a reel with banana plugs; 25m; blue
 Test lead on a reel with banana plugs; 50m
 Receiving clamp C 3
 Receiving clamp C 6
 Transmitting clamp N1 (with test lead)
 Flexible clamp F-1 Ø 40cm
 Flexible clamp F-2 Ø 25cm
 Flexible clamp F-3 Ø 13cm
 Triple phase socket adapter AGT-16P
 Triple phase socket adapter AGT-32P
 Triple phase socket adapter AGT-63P
 Triple phase socket adapter AGT-16C
 Triple phase socket adapter AGT-32C
 Adapter for industrial sockets AGT-16T
 Adapter for industrial sockets AGT-32T
 RCD breaker testing adapter TWR-1J
 Adapter AutISO 1000C
 Light meter probe LP1 with WS-06 plug
 Box for batteries
 Adapter WS-04 with UNI-Schuko
 Earth contact test probe (rod); 0,80m
 Mini bluetooth keyboard with casing
 Software for creation of documentation from electrical measurements
 Software for creation drawings and diagrams

Short-circuit loop impedance measurement Z_{L-PE} , Z_{L-N} , Z_{L-L}

Measurement using 23/40A current measurement range in accordance with IEC 61557: 0,13...1999,9Ω (for 1,2m lead)

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(5% m.v. + 3 digits)
20,0...199,9Ω	0,1Ω	
200...1999Ω	1Ω	

Rated voltage: 95...270V (for Z_{L-PE} y Z_{L-N}) and 95...440V (for Z_{L-L}).
Frequency: 45...65Hz.

Short-circuit loop impedance measurement Z_{L-PE} RCD

Measurement using 15mA current measurement range in accordance with IEC 61557: 0,50...1999,9Ω.

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(6% m.v. + 10 digits)
20,0...199,9Ω	0,1Ω	±(6% m.v. + 5 digits)
200...1999Ω	1Ω	

Rated voltage: 95...270V.
Frequency: 45...65Hz.

Measurement of earthing R_e

Rated voltage in accordance with IEC 61557-5: 0,5...1999Ω.

Range	Resolution	Accuracy
0,00...9,99Ω	0,01Ω	±(2% m.v. + 4 digits)
10,0...99,9Ω	0,1Ω	±(2% m.v. + 3 digits)
100...999Ω	1Ω	
1,00...1,99kΩ	10Ω	

Insulation resistance measurement

Measurement range in accordance with IEC 61557-2:

-U _N =50V: 50kΩ...250MΩ	-U _N =500V: 500kΩ...2GΩ
-U _N =100V: 100kΩ...500MΩ	-U _N =1000V: 1MΩ...3GΩ
-U _N =250V: 250kΩ...1GΩ	

Range	Resolution	Accuracy
0...1999kΩ	1kΩ	±(3% m.v. + 8 digits)
2,00...19,99MΩ	0,01MΩ	
20,0...199,9MΩ	0,1MΩ	
200...999MΩ	1MΩ	
1,00...3,00GΩ	0,01GΩ	±(4% m.v. + 6 digits)

With UNI-Schuko additional error ±2%.