

## Professional and versatile

### Features

The meter offers a **wide range** of functionalities. It combines the measuring capabilities of several devices, while ensuring equally good accuracy.

- **MPI-530 / MPI-530-IT** can be used for all measurements for commissioning of electrical installations in accordance with applicable regulations:
  - » short circuit loop impedance (also in circuits secured with RCDs),
  - » RCD parameters,
  - » insulation resistance,
  - » earth resistance (4 measurement methods + soil resistivity measurement),
  - » continuity of protective and equipotential bondings,
  - » light intensity measurement,
  - » phase sequence test,
  - » motor rotation direction test.
- **MPI-530 / MPI-530-IT** can record 50/60 Hz power quality parameters:
  - » voltage L1 – average values in the range up to 500 V,
  - » L1 current – average values, current measurement in the range up to 3 kA (depending on the current probes used),
  - » frequency in the range of 40 Hz – 70 Hz,
  - » active (P), reactive (Q) and apparent (S) power,
  - » power factor (PF),  $\cos\phi$ ,
  - » harmonics (up to 40th for voltage and current),
  - » total harmonic distortion (THD) for current and voltage.



## Inspection of electrical safety

This device may be used to **inspect safety of electrical systems in households and industrial facilities**. Measurements can be easily automated with:

- auto mode of residual current devices (RCD) tests,
- the WS adapter that can be used for testing systems via standard 230 V sockets,
- AutoISO-1000C adapter for automatic insulation resistance test of 3-, 4- and 5-conductor cables, without switching.

## Memory structure

The memory structure has a tree form. It has the ability to store tens of thousands of results in the configuration of CLIENT-OBJECT-FACILITY-MEASURING POINT, which helps to create a clear test protocol during later stages. This structure may be prepared in the meter, before starting the work. Entering data into the device is facilitated by QWERTY keyboard with Bluetooth communication module.

## Built-in help system

The device has built-in help screens with measurement diagrams. Thanks to this you can easily and quickly check and make sure how to connect to a given system depending on the type of performed measurement.



## Increased resistance to environmental conditions

The MPI-530 / MPI-530-IT meter will cope well in difficult environmental conditions. Protection against penetration of dust and water is ensured by a unique housing with a level of protection IP54. It is resistant to mechanical damage, and a special design allows you to easily protect the screen by shielding using the cover of the meter. In addition to the fact that it protects against damage, it also allows you to conveniently carry and use the device in different positions.

## Communication and software

You can easily transfer measurement data to your computer via USB port or Bluetooth wireless communication. In order to generate a report on measurements for electric shock protection, use **Sonel Reports PLUS** software. Saving the downloaded data to the simplest formats and printing is provided by free **Sonel Reader** software.



# Specifications – electrical installation parameters

Measurement functions	Measurement range	Display range	Resolution	Accuracy ±(% m.v. + digits)
<b>Fault loop impedance</b>				
Fault loop $Z_{L-PE}$ , $Z_{L-N}$ , $Z_{L-L}$	0.13 Ω...1999.9 Ω acc. to IEC 61557	0.000 Ω...1999.9 Ω	from 0.001 Ω	from ±(5% m.v. + 0.03 Ω)
Fault loop $Z_{L-PE}$ in RCD mode	from 0.50 Ω...1999 Ω acc. to IEC 61557	0.00 Ω...1999 Ω	from 0.01 Ω	from ±(6% m.v. + 5 digits)
<b>Measurements of RCD parameters</b>				
RCD tripping test and measurement of tripping time $t_A$ measuring current $0.5 I_{\Delta n}$ , $1 I_{\Delta n}$ , $2 I_{\Delta n}$ , $5 I_{\Delta n}$				
general and short-time delay RCD				
• TN / TT mains	0 ms...300 ms	0 ms...300 ms	1 ms	±(2% m.v. + 2 digits)
• <b>MPI-530-IT</b>   IT mains	0 ms...400 ms	0 ms...400 ms	1 ms	±(2% m.v. + 2 digits)
selective RCD	0 ms...500 ms	0 ms...500 ms	1 ms	±(2% m.v. + 2 digits)
<b>Measurement of RCD tripping current <math>I_A</math></b> measuring current $0.2 I_{\Delta n}$ ... $2.0 I_{\Delta n}$				
for sinusoidal residual current (AC type)	3.3 mA...1000 mA	3.3 mA...1000 mA	from 0.1 mA	±5% $I_{\Delta n}$
for unidirectional residual current and unidirectional with the 6 mA DC bias (type A)	3.5 mA...700 mA	3.5 mA...700 mA	from 0.1 mA	±10% $I_{\Delta n}$
for direct residual current (type B)	2.0 mA...1000 mA	2.0 mA...1000 mA	from 0.1 mA	±10% $I_{\Delta n}$
<b>Earth resistance</b>				
3- and 4-pole method	from 0.50 Ω...1.99 kΩ acc. to IEC 61557-5	0.00 Ω...1.99 kΩ	from 0.01 Ω	from ±(2% m.v. + 3 digits)
3-pole + clamp method	0.00 Ω...1.99 kΩ	0.00 Ω...1.99 kΩ	from 0.01 Ω	±(8% m.v. + 4 digits)
2-clamp method	0.00 Ω...99.9 kΩ	0.00 Ω...99.9 kΩ	from 0.01 Ω	from ±(10% m.v. + 4 digits)
<b>Resistance-to-earth</b>	0.0 Ωm...99.9 kΩm	0.0 Ωm...99.9 kΩm	from 0.1 Ωm	Depending on accuracy of $R_E$ measurement
<b>Insulation resistance</b>				
Measuring voltage 50 V	50 kΩ...250 MΩ acc. to IEC 61557-2	0 kΩ...250 MΩ	from 1 kΩ	from ±(3% m.v. + 8 digits)
Measuring voltage 100 V	100 kΩ...500 MΩ acc. to IEC 61557-2	0 kΩ...500 MΩ	from 1 kΩ	from ±(3% m.v. + 8 digits)
Measuring voltage 250 V	250 kΩ...999 MΩ acc. to IEC 61557-2	0 kΩ...999 MΩ	from 1 kΩ	from ±(3% m.v. + 8 digits)
Measuring voltage 500 V	500 kΩ...2.00 GΩ acc. to IEC 61557-2	0 kΩ...2.00 GΩ	from 1 kΩ	from ±(3% m.v. + 8 digits)
Measuring voltage 1000 V	1000 kΩ...9.99 GΩ acc. to IEC 61557-2	0 kΩ...9.99 GΩ	from 1 kΩ	from ±(3% m.v. + 8 digits)
<b>Resistance of protective conductors and equipotential bondings</b>				
Measurement of resistance of protective conductors and equipotential bondings with ±200 mA current	0.12 Ω...400 Ω acc. to IEC 61557-4	0.00 Ω...400 Ω	from 0.01 Ω	±(2% m.v. + 3 digits)
Measurement of resistance with low current	0.0 Ω...1999 Ω	0.0 Ω...1999 Ω	from 0.1 Ω	±(3% m.v. + 3 digits)
<b>Light intensity</b>				
Measurement in luxes (lx)	0 lx...399.9 klx	0 lx...399.9 klx	from 0.001 lx	from ±(2% m.v. + 5 digits)
Measurement in feet-candles (fc)	0 fc...39.99 kfc	0 fc...39.99 kfc	from 0.001 fc	from ±(2% m.v. + 5 digits)
<b>Phase sequence indication</b>	in the same direction (correct), opposite direction (incorrect), $U_{L-L}$ voltage: 95 V...500 V (45 Hz...65 Hz)			

"m.v." - measured value

# Specifications – 1-phase power quality recorder

The device is designed to work with mains:






- » with nominal frequency 50/60 Hz
- » with nominal voltage: 110/190 V, 115/200 V, 127/220 V, 220/380 V, 230/400 V, 240/415 V

Supported systems:

- » single-phase

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 clamp*	0.1 mA	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$ (error does not account for clamp error)
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 VA...1.5 MVA 0 W...1.5 MW 0 var...1.5 Mvar	1 VA 1 W 1 var	from $\pm(7\% \text{ m.v.} + 3 \text{ digits})$
cosφ and power factor (PF)	0.00...1.00	0.01	unspecified
<b>Harmonics</b>			
Voltage	0.0...500 V	0.1 V	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$
Current	depending on clamp*	as for alternating current True RMS	from $\pm(5\% \text{ m.v.} + 3 \text{ digits})$ (error does not account for clamp error)
<b>THD</b>			
Voltage	0.0...999.9% (in relation to the first harmonic)	0.1%	$\pm 5\%$
Current			$\pm 5\%$ (error does not account for clamp error)

\* F-1A, F-2A, F-3A clamp: 0...3000 A AC (10 000 A<sub>p-p</sub>) • C-3 clamp: 0...1000 A AC (3600 A<sub>p-p</sub>) • C-6A clamp: 0...10 A AC (36 A<sub>p-p</sub>)

					
	<b>C-3</b>	<b>C-6A</b>	<b>F-1A</b>	<b>F-2A</b>	<b>F-3A</b>
	WACEGC30KR	WACEGC6AOKR	WACEGF1AOKR	WACEGF2AOKR	WACEGF3AOKR
Rated current	1000 A AC	10 A AC		3000 A AC	
Frequency	30 Hz...5 kHz	40 Hz...10 kHz		40 Hz...10 kHz	
Max. diameter of measured conductor	52 mm	20 mm	380 mm	250 mm	140 mm
Minimum accuracy	≤0.3%	≤1%		0,5%	
Battery power	—	—		—	
Lead length	2 m	2.2 m		2.5 m	
Measurement category	III 600 V	IV 300 V		IV 600 V	
Ingress protection	IP40	IP40		IP67	



## Other technical data

### Safety and work conditions

Measuring category according to EN 61010	IV 300 V, III 600 V
Ingress protection	IP54
Type of insulation according to EN 61010-1 and IEC 61557	double
Dimensions	288 x 223 x 75 mm
Weight	ca. 2.5 kg
Operating temperature	0...+50°C
Storage temperature	-20...+70°C
Humidity	20...90%
Nominal temperature	23 ± 2°C
Reference humidity	40%...60%

### Memory and communication

Memory of measurement results	6000 cells, 10 000 records
Data transmission	USB 2.0, Bluetooth

### Other information

Quality standard – development, design and production	ISO 9001
The product meets the EMC (emission for industrial environment) requirements according to standards	EN 61326-1 EN 61326-2-2

## Standard accessories



**Test lead 1.2 m (banana plugs) red / blue / yellow**

WAPRZ1X2REBB  
WAPRZ1X2BUBB  
WAPRZ1X2YEBB



**Crocodile clip 1 kV 20 A red / blue / yellow**

WAKRORE20K02  
WAKROBU20K02  
WAKROYE20K02



**Pin probe 1 kV (banana socket) red / blue / yellow**

WASONREOGB1  
WASONBUOGB1  
WASONYEOGB1



**Test lead 15 m, blue (on a reel)**

WAPRZ015BUBBSZ



**Test lead 30 m, red (on a reel)**

WAPRZ030REBBSZ



**2x earth contact test probe (rod), 30 cm**

WASONG30



**WS-03 adapter with START button with UNI-Schuko plug**

WAADAWS03

**USB cable**

WAPRZUSB



**Charging**

Z-7 power supply + mains cable with IEC C7 plug  
WAZASZ7



**Cable for battery charging from car cigarette lighter socket (12 V)**

WAPRZLAD12SAM



**Ni-MH battery 4.8 V 4.2 Ah**

WAAKU07



**L-2 hanging straps (set)**

WAPOZSZEKPL



**L-2 carrying case**

WAFUTL2



**Factory calibration certificate**

## Optional accessories



**EVSE-01 adapter  
for testing vehicle  
charging stations**

WAADAEVSE01



**AutoISO-1000C  
adapter**

WAADAAISO10C



**WS-04 adapter  
with UNI-SCHUKO  
angular plug**

WAADAWS04



**F-1A flexible clamp  
(Ø 360 mm)**

WACEGF1AOKR



**F-2A flexible clamp  
(Ø 235 mm)**

WACEGF2AOKR



**F-3A flexible clamp  
(Ø 120 mm)**

WACEGF3AOKR



**C-3 clamp  
(Ø 52 mm)**

WACEGC3OKR



**C-6A clamp  
(Ø 20 mm)  
10 A AC**

WACEGC6AOKR



**N-1 transmitting  
clamp (Ø 52 mm)**

WACEGN1BB



**Crocodile clip  
1 kV 20 A black**

WAKROBL20K01



**Test lead 1.2 m  
(banana plugs) black**

WAPRZ1X2BLBB



**Double-wire  
test lead 2 m  
for N-1 clamp**

WAPRZ002DZBB



**PRS-1 resistance  
test probe**

WASONPRS1



**Foldable pin  
probe, 1 kV, 2 m  
(banana socket)**

WASONSP2M



**Test lead for fault  
loop measurement  
(banana plugs)  
5 m / 10 m / 20 m**

WAPRZ005REBB  
WAPRZ010REBB  
WAPRZ020REBB



**Test wire reel**

WAP0ZSZP1



**Test lead for  
earth resistance  
measurement  
25 m red / blue**

WAPRZ025REBBSZ  
WAPRZ025BUBBSZ



**Test lead for earth  
resistance mea-  
surement 50 m**

WAPRZ050YEBBSZ



**Cramp with  
banana socket**

WAZACIMA1



**Earth contact test  
probe 80 cm**

WASONG80V2



**L-3 carrying  
case (for 80 cm  
test probes)**

WAFUTL3



**Industrial socket  
adapter 16 A / 32 A**

WAADAAGT16T  
WAADAAGT32T



**TWR-1J  
RCD breaker  
testing adapter**

WAADATWR1J



**AC-16 line splitter**

WAADAAAC16



**Three-phase socket  
adapter 16 A / 32 A**

WAADAAGT16C  
WAADAAGT32C



**Three-phase socket  
adapter 16 A / 32 A**

WAADAAGT16P  
WAADAAGT32P



**Three-phase socket  
adapter 63 A**

WAADAAGT63P



**CS-1 cable simulator**

WAADACS1



**Battery pack 4xLR14**

WAPQJ1



**XL-13 carrying case**

WAWALXL13



**LP-10A light  
meter probe with  
WS-06 plug**

WAADALP10AKPL



**LP-10B light  
meter probe with  
WS-06 plug**

WAADALP10BKPL



**LP-1 light me-  
ter probe with  
WS-06 plug**

WAADALP1KPL



**Sonel Reports PLUS  
software**

WAPROREPORTSPUS



**Calibration certificate  
with accreditation**