

## 2.5 kV

maximal  
measuring  
voltage for  $R_{ISO}$

$Z_S$   $R_E$   
 $R_{ISO}$   $E$   $R_{CONT}$

complex  
measurements of  
installations



600 V

300 V

## Focused on insulation resistance measurements

### Features

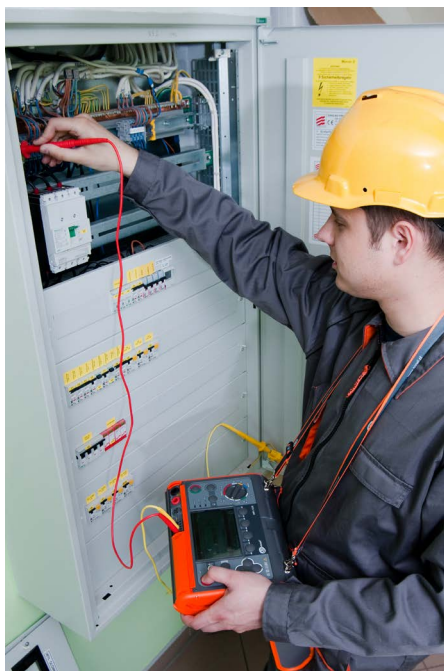
The meter offers a **wide range** of functionalities. It combines the measuring capabilities of several devices, while ensuring equally good accuracy. The device can be used for all measurements for commissioning of electrical installations in accordance with applicable regulations:

- » short circuit loop impedance (also in circuits secured with RCDs),
- » RCD parameters,
- » insulation resistance,
- » earth resistance (3-pole method),
- » continuity of protective and equipotential bondings,
- » phase sequence test.

### Additional functions

- Checking the correctness of PE connection using a contact electrode.
- Measurement of voltage (0 ... 500 V) and network frequency.
- Memory of 990 results.
- Wireless data transmission to a computer.





## Testing the insulation with a voltage of 2.5 kV

The unique feature of the meter is the option of measuring the insulation resistance with a **voltage of 2500 V**. Moreover, with **AutoISO-2500** adapter, the user may check  $R_{ISO}$  of 3-, 4- or 5-wire conductors and cables.

The device has a built-in timer. It may be used to set three different periods for measurements and result read-outs (in the range of 1...600 s). It also automatically calculates two absorption coefficients.

In order to ensure safety of the user, after the measurement completion or interruption, the device automatically unloads the tested object.

## 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,
- AutoISO-2500 adapter for automatic insulation resistance test of 3-, 4- and 5-conductor cables, without switching.



## Increased resistance to environmental conditions

The 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 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

Measurement functions	Measurement range	Display range	Resolution	Accuracy $\pm$ (% m.v. + digits)
<b>Fault loop impedance</b>				
Fault loop $Z_{L-PE}$ , $Z_{L-N}$ , $Z_{L-L}$	0,13 $\Omega$ ...1999,9 $\Omega$ acc. to IEC 61557	0,00 $\Omega$ ...1999 $\Omega$	from 0,01 $\Omega$	$\pm$ (5% m.v. + 3 digits)
Fault loop $Z_{L-PE}$ in RCD mode	from 0,50 $\Omega$ ...1999 $\Omega$ acc. to IEC 61557	0,00 $\Omega$ ...1999 $\Omega$	from 0,01 $\Omega$	from $\pm$ (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	0 ms...300 ms	0 ms...300 ms	1 ms	$\pm$ (2% m.v. + 2 digits)
selective RCD	0 ms...500 ms	0 ms...500 ms	1 ms	$\pm$ (2% m.v. + 2 digits)
Measurement of RCD tripping current $I_A$ measuring current $0.2 I_{\Delta n}$ ... $2.0 I_{\Delta n}$				
for sinusoidal residual current (AC type)	3,0 mA...1000 mA	3,0 mA...1000 mA	from 0,1 mA	$\pm$ 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	$\pm$ 10% $I_{\Delta n}$
for direct residual current (type B)	2,0 mA...1000 mA	2,0 mA...1000 mA	from 0,1 mA	$\pm$ 10% $I_{\Delta n}$
<b>Earth resistance</b>				
3-pole method	from 0,5 $\Omega$ ...1,99 k $\Omega$ acc. to IEC 61557-5	0,00 $\Omega$ ...1,99 k $\Omega$	from 0,01 $\Omega$	from $\pm$ (2% m.v. + 3 digits)
<b>Insulation resistance</b>				
Measuring voltage 50 V	50 k $\Omega$ ...250 M $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...250 M $\Omega$	from 1 k $\Omega$	$\pm$ (3% m.v. + 8 digits)
Measuring voltage 100 V	100 k $\Omega$ ...500 M $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...500 M $\Omega$	from 1 k $\Omega$	$\pm$ (3% m.v. + 8 digits)
Measuring voltage 250 V	250 k $\Omega$ ...999 M $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...999 M $\Omega$	from 1 k $\Omega$	$\pm$ (3% m.v. + 8 digits)
Measuring voltage 500 V	500 k $\Omega$ ...2,00 G $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...2,00 G $\Omega$	from 1 k $\Omega$	from $\pm$ (3% m.v. + 8 digits)
Measuring voltage 1000 V	1000 k $\Omega$ ...3,00 G $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...3,00 G $\Omega$	from 1 k $\Omega$	from $\pm$ (3% m.v. + 8 digits)
Measuring voltage 2500 V	2,50 M $\Omega$ ...9,99 G $\Omega$ acc. to IEC 61557-2	0 k $\Omega$ ...9,99 G $\Omega$	from 1 k $\Omega$	from $\pm$ (3% m.v. + 8 digits)
<b>Resistance of protective conductors and equipotential bondings</b>				
Measurement of resistance of protective conductors and equipotential bondings with $\pm$ 200 mA current	0,12 $\Omega$ ...400 $\Omega$ acc. to IEC 61557-4	0,00 $\Omega$ ...400 $\Omega$	from 0,01 $\Omega$	$\pm$ (2% m.v. + 3 digits)
Measurement of resistance with low current	0,0 $\Omega$ ...1999 $\Omega$	0,0 $\Omega$ ...1999 $\Omega$	from 0,1 $\Omega$	$\pm$ (3% m.v. + 3 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

## 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. 2.2 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	990 cells, 57 500 records
Data transmission	USB 2.0, radio

### 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



**Test lead 5 kV 1.8 m (banana plugs) black shielded / red**

WAPRZ1X8BLBB  
WAPRZ1X8REBB



**Crocodile clip 1 kV 20 A black / yellow**

WAKROBL20K02  
WAKROYE20K02



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

WASONREOGB1  
WASONBUOGB1  
WASONYEOGB1



**Pin probe 5 kV (banana socket) red**

WASONREOGB2



**Crocodile clip 11 kV 32 A black**

WAKROBL32K09



**Test lead (on a reel) 15 m / 30 m**

WAPRZ015BUBBSZ  
WAPRZ030REBBSZ



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

WASONG30



**WS-03 adapter with START button with UNI-Schuko plug (CAT III 300 V)**

WAADAWS03



### Charging

Mains cable with IEC C7 plug  
WAPRZLAD230

Z7 power supply  
WAZASZ7



Ni-MH battery 4.8 V 4.2 Ah  
WAAKU07



**USB cable**

WAPRZUSB



**L2 hanging straps (set)**

WAPOZSZEKPL



**L2 carrying case**

WAFUTL2



**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



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

WAADATWR1J



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

WAKRORE20K02  
WAKROBU20K02



**Crocodile clip 11  
kV 32 A red**

WAKRORE32K09



**PRS-1 resistance  
test probe**

WASONPRS1GB



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

WASONSP2M



**Pin probe 5 kV (ba-  
nana socket) black**

WASONBLOGB2



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

WAPRZ005REBB  
WAPRZ010REBB  
WAPRZ020REBB



**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**

WASONG80



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

WAFUTL3



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

WAADAAGT16T  
WAADAAGT32T



**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



**CS-5kV cali-  
bration box**

WAADACS5KV



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

WAPRZLAD12SAM



**Battery pack 4xLR14**

WAPOJ1



**OR-1 USB wireless  
receiver**

WAADAUSBOR1



**Test wire reel**

WAP0ZSZP1



**Calibration certificate  
with accreditation**