



300 V

600 V

## Great little multitasker

### Features

- **Measurement of short circuit loop parameters**
  - Measurement of short circuit loop impedance in networks with rated voltage: 220/380 V, 230 V/400 V, 240/415 V and frequency 45...65 Hz, operating voltage range: 180...460 V
  - Indication of short circuit loop resistance R and short circuit loop reactance X
  - Measurements of short circuit loop impedance with 15 mA current, without tripping the RCD circuit breaker
  - Maximum test current: 7.6 A (at 230 V), 13.3 A (at 400 V)
- **Testing RCD breakers of AC, A types**
  - Testing of prompt, short-delay and selective RCDs with rated current values 10, 15, 30, 100, 300, 500 mA
  - Measurement of  $I_A$  trip current and tripping time  $t_A$  for currents  $0.5 I_{\Delta n}$ ,  $1 I_{\Delta n}$ ,  $2 I_{\Delta n}$ ,  $5 I_{\Delta n}$
  - $R_E$  and  $U_B$  measurement without RCD tripping
  - Extended AUTO function of RCD measurement, with the possibility of measuring  $Z_{L-PE}$  with low current
  - Measurement of  $I_A$  and  $t_A$  during one RCD tripping
- **Insulation resistance measurement**
  - Test voltage 100 V, 250 V, 500 V
- **Measurement of resistance of protective conductors and equipotential bondings**
  - Measurement of protective connections continuity with a  $\pm 200$  mA current in accordance with EN 61557-4
  - Autocalibration of test leads - any leads can be used
  - Low current resistance measurement with sound signaling
- **Phase sequence indication**



### 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
- Backlit keypad

**Measurement of short circuit loop impedance  $Z_{L-PE}$ ,  $Z_{L-N}$ ,  $Z_{L-L}$**   
 Test current 7.6/13.3 A, test range according to EN 61557-3:  
**0.13...1999  $\Omega$**

Display range	Resolution	Accuracy
0.00...19.99 $\Omega$	0.01 $\Omega$	
20.0...199.9 $\Omega$	0.1 $\Omega$	$\pm(5\% \text{ m.v.} + 3 \text{ digits})$
200...1999 $\Omega$	1 $\Omega$	

**Measurement of short circuit loop impedance  $Z_{L-PE}$  in RCD mode**  
 Test current 15 mA, test range according to EN 61557-3:  
**0.50...1999  $\Omega$**

Display range	Resolution	Accuracy
0.00...19.99 $\Omega$	0.01 $\Omega$	$\pm(6\% \text{ m.v.} + 10 \text{ digits})$
20.0...199.9 $\Omega$	0.1 $\Omega$	$\pm(6\% \text{ m.v.} + 5 \text{ digits})$
200...1999 $\Omega$	1 $\Omega$	

**Insulation resistance measurement**  
 Test range according to IEC 61557-2

- $U_{ISO} = 100 \text{ V}$ : 100 k $\Omega$ ...99.9 M $\Omega$
- $U_{ISO} = 250 \text{ V}$ : 250 k $\Omega$ ...199.9 M $\Omega$
- $U_{ISO} = 500 \text{ V}$ : 500 k $\Omega$ ...599.9 M $\Omega$

Display range for $U_{ISO} = 100 \text{ V}$	Resolution	Accuracy
0...1999 k $\Omega$	1 k $\Omega$	
2.00...19.99 M $\Omega$	0.01 M $\Omega$	$\pm(5\% \text{ m.v.} + 8 \text{ digits})$
20.0...99.9 M $\Omega$	0.1 M $\Omega$	

Display range for $U_{ISO} = 250 \text{ V}$	Resolution	Accuracy
0...1999 k $\Omega$	1 k $\Omega$	
2.00...19.99 M $\Omega$	0.01 M $\Omega$	$\pm(5\% \text{ m.v.} + 8 \text{ digits})$
20.0...199.9 M $\Omega$	0.1 M $\Omega$	

Display range for $U_{ISO} = 500 \text{ V}$	Resolution	Accuracy
0...1999 k $\Omega$	1 k $\Omega$	
2.00...19.99 M $\Omega$	0.01 M $\Omega$	$\pm(5\% \text{ m.v.} + 8 \text{ digits})$
20.0...599.9 M $\Omega$	0.1 M $\Omega$	

**Measurement of RCD parameters (operating voltage range 180...270 V)**  
**RCD switching test and measurement of tripping time  $t_A$**   
 (for measuring function  $t_A$ )

RCD type	Multiplication factor	Range	Resolution	Accuracy
General	0.5 $I_{\Delta n}$	0...300 ms		
	1 $I_{\Delta n}$	0...150 ms		
	2 $I_{\Delta n}$	0...40 ms	1 ms	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$
Selective	0.5 $I_{\Delta n}$	0...500 ms		
	1 $I_{\Delta n}$	0...200 ms		
	5 $I_{\Delta n}$	0...150 ms		

**Measurement of RCD tripping current  $I_A$  for sinusoidal residual current**

Rated current	Measurement range	Resolution	Test current	Accuracy
10 mA	3.0...10.0 mA			
15 mA	4.5...15.0 mA	0.1 mA		
30 mA	9.0...30.0 mA		0.3 $I_{\Delta n}$ ...1.0 $I_{\Delta n}$	$\pm 5\% I_{\Delta n}$
100 mA	30...100 mA			
300 mA	90...300 mA	1 mA		
500 mA	150...500 mA			

- Measurement start with positive or negative half-period of forced residual current

**Measurement of RCD tripping current  $I_A$  for single direction pulsating differential current**

Rated current	Measurement range	Resolution	Test current	Accuracy
10 mA	3.5...20.0 mA		0.35 $I_{\Delta n}$ ...2.0 $I_{\Delta n}$	
15 mA	5.3...21.0 mA	0.1 mA	0.35 $I_{\Delta n}$ ...1.4 $I_{\Delta n}$	
30 mA	10.5...42.0 mA			$\pm 10\% I_{\Delta n}$
100 mA	35...140 mA		0.35 $I_{\Delta n}$ ...1.4 $I_{\Delta n}$	
300 mA	105...420 mA	1 mA		

- Measurement for positive or negative half-periods of forced leakage current

**Phase sequence indication**

- phase sequence indication: compliant, not compliant
- network voltage range: 100...440 V
- displaying the values of phase-to-phase voltages

## Technical data

### Safety and operating conditions

Measuring category acc. to EN 61010	IV 300 V (III 600 V)
Ingress protection	IP67
Type of insulation acc. to EN 61010-1 and IEC 61557	double
Dimensions	220 x 98 x 58 mm
Weight	ca. 0.8 kg

### Memory and communication

Memory	990
Data transmission	Bluetooth

### Other data

The product meets the EMC (emission for industrial environment) requirements according to standards	EN 61326-1 EN 61326-2-2
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"m.v." - measured value

## Standard accessories



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

WAADAWS03



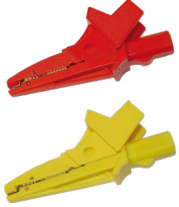
**Test lead 1,2 m (banana plugs) red / blue / yellow**

WAPRZ1X2REBB  
WAPRZ1X2BUBB  
WAPRZ1X2YEBB



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

WASONREOGB1  
WASONBUOGB1  
WASONYEOGB1



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

WAKRORE20K02  
WAKROYE20K02



**M1 hanging straps**

WAPOZSZE4



**M1 hanging hook straps**

WAPOZUCH1



**M6 carrying case**

WAFUTM6



**4x LR6 1.5 V battery**



**Calibration certificate**

## Optional accessories



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

WAADAEVSE01



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

WAADATWR1J



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

WAADAWS04



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

WAPRZ005REBB  
WAPRZ010REBB  
WAPRZ020REBB



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

WASONSP2M



**Crocodile clip 1 kV 20 A blue**

WAKROBU20K02



**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