



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 ± 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 Ω :

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

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 Ω

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

Insulation resistance measurement
 Test range according to IEC 61557-2

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

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

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

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

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 ms | $\pm(2\% \text{ m.v.} + 2 \text{ digits})$ |
| | 1 $I_{\Delta n}$ | 0...150 ms | | |
| | 2 $I_{\Delta n}$ | 0...40 ms | | |
| 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 | 0.1 mA | 0.3 I _{Δn} ...1.0 I _{Δn} | ±5% I _{Δn} |
| 15 mA | 4.5...15.0 mA | | | |
| 30 mA | 9.0...30.0 mA | | | |
| 100 mA | 30...100 mA | 1 mA | | |
| 300 mA | 90...300 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 | 0.1 mA | 0.35 I _{Δn} ...2.0 I _{Δn} | ±10% I _{Δn} |
| 15 mA | 5.3...21.0 mA | | 0.35 I _{Δn} ...1.4 I _{Δn} | |
| 30 mA | 10.5...42.0 mA | | | |
| 100 mA | 35...140 mA | 1 mA | 0.35 I _{Δn} ...1.4 I _{Δn} | |
| 300 mA | 105...420 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 |
|---|----------------------------|

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