



**Z<sub>L-PE</sub>**  
**RCD**

measurements  
without tripping  
RCDs



## Measurement of fault loop and more

### Capabilities

- Fault loop impedance measurement with 0.01  $\Omega$  resolution.
- Low-current impedance measurement in circuits protected by RCD  $\geq$  30mA with 0.01  $\Omega$  resolution (range of 180...270 V)
- Operates in networks with voltages 220/380 V, 230 V/400 V, 240/415 V (operating range 180...460 V)
- Operating voltage range: 180...270 V (for  $Z_{L-PE}$  and  $Z_{L-N}$ ) and 180...460 V (for  $Z_{L-L}$ ).
- Maximum measuring current: 7.6 A for 230 V (3x10 ms), 13.3 A for 400 V (3x10 ms).
- Operating frequency 45...65 Hz
- Calculation of  $I_k$  fault current.
- Measurement with swapped L and N conductors.
- Measurement of resistance ( $R_s$ ) and reactance ( $X_s$ ) components.
- Low-voltage measurement of continuity of circuit and resistance.

### Additional features

- Contact electrode - quick testing of proper connection of PE conductor.
- Voltage measurement 0...500 V.
- Frequency measurement 45.0...65.0 Hz.
- Memory of 990 measurement results, ability to transfer the data to a PC via Bluetooth.
- Power supply: batteries (4 x LR14) or rechargeable batteries (4 x NiMH).

### Application

The instrument is dedicated to personnel performing measurements in single and multi-family buildings, office buildings, industrial plants and any other places equipped with low voltage electrical systems. In addition, the meter is intended for maintenance personnel working on objects, where fault currents reach **4.4 kA** (measured according to EN 61557). MZC-304F is also a great tool for checking circuits additionally protected by residual current devices.



# Technical specifications

Measurement functions	Measurement range	Display range	Resolution	Accuracy ±(% m.v. + digits)
<b>Voltage</b>	0 V...500 V	0 V...500 V	from 0.1 V	from ±(2% m.v. + 2 digits)
<b>Frequency</b>	45.0 Hz...65.0 Hz	45.0 Hz...65.0 Hz	0.1 Hz	±(0.1% m.v. + 1 digit)
<b>Short-circuit loop parameters</b>				
2p method - standard current measurement maximum current 13.3 A	from 0.13 Ω...1999 Ω acc. to EN 61557	0.00 Ω...1999 Ω	from 0.01 Ω	±(5% m.v. + 3 digits)
2p method - measurements without tripping RCDs	from 0.5 Ω...1999 Ω acc. to EN 61557	0.00 Ω...1999 Ω	from 0.01 Ω	from ±(6% m.v. + 5 digits)
<b>Short-circuit current readings</b>				
2p method - standard current measurement	Calculated on the basis of test $Z_s$ ranges and rated voltages	1.110 A...9999 A	from 0.001 A	Calculated on the basis of error for fault loop
2p method - measurements without tripping RCDs	Calculated on the basis of test $Z_s$ ranges and rated voltages	1.110 A...9999 A	from 0.001 A	Calculated on the basis of error for fault loop
<b>Measurement of continuity of protective conductors and equipotential bonding</b>				
Low-voltage measurement of continuity of circuit and resistance with ±200 mA current	0.12 Ω...400 Ω acc. to EN 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)

## Safety and work conditions

<b>Measuring category according to EN 61010</b>	IV 300 V, III 600 V
<b>Ingress protection</b>	IP67
<b>Type of insulation according to EN 61010-1 and EN 61557</b>	double
<b>Power supply</b>	4x LR6 1.5 V alkaline battery 4x AA size NiMH rechargeable battery
<b>Dimensions</b>	220 x 102 x 61 mm
<b>Weight</b>	ca. 0.8 kg
<b>Operating temperature</b>	0...+50°C
<b>Storage temperature</b>	-20...+70°C
<b>Humidity</b>	20...90%
<b>Nominal temperature</b>	23 ± 2°C
<b>Reference humidity</b>	40%...60%

## Memory and communication

<b>Memory of measurement results</b>	990 results
<b>Data transmission</b>	Bluetooth

## Other information

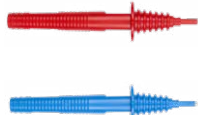
<b>Quality standard – development, design and production</b>	ISO 9001
<b>The product meets the EMC (emission for industrial environment) requirements according to standards</b>	EN 61326-1 EN 61326-2-2

## Standard accessories



**WS-05 adapter  
(UNI-SCHUKO  
angular plug)**

WAADAWS05



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

WASONREOGB1  
WASONBUOGB1



**Crocodile clip  
1 kV 20 A  
yellow**

WAKROYE20K02



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

WAPRZ1X2REBB  
WAPRZ1X2BUBB  
WAPRZ1X2YEBB



**M1 hanging straps**

WAPOZSZE4



**M1 hanging  
hook straps**

WAPOZUCH1



**M6 carrying case**

WAFUTM6



**4x LR6 1.5 V battery**



**Factory calibration  
certificate**

## Optional accessories



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

WAADAWS03



**WS-04 adapter  
(UNI-SCHUKO  
angular plug)**

WAADAWS04



**WS-07 adapter  
for measuring  
Z(L-N) loop**

WAADAWS07



**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



**Sonel Reports  
PLUS software**



**Calibration certificate  
with accreditation**