

# METRALINE Z<sup>CHECK</sup>

## Loop Resistance Measuring Instrument

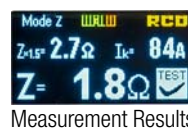
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The following measurements can be performed with the METRALINE Z<sup>CHECK</sup>.

- Fault loop impedance with short-circuit current
- Fault loop impedance with short-circuit current without tripping the RCCB
- Line impedance with short-circuit current
- Line voltage
- Phase detection

### Features

- Table of common protective devices can be displayed
- Digital display, backlit color OLED display, switching between brief and detailed representation
- LED for measurement point illumination
- Patented means of securing test probes
- **Compact and rugged** – for service calls and laboratory use



### Applications

The METRALINE Z<sup>CHECK</sup> allows for the evaluation of measured impedance in consideration of type, nominal current and disconnection time. A table with the parameters of various protective devices is included in device memory.

### Applicable Regulations and Standards

IEC 61010-1/-031 DIN EN 61010-1/-031 VDE 0411-1/-031	Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements Part 31: Safety requirements for hand-held probe assemblies for electrical measurement and test
IEC 61557-1/-3 DIN EN 61557-1/-3 VDE 0413-1/-3	Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures Part 1: General requirements <b>Part 3: Loop resistance</b>
IEC 61326-1 DIN EN 61326-1	Electrical equipment for measurement, control and laboratory use – EMC requirements Part 1: General requirements
DIN EN 60529 VDE 0470-1	Degrees of protection provided by enclosures (IP code)

### Characteristic Values

#### Fault Loop Impedance / Line Impedance

Nominal Range per EN 61557-3: 0.27  $\Omega$  to 200  $\Omega$

Range ( $\Omega$ )	Resolution ( $\Omega$ )	Intrinsic Uncertainty	Measuring Uncertainty
0.00 to 4.99	0.01	$\pm(3\% \text{ rdg.} + 5 \text{ d})$	$\pm(4\% \text{ rdg.} + 7 \text{ d})$
5.0 to 49.9	0.1	$\pm(3\% \text{ rdg.} + 3 \text{ d})$	$\pm(4\% \text{ rdg.} + 4 \text{ d})$
50 to 200	1	$\pm 3\% \text{ rdg.}$	$\pm 4\% \text{ rdg.}$

Voltage range: 190 to 260 V / 48 to 52 Hz

Load resistance: 50  $\Omega$  (variable number of pulses at 10 ms)

#### Fault Loop Impedance Without Tripping the RCCB

Nominal Range per EN 61557-3: 0.8  $\Omega$  to 200  $\Omega$

Range ( $\Omega$ )	Resolution	Intrinsic Uncertainty	Measuring Uncertainty
0.0 to 4.9	0.1 $\Omega$	$\pm(5\% \text{ rdg.} + 2 \text{ d})$	$\pm(6\% \text{ rdg.} + 2 \text{ d})$
50 to 200	1 $\Omega$	$\pm 7\% \text{ rdg.}$	$\pm 8\% \text{ rdg.}$

Voltage range: 190 to 260 V / 48 to 52 Hz

Load resistance: 50  $\Omega$  (variable number of pulses and pulse width)

#### Short-Circuit Current

Range	Resolution	Intrinsic Uncertainty	Measuring Uncertainty
0 to 999 A	1 A	Depending on measuring error for loop impedance $\pm 1 \text{ d}$	Depending on measuring error for loop impedance $\pm 1 \text{ d}$
1.0 to 9.9 kA	0.1 kA		
10 to 23 kA	1 kA		

## Loop Resistance Measuring Instrument

### Alternating Voltage (TRMS)

Range	Resolution	Intrinsic Uncertainty	Measuring Uncertainty
24 to 260 V	1 V 0.1 V	±(2% rdg. + 2 d)	±(3% rdg. + 3 d)

Frequency range: 48 to 52 Hz

<sup>1</sup> Display for brief representation

<sup>2</sup> Display for detailed representation

### Key:

- a) The measuring uncertainties specified here for fault loop impedance, line impedance and short-circuit current are only valid if line voltage is stable during measurement and if no other electrical circuits parallel to the measured circuit are in use.  
c) rdg. means reading, i.e. measured value, d = digits (i.e. number of the decimal place with the least significance)

### Reference Conditions

Temperature	23 ± 2° C
Relative humidity	40 to 60%
Line voltage	230 V ± 2% / 50 Hz ± 1%
Device position	any

### Ambient Conditions

#### Operating Conditions

Operating temperature	0 to 40° C
Relative humidity	max. 85%, no condensation allowed
Line voltage	190 to 260 V / 48 to 52 Hz
Device position	any

#### Storage Conditions

Temperature	-10 to +70° C
Relative Humidity	max. 90% at -10 to +40° C max. 80% at +40 to +70° C
Device position	any

### Power Supply

Batteries	4 ea. AAA (LR03), 1.5 V alkaline or 1.2 V NIMH (with at least 750 mAh)
Number of measurements	with batteries at 800 mAh: approx. 3,000 measurements

### Electrical Safety

Measuring category	CAT III / 300 V
Pollution degree	2
Protection class	II
Fuse	SIBA ceramic fuse 6.3 mm x 32 mm, F1 A/600 V switching capacity 50 kA at 600 V

### Electromagnetic Compatibility (EMC)

Interference emission	EN 61326-1:2006 class B
Interference immunity	EN 61326-1:2006

### Mechanical Design

Display	OLED, multicolored, graphic
Protection	Housing: IP 43 per DIN VDE 0470 part 1/EN 60529
Dimensions	approx. 260 x 70 x 40 mm
Weight	approx. 0.36 kg with batteries

### Scope of delivery

- 1 Test instrument with mobile test probe
- 4 Batteries (AAA)
- 1 Pouch
- 1 Condensed operating instructions
- 1 CD ROM with operating instructions in available languages
- 1 Factory calibration certificate

### Order Information

Description	Type	Article number
Loop Resistance Measuring Instrument	METRALINE ZCHECK	M507A
Broad-range charger for charging batteries included in the METRALINE ISO-RCD-Z-CHECK Input: 90 to 265 V AC Output: 9.5 V DC, 180 mA	Z507A	Z507A
4 rechargeable batteries (AAA) for METRALINE ISO-RCD-Z-CHECK	Z507B	Z507B