Index: WMGBMZC310

HIGH-CURRENT LOOP IMPEDANCE METER

MZC-310S

The MZC-310S is a professional portable meter for testing electrical installations with over-current circuit breakers. The instrument measures short circuit L-PE, L-N and L-L loop impedance and prospective short circuit loop current. Measurements can be done either with low measurement current (up to 42A) with 2-pole method or high measurement current (up to 280A) with 4-pole method that enables measurements with very high accuracy and resolution. The results can be stored in the internal memory and send to a computer via serial interface.

Standard accessories of the meter MZC-310S:

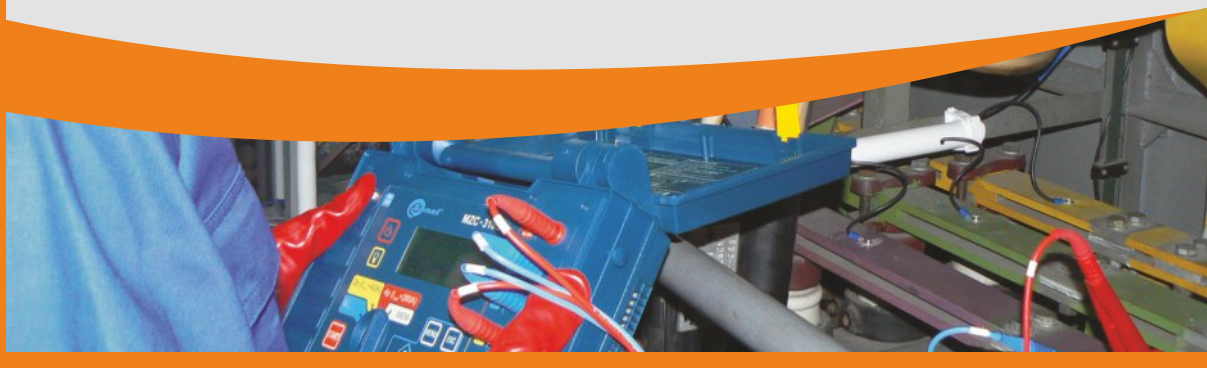
- test lead with banana plug; 1,2m; black	**WAPRZ1X2BLBB**
- test lead with banana plug; 1,2m; yellow	**WAPRZ1X2YEBB**
- pin probe with banana connector - yellow	**WASONYEOGB1**
- pin probe with banana connector - black	**WASONBLOGB1**
- high-current probe with banana connector (2 pcs.)	**WASONSPGB1**
- test lead 3m (2 pcs.)	**WAPRZ003DZBB**
- „crocodile" clip K03; black (4 pcs.)	**WAKROBL30K03**
- Kelvin's clamp (2 pcs.)	**WAKROKELK06**
- carrying case L1	**WAFUTL1**
- RS-232 serial transmission cable	**WAPRZRS232**
- hanging straps	**WAPOZSZE1**
- calibration certificate issued by calibration laboratory	
- operating manual	
- battery pack	

Optional accessories of the meter MZC-310S:

- USB1.1/RS232 adaptor	**WAADAUSBRS232**
- software for creation of documentation from electrical measurements „SONEL PE4"	**WAPROPE4EN**
- software for creation drawings and diagrams „SONEL Schematic" + „SONEL PE4"	**WAPROPE4SEN**
- USB key for software	**WAADAKEY1**
- AGT-16P (triple phase socket adapter)	**WAADAAGT16P**
- AGT-32P (triple phase socket adapter)	**WAADAAGT32P**
- AGT-63P (triple phase socket adapter)	**WAADAAGT63P**
- test lead with banana plug; 5m; yellow	**WAPRZ005YEBB**
- test lead with banana plug; 10m; yellow	**WAPRZ010YEBB**
- test lead with banana plug; 20m; yellow	**WAPRZ020YEBB**

Sonel S.A.
ul. Wokulskiego 11
58-100 Świdnica, PL
tel. +48 74 85 83 860
fax +48 74 85 83 809

export@sonel.pl
www.sonel.pl



MZC-310S

- **Measurement of very low short circuit loop impedances (with resolution 0,1mΩ) with a current of 150A at 230V; maximum 280A at 440V or measurement with a current of 23A at 230V; maximum 42A at 440V.**
- measurements in installations with rated voltages between: 220/380V and 230/400V and frequencies 45...65Hz,
- ability to perform measurements in short circuit system: phase-phase, phase-protective, phase-neutral,
- differentiation between the phase voltage and the inter-phase voltage while calculating the shortcircuit current,
- Ability to change the length of test leads (measurement 23/42A),
- four-pole method, test leads do not require calibration (measurement 150/280A).
- **Touch voltage and touch shock voltage measurement (with resistor 1kΩ).**
- **AC voltage measurement in range 0…440V.**
- **Memory of 999 measurement results with an ability to transfer the data to a PC.**
- **Meter meets the requirements of the standard EN 61557.**

Voltages measurement (True RMS)

Range	Resolution	Accuracy
0...440V	1V	±(2% m.v. + 2 digits)

• frequency range: DC, 45...65Hz
• input impedance of the voltmeter: ≥ 200kΩ

Frequency measurement (for voltages within the range 50…440V)

Range	Resolution	Accuracy
45,0...65,0Hz	0,1Hz	±(0,1% m.v. + 1 digits)

Electric security:

- type of insulation	double, according to EN 61010-1 and IEC 61557
- measurement category	CAT IV 300V acc. to EN 61010-1
- protection class acc. to EN 60529	IP20

Other technical data:

- power supply	alkaline batteries LR14 (C) (5 pcs.)
- resistor limiting the current: for measurement 4p	1,5Ω
for measurement 2p	10Ω
- number of short circuit loop measurements (alkaline batteries)	min. 2000 (4/min.)
- temperature coefficient	±0,1% of measured value /°C

Rated operational conditions:

- operating temperature	0...+40°C

Short circuit loop parameters measurement using high current (4p, I_{max}=280A)

High-current of measurement of short circuit loop impedance Z:

measuring range according to IEC61557: **7,2mΩ…1999mΩ**

Range	Resolution	Accuracy
0...199,9mΩ	0,1mΩ	±(2% m.v. + 2mΩ)
200...1999mΩ	1mΩ	

Short circuit resistance R and reactance X display range

Range	Resolution	Accuracy
0...199,9mΩ	0,1mΩ	±(2% m.v. + 2mΩ) impedance reading for a particular measurement
200...1999mΩ	1mΩ	

Prospective short circuit loop current

measuring range according to IEC 61557: for Un = 230V 115,0A...32,0kA
for Un = 400V 200A...55,7kA

Range	Resolution	Accuracy
115,0...199,9A	0,1A	accuracy of the current indication computed, respectively, with the use of resistance measurement
200...1999A	1A	
2,00...19,99kA	0,01kA	
20,0...199,9kA	0,1kA	
200kA...*	1kA	

* 230 kA for U_{LN}
400 kA for U_{LL}

Touch voltage measurement U_{ST} (shock voltage U_T)

Range	Resolution	Accuracy
0...100V	1V	±(10% m.v. + 2 digits)

Measurement of short circuit loop using standard current (2p, I_{max}=42A)

Short circuit loop impedance Z measurement:

measuring range according to IEC61557: **0,13Ω…199,9Ω** for 1,2m long test leads

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(2% m.v. + 3 digits)
20,0...199,9Ω	0,1Ω	±(3% m.v. + 3 digits)

Short circuit resistance R and reactance X display range

Range	Resolution	Accuracy
0,00...19,99Ω	0,01Ω	±(2% m.v. + 3 digits) impedance reading for a particular measurement
20,0...199,9Ω	0,1Ω	±(3% m.v. + 3 digits) impedance reading for a particular measurement

Prospective short circuit loop current

Range	Resolution	Accuracy
1,150...1,999A	0,001A	accuracy of the current indication computed, respectively, with the use of resistance measurement
2,00...19,99A	0,01A	
20,0...199,9A	0,1A	
200...1999A	1A	
2,00...19,99kA	0,01kA	
20,0...40,0kA	0,1kA	

„m.v." - measured value.