

0.1 mΩ
maximum
resolution

CAT III
600 V

CAT IV
300 V

IP20



Lightweight for high-current measurements

Capabilities

- Measurement of very low short circuit loop impedances (with resolution 0,1 mΩ) with a current of 150 A at 230 V; maximum 280 A at 440 V.
- Measurement with a current of 23 A at 230 V, maximum 42 A at 440 V with resolution 0,01 Ω.
- Measurements in installations with rated voltages: 220/380 V and 230/400 V and frequencies 45...65 Hz.
- Ability to perform measurements in short circuit system: phase-phase, phase-PE, phase-N.
- Differentiation between the phase voltage and the inter-phase voltage while calculating the short circuit current.
- Ability to change the length of test lead (measurement with 2p method).
- 4p (four-pole) method, test leads do not require calibration (measurement with current up to 280 A).
- Measurement of resistance (R_s) and reactance (X_s) components.

Additional features

- Touch voltage and touch shock voltage measurement with resistor 1 kΩ).
- AC voltage measurement in range 0...440 V.
- Frequency measurement 45.0...65.0 Hz.
- Memory of 990 measurement results, ability to transfer the data to a PC via RS-232.
- Power supply: rechargeable battery (5x LR14).



Reaching the areas unattainable to others

In direct vicinity of transformers or in transformer stations, where the circuits are equipped with a high current protection (fuse-links with the rating of several hundred amperes, motor circuit breakers), **fault currents may reach several hundreds of kilo-amperes**. Measurement of fault loop impedance in such networks requires a **high-current meter**, which is capable of measuring Z_s values at the level of single milliohms. Our patented technical solution, which uses components not available in the commercial offer (unique fault resistor), enables us to offer the meter with perfect performance in such demanding conditions.

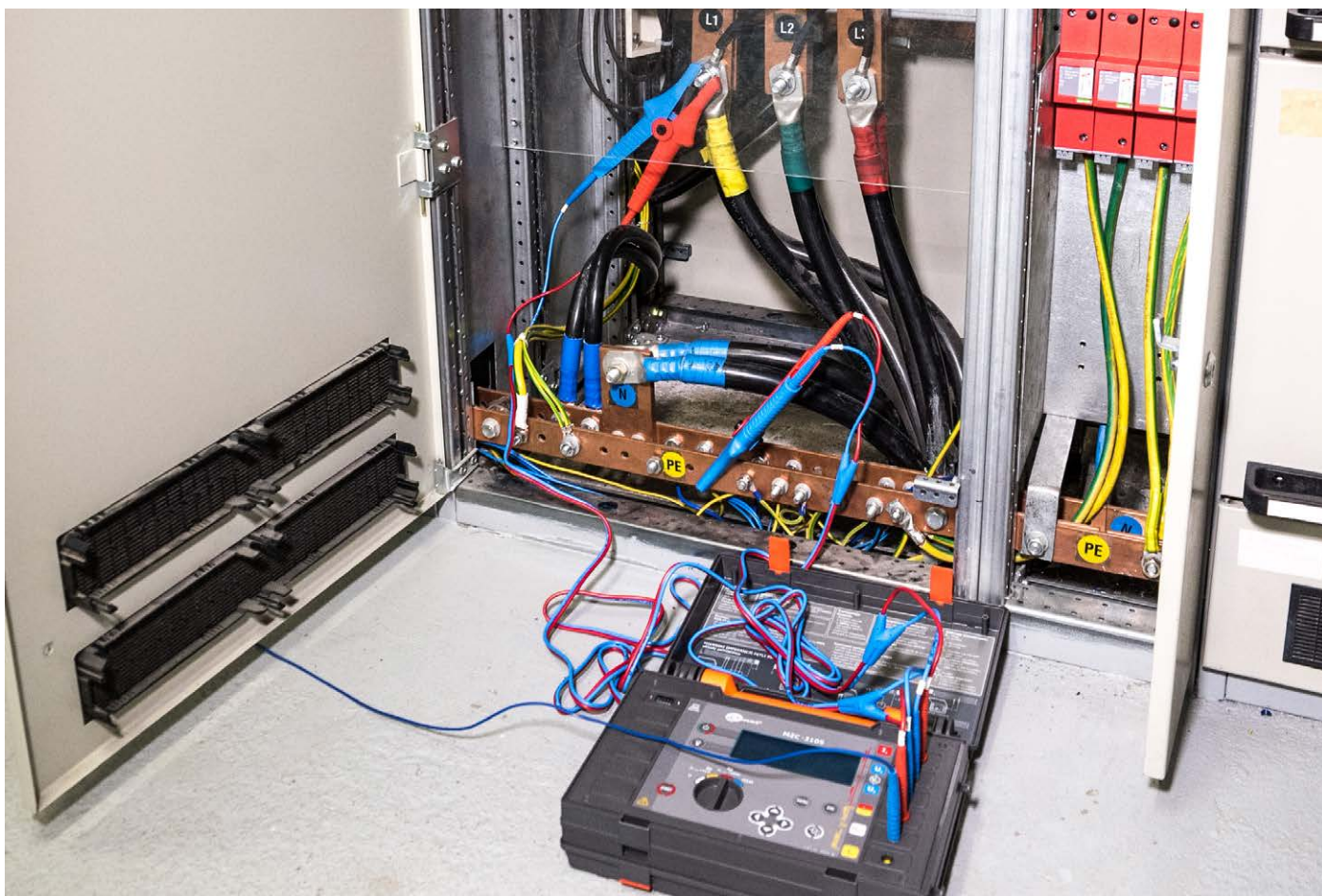
Measurements without compromise

Commercially available fault loop impedance meters perform the measurements asymmetrically, i.e. using half-wave current. This solution introduces the transitional constant and DC constant, which does not always result in a linear behavior of the transformer during the tests. This in turn, affects the accuracy of the results.

MZO-310S high-current fault loop impedance meter applies **symmetrical** current for measurements, which means that it uses the full wave - thanks to the advanced design of the measuring system and fault circuit.

Application

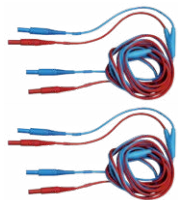
MZO-310S is used for measurements in low voltage systems (nominal voltage of 220/380 V or 230/400 V), where the prospective fault current may reach **55.7 kA** (measured according to EN 61557). Low weight and high convenience of the device make it perfect for tests and measurements in large and complex manufacturing plants.



Technical specifications

Measurement functions	Measurement range	Display range	Resolution	Accuracy ±(% m.v. + digits)
Voltage	0 V...440 V	0 V...440 V	1 V	±(2% m.v. + 2 digits)
Frequency	45.0 Hz...65.0 Hz	45.0 Hz...65.0 Hz	0.1 Hz	±(0.1% m.v. + 1 digit)
Short-circuit loop parameters				
4p method - high current measurement maximum current 280 A	7.2 mΩ...1999 mΩ acc. to EN 61557	0.0 mΩ...1999 mΩ	from 0.1 mΩ	±(2% m.v. + 2 mΩ)
2p method - standard current measurement maximum current 42 A	from 0.13 Ω...199.9 Ω acc. to EN 61557	0.00 Ω...199.9 Ω	from 0.01 Ω	from ±(2% m.v. + 3 digits)
Short-circuit current readings				
4p method - high current measurement network voltage 230 V, 400 V	up to 115.0 A...55.7 kA	115.0 A...400 kA	from 0.1 A	Calculated on the basis of error for fault loop
2p method - standard current measurement	from 1.150 A...1607 A acc. to EN 61557	1.150 A...40.0 kA	from 0.001 A	Calculated on the basis of error for fault loop
Touch and shock voltage				
4p method - high current measurement	0 V...100 V	0 V...100 V	1 V	±(10% m.v. + 2 digits)
Safety and work conditions				
Measuring category according to EN 61010			IV 300 V	
Ingress protection			IP20	
Type of insulation according to EN 61010-1 and EN 61557			double	
Power supply			5x LR14 alkaline battery 1.5 V	
Dimensions			295 x 222 x 95 mm	
Weight			ca. 2.2 kg	
Operating temperature			0...+40°C	
Storage temperature			-20...+60°C	
Humidity			20...90%	
Nominal temperature			+20...+25°C	
Reference humidity			40%...60%	
Memory and communication				
Memory of measurement results			990 results	
Data transmission			RS-232	
Other information				
Quality standard – development, design and production			ISO 9001	
The product meets the EMC (emission for industrial environment) requirements according to standards			EN 61326-1 EN 61326-2-2	

Standard accessories



Double-wire test lead 3 m (10 / 25 A)

U1 / I1
WAPRZ003DZBBU111
U2 / I2
WAPRZ003DZBBU212



Test lead 1.2 m (banana plugs) black / yellow

WAPRZ1X2BLBB
WAPRZ1X2YEBB



Pin probe 1 kV (banana socket) black / yellow

WASONBLOGB1
WASONYEOGB1



2x Kelvin clamp, 1 kV, 25 A

WAKROKELK06



4x crocodile clip 1 kV 32 A black

WAKROBL30K03



2x high-current pin probe 1 kV (banana sockets)

WASONSPGB1



RS-232 serial transmission cable

WAPRZRS232



Unisonel hanging straps

WAPOZSZE1



L1 carrying case

WAFUTL1



5x LR14 1.5 V alkaline battery



Factory calibration certificate

Optional accessories



Test lead 5 / 10 / 20 m (banana plugs) yellow

WAPRZ005YEBB
WAPRZ010YEBB
WAPRZ020YEBB



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

WASONSP2M



Pin probe 11 kV (banana socket) red

WASONREOGB11



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



Industrial socket adapter 16 A / 32 A

WAADAAGT16T
WAADAAGT32T



Test wire reel

WAPOZSZP1



USB/RS-232 adapter

WAADAUSBRS232



L2 carrying case

WAFUTL2



M1 hanging straps

WAPOZSZE4



Calibration certificate with accreditation