

INSULATION RESISTANCE METER MIC-5010 / MIC-5005

**INSULATION
RESISTANCE
MEASUREMENT UP TO
15 TΩ
IN ACCORDANCE
WITH IEC 61557-2**



**CAT III
1000V**

**CAT IV
600V**



Capability of wireless transmission
of the data from memory to a PC
**ORDER ADDITIONALLY
THE WIRELESS USB INTERFACE**

NEW!

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

• **Insulation resistance measurement:**

- measurement voltage any in the range of 50...1000 V at 10 V and 1000...5000 V at 25 V resolution,
- continuous indication of measured insulation resistance or leakage current,
- automatic discharge of measured object capacitance voltage after the end of insulation resistance measurement,
- acoustic signaling of 5 seconds intervals to facilitate capturing time characteristics,
- metered T_1 , T_2 and T_3 test times for measuring one or two absorption coefficients from the range of 1...600 s,
- adjustable measuring time to 99'59",
- polarization index (PI) and dielectric absorption ratio (DAR) measurement,
- indication of actual test voltage during measurement,
- 1.2 mA and 3 mA test current,
- step voltage insulation resistance measurement (SV),
- Dielectric Discharge calculation (DD),
- protection against measuring live objects,
- measurements with test leads up to 20 m

• **Digital filters function for measurements in high noise environment (10 s, 30 s, 60 s).**

• **MIC-5010: Continuity measurement of protective connections and equipotential bonding in accordance with EN 61557-4 with current ≥ 200 mA.**

• **MIC-5010: Adjustable limits for measured resistance R_{iso} and R_{cont} .**

• **Measurement of leakage current during insulation resistance testing.**

• **Measurement of capacitance during the measurement of R_{iso} .**

• **DC and AC voltage measurement in the range of 0...600 V.**

• **990 cells of memory (11880 records) with the capability of wireless data transmission to a PC (with the USB-OR adapter) or through a USB cable.**

• **Power supply from main power line or battery packs, low battery warning indicator, built-in fast charger.**

• **Keyboard and display backlight (MIC-5005 - only display).**

The instruments meet the requirements of the EN 61557 standard.

MIC-5010/MIC-5005

Insulation resistance measurement

Measurement range acc. to IEC 61557-2: 50 kΩ...15,0 TΩ ($I_{ISO\text{nom}} = 1,2 \text{ mA}$ or 3 mA)

Range	Resolution	Accuracy
0...999 kΩ	1 kΩ	±(3% m.v. + 10 digits)
1.00...9.99 MΩ	0.01 MΩ	
10.0...99.9 MΩ	0.1 MΩ	
100...999 MΩ	1 MΩ	
1.00...9.99 GΩ	0.01 GΩ	
10.0...99.9 GΩ	0.1 GΩ	
100...999 GΩ	1 GΩ	±(3.5% m.v. + 10 digits)
1.00...9.99 TΩ	0.01 TΩ	±(7.5% m.v. + 10 digits)
10.0...15.0 TΩ	0.1 TΩ	±(10% m.v. + 10 digits)

Values of measured resistance depending on measurement voltage

Voltage U_{ISO}	Measurement range
250 V	500 GΩ
500 V	1.00 TΩ
1000 V	2.00 TΩ
2500 V	5.00 TΩ
5000 V	15.0 TΩ

Measurement of leakage current

Range	Resolution	Accuracy
0...1,2 mA*	resolution and units result from the measurement range of individual insulation resistance.	Calculated basing on resistance measurements
0...3 mA*		

* - depending on the setting

Step voltage insulation resistance measurement

Target voltage	Measurement voltage sequence
1 kV	200, 400, 600, 800, 1000 V
2.5 kV	0.5, 1, 1.5, 2, 2.5 kV
5 kV	1, 2, 3, 4, 5 kV

- duration of each "step" adjustable from 30 s to 5 mins
- measurement result for each voltage step is stored in memory

Continuity measurement of protective connections and equipotential bonding with 200 mA current (MIC-5010 only)

Measurement range acc. to IEC 61557-4: 0.12...999 Ω

Range	Resolution	Accuracy
0.00...19.99 Ω	0.01 Ω	±(2% w.m. + 3 digits)
20.0...199.9 Ω	0.1 Ω	
200...999 Ω	1 Ω	±(4% w.m. + 3 digits)

- Voltage on open terminals: 4...24 V
- Output current at $R < 15 \Omega$: min. 200 mA (I_{sc} : 200...250 mA)
- Compensation of test lead resistance
- Current flowing in both directions, mean value of resistance is displayed

Measurement of capacitance

Display range	Resolution	Accuracy
1...999 nF	1 nF	±(5% m.v. + 5digits)
1.00...49.99 μF	0.01 μF	

- Capacity measurement result is displayed after the R_{ISO} measurement

DC and AC voltage measurement

Range	Resolution	Accuracy
0.0...29.9 V	0.1 V	±(2% m.v. + 20 digits)
30.0...299.9 V	0.1 V	±(2% m.v. + 6 digits)
300...600 V	1 V	±(2% m.v. + 2 digits)

- Frequency range: 45...65Hz

Standard accessories:

- test lead banana plug; 1,8 m; 10kV; red
- test lead banana plug; 1,8 m; 10 kV; blue
- test lead banana plug; 1,8 m; 10 kV; black; shielded
- USB cable
- "crocodile" clip 5,5 kV; black
- "crocodile" clip 5,5 kV; red
- "crocodile" clip 5,5 kV; blue
- pin probe 5,5 kV with banana connector; red
- pin probe 5,5 kV with banana connector; black
- carrying case L4 for accessories
- power cord
- battery pack (built-in)
- "SONEL Reader" software
- calibration certificate

WAPRZ1X8REBB10K
WAPRZ1X8BUBB10K
WAPRZ1X8BLBBE10K
WAPRZUSB
WAKROBL32K07
WAKRORE32K07
WAKROBU32K07
WASONRE0GB5X5
WASONBLOGB5X5
WAFUTL4
WAPRZ1X8BLIEC

Additional accessories:

- test lead banana plug; 3 m; 10kV; red
- test lead banana plug; 3 m; 10kV; blue
- test lead banana plug; 3 m; 10kV; black; shielded
- test lead banana plug; 5 m; 10kV; red
- test lead banana plug; 5 m; 10kV; blue
- test lead banana plug; 5 m; 10kV; black; shielded
- test lead banana plug; 10 m; 10kV; red
- test lead banana plug; 10 m; 10kV; blue
- test lead banana plug; 10 m; 10kV; black; shielded
- test lead banana plug; 20 m; 10kV; red
- test lead banana plug; 20 m; 10kV; blue
- test lead banana plug; 20 m; 10kV; black; shielded
- carrying backpack L-7
- OR-1 radio receiver for data transmission

WAPRZ003REBB10K
WAPRZ003BUBB10K
WAPRZ003BLBBE10K
WAPRZ005REBB10K
WAPRZ005BUBB10K
WAPRZ005BLBBE10K
WAPRZ010REBB10K
WAPRZ010BUBB10K
WAPRZ010BLBBE10K
WAPRZ020REBB10K
WAPRZ020BUBB10K
WAPRZ020BLBBE10K
WAFUTL7
WAADAUSBOR1

Electrical safety:

- type of insulation double, in acc. with EN 61010-1 and IEC 61557
- measurement category IV 600 V (III 1000 V) in acc. with EN 61010-1
- case protection rating in acc. with EN 60529 IP54 (IP67 - with lid closed)

Other technical specifications:

- power supply of the meter built-in battery pack
- weight of the meter approx. 7 kg
- dimensions 390 x 310 x 170 mm
- display LCD segment display
- measurement results memory 990 cells of memory (11880 records)
- transmission of measurement results USB or wireless interface

The acronym "m.v." stands for a "measured reference value".