



Sonel 5kV Insulation Resistance Meters

**Part Numbers:
MIC-5005 & MIC-5010**

**CAT III
1000V**

**CAT IV
600V**



- ◆ **Insulation resistance measurement:**
 - Measurement voltage any in the range of 500...1000V at 10V and 1000...5000V at 25V 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 T1, T2 and T3 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 ration (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 20m
- ◆ 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 RISO and RCONT
- ◆ Measurement of leakage current during insulation resistance testing
- ◆ Measurement of capacitance during the measurement of RISO
- ◆ DC and AC voltage measurement in the range of 0...600V
- ◆ 990 cells of memory (11880 records) with the capability of wireless data transmission to a PC (with Bluetooth) 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 backlit (MIC-5005—only display)
- ◆ The instruments meet the requirements of the EN 61557 standard



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Sonel 1kV Insulation Tester

Insulation resistance measurement

Measurement range acc. to IEC 61557-2: 50 k Ω ...15.0 T Ω ($I_{iso\max}$ = 1,2 mA or 3 mA)

Range	Resolution	Accuracy
0...999 k Ω	1 k Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
1.00...9.99 M Ω	0.01 M Ω	
10.0...99.9 M Ω	0.1 M Ω	
100...999 M Ω	1 M Ω	
1.00...9.99 G Ω	0.01 G Ω	
10.0...99.9 G Ω	0.1 G Ω	$\pm(3.5\% \text{ m.v.} + 10 \text{ digits})$
100...999 G Ω	1 G Ω	
1.00...9.99 T Ω	0.01 T Ω	$\pm(7.5\% \text{ m.v.} + 10 \text{ digits})$
10.0...15.0 T Ω	0.1 T Ω	$\pm(10\% \text{ m.v.} + 10 \text{ digits})$

Values of measured resistance depending on measurement voltage

Voltage U_{iso}	Measurement range
250 V	500 G Ω
500 V	1.00 T Ω
1000 V	2.00 T Ω
2500 V	5.00 T Ω
5000 V	15.0 T Ω

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	$\pm(2\% \text{ w.m.} + 3 \text{ digits})$
20.0...199.9 Ω	0.1 Ω	
200...999 Ω	1 Ω	$\pm(4\% \text{ w.m.} + 3 \text{ digits})$

- 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	$\pm(5\% \text{ m.v.} + 5 \text{ digits})$
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	$\pm(2\% \text{ m.v.} + 20 \text{ digits})$
30.0...299.9 V	0.1 V	$\pm(2\% \text{ m.v.} + 6 \text{ digits})$
300...600 V	1 V	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$

- 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
WAPRZ1X8LBEB10K
WAPRZUSB
WAKROBL32K07
WAKRORE32K07
WAKROBU32K07
WASONREGB5X5
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

WAPRZ003REBB10K
WAPRZ003BUBB10K
WAPRZ003LBEB10K
WAPRZ005REBB10K
WAPRZ005BUBB10K
WAPRZ005LBEB10K
WAPRZ010REBB10K
WAPRZ010BUBB10K
WAPRZ010LBEB10K
WAPRZ020REBB10K
WAPRZ020BUBB10K
WAPRZ020LBEB10K
WAFUTL7

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. 5,6 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
- humidity 20%...90%

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



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