

# 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!**

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- **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  $\geq 200$  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 k $\Omega$ ...15,0 T $\Omega$  ( $I_{ISO_{nom}} = 1,2$  mA or 3 mA)

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

Values of measured resistance depending on measurement voltage

Voltage $U_{ISO}$	Measurement range
250 V	500 G $\Omega$
500 V	1.00 T $\Omega$
1000 V	2.00 T $\Omega$
2500 V	5.00 T $\Omega$
5000 V	15.0 T $\Omega$

## 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  $\Omega$

Range	Resolution	Accuracy
0.00...19.99 $\Omega$	0.01 $\Omega$	$\pm(2\%$ w.m. + 3 digits)
20.0...199.9 $\Omega$	0.1 $\Omega$	
200...999 $\Omega$	1 $\Omega$	$\pm(4\%$ 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	$\pm(5\%$ m.v. + 5digits)
1.00...49.99 $\mu$ F	0.01 $\mu$ F	

- 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	$\pm(2\%$ m.v. + 20 digits)
30.0...299.9 V	0.1 V	$\pm(2\%$ m.v. + 6 digits)
300...600 V	1 V	$\pm(2\%$ 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  
WAADAUSOR1

## 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".