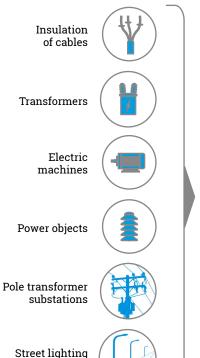


## MIC-5010 / 5005

index: WMGBMIC5010 / WMGBMIC5005













# Insulation resistance measurements: go premium

5 kV

maximum measuring voltage 15 ΤΩ

maximum measurement range



remote control by phone

### Features

power cables

- Measuring voltage in the range of 50...5000 V, 50...1000 V in steps of 10 V, 1...5 kV in steps of 25 V
- Continuous indication of measured insulation resistance and leakage current
- · Automatic discharge of measured object capacitance voltage after the end of insulation resistance measurement
- Acoustic signalling of 5-second intervals to facilitate capturing time characteristics
- Adjustable measuring time max. 99'59"
- Metered T<sub>1</sub>, T<sub>2</sub> and T<sub>3</sub> test times for measuring one or two absorption coefficients from the range of 1...600 s
- Measurement of coefficients: polarisation (PI), absorption Ab1, Ab2, dielectric absorption ratio (DAR)
- Indication of actual test voltage during measurement
- Test current: 1.2 mA or 3 mA
- Two- and three-lead method of insulation resistance measurement
- Measurements with test leads up to 20 m
- Protection against measuring live objects
- Measurement of capacitance during the measurement of R<sub>iso</sub>
- Step voltage insulation resistance measurement (SV)
- Dielectric Discharge calculation (DD)
- Digital filters for measurements with strong interferences

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### **Additional features**

- Continuity measurement of protective connections and equipotential bonding in accordance with EN 61557-4 with current > 200 mA (MIC-5010)
- · Adjustable limits for measured insulation resistance (MIC-5010)
- Adjustable limits for measured  $R_{\text{CONT}}$  resistance (MIC-5010)
- High resistance to interferences digital filters (10 s, 30 s, 60 s)
- Measurement of capacitance during the measurement of  $R_{\rm ISO}$
- Measurement of leakage current during insulation resistance testing
- 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 Bluetooth) or via USB cable
- · Power supply from mains or battery pack
- · Backlit display
- Backlit keys (MIC-5010)
- The instruments meet the requirements of the EN 61557 standard

#### **Comparison of meters** MIC-5010 MIC-5005 5000 V 5000 V maximum measuring voltage 15 ΤΩ 15 ΤΩ maximum measuring range resistance to external interference voltages up to 500 V up to 500 V advanced, digital interference filtration 10 / 30 / 60 seconds 10 / 30 / 60 seconds continuity measurement of protective conductors √ backlit keys



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#### Insulation resistance measurement

• Measuring range according to IEC 61557-2

$R_{ISOmin} = U_{ISOnom} / I_{ISOmax} = 50 \text{ k}\Omega15.0 \text{ T}\Omega (I_{ISOmax} = 1.2 \text{ mA or 3 mA})$					
Display range	Resolution	Accuracy			
0999 kΩ	1 kΩ				
1.009.99 ΜΩ	0.01 ΜΩ				
10.099.9 ΜΩ	0.1 ΜΩ	. (20/ 10 dinita)			
100999 ΜΩ	1 ΜΩ	- ±(3% m.v. + 10 digits)			
1.009.99 GΩ	0.01 GΩ				
10.099.9 GΩ	0.1 GΩ				
100999 GΩ	1 GΩ	±(3.5% m.v. + 10 digits)			
1.009.99 ΤΩ	0.01 ΤΩ	±(7.5% m.v. + 10 digits)			
10.015.0 ΤΩ	0.1 ΤΩ	±(10% m.v. + 10 digits)			

#### Capacitance measurement

Display range	Resolution	Accuracy		
0999 nF	1 nF	±(5% m.v. + 5 digits)		
1.0049.99 uF	0.01 uF			

- Capacitance measurement result is displayed after the  $\mathbf{R}_{\mathrm{ISO}}$  measurement
- For measurement voltages below 100 V the measurement error is not specified

Values of measured resistance depending on measuring voltage

U <sub>iso</sub> voltage	Measuring range
250 V	500 GΩ
500 V	1 ΤΩ
1000 V	2.00 ΤΩ
2500 V	5.00 ΤΩ
5000 V	15.0 ΤΩ

Continuity test with current >200 mA (MIC-5010 only)

• Measuring range according to IEC 61557-2: 0.12...999  $\Omega$ 

Display range	Resolution	Accuracy
0.0019.99 Ω	0.01 Ω	±(2% m v + 2 digita)
20.0199.9 Ω	0.1 Ω	±(2% m.v. + 3 digits)
200999 Ω	1 Ω	±(4% m.v. + 3 digits)

- Current flowing bidirectionally, average resistance is displayed on the screen
- · Compensation of test leads resistance, autozeroing

## **Technical specification**

type of insulation acc. to EN 61010-1 and IEC 61557	double
measurement category acc. to EN 61010-1	IV 600 V (III 1000 V)
ingress protection acc. to EN 60529	IP67 (IP40 for open case)
power supply	Li-lon 14.8 V rechargeable battery from network 90 V ÷ 260 V, 50 Hz/60 Hz
dimensions	390 x 308 x 172 mm
weight	approx. 5.6 kg
storage temperature	-25°C+70°C
operating temperature	-20°C+50°C
humidity	20%90%
operating altitude	≤3000 m
reference temperature	+23°C ± 2°C
reference humidity	40%60%
display	segment LCD
number of R <sub>iso</sub> measurements with battery power supply	min. 1000 acc. to EN 61557-2
data transmission	USB and Bluetooth
quality standard	ISO 9001, ISO 14001, PN-N-18001 compliant
device meets the requirements of standards	EN 61010-1 and IEC 61557

the product meets EMC requirements (immunity for industrial environment)

with accordance to standards EN 61326-1 and EN 61326-2-2



Please see available applications with "Virtual Instruments Applications". They allow to check the functions of the meter and its interface before the purchase. Application user may set changes in device settings and perform all possible measurements as in reality.

https://www.sonel.pl/en/virtual-instrument-applications

<u>"m.v." - m</u>easured value

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## Standard accessories



Test lead 1.8 m 11 kV (banana plugs) blue

WAPRZ1X8BUBB10K



Test lead 1.8 m 11 kV (banana plugs, shielded) black

WAPRZ1X8BLBBE10K



Test lead 1.8 m 11 kV (banana plugs) red

WAPRZ1X8REBB10K



Crocodile clip, blue, 11 kV, 32 A

WAKROBU32K09



Crocodile clip, black, 11 kV, 32 A

WAKROBL32K09



Crocodile clip, red, 11 kV, 32 A

WAKRORE32K09



Mains power cable Uni-Schuko / IEC C13 plug

WAPRZ1X8BLIEC



Pin probe 11 kV (banana socket) black

WASONBLOGB11



Pin probe 11 kV (banana socket) red

WASONREOGB11



**USB** cable

WAPRZUSB



W1 hanging straps

WAPOZSZE5



L4 carrying case

WAFUTL4



Calibration certificate

## **Optional accessories**



Test lead 11 kV (banana plugs) blue 3 / 5 / 10 / 20 m

WAPRZ003BUBB10K WAPRZ005BUBB10K WAPRZ010BUBB10K WAPRZ020BUBB10K



Test lead 11 kV (banana plugs, shielded) black 3 / 5 / 10 / 20 m

WAPRZ003BLBBE10K WAPRZ005BLBBE10K WAPRZ010BLBBE10K WAPRZ020BLBBE10K



Test lead 11 kV (banana plugs) red

3/5/10/20 m

WAPRZ003REBB10K WAPRZ005REBB10K WAPRZ010REBB10K WAPRZ020REBB10K



CS-5kV calibration box

WAADACS5KV



PRS-1 resistance test probe

WASONPRS1GB



PC software: Sonel Reader

WAPROREADER



Calibration certificate issued by an accredited laboratory

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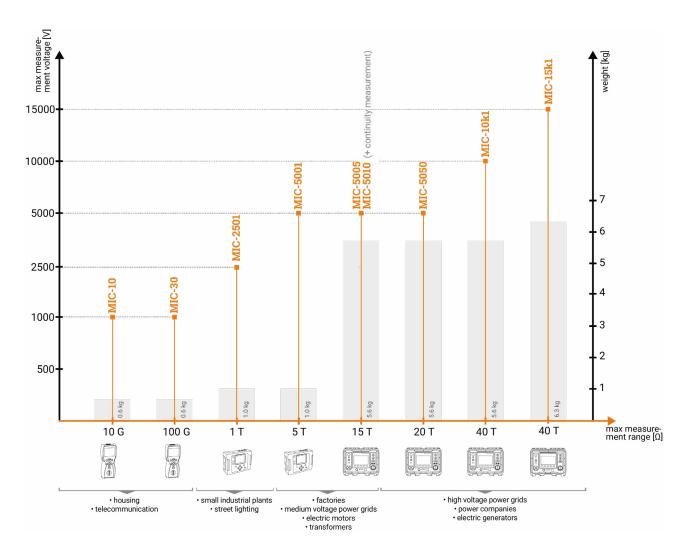
Times of charging and discharging the tested object at measuring voltage of 1.05  $U_{\rm Iso}$  –

Meter	Measuring voltage			Capacitance	Charging the object		Discharging the object
	5 kV	10 kV	15 kV	[μF]	Current [mA]	Maximal time [s]	down to voltage of 50 V [s]
MIC-5005 / MIC-5010	√			1	1.2	4.3	
					3	1.7	0.4
				1	1.2	4.3	0.4
MIC-5050	√				3	1.7	
					6	0.8	
					1.2	4.3	
	√			1	3	1.7	0.9
MIO 101.1					6	0.8	
MIC-10k1				1	1.2	8.7	
		√			3	3.5	1.0
					6	1.7	
				1	1.2	4.3	
	√				3	1.7	1.1
					5	1.0	
					7	0.7	
					10	0.5	
		√		1	1.2	8.7	1.3
					3	3.5	
MIC-15k1					5	2.1	
					7	1.5	
					10	1.0	
					1.2	13.1	
					3	5.2	
		√	√	√ 1	5	3.1	1.4
					7	2.2	
					10	1.5	1

Times of charging and discharging the tested object at measuring voltage of 1.025  $\mathbf{U}_{\mathrm{ISO}}$ 

Meter	Measuring voltage		Capacitance	Charging the object		Discharging the object	
	5 kV	10 kV	15 kV	[µF]	Current [mA]	Maximal time [s]	down to voltage of 50 V [s]
MIC-5005 / MIC-5010	,			1	1.2	4.2	0.4
	√				3	1.7	0.4
			1		1.2	4.2	
MIC-5050	√			1	3	1.7	0.4
					6	0.8	
					1.2	4.2	
	√			1	3	1.7	0.9
MIC-10k1					6	0.8	
MIIC-TUKT					1.2	8.5	
		√		1	3	3.4	1.0
					6	1.7	
				1	1.2	4.2	
	√				3	1.7	
					5	1.0	1.1
					7	0.7	
					10	0.5	
		√		1	1.2	8.5	1.3
					3	3.4	
MIC-15k1					5	2.0	
					7	1.4	
					10	1.0	
					1.2	12.8	
					3	5.1	
			√	1	5	3.0	1.4
					7	2.1	
					10	1.5	

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