

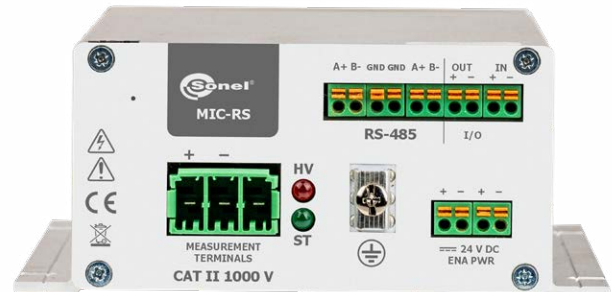
CAT II

1000 V

version with
RS-232 interface



version with
RS-485 interface



MIC-RS-SCP

communication
protocol

OR

MODBUS

communication
protocol

MODBUS

communication
protocol

Designed for the industry



Features

- Measurement voltage selected within the range of **50...1000 V**
- Automatic discharge of the measured object's capacitance upon completion of insulation resistance measurement
- Measurement current $\leq 2 \text{ mA}$
- Protection against measurement of live objects
- Two-lead method of insulation resistance measurement

Additional features

- Capacitance measurement after measurement of R_{ISO}
- Low-voltage measurement of resistance
- RS-232 or RS-485 interface
- Data transmission to a controlling device through the MIC-RS-SCP or Modbus communication protocol
- External power supply
- The instrument meets the requirements laid down by standard EN IEC 61557

Variants

Model	Interface	Communication protocol	Index
MIC-RS	RS-232	MIC-RS-SCP	WMGBMICRS232
MIC-RS	RS-232	Modbus	WMGBMICRS232M
MIC-RS	RS-485	Modbus	WMGBMICRS485M

It is possible to prepare a version of the meter with the interface and communication protocol requested by the customer.



Application

The instrument is dedicated for companies and sites, in which continuous or random assessment of the insulation resistance is required as part of production. It is also perfect for automated production systems.

The meter can be installed in the distribution board, at the operator's station (assembly or quality control bench), in the control cabinet or even in the rack enclosure. The measurement is performed by means of clamps, used to connect the test leads of the system, in which the instrument is installed.

Features

The meter is designed for building in/permanent installation. It plays a Secondary/Slave role, meaning that it executes the commands issued by the Main/Master control device and it does not initialise the transmission on its own. It enables measuring the insulation resistance with the test voltage of up to 1000 V.

The scope set of functions of the meter is tailored to specialised applications. With the **AutoRange** function, available in two versions, the instrument can switch the test voltage dynamically and adjust it to the current conditions.

There are two measurement modes available: **automatic** (continuous) and **manual** (one-time). Under automated testing, the meter can be programmed to measure the capacity or not. In addition, **the user may define the default function** of the device as the measurement of insulation resistance (R_{ISO}), or low resistance (R_X).

Response and communication

The functionality of the instrument is extended by digital input and output. This enables the meter to respond to the events in the system, in which it operates.

The meter is operated from the Main/Master control device by means of the **MIC-RS-SCP serial communication protocol** or **Modbus protocol**. It enables, for example, starting and stopping the measurement of resistance, reading the measurement result or changing the configuration of the instrument.

Objective: Industry 4.0

The meter is engineered for seamless integration with leading automation and energy management platforms (e.g., systems based on Schneider Electric's EcoStruxure architecture). Utilizing the industry-standard Modbus RTU protocol over an RS-485 bus, it enables:

- **PLC and SCADA integration** – direct connectivity to Programmable Logic Controllers (PLCs) and SCADA visualization systems allows for centralized data acquisition and analysis.
- **Automation and predictive maintenance** – remote measurement control (start/stop, continuous mode) and real-time data retrieval support the transition from preventive to predictive maintenance strategies,
- **Flexibility and scalability** – the implementation of Modbus RTU simplifies the deployment of meters in both new and retrofitted Medium Voltage (MV) switchgear, ensuring continuous monitoring of the insulation status of critical equipment.

This approach ensures not only high technical reliability but also tangible operational benefits and compliance with modern industrial infrastructure management standards.

Specifications

Measurement functions	Measurement range	Reading range	Resolution	Accuracy ±(% m.v. + digits)
Insulation resistance				
Measuring voltage 500 V $I_{ISO_{nom}} = 2 \text{ mA} + (-0.8...0 \text{ mA})$	500 kΩ...2.00 GΩ acc. to IEC 61557-2	1.00 kΩ...2.00 GΩ	from 0.01 kΩ	from ±(3% m.v. + 8 digits)
Measuring voltage 1000 V $I_{ISO_{nom}} = 2 \text{ mA} + (-0.8...0 \text{ mA})$	1000 kΩ...9.99 GΩ acc. to IEC 61557-2	1.00 kΩ...2.00 GΩ	from 0.01 kΩ	from ±(3% m.v. + 8 digits)
Capacitance measurement after R_{ISO} measurement	0 μF...9.9 μF	0 μF...9.9 μF	0.1 μF	±(5% m.v. + 6 digits)
Measurement of resistance with low current	0.0 Ω...999 Ω	0.0 Ω...999 Ω	from 0.1 Ω	from ±(3% m.v. + 4 digits)

Other technical data

Safety and work conditions

Type of insulation according to EN 61010-1 and IEC 61557	basic
Measuring category according to EN 61010	
rated operating altitude ≤2000 m	II 1000 V
Power supply of the meter	external, isolated 24 V DC (20...28 V DC) / 0.4 A / 10 W
Dimensions	55 x 130 x 215 mm
Meter weight	ca. 0.8 kg
Storage temperature	-20...+70°C
Operating temperature	-5...+50°C
Humidity	20...80%
Reference temperature	23 ± 2°C
Reference humidity	40%...60%

Memory and communication

Memory of measurement results	-
Data transmission	RS-232 or RS-485

Other information

Quality standard for design, construction and manufacturing compliant with	ISO 9001, ISO 14001, ISO 45001
The device meets the requirements of	EN 61010-1, EN IEC 61557, EN IEC 61010-2-030
The product meets EMC requirements (immunity for industrial environment) according to the following standards	EN IEC 61326-1, EN IEC 61326-2-2

Standard accessories



Factory calibration certificate

Optional accessories



Calibration certificate with accreditation

