

AMIC-15K1

Insulation resistance meters



40 TΩ, 15 kV and partial discharge indication

AMIC-15K1

15 kV insulation quality analyser

amperis

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Insulation quality analysis up to 40 TΩ with 15 kV test voltage and partial discharge indication.

Product overview



The AMIC-15K1 in its transport case with the lid open

Analysis beyond resistance

The AMIC-15K1 combines a highly efficient HV inverter — 15 kV of test voltage and up to 10 mA of current — with a measuring range of 50 kΩ to 40 TΩ per IEC 61557-2. With 15 kV, in line with the ANSI/NETA ATS-2009 tables, it tests objects rated above 34.5 kV, and the three-wire GUARD measurement eliminates the surface leakage caused by contaminated insulation.

Discharges, ramps and burnout

The partial discharge indicator (PDI) and the ramp test (RT), which raises the voltage smoothly and records the time and value at breakdown, join the standard IR, DAR, PI, SV and DD measurements. An inverter of about 150 W intensifies the potential damage point to locate faults visually, by reflectometric methods or with a seismic-acoustic detector.

Main features

- Partial discharge indicator (PDI) and breakdown voltage indication.
- IR, DAR, PI, SV, RT and DD diagnostic measurements.
- Uninterrupted work near lines up to 1200 kV AC and 500 kV DC.
- Digital filters with averaging of 10, 30, 60, 100 and 200 s.
- Automatic saving of results; USB and Bluetooth transmission.
- At least 1000 R_{ISO} measurements per battery charge.



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Applications and mobile analysis

Applications

- Single- and multi-core power cables.
- Transformers, motors and generators.
- Capacitors, switchgear and substation equipment.
- Electric rail vehicles and other power objects.
- Areas with very strong electromagnetic disturbances.

Mobile analysis

The AMIC Mobile application displays results and real-time graphs during the measurement and provides remote start and stop, so tests can be run from another room or from a vehicle in bad weather, with GPS location of the measuring point. Together with the Reader software it stores historical data, compares it with current results and prepares reports that track the degradation of the insulation.



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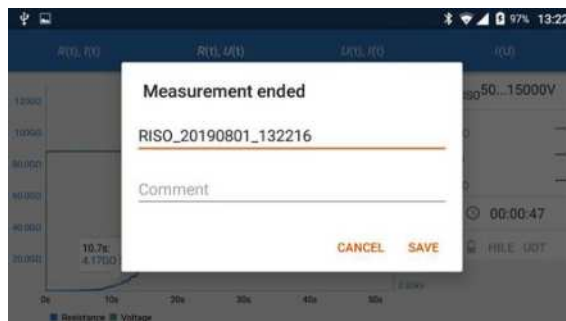
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The results stored in the meter become PC reports and live graphs on a mobile device.

Software & applications



Real-time resistance and current graphs in the mobile application during the test



Each result is saved with its own name and a comment at the end of the measurement

Reading and reports on the PC

The free PC reading software downloads the results stored in the memory of the AMIC-15K1 through the USB port or the Bluetooth link, keeps them organised by clients, sites and measuring points, and prints them or exports them to popular formats on any Windows computer. The stored history is compared with the current results to follow the ageing of the insulation and plan maintenance before a failure occurs.

AMIC Mobile application

The AMIC Mobile application connects a phone or tablet to the meter and shows the measurement as it happens: resistance and current graphs in real time, elapsed time and the diagnostic indices as they are computed. The test is started and stopped remotely — from another room or from a vehicle in bad weather — and each result is saved with a name, a comment and the GPS position of the measuring point.

What the software provides

- Complete download of the meter memory to the PC.
- Reports organised by client, site and measuring point.
- Export to popular formats for further analysis.
- Remote control and live graphs on the mobile device.

AMIC-15K1 – TECHNICAL SPECIFICATIONS

Measuring range	50 kΩ...40.0 TΩ per IEC 61557-2 ($U_N = 15$ kV)
Test voltage	Up to 15 kV; step (SV) and ramp (RT) modes
Test current	Up to 10 mA; HV inverter of approx. 150 W
Basic accuracy	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$; up to $\pm(12.5\%)$ at 40 TΩ
Diagnostics	PDI, IR, DAR, PI, SV, RT, DD; breakdown voltage
Capacitance measurement	0...999 nF and 1.00...49.99 μF; $\pm(5\% + 5 \text{ digits})$
Digital filter	Averaging of 10 / 30 / 60 / 100 / 200 s
Interference immunity	Voltages up to 1550 V; currents up to 10 mA
Memory and interface	Automatic saving of results; USB and Bluetooth
Power supply	14.8 V Li-Ion battery; mains 90-260 V, 50/60 Hz
Autonomy	At least 1000 R_{ISO} measurements per EN 61557-2
Safety	CAT IV 1000 V (≤ 2000 m); double insulation
Protection class	IP67 (IP40 with the case open), per EN 60529
Operating conditions	-20...+50 °C; humidity 20-90 %; ≤ 3000 m
Dimensions and weight	390 × 308 × 172 mm; approx. 6.3 kg
Standards	EN 61010-1, IEC 61557, EN 61326-1, EN 61326-2-2



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AMIC-15K1 – MEASUREMENT DATA

Insulation resistance measurement

Measuring range acc. to IEC 61557-2 for $U_N = 15\,000\text{ V}$: 50 k Ω ...40.0 T Ω . Measurement with DC and increasing (SV) voltage.

U_{ISO}	Range	Resolution	Accuracy
5 kV	0...999 k Ω	1 k Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	1.00...9.99 M Ω	0.01 M Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	10.0...99.9 M Ω	0.1 M Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	100...999 M Ω	1 M Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	1.00...9.99 G Ω	0.01 G Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	10.0...99.9 G Ω	0.1 G Ω	$\pm(3\% \text{ m.v.} + 10 \text{ digits})$
5 kV	100...999 G Ω	1 G Ω	$\pm(3.5\% \text{ m.v.} + 10 \text{ digits})$
5 kV	1.00...9.99 T Ω	0.01 T Ω	$\pm(7.5\% \text{ m.v.} + 10 \text{ digits})$
$\geq 10\text{ kV}$	10.0...20.0 T Ω	0.1 T Ω	$\pm(12.5\% \text{ m.v.} + 10 \text{ digits})$
$\geq 15\text{ kV}$	10.0...40.0 T Ω	0.1 T Ω	$\pm(12.5\% \text{ m.v.} + 10 \text{ digits})$

Test currents I_{ISO} : 1.2 / 3 / 5 / 7 mA; maximum short-circuit current 10 mA.

AC/DC 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...1500 V	1 V	$\pm(2\% \text{ m.v.} + 2 \text{ digits})$

Frequency range: 45...65 Hz.

"m.v." – measured value.

Ranges of measured resistance depending on the test voltage

Voltage U_{ISO}	Measuring range
50 V	200 G Ω
100 V	400 G Ω
250 V	1.00 T Ω
500 V	2.00 T Ω
1000 V	4.00 T Ω
2500 V	10.00 T Ω
5000 V	20.0 T Ω
10 000 V	40.0 T Ω
15 000 V	40.0 T Ω

Leakage current measurement

Range	Resolution	Accuracy
1 pA...99 pA	1 pA	$\pm(1.5\% \text{ m.v.} + 20 \text{ digits})$
0.01...9.99 nA	0.01 nA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
10.0...99.9 nA	0.1 nA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
100...999 nA	1 nA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
1.00...9.99 μA	0.01 μA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
10.0...99.9 μA	0.1 μA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
100...999 μA	1 μA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$
1.00...9.99 mA	0.01 mA	$\pm(1.5\% \text{ m.v.} + 2 \text{ digits})$

Capacitance measurement

Range	Resolution	Accuracy
0...999 nF	1 nF	$\pm(5\% \text{ m.v.} + 5 \text{ digits})$
1.00...49.99 μF	0.01 μF	$\pm(5\% \text{ m.v.} + 5 \text{ digits})$

The capacitance value is displayed after the R_{ISO} measurement.

For test voltages below 100 V the measurement error is not specified.



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