

GE
Inspection Technologies

AutoSigma 3000

Electrical Conductivity Meter



GE imagination at work

Accurate Measurement Every Time

Measurement of Electrical Conductivity is an accurate and repeatable method for checking non-ferrous metals for identity, grade and material conditions. The AutoSigma 3000 gives accurate operation in an easy to use package that is both light and rugged.

The Instrument

The AutoSigma 3000 is designed for operator convenience. The lightweight, battery powered unit is easy to carry and easy to hold during inspections. A large character, backlit display makes reading easy even in low light conditions.

The AutoSigma 3000 has two alternative operating frequencies. The 500 kHz frequency allows inspection of thin materials using the standard probe. The 60 kHz setting is the aerospace industry standard.

Low power circuitry gives up to 100 hours of operation from a single set of alkaline batteries, whilst temperature and lift-off compensation ensure the accuracy of each measurement.

Flexibility of operation is also improved with the AutoSigma 3000 - the user can exchange probes in the field, without the need to return the unit to base for probe matching. This system allows the instant replacement of damaged probes, and an easy transfer between the different diameter probes available.

The AutoSigma 3000 has an in-built data-logger facility, allowing the recording of up to 500 readings, the unit can also be connected to a PC for fuller report generation.

Applications

The AutoSigma 3000 has many applications within the field of electrical conductivity testing. It is suitable for:

- Alloy identification and verification
- The verification of heat treatment during manufacture and to detect in-service heat damage (e.g. in aircraft)
- The detection of changes in material grade
- Metal sorting
- Determination of the density of powder metal parts
- To measure the electrical conductivity of material (wire, bus bars and conductors) during production and in-service

Technical Specifications

Inspection Technology	Eddy Current
Operating Frequencies	60 kHz sinewave and 500 kHz sinewave
Display	LCD with selectable backlight
Size	165 L x 76 W x 41 D mm
Construction & Storage	High impact, splash proof, polycarbonate case. Leather carrying case with strap. Protective case to hold unit, probes, probe cable, operator handbook, and carrying case.
Weight	0.4 kg (0.9 lbs) including batteries
Power	3 x 1.5 V AA Alkaline Batteries, Approx 100 hrs life without backlight
Conductivity Standards	On top of unit. Removable for value verification, and ensuring thermal equilibrium.
Conductivity Range	0.8 % IACS to 110 % IACS, 0.45-64 MS/m
Resolution	10 to 110 % IACS, reading 10.0 to 110.0 (1 dec. places)
Lift Off	12.7 mm probe compensated to 0.020" (0.5mm) 8 mm probe compensated to 0.010" (0.25 mm)
Accuracy	At 20 °C At 10 % IACS: ±0.1 % IACS At 100 % IACS: ±0.5 % IACS Over Range 0-40°C At 10% IACS: ±0.2% IACS At 100% IACS: ±0.8% IACS Probe in thermal equilibrium with metal.
Temperature Measurement	In-probe sensor (accurate to 0.5 °C) Range 0 °C to +50 °C
Automatic Compensation	Conductivity measurements are corrected to the 20°C value.
Environmental Range	0 to 95% relative humidity, 0°C to +50°C for reliable operation
Data Logger Memory	Up to 500 readings. Up to 50 files.
Probes	12.7 mm diameter for 60 kHz and 500 kHz. 8 mm probe operates at 500 kHz only. Probes are interchangeable with simple operator re-setting procedure. Replacement probes may be installed by user.
Accessories	Operator Reference Blocks - A range of traceable conductivity references are available for in-field use. Up to five can be mounted on an aluminium anodised holding plate.



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GE Inspection Technologies provides technology-driven inspection solutions that deliver productivity, quality and safety. We design, manufacture and service ultrasonic, remote visual, radiographic and eddy current equipment and systems. We offer specialized solutions that will help you improve productivity in your applications in the aerospace, power generation, oil & gas, automotive or metals Industries.

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