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

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|---|---|
| **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<br>At 10 % IACS: ±0.1 % IACS<br>At 100 % IACS: ±0.5 % IACS<br><br>Over Range 0-40°C<br>At 10% IACS: ±0.2% IACS<br>At 100% IACS: ±0.8% IACS<br>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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