

AutoSigma 3000

Electrical Conductivity Meter



- Reads in % IACS or MS/m
- User selectable frequency - 60 kHz or 500 kHz
- User exchangeable probes
- All readings compensated to 20 °C value
- 500 reading data logger with PC connectivity



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 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.

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 a unit that has been 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