SigmaCheck

Fully Featured Eddy Current Conductivity Meter

ETHER NDE

SigmaCheck

Introducing The SigmaCheck

APPLICATIONS

- Material Verification / Metal Sorting.
- Heat Treatment Verification.
- Heat or Fire Damage Investigation.
- Non-conductive Coating Thickness Measurement.
- Determining the Purity Composition of Materials. I.e. Gold Bullion and Coins, Bar Stock.
- Aircraft Structures. E.g. Paint Thickness Measurement
- Assessment of Ageing of Aluminium Profiles.

The SigmaCheck Eddy Current Conductivity Meter is designed to give accurate conductivity measurements while offering the user the very best in reliability, usability, technology and cost-effectiveness.

The SigmaCheck is extremely user friendly and can just as easily be operated by a semi-skilled Operator as by Experts. It will be equally at home in the Aerospace, Metals Processing, Casting, Maintenance and Quality Assurance industries as well as appealing to Heat Treatment Specialists and those determining the purity of materials such as gold bullion and coins.

SigmaCheck

1:1 Image

This image shows the SigmaCheck at its actual size.

SigmaCheck

Advantages

ADVANTAGES

- High Resolution Colour Display (2.8”, 320 pixels by 240 pixels).
- Accurate Conductivity Range (0.5% IACS to 110% IACS, 0.28-64 MS/m).
- Wide range of Frequencies for testing thin materials (60kHz, 120kHz, 240kHz, 480kHz). Option of 960kHz.
- Non-conductive Coating Thickness Measurement display up to 0.5mm.
- Lightweight (350 grams / 12 oz). Ergonomic Slim-Line Case design and easy to hold Probe with adjustable finger-grip.
- Two-Year Warranty on Instrument (excludes batteries).

KEY BENEFITS

- User programmable display.
- 2GB of data storage. Able to store over one million data points.
- Uploaded data can be viewed using MS Excel.
- Intelligent charger via USB Port or AC Supply.
- Multiple languages available. E.g. English, German, French, Spanish.
- Excellent resistance to “edge effect”.
- Rapid Display of Conductivity Results.
- Battery life (upto 6 hours).
- Firmware can be upgraded in field.
- Different probes may be configured by loading the appropriate probe map from SD Card.
- Real-time clock for time and date so that readings can be “stamped”.
- Real-time PC control via USB or optional RS232 link.

SigmaCheck

Key Features

HIGH RESOLUTION DISPLAY

The full colour 2.8" LCD display screen is 320 x 240 pixels providing excellent resolution and displaying conductivity and lift-off results with up to three decimal places precision. The display features an adjustable LED backlight allowing the Operator to set their required screen brightness. The Operator can also customise both the background colours and text colours to meet their personal preference.

RAPID DISPLAY OF CONDUCTIVITY RESULTS

The SigmaCheck offers a choice of five frequencies (60, 120, 240, 480 and 960kHz) to allow the testing of a wide range of material thicknesses. The SigmaCheck is noted for rapid display of conductivity results.

EXCELLENT DATA REPORTING AND BATTERY LIFE

ETher NDE also offer Field Exchangeable Probes with their configuration provided via micro SD Card or PC download via USB for the SigmaCheck. This removes the need for the Instrument to be sent back for matching with the Probe. By using a card reader or our PC Software, the new data for the Probe can simply be copied onto the SD Card in the Instrument, speeding up this process even further.

USB PC Connectivity is built into the SigmaCheck for remote control and data logging. The USB Connection also offers real time data acquisition as well as eliminating any complicated driver installation. In addition, the USB Connection allows easy charging of the Instrument without having to swap the batteries.

LIGHTWEIGHT AND ERGONOMICALLY DESIGNED

Weighing 350 grams (0.77 pounds) including batteries and measuring 163mm Long, 80mm Wide and 25mm Deep, the SigmaCheck is compact and extremely lightweight. Housed in a sculpted case with a detachable flexible open-faced removable silicon rubber boot, the SigmaCheck is designed to be fully hand-held. Further, the standard Probe has been designed to fit the hand well. Not only is the SigmaCheck very accurate, its ergonomic design makes it a delight to use.

Understanding Conductivity

Electrical conductivity is the measurement of a materials ability to conduct an electric current. This is the inverse of electrical resistivity, measuring a materials ability to resist an electric current.

Conductivity in metal is established using Ohm's Law, which states that current through a conductor between two points, is directly proportional to the potential difference across the two points. The resistance of the material, which is a constant for that material, allows the usual mathematical equation for this relationship to be true.

Conductivity Test BLock Holder.

Holds 5 Conductivity Test Blocks and 1 Dual Conductivity Reference Standard (Part number: ASIG003).

Ohms Law Equation:

$$I = \frac{V}{R}$$

I = Current (Amps)

V = Voltage (Volts)

R = Resistivity (ohms)

Electrical Conductivity Equation:

$$\sigma = \frac{l}{RA}$$

OR

$$R = \frac{l}{\sigma A}$$

l = length (cm)

A = Area (cm^2)

R = Electrical Resistance of a uniform specimen of the material (ohms)

σ = Conductivity ($ohm^{-1}\,cm^{-1}$)

Conductivity is widely used to indicate material type and determine the state of heat treatment.

In order to give accurate readings the SigmaCheck uses a three-point reference method. The first measurement with the probe in the air and then two further measurements are required which span the range of interest.

The SigmaCheck is supplied with a detachable reference piece with two standards that span the range of commonly used metals.

ETher NDE also manufacture individual conductivity test blocks which may be used to match the clients own testing requirements. We can also provide a handy test block holder that can house up to five of these test blocks at any one time as shown above.

SigmaCheck

Specification and Extras

Standard Kit

Optional Extras Available

Inspection Technology	Eddy Current.
Operating Frequencies	60 kHz, 120 kHz, 240 kHz, 480 kHz, 960 kHz.
Conductivity Range	0.5 % IACS to 110 % IACS, 0.28-64 MS/m
Accuracy	At 20 °C. At 10 % IACS: ±0.1 % IACS. At 100 % IACS: ±0.5 % IAC Over Range 0-40°C: At 10% IACS: ±0.2% IACS. At 100% IACS: ±0.8% IACS Probe in thermal equilibrium with metal.
Display Resolution	Up to 3 decimal places
Lift Off	13 mm probe compensated to 0.020" (0.5mm) 7 mm probe compensated to 0.010" (0.25 mm)
Temperature Measurement	In-probe sensor (accurate to 0.5 °C) Range 0 °C to + 50 °C
Automatic Temperature 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
Display	2.8" (70mm) 320 x 240 pixels colour display. LCD with selectable backlight.
Construction & Storage	High impact, splash-proof, moulded UL94-5VA flame-retardant ABS case. Protective rubber boot to protect the unit, probes, probe cable, operator manual on USB, and removable stand.
Conductivity Standards	On top of unit. Removable for value verification, and when attached ensures thermal equilibrium.
Power	2 x 1.5 V AA NiMH Batteries, Approx up to 6 hrs life. Can also use non-rechargable AA cells.
Size	163mm Long x 80mm Wide x 25mm Deep
Weight	350g (0.77 pounds) including batteries
Data Logger Memory	Removable 2GB micro SD Card allowing over 1 million readings to be stored.
PC Connectivity	USB port for charger and PC communications
Probes	12.7 mm diameter for 60 kHz to 480 kHz. 7 mm probe operates at 480 kHz & 960 kHz. Probes are interchangeable with simple operator resetting procedure. Probes are field exchangable and do not require return to manufacturer for calibration.
Accessories	Settings Reference Blocks - A range of conductivity references standards tracable to US and European standards are available for in-field use. Up to five can be mounted on an aluminium anodised holding plate.

Product Part Numbers

KISIG001: Kit, Instrument, SigmaCheck Conductivity Meter.
ASIG001: Accessory, Dual Conductivity Reference Standards, Nominal Values 2.5% and 102% IACS (SigmaCheck).
ASIG002: Accessory, Instrument Stand (SigmaCheck).
ASIG004: Accessory. Hard Peli 1400 Case with custom shaped foam inserts (SigmaCheck).
PSIG001: Probe, Conductivity, Dia 13.00mm, Straight, Lemo 5-Way (SigmaCheck).
ALL05-L05-012-SIG: Accessory, Lead, 5-Way Lemo to 5-Way Lemo, 1.2m (SigmaCheck).
PSIG002: Probe, Conductivity, Dia 7.00mm, Straight, Lemo 5-Way (SigmaCheck)

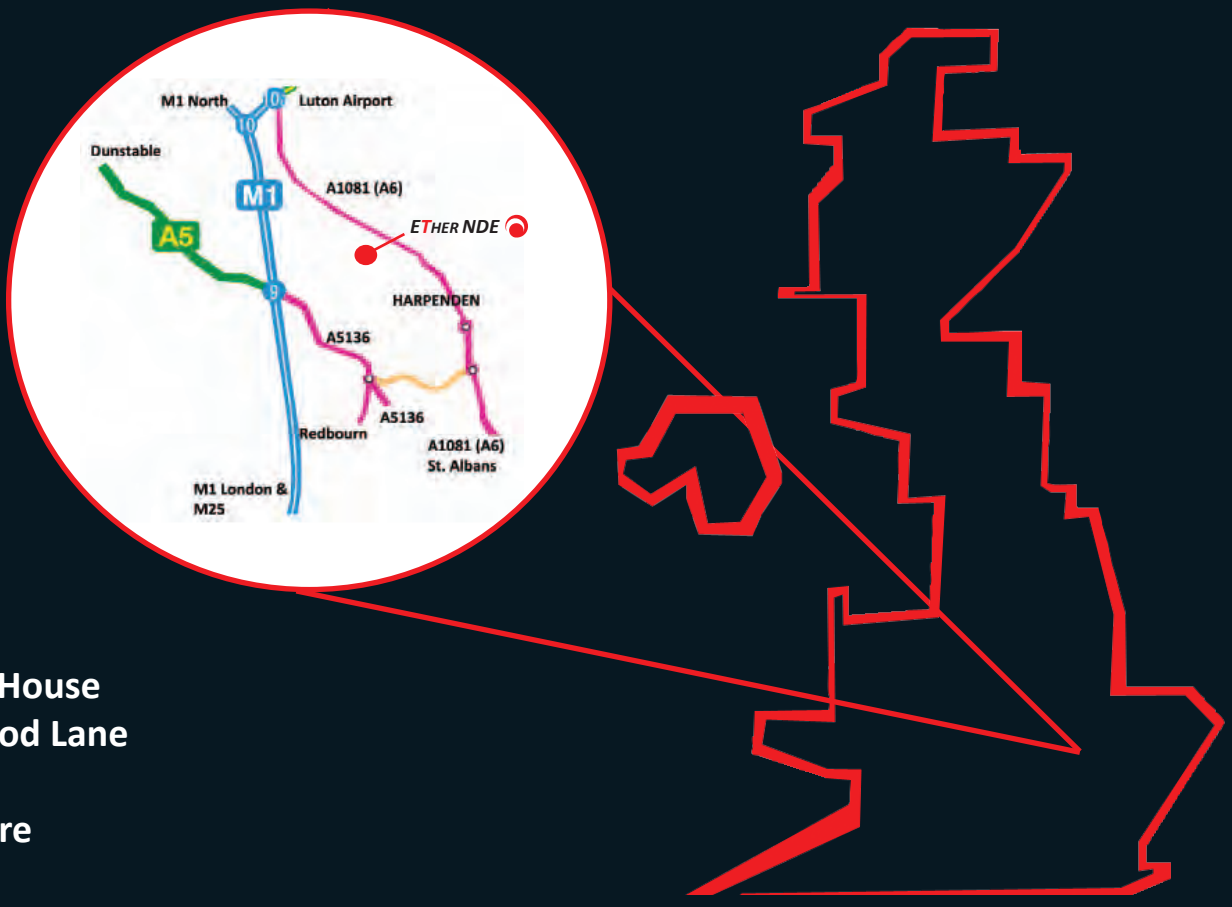
ETHER NDE continually strives to provide innovative solutions to eddy current testing in all possible inspection conditions.

Offering a range of innovative eddy current testing instruments and probes, *ETHER NDE* will endeavour to find the solution that best fits our clients specific needs.

At *ETHER NDE* we pride ourselves on our ability to remain client focussed, conducting our business with three simple promises to you:

1. The ability to speak to someone who understands our products and your application.
2. Industry leading delivery on goods and the ability to respond to your challenges.
3. That our products are second to none in both performance and quality.

Founded by John Hansen and Mike Reilly and supported by a skilled team, *ETHER NDE* boasts over 150 years of collective experience in non-destructive testing. Forward thinking and client responsive, *ETHER NDE* is the wise choice for all your eddy current testing needs.



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