ETHER NDE

AEROCHECK 3

Aerospace Dual Channel/Frequency Eddy Current Flaw Detector

- The AeroCheck 3 Flaw Detector offers the very best in Eddy Current Performance with rotary inspection C-Scan capabilities as standard.
- 3 year Warranty. Increase to 6 years with optional ETherCover which includes free annual calibration.
- Advanced features including Conductivity, Auto-Mix, Loop, Guides & Trace.
- Lightweight, ergonomic, rugged design.
- Thumbwheel option for rapid menu navigation.
- Toughened, anti-glare, crisp, daylight readable display, with screen protector.
- Designed to meet IP64, IP68 rated connectors.
- Over 7 hours battery life, fast 2.5 hrs charging time.
- Industry standard probe connectors.

The AEROCHECK 3 offers improved mechanical and ergonomic design delivering the best in Eddy Current performance, with rotary inspection capabilities as standard, together with variety of advanced features. Based on operator feedback and embracing the use of new materials, the AEROCHECK 3 delivers to the end-user enhanced ruggedness, a toughened screen, improved connector access and performance, combined with optional features such as an encoder wheel.

WIDE FREQUENCY RANGE

The single frequency AEROCHECK 3 has a single frequency and dual frequency range of 10Hz to 20MHz, ensuring a diverse range of real world applications can be met.

Area of Inspection: Fasteners
Probe: Low Frequency, Slider

Engine Blades & Discs
Probes: High Frequen-

Engine Mounts
Probes: High Frequency

INDUSTRY STANDARD PROBE CONNECTORS

The AEROCHECK series uses a wide range of eddy current probes meeting all the needs of the aerospace eddy current inspector. Absolute, Bridge and Reflection connected probes can use the industry standard 12 Way LEMO Connector. A LEMO 00 Connector is also provided for simpler connection of Absolute probes.

Horizontal Stabilisers
Probes: High & Low Frequency

Wings, Surface Hinges, Window Frames
Probes: High & Low Frequency, Rotary.

Wheels, Wheel Brakes, Landing Gear
Probes: High Frequency & Rotary

LIGHTWEIGHT, RUGGED, "SURE GRIP" & ENHANCED PROTECTION

The AEROCHECK 3 weighs just 1.15kg (2.54lbs) and has a blended polymer case, withstanding high levels of impact, oil exposure and UV resistance.

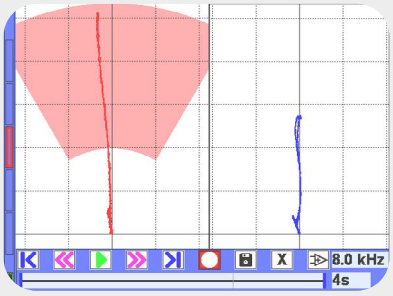
Over-moulded rubber gives the end-user improved handling of the instrument and enhanced grip, with or without gloves. Ergonomic handling is embodied within the case design and at the rear, moulded "bars" offer a more comfortable grip of the unit during long periods of use.

DAYLIGHT VISIBLE, CONFIGURABLE COLOUR SCREEN

The AEROCHECK 3 has a fully daylight readable 14.5cm LCD colour screen, 640 x 480 pixels, ensuring the operator has excellent signal resolution and presentation, no matter the working conditions. The screen has a 2mm thick anti-reflective polycarbonate protector sheet, delivering excellent impact and added UV protection.

RECORD AND REPLAY

Up to 164 seconds of live data may be recorded in real-time and then played back either on the instrument or on a PC using the desktop application ETherMap for subsequent analysis and review. The recorded data may be further optimised by adjusting many settings including Phase, Gain, Filters, Display and Spot position.

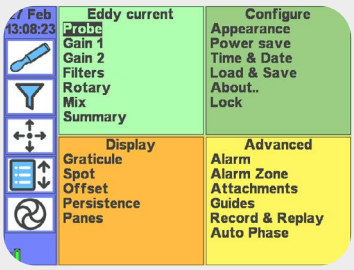


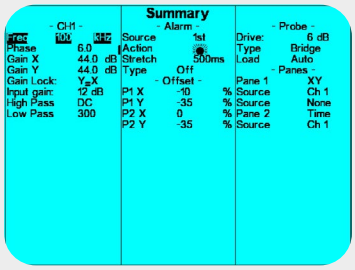
EASY TO USE MENUS & ICON SYSTEM

The AEROCHECK series menu system is simple and fast to navigate with the ability to add individually selectable soft key menu items to the sidebar as recognisable icons for rapid function access and a “quick-setting menu” for easy set-up, review and adjustment.

With four operator-selectable soft keys and a fifth slot for the last menu function used, Technicians can quickly modify the system with their preferences.

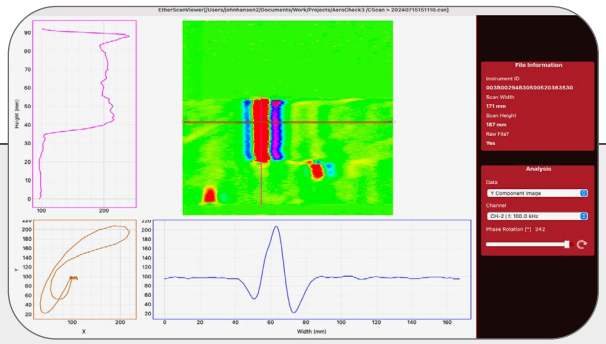
Each saved instrument setting can be associated with a unique, single press set of quick access soft keys. There are also two front panel hard keys that can be readily programmed for rapid single press access to frequently used functions.





Holes (Windows, Wings, Wheels, Fuselage)
Probe: High & Low Frequency, Rotary.

Area of Inspection: Fuselage
Probe: Surface & Sub-Surface



ROTARY C-SCAN CAPABILITIES AS STANDARD

The AEROCHECK 3 includes rotary capabilities as standard and can be used with the ETher Mercury (mini) ARD002, Hocking 33A100 or the Rohmann MR3/SR1 and SR2 Drives (with special adapter cable).

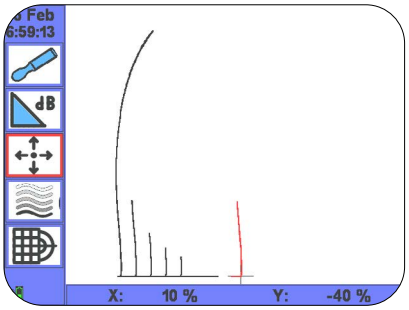
The new high resolution C-Scan feature gives an image of the inner diameter hole inspection. This image allows the individual layers in an inspected hole to be visualised. The data collected can be stored as a full data array with up to two frequencies. Further analysis both on the instrument and offline on a desktop PC is possible. Stored data may then be further analysed and optimised with the Gain and Phase being fully adjustable post-test to significantly increase the probability of detection and improve data interpretation. Up to 10,000 scans may be stored on the 32GB SD card.

"The AEROCHECK 3 Flaw Detector offers the very best in Eddy Current Performance with rotary inspection capabilities as standard"

ADVANCED FEATURES

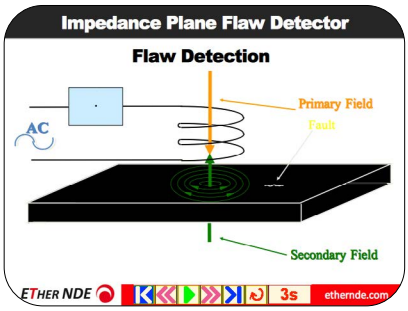
Trace Feature

The trace function allows a reference trace to be stored on the screen and appears along with the graticule behind the live spot, allowing the operator to readily compare the live data with the reference calibration.



Guides Feature

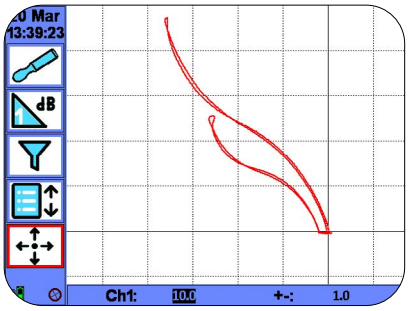
"Guides" allows the user to display a slide show that can be created easily with commonly used desktop software. The benefit of this feature is that instructions, tutorials and procedures for an inspection can be added to the AEROCHECK 3 very quickly and the NDT inspector can easily switch between the inspection itself and the "Guides" while performing a live test.



Loop Feature

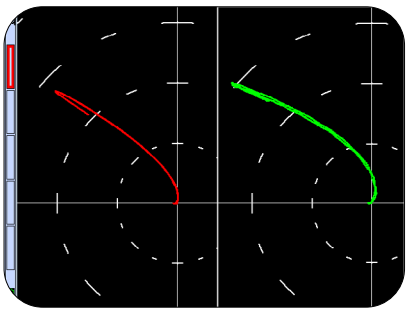
Loop is a convenient way of capturing a short live repetitive signal and then optimizing the instrument settings through real time adjustments of the Phase, Gain, Balance, Filters and Display Configuration in order to simplify the task of optimising the parameters.

The Loop function is excellent for calibration set-up especially for setting a Dual Frequency mix.



Dual Frequency / Channel Feature:

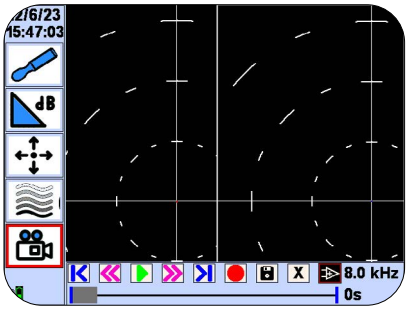
At different frequencies, different signal indications (e.g. lift off and defect) have a different relative phase and amplitude response. By means of Phase Rotation and Gain change of the X Y signal components one of these indications can be manipulated to be almost identical in phase and amplitude as the other and then by subtraction (mixing), the unwanted component is minimised, giving an improved detection of the required signal.



Auto-Mix Feature

A dual frequency mix exploits the phase and sensitivity change between two different types of indication to suppress one and enhance the other.

Auto-mix simplifies the sometimes complex procedure of mixing two different frequency signals and can be achieved on the AEROCHECK 3 through a series of easy steps. Once set up, the Auto-Mix itself is as simple as pressing one key.

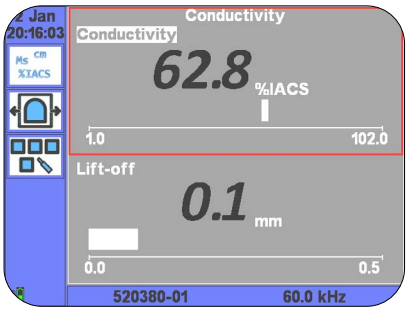


Conductivity Measurement

Many aerospace procedures require that Conductivity Measurement is available on the designated Eddy Current Flaw Detector.

When connecting the Conductivity Probe, the AEROCHECK 3 auto-detects the probe and seamlessly switches into conductivity mode. Removal of the probe switches the instrument back to flaw detection mode.

The Conductivity Measurement Option is available through the purchase of the KACON001 KIT, with no software fee.



AeroCheck 3 Specification

Probe	Connectors	12-Way Lemo 2B (IP68) (Absolute, Bridge and Reflection) and Connection Lemo 00 (IP68) (for single element absolute probes). Simultaneous probe operation possible using Lemo 12-Way and Lemo 00.			
	Rotary Drive	600-3000 rpm - EThер Mercury Drive (ADR002), Hocking 33A100, Rohmann MR3, SR1 & SR2 Drive (special adpater needed)			
	Conductivity	Option becomes active withuse of an AeroCheck Conductivity probe and cable (see end of spec table)			
Frequency	Single/Dual	Single	10Hz – 20MHz with range variable resolution.	Dual	10Hz - 20MHz
Gain	Overall	-18 to + 104 dB, 0.1, 1 and 6dB steps (104dB maximum) + Mix Gain (-18 to +18dB on Output)			
	Input	0dB or 12dB			
	Drive	- 6dB to 10dB in 1dB steps (0dB reference 1mW into 50 ohm)			
	Max X/Y Ratio	+/-100.0dB			
Phase	Range	0.0-359.9°, 0.1° steps			
	Auto Phase	Allows phase angle to be automatically set to a pre-set angle			
Filters	Normal High Pass	DC to 2kHz or Low Pass Filter, which ever is the lower in 1 Hz steps. Plus variable adaptive balance drift compensation 0.01 - 0.5 Hz (6 steps)			
	Normal Low Pass	1Hz to 2kHz or a quarter of the lowest test frequency, which ever is lower in 1 Hz steps			
Balance	Manual	14 internal balance loads; 2.2µH, 5.0µH, 6.0µH, 6.5µH, 7.0µH, 7.5µH, 8.2µH, 12µH, 15µH, 18µH, 22µH, 30µH, 47µH, 82µH			
	Automatic	Optimised balance load selection			
Alarms	Box & Sector	Both Alarm types are fully configurable, Freeze, Tone or Visual			
	Output	Open collector transistor (50v dc at 10mA max) available on 12-way Lemo			
Display	Type	145mm (5.7”), 18 bit Colour, daylight readable			
	Viewable Area	115.2mm (4.53”) (Horizontal) x 86.4mm (3.4”) (Vertical)			
	Resolution	640 x 480 pixels			
	Colour Schemes	User configurable Dark, Bright and Black & White			
	Configurable Screen	Full Screen, Single, Dual Spot or Dual Pane with variable size and location and function e.g. XY, Time-base, Waterfall and Meter.			
	Display Modes	Full Screen, Single, Dual Spot or Dual Pane with variable size and location and function e.g. XY, Time-base, Waterfall and Meter. Spot, Time base (0.1-20 seconds x 1-200 sweeps and up to 55 seconds), Waterfall and Meter with peak hold and % readout			
	Graticules	None, Grid (4 sizes 5, 10, 15 and 20% FSH), Polar (4 sizes 5, 10, 15 and 20% FSH)			
	Offset	Spot Position: Y =-50 to +50, X =-65 to +65%			
	Digital Spot	Display in X, Y or R,θ			
	Setting	Display/Edit of all settings in Legacy Format			
Removable Storage Data	Setup Storage	micro SD up to 32GB, holding over 10,000 settings			
	Stored Screen Shots	micro SD up to 32GB, holding over 10,000 screen shots			
	Shots	Comprehensive Record, Replay and Storage			
	Record Replay	Real-time recording of trace data and Replay on instruments and desktop PC up to 164 seconds			
Outputs	PC Connectivity	USB (Full PC remote control plus Real Time data)			
	Digital Volt Free Alarm	On Lemo 12-way Open collector transistor (36v dc at 10mA max)			
	VGA	Full 15 way VGA output			
Languages		English, French, Spanish, Italian, Portuguese, Russian, Japanese, Chinese, Turkish, Czech, Norwegian.			
Verification Level		The system includes on delivery a 2 year validity Verification Level 2 detailed functional Check and calibration, as per ISO 15548-1:2013.			
Power On Self Test		A “self test” on start-up is performed of external ram, accelerometer, Micro SD card, LCD screen buffer.			
Power	Battery	Internal 7.2V nominal @ 3100mAh = 22.32 watt.hr			
	Running Time	Over 7 hours with a 2MHz Pencil Probe and 50% backlight			
	Charging Time	2.5 hrs. charge time, simultaneous charge and operation			
	External	100-240v 50-60Hz 30 Watts			
	Connector	Lemo OS Hermaphroditic keying, half-moon insert (IP68)			
Physical	Weight	1.15 kg (2.54 lbs)			
	Size (w x h x d)	222.2mm x 152.2mm x 47.4mm (LxHxW) (8.75” x 6.0” x 1.87”)			
	Material	Main Body: PC-ABS a blend of the two polymers - Polycarbonate (PC) and Acrylonitrile Butadiene Styrene (ABS). Over-moulded Material: TPE Red Rubber, Thermoplastic Elastomer (TPE).			
	Operating Temp.	-20 to +60°C (-4 to 140 °F)			
	Storage Temp.	Storage for up to 12 months -20 to +35°C (-4 to 95°F) Nominal +20°C (68°F)			
	IP Rating	Designed to meet requirements of IP64			

Optional				
Thumbwheel	Number of Detent	12	Material	Polyamide, polycarbonate.

Advanced Features	
Guides	Create and display a slide show containing instructions, tutorials and procedures using Microsoft PowerPoint.
Attachments	Screenshots and Data Recordings are saved in a folder with the name of the Settings.
Loop	Capture a live repetitive signal and then optimise instrument settings (Phase, Gain, Filters) to simplify optimising the parameters
Trace	Allows a calibration reference signal to be stored on the screen, which can then be compared with a live signal.
Data Output	Real-time, post processed over USB at 8kHz overall for all 3 data pairs (X, Y and Mix) with DLL for embedding functionality into software.

Conductivity Features	
Frequency/Resolution	60kHz - 3 decimal points max Auto Resolution Mode AutoS = legacy instrument, Auto = SigmaCheck
Accuracy	0.5%-10% IACS better than +/-0.05% IACS 10%-25% IACS better than +/-0.25% IACS 25%-60% IACS better than +/-0.5% IACS 60%-110% IACS better than +/-1% IACS Lift Off corrected to 1.0mm No temperature compensation All Errors at 90% Confidence Level
Resolution	3 decimal points max Auto Resolution Mode AutoS = Legacy Instrument, Auto = SigmaCheck

AeroCheck 3 Kit (Keypad Option) : KIAER300	
IAER300	Instrument, AeroCheck 3, Software & Manual on USB Stick.
AWEL009	Accessory, AeroCheck 3 - Lemo Type, Power Adapter & input plugs (UK, EU,US & AUS)
AWEL003	Accessory, Adjustable padded shoulder strap, quick-release clips
AC006	Accessory, instrument soft carry case
A090	USB Cable - A to MINI B, 1m
41292	Quick Reference Card (A5 double sided) - AeroCheck 3
ALLCX-M02-015A	Accessory, Lead, Lemo 00 to Microdot, 1.5m (Absolute)
ALL12-L04-015R	Accessory, Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Refelction)
A439	Split Rings-ID 25.00, Thickness 3mm, (SKU:NPS25)

AeroCheck 3 Kit (Thumbwheel Option) : KIAER300TW	
IAER300TW	Instrument, AeroCheck 3, thumbwheel, Software & Manual on USB Stick.
AWEL009	Accessory, AeroCheck 3 - Lemo Type, Power Adapter & input plugs (UK, EU,US & AUS)
AWEL003	Accessory, Adjustable padded shoulder strap, quick-release clips
AC006	Accessory, instrument soft carry case
A090	USB Cable - A to MINI B, 1m
41292	Quick Reference Card (A5 double sided) - AeroCheck 3
ALLCX-M02-015A	Accessory, Lead, Lemo 00 to Microdot, 1.5m (Absolute)
ALL12-L04-015R	Accessory, Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Reflection)
A439	Split Rings-ID 25.00, Thickness 3mm, (SKU:NPS25)

Optional Accessories	
AWEL010	Protective Splash Case (keypad only version)
AWEL011	Protective Splash Case (thumbwheel version)
ALLCX-M02-015A	Accessory, Lead, Lemo 00 to Microdot , 1.5m
ALL12-B02-015A	Accessory Lead, 12-way Lemo - BNC Plug, 1.5m cable, (Absolute)
ALL12-L04-015B	Accessory Lead, 12-way Lemo to 4-Way Lemo, 1.5m cable, (Bridge)
ALL12-L04-015R	Accessory Lead, 12-way Lemo to 4-Way Lemo, 1.5m cable, (Reflection)
ALL12-M02-M02-015AR	Accessory Lead, 12-Way Lemo to x2 Micro Plug, 1.5, (RX TX) (Reflection)
ALL12-L12-020M	Accessory Lead, 12-Way Lemo - 12-Way Lemo, 2.0m (Rotating Drive)
AWEL012	Accessory, PELI STORM iM2300 Case with custom foam inserts
AALCX-B02S	Accessory, Adapter Lemo 00 Coaxial to BNC socket
A418	Hand Strap, AeroCheck 3

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