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**ETHER NDE**

## WELDCHECK 3

Handheld Dual Channel/Frequency Eddy Current Flaw Detector



- Three year warranty. Increase to 6 years with optional ETHERCover which includes free annual calibration.
- Meets requirements of EN 1711 & ISO 17643 "Eddy Current Examination of Welds by Complex Phase Analysis".
- Lightweight, ergonomic, rugged portable design.
- Thumbwheel option for rapid menu navigation.
- Advanced features including Loop, Guides & Automatic Lift-Off Gain Correction.
- Toughened, anti-glare, large, crisp, daylight readable display.
- Designed to meet IP64, IP68 rated connectors.
- Over 7 hours battery life, fast 2.5 hrs charging time.



With its improved physical and ergonomic design the WELDCHECK3 brings ETHER NDE's WeldCheck series right up to date. Based on in-field inspection feedback and embracing the use of new case materials, the WELDCHECK 3 delivers the end user enhanced ruggedness, a toughened screen, improved connector access and performance, combined optional features such as an encoder wheel.

The WELDCHECK 3 is a dual-frequency eddy current inspection instrument with conductivity. Dual channel/frequency capability means that the instrument can be used for dual and single frequency applications.

The WELDCHECK 3 is ideal and adaptable across an extremely wide variety of eddy current inspection tasks due to its superior performance; including weld inspection, surface defect detection and low frequency inspection of non-ferrous material.

The WeldCheck 3 Series now offers the option of two models, one with the standard keypad for instrument navigation or a thumbwheel configuration for fast one-handed software navigation, phase and gain adjustment during inspection.

### **Lightweight, compact and rugged**

The WELDCHECK 3 weighs just 1.15kg (2.54lbs) and has a blended polymer case, delivering the benefits of high levels of impact, oil and UV resistance.

Over-moulded rubber gives the end-user improved handling of the flaw detector and enhanced grip, with or without gloves.

Ergonomic design is embodied within the case design and at the rear moulded "bars" to offer a more comfortable grip of the unit during long periods of use. A wide, detachable hand strap, is also available for easy carrying.

A streamlined pipe-stand is built-in for easy positioning on-site or for desk-based operation.





## Equipped for all environments

The WELDCHECK 3 is going to come up against some of the harshest working conditions in the NDT industry, not to mention being lifted and lowered on ropes, dropped and bumped.

With a rear foot stand and four harness attachment points, the WELDCHECK 3 is designed to be used in all environments from the desktop in the office to the rigours of the job site. New over-moulded rubberised corners deliver enhanced impact protection and improved overall ruggedness. Internally the design is optimised to resist moist, tropical or salt-laden atmospheres. Designed to meet IP64 the WELDCHECK3 will perform reliably across inhospitable environments.



## Toughened daylight visible, large colour screen

We understand that the operator will use the WELDCHECK 3 in all types of weather and light conditions and being able to see the screen clearly is a top priority.

The screen is further enhanced with a 2mm thick anti-reflective polycarbonate protector sheet which has excellent impact strength and added UV protection thanks to an anti-glare coating.

The WELDCHECK 3 has a fully daylight readable 14.5cm LCD Colour Screen of 640 x 480 pixels ensuring the operator has excellent signal resolution and presentation no matter what the working conditions are.

The operator has the choice of configuring their own colour schemes and display types. This will optimise their viewing ability of the screen in any light conditions. It is possible to view the readings in a choice of spot, time-base, waterfall or meter display types.



## Extraordinary battery life

With more than 7 hours battery life, running with a 100kHz Weld Probe and maximum back-lighting, the WELDCHECK 3 is an obvious choice when faced with a long day of Eddy Current NDT.

With the internal memory able to store over 500 saved data recordings, the WELDCHECK 3 can easily be in the field for an entire shift without needing to be returned to base for charging. In addition, an external AA battery power pack can extend the battery running time for a further 4 hours.



## Industry standard probe connectors

All of the probe connections on the WELDCHECK 3 are IP68 rated which further enhances the adaptability of this flaw detectors across industrial sectors. The WeldCheck 3's connector panel is fitted across the top of the unit, making it ideal for rope access inspection and moving around on-site, working at height or with harnesses.

Probe socket LEMO 12-Way 2B (IP68): Absolute, Bridge, Reflection and Conductivity.

Probe socket LEMO Coax OO (IP68): Absolute.



## Intuitive Software Menu and Icons.

The WELDCHECK 3 menu system is simple and fast to navigate, with the ability to set up selectable soft key menu items to the sidebar as familiar icons for rapid function access and a quick “setting” menu for easy set-up, review and adjustment.

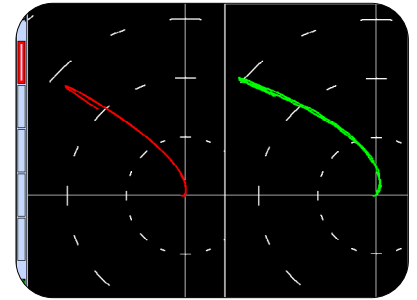
With four operator-selectable soft keys and a fifth slot for the last menu function used, technicians can quickly customise the system with their preferences.

Each instrument parameter is associated with a unique, quick access soft key. There is also a front panel hard key that can be configured for rapid single press access to frequently used functions, as well as new dedicated keys for Phase and Gain adjustment.

## Software Features

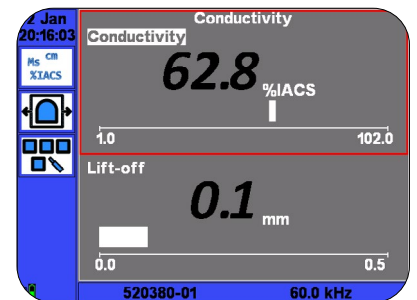
### Dual Frequency / Channel Feature:

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.



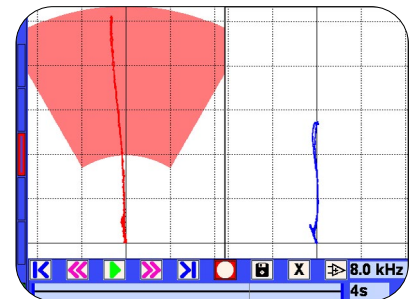
### Conductivity Measurement

When connecting the Conductivity Probe, the WELDCHECK 3 auto-detects the probe and seamlessly switches into conductivity mode. The Conductivity Measurement Option is available through the purchase of the KACON001 KIT.



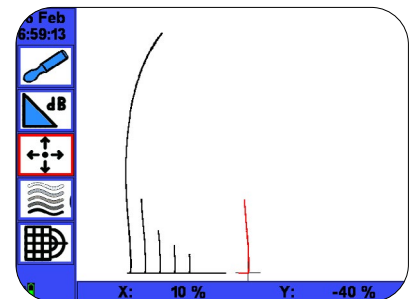
### Record and Replay

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 or subsequent analysis and review. Using PC packages the recorded data may be further analysed and processed remotely from the instrument.



### Trace Feature

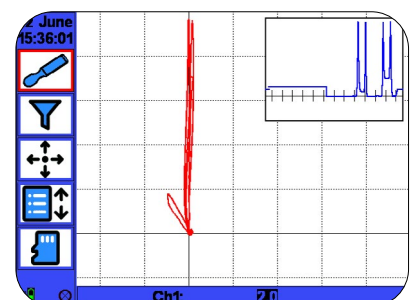
The trace function allows a reference trace to be stored on the screen and appears along with the graticule behind the live spot, allowing the operator to readily compare the live data with the reference calibration.

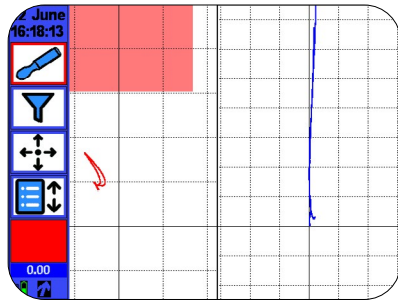


### Loop Feature

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.

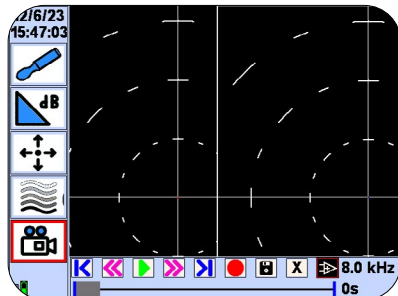
The Loop function is excellent for calibration set up especially for setting a Dual Frequency mix.





## Automatic Lift Off Gain Compensation

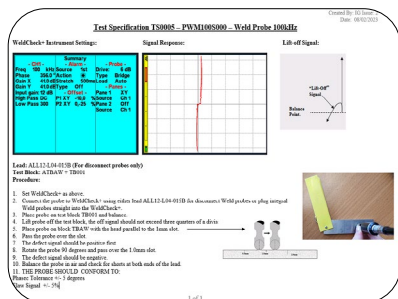
The Lift Off Gain (LOGC) is a feature that automatically compensates the gain of the defect channel according to the paint thickness thus ensuring that a defect signal will appear the same height irrespective of the paint thickness.



## Auto-Mix Feature

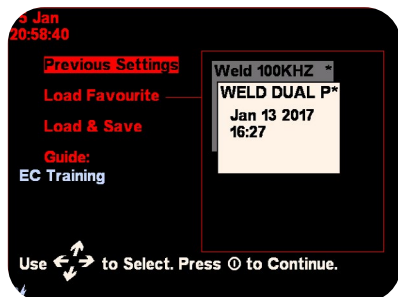
A dual frequency mix exploits the phase and sensitivity change between two different types of indication to suppress one and enhance the other.

Auto-mix simplifies the sometimes complex procedure of mixing two different frequency signals and can be achieved on the WELDCHECK3 through a series of easy steps. Once set up, the Auto-mix itself is as simple as pressing one key.



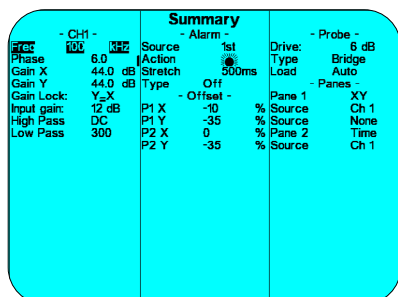
## Guides Feature

“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 WELDCHECK3 very quickly and the NDT inspector can easily switch between the inspection itself and the “Guides” while performing a live test.



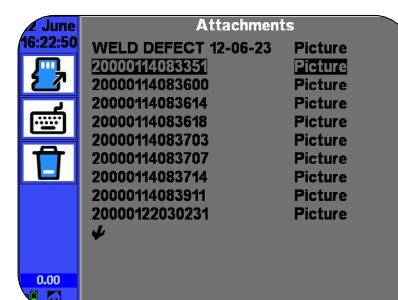
## “Favourite” Set up Feature

Setting the “favourite” feature enables Quick Access to your pre-saved (favourites) set-ups. Once configured the WELDCHECK3 instrument boots into these settings straight after turning on.



## “Editable Settings”

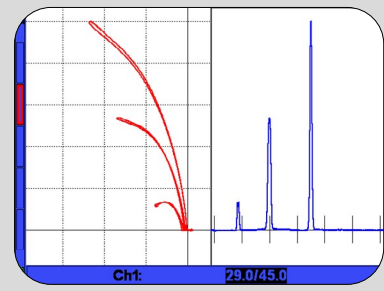
The Editable settings interface enables to operator to access and changes all the inspection settings via one screen. Working within this “screen” with the thumbwheel model option means changes can be made to the inspection set up very quickly.



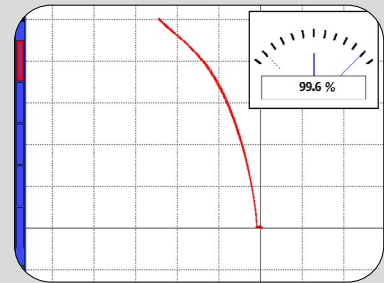
## Screenshot function

The Screenshot function captures a screen image picture of the displayed image during inspection, which means easy inclusion of inspection data for reporting.

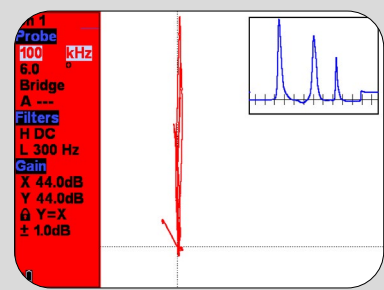
## Screen Clarity



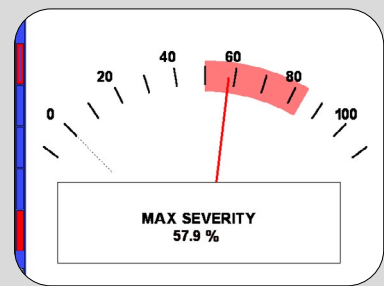
50/50 XY & Timebase



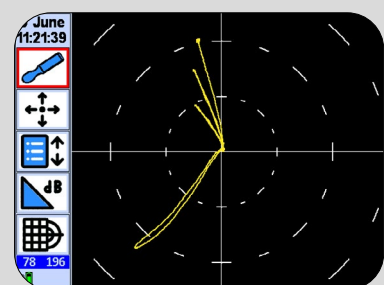
XY with Small Meter



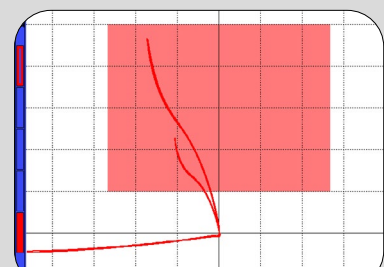
XY Small Timebase & Quick Menu



Meter Full Screen



Dark Background Polar Graticule & Soft Keys



XY Full Screen with Box Alarm

## WeldCheck 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.
Frequency	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	0dB, 6dB and 10dB (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	Fully configurable, Freeze, Tone or Visual
	Sector	Fully configurable, Freeze, Tone or Visual
	Output	Open collector transistor (50v dc at 10mA max) available on 12-way Lemo
Display	Type	5.7" (145mm), 18 bit Colour, daylight readable
	Viewable Area	115.2mm (Horizontal) x 86.4mm (Vertical)
	Resolution	640 x 480 pixels
	Flip Function	Changeable screen orientation, manually, to enable left or right handed use
	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 performs a self test on start up of external ram, Micro SD card, LCD screen buffer
Power	Battery	Internal 7.2V nominal @ 3100mAh = 22.32 watt.hr
	Running Time	Over 7 hours with a Weld Probe at 100kHz 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
	Storage Temp.	Storage for up to 12 months -20 to +35 °C Nominal +20 °C
	IP Rating	Designed to meet requirements of IP64

Optional		
Thumbwheel	Mechanical Life	Rotation: Min. 200,000 operations. Push: Min. 1,000,000 operations.
	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.
Lift Off Gain	Automatically compensates the gain of the defect channel according to the paint thickness.

Conductivity Features	
Frequency	One frequency only 60kHz standard (choice of 120, 240 and 480kHz)
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

### WELDCHECK 3 KIT

- WeldCheck 3, Eddy Current Portable Flaw Detector.
- Includes:
- Instrument, WeldCheck 3, Frequency, (10Hz-20MHz)Hand Held, Portable Flaw Detector.
- Software + Manual on USB Stick
- Power Adapter + Input Plugs (UK, EU, US & Australia)
- AWEL003 Adjustable Shoulder Strap, Padded with Quick-Release
- AC006 Instrument Soft Carry Case
- A090 USB Cable, A to MIN B
- Quick Reference Card

### Optional Accessories

- Hard Transit Case
- Protective Splash Proof Cover
- External, 8 x AA Battery Holder with On/Off Switch
- In car Power Adapter
- ALL12-L04-015R Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Reflection)
- ALL12-L04-015B Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Bridge)
- ALLCX-M02-015A Lead, Lemo 00 to Microdot, 1.5m (Absolute)
- ALLCX-B02-015A Lead. Lemo 00 to BNC, 1.5m (Absolute)

## Weld Probe Kit

KAWEL001 KIT, Weld, Probes + Accessories Including:

PWM100S00 Probe, Weld, Dia 16.00mm (Medium) 100kHz, Straight, Disconnect

PUB100k Probe, Unshielded, Broad Band, 100k (35kHz-250kHz), BNC

ATBW Accessory. Test Block, Weld Probe, Ferrous (Steel EN1A) + x 4 0.5mm Shims, 0.5, 1.0, 2.0mm slots

ALL12-L04-015B Accessory, Lead, Lemo 12-Way - Lemo 4-Way, 1.5m (Bridge)

ALLCX-B02-015A Accessory, Lead. Lemo 00 to BNC, 1.5m

AW003 Accessory, Butterfly PTFE Tape (Pack of 30)

AC002 Accessory, Deluxe Probe Case PHDC1



## Alternative Probe Kits

KASUR001 KIT Surface Inspection (4 probes, lead and Al and Fe Test Block)

KASUBS001 KIT Sub Surface Inspection, Low Frequency (2 probes, lead & test piece)

KACON001 KIT Conductivity Kit (Probe, Calibration and Cable)

## Application Specific Weld probes:

ETHer NDE offer High-Temperature weld probes for in-service inspection of welded structures, working to a touch temperature of 200 degrees Celsius. We also offer Stainless Steel Dome-Faced Eddy Current weld probes, Waterproof Eddy Current weld probes and Flat Faced Eddy Current probes for tight inspection areas.

## Camera & Mount Connections

**Built in Camera Mount** - 1/4-20 UNC Thread Size – Allowing easy connection to standard off the shelf tripod mounting plates.

**VESA Mount Adapter Plate** – 75 x 75mm - The VESA mounting Interface Standard (MIS), is a standardized mounting format that makes it easier to buy the right mount for your WeldCheck 3. This allows you to mount the WeldCheck 3 on a wall so that it takes up less space, or on a movable arm for better ergonomics.



## ETHERCOVER - Level 2

### Extended Warranty & Support

What does it include?

- In addition to the standard 3 years warranty, a further 3 years warranty (6 years in total).
- Free of charge Annual re-calibration and "Health Check" for five years commencing at the end of Year 1.
- One free battery and keypad replacement within the 6 year period.
- Guaranteed fast repair.
- Free of charge software upgrades within the 6 year period.



# ETHER NDE



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