

ACE

Portable Alternating Current Field Measurement Technology (ACFMT)



- Less than 1.4kg (3.0 lbs), ergonomic, over-moulded, rugged design.
- Over 10 hours battery life.
- Secure harness points.
- Touchscreen functionality available.
- Auto-detect probe feature.
- Record/Replay, Marker Placement and Defect Sizing.
- Trace feature - Butterfly/Bx/Bz.
- Repeatable, reliable accurate defect sizing, length and depth.
- No surface cleaning required makes inspection through coatings simple.
- Two Year Warranty. Increase to 5 years with optional ETHERCover which includes free annual calibration.

Common ACFMT Applications

- Rope Access Inspection
- Weld Inspection
- Cranes & Towers
- Refinery Piping & Vessels
- Painted & Coated Structures
- Pipeline Welds
- Bridges & Infrastructure
- Rail Wagon Integrity
- Topside offshore/onshore structures



ETHer NDE's ACFMT instrument, ACE, provides the end-user all the functionality and advantages of Alternating Current Field Measurement (ACFMT) NDT inspection technology in a lightweight, rugged instrument; available with a selection of standard probe designs, developed and manufactured in-house at ETHer NDE.

ACFMT Technology at your fingertips

An electromagnetic inspection technique, based on eddy current principles, which induces small, uniform currents within the test material surface and measures the changes in these currents using two or more sensors oriented in orthogonal directions. The output can be used to detect and characterise surface breaking flaws such as fatigue cracking using a mathematical model of the field-crack interaction.

ACE offers operators a new, robust, alternative solution for ACFMT NDT inspection, featuring new ergonomic design features and powerful reporting software, enabling easy operation, delivering a comprehensive and simple to use in-field ACFMT inspection method.

The large, high contrast, LCD screen is ideal for all-weather viewing, supported by up to 10 hours battery life on a full charge. ACE is the ideal on-site inspection solution for topside crack detection, perfect for single operator inspections.

Enhanced software enables the creation and delivery of test reports detailing defect sizes, locations and scans. Full records of all scan data are stored for audit tracking and the ACE ACFMT desktop software supports in-depth investigations of the scan and test data, enabling customised report generation.

ACFMT Probes

ETHer NDE's exceptional experience and heritage in NDT with standard and bespoke eddy current probe design continues across the new ACFMT probe range. Standard topside weld probes and pencil probes are available for Ferritic and Austenitic weld inspection; 5kHz for Ferritic Welds and 50kHz for Austenitic Welds.

All ACFMT probes have been developed with integrated instrument control "Start/Pause", "Stop" and "Change Direction" buttons for single operator use. The ACFMT probes stores configuration information and provides live feedback of scanning status during inspection. The ACFMT Weld Probe is designed primarily for scanning along weld toes but can also be used to inspect for defects in general components. The Weld Probe type should be used wherever access allows because it has a large drive coil making it best for accurate sizing, particularly on deep defects. Three types of Pencil style ACFMT Probes are available with straight or right angled tips for use where the Weld Probe geometry might not fit. Pencil Probes are ideal to use and gain access to challenging tight angle inspection areas, they have a smaller drive inducer, meaning they improved performance at plate edges.



Weld Probe



Pencil Probe - Straight



Pencil Probe - 90° Inline



Pencil Probe - 90° Transverse

ACFMT Software

The inspection software has been developed to work hard for the operator creating inspection reports detailing defect sizes, locations and scans. Audit tracking is a key process linked to the inspection data, complete records of ACFMT scan data are stored and captured with this in mind. Accompanying desktop software supports the operator and client further, with analytical functions to investigate scan data and create bespoke client/job focussed reports.

ACE-R Reporting Software

Just a couple of key presses can quickly transform any Data-Set into a report with full location information, relevant data traces, defect sizes and any notes entered on site. As standard the final report also captures all probe and instrument details and an inspector "sign-off" box. Reports can be saved in both .pdf and .docx formats on a PC, using the accompanying desktop ACE software.

ACFMT Specification

Probe	Connector	10-Way LEMO 2B
Frequency	5kHz (Ferritic Welds) & 50kHz (Austenitic Welds)	
Display/Screen	7", 800 x 480 pixels, WVGA, 24 bit RGB colour. Touchscreen functionality available.	
Removable Storage Data	32GB micro SD	
Outputs	PC Connectivity	USB (Full PC remote control plus Real Time data)
	VGA	15-Way VGA output
Languages	English	
Power On Self-Test	A "self-test" on start-up is performed of external ram, accelerometer, Micro SD card, LCD screen buffer.	
Power	Batteries	Internal Lithium-Ion Rechargeable, 7.2V nominal @64Ah = 46.08 watt.hr
	Running Time	10 hours plus
	Charge Time	5hrs. (simultaneous charge and operation)
	External	100-240v 50-60Hz 30Watts
	Connector	Lemo OS Hermaphroditic keying, half-moon insert (IP68)
Physical	Weight	1.4kg (3.0 lb)
	Size (w x h x d)	282 x 171 x 66 mm (11.1 x 6.7 x 0.26 in)
	Material	ABS /Rubber Polyurethanes
	Operating Temp.	-20 to +60°C (-4 to 140°F)
	Storage Temp.	Up to 12 months -20 to +35°C (-4 to 95°F)
	IP Rating	Designed to meet the requirements of IP64
Harness Points	4 rugged corner harness points	
Compliance	ASME, EN61010-1, CE	

ACE has been designed to meet the requirements of ASTM Standard Practice for Examination of Welds using the Alternating Current Field Measurement Technique (E2261-03), latest revision: E2261-17



ACFMT Software Features

- Simple field report generation.
- Full scan data records stored.
- User-friendly, intuitive interface.
- Easy access key functions.
- Instant presentation of ACFMT scan data on colour displays.
- Generation of Inspection reports into .pdf & .docx files, with images.
- Provides all major ACFMT software features e.g. markers, regions, notes, replay.



ACE ACFMT Standard Kit (Probes not listed below, 2 Probes must be ordered separately from the below Probe list)	
IACF001	Instrument, ACE, ACFMT Portable Flaw Detector. Software + Manual, on USB Stick.
ALL10-L10-02-ACF	Accessory, Lead, Lemo 10-Way to Lemo 10-Way, 2m ACE, ACFMT, Top Side
AWEL009	Accessory, Lemo Type, Power Adapter + Input Plugs, (UK, EU, US & Australia)
AWEL003	Accessory, Adjustable Padded Shoulder Strap, Quick-Release Clips
A090	USB CABLE - A to MINI B, 1m, (RoSH Compliant)
41339	Quick Reference Card (A5 Double Sided) - ACE, ACFMT
A439	Split Rings - Nickel Plated Steel Split Ring ID 25.00, Thickness 3mm, (SKU: NPS25)
ATBACFWCS	Accessory, Test Block, ACE, ACFMT, Weld Reference Standard 1 - ASTM E2261-17- c/s, Elliptical Slots, Two elliptical slots placed in the weld toe with dimensions: A = 50mm x 5mm, B = 20mm x 2mm, Carbon Steel
AC023	Accessory, Instrument Hard Carry Case (ACE, ACFMT) (Standard)
A472	45cm ETHER NDE Magnetic Ruler
A501	ETHER NDE Microfibre Cloth - 30 x 20 cm

ACE ACFMT Probes

(A Carbon Steel test block is included in the Standard ACE Kit and used with all 5kHz probes. If ordering a 50kHz probe, an Austenitic Stainless Steel test block must also be ordered, part no: ATBACFWSS)

PACF05PTS	Probe, ACE, ACFMT, 5kHz (Ferritic), Pencil, Topside, Straight
PACF50PTS	Probe, ACE, ACFMT, 50kHz (Austenitic), Pencil, Topside, Straight
PACF05PTI	Probe, ACE, ACFMT, 5kHz (Ferritic), Pencil, Topside, 90 deg Inline
PACF50PTI	Probe, ACE, ACFMT, 50kHz (Austenitic), Pencil, Topside, 90 deg Inline
PACF05PTT	Probe, ACE, ACFMT, 5kHz (Ferritic), Pencil, Topside, 90 deg Transverse
PACF50PTT	Probe, ACE, ACFMT, 50kHz (Austenitic), Pencil, Topside, 90 deg Transverse
PACF05WT	Probe, ACE, ACFMT, 5kHz (Ferritic), Weld, Topside
PACF50WT	Probe, ACE, ACFMT, 50kHz (Austenitic), Weld, Topside

ACE ACFMT Leads

ALL10-L10-02-ACF	Accessory, Lead, Lemo 10-Way to Lemo 10-Way, 2m ACE, ACFMT, Top Side
ALL10-L10-05-ACF	Accessory, Lead, Lemo 10-Way to Lemo 10-Way, 5m ACE, ACFMT, Top Side (Standard)
ALL10-L10-10-ACF	Accessory, Lead, Lemo 10-Way to Lemo 10-Way, 10m ACE, ACFMT, Top Side
ALL10-L10-20-ACF	Accessory, Lead, Lemo 10-Way to Lemo 10-Way, 20m ACE, ACFMT, Top Side

ACE ACFMT Test Blocks

ATBACFWCS	Accessory, Test Block, ACE, ACFMT, Weld Reference Standard 1 - ASTM E2261-17- c/s, Elliptical Slots, Two elliptical slots placed in the weld toe with dimensions: A = 50mm x 5mm, B = 20mm x 2mm, Carbon Steel
ATBACFWSS	Accessory, Test Block, ACE, ACFMT, Weld Reference Standard 1 - ASTM E2261-17- c/s, Elliptical Slots, Two elliptical slots placed in the weld toe with dimensions: A = 50mm x 5mm, B = 20mm x 2mm), Stainless Steel

ACE ACFMT Accessories

AC022	Accessory, Instrument Soft Carry Case (ACE, ACFMT)
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ETHERCOVER - Level 1

Extended Warranty & Support

What does it include?

- In addition to the standard 2 years, a further 3 years warranty (5 years in total).
- Free of charge Annual Re-Calibration and "Health Check" for four years commencing at the end of Year 1.
- One free battery and keypad replacement within the 5 year period.
- Guaranteed fast repair.
- Free of charge software upgrades within the 5 year period.



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