Analytical®
Technologies Limited

DUFD - 3700

DIGITAL ULTRASONIC FLAW DETECTORS

EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

DIGITAL ULTRASONIC FLAW DETECTORS

The product design and Digital Ultrasonic Flaw name has always assured the technician Of robust instrument construction combined with exceptional performance. The DUFD 3700 carries the baton of all these desirable features,but now,thanks to innovative internal redesign, new features can be added and upgrades performed in the working environment, reducing downtime and increasing working flexibility. High levels of near surfaceresolution, penetrating power (450V pulser-square and spike) and excellent signal to noise ratio are key functions in the DUFD 3700. Typical applications are Weld Fabrication, Corrosion Detection, Composite Inspection, Bond Testing, Forgings & Castings, Power Generation (including EMATS) and general UT inspection.

Features

- Configurable on-board software.
- Customizable & Intuitive Menus
- Split DAC/AVG
- Angle Measurement Mode.
- Dryscan Capability
- Field Upgradeable
- Encoded B-Scan
- A-Scan Fade.
- 4GByte on-board memory.
- USB Interface for PC import/export.

High Visibility Display

For any flaw detector the display is a crucial element. The DUFD - 3700 has a color transflective VGA display,'providing high visibility in any lighting conditions.Maximum readability is achieved through adjustable brightness and the choice of 9 color paleties, including a black-on-white LCD emulati on mode. Simplicityreigns with the enhanced user interface anda full screen A-scan display is available at thetouch of a button, so that every detail of the A-scan can be easily seen.

3Rs - Reliable, Rugged & Robust

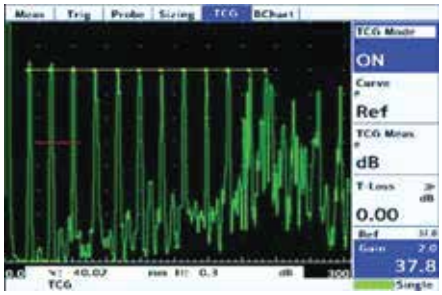
The ability to perform in harsh environments with proven reliability is an important aspect of flaw detectorownership. Maximum operational time is promoted by out-standing battery performance, up to 16 hours from full charge for DUFD -3700 . The DUFD 3700 enclosure is constructed using automotive grade impact resistant materials and is designed to meetIP67 standards, offering excellent water resistance. Explosive Testing MIL810-G standards have been passed,together with environmental testing which has confirmed the instrument fully functioning at temperatures above 55°C.

Features

NEW - Corrosion Software Option

Thickness measurement is a major application of the 3700 good data logging tools areessential to productivity. The popular Block/Location/Reading- Number format is available as standard.With theCorrosion Software option, users can create and populatetwo-dimensional grids of readings, with A-Logs, B-Scans,historical readings and notes optionally attached to eachthickness log.

TCG

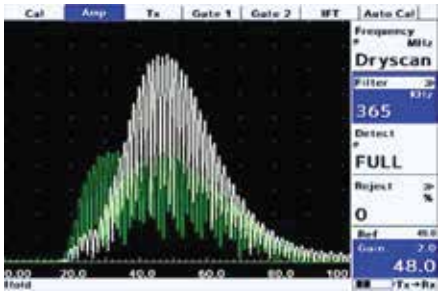


With the Time-Controlled Gain (TCG) option, the gain of the receiver can be varied along the beam path, to compensatefor beam - spread and attenuation. This brings equivalentreflectors at different depths to equal heights on the A-scanand allows a simple gate to act as the reporting level for the inspection. TCG can be generated from reference echoesin the same way as DAC,or can be converted from a pre existing DAC curve."

AWS

With this option enabled, measurements of Indication Level (IL), Attenuation Factor (AF), and Indication Rating (IR) are calculated and displayed in accordancewith AWS D1.1.

Dryscan ModeV



The Dryscan option adds a tuned pre-amplifier to the received signal,allowing comparative transmission testing of composite materials which cannot be inspected using traditional techniques. Used in conjunction with soft-tip and roller probes,no couplant is required,so honeycomb structures or carbon fibre panels are easily assessed for delaminations and disbonds.

▸▸ UTLity / UTLity Pro (Data Management Software)

UTLity software provides everything you need to manage your inspection data. The Standard version is FREE with every instrument and gives you the ability to view, move and manage Calibrations, A-Scans, B-Scans and Thickness Logs both on the instrument and on your PC. With UTLity you can also create customized inspection report templates, cut and paste information to other applications, and create print-able pdf documents.

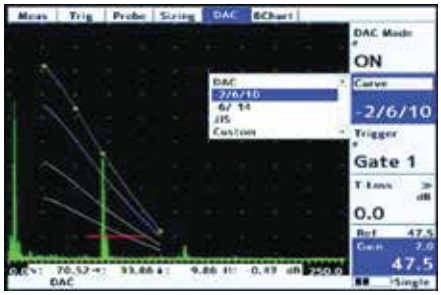
- Load, store, manage files both on the PC and on a connected flaw detector
- Save, analyze, color code & export Thickness logging data to spreadsheets/asset

management software.

• Update the Flaw Detector Software & Firmware as and when updates become available on our website.

UTLity Pro is the “professional” version and works in conjunction with the Corrosion Software option, providing the end user with the ability to create and manage inspection plans, location notes, historical thickness readings and other asset management information as required.

• Set up Inspection plan (grid) templates, notes and labels.
• Import previous readings into an inspection plan
• Export Inspection plan data to spreadsheets and plant maintenance databases.



Library of DAC Curves

DAC

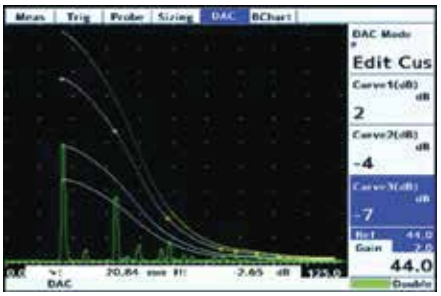
Up to 20 reference points can be used to construct a digital DAC curve. The user can choose whether the DAC curve or Gate 1 is used as the monitoring level. Echo amplitude can be displayed as either dB DAC, % DAC, or % Full Screen Height.

Library of DAC Curves

There are pre-programmed dB levels corresponding to

· EN1714 (-6dB, -14dB)
· ASME (-2dB, -6dB, -10dB)
· JIS DAC (+6dB, -6dB, -12dB)

Any of the available levels can be used as monitor gate. The level selected for monitoring is highlighted in a different color to the other curves on screen.

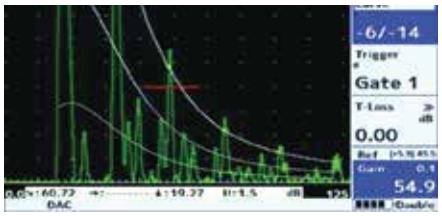


Customisable DAC

Customisable DAC

Up to 3 custom curves can be used in addition to the pre-programmed library. The user can enter custom levels between +/- 20dB for each of the 3 curves. In this way, all international Standards are supported.

Dynamic DAC



The wide dynamic DAC range can be used for better measurement resolution of distant echoes.The height of the DAC curves can be adjusted using the Reference Gain control. The relationship between DAC curve and reference indications is preserved throughout and the additional T-loss control manages transfer loss from test-block to specimen

UTLity / UTLity Pro (Data Management Software)

Test Range : 0-1mm (0.04in) up to 0-20,000 mm (787 in.)
in steel at 5930m/s (19455f/s)
Velocity : 256 - 16000 m/s continuously variable.
Probe Zero : 0 to 1000 µs.
Delay : 0-20,000m (800in) in steel at 5930m/s.
Gain : 0 to 110dB adjustable in 0.1, 0.5, 1, 2, 6, 14 and 20dB steps.
Test Modes : Pulse echo and transmit/receive. Single Crystal,
Double Crystal and Pitch-Catch.
Damping : 50 and 400 Ohm damping selectable.
Pulser : 100-450V -ve spike and square wave.
Pulse Width from 30nS to 2500nS.
Rise/Fall times <5nS into 50R load.
P.R.F. : Adjustable 5Hz to 6kHz. External sync also available.
Screen Update Rate : 60Hz
Rectification : RF, Full wave, +ve half-wave and -ve half-wave.
Frequency Range : 8 selectable filter bands.
i) 100kHz - 500kHz ii) 200kHz - 800kHz
iii) 0.4MHz - 1.6MHz iv) 1.4MHz - 3MHz
v) 3MHz - 8MHz vi) 7MHz - 15MHz
vii) 9MHz - 21MHz viii) 1.6 MHz - 33 MHz (Wideband)
Additional tuned low frequency pre-amp with Dryscan option.
System Linearity : Vertical = 0.5% Full Screen Height (FSH).
Horizontal +-0.2% Trace Full Screen Width (FSW).
Reject (Selectable) : Up to 80% Linear reject Or
(removes baseline noise without affecting indication amplitude)
Up to 50% Suppressive reject
(increase zero offset and reduces amplitude of all echoes)
LED Warning when active.
Units : Metric (mm), inch (in) or microseconds.
Display : Color Transflective VGA (640 x 480) TFT
Display area: 116.16 x 87.2 mm (4.57 x 3.43 in).
A-Scan Area 400 x 510 pixels (normal), 460 x 620 (FS).
Colors 9 color options with variable brightness.
Gate Monitor : Two independant gates for measurement and monitoring.
Start and width fully adjustable over the entire range of the instrument. Levels adjustable from 0% to 100%, positive or negative triggering on each gate with audible & visual alarms.
Gate resolution is 5nS.
Zoom : Expands range and delay to cover the area set by Gate 1 start & width controls.
AGC : Automatic Gain Control automatically sets the signal in Gate 1 to a level between 10% and 90% FSH, tolerance between 5% and 20%.
Measurement Modes
Mode 1 :Signal monitor, Gate alarms can be active but no measurements are displayed.
Mode 2 : Depth and amplitude of first signal in gate.
Mode 3 : Echo-Echo distance measurements.
Mode 4 : Trigonometric display of beam-path, surface distance (including X-offset) and depth of indication from the inspection surface together with echo amplitude. Curved surface correction can be applied for convex and concave surfaces.
Half-skip can be indicated on screen.
Mode 5 : Gate to Gate distance measurement
Mode 6 : Flank to Flank
Mode 7 : Beam Angle, calculated from beampath, hole radius and hole centre depth.
Measurement Display : Live display and updates on screen at 3 times per second. Large display of a single measurement available.
Contour : Trailing-Edge slew-rate control to reduce half cycles in rectified modes. Selectable from one of 6 levels.
Waveform Smoothing : Select from:
i) None (both min and max values are displayed in the A-Scan)
ii) Fill (Min values set to baseline value, produces a solid A-Scan)
iii) Smooth (min values ignored, produces a clear outline A-Scan)
Persistence : Causes previous A-scans to “fade out”at a user-determined rate
Auto-Cal : Provides automatic calculation of velocity and probe zero from 2 reference echoes.
Reference Waveform : Displays a previously stored A-log in a color different from the active display: enabling a quick visual check of the differences.
Clock : Built in, battery-backed RTC keeps time and date.
Visible on the status line, always stored with Panels, A-logs etc.
Internal Memory : 4GByte storage available for A-scans, panels, T-logs, B-logs etc. 450,000 Panels, 200,000 A-Logs, 300,000 B-Charts, 440,000 T-Logs
Active Peak Memory : Retains all A-scans on screen for echo-dynamic pattern analysis, with the active A-scan displayed in a separate color.
Notes : Alphanumeric labelling for panel stores, A-logs, B-logs etc.
Display Freeze : Hold the current waveform on screen for off-line processing.
Help Key : Shows software and hardware information.
Encoder Connection : D-Sub 15 connector
Video Output : Standard
Proportional : Outputs Available
External Sync : Available
USB Connection : Internal storage shown as Memory Device.
Transducer Sockets : BNC or LEMO (factory option).
Power : Lithium Ion 14.4V battery pack. Typically 12 hours for Indication of battery charge status. Recharge time 3-4 hrs. Battery can be charged separately.Mains pack optional.
Charger : 100-240 VAC, 50-60 Hz.
Environmental : Designed to meet IP67
Temperature : Operating -10oC to 55oC (14o F - 131oF).
Storage -40oC to 75oC (-40oF - 167oF).
Size : H172mm x W238mm x D70mm (6.77in x 9.37in x 2.75in).
Weight : 1.7 kg (3.7lbs) with battery.

Analytical®
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HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenace to reduce downtime of HPLC's Trainings.

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Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.

About Analytical Technologies

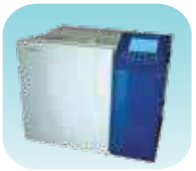
Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufaturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

Our Products & Technologies

UV/VIS Spectro 2080+ Double Beam

Infra FTIR

Optima Gas Chromatograph 3007



Optima Gas Chromatograph 2979 Plus

Flash Chromatograph

Atomic Absorption Spectrophotometer

Liquid Partical Counter

Optical Emission Spectrophotometer

DSC/TGA

Semi Auto Bio Chemistry Analyzer

HEMA 2062 Hematology Analyzer

Micro Plate Reader/Washer

URINOVA 2800 Urine Analyzer

Total Organic Carbon 3800

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NOVA-2100 Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

TOC Analyzer

Laser Particle Size Analyzer

Ion Chromatograph

Water purification system

Regulatory compliances

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Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

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