Flaw Detection Gauges

FD700+ & FD700DL+

These small powerful hand-held flaw detectors combine state-of-the-art flaw detection with advanced material thickness capabilities.

With all the functionality of the top of the range material thickness gauge, the FD700DL+ flaw detector, when in flaw detection mode offers a variety of tool kits which enable fast and accurate flaw detection, ideal for weld inspection, forgings or composite material testing.

Tool kits include:

- TRIG enabling location of flaws in both surface distance and depth.
- DAC for the creation of DAC curves which are used to inform the operator of the size of any given flaw at any depth.
- AWS function provides automatic defect sizing in accordance with AWS D1.1 structural welding code.
- AVG/DGS allows automatic defect sizing using probe data, storing up to 64 custom setups.
- TCG (time corrected gain) increases gain as distance increases, in order to achieve an overall level of sensitivity for the same flaw/reflector at different distances.

BAMR (Pty) Ltd, PO Box 23973, Claremont, 7735, South Africa
Ph : 27 (0)21 683 2100, Fax : 27 (0)21 674 1485
Email : sales@bamr.co.za, Web : www.bamr.co.za

Advantages

- Exceptional visibility in sunlight (AMOLED) colour VGA display (320x240 pixels)
- Sizing Toolkits: DAC, AWS, TCG, DGS
- P.R.F. - 8 to 333 Hz, adjustable
- Screen Refresh Rate: Adjustable 60 & 120 Hz
- Detection: Z-Cross, Flank & Peak
- Automatic: probe zero, probe recognition, and temperature compensation
- Measurement: Variety of modes to address a number of applications
- Large data storage with multiple formats: Alpha numeric grid and sequential w/auto identifier
- Up to 12 hours of battery life
- Data management software

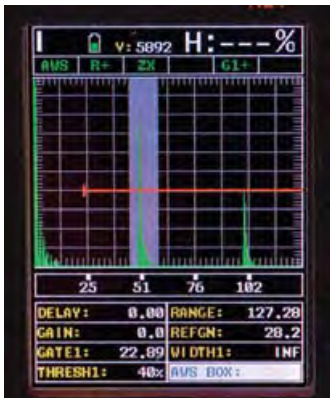
FD700+ & FD700DL+

TRIG

TRIG enabling location of flaws in both surface distance and depth. Trigonometric display of
beam path, depth, surface distance, and curved surface correction. Used with angle beam transducers.

DAC

Distance amplitude correction for the creation of DAC curves which are used to inform the operator of the size of any given flaw at any depth.



AWS

The American Weld Standard function provides automatic defect sizing in accordance with AWS D1.1 structural welding code.

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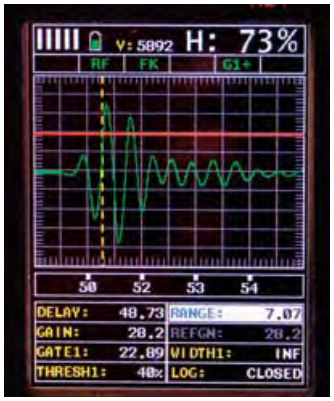
TCG

Time corrected gain increases gain as distance increases, in order to achieve an over all level of sensitivity for the same flaw/reflector at different distances.

Zero Crossing

The gate detects the flank of the pulse, but the measurement is taken at the next crossing of the x axis. This is the most common type of detect in ultrasonic measurement.



Flank

The gate is triggered by the flank (or side) of the pulse on the graph and the measurement taken at this exact point.

Peak

The gate is triggered by the intersection with the A-scan pulse and the detection is taken from the next peak in the signal (when it stops rising and starts falling).

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Part Numbers and Technical Specifications

Model & Part Number	FD700DL+ Flaw Detection Gauge
Material thickness digits display	•
B-Scan cross sectional display	•
B-Scan with digits display	•
Scan bar display	•
Coating thickness display	•
A-Scan display	+ Rectified, - Rectified, Full Waveform (RF)
Flaw detection modes	TRIG, DAC, AWS, TCG, Zero Crossing, Flank, Peak
Measurement Mode	PE, PETP (Temp Compensation), EE (ThruPaint™), EEV, CT (Coating) & PECT
Measurement Rate (Thickness Mode)	
Manual:	4 readings per second
Scan mode	32 readings per second
Scan bar display	6 readings per second
Measuring Range	PE: 0.63 - 30,480mm PETP: 0.63 - 30,480mm EE: 1.27 - 102mm EEV: 1.27 - 25.4mm CT: 0.01 - 2.54mm PECT: 0.63 - 30480mm PE**CT**: 0.01 - 2.54mm
Measurement Accuracy	±0.01mm
Measurement Resolution	0.01mm
Velocity Calibration Range	256 - 16,000m/s
Additional Features:	
High speed scan mode	•
Differential mode	•
Limit alarm mode	•
B-Scan display speed	adjustable display speed
Calibration setups	6 factory & 64 user-definable setups transferrable to and from a PC archive
Gates	3 fully adjustable gates: start, stop, width & threshold
Damping	adjustable; impedance matching for optimising transducer performance
Pulser type	dual 200 Volt square wave pulsers with adjustable pulse width (spike, thin, wide) and 50 Volt cut/boost for greater penetration
Gain	manual, automatic gain control (AGC) with 110dB range with 0.2dB resolution
Timing	precision 25MHz TCXO with single shot 100MHz 8bit ultra low power 8 bit digitizer
Data logging	• 8,000 with A/B-scan image & gauge settings • 210,000 - coating, material, min, max thickness • sequential and grid logging • Alpha numeric batch identification • OBSTRUCT indicates inaccessible locations
Calibration Options	single, two point, velocity & material type
Transducer recognition	automatic
V-path / dual path error correction	automatic
Probe zero	automatic
Flaw Detection Mode Features	
Automatic Calibration:	Longitudinal (straight), or Shear (angle)
Probe Types:	Single Contact, Dual, Delay & Angle
Material Velocity Table:	Contains longitudinal and shear velocities for a variety of material types
TRIG	Trigonometric display of beam path, depth, surface distance, and curved surface correction. Used with angle beam transducers

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DAC	Up to 8 points may be entered and used to digitally draw a DAC curve. Reference -2, -6, -10, (-6/-12), (-6/-14), (-2/-6/-10) dB. Amplitude displayed in %DAC, dB, or %FSH
AWS	Automatic defect sizing in accordance with AWS D1.1 structural welding code.
AVG/DGS	Automatic defect sizing using probe data. Stores up to 64 custom setups
TCG	Time corrected gain. 50 dB dynamic range, 20 dB per microsecond, up to 8 points for curve definition
Detection Modes	Zero Crossing, Flank and Peak
Display Freeze	Hold current waveform on screen
Peak Memory	Captures peak signal amplitude.
P.R.F	8 to 333Hz in selectable steps (8, 16, 32, 66, 125, 250, 333Hz)
Pulse Width	40 to 400 ns. Selectable step options 40, 80 & 400 ns (labeled spike, thin & wide)
Frequency Bands	FD700+ & FD700DL+: Broadband 1.8 - 19 MHz (-3dB). FD700DL+: Three narrow bands at 2MHz, 5MHz, 10MHz
Horizontal Linearity	+/- 0.4% FSW
Vertical Linearity	+/- 1% FSH
Amplifier Linearity	+/- 1 dB
Amplitude Measurement	0 to 100% FSH, with 1% resolution
Delay	0 - 999in (25,375mm) at steel velocity
Display	1/4" VGA AMOLED colour display 57.6 x 43.2mm viewable area
Display Refresh Rate	120Hz
Units (selectable)	mm or inches
Backlight	adjustable brightness
Repeatability / Stability Indicator	•
Battery Type	3 x AA alkaline
Battery Life (approximate)	12 hours
Low Battery Indicator	•
Battery Save Mode	auto
Operating Temperature	-10 to 60ºC
Size (w x h x d)	63.5 x 165.0 x 31.5mm
Weight (including batteries)	397g
Case Design	Aluminium case design with gasket sealed end caps, waterproof membrane keypad
Transducer Connector Type	LEMO
RS232 Interface	Bi-directional

Packing List

- Elcometer NDT FD700+ or FD700DL+ gauge
- Couplant
- Carry Case
- User Manual
- Test Certificate
- 3 x AA Batteries
- Software
- Transfer Cable

Recommended Transducers

TX5M00CP-6	Transducer: 5MHz 1/4" Potted Right Angle Dual Element; Coating Thickness
TF5M00EG-5	Transducer: 5MHz 1/2" Microdot Quick-Change Shear Wave; High Gain
TF9999E60-2	Transducer: 1/2" Standard Quick-Change Wedge; 60 Degree

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