

Elcometer FD700 Mini Flaw Detectors



The hand-held FD700 flaw detector range combines state-of-the-art flaw detection with advanced material thickness capabilities.

The Elcometer FD700 Mini Flaw Detector is available in two models: FD700+ and FD700DL+.

Whether you are on-site or in the laboratory these gauges are the tool you need for all your flaw detecting needs.

The time corrected gain (TCG) feature automatically compensates for sound attenuation through a material, further increasing the performance of the gauge.

The FD700DL+ stores up to 4GB worth of readings with A/B-scan images in alpha numeric batches with full data logging and firmware updates via USB data output to ElcoMaster® data management software.

Features

- Exceptional visibility in sunlight (AMOLED)
- Colour VGA display (320x240 pixels)
- Sizing Toolkits: DAC, AWS, TCG, DGS
- Pulse Repetition Frequency: 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 with auto identifier
- Download to ElcoMaster® data management software



Technical Specification

Model & Part Number	FD700+ & FD700DL+
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 ¹	PE, PETP (Temp Compensation), EE (ThruPaint™), EEV, CT (Coating) & PECT
Measurement Rate (Thickness Mode)	
Manual	8 readings per second
Scan mode	50 readings per second
Scan bar display	10 readings per second
Measuring Range ²	Pulse Echo (PE) 0.63 - 2,440mm Pulse Echo (single contact) 1.0 - 30,480mm Echo Echo ThruPaint™ (EE) 1.27 - 102mm Echo Echo (single delay line) 0.178 - 25.4mm Echo Echo (single contact) 1.0 - 3,050mm Echo Echo Verify (EEV) 1.27 - 25.4mm Pulse Echo Temp Comp (PETP) 0.63 - 2,440mm Coating Thickness (CT) 0.0127 - 2.54mm Pulse Echo Coating Thickness (PECT) 0.63 - 2,440mm Pulse Echo Coating Thickness (PECT) 0.01 - 2.54mm
Measurement Accuracy ²	0.01mm
Measurement Resolution	0.01mm, 0.001mm
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	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	Two adjustable square wave pulsers and receivers
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 8bit digitizer
Data logging	<ul style="list-style-type: none"> • 4GB internal memory • 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
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.
PRF	8 to 2000Hz in selectable steps (8, 16, 32, 66, 125, 250, 333, 1000, 2000Hz)
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	60
Units (selectable)	mm or inches
Backlight	adjustable brightness
Repeatability / Stability Indicator	■
Battery Type	3 x AA alkaline
Battery Life (approximate)	Alkaline (12hrs), Nicad (5hrs), and NI-MH (12hrs)
Low Battery Indicator	■
Battery Save Mode	auto
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
USB Interface	■

¹ PE: Pulse-Echo Mode, EE: Echo-Echo (ThruPaint™) Mode.

² Measuring range & accuracy depends on material, surface conditions and the transducer selected.

Packing List

Elcometer NDT FD700+ or FD700DL+ gauge
Couplant
Carry case
User manual
Test certificate
3 x AA batteries
ElcoMaster® software
USB cable

Accessories

Cables & Adaptors

TL-24030-1	T/Cable: 4' Single Lemo 00 to BNC
TL-24030-2	T/Cable: 4' Single Lemo 00 to Lemo 00
TL-24030-3	T/Cable: 4' Single Lemo 00 to Microdot
TL-24030-5	T/Cable: 4' Dual Lemo 00 to BNC
TL-24030-6	T/Cable: 4' Dual Lemo to Lemo
TL-24030-7	T/Cable: 4' Dual Lemo to Microdot
TL-24030-8	T/Cable: 4' Dual Lemo to Microdot Single
TL-24031	RS232 Cable (6'); DB-9 to Lemo
TL-24032	USB to Serial Adapter

Couplant

TC-24034-1	Couplant: Standard; 4oz Bottle (Material Safety Data Sheet)
TC-24034-2	Couplant: Standard; 12oz Bottle (Material Safety Data Sheet)
TC-24034-3	Couplant: Standard; 1 Gallon (Material Safety Data Sheet)
TC-24034-9	Couplant: Hi-Temp 371°C; 2oz Tube (Material Safety Data Sheet)

Delay Lines

TD-24033-1	Cone Tip Delay Line: Acrylic; 1/8"
TD-24033-2	Cone Tip Delay Line: Acrylic; 3/16"
TD-24033-3	Cone Tip Delay Line: Graphite; 3/16"
TD-24033-4	Delay Tip (P): Acry; 1/16" Dia x 0.45" L
TD-24033-5	Delay Tip (P): Acry; 1/8" Dia x 0.45" L
TD-24033-6	Delay Tip: Acrylic; 1/4" Dia x 1/2" L
TD-24033-7	Delay Tip: Acrylic; 1/4" Dia x 3/8" L
TD-24033-8	Delay Tip: Graphite; 1/4"

Other Accessories

TZ-24035	6" Ext Wand for S/E Microdot Transducers
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