

DFX Flaw Detector Series

Isn't performance what you need?

The **DFX series** ultrasonic flaw detectors are full featured digital scopes designed to handle the simplest to the most difficult applications. Whether the application requires high penetration for materials that are difficult to measure, or high resolution for precision aerospace parts, the DFX series flaw detectors are equipped with the necessary features to do the job.

- ▶ Transflective Color TFT Display
- ▶ Broad & Narrow Band Amplifier
- ▶ Square Wave Pulsar (Active Edge™)
- ▶ Extruded Aluminum Case (IP65)
- ▶ USB / RS232 / Video / Analog Outputs
- ▶ Trig Functions
- ▶ Curved Surface Correction
- ▶ DAC/TCG/AWS/DGS (Defect Sizing)
- ▶ Automatic Calibration
- ▶ Long Battery Life (Li-Ion Pack)
- ▶ Water Path Correction (638 only)
- ▶ Fast Setup Screen Facility
- ▶ Alphanumeric Text
- ▶ Help Facility

DFX series can go where you go, to do the work you do, saving you time and money, making your inspections fast and accurate.

DFX 615 / 625 / 635 / 638 SPECIFICATIONS

Physical

Size: 9.25W x 7.13H x 4.0D in
(235W x 181H x 102D mm)

Weight: 7.5 lbs. (3.4 Kgs)
with Li-Ion cells

Case: Extruded Aluminum

Display: Transflective TFT Color.

Display area: 4.39in x 3.29in
(111.4mm x 83.5mm) 320 x 240 pixels.
A-Scan area: 255 x 200 pixels (315 x 200
expanded), 8 color options and variable
brightness.

Temperature:

Operating -10° to +55°C or 14° to 131°F
-20° to +70°C or -4° to 158°F
(survivable)

Storage -40° to +75°C or -40° to 167°F

Environmental: Meets IP65 requirements.

Specifications

Units: English (in), Metric (mm), or Time
(μ s).

Probe Zero: 0–999.999 μ s.

Velocity: **615 & 625** 0.0393–0.3937in/ μ s
(1000–9999m/s). **635 & 638** 0.0100in/ μ s
(256–16000m/s.)

Test Range: **615 & 625** 0–0.2in
(5mm) up to 0–400in (10,000mm) at steel
velocity. Variable in sequence, 0.4 in or 0.04
in (10mm or 1mm). **635 & 638** 0–0.05 in (1
mm) up to 0–800 in (20,000mm) at steel
velocity. Variable in 1, 2, 5 sequence or
continuously in 0.05 in (1mm) increments.
Also from 1 to 5000(μ s).

Test Modes: Pulse-echo and transmit/
receive.

Gates: **615 & 625** Start & Width adjustable
over full range. Amplitude 0–100%, 0.5%
steps. Visual & audible alarms. Single gate
positive trigger, and two gates positive and
negative triggering. Gate 2 has selectable
0.6 second delay on alarm. **635 & 638** Two
fully independent gates with positive and
negative triggering for each gate.

Gate Expansion: **635 & 638** Expands range to
width of Gate 1.

Gate Monitor Delay: **635 & 638** Selectable
0.6 sec delay on gate 2 negative monitor.

Measurement Modes:

Signal Monitor—**635 & 638**.

Depth—Depth and amplitude of signal
in gate.

Echo Echo —Echo-Echo distance,
automatic gate 2 position.

Gate to Gate—**625** Echo-Echo distance,
manual gate 2 position. **635 & 638**
Independent gates.

Trig—Trigonometric display of beam
path, depth and surface distance.
Calculation of skip depth and curve surface

compensation, X-offset for transducer.

T-Min—Holds minimum thickness in depth
mode.

System Linearity: Vertical = 1% Full
Screen Height (FSH) Amplifier Accuracy
 $\pm 0.1\%$ dB. Horizontal $\pm 0.4\%$ Full Screen
Width (FSW).

Pulsar Voltage: **615 & 625** 200 volt peak
amplitude, rise/fall time < 10ns into 50ohm.
635 & 638 100V–350V (450V **638**) square
wave pulser. Pulse width from spike to
2000ns duration—rise/fall times < 5ns into
50 ohms.

Pulsar Width: **615** fixed at 100ns.
625 30–250ns linked to filter band.
635 & 638 Adjustable in 2% of nominal
width, minimum 1ns maximum 40ns.

ActiveEdge: Unique active pulse control
for enhanced near surface resolution and
signal response. Replaces traditional
damping control.

P.R.F.: **615 & 625** Selectable 35 to 1000Hz
(**635 & 638** 5000Hz), 5Hz steps.

Screen Update Rate: 50 or 60Hz.

Rectification: Full wave, positive or
negative half wave and unrectified RF.

Delay: **615 & 625** 0–400 in (10,000mm)
635 & 638 0–800in (20,000mm) at steel
velocity in 0.02 steps (0.05mm).

Gain: 0 to 110dB. Adjustable in 0.5, 2, 6, 14
and 20dB steps.

Frequency Bands: **615** 4Broadband 1–10
MHz (-6dB). **625** 4 Narrow Bands centered
at 1MHz, 2MHz, 5MHz, & broadband 1.5–
15MHz. **635 & 638** 6 narrow bands centered
at 0.5, 1, 2.25, 5, 10 & 15 MHz. Broad band
at 2 to 22 MHz (-6dB) and 1 to 35 MHz
(-20dB).

Vertical Linearity: 1% full screen height.

Amplifier Linearity: +/- 0.1 dB.

Horizontal Linearity: +/- 0.4% full screen
width (FSW).

Reject: **615 & 625** 50% suppressive reject.
LED warning when selected. **635 & 638**
80% linear reject.

Memory

Thickness Logging: Storage for 8000
readings stored in Block/Location/Number
coding or alpha-numeric pre-programmed
work sheets. Transferable to Excel using
optional PC software.

Panel Memory: 100 storage locations for
calibration settings.

A-Scan Memory: 800 waveforms.

Features

Wave Smoothing: Produces a smooth
signal envelope.

AGC: Automatic Gain Control sets selected
echo to a user defined level (10–90%).

DAC: Up to 10 points may be entered
and used to digitally draw a DAC curve.
Reference -2, -6, -10, -12, -14 dB curves
can be selected for JIS, ASME and
EN1714 codes.

AWS: Automatic defect sizing in
accordance with AWS D1.1 Structural
Welding Code.

API: Automatic defect sizing in accordance
with API 5UE.

AVG/DGS: Automatic defect sizing using
probe data. 10 probe data sets can be
stored.

TCG: **625, 635 & 638** Time corrected
gain. 40 dB dynamic range, 30 dB per
microsecond, up to 10 points for curve
definition.

Auto-Cal: Provides Automatic calibration
with two echoes.

Reference Waveform: Recalled waveform
can be shown in a different color to live
waveform for direct comparison.

Display Freeze: Hold current waveform
on screen.

Peak Memory: For echodynamic pattern
determination.

Online Help: Instant operator guidance on
operation accessed from direct key.

Language Support: Six user selectable
languages from: English, German, French,
Spanish, Dutch, Italian, Russian, Polish,
Czech, Finnish & Hungarian. Others
available on request.

Power Source

Battery: Lithium Ion battery pack 14.4V,
5.0 Amp hrs. Minimum 11 hours use, typical
15 hours, indication of battery charge.
Recharge time 4 hours.

Charger: 100–240 VAC, 50–60Hz.

Connections

USB: For connection to PC, keyboard
and printer.

Outputs: Serial Interface, composite video
(NTSC & PAL), analog output for amplitude
and distance updated at PRF rate.
Transmitter sync output.

Transducer Connectors: available
with BNC or LEMO 1 connectors
(factory option).

Additional 638 Features

Interface Trigger: Interface gate locks
to surface echo and eliminates water path
variation.

High Power Pulsar: 450 volt boost.

Warranty

2 year limited

A S O N A T E S T N D E G R O U P C O M P A N Y

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