MANTIS

COMPACT FLAW DETECTOR WITH TFM

LIGHTWEIGHT 16:64PR PORTABLE PHASED−ARRAY FLAW DETECTOR

PAUT | sectorial, linear & compound scanning

Conventional UT | pulse−echo & dual techniques

TOFD | time−of−flight diffraction with lateral wave straightening

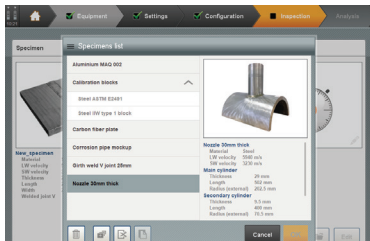**TFM** | total focusing method in real−time for expertise

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FULLY LOADED

Real–time TFM
Onboard PAUT calculator for all geometries
Compound scanning
Multi–group configurations
High PRF
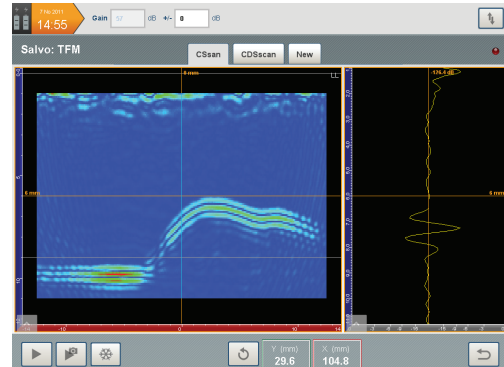Up to 3 encoded axes
ISO & ASTM code compliant

Real–time TFM

Multi–group configurations

*Onboard library of geometries
and weld preps*

QUICK SETUP TIME

Intuitive interface, step by step app design
3–click TCG, TCG save and import
3–click material velocity
3–click probe balancing
3–click wedge calibration
Onboard library of probes, wedges & scanners
Onboard library of geometries and weld preps
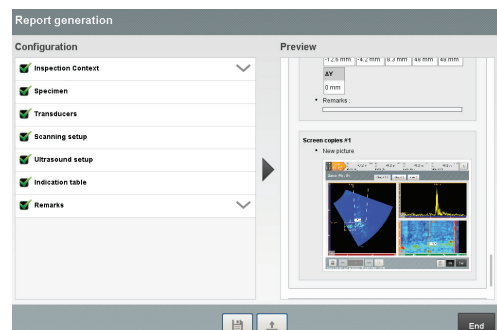Application oriented templates

ONBOARD ANALYSIS

800% amplitude dynamic
Cumulated volume views
TOFD lateral wave linearization
Customizable inspection report
Dedicated analysis tools
Fast Ethernet file transfer
PC data analysis with CAPTURE

Customizable inspection report
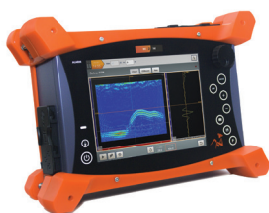
MANTIS comes in 3 cost−effective packages: Adept, Expert and Master.

MASTER

Key features:
Hi−resolution TFM
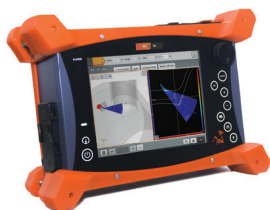Matrix
and dual arrays (DLA, DMA)
FMC recording

+ EXPERT features

Typical applications:
- Thick pipes, austenitic welds, limited probe access, 3D focusing
- R&D

+ EXPERT Typical applications

EXPERT

Key features:
- 3−axis encoding
- live 3D−overlays
- 20kHz PRF

+ ADEPT features

Typical applications:
- Nozzle inspection
- T−, K−, Y−Joints

+ ADEPT Typical applications

ADEPT

Key features:
- PAUT + TOFD + PE + TFM
- Weld prep overlay
- CAD import
- Multi−group
- Quick TCG/DAC/AVG
- Quick calibration wizards
- Comes with CAPTURE for PC
- CIVA and ENLIGHT compatible
- Free data viewer
- Fast Ethernet file transfer + USB 3.0
- Unique flaw−detector with real−time TFM

Typical applications:
- Composite
- Thin pipes
- Corrosion
- Rope access inspections

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general

L x W x H: 320mm x 220mm x 100mm	8.4'' high contrast resistive screen - resolution 1024x768 px
Operating temperature range: from -10°C to 45°C | 14°F to 113°F	Weight: 4,4kg with battery
Storage temperature range: -10°C to 60°C | 14°F to 140°F with battery	IP65 according to CEI60529
Operating time: 4h (hot swappable battery)	Shock resistance according to MIL-STD-810G

standard phased-array

Linear scanning, sectorial scanning, compound	Linear, matrix*, DLA and DMA* probes
Maximum active aperture: 16 channels	Up to 6 probes | Up to 8 groups | Up to 2,048 delay-laws
Phased array computation delay laws on plate, cylinder, T* & Y*, nozzle*	CIVA fueled phased-array calculator
Focusing mode: true depth, sound path, projection	

real-time TFM

Reconstruction channels: 16 up to 64*	Max number of points of reconstructed image: up to 65k
Max refresh rate: up to 80fps	Sound paths: direct (L or S), indirect* and converted* modes

pulsers

64 phased-array channels:	UT-TOFD:
Negative square pulse, width: 35ns to 1250ns	Negative square pulse, width: 30ns to 1250ns
Voltage: 12V – 90V with 1V step	Voltage: 12V to 200V with 1V step
Max. PRF: 12kHz up to 20kHz*	Max. PRF: 12kHz up to 20kHz*

receivers

16 phased-array channels:	UT-TOFD:
Input impedance: 50Ω	Input impedance: 50Ω
Frequency range: 0.4 to 20MHz	Frequency range: 0.6 to 25MHz
Max. input signal: 2Vpp | TCG – ACG – DGS calibration wizard	Max. input signal: 2Vpp
Gain: up to 120dB (0.1dB step)	TCG – DAC calibration wizard
Cross-talk between two channels < 50 dB	Gain: up to 120dB (0.1dB step)

digitizer

Digitizing and real-time summation on 16 channels	Resolution: 16bits
FIR filters	Max. sampling frequency: 100 MHz
Real-time averaging up to x32	Digitizing depth up to 16k points
Rectified, RF, envelope	A-scan range or delay max 65k points

acquisition

Hardware acquisition gates	Max. data flow 150 MB/s on a 128Gb SSD
A-Scan/Peak data recording	Inspection data file size: up to 10Gb
FMC recording	Data transfer through Ethernet
Acquisition trigger on time, event, encoder	800% amplitude range

wizards

CAD overlay and 3D view	Scanner calibration
Real-time phased array calculator	Amplitude calibration (TCG, DAC, DGS)
Base-time calibration for conventional UT	Probe design | Weld geometry design
Wedge calibration (angle, height)	Amplitude balancing
Velocity calibration	Part geometry with parametric shapes: plate, cylinder, T* & Y*, nozzle*

analysis

Capture © software with analysis and reporting tools – Free viewer	Amplitude range: 800%
A-Scan, B-Scan, C-Scan, D-Scan, Echodynamic, Top view, Side view, 3D view	Overlay part geometry: plate, cylinder, T* or Y* section, nozzle*
Analysis gates	Overlay weld geometry
Compatibility with CIVA analysis and ENLIGHT	Customizable inspection report

I-O

Encoder inputs: 2 axes up to 3 axes*	2 LEMO 00 connectors for UT-TOFD (1 PR – 1R)
1 IPEX connector for phased-array probe - can be upgraded to 2 with splitter*	1 external trigger
1 USB 2.0 + 1 USB 3.0 + 1 mini display port + 1 RJ45 Ethernet	7 TTL inputs/outputs

*Option
Standard: EN ISO 18563-1 for phased array channels
Standard: EN ISO 12668-1 for conventional channel

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