

# 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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# MANTIS

## FULLY LOADED

Real-time TFM

Onboard PAUT calculator for all geometries

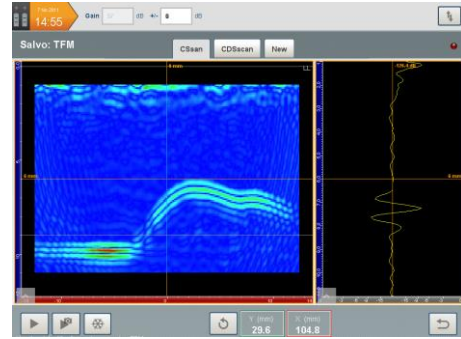
Compound scanning

Multi-group configurations

High PRF

Up to 3 encoded axes

ISO & ASTM code compliant



## 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

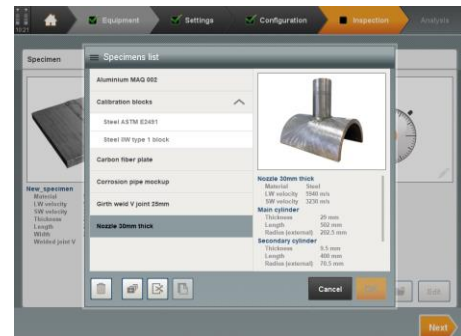
TOFD lateral wave linearization

Customizable inspection report

Dedicated analysis tools

Fast Ethernet file transfer

PC data analysis with CAPTURE



# MANTIS

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



# MANTIS

## 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 2048 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

<b>64 phased-array channels:</b>	<b>UT-TOFD:</b>
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

<b>16 phased-array channels:</b>	<b>UT-TOFD:</b>
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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