

# MANTIS

COMPACT FLAW DETECTOR WITH TFM



## LIGHTWEIGHT 16:64PR PORTABLE PHASED-ARRAY FLAW DETECTOR

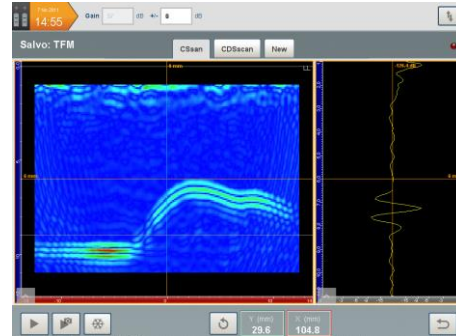
PAUT | sectorial, linear & compound scanning  
Conventional UT | pulse-echo & dual techniques  
TOFD | time of flight diffraction with lateral wave straightening  
TFM | total focusing method in real-time for expertise

M 2 M

# MANTIS

## FULLY LOADED

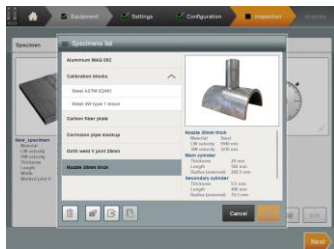
Real-time TFM  
Onboard PAUT calculator for all geometries  
Compound scanning  
Multi-group configurations  
High PRF  
Up to 3 encoded axes  
ISO & ASTM code compliant



*Real-time TFM*



*Multi-group configurations*



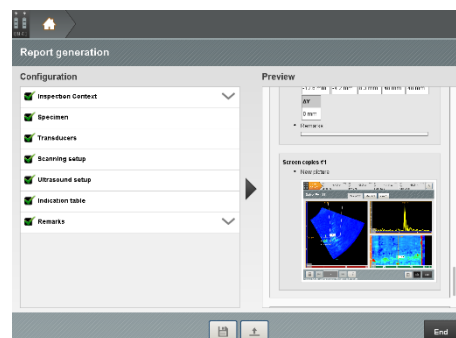
*Onboard library of geometries and weld preps*

## 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

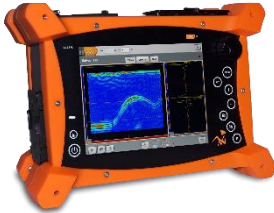


*Customizable inspection report*

# MANTIS

MANTIS comes in 3 cost-effective packages: **Adept**, **Expert** and **Master**.

## MASTER



### Key features:

- Hi-resolution TFM
- Dual Matrix Arrays (DMA)
- FMC recording

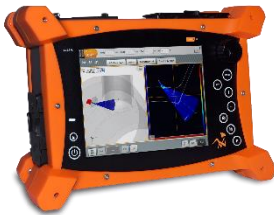
+ EXPERT features

### 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-, Y-Joints

+ ADEPT Typical applications

## ADEPT



### Key features:

- PAUT + TOFD + PE + TFM
- Dual Linear Arrays (DLA)
- 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



M 2 M

1 rue de Terre-Neuve . Bât. H. Miniparc du Verger . 91940 Les Ulis . France | t. +33 (0)1 60 92 39 65 [contact@m2m-ndt.com](mailto:contact@m2m-ndt.com)

# MANTIS

## general

L x W x H: 320mm x 220mm x 100mm

Operating temperature range: from -10°C to 45°C | 14°F to 113°F

Storage temperature range: -10°C to 60°C | 14°F to 140°F with battery

Operating time: 4h (hot swappable battery)

8.4" high contrast resistive screen - resolution 1024x768 px

Weight: 4,4kg with battery

IP65 according to CEI60529

Shock resistance according to MIL-STD-810G

## standard phased-array

Linear scanning, sectorial scanning, compound

Maximum active aperture: 16 channels

Phased array computation delay laws on plate, cylinder, T\* & Y\*, nozzle\*

Focusing mode: true depth, sound path, projection

Linear, matrix\*, DLA and DMA\* probes

Up to 6 probes | Up to 8 groups | Up to 2,048 delay-laws

CIVA fueled phased-array calculator

## real-time TFM

Reconstruction channels: 16 up to 64\*

Max refresh rate: up to 80fps

Max number of points of reconstructed image: up to 65k

Sound paths: direct (L or S), indirect\* and converted\* modes

## pulsers

### 64 phased-array channels:

Negative square pulse, width: 35ns to 1250ns

Voltage: 12V – 90V with 1V step

Max. PRF: 12kHz up to 20kHz\*

### UT-TOFD:

Negative square pulse, width: 30ns to 1250ns

Voltage: 12V to 200V with 1V step

Max. PRF: 12kHz up to 20kHz\*

## receivers

### 16 phased-array channels:

Input impedance: 50Ω

Frequency range: 0.4 to 20MHz

Max. input signal: 2Vpp | TCG – ACG – DGS calibration wizard

Gain: up to 120dB (0.1dB step)

Cross-talk between two channels < 50 dB

### UT-TOFD:

Input impedance: 50Ω

Frequency range: 0.6 to 25MHz

Max. input signal: 2Vpp

TCG – DAC calibration wizard

Gain: up to 120dB (0.1dB step)

## digitizer

Digitizing and real-time summation on 16 channels

FIR filters

Real-time averaging up to x32

Rectified, RF, envelope

Resolution: 16bits

Max. sampling frequency: 100 MHz

Digitizing depth up to 16k points

A-scan range or delay max 65k points

## acquisition

Hardware acquisition gates

A-Scan/Peak data recording

FMC recording

Acquisition trigger on time, event, encoder

Max. data flow 150 MB/s on a 128Gb SSD

Inspection data file size: up to 10Gb

Data transfer through Ethernet

800% amplitude range

## wizards

CAD overlay and 3D view

Real-time phased array calculator

Base-time calibration for conventional UT

Wedge calibration (angle, height)

Velocity calibration

Scanner calibration

Amplitude calibration (TCG, DAC, DGS)

Probe design | Weld geometry design

Amplitude balancing

Part geometry with parametric shapes: plate, cylinder, T\* & Y\*, nozzle\*

## analysis

Capture © software with analysis and reporting tools – Free viewer

A-Scan, B-Scan, C-Scan, D-Scan, Echodynamic, Top view, Side view, 3D view

Analysis gates

Compatibility with CIVA analysis and ENLIGHT

Amplitude range: 800%

Overlay part geometry: plate, cylinder, T\* or Y\* section, nozzle\*

Overlay weld geometry

Customizable inspection report

## I-O

Encoder inputs: 2 axes up to 3 axes\*

1 IPEX connector for phased-array probe - can be upgraded to 2 with splitter\*

2 LEMO 00 connectors for UT-TOFD (1 PR – 1R)

1 USB 2.0 + 1 USB 3.0 + 1 mini display port + 1 RJ45 Ethernet



Mantis

\* Option

Standard: EN ISO 18563-1 for phased array channels

Standard: EN ISO 12668-1 for conventional channel

M 2 M

Indicated values may change without notice. © 2018 M2M. All rights reserved. These specifications are referring to CAPTURE version 2.1.