

Provided by:

Technical
Specifications

M2M MANTIS

Rugged and lightweight PAUT flaw detector with TFM



Made for the field.
Designed for your inspection.

MADE FOR THE FIELD.

M2M Mantis™ is a robust and lightweight flaw detector offering UT, PAUT, TOFD and TFM through the streamlined user interface called Capture™. Based on a 16:64PR architecture with three different models, Mantis addresses both general and advanced applications without compromising productivity.

Technology Available on Demand

- 16:64PR architecture plus two UT channels verified with international standards
- Compatible with existing phased array probes (linear, dual linear, and dual matrix array) and existing scanners (up to three encoder axis)
- Embedded focal law calculation (sectorial, linear, compound) on all parts through Capture software
- Up to eight group configurations
- High inspection speeds thanks to PRF up to 20 kHz
- Real-time FMC/TFM with up to 64 elements for code compliant inspections

Built with Distinction

The Mantis is one of the most robust and reliable industrial phased array instruments ever produced by Eddyfi Technologies, thanks to careful consideration of the highly durable materials chosen.

Rugged casing and a bright resistive touch screen enable outdoor use even in harsh conditions. The Mantis has passed stringent environmental and durability testing—including drop tests—all designed to simulate real-world situations.

Remote Operation and Support

Connectivity is achieved with a dongle-activated Wi-Fi, USB 3.0 connector, and Gigabit Ethernet output that allows faster data transfer and remote controlled inspections in challenging conditions (TeamViewer license included). Operators save time in the field with a 128 GB SSD to store larger data files.

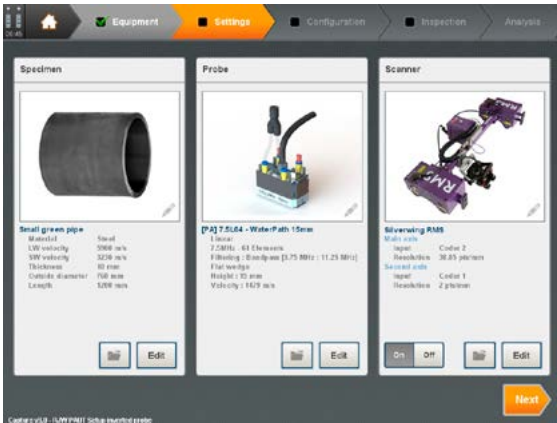


DESIGNED FOR YOUR INSPECTION.

The innovation behind the M2M Mantis™ is continually driven by market applications. This robust tool benefits from advanced algorithms through powerful embedded software. Trust the Mantis to bring the latest technology right to your fingertips.

Ecosystem, powered by CAPTURE™

- CAPTURE-GO embedded
- Ideal for quick setup, inspection, analysis, and reporting to cover your complete inspection
- RMS control ready (motorized scanner)
- CAPTURE PC version available for setup, design, & analysis
- File compatibility with **M2M Gekko®**
- Evolutive software driven by industry demand



Embedded CAPTURE-GO

- Stand-alone software for all techniques
- Streamlined intuitive user interface
- Complete probe and scanner database
- Smart 3-clicks calibration wizards including TCG, DAC, DGS
- TOFD tools
- TFM Amplitude Fidelity verification



Mantis Model Comparison

MANTIS MODEL	16:64PR	16:64PR-TFM16	16:64PR-TFM64
Corrosion	✓	✓	✓
Composite	✓	✓	✓
Butt weld & long seam weld Commonly up to 25-30mm (1-1.25") thick	Single group only	Multi-group up to 8	Multi-group up to 8
Inspection speed – PRF	Up to 12 kHz	Up to 12 kHz	Up to 20 kHz
Expertise using FMC/TFM		Up to 16 elts no FMC recording direct modes only	✓
Advanced solutions <ul style="list-style-type: none"> • CAD import, T,Y-joints, nozzle welds • Matrix & Dual Matrix probes • Scanner up to 3 axes 		CAD overlay import only	✓

Upgrade options are available for the MANTIS-16:64PR and MANTIS-16:64PR-TFM16.

We recommend **GEKKO** for thick components and/or attenuative materials.

CAPTURE Analysis tools

- 800% dynamic range and software gain
- Gate, view layout and overlay adjustment
- Sizing and reporting tools (with auto-sizing)
- 3D data display
- Data stitching



Play/Pause/Increment buttons to use with Eddyfi scanners

SPECIFICATIONS

INSTRUMENT

Dimensions (W x H x D)	311 x 220 x 86 mm (12.2 x 8.7 x 3.4 in)
Weight (with battery)	3.7 kg (8 lb)
Power Supply	15 V, 6 A
Operating time	>4h (hot swappable battery)
Display	8.4" high contrast resistive screen
Resolution	1024 x 768 px
Storage	128 GB SSD

CONNECTIVITY

1 IPEX connector for phased-array-Splitter compatible	2 LEMO 00 connectors for UT-TOFD (1PR - 1R)
2 up to 3 encoder inputs*	1 external trigger
1 USB 2.0 + 1 USB 3.0	Remote control and data transfer through Ethernet & Wifi
1 HDMI port	2 programmable I/O

ENVIRONMENT

IP Rating	IP65
Operating temp range with battery	-10°C - 45°C (14°F - 113°F)
Storage temp range with battery	-10°C - 60°C (14°F - 140°F)
Drop-test	According to MIL-STD-810G 1

PHASED-ARRAY

Maximum active aperture: 16 elements	Linear scanning, sectorial scanning, compound scanning, CIVA Laws
Total number of channels : 64	Focusing modes: true depth, sound path, projection
Linear, matrix*, DLA and DMA* probes	CIVA fueled phased-array calculator
Up to 6 probes Up to 8 groups Up to 2,048 delay-laws	On-board focal law calculation on plate, cylinder, T*&Y*, nozzle*

DIGITIZER

Digitizing/summation on 16 channels	16 bits amplitude resolution
FIR filters	Max. sampling freq. 100MHz
Real-time averaging up to x32	FMC A-scan - 16k max samples
Rectified, RF, envelope	PA A-scan - 65k max samples

REAL-TIME TFM

Reconstruction channels: 16 up to 64* elements	Max number of points/image: max 65K. Unlimited with post-processing
Max refresh rate: up to 80fps	Sound paths: direct (L or S), indirect* and converted* modes
All calibration wizards (including TCG) available	A-Scan, B-Scan, C-Scan, D-Scan, Echodynamic, Top view, Side view, 3D view

PULSERS

Phased array channels ¹ :	Negative square pulse, width: 35ns to 1250ns HT voltage: from 12V to 90V (with 1V step) Max. PRF: up to 20 kHz
UT-TOFD channels ² :	Negative square pulse, width: 30ns to 1250ns HT voltage: from 12V to 200V (with 1V step) Max. PRF: up to 20 kHz

RECEIVERS

Phased array channels ¹ :	Input impedance: 50 Ω Frequency range: 0.4 to 20MHz Max. input signal: 2Vpp Gain: up to 120dB (0.1dB step) Cross-talk between two channels < 50 dB
UT-TOFD channels ² :	Input impedance: 50 Ω Frequency range: 0.6 to 25MHz Max. input signal: 1.4 Vpp Gain: up to 120dB (0.1dB step)

ACQUISITION

Hardware acquisition gates	Max. data flow 150 MB/S
A-Scan/Peak data recording	Inspection data file size: SSD limitation
FMC recording	Data frame loss indication

1 Standard: EN ISO 18563-1 for phased array channels

2 Standard: EN ISO 12668-1 for conventional channels

*Optional