Technical
Specifications

M2M MANTIS

Lightweight phased-array flaw detector with TFM

Eddyfi Technologies

SPECIFICATIONS

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	Designed for IP66
Operating time: >4h (hot swappable battery)	Shock resistance according to MIL-STD-810G 1

I/O

1 IPEX connector for phased-array (can be upgraded to 2 with splitter)	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 micro display port	7 programmable I/O

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*

REAL-TIME TFM

Reconstruction channels: 16 up to 64* elements	Max number of points of the TFM image: up to 1Mpi (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[2]:	Negative square pulse, width: 35ns to 1250ns	UT-TOFD channels[3] :	Negative square pulse, width: 30ns to 1250ns
	HT voltage: from 12V to 90V (with 1V step)		HT voltage: from 12V to 200V (with 1V step)
	Max. PRF: 12kHz up to 20kHz*		Max. PRF: 12kHz up to 20kHz*

RECEIVERS

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

DIGITIZER

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

ACQUISITION

Hardware acquisition gates (true-depth or soundpath)	Max. data flow 150 MB/s on a 128Gb SSD (extensible up to 1 To)
A-Scan/Peak data recording	Data compression
FMC recording	Inspection data file size: SSD limitation
Acquisition trigger on time, event, encoder	Data frame loss indication

WIZARDS

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

ANALYSIS

CaptureTM software with analysis and reporting tools – Free PC Viewer	Compatibility with CIVA analysis and ENLIGHT™
A-Scan, B-Scan, C-Scan, D-Scan, Echodynamic, Top view, Side view, 3D view	Part & weld overlay: plate, cylinder, T* or Y* section, nozzle*
Analysis gates	Digital gain , measurement indicators
TOFD Lateral wave linearization and removal	Customizable inspection report
Csv data export	Amplitude range: up to 800%

[1] In progress / [2] Standard: EN ISO 18563-1 for phased array channels / [3] Standard: EN ISO 12668-1 for conventional channels / *Optional

www.m2m-ndt.com info@eddyfi.com

Eddyfi Technologies

2019-08