

M2M MANTIS

Lightweight phased-array flaw detector with TFM



SPECIFICATIONS

GENERAL

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| 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

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| 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

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| 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

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| 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

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| Phased array channels ² : | Negative square pulse, width: 35ns to 1250ns HT voltage: from 12V to 90V (with 1V step) Max. PRF: 12kHz up to 20kHz* | UT-TOFD channels ³ : | Negative square pulse, width: 30ns to 1250ns HT voltage: from 12V to 200V (with 1V step) Max. PRF: 12kHz up to 20kHz* |
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RECEIVERS

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|--------------------------------------|--|---------------------------------|--|
| 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) |
|--------------------------------------|--|---------------------------------|--|

DIGITIZER

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| 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

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| 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

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| 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

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| 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

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