M2M MANTIS™
Lightweight phased-array flaw detector with TFM
## SPECIFICATIONS

### 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)

### PHASED-ARRAY

- **Maximum active aperture:** 16 elements
- **Total number of channels:** 64
- **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**
- **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 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

<table>
<thead>
<tr>
<th>Channels</th>
<th>Negative square pulse, width: 35ns to 1250ns</th>
<th>Negative square pulse, width: 30ns to 1250ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phased array channels*</td>
<td>HT voltage: from 12V to 90V (with 1V step)</td>
<td>HT voltage: from 12V to 200V (with 1V step)</td>
</tr>
<tr>
<td>Max. PRF</td>
<td>Max. PRF: 12kHz up to 20kHz*</td>
<td>Max. PRF: 12kHz up to 20kHz*</td>
</tr>
</tbody>
</table>

### RECEIVERS

- **Input impedance:** 50 Ω
- **Frequency range:** 0.4 to 20MHz
- **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 65k samples
- **Rectified, RF, envelope:** A-scan range or delay max 65k samples

### 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*

### I/O

- **1 IPEX connector for phased-array (can be upgraded to 2 with splitter)**
- **2 LEMO 00 connectors for UT-TOFD (PR - R)**
- **2 up to 3 encoder inputs**
- **1 external trigger**
- **1 USB 2.0 | 1 USB 3.0**
- **1 micro display port**
- **7 programmable I/O**

### 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**
- **FM recording**
- **Data compression**
- **Acquisition trigger on time, event, encoder**
- **Data frame loss indication**
- **Csv data export**
- **Amplitude range:** up to 800%

### ANALYSIS

- **Capture™ software with analysis and reporting tools – Free PC Viewer**
- **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**
- **Crd data export**
- **Amplitude range:** up to 800%

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1. In progress
2. Standard: EN ISO 18563-1 for phased array channels
3. Standard: EN ISO 12668-1 for conventional channels

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