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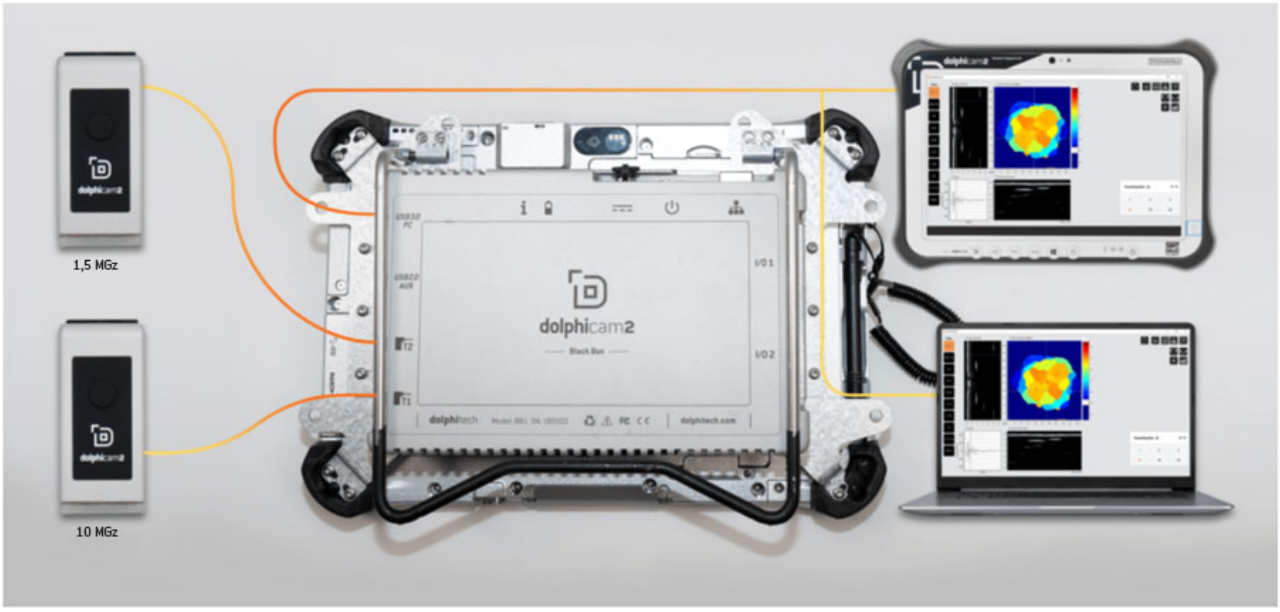
# dolphicam 2 product specifications

dolphicam2 is a unique ultrasound imaging platform for multi-material NDT (Non-Destructive Testing).
Our patented 2D matrix transducer technology supports transducer frequencies from 1.5-10MHz as well as custom transducer designs. Super Speed USB enable impressive performance, with up to 100 datasets per second from all 16.384 transducer elements. Add a USB C, ruggedized tablet with modern, user friendly software and you have the ultimate NDT tool.




Founded in 2009, dolphitech AS provides advanced ultrasound-based cameras for 2D and 3D identification, inspection and analysis of defects in composite materials. The company uses advanced technology developed by a team of experts in ultrasound, analogue and digital electronics.

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## Black Box

The Black Box is the core of the dolphicam2 system. It is equipped with two USB C ports for transducers, another USB C port for the PC/host and two GPIO connectors for encoders. In addition, ethernet (TP/RJ45) is available for robot integration and other configurations where USB is not an option.


| Product specifications – Black Box | |
|---|---|
| PC/Host port | USB C |
| Transducer ports | 2x USB C |
| Encoder ports | 2x GPIO |
| Other connections | Ethernet |

## Toughpad

dolphicam2 consists of a rugged 10" Panasonic Toughpad FZ-G1 tablet computer with a combined table stand and Black Box mounting bracket on its rear. The Toughpad has a daylight-readable display with gloved-multitouch and waterproof digitizer pen. The tablet is equipped with an Intel i5 CPU, 8GB of ram and a 256GB SSD. Like the rest of the system, it is tested to withstand drops from 1.3 meters, has IP65 ingress protection and long battery life (6-8 hours in normal use).


| Product specifications – Toughpad | |
|---|---|
| Size | 270 x 188 x 19 millimeters |
| Features | Daylight-readable display with gloved multi touch + waterproof digitizer pen |

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| | |
|---|---|
| Battery | 6—8 hours normal use |
| Ingress protection | IP65 |

**Transducer**

The unique 128x128 “crossed electrodes” transducer creates a grid of 16.384 individual ultrasonic echoes (“a-scans”) over the 32x32mm transducer area, which makes it capable of detecting very small defects. Transducers are offered in a wide range of frequencies, allowing the user to do inspections on different types of materials, typically low-frequency for glass fiber (GFRP), medium-frequency for carbon fiber (CFRP) and high-frequency for metals. The transducer connects to the dolphicam2 Black Box through a standard USB C cable which handles power, control signals and data.


| **Product specifications - Transducer** | |
|---|---|
| Width | 40mm / 1,6 inch |
| Length | 40mm / 1,6 inch |
| Height | 84mm / 3,4 inch |
| Transducer elements | 16.384 |
| Transducer frequencies | 1.5 MHz / 2.5 MHz / 3.5 MHz / 5.0 MHz / 8.0 MHz / 10.0 MHz |
| Sample rate | 50 MHz |
| Delay lines | Fixed flat soft (Aqualink, Aqualene) or hard (Rexolite), detachable flat soft or hard, detachable hard curved/pipe shoe, water box |

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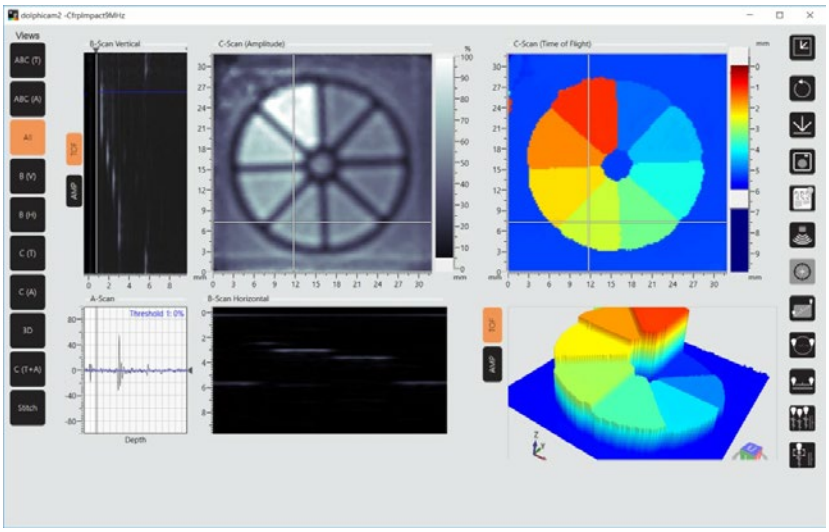
## Software



The dolphicam2 software combines data from each sensor element into ultrasonic imagery in real time. In addition to signals from individual sensor elements, the software can visualize vertical and horizontal cross-sections and 3D views through the material being inspected.
The modern, intuitive user interface makes it easy to get started with dolphicam2. At the same time, advanced features like FIR filters and Total Focusing Method helps experienced users detect and classify even the finest of material features.
The open, documented data file format allows users to export their datasets to e.g. Matlab, or to save it for future reference.
Stitching modes, with or without encoder guidance, makes it easy to inspect larger areas and the report function makes it easy to save images of particular interest and combine them into a Microsoft Word document.
Last, but not least, the multi-platform dolphicam2 SDK can be used to control and acquire data from the dolphicam2 in scenarios where the regular dolphicam2 application is not the right solution.

| **Product specifications - Software** | |
|---|---|
| Data transfer rate | Up to 3.2Gbit/s depending on transducer settings |
| Effective data acquisition rate | ~30 full data sets (128x128 a-scans) per second with typical settings |
| Data processing | High/low/band-pass filters, Hilbert/envelope, Total Focusing Method |
| Visualization | Single element signals (a-scans), vertical cross sections (b-scans), horizontal cross sections and material thickness mappings (c-scans) and 3D. |
| Adjustable settings | Measurement unit, material depth, gating, material sound velocity, transmit pulse shape, gain, filtering and averaging, time corrected gain, color palette |
| Encoder guided stitching | Yes |
| Grid and free hand stitching | Yes |
| Data file format | Open, HDF5 based file format |
| SDK | Yes |

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