



Sonatest **Wave** - Full Specifications

Version 2.1 - as of November 7th, 2024

GENERAL PHYSICAL CHARACTERISTICS

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| Dimensions (W x H x D) | 222 x 172 x 66 mm |
| Weight (with battery) | 1.7 kg |
| UT ports | 1 TX/RX – 1 RX |
| UT Connectors | LEMO 1 or BNC |
| Encoder and GPIO connector | LEMO 1, 16 pins |
| USB Connection | USB-C port - used for charging, wired Ethernet |
| Proprietary port | 18 leads port – future use |
| Tripod mount | Yes (using standard ¼-20 socket / ¼", 20 threads per inch) |
| Adjustable Self Stand Support | Adjustable from 0° to 180° |

POWER AND CHARGING

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| Battery Type | Intelligent Li-ion, 10.8V, 73Wh |
| Operation | On battery or on external power |
| Battery Replacement | Yes – no tools required |
| Battery Recharge | Rechargeable in unit – Optional external charger |
| External Power | USB-C supporting PD adaptative power source (up to 20V-3A) |
| Battery Life | Typical 10 hours of continuous work |

DISPLAY

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| Type | LCD, TFT |
| Size | 7-inch, wide aspect ratio (154 mm x 90 mm) |
| Resolution | 1024 x 600 |
| Colours | 16.7 million colours |
| Polarizer | Anti-glare |
| Backlight | LED |
| High Contrast Mode | Yes (sunlight readable) |
| Touch Panel | Yes, Projective Capacitive (PCAP) |
| Touch Panel Operation | True multi-touch capability (allows pinching and panning), operable with gloves, undisturbed by reasonable quantity of liquid |
| Touch Panel Sensitivity Adjust. | Glove mode or Normal |
| Touch Panel Control | Touch panel can be disabled/enabled using power button (double-click) |

PULSER

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| Pulser Type | Square Wave (negative pulse) |
| Pulse Width (Square Wave) | Adjustable – 50ns to 1 us |
| Pulse Voltage | 100V, 150V, 250V, 300V, 350V, 400V, 450V, 500V (±10% in 50Ω) |
| PRF | 1 Hz to 1500 Hz |
| Edge Time | 10ns in 50 Ω @ 300 V |
| Damping | 50 Ω |

RECEIVER

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|-----------------------|-------------------|
| Gain range | 0 to 110 dB |
| Maximum Input Voltage | 10Vpp |
| Bandwidth | 250 kHz to 30 MHz |

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| Filters | 26 digital filters – 13 pairs of narrow and wide band filters (0.5, 1.0, 1.25, 2.0, 2.25, 3.5, 4.0, 4.5, 5.0, 7.5, 10.0, 15.0, 20.0 MHz) 2 broadband filters (high and low frequency) |
| Receiver Mode | Pulse-Echo, Pitch Catch, Through Transmission |
| Rectification | Full, Positive Half, Negative Half, RF |
| Signal Reject Type | None, Suppressive, Linear |
| Signal Reject Level | 0% to 80% |
| Envelope Modes | None, Peak, Trail (with customizable trail duration) |
| Reference A-Scan | Yes (live) |
| Averaging | Yes – 0 (no averaging), 2, 4, 8, 16, 32 |
| A-Scan %FSH Range | 0% to 160% FSH |
| A-Scan %FSH resolution | 0.1% |
| Analog to Digital Conversion | 12 bits per sample, 125 MHz sampling rate |
| A-SCAN PRESENTATION | |
| A-Scan Trace | Thin, Thick Filled |
| Rulers | Vertical (%FSH) and horizontal (distance or time) |
| Grid Type | None, Plain, Dash, Dot, Cross |
| Grid Alignment | Fixed (10 divisions) or Aligned to ruler |
| Overlay Mode (Skips) | Line or Band |
| Overlay Sync | Based on calculated travel path (embedded ray-tracer) |
| A-Scan Interactions | Zoom & pan using multi-touch pinching |
| Zoom in Gate | Yes (double tap gate) |
| Quick Reset Zoom | Yes |
| Freeze | Yes – All measurements and gates remain active |
| A-Scan Capture | Yes – (full resolution, includes scan parameters and measurements) |
| Interactive Scan Plan Capture | Yes – (full resolution, includes scan parameters and measurements) |
| SCAN PLAN PRESENTATION | |
| Scan Plan Components | Probe, Wedge, Part |
| Parts | Flat, Curved, T-Joint, Corner Joint |
| Welds | Single V, U, J / Double V, U, J / Bevel Groove / Double Bevel |
| Weld Caps | Yes |
| Ray Tracer | Yes – Interactive (move probe on part) |
| Ray Tracer Path | Supports reflective weld caps that allows real skip path in A-Scan |
| Gates | Shown in part – overlays ray-tracer path |
| A-Scan | Shown in part – overlays ray-tracer path |
| Custom part | CAD import |
| GATES AND MEASUREMENTS | |
| Number of Gates | 4 |
| IFT | Yes |
| Gate Measurements | %FSH, Sound Path, Depth, True Depth, Surface Distance, Surface Distance minus X Offset, % Ref, dB Ref |
| Gate Triggering | Peak, Flank, First Peak |
| Gate to Gate Measurements | Yes, all modes (Peak, Flank, First Peak) |
| BEA | Yes |
| DAC | Yes, 16 points with 3 sub-DACs |
| DAC Measurements | Relative or Absolute, in % or dB |
| TCG | Yes – with DAC to TCG and TCG to DAC |
| Split DAC | Yes |
| DGS | Yes (Standard) |

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|--------------------------|--|
| AWS D1.1/D1.5 | Yes (Standard) – shows A, B, C and D values |
| API | Yes (Standard) |
| Alarms | 4 (Colour coded) |
| Alarm sources | Any Gate, DAC, DGS / not G1 / G1 and G2 / G1 or G2 |
| Measurements at PRF Rate | Yes |
| Remote API | Read/Write parameters using MQTT v5 |
| A-scan Streaming | Up to 8192 samples A-scan, up to 60 Hz (MQTT) |
| Measurements Streaming | 4 measurements, up to 60Hz (MQTT) |

CALIBRATION

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| Units | SI or Imperial |
| Auto Cal | Zero, Velocity |
| Velocity | 2-point calibration |
| Range | 0 to 30000 mm |
| Zero Offset (Probe Zero) | 0 to 1000 µs |
| Delay | 0 to 9999 mm |

MEMORY AND STORAGE

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| Total Memory | 16 GB |
| Available Memory (Apps & Data) | 12 GB |
| App Storage | Up to 50 apps |
| Exam Mode App | Customized Apps with anti-tampering protection (unique ID & timer) |
| A-Scan Storage | Up to 100,000 separate A-Scans |
| Thickness Logging Storage | Up to 3,000 Thickness grids of 200 x 200 measurements |

ENVIRONMENTAL

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| IP Rating | Designed to meet IP67 |
| Vibration Tested | MIL-STD-810F, Method 514.5, Procedure I |
| Shock Tested | MIL-STD-810F, Method 516.5, Procedure I |
| Operating Temperature | -10 °C to 45 °C |
| Storage Temperature | -30 °C to 75 °C (Battery is -20 °C to 60 °C) |

All above specifications subject to change without notice