Sonatest **Wave** - Full Specifications

Version 2.2 - as of April 2nd, 2025

GENERAL PHYSICAL CHARACTERISTICS

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

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

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

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

Gain range	0 to 110 dB
Input Voltage	20uVpp to 20Vpp
Bandwidth	250 kHz to 30 MHz

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)

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

Units	SI or Imperial
Auto Cal	Zero, Velocity (2-point calibration)
Velocity	500 to 18000 m/s
Range	0 to 30000 mm
Zero Offset (Probe Zero)	0 to 1000 µs
Delay	0 to 9999 mm

MEMORY ANS STORAGE

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

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