

Sitescan Series

500S & D-50

**GENERAL PURPOSE BROADBAND DIGITAL
ULTRASONIC FLAW DETECTORS**



Sitescan Series

The choice is yours, customise your software...

The Sonatest heritage in product design and Sitescan name has always assured the technician of robust instrument construction combined with exceptional performance. The Sitescan series carries the baton of all these desirable features, but now, thanks to innovative internal redesign, new features can be added and upgrades performed in the working environment, reducing downtime and increasing working flexibility. High levels of near surface resolution, penetrating power and excellent signal to noise ratio are key functions in the Sitescan range. Typical applications are Weld Fabrication, Corrosion Detection, Forgings & Castings and general UT inspection.



Sitescan D-50
DAC Curve functionality shown in Full Screen Mode.

...and choose your hardware.



Sitescan 500S TCG Mode

Sitescan Series Features

- Customisable & intuitive menus.
- Split DAC/AVG.
- Angle measurement mode.
- Configurable on-board software.
- Field upgradeable.
- Encoded B-Scan.
- A-Scan fade.
- 4GByte on-board memory.
- USB Interface for PC import/export.
- Video output for training.

High Visibility Display

For any flaw detector the display is a crucial element. The Sitescan series has a colour transfective VGA display, providing high visibility in any lighting conditions.

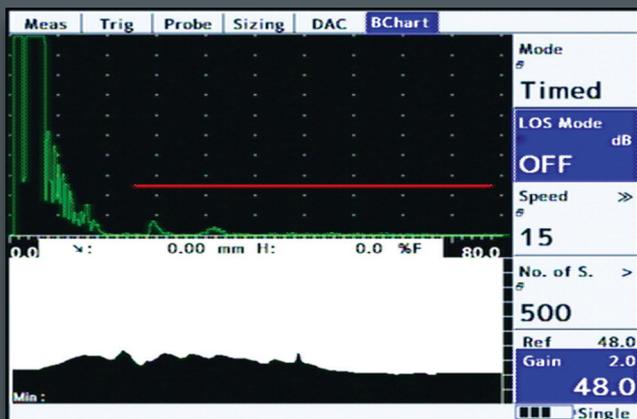
Maximum readability is achieved through adjustable brightness and the choice of 9 colour palettes, including a black on white LCD emulation mode. Simplicity reigns with the enhanced user interface and a full screen A-scan display is available at the touch of a button, so that every detail of the A-scan can be easily seen.

3Rs – Reliable, Rugged & Robust

The ability to perform in harsh environments with proven reliability is an important aspect of flaw detector ownership. Maximum operational time is promoted by outstanding battery performance, up to 18 hours from full charge. The Sitescan's enclosure is constructed using automotive grade impact resistant materials and is designed to meet IP67 standards, offering excellent water resistance.

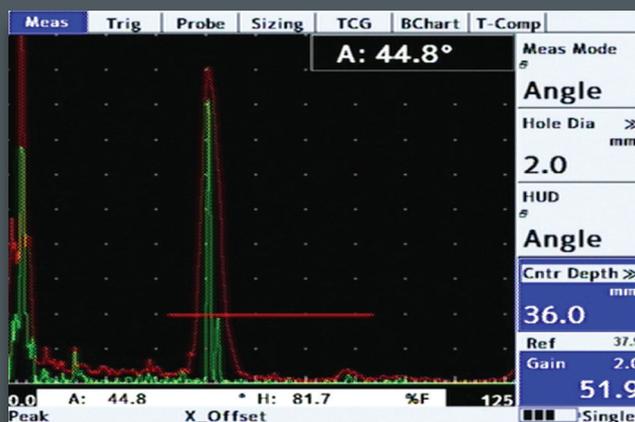
Explosive Testing MIL810-G standards have been passed, together with environmental testing which has confirmed the instrument fully functioning at temperatures above 55°C.

Features



B-Scan

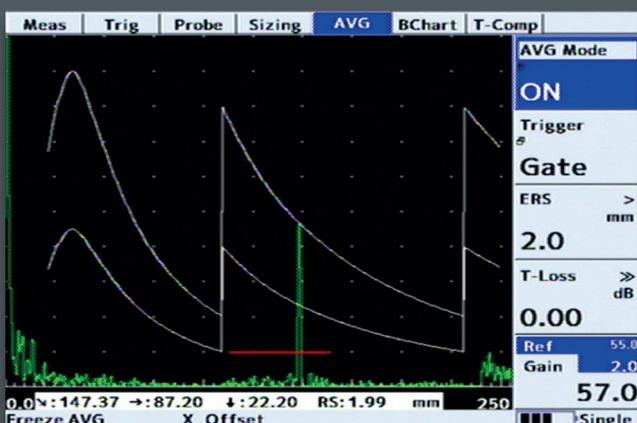
The Corrosion Software option includes the B-Scan display function which shows the cross section of the material based on its wall thickness. The B-Scan has selected update rates from 3 to 10 times per second, and can be stored with the thickness readings and transferred to the PC via UTLity.



Angle Measurement Mode

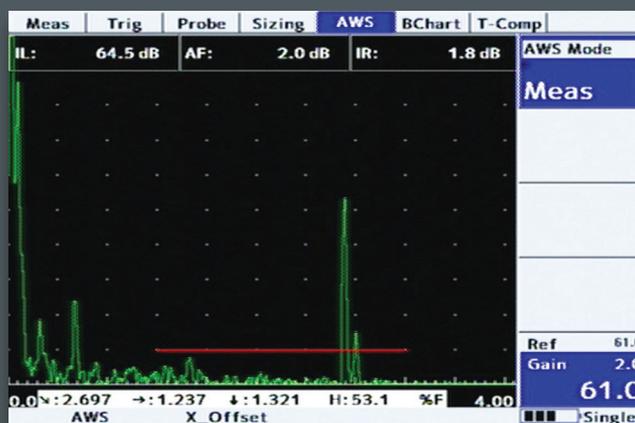
Quick accurate measurement of beam profile is made easy by the new angle measurement mode.

The instrument automatically converts the indication from a side-drilled hole of known diameter and depth to the angle of the reflector from the beam exit point. Using the built-in peak-detection mode, as shown, the beam profile for any transducer can be confirmed in moments.



DGS (AVG)

AVG/DGS software can be configured for any transducer and gives repeatable sizing of flaws with direct readout of Equivalent Reflector Size. The visible ERS curve can be adjusted to display the desired acceptance level and used to trigger the alarm and measurement reading.



AWS

With this option enabled, measurements of Indication Level (IL), Attenuation Factor (AF), and Indication Rating (IR) are calculated and displayed in accordance with AWS D1.1

UTLity Lite / UTLity Pro (Data Management Software)

UTLity Lite software provides everything you need to manage your inspection data. The Standard (Lite) version is FREE with every instrument and gives you the ability to view, move and manage Calibrations, A-Scans, B-Scans and Thickness Logs both on the instrument and on your PC. With UTLity Lite you can also create customised inspection report templates, cut-n-paste information to other applications, and create printable pdf documents.

- Load, store, manage files both on the PC and on a connected flaw detector
- Save, analyse, colour code & export thickness logging data to spreadsheets/asset management software.
- Update the flaw detector software & firmware as and when updates become available on our website.

UTLity Pro is the “professional” version and works in conjunction with the corrosion software option, providing the end user with the ability to create and manage inspection plans, location notes, historical thickness readings and other asset management information as required.

- Set up Inspection plan (grid) templates, notes and labels.
- Import previous readings into an inspection plan
- Export inspection plan data to spreadsheets and plant maintenance databases.
- Back up and Recovery Feature

Specifications

(subject to change without notice)

Sizing Techniques & Software Options

Sizing Technique	Description	Standard or Optional
DAC	Defined by up to 20 reference points or converted from TCG curve and digitally drawn on the screen. DAC curves meet the requirements of EN, ASME, JIS and many other standards. Custom DAC curves can be selected. DAC dynamic range can be extended by automatically adjusting the reference curve to match the reference gain. Scanning Gain and T-Loss available as separate controls. Amplitude readout is selectable between % FSH, % DAC or relative dB.	Standard
TCG	Time corrected or "Swept" gain, defined by up to 20 reference points or converted from a DAC curve. All points converted to 80% screen height.	Option
Backwall Echo (BEA) Attenuation	0-40dB attenuation applied to the latter part of the time base, to improve the detectability of defects near the back wall and the loss of BWE due to porosity.	Option (requires TCG)
AWS	Built-in calculation and display of factors and parameters required by AWS D1.1	Option
AVG/DGS	Enables the calculation of pseudo "DAC" curve and equivalent reflector size of UT indications, based on user input of transducer parameters.	Option
API	On-board flaw sizing method in accordance with API 5UE.	Option
Interface Trigger	Unlocks the interface trigger gate controls, which hold off the A-Scan acquisition and display until an interface echo is detected within a specific range and amplitude. Used for the elimination of water-path.	Option
Corrosion Software Option	Enables complex inspection plans to be uploaded from a PC using the on board UTILITY software. Features include 2 dimensional thickness logging, storing A-Logs and B-Logs with thickness values, taking multiple readings per location and note creation for each grid location. B-Scan option available to display bar-graph views of thickness readings taken by Gate 1 against distance or time.	Option (includes B-Scan)
Split DAC & DGS/AVG	Adds up to 3 zones of added gain (+12db, +24dB) to the DAC or DGS/AVG curve to enable single-pass scanning of large sections and attenuative materials. Conforms to EN583-2:2001.	Option

Sitescan Standard Kit

- Sitescan 500S or D-50 digital flaw detector
- Battery, charger, charger mains cable.
- User guide & calibration certificate.
- Certificate of conformance
- Carry bag.
- UTILITY & USB cable.
- Display window cover.
- Ultrasonic couplant.

Site Pack Option (D-50 only)

- Sitescan standard kit
- Rugged shipping case
- Airplane carry on size
- 488 Mm x 386 mm x 229mm
- 19.2 In x 15.2 In x 9.0 In
- Centre of gravity bracket
- Webbing bracket
- Magnetic bracket
- Webbing/two karabiners strap/hook

B-Scan Encoder Option

B-Scan Encoder available on request.

Rubber Boot Accessory

Customised rubber "shell" that fits around the instrument for extra protection and insulation. (D-50 only).

UTILITY Pro (Advanced User Software)

Advanced user software, partners with the corrosion software option enhancing data manipulation, presentation and analysis.

Specifications

(subject to change without notice)

Sitescan Series D-50 & 500S

Test Range	0-5mm (0.25in) up to 0-10,000mm (400 in.) in steel at 5930m/s (19455f/s).
Velocity	1000 – 10,000 m/s continuously variable.
Probe Zero	0 to 999,999 µs.
Delay	0-10,000m (400in) in steel at 5930m/s (19455f/s)
Gain	0 to 110dB adjustable in 0.5, 1, 2, 6,10, 14 and 20dB steps.
Test Modes	Pulse echo and transmit/receive.
Pulser	200V fixed. 50nS square wave. Rise/Fall times <15nS into 50R load.
Damping	50 and 400 Ohm damping selectable.
Active Edge™	Unique Active Edge Mode for improved near-surface resolution.
P.R.F	Adjustable 5Hz to 1kHz. External sync also available.
Screen Update Rate	60Hz
Rectification	RF, Full wave, +ve half-wave and -ve half-wave.
Frequency Range	1.0MHz to 14MHz (-3db)
System Linearity	Vertical = 0.5% Full Screen Height (FSH). Horizontal +0.2% Trace Full Screen Width (FSW).
Reject (Selectable)	Up to 80% Linear reject (removes baseline noise without affecting indication amplitude) Or Up to 50% suppressive reject (increase zero offset and reduces amplitude of all echoes) LED Warning when active.
Units	Metric (mm), Imperial (in).
Display	Colour Transflective VGA (640 x 480) TFT. Display area: 116.16 x 87.2 mm (4.57 x 3.43 in). A-Scan Area: 400 x 510 pixels (normal), 460 x 620 (FS). Colours: 9 colour options with variable brightness.
Gate Monitor	Two independent gates for measurement and monitoring. Start and width fully adjustable over the entire range of the instrument. Levels adjustable from 0% to 100%, positive or negative triggering on each gate with audible & visual alarms. Gate resolution is 5nS.
Zoom	Expands range and delay to cover the area set by Gate 1 start & width controls. AGC Automatic Gain Control automatically sets the signal in Gate 1 to a level between 10% and 90% FSH, tolerance between 5% and 20%.
MEASUREMENT MODES	
Mode 1	Signal monitor, gate alarms can be active but no measurements are displayed.
Mode 2	Depth and amplitude of first signal in gate.
Mode 3	Echo-Echo distance measurements.
Mode 4	Trigonometric display of beam-path, surface distance (including X-offset) and depth of indication from the inspection surface together with echo amplitude. Curved surface correction can be applied for convex and concave surfaces. Half-skip can be indicated on screen.
Mode 5	Gate to gate distance measurement
Mode 6	Flank to flank
Mode 7	Beam angle, calculated from beampath, hole radius and hole centre depth.
Measurement Display	Live display and updates on screen at 10 times per second. Large display of a single measurement available.

Waveform Smoothing	Select from: i) None (both min and max values are displayed in the A-Scan) ii) Fill (Min values set to baseline value, produces a solid A-Scan) iii) Smooth (min values ignored, produces a clear outline A-Scan).
Auto-Cal	Provides automatic calculation of velocity and probe zero from 2 reference echoes. Automatic calibration with two echoes.
Reference Waveform	Displays a previously stored A-log in a colour different from the active display: enabling a quick visual check of the differences.
Clock	Built in, battery-backed RTC keeps time and date. Visible on the status line, always stored with panels, A-logs etc.
Internal Memory	4GByte storage available for A-scans, panels, T-logs, B-logs etc. 450,000 Panels, 200,000 A-Logs, 300,000 B-Charts, 440,000 T-Logs.
Active Peak Memory	Retains all A-scans on screen for echo-dynamic pattern analysis, with the active A-scan displayed in a separate colour.
Notes	Alphanumeric labelling for panel stores, A-logs, B-logs etc.
Display Freeze	Hold the current waveform on screen for off-line processing.
Help Key	Shows software and hardware information.
Language Support	Multiple languages are selectable from a list including: English, French, Spanish, Russian, Chinese (Modern). Others are available on request.
Encoder Connection	Lemo min 4-pin connector (D50) D-Sub 15 connector (500S)
Video Output	Standard on 500S. Factory option on D-50.
Proportional Outputs	Available on 500S.
External Sync	Available on 500S.
USB Connection	Internal storage shown as Memory Device.
Transducer Sockets	BNC or LEMO (factory option).
Power	Battery life for SS500 is 13.5 hours and for D-50 it is 10.5 hours.
Charger	100-240 VAC, 50-60 Hz.
Environmental	Designed to meet IP67.
Temperature	Operating: -10°C to 55°C (14°F – 131°F). Storage: -40°C to 75°C (-40°F – 167°F).
Size	D-50: H 172mm x W 238mm x D 70mm (6.77in x 9.37in x 2.75in). 500S: H145mm x W 255mm x D 145mm (5.7in x 10 in x 5.7in).
Weight	Sitescan D-50: 1.7 kg (3.7lbs) with battery. Sitescan 500S: 2.5kg (5.5lbs) with battery.
Warranty	2 year
Extended Warranty	Sonacover – extended 5 year warranty, including 4 calibrations.
Calibration Standard	ISO 22232-1:2020 (Detailed specification available on request)
Standards	Vibration to 514.5-5 Proc 1 Annex C Fig 6 Shock 516.5 Proc 1 15g/6ms Explosive atmospheres – MIL-STD 810G Method 511.5, Procedure I

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