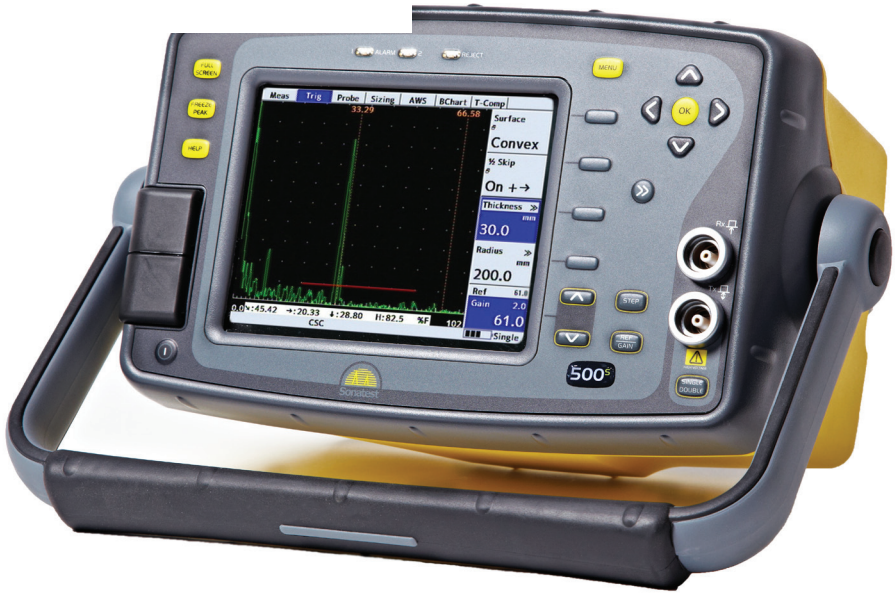
SITESCAN SERIES

500S & D-50

GENERAL PURPOSE BROADBAND DIGITAL ULTRASONIC FLAW DETECTORS

Sitescan D-50



Sitescan 500S

Choose, Customise, Perform.

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.

Sitecan D-50

DAC Curve functionality shown in Full Screen Mode.

.....and choose your hardware.

Sitescan 500S TCG Mode

Sitescan Series Features

- Customizable & Intuitive Menus
- Split DAC/AVG/DGS
- Angle Measurement Mode.
- Configurable on-board software.
- Field Upgradable.
- Encoded B-Scan
- A-Scan Fade.
- 4GByte on-board memory.
- USB Interface for PC import/export.
- Video Output for training.

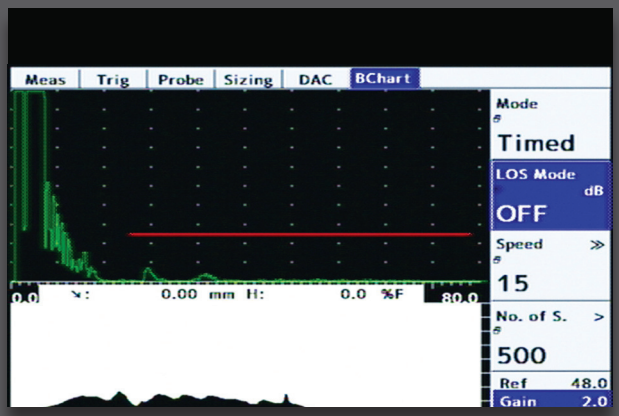
High Visibility Display

For any flaw detector the display is a crucial element. The Sitescan series has a color transflective VGA display, providing high visibility in any lighting conditions. Maximum readability is achieved through adjustable brightness and the choice of 9 color 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. The TFT does not suffer the typical black out problems or temperature limitations of LCD, providing full weather capability.

3Rs - Reliable, Rugged & Robust

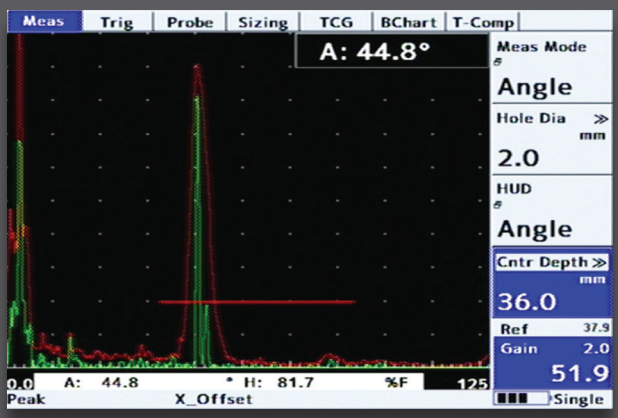
The ability to perform in harsh environments with proven reliability is an important aspect of flaw detector ownership. Maximum operational time is promoted by outstanding battery performance, up to 18 hours from full charge. The Sitescan's enclosure is constructed using automotive grade impact resistant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



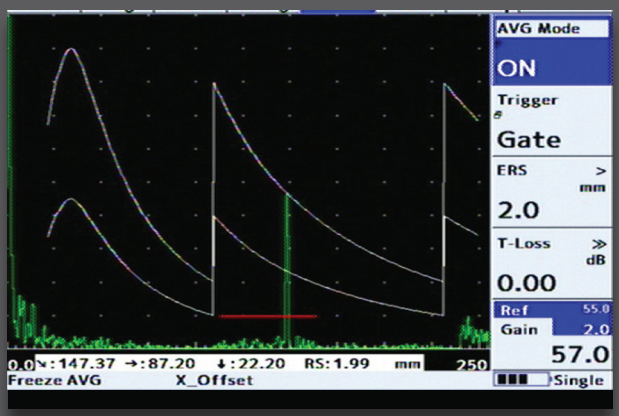
B-Scan

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 UTililty.



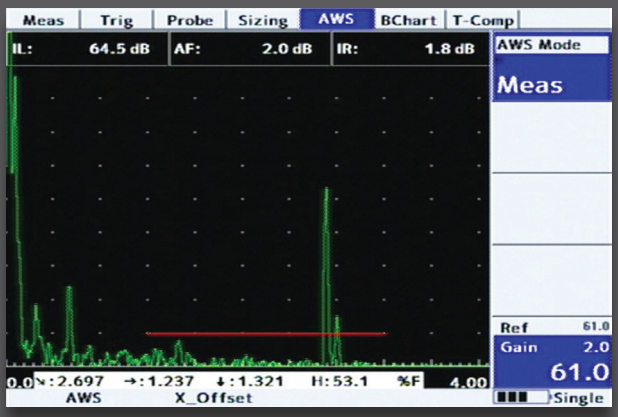
Angle Measurement Mode

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

UTility Lite / UTility Pro (Data Management Software)

UTility 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 UTility Lite you can also create customized 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, analyze, color 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.

UTility 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.

DAC

Up to 20 reference points can be used to construct a digital DAC curve, with selectable JIS/ASME and EN1714 curves. The user can choose whether the DAC curve or Gate 1 is used as the monitoring level. Echo amplitude can be displayed as either dB DAC, % DAC, or % Full Screen Height.

Library of DAC Curves

There are pre-programmed dB levels corresponding to

- EN1714 (-6dB, -14dB)
- ASME (-2dB, -6dB, -10dB)
- JIS DAC (+6dB, -6dB, -12dB)

Any of the available levels can be used as monitor gate. The level selected for monitoring is highlighted in a different color to the other curves on screen.

Customizable DAC

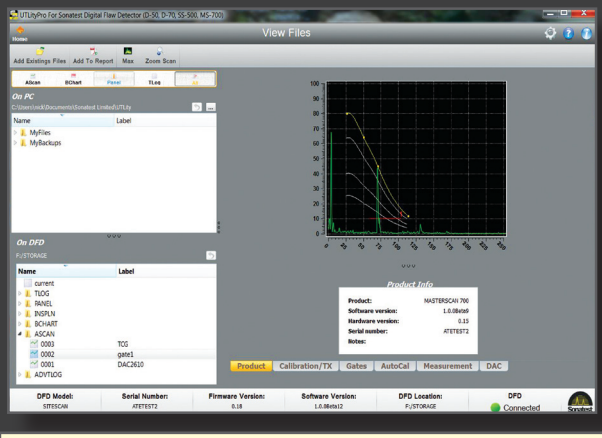
Up to 3 custom curves can be used in addition to the pre-programmed library. The user can enter custom levels between +/- 20dB for each of the 3 curves. In this way, all international Standards are supported.

Dynamic DAC

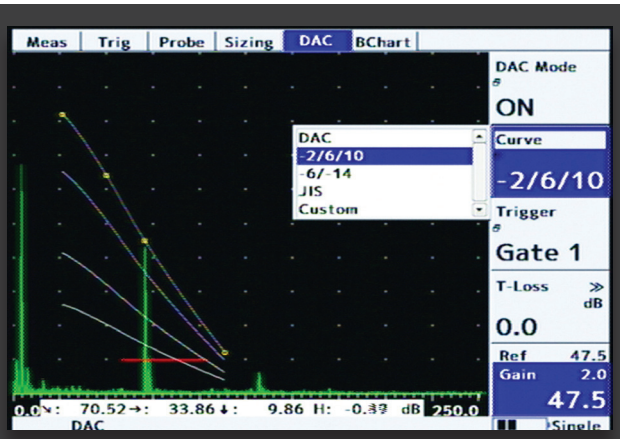
The wide dynamic DAC range can be used for better measurement resolution of distant echoes. The height of the DAC curves can be adjusted using the Reference Gain control. The relationship between DAC curve and reference indications is preserved throughout and the additional T-loss control manages transfer loss from test-block to specimen.

DAC to TCG

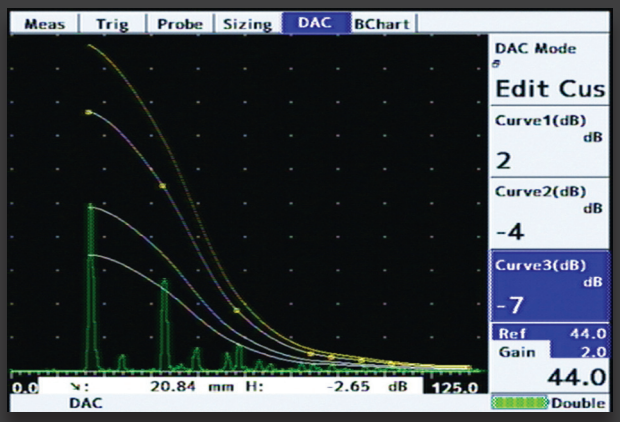
A DAC curve can be converted to a TCG curve, and back again. The conversion uses the reference points already collected and preserves the reference gain for the left-most reference point, so that all reference echoes are set to 80% FSH.



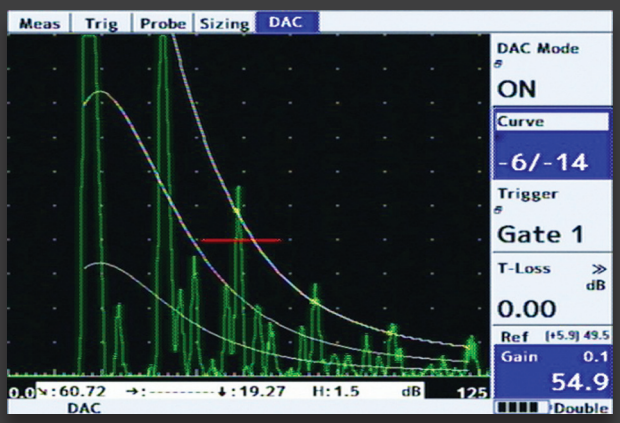
PLUS! In case your Sonatest flaw detector ever needs a software update, UTility can collect the latest version over the internet and upgrade your Flaw detector without ever having to return it to a service centre.



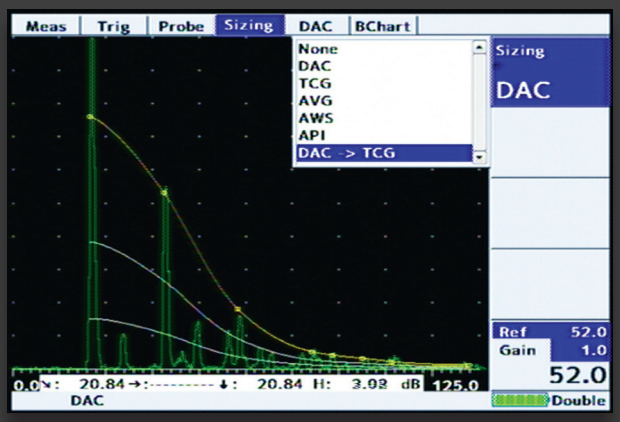
Library of DAC Curves



Customisable DAC



Dynamic DAC



DAC to TCG conversion

SITESCAN Series D-50 & 500S

Specifications (subject to change without notice)

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 <5nS 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
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	Color 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). Colors: 9 color 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).

Persistence	Causes previous A-scans to "fade out" at a user-determined rate
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 color 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 color.
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	Lithium Ion 14.4V battery pack. Typically 16 hours, max. 18hrs. Indication of battery charge status. Recharge time 3-4 hrs. Battery can be charged separately. Mains pack optional.
Charger	100-240 VAC, 50-60 Hz.
Environmental	Case sealed to IP67
Temperature	Operating -10°C to 55°C (14°F - 131°F). Survivable -20°C to 70°C (-4°F - 158°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 unconditional.
Extended Warranty	Sonacover - extended 5 year warranty, including 4 calibrations.
Calibration Standard	EN12668-1:2020 (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 Methos 511.5, Procedure I

bsi. ISO 9001 Quality Management

CE

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 EN1714, 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 10 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

The Sonatest series of flaw detectors are suitable for Corrosion Mapping using linear encoded scanners like the EZ-scan 4 (as seen on the right).

Ideal applications include Storage Tank bottom and side walls, flat plates and pipes with a 10cm (4") or greater outside diameter.

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.

Sonatest

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