SONOTEC

Ultrasonic Flaw Detector

SONOSCREEN® ST10

Perfect for Weld Seam Testing

MADE IN GERMANY

Nondestructive Testing

SONOSCREEN® ST10
User-friendly and Extremely Reliable

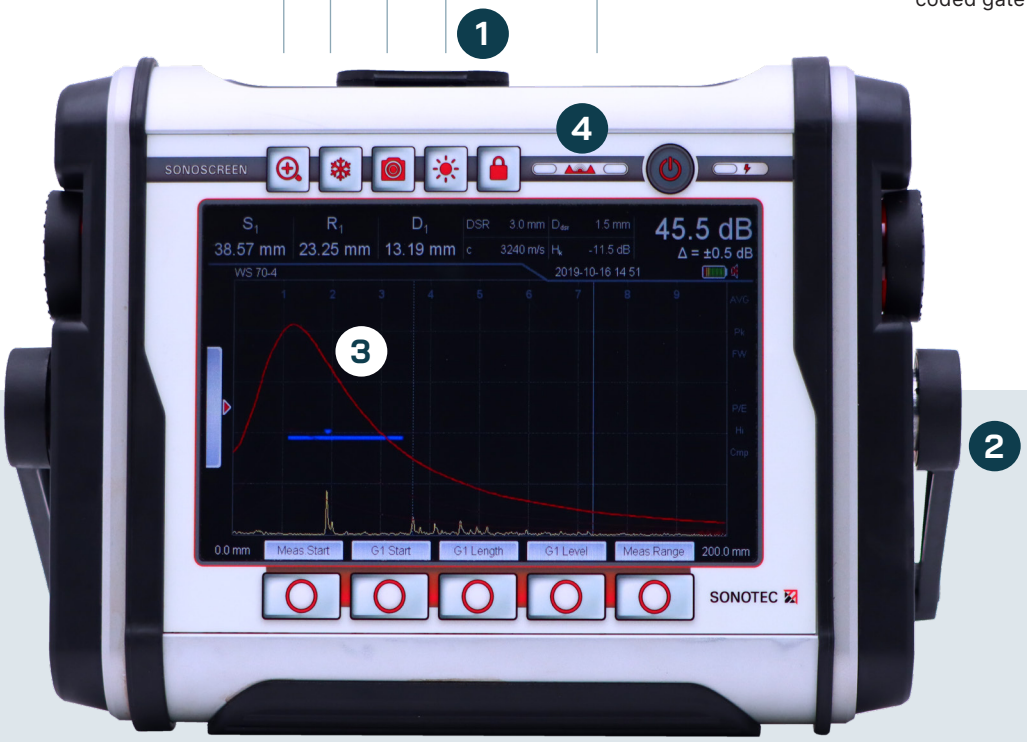
Freeze function

Screenshot

10 Brightness levels
6 Color schemes

Gate zoom

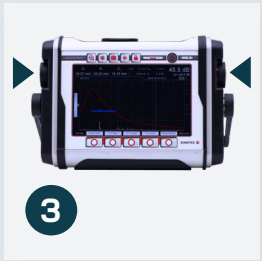
Acoustic and color-coded gate alarm



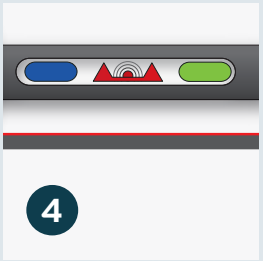
5 Softkeys for fast operation

Interfaces
USB, Probe connections, voltage supply, digital or analog output (optional)

Stand
Stable, multi-angle fold-out stand – also serves as carry handle

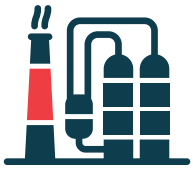


Functional Design
Rotary knob & 4 buttons for quick access to all functions, right and left hand operation possible



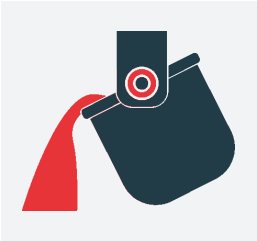
Gate Alarm
Acoustically, color-coded:
Gate 1: blue
Gate 2: green

Applications and Industries
Flaw Detection in Demanding Environments



Weld Seam Testing
e. g. oil and gas industry

Inspection of Forgings
e. g. railway engineering

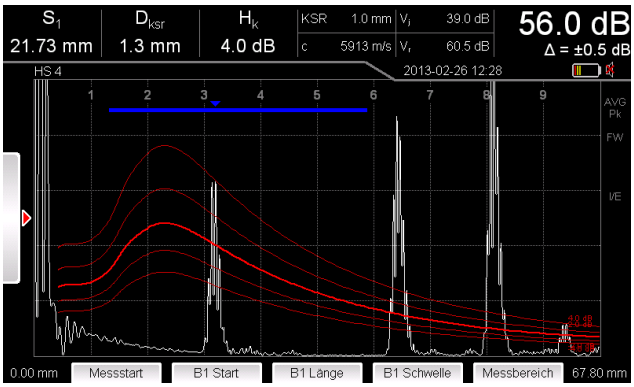


Testing of Castings
e. g. engine construction

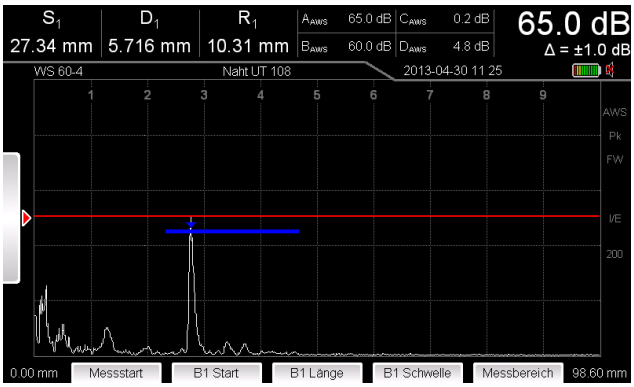
Testing of Plastics and Composites
e. g. lightweight construction

Developed with the help of experienced material testing experts, the compact ultrasonic flaw detector unites highspec performance with user-orientation. A clearly-structured menu quickly guides the tester through all of the steps required for test set-up. Efficiency is also boosted by the full-text menu labels and by the complete overview of all probe settings.
This makes the SONOSCREEN ST10 an ideal tool for all standard ultrasound ispections, from weld seam testing, wall thickness measurement and sheet metal testing to the detection of invisible cracks, inclusions, cavities and discontinuities in metals, plastics, ceramics and composite materials. discontinuities in metals, plastics, ceramics and composite materials.

Evaluation Methods



DGS Evaluation



AWS Evaluation

- DGS-curves for single-element probes and transmitter/receiver probes
- DAC-evaluation with TCG
- Single point modification of DAC curve

- For AVG and DAC up to 4 additional, freely movable curves can be displayed (in 0.5 dB steps)
- Amplitude evaluation according to AWS D1.1
- Comparison signal and envelope curve to support the signal evaluation

Intuitive Operation
Fast Test Preparation

DThe SONOSCREEN ST10 offers a clearly structured menu system optimized to support the testing process plus intuitive device operation. This helps to increase testing reliability and to save valuable testing time.
The ultrasonic flaw detector guides you step-by-step through the pre-test set-up. All parameters needing configuration are arranged logically one after the other. This ensures that all relevant parameters are set before testing begins.

Useful database also helps to shorten the preparation time: the database already contains all SONOSCAN probes. Other probes are easy to add. The provided probe settings overview enables quick verification of the entered data. Device setup, probe and material databases can be stored on a USB flash drive and transferred to other SONOSCREEN units.

For fast, manual distance adjustment, the calibration bodies K1 and K2 are already stored.

Advantages

- Large, high-resolution 8" graphic display (174 mm × 104 mm), optimal readability even in direct sunlight
- Robust Aluminum hosuing, IP66
- Clearly-structured menu and intuitive usability
- Configurable display with up to 10 measurement values
- Display of a measurement range up to 10 m in one A-scan
- 400 V powerful square wave transmitter
- Editable database for materials, probes, setups
- 5 ns resolution over the entire measurement range (equivalent to 0.03 mm in 10 m steel)
- 2 GB internal memory for storing up to 60 000 A-scans, plus device configuration
- External data storage and transfer via USB flash drive

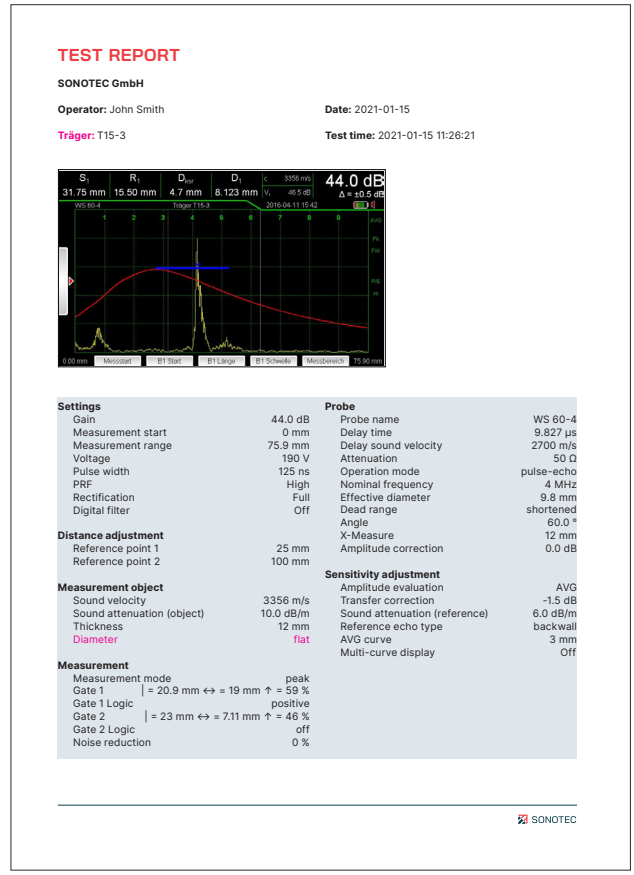
Complete set

- Charger and couplant
- USB stick
- Transport and storage case
- Protective and carrying bag
- Calibration certificate
- Manual

Software options

- AVG and DAC evaluation
- TCG function
- AWS evaluation

Complete documentation



TEST REPORT

SONOTEC GmbH

Operator: John Smith
Date: 2021-01-15
Träger: T15-3
Test time: 2021-01-15 11:26:21

Settings	
Gain	44.0 dB
Measurement start	0 mm
Measurement range	75.9 mm
Voltage	190 V
Pulse width	125 ns
PRF	High
Rectification	Full
Digital filter	Off
Distance adjustment	
Reference point 1	25 mm
Reference point 2	100 mm
Measurement object	
Sound velocity	3356 m/s
Sound attenuation (object)	10.0 dB/m
Thickness	12 mm
Diameter	flat
Measurement	
Measurement mode	peak
Gate 1	| = 20.9 mm ↔ = 19 mm ↑ = 59 %
Gate 1 Logic	positive
Gate 2	| = 23 mm ↔ = 7.11 mm ↑ = 46 %
Gate 2 Logic	off
Noise reduction	0 %

Probe	
Probe name	WS 60-4
Delay time	9.827 µs
Delay sound velocity	2700 m/s
Attenuation	50 Ω
Operation mode	pulse-echo
Nominal frequency	4 MHz
Effective diameter	9.8 mm
Dead range	shortened
Angle	60.0 °
X-Measure	12 mm
Amplitude correction	0.0 dB
Sensitivity adjustment	
Amplitude evaluation	AVG
Transfer correction	-1.5 dB
Sound attenuation (reference)	6.0 dB/m
Reference echo type	backwall
AVG curve	3 mm
Multi-curve display	Off

SONOTEC

SONOSCAN Ultrasonic probes

We offer a wide range of SONOSCAN standard single-element, dual-element and angle beam probes. SONOTEC is also specialized in customized ultrasonic probes - please send us your requirements!

Find our complete ultrasonic probe portfolio on our website!

Ultrasonic angle beam probes (WS 45-4)

Standard probes (selection)

Type	Angle	Frequency	Element size	Connection
WS (small)	45° | 60° | 70°	4 MHz	8 mm × 9 mm	LEMO 00
WS (small)	45° | 60° | 70°	2 MHz	8 mm × 9 mm	LEMO 00
WM (medium)	45° | 60° | 70°	2 MHz	14 mm × 14 mm	LEMO 00
WL (large)	45° | 60° | 70°	2 MHz	20 mm × 22 mm	LEMO 00
TS4	Dual-element	4 MHz	Ø 17 mm	2x LEMO 00
TXS7.5	Fingertip	7,5 MHz	Ø 5 mm / 2	2x LEMO 00
PL1	Single element	1 MHz	Ø 24 mm	LEMO 1S
PL2	Single-element	2 MHz	Ø 24 mm	LEMO 1S

Technical Data

General Data	
Standards	DIN EN 12668-1, ASTM E1324
Ambient Temperature	–20 °C ... +60 °C
Display	8" color display in 16:9 format; WVGA 800 px × 480 px (174 mm × 104 mm)
Operating Modes	Pulse-Echo, Transmit-Receive, Through-Transmission
Dimension (W x H x D)	310 mm × 206 mm × 77 mm
Weight	3 000 g
Housing	Aluminum
Protection Class	IP66
Battery	Internal Li-Ion battery | Operating time: up to 13 hours
Internal Memory	2 GB, for up to 60 000 A-scans incl. device setup
External Memory	USB Stick
Reporting	Software (optional) for the creation of test reports including screenshot | screenshot including all parameters (A-scan, measurement context, date and time) | setup with all devices and probe settings | test protocol | material database | probe database
Transmitter	
Pulse Shape	Rectangular, unidirectional
Polarity	Negative
Pulse Width	Automatic, or 20 ns ... 1 000 ns, in steps of 5 ns
Voltage	50 V ... 400 V, adjustable in steps of 10 V
Pulse Frequency	Automatic or manual (low, medium, high, maximum)
Receiver	
Amplifier	Dynamic range: 0 dB to 110 dB | Increment: 0; 0.5; 1; 2; 6; 12 dB
Rectification	Full-wave; positive/negative half-wave; RF
Noise Reduction	0 % ... 80 % of screen height
Amplitude Measurement	0 to 125 % of screen height
Filter	0.5 | 1 | 2 | 2.25 | 4 | 5 | 10 | 15 | 1 ... 5 | 5 ... 10 | 10 ... 15 | 1 ... 20 | 0.5 ... 20 MHz
Adjustment	
Measurement Range	0.5 mm ... 10 000 mm (steel)
Distance Adjustment/ Probe Calibration	Automatic 2-point adjustment: calculation of sound velocity and probe delay by use of two adjustment echoes
Resolution	0.01 mm in the measuring range up to 10 000 mm (depending on sound velocity)
Sound Velocity	Adjustable from 500 m/s ... 15 000 m/s, in steps of 1 m/s or fixed preset values
Measurement Range	10 mm to 10 000 mm (up to 20 000 mm with pulse shift)
Evaluation	DGS*, DAC* (incl. TCG) or AWS D1.1*
Gate	2 independent gates | color bars (gate 1: blue, gate 2: green) | position and width adjustable over the full measurement range | response threshold adjustable from 10 % to 90 % of screen height in steps of 1 %
Connectors	2 probe connectors: LEMO 1S Switching output/Analog output*: LEMO 1S | Power supply: LEMO 1S | 2 USB connectors

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