OKOndt GROUP™

ULTRASONIC FLAW DETECTORS & THICKNESS GAUGES

SONOCON

product family

SONOCON BL

SONOCON B

www.oko-ndt.com

PURPOSE

"UT" SOFTWARE VERSION

- Manual ultrasonic testing defects such as discontinuities and inhomogenuities of material of finished items, semi-finished products and welded (soldered) joints.
- Measuring the defects depth and coordinates.
- Assessing the sound velocity in different materials.
- Measurement of the equivalent defect sizes.
- Measurement of the ratio of echo signals amplitudes.

"THICKNESS GAUGE +" SOFTWARE VERSION

- Measurement of the products thickness at one-sided access to them.
- Saving of thickness measurement results to structured multidimensional files.
- Building of thickness B-Scans and C-Scans.
- Measurements on thickness B-Scans and C-Scans.

APPLICATION

- Testing of a variety of parts and equipment in the Aerospace and Automotive Industries.
- Weld testing in the Power Generation and Petrochemical Industries.
- Precise measurement of thickness in the Automotive Industry.
- Forgings testing.
- Corrosion measurement in the Power Generation and Petrochemical Industries.

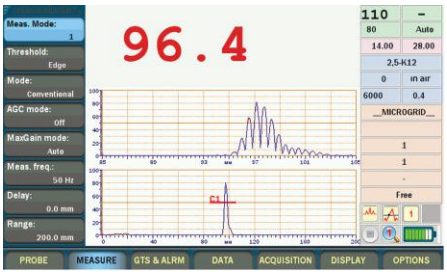
MAIN MODES AND OPTIONS

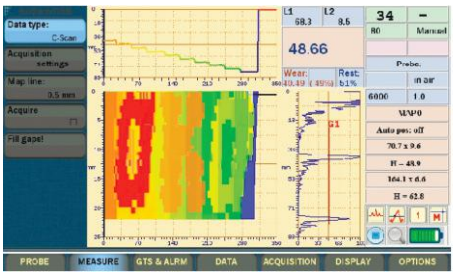
"UT" SOFTWARE VERSION

- Automatic algorithms of various probes calibration (straight-beam, angle-beam, Rayleigh-wave).
- Mode of automatic building of DGS diagrams si multaneously for three different equivalent diameters.
- DAC: building DAC curves according to EN1712, EN1713, EN1714, ASTM E164, ASME, ASME III, JIS23060, GB4730, GB11345.
- TCG: 110 dB dynamic range.
- Mode of Automatic Gain Control (AGC).
- Acoustic coupling control.
- Peak hold mode (useful while products testing with bad input conditions).
- Mode of high-accuracy thickness measurement using measurement marker;
- "Legs marking" mode (applied during welded joints testing);
- "Estimate" mode - automatic fixation of the "best" signal.
- Two independent measurement gates with three alarm levels.
- Pulser modes: spike pulser, square wave pulser.
- Different rectification modes - radio frequency (RF), positive or negative halfwave, full-wave.
- Fast data transfer to PC via USB using USB Flash.

"THICKNESS GAUGE +" SOFTWARE VERSION

- Automatic algorithms of straight beam probes calibration (single and dual element).
- Mode of probe zero express calibration of straight beam dual element probes "exposed to air".
- Measurement mode by zero crossing of the first negative half-wave of the echo-signal.
- Acoustic coupling control.
- Building the thickness B-Sscans and C-Scans bound to the scanning coordinate (in case of scanning device usage).
- Alarm zones highlights mode according to the set values of minimum and maximum allowed thickness of the test object.
- Saving the thickness measurement results in multidimensional files on the basis of user defined templates.
- Creation of database of measurement results and used probes.
- Fast data transfer to PC via USB using USB Flash.
- Result display: A-Scan, B-Scan, C-Scan.
- Synchronization: internal (time), Encoder (availability to connect up to 2 encoders).





Sonocon ADVANTAGES		
ERGONOMICS	• Optimal dimensions and display format of 800 x 480 pixel resolution ensures qualitative data separation and its perception and does not cause excessive eyestrain to NDT inspector.	• All main instruments settings are accessible with keypad shortcuts and "Quick Access Menu".
MULTIFUNCTIONALITY	• Carrying out the flaw detection, thickness gauging, sound velocity assessment in different materials.	• Operation with all probe types.
INDIVIDUAL DELIVERY SET	• By agreement with the Customer the flaw detector can be completed with different	probes, calibration blocks and software for operation in different industrial sectors.
PROTECTION LEVEL AND OPERATING CONDITIONS	• Flaw detector is resistant to ionizing radiation impact and is meant for operation in increased humidity conditions.	• Flaw detector case protection level - IP65. • Operation temperature range is from minus 30 to plus 50 °C.

Sonocon SPECIFICATIONS

Characteristics and Features	GENERAL and "UT" VERSION
DISPLAY	
• Size	BL : 7.2 in _ B : 4.5 in
• Resolution	800 x 480
CONNECTORS	
• Probe connectors	2 x BNC or 2 x LEMO-1 or 2 x LEMO-00
• Analog output	Alarm
• USB[1]	Type A
• LAN	BL : RJ 45 _ B : Lemo
• REMOVABLE MICRO CD CARD:	BL : + _ B : –
PULSER	
• Types	Spike + Square Wave (SWP)
• Voltage (SWP)	50 V, 100 V, 150 V, 200 V, 250 V, 300 V, 400 V
• Energy (SWP)	20 ns to 1000 ns with 10 ns step Manual & Auto modes
• Voltage (Spike)	Low: 50 V, High: 300 V
• Damping	+
• PRF modes	omfort, Low, Medium, High, Manual
• PRF	from 15 to 6000 Hz
• Phantoms control	3 modes
RECEIVER	
• Range (at steel longitudinal wave)	000 mm (314 in)
• Gain	0 to 110 dB, with 0.1 dB step
• Max signal input	20 V p-p
• Bandwidth	0.2 MHz - 27 MHz
• Filters	0.2-27 MHz, 0.2-10 MHz, 2.0-21.5 MHz, 8.0-26.5 MHz, 0.5-4 MHz, 0.2-1.2 MHz, 1.5-8.5 MHz, 5-15 MHz, 0.4 MHz, 0.5 MHz, 1 MHz, 1.25 MHz, 2 MHz, 2.25 MHz, 2.5 MHz, 3.5 MHz, 4 MHz, 5 MHz, 7.5 MHz, 10 MHz, 15 MHz, 20 MHz
• Filters set choice	+
• Rectification	RF, FW, Pos. HW, Neg. HW
• TCG (TVG)	110 dB; 110 dB/µs slope
• Signal Average	OFF / 2x / 4x / 8x /16x / 32x / 64x
• Reject (cutoff)	0-80% FSH
MEASUREMENT	
• Number of gates	2
• Number of cursors	2
• Modes	1, 2, C1, C2, 1-2, 1-C1, 1-C2, 2-C1, 2-C2, C1-C2
• TOF Modes	Peak, Edge (Flank)
• Amplitude measurement	up to 220% FSH
• Units	in / mm / us
• Output fields	5

Characteristics and Features	General and "UT" VERSION
ALARM	
• Number of gates	2
• Number of levels	3
FLAWS EVALUATION	
• AWS	+
• DGS (AVG)	+
• DAC	+
• DAC: Number of points	128
• DAC codes	ASME & ASME III, EN 1712, EN 1713, EN1714, JIS Z3060, GB11345, GB 4730
• Custom DAC curves	up to 6
• DAC 20-80	+
• DAC–TCG	+
MEMORY	
• Setups	+
• Datasets (with A-Scans)	+
• Capacity	8 GB (up to 64 GB)
PC SOFTWARE	+
OTHER FEATURES	
• Coupling control	+
• AGC	Independent for both gates
• Quick calibration	+
• Quick estimate (Best signal catch)	+
• AutoXX% (50% or80%)	+
• Reference gain	+
• Peak hold (collect, peak memory)	+
• Signals compare	+
• Smart zoom	+
• Choice of menu systems	Full, Simple 1, Simple 2
• Keyboard backlight	+
• Smart (Context) keyboard backlight	+
• Number of keyboard shortcuts[2]	41
PHYSICAL	
• Dimensions	BL: 10.1x6.1x3.2in(256x156x80mm) B : 9.5x4.4x5.3in (241x112x134mm)
• Weight incl. battery	BL : 5.30 lb (2.4 kg) _ B : 2.09lb (0.95 kg)
• Operating temp. range	-22 °F to 122 °F (30 °C to 50 °C)
• Dust & water protection	IP65
• Battery life	8 h
• Replaceable battery	+

Characteristics and Features "THICKNESS GAUGE +" VERSION

PULSER

- Type _____ Square Wave (SWP)
- Autofit of the pulser parameters to the chosen probe _____ Voltage, Energy, Damping
- Measurement frequency (readings refresh rate) _____ 1 to 100 Hz
- PRF mode _____ Auto (Calculated from set readings refresh rate, accounting for averaging rate)

RECEIVER

- Range (at steel longitudinal wave) _____ 314 in (8000 mm)
- AGC _____ Individual to reach at 2 gates
- AGC Modes _____ OFF / Edge / Peak
- AGC Max Gain Modes _____ High, Medium, Low, Manual, Off
- Auto filters choice (according to the probe type) _____ +

MEASUREMENT

- Sound velocities range ___ 0.1 to .629 in/µs (250 to 16 000 m/s)
- Measurement range _____ 0.16 to .629 in (0.4 to 16 000 mm)
- Readings resolution _____ 0.001 /0.01 /0.1 in (0.01 /0.1 /1 mm)
- Number of gates _____ 2
- Modes _____ 1, 1-2
- TOF Modes _____ Edge, Edge Zero Crossing
- Units _____ in /mm
- Min & Max capture mode _____ +
- Differential mode _____ +
- % of wear mode _____ +
- Temperature compensation _____ +
- Acquisition of a:
  – Thickness B-Scan _____ +
  – Thickness C-Scan _____ +
- Measurements on the previously acquired:
  – Thickness B-Scan _____ +
  – Thickness C-Scan _____ +

Characteristics and Features "THICKNESS GAUGE +" VERSION

ALARM & DISPLAY

- Alarm types _____ Min, Max, Min&Max
- Coupling loss alarm _____ +
- Last reading (in coupling loss) _____ +
- A-Scan _____ +
- Cursor (Detect Line) _____ +
- Thickness B-Scan _____ +
- Thickness C-Scan _____ +
- Multidimensional files: Browsing _____ +
- Multidimensional files: File Statistics _____ +
- Multidimensional files Meas. Site Statistics _____ +

CALIBRATION

- 1-point _____ +
- 2-points _____ +
- Zeroing in the air _____ +
- Zeroing on a built-in block _____ +

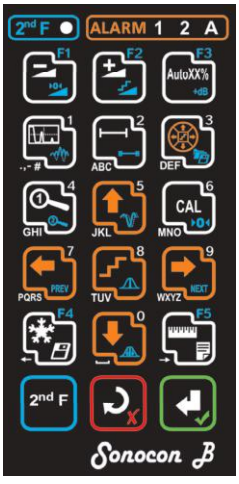
MEMORY

- Setups _____ +
- Multidimensional structured files _____ 1-3 dim
- Number of readings per file _____ Up to 100 000
- Number of files format _____ 6
- Data attachments _____ Comments, A-Scans, Thickness B-Scans, Thickness C-Scans, Microgrids
- Capacity _____ 8 GB (up to 64 GB)

PC SOFTWARE _____ +

OTHER FEATURES

- Keyboard backlight _____ BL – _____ B___ +
- Smart (Context) keyboard backlight ___ BL – _____ B__ +
- Smart zoom _____ +
- Number of keyboard shortcuts [2] _____ 29

[1] USB Type A (aka Host or Master) allows to connect external devices (Flash-Stick, Mouse, etc).
[2] Number of instrument functions one can access with a couple of button presses.

INSTRUMENTS ARE AVAILABE WITH AMERICAN AND EUROPEAN KEYBOARD VERSIONS: