ULTRASONIC FLAW DETECTOR & THICKNESS GAUGE

SONOCON B

OKOndt GROUP

CE MARKING

EN 12668-1 Compliant

www.okondt.com

PURPOSE

"UT BASIC" 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.

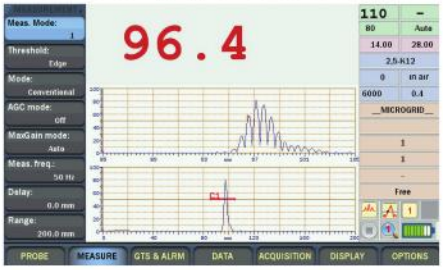
MAIN MODES AND OPTIONS

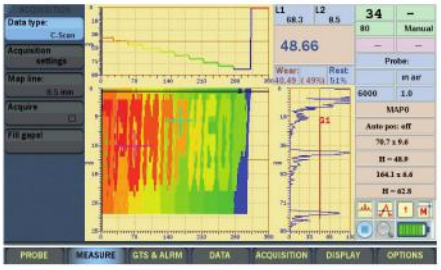
"UT BASIC" SOFTWARE VERSION

- Automatic algorithms of various probes calibration (straight-beam, angle-beam, Rayleigh-wave).
- Mode of automatic building of DGS diagrams simultaneously 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 B 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. • Convenient case and small device weight allow	to use the flaw detector in enclosed spaces and hard to reach areas. • 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-B SPECIFICATIONS

Characteristics and Features	GENERAL and "UT BASIC" VERSION
DISPLAY	
• Size	4.5"
• 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	+
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	Comfort, Low, Medium, High, Manual
• PRF	from 15 to 6000 Hz
• Phantoms control	3 modes
RECEIVER	
• Range (at steel longitudinal wave)	8000 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/m s 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	mm / in / us
• Output fields	5

Characteristics and Features	General and "UT BASIC" 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	2 GB (up to 64 GB)
PC SOFTWARE	+
OTHER FEATURES	
• Coupling control	+
• AGC	Independent for both gates
• Quick calibration	+
• Quick estimate (Best signal catch)	+
• Auto XX% (50% or 80%)	+
• 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	241 x 112 x 134 mm
• Weight incl. battery	0.95 kg
• Operating temp. range	-30 °C to 50 °C (-22 °F to 122 °F)
• 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)	8 000 mm (314 in)
• 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	250 to 16000 m/s (.01 to .629 in/µs)
• Measurement range	0.4 to 16 000 mm (.016 to 629 in)
• Readings resolution	0.01 / 0.1 / 1 mm (0.001 / 0.01 / 0.1 in)
• Number of gates	2
• Modes	1, 1-2
• TOF Modes	Edge, Edge Zero Crossing
• Units	mm/in
• 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	2 GB (up to 64 GB)
PC SOFTWARE	+
OTHER FEATURES	
• Keyboard backlight	+
• Smart (Context) keyboard backlight	+
• 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.