OKOndt GROUP

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SONOCON BL

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ULTRASONIC FLAW DETECTOR & THICKNESS GAUGE SONOCON

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PURPOSE

“UT BASIC” SOFTWARE VERSION

- Manual ultrasonic testing defects such as discontinuities and inhomogenuities of material of finished items, semifinished 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 onesided access to them.
- Saving of thickness measurement results to structured multidimensional files.
- Building of thickness BScans and CScans.
- Measurements on thickness BScans and CScans.

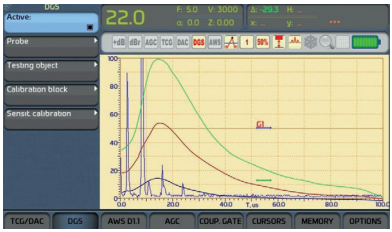
APPLICATION

- 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

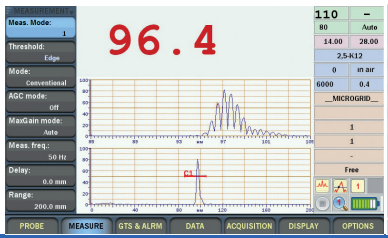
“UT BASIC” SOFTWARE VERSION

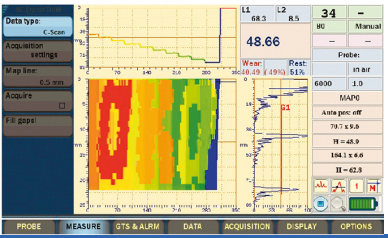
- Automatic algorithms of various probes calibration (straightbeam, anglebeam, Rayleighwave).
- Mode of automatic building of DGS diagrams si multaneously for three different equivalent diameters.
- DAC: building DAC curves according to EN1712, EN1713, EN1714, ASTM E164, ASME, ASME III, JIS23060, GB4730, 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 highaccuracy 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, fullwave.
- 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”.
- Acoustic coupling control.
- Building the thickness BSscans and CScans 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.
- Measurement mode by zero crossing of the first negative halfwave of the echosignal.
- 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: AScan, BScan, CScan.
- 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 SPECIFICATIONS

Characteristics and Features GENERAL and “UT BASIC” VERSION C

DISPLAY

- BL: __94mm x 156mm
- Size .....BL : 7.2 in.....B : 4.5”
- Resolution.....800 x 480

CONNECTORS

- Probe connectors.....2 x BNC or 2 x LEMO1 or 2 x LEMO00
- 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 .....Comfort, Low, Medium, High, Manual
- PRF.....from 15 to 6000 Hz
- Phantoms control.....3 modes

RECEIVER

- Range (at steel longitudinal wave)..... 314 in (8000 mm)
- Gain.....0 to 110 dB, with 0.1 dB step
- Max signal input.....20 V pp
- Bandwidth.....0.2 MHz 27 MHz
- Filters.....0.227 MHz, 0.210 MHz, 2.021.5 MHz, 8.026.5 MHz, 0.54 MHz, 0.21.2 MHz, 1.58.5 MHz, 515 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) .....080% FSH

MEASUREMENT

- Number of gates.....2
- Number of cursors 2
- Modes 1, 2, C1, C2, 12, 1C1, 1C2, 2C1, 2C2, C1C2
- 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 C

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 AScans).....+
- Capacity.....2 GB (up to 64 GB)

PC SOFTWARE..... OTHER FEATURES

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 shortcuts².....41

PHYSICAL

- Dimensions.....BL : 10.1 X 6.1 X 3.2 IN (256X156X80 mm)
B : 9.5X4.4X5.3 IN (241 x 112 x 134 mm)
- Weight incl. battery.....BL : 5.30 lb (2.3 kg)....B: 2.09 lb (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.....+

SONOCON SPECIFICATIONS

Characteristics and Features GENERAL and "UT BASIC" VERSION C

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..... .01 to .629 in/µs (250 to 16000 m/s)
- Measurement range..... .016 to 629 in (0.4 to 16000 m/m)
- Readings resolution..... . 001 /.01 / .1 in (0.01 / 0.1 / 1 mm)
- Number of gates.....2
- Modes.....1, 12
- TOF Modes.....Edge, Edge Zero Crossing
- Units.....mm/in
- Min & Max capture mode.....+
- Differential mode.....+
- % of wear mode.....+
- Temperature compensation.....+
- Acquisition of a:
  - ›Thickness BScan.....+
  - ›Thickness CScan.....+
- Measurements on the previously acquired:
  - ›Thickness BScan.....+
  - › Thickness CScan.....+

Characteristics and Features GENERAL and "UT BASIC" VERSION C

ALARM & DISPLAY

- Alarm types.....Min, Max, Min&Max
- Coupling loss alarm.....+
- Last reading (in coupling loss).....+
- AScan.....+
- Cursor (Detect Line).....+
- Thickness BScan.....+
- Thickness CScan.....+
- Multidimensional files: Browsing.....+
- Multidimensional files: File Statistics.....+
- Multidimensional files Meas. Site Statistics.....+

CALIBRATION

- 1point.....+
- 2points.....+
- Zeroing in the air .....+
- Zeroing on a builtin block.....+

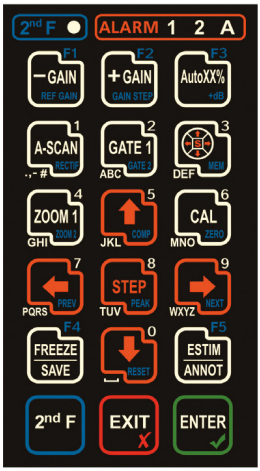
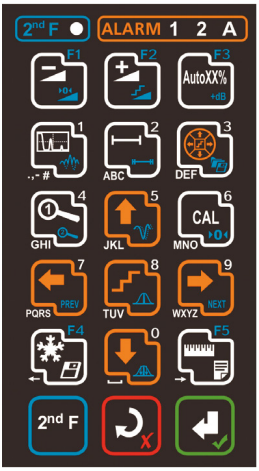
MEMORY

- Setups.....+
- Multidimensional structured files.....13 dim
- Number of readings per file..... .....Up to 100 000
- Number of files format 6
- Data attachments .....Comments, AScans, Thickness BScans, Thickness CScans, Microgrids
- Capacity.....2 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 (FlashStick, 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: