ULTRASONIC
FLAW DETECTOR
& THICKNESS GAUGE
SONOCON B

ПРОМ
ПРИЛАД

www.ndt.com.ua

PURPOSE		
THE INSTRUMENT BASIC SOFTWARE VERSION	• Manual non-destructive testing for the presence of defects such as discontinuity and inhomogenuity of the material of finished items, semi-finished products and welded (soldered) joints. • Measuring the defects depth coordinates.	• Assessing the sound velocity in different materials. • Measuring the equivalent defect sizes. • Measuring the ratio of signal amplitudes, reflected from defects.
"THICKNESS GAUGE +" SOFTWARE VERSION	• Measuring the products thickness at one-sided access to them.	• Formation of multi-dimensional files with the thickness measurement results of the testing objects.

APPLICATION		
	• 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. • Testing of special-purpose materials in the Aerospace and Automotive Industries.

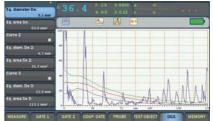| MAIN MODES AND OPTIONS		
THE INSTRUMENT BASIC SOFTWARE VERSION	• Automatic algorithms of various probes calibration (straight-beam, angle-beam, rayleigh-wave). • Mode of automatic building of DGS diagrams simultaneously for three different acceptance diameters. • DAC modes: building DAC curve according to EN1712, EN1713, EN1714, ASTM E164, ASME, ASME III, JIS23060, GB11345. • TCG: 110 dynamic range. • Mode of Automatic Gain Control (AGC). • Acoustic coupling control. • Measurement of echo-signal parameters by the "Scan" of a peak signal (indispensible while products testing with bad input conditions of ultrasonic vibrations). • Mode of high-accuracy thickness measurement of a product with the application of a measurement marker. • "Legs marking" mode (applied during weld-	ed joints testing). • "Peak hold" mode - peak value of the signal envelope accumulation, this mode is indispensable during small defects search and operation in unstable acoustic coupling conditions. • Availability of two independent measurement gates with three fixation levels, as well as the system of automatic flaw alarm (light and sound) by each measurement gate. • Different rectification modes - radio frequency (RF), positive or negative halfwave, full-wave. • Fast data transmission to PC. • Pulser modes: spike pulser, square wave pulser. • Result display: A-Scan, B-Scan. C-Scan ("Thickness gauge+" version). • Sync.: internal, Encoder (availability to connect 2 encoders for "Thickness gauge+" version).
"THICKNESS GAUGE +" SOFTWARE VERSION	• Automatic algorithms of straight-beam probes calibration (single crystal and double crystal). • Mode of probe zero express calibration of straight-beam double crystal probe "exposed to air". • Measurement mode by zero crossing the first negative half-wave of the echo-signal. • Acoustic coupling control. • Constant automatic gain control to ensure accurate thickness measurement. • Building the thickness slices and maps with the affixment to the scanning spatial coordinate of	a probe (in case of scanning device usage). • "Scan background highlight" mode according to the set values of minimum and maximum thickness of the test object. • Saving the thickness measurement results in multi-dimensional files on the basis of embedded templates. • Creation of database of measurement results and used probes. • Fast data transfer to PC via USB using standard Windows OS tools.

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. • Call of the most frequently used modes from the keypad or "Circular Quadrant Icons".
• **MULTIFUNCTIONALITY**	• Carrying out the flaw detection, thickness gauging, sound velocity assessment in different materials. • Availability of various flaw detector software	versions ("irmware upgrade") for solution of special-purpose testing tasks. • 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 - IP 64. • Operation temperature range is from minus 30 to plus 45 ℃.

BRIEF SPECIFICATIONS OF SONOCON B
MAIN SPECIFICATIONS Sonocon B (basic software version)

Parameter	Value
GENERAL SPECIFICATION	
Overall dimension (H x W x L)	241 mm x 112 mm x 134 mm
Weight	0.95 kg
Keypad	English
Languages	English
Internal memory	Micro SD card 8 Gb is used for saving the testing setups and testing results
Power Supply	storage battery 12V/4500 mA·h
Battery life	not less than 8 hours
Display type	Color TFT (800 x 480) display
Display dimensions (W x H, diagonal)	97 mm x 60 mm, 7 inch.
Warranty	1 year
PULSER SPECIFICATION	
Initial pulser mode	spike pulser, square wave pulser
Pulser Voltage (SQ mode)	120-300 V with 10 V step in a tolerance of 10%
Pulser falling/rising time	10 ns
Pulser Width (SQ mode)	20 - 500 ns with 10 ns step with tolerance of 10%
PRF (SQ Mode)	15 - 2000 Hz in steps 5 Hz, 3 automatic adjustment modes: Auto Low, Auto Med, Auto High and Manual
Pulser Voltage (Spike Mode)	Low (100 V), High (400 V)
Pulser energy (Spike Mode)	Low (30 ns), High (100 ns)
PRF (Spike Mode)	15 - 6000 Hz in steps 5 Hz, 3 automatically modes: Auto Low, Auto Med, Auto High, Manual
Damping	50, 62, 150, 400
RECEIVER SPECIFICATION	
Gain	0 to 110 dB adjustable with steps of 0.2, 0.5, 1, 2 dB
Receiver input impedance	400 Ω ±5%
Receiver bandwidth	0.2-27 MHz (- 3 dB)
Digital filter setting	Eight digital filter sets standard (0.2-10 MHz; 2.0-21.5 MHz; 8.0-26.5 MHz; 0.5-4 MHz; 5-15 MHz; 5-15 MHz; DC-10 MHz)
Rectification	Full wave, + half wave, - half wave, RF
Amplitude measurement	0 – 110%
Reject	0 – 80% FSH

Parameter	Value
CALIBRATION SPECIFICATION	
Automated calibration	velocity, zero offset, straight-beam, angle-beam
Units	millimeters, inch or microseconds
Range	1 to 16000 mm
Velocity range	1000 to 10000 m/s in steps of 1, 10, 100, 1000 m/s
Thickness measurements range	0.6 to 6000 m/s
Probe angle	0^0 to 90^0 in steps 0.1^0, 1.0^0, 10^0
GATE SPECIFICATION	
Measurements gates	– 2 fully independent three-level gates for amplitude and TOFD measurement; – additional gate for acoustic coupling control; – special-purpose gate of the Automatic gain control (AGC).
Start Gate	variable over entire display
Width Gate	variable over entire display
Gate height	variable from 2 to 100% FSH
MEASUREMENT SPECIFICATION	
Result display	A-scan, B-scan, simultaneous of up to 5 measured parameters selected by the user. Additionally, building the thickness slice and/or map for "Thickness gauge+" version with affixment to the scanning path coordinate of the probe.
DAC/TCG	– dynamic range is up to 110 dB; – number of points is 32; – building TCG curve by DAC
DGS	– automatic building of up to 3 curves for different equivalent diameters; – calibration at calibration blocks and testing objects; – building DGS curve by DAC
CONNECTORS	
Probe connector	2 BNC or 2 Lemo 1S
USB port	USB-2.0
Ethernet	+
Alarm output	+
Encoder	1 LEMO (with the option of two encoders operation)