

EKOSMART

USB ULTRASONIC BOARD

EKOSMART PRODUCT SHEET INFORMATION



Presentation

EKOSMART is a portable UT system made up of a USB ultrasonic board and software. Both enable users to measure and analyze signals while detecting flaws. Thanks to a mouse or a touchscreen all parameters can be modified.

This system was designed in order to meet a user request. With its intuitive (and pedagogical) graphical interface, it is dedicated to beginners or trainees as well as to confirmed users and experts. Every user can rely on its reliability, its characteristics and its advanced features (FFT, TOFD, averaging ...)

EKOSCAN UT board enables users to carry out a wide range of inspection including welds, composite materials, forged, and cast iron parts, ultrasonic rail tests, material characterization in B-scan mode thanks to a high bandwidth (1-30MHz).

An optional 3-MATRYX axe control arm can be connected to carry out C-Scan and to follow the evolution of the inspected flaws in maintenance. EKOSCAN UT board meets the requirements of NF EN 12668-1 standard (March 2010)

Imaging

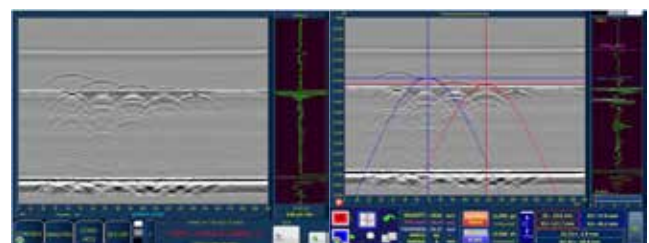
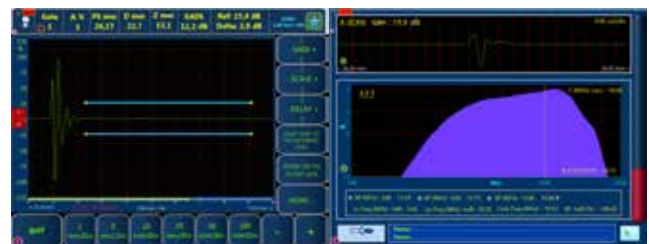
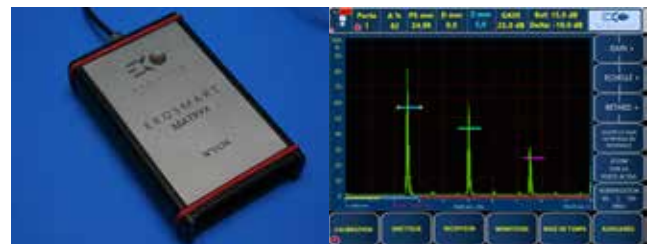
- A-scan
- B-scan (Encoded or scrolling)
- TOFD (Time of Flight Diffraction)
- C-scan 2 encoders (standard) 3 encoders in option

Main features

- DAC and fractioned DAC (-3, -6, and -12dB), TCG
- FFT to control probes in frequency, bandwidth and sensitivity
- Auto calibration on 2 points (delay sensor, speed, thickness measure)
- Freeze of A-scan or FFT
- Dynamic echo to test the probe focal length
- Real-time averaging (2, 4, 8)
- TOFD with hyperbolic cursor
- Linearization of the TOFD on the lateral wave
- Visual representation of half skip and full skip in weld inspection
- Saving and recalling of settings

Technical specifications

- Square emission (250V max)
- Emission frequency (maximum 33 MHz)
- Pulse Repetition Frequency (PRF) up to 5000Hz
- Digital filters (Bandwidth from 1 to 30 MHz)
- Gain from 0 to 80 dB



Ekosmart system sold with a certificate meeting the requirements of EN 12668-1 and a harden computer in option.

EKOSMART - TECHNICAL SPECIFICATIONS

PUSLER

Pulser	negative square pulser
Fall time	< 15 ns
Pulse Repetition Frequency	from 100Hz to 5000Hz, with increments of 100Hz
Tension	From 25V to 250V (by minimum step of 10V)
Impulsion breadth	adjustable from 15 ns (33MHz) to 1600 ns (0,3 MHz)

RECEIVER

Gain	from 0dB to 80dB (by step of 0,1, 1,3 and 6dB)
Input referred noise	< 80 nV/√Hz
Bandwith of receiver	from 0,1MHz to 30Mhz to -3dB (5 filters)
Rectification	RF, RF rectified
Amplitude measuring	from 0% to 125% of full screen height
Sampling	160MHz, 80MHz, 40 MHz, 20 MHz
Averaged in real time	Off, 2, 4 or 8

CALIBRATION

Automatic calibration	speed propagation, sensor delay
Methods of control	reflection technique, transmission/reception separated
Measure unit	millimeter, microsecond
Calibration	from 1154 to 5900 m/s
Propagation speed	from 500 m/s to 9000 m/s
Zero offset	from 0 us to 90 us
Display delay	from 0 mm to 1088 mm to speed propagation in steel
Refraction angle	from 0° to 90° by increments of 0,1%

GATE

Gates measure	3 gates for amplitude measuring and in time-of-flight
Start of gate	variable on all the calibration displayed
Breadth of gate	variable from the start of gate to the end of calibration displayed
Height of gate	variable from 0% to 100% of the full screen height
Alarm	on appearance or disappearance of echoes

MEASURES

Gate (1,2,3) and	ultrasonic circuit, time-of-flight, amplitude, distance between probe's front face
Measure between reverberation	defect, defect depth
Curve DAC and TCG	in standard from gate 1 to gate 2, synchronisation of interface gate in option
Dots DAC and TCG	standard
	dynamic calibration of 80dB

GENERAL

Dimensions	168mm x 34mm x 105mm
Weight	500g
Supply	5V DC (USB)
Official languages	english, french
Probes connection	2 bases LEMO 00 (coaxial)
Encoders	up to 3 encoders (5V supply)
Encoders connection	base LEMO 01 (10 pins)
Output connection US (option)	amplitude of 3 gates (analog signal), alarm of 3 gates (TTL signal), synchronization (TTL signal)