SVK Electronics
NDT Systems & Solutions

UT Phased Array Technology Combined with TOFD Solution for Automated Ultrasonic Testing (AUT) and Mechanical Ultrasonic Testing (MAUT) as well as Manual UT inspection

ScaneX

Advanced Phased Array Ultrasonic Flaw Detector

LIGHTWEIGHT BUT POWERFUL

2 PA OPERATION CAPABLE • HIGH SPEED INSPECTION READY

PA + TOFD Technology

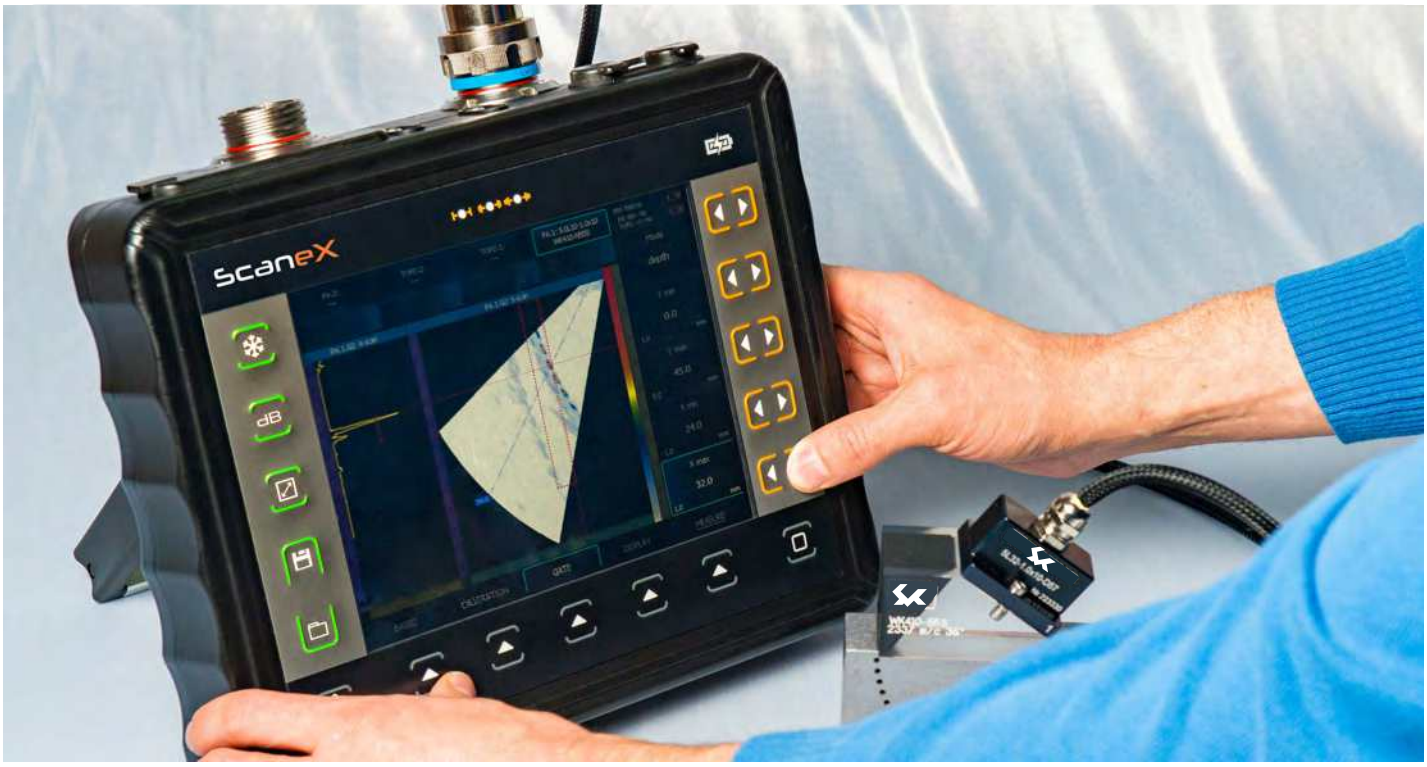
ScaneX 16 x 128 is a cutting-edge ultrasonic flaw detector that integrates phased array (PA) technology with Time-of-Flight Diffraction (TOFD).

This high-performance device is designed for simultaneous operation with two 64-channel phased array probes and various scanners, including roller scanners, PA + TOFD scanners, and more.

With an S-scan generation speed of 100 Hz, it allows scanning welds from both sides at speeds ranging from 6 to 9 meters per minute, increasing the detectability and reliability of inspection.

Key Features

- Different operation modes for various applications: PA mode, Inspection mode (2 PAs), i-Scan mode for corrosion and composites Conventional UT mode.
- 16 , 32 , 64 element phased arrays operation.
- Classical PA technology with real time focusing.
- ACG and TCG functions for an immediate assessment of the equivalent defect size.
- Preset library of PA + wedge combinations for straightforward operation.
- Powerful yet lightweight (3 kg) for optimal performance.
- Large high contrast TFT screen with high resolution.
- 10 hours operation with hot-swap batteries, enlarged data storage capabilities with USB memory makes it good choice for field works.



Various Image Modes for Results Analysis and Interpretation

Different viewing modes allows analysis capabilities on the flaw detector screen: S-scan, scan at a fixed angle L-scan, LS-scan combining classical S-scan with movement along the aperture of the phased array, A, B, C-scans.

Full screen mode for the utmost detailing of signals during inspections.

High brightness of TFT screen and high processing speed show signals with all the details in real-time mode with high resolution, so the operator can easily differentiate one defect from another even if they are close to each other..

Weld image on the S-Scan and B-scan based on true beam path gives the operator easy understanding of defect location and geometry in the object.

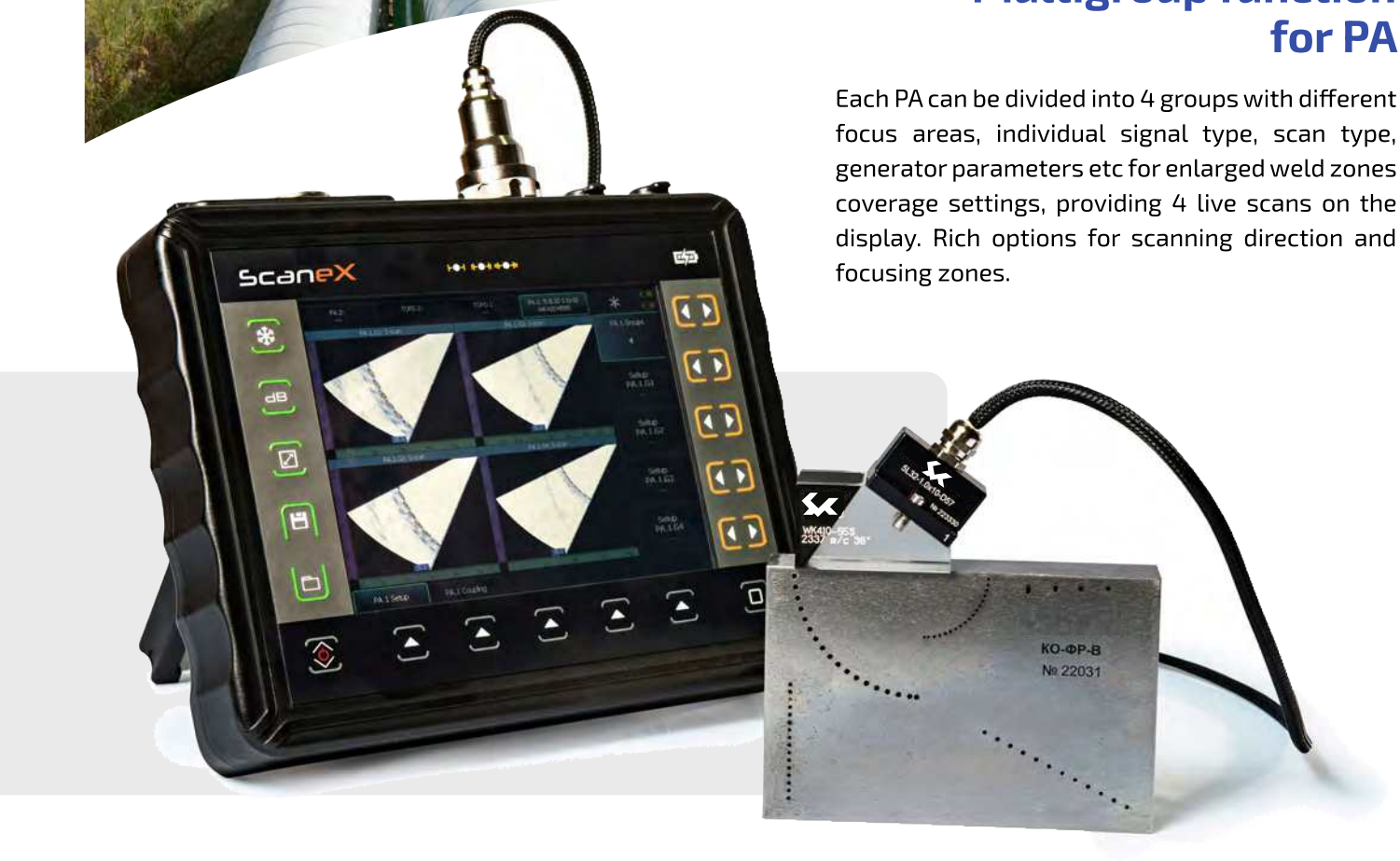
Quick switch between the operation modes to provide more functionality and flexibility for the operator under different inspection tasks: PA flaw detector, 2PA + 2TOFD scanner, Conventional flaw detector, i-Scan mode.

Advanced Functionality for Weld inspection

The flaw detector allows operation with 2 x 64 element PA probes simultaneously, enabling 2-sided inspection of welds. This significantly increases detectability of the defects.

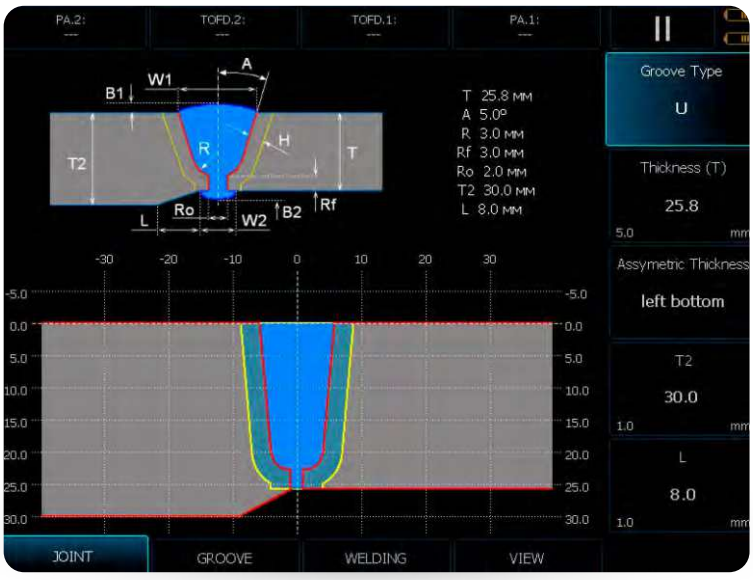
Multigroup function for PA

Each PA can be divided into 4 groups with different focus areas, individual signal type, scan type, generator parameters etc for enlarged weld zones coverage settings, providing 4 live scans on the display. Rich options for scanning direction and focusing zones.



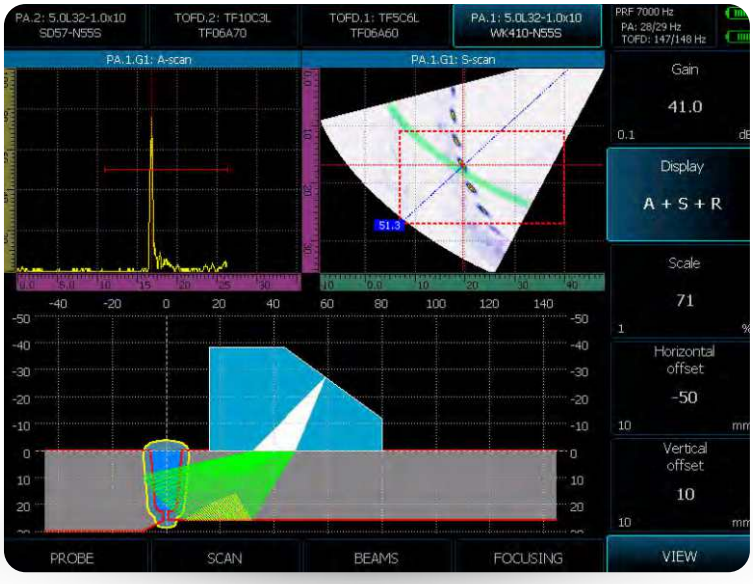
Weld Wizard for easy and convenient analysis of inspection results

This function allows to setup weld configuration with real geometry in the system considering various weld profiles, width, thickness variations, root height, heat-affected zone, top etc. as well as position of PA probe at scanning.



Scan Plan Wizard

Scanning constructor for visualization of beam paths in the object. This allows to set the penetration parameters like group of elements, type of scanning, scanning step, focusing area etc. to be used for inspection and get the image of object coverage.



Easy Scanner Configurator

Simple and visual scanner configurator to setup the inspection scheme. The operator can configure simultaneous operation with up to 2 x phased array probes and 2 x pairs of TOFD, at that each PA probe can be splitted up to four independent groups on each of the phased array probes (up to 8 groups of PA elements) with individual setup for each group.

Recording and Analysis Features

- The flaw detector allows scanning & recording by encoder or by movement speed with building the full and detailed scan protocol.
- The inspection results are saved for each channel enabled for the scanning.
- On-the-fly comprehensive analysis during inspection (before file saving) is possible using the functionality of the flaw detector.
- In-depth analysis of stored files can be done at site.

Additional Features

Angle Correction Gain and TCG functions for an immediate and accurate assessment of the equivalent defect size.

Detailed TOFD data review on the display of the flaw detector.

i-Scan mode for inspection of composites and corrosion mapping.

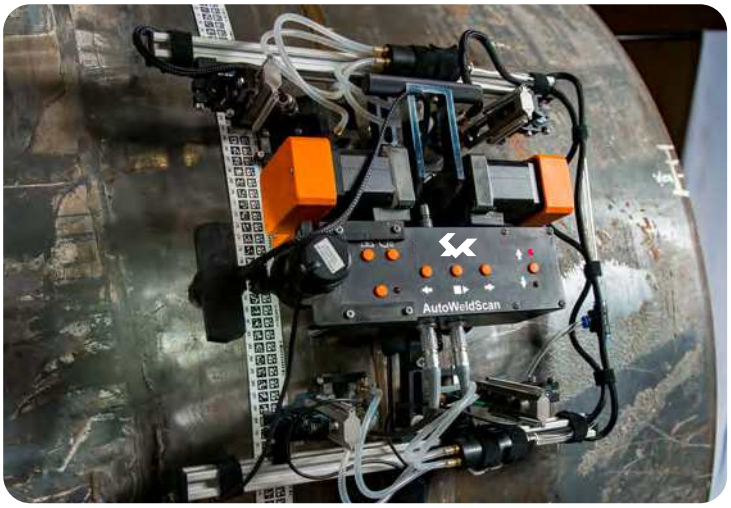
C-scan recording for linear phased array probe with direct, soft or immersion wedge and for roller probe for reconstruction of the backwall thickness map and composite inspection.

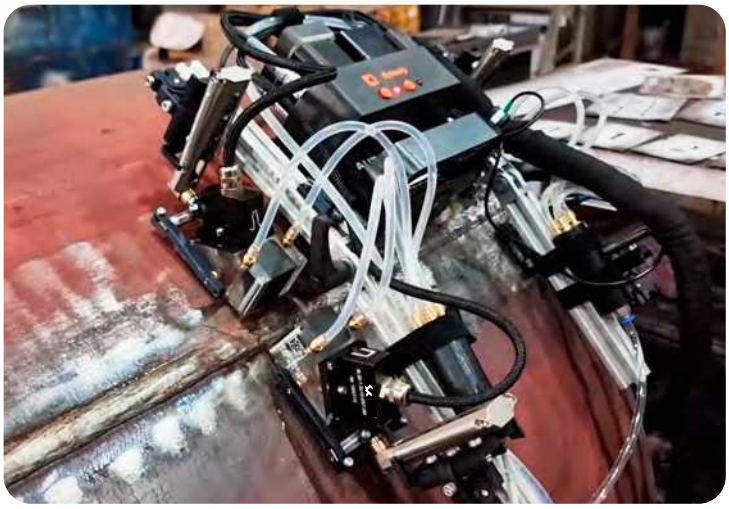
Connectivity with automated and mechanical scanners*

AutoWeldScan Fully Automated Scanner for Girth weld inspection

Lightweight (3.5 kg) 2-Motor scanner with floating semi-independent suspension allows reliable data acquisition in most difficult conditions without bondage, compensates for the irregularity of the surface, different thicknesses of weld edges.

Allows configuration up to 2 x PAs + 2 x 2 TOFD. Easy manipulation from the remote control in 4 directions. Fully automated version contains intellectual system for positioning the scanner on the center of weld and movement control.





AutoPAScan Motorized scanner for AUT

The unique configuration of the scanner allows one-side inspection as well as position probes on both sides of the welds. Positioning of the electronics on one side of the weld guarantees stable movement independent on the weld contruction ensures smooth movement on any surface, easy crossing of longitudinal welds and comfortable manual correction during motion.

All movement manipulations are managed with the buttons on the scanner.

RollScan for composites inspection

Phased array rolling probe for inspection of composites and other materials with straight plane surface for the detection of lamination, porosity and thickness of the composite panels. Lasermark helps to keep the straight movement. The elastic material of the wheel Aqualen gives the high quality of ultrasonic inspection with high resolution and good SNR.

The ScaneX PA 16 x 128 is your ultimate solution for advanced ultrasonic testing, providing efficient flaw detection, comprehensive analysis, and high versatility. Elevate your inspection capabilities with this powerful and user-friendly device.

* The unit can be also used as an acquisition unit with the scanners of other manufacturers (when interface and encoders are specified).

Technical Specification

PHASED ARRAY

Generator Configuration: 16:128 (optionally 32:128)

Excitation Voltage: ±100 V

Excitation Pulse Type: RF Pulse

Synchronization: position or time encoder

Gain: 0–80 dB in 0.1 dB steps

Operating Frequency Range: 500 kHz — 20 MHz

Sampling Frequency: 100 MHz

ADC Bit Depth: 10 bits

Data Bit Depth: 16 bits

Signal Recording: digital recording of each signal

Max A-Scan Length: up to 10,000 points

Pulse Repetition Frequency: 10 kHz

Focal Laws: up to 1024

Sensitivity Equalization: 2D programmable by angle (ACG); by depth TCG (range of 60 dB, 32 points with a slope of up to 50 dB/µs)

Focusing Types: depth, path, distance, auto

Scan Types: S-Scan, Real weld geometry (B-Scan), C-Scan, Top and side views

Scanning Modes: S-Scan, L-Scan, Compound LS-Scan (compound S-Scan)

Multi Groups: up to 10 groups (up to 4 on each PA channel + 2 TOFD channels)

Cursors: cartesian system, 2D, polar

Measurement: distance along the beam, coordinates in depth and position (X, Y), maximum in 2D, equivalent area

Post-Processing on PC: analysis, 3D volume analysis, scaling, protocol output

Connectors: 2 x Amphenol D38999

CONVENTIONAL UT CHANNELS

Number of Channels: 4 channels (2 pulsers / 2 receivers)

Excitation Voltage: ±200 V

Sampling: 100 MHz

Processing: A-Scan, B-Scan, TOFD

Rectification FW, HW+, HW–, and RF

Gain: 0-100 dB in steps of 0.5, 1, 2, and 6 dB

Operating Frequency Range: 500 kHz — 20 MHz

Connectors: 4 x Lemo 000

GENERAL FEATURES

Data Storage: standard USB card or high-speed Ethernet 10/100 Mbps

USB Ports: 2 USB + hub with 5 additional ports

File Size: 300 MB

Standard Scanning Speed: 6–9 m/min

Scan Record Length: 5000 measurements

Operation modes: phased array, conventional UT, i-Scan for corrosion mapping and composite inspection

Display: 800 x 600 pixels, 8.5 inches, color TFT with background change function for contrast work in bright sunlight

Battery: 2 built-in batteries, with quick replacement, up to 12 hours of autonomous operation

External Power: 220 V AC power supply

Operating Temperature Range: –35 °C to 50 °C

Size (H x W x D): 280 mm x 245 mm x 100 mm

Weight: 3 kg with battery

Storage temperature: –50 °C to 60 °C

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