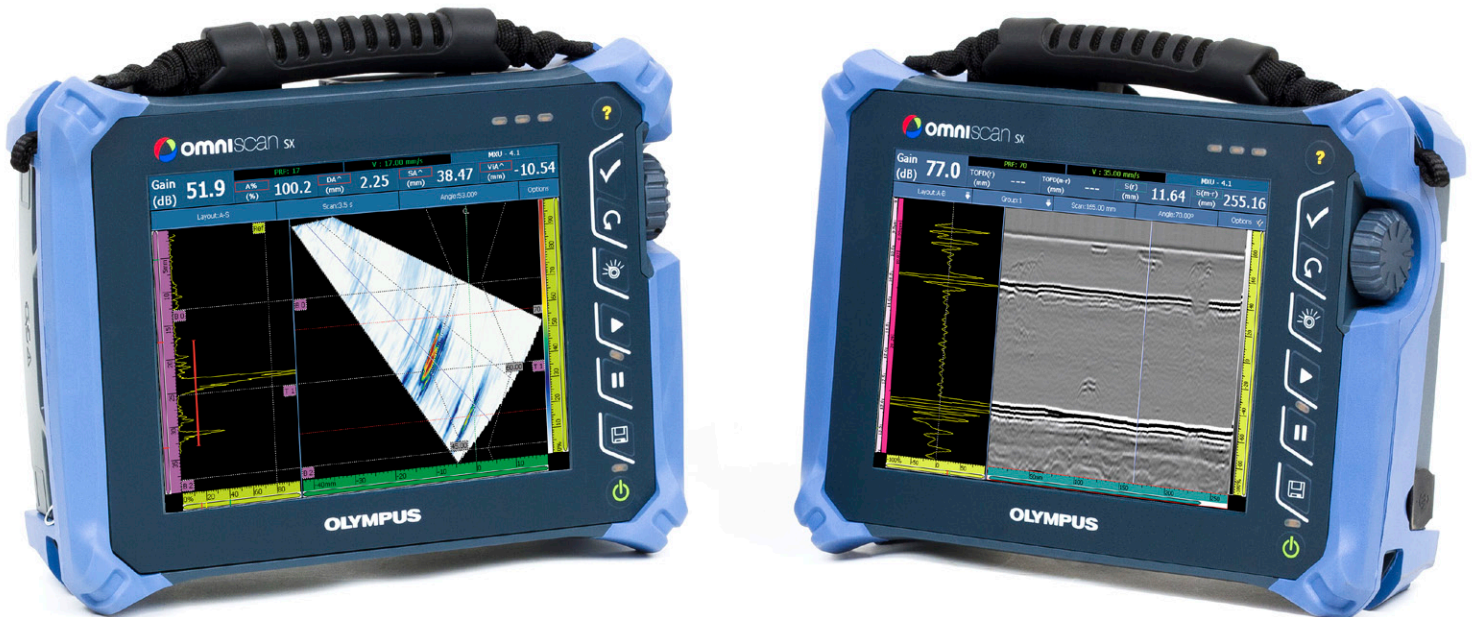# OmniScan SX
Smaller, Lighter… Still an OmniScan

NEW

- Cost-efficient, single-group
- Two-axis encoding and data archiving capacity
- Conventional UT, TOFD, and 16:64PR phased array capabilities
- 8.4 in. (21.3 cm) touch screen with OmniScan interface
- Compact, lightweight design

The Lightest and Most User-Friendly OmniScan

OmniScan SX

Olympus is proud to introduce the OmniScan SX, a flaw detector that benefits from more than 20 years of phased array experience and shares the OmniScan DNA. For improved ease of use, the OmniScan SX features a new streamlined software interface displayed on an 8.4 in. (21.3 cm) touch screen. A single-group and non-modular instrument, the OmniScan SX is easy to operate and cost-effective for less demanding applications.

The OmniScan SX comes in two models: the SX PA and SX UT. The SX PA is a 16:64PR phased array unit, which, like the UT-only SX UT, is equipped with a conventional UT channel for pulse-echo, pitch-catch or TOFD inspection. Compared to the OmniScan MX2, the SX is 33% lighter and 50% smaller, offering an unprecedented level of portability for an OmniScan.

Setup

Inspection setup can be performed in NDT SetupBuilder, and imported directly, via SD card or USB key, to the OmniScan SX. Then, only a few basic operations are required in the instrument, such as setting the gate and range, before acquisition can begin. It is also very easy to create a setup right in the OmniScan SX, thanks to the following features:

- Automatic probe recognition.
- One-step, preconfigured application Wizard.
- Weld Overlay and RayTracing simulation.

Calibration

To achieve a code-compliant inspection, the Calibration Wizard ensures that every focal law in every group is the direct equivalent of a single-channel conventional flaw detector. The user is guided step-by-step through the required calibrations, including Velocity, Wedge Delay, Sensitivity, TCG, DAC, AWS, and encoder calibrations. Now, TOFD PCS calibration and lateral wave straightening can be performed automatically.

Acquisition

The OmniScan SX enables easy configuration of inspection parameters for either manual, one-line, or raster encoded scans. The acquisition is displayed in real time through user-selectable views and offers the ability to store data on a hot-swappable SD card or USB 2.0 device.

- Intelligent layouts.
- Full-screen mode for better visualization of defects.
- Synchronization and measurements can be processed using different gate combinations.

Data Analysis and Reporting

- Data, reference, and measurement cursors for defect sizing.
- Extensive readings database and predefined lists for trigonometry, flaw statistics on axes, volumetric position information, code-based acceptance criteria, corrosion mapping statistics, and more.
- Views are linked for interactive analysis and automatically updated when performing off-line gate repositioning.
- Optimized preconfigured layouts for quick and simple length, depth, and height sizing of flaws.

Whether you prefer performing data analysis on a computer or simply wish to maximize the time your OmniScan is at work in the field, OmniPC or TomoView are the perfect software companions for your OmniScan.

Affordable and Portable Go a Long Way….

The Omniscan SX provides Olympus with a new and versatile tool to add to its arsenal of innovative and creative complete market solutions aimed at simplifying your workflow and improving overall productivity.

Phased Array Weld Inspection

The OmniScan PA is at the heart of the manual and semiautomated phased array weld inspection solutions developed by Olympus for the oil and gas industry. These systems can be used for inspection in compliance with ASME, API, and other code criteria, all while offering high-speed detection capabilities, and facilitating indication interpretation.

Corrosion Mapping and Composite Inspection

Zero-degree inspection just became even more accessible with the arrival of the OmniScan SX. For corrosion or composite inspection, Olympus offers field-proven solutions for detection of anomalies or wall loss.

TOFD Weld Inspection

TOFD is an easy and efficient approach for primary detection of weld defects. It is quick, cost-effective and capable of sizing defects present in the volume of the weld, a problematic area for manufacturing defects.

Component Inspection

Using ultrasonic techniques, inspection of components can detect cracks, wall loss, and other damage. With the capacity for both angle and linear zero-degree beams, the OmniScan SX is a very cost-efficient solution for this type of single-group inspection.

OmniScan SX Specifications*

Housing

Overall dimensions (W x H x D)	267 mm × 206 mm × 91 mm (10.5 in. × 8.1 in. × 3.6 in.)
Weight	3.4 kg (7.5 lb) with battery

Data Storage

Storage devices	SDHC card or most standard USB storage devices
Data file size	300 MB

I/O Ports

USB ports	2 USB ports, compliant with USB 2.0 specifications
Audio alarm	Yes
Video output	Video out (SVGA)

I/O Lines

|	
Encoder	2-axis encoder line (quadrature, up, down, or clock/direction)
Digital input	4 digital TTL inputs, 5 V
Digital output	3 digital outputs TTL, 5 V, 15 mA maximum per output
Acquisition on/off switch	Yes, through configuration of a digital input
Power output line	5 V, 500 mA power output line (short-circuit protected)
Pace input	5 V TTL pace input

Display

Display size	21.3 cm (8.4 in.) (diagonal)
Resolution	800 pixels x 600 pixels
Brightness	600 cd/m²
Viewing angles	Horizontal: –80° to 80° Vertical: –60° to 80°
Number of colors	16 million
Type	TFT LCD

Power Supply

Battery type	Smart Li-ion battery
Number of batteries	1
Battery life	Minimum 6 hours under normal operating conditions

Environmental Specifications

Operating temperature range	-10 °C to 45 °C (14 ºF to 113 ºF)
Storage temperature range	–20 °C to 60 °C (–4 ºF to 140 ºF) with battery –20 °C to 70 °C (–4 ºF to 158 ºF) without battery
Relative humidity	Max. 70% RH at 45°C noncondensing
Ingress protection rating	Designed to meet requirements of IP66
Shockproof rating	Drop-tested according to MIL-STD-810G 516.6
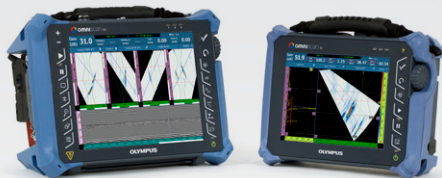
OmniScan MX2   OmniScan SX

If multigroup inspections (ex: two PA probes or combined PA + UT) are required or anticipated, Olympus recommends the OmniScan MX2. This advanced flaw detector's modular platform facilitates the upgrade path — you can start with the module in your price/performance range and upgrade later to one of the many other modules available.

Ultrasound Specifications (applies to OMNISX-1664PR)

Connectors	1 Phased Array connector: Olympus PA connector 2 UT connectors: LEMO 00
Number of focal laws	256
Probe recognition	Automatic probe recognition

Pulser/Receiver

Aperture	16 elements
Number of elements	64 elements

Pulser	PA Channels	UT Channel
Voltage	40 V, 80 V, and 115 V	95 V, 175 V, and 340 V
Pulse width	Adjustable from 30 ns to 500 ns; resolution of 2.5 ns	Adjustable from 30 ns to 1,000 ns; resolution of 2.5 ns
Pulse shape	Negative square wave	Negative square wave
Output impedance	35 Ω (pulse-echo mode); 30 Ω (pitch- catch mode)	<30 Ω

Receiver	PA Channels	UT Channel
Gain	0 dB to 80 dB, maximum input signal 550 mVp-p (full-screen height)	0 dB to 120 dB maximum input signal 34.5 Vp-p (full-screen height)
Input impedance	60 Ω (pulse-echo mode); 150 Ω (pitch- catch mode)	60 Ω (pulse-echo mode); 50 Ω (pulse-receive mode)
System bandwidth	0.6 MHz to 18 MHz (–3 dB)	0.22 MHz to 28 MHz (–3 dB)

Beamforming

Scan type	Sectorial or linear
Group quantity	1

Data Acquisition	PA Channels	UT Channel
Digitizing frequency	400 MHz (12 bits) after interpolation per 5/4	400 MHz (12 bits) after interpolation per 4
Maximum pulsing rate	Up to 6 kHz (C-scan)	

Data Processing	PA Channels	UT Channel
Number of data points	Up to 8,192	
Real-time averaging	PA: 2, 4, 8, 16	UT: 2, 4, 8, 16, 32, 64
Rectifier	RF, full wave, half wave +, half wave –	
Filtering	3 low-pass, 3 band-pass, and 5 high-pass filters	3 low-pass, 6 band-pass, and 3 high-pass filters (8 low-pass filters when configured in TOFD)
Video filtering	Smoothing (adjusted to probe frequency range)	

Data Visualization

A-scan refresh rate	A-scan: 60 Hz; S-scan: 60 Hz

Data Synchronization

On internal clock	1 Hz to 6 kHz
On encoder	On 2 axes: from 1 to 65,536 steps

Programmable Time-Corrected Gain (TCG)

Number of points	16: One TCG (time-corrected gain) curve per focal law
Maximum slope	40 dB/10 ns

Alarms

Number of alarms	3
Conditions	Any logical combination of gates

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