OLYMPUS®

Your Vision, Our Future

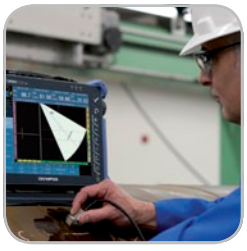
Ultrasonic Flaw Detector

OmniScan MX2

omniscan

OmniScan MX2

The Standard in Phased Array, Redefined



- Bright, Large Touch Screen
- New Phased Array and TOFD Modules
- New NDT SetupBuilder Design Software
- New OmniPC Analysis Software

You'll see…

The result of over 10 years of proven leadership in modular NDT test platforms, the OmniScan MX has been the most successful portable and modular phased array test instrument produced by Olympus to date, with thousands of units in use throughout the world.

Building on a Solid Basis

This second generation OmniScan MX2 increases testing efficiencies, ensuring superior manual and advanced AUT application performance with faster setups, test cycles, and reporting, in addition to universal compatibility with all phased array and ultrasound modules: past, present and future. Designed for NDT leaders, this high-end, scalable platform delivers true next-generation NDT performance.

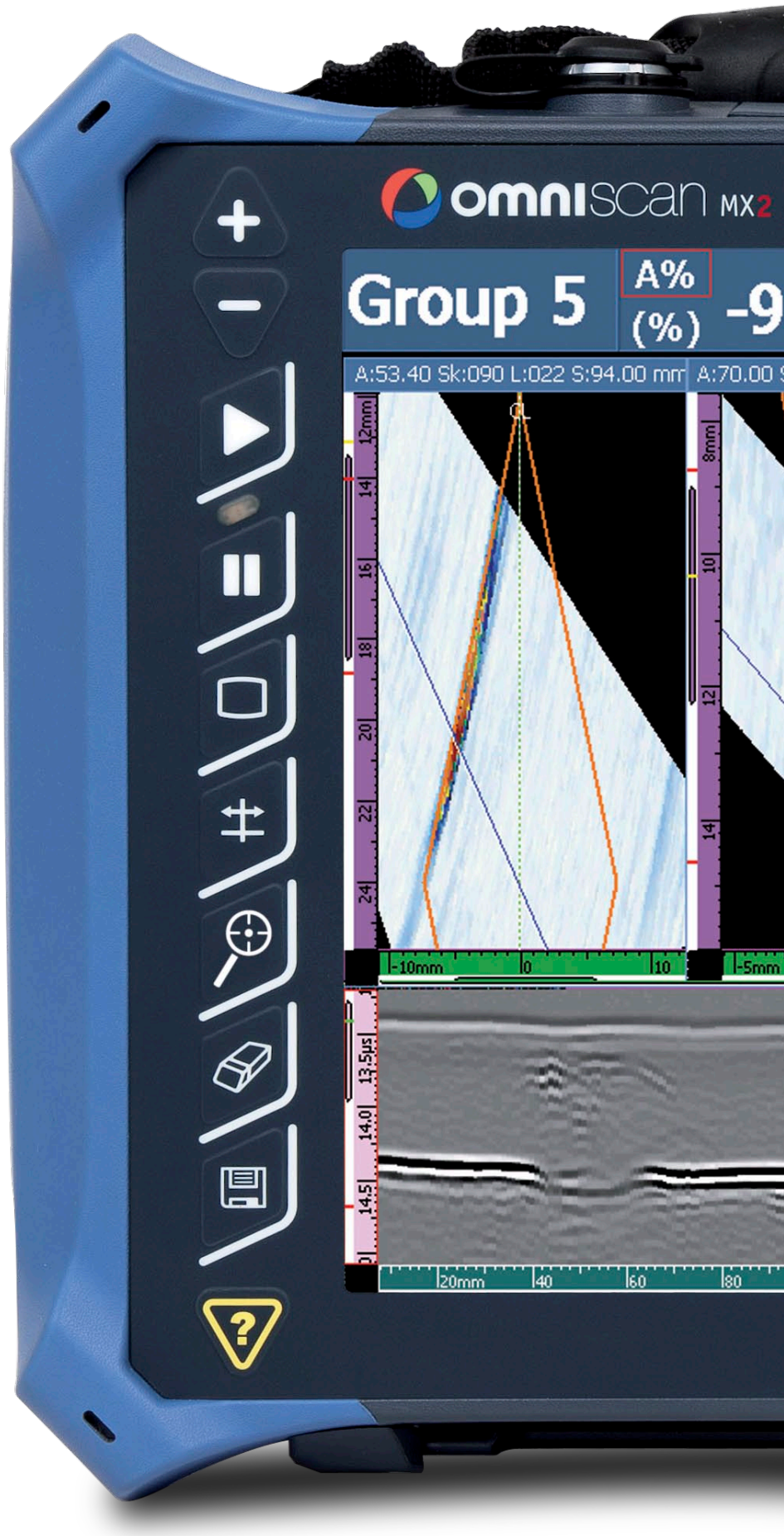
The OmniScan MX2 offers a high acquisition rate and new powerful software features for efficient manual and automated inspection performance—all in a portable, modular instrument.

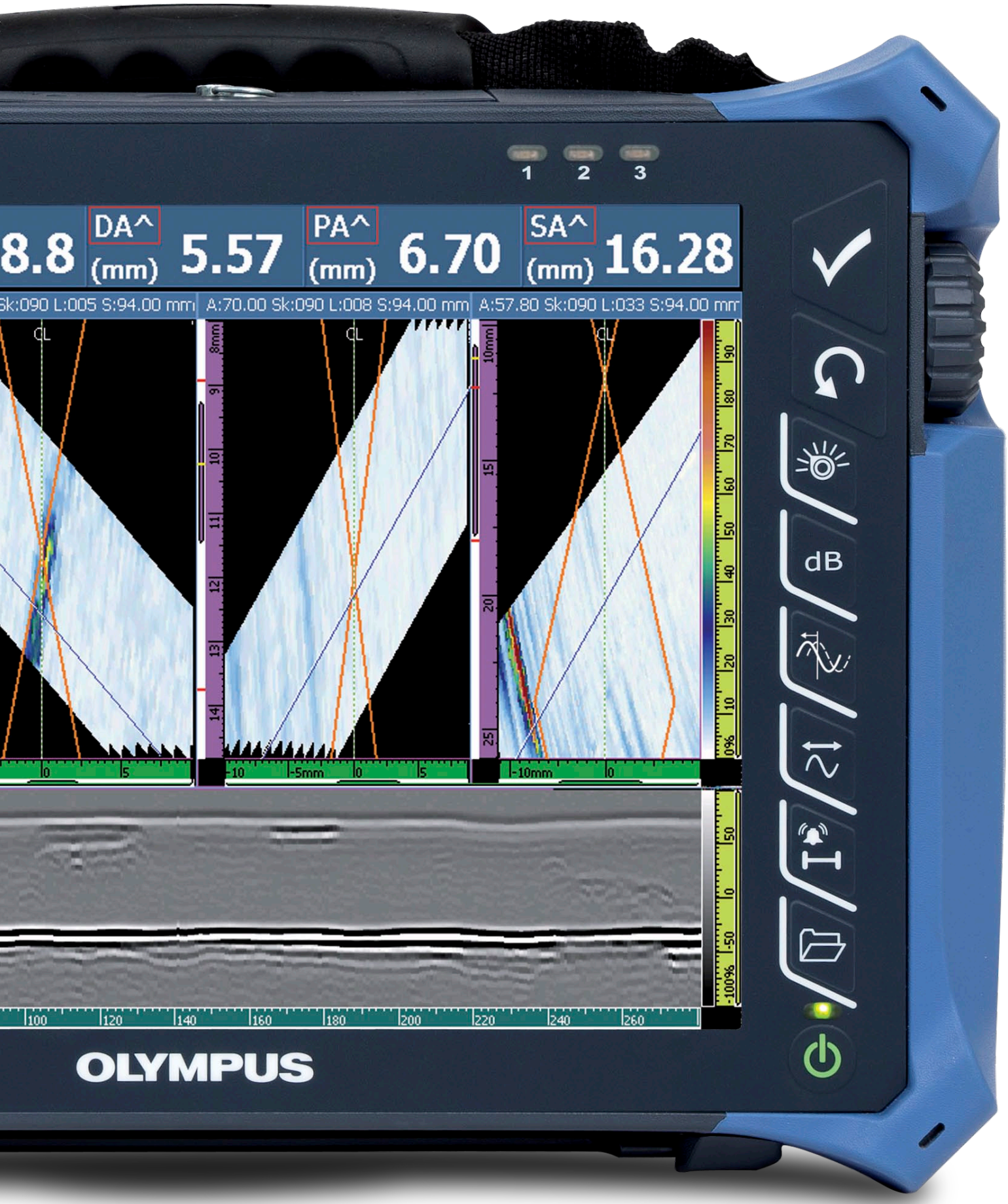
Faster Is Better!

Powerstart your day the right way with the OmniScan MX2. The OmniScan MX2 simplifies and speeds up the setup process with its intuitive Weld Overlay software feature, so you can start testing immediately. Featuring the industry-standard phased array user interface with faster-than-ever performance, a bigger and brighter 10.4 inch screen, new and unique intuitive touch-screen capabilities, and faster data transfer, enabling you to get to your next inspection quicker.

More than an Instrument —A Solution Provider

The OmniScan MX2 is an important part of your inspection solution, and can be combined with other critical components to form a complete inspection system. Olympus offers a complete product range that includes phased array probes, scanners, analysis software, and accessories, all of which are integrated and packaged into rapidly deployable, application-specific solutions for quick returns on your investment. In addition, Olympus offers a high-quality calibration and repair service worldwide, that is backed by a team of phased array application experts to ensure that you get the support you need.





Life-Size OmniScan MX2

The Easiest and Fastest Way to Get the Job Done

Weld Inspection of Small-Diameter Pipes

When coupled with the COBRA manual scanner, the OmniScan flaw detector is capable of inspecting pipes ranging from 0.84 inch OD to 4.5 inch OD. With its very slim design, this manual scanner is able to inspect pipes in areas with limited access.

Pressure Vessel Weld Inspection

A complete inspection of pressure vessel welds can be performed manually, or in a single scan using an OmniScan and a scanner for a turnkey solution. Inspection results are available immediately, enabling you to detect problems with welding equipment and fix them right away.

START

Your needs...

...Olympus Solutions

Over the last few years Olympus has devoted considerable efforts to create and deploy several complete market solutions to meet customer needs.

Composite Inspection

Olympus offers complete solutions for the inspection of carbon-fiber-reinforced polymer structures. These solutions are based on the OmniScan flaw detector, the GLIDER™ scanner, and dedicated probes and wedges designed for CFRP flat panel and radius inspection.

REPORT

Corrosion Mapping Inspection

The OmniScan PA system with the HydroFORM scanner is designed to offer the best inspection solution for the detection of wall-thickness reductions resulting from corrosion, abrasion, and erosion. For this application, phased array ultrasound technology offers superior inspection speed, data point density, and detection.

IMPORT

Design

NDT SetupBuilder

NDT SetupBuilder design software is an integral part of the Olympus line of automated and semiautomated ultrasonic testing products. NDT supervisors can use NDT SetupBuilder software to simulate the inspection strategy in order to determine the appropriate number of beams and angles. This configuration can be imported to the OmniScan MX2, thereby reducing configuration time and manipulation errors.

Acquisition

OmniScan MX2

The OmniScan MX2 flaw detector provides powerful inspection capabilities for manual and automated applications. It can be used with a full range of probes, scanners, and accessories, making Olympus the provider of choice for petrochemical, aerospace, and other industrial markets.

EXPORT

Analysis

OmniPC

This new software is the most efficient and affordable option for OmniScan data analysis, and features the same analysis and reporting tools provided in the OmniScan onboard software, with the added flexibility to be run on a personal computer.

Modular Instrument

A Platform that Evolves as your Needs Grow

Designed to secure both your current and future phased array investments, the OmniScan MX2 can house any Olympus phased array module, including the reliable, field-proven models currently available, and next-generation modules. You can be confident to get the most of your investment as specifications will continue to evolve with your needs through constant software updates.

State of the Art PA2 and UT2 Modules

As a world leader in phased array technology, Olympus has just released a new line of modules compatible with MX2 instrument.

PA2

The new phased array offer—led by the new innovative PA2 modules, features multiple improvements, such as:

Best Phased Array and TOFD Signal Quality Ever

- Better signal-to-noise ratio
- More powerful pulsers
- 64 pure gray tone

More Multi-group Capabilities

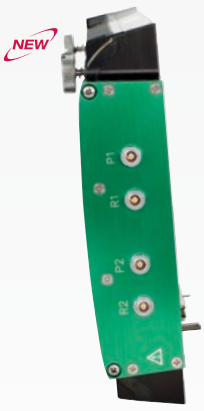
- Ability to use PA and UT channels simultaneously

General Hardware Improvements

- Higher operating temperatures (45 °C)
- New OmniScan probe connector with quick latch system
- Designed for IP66 environmental rating
- Extended autonomy on batteries

UT2

The new Conventional Ultrasound module features the same technology of UT channels as the PA2 modules, but offers twice as many channels.



2 ch. UT2

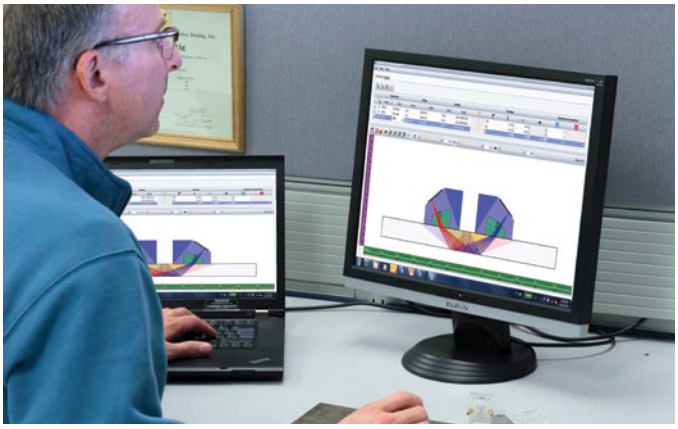
16:64 PA2
16:128 PA2
32:128 PA2

32:32 PA
32:128PR PA

Product Features

NDT SetupBuilder ›

NDT SetupBuilder is a new PC-based software allowing to create inspection setup and visualize beam simulations.



Design

NDT SetupBuilder presents multiple features for easy, fast, and comprehensive inspection strategy elaboration that can directly be imported in the OmniScan MX2.

- Wedge and probe selection can be carried out within the Olympus part database
- Instantaneously simulate beams trajectory in the material
- Visualize and adjust the part, probe, weld, and beams in different views, such as: side, end, top, or 3D
- Represent most commonly inspected materials and parts such as plates, and circumferential or axial welded pipes
- Copy and flip existing groups for quick multiple probe configurations

OmniScan MX2 ›

Thanks to its new partners, NDT SetupBuilder and OmniPC, the OmniScan MX2 can be used to perform all steps required for the inspection directly on its large touch screen or be dedicated to calibration and acquisition tasks.

Setup

The most efficient way to create a setup is to perform the simulation in NDT SetupBuilder, and import it directly to the OmniScan. Afterward, only a few operations such as gate and range settings, are required in the OmniScan prior to starting the acquisition. However, with its automatic probe recognition capability the OmniScan MX2 can also be used to create a complete setup using the following features:

- Intuitive wizards to guide the user through every step of the setup creation using the interactive help menu
- Weld Overlay and RayTracing simulation
- Group copy option for fast multiple group configuration

Calibration

The Calibration Wizard ensures that every focal law in every group is the direct equivalent of a single-channel conventional flaw detector for compliance to codes. The user is guided step-by-step through Velocity, Wedge Delay, Sensitivity, TCG, DAC, AWS, and encoder calibrations. TOFD PCS calibration and lateral wave straightening can now be performed automatically.

Acquisition

The OmniScan MX2 enables easy configuration of inspection parameters for either manual, or one-line, raster, or helicoidal encoded scans. The acquisition is displayed in real time and offers the ability to rewrite data that can be stored within full A-scans, S-scans, and/or C-scans on a hot-swappable SD card or USB 2.0 device.

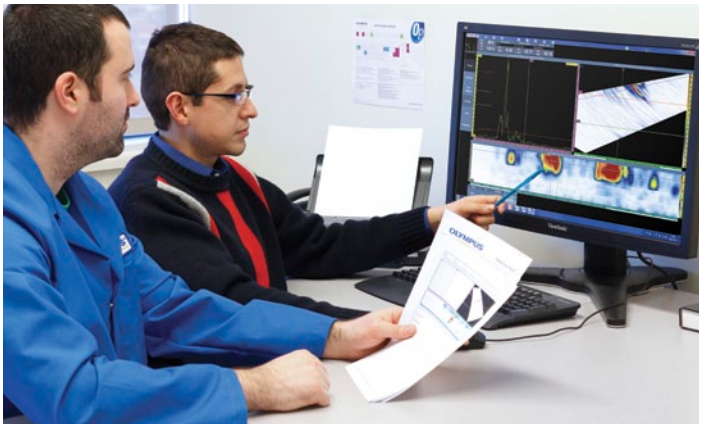
- Different gate-synchronization capabilities
- New, intelligent layouts for configuring up to 8 groups
- Full-screen mode for visualization at greater distance

Data Analysis

- 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, etc.
- 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.

OmniPC ›

OmniPC is a new software program that benefits from the same user interface and analysis and reporting features as the OmniScan with the added flexibility to be run on a personal computer.



Data Analysis

With OmniPC, the OmniScan unit can now be used strictly for scanning while analysis is performed simultaneously on a personal computer. This software can also be used in conjunction with extra large screens for increased visibility, and with keyboard shortcuts for faster operations.

Reporting

The OmniScan MX2 and OmniPC can both be used to generate reports with an indication table listing up to eight readings, such as amplitude, position, and size of the defects. The report can also be customized with additional readings and comments specific to each indication, and can be saved as an HTML document. RayTracing tools allow the indication positions to be represented on the weld profile. High-resolution images can be inserted along with all relevant inspection parameters.

OmniScan MX2 Specifications*

OmniScan MX2 Mainframe Specifications

Overall dimensions (W x H x D)	325 mm x 235 mm x 130 mm (12.8 in. x 9.3 in. x 5.1 in.)
Weight	3.2 kg (7 lb), no module and one battery
Data Storage	
Storage devices	SDHC card, most standard USB storage devices, or fast Ethernet
Data file size	300 MB
I/O Ports	
USB ports	3
Speaker out	Yes
Video output	Video out (SVGA)
Ethernet	10/100 Mbps
I/O Lines	
Encoder	2-axis encoder line (quadrature, up, down, or clock/direction)
Digital input	4 digital TTL inputs, 5 V
Digital output	4 digital TTL outputs, 5 V, 15 mA
Acquisition on/off switch	Remote acquisition enabled TTL, 5 V
Power output line	5 V, 500 mA power output line (short-circuit protected)
Alarms	3 TTL, 5 V, 15 mA
Analog output	2 analog outputs (12 bits) ±5 V in 10 kΩ
Pace input	5 V TTL pace input
Display	
Display size	26.4 cm (10.4 in.) (diagonal)
Resolution	800 pixels x 600 pixels
Brightness	700 cd/m^2
Number of colors	16 million
Type	TFT LCD
Power Supply	
Battery type	Smart Li-ion battery
Number of batteries	1 or 2 (battery chamber accommodates two hot-swappable batteries)
Battery life	Minimum 7 hours with two batteries
Environmental Specifications	
Operating temperature range	-10 °C to 45 °C (14 °F to 113 °F)
Storage temperature range	–20 °C to 60 °C (–4 °F to 140 °F) with batteries –20 °C to 70 °C (–4 °F to 158 °F) without batteries
Relative humidity	Max. 70% RH at 45°C noncondensing
Ingress Protection Rating	IP54
Shockproof rating	Drop-tested according to MIL-STD-810G 516.6
MX2 Module Compatibility	
MXU 3.2 and later	OMNI-M2-PA1664
	OMNI-M2-PA16128
	OMNI-M2-PA32128
	OMNI-M2-UT-2CH
MXU 3.1	OMNI-M-UT-8CH
MXU All versions	OMNI-M-PA1664
	OMNI-M-PA16128
	OMNI-M-PA32128
	OMNI-M-PA32128PR
	OMNI-M-PA3232 (200 V)
MXU-M 3.1 and previous	OMNI-M-PA1664M

Phased Array Module Specifications (Applies to OMNI-M2-PA32128)

Overall dimensions (W x H x D)	226 mm x 183 mm x 40 mm (8.9 in. x 7.2 in. x 1.6 in.)	
Weight	1.6 kg (3.5 lb)	
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	32 elements	
Number of elements	128 elements	
Pulser	**PA Channels**	**UT Channels**
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	< 25 Ω	< 30 Ω
Receiver	**PA Channels**	**UT Channels**
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	65 Ω	60 Ω in pulse-echo mode 50 Ω in pulse-receive mode
System bandwidth	0.6 MHz to 18 MHz (–3 dB)	0.25 MHz to 28 MHz (-3 dB)
Beamforming		
Scan type	Sectorial and linear	
Group quantity	Up to 8	
Aperture	32	
Number of elements	128	
Data Acquisition		
Digitizing frequency	400 MHz (12 bits) after interpolation per 4	
Maximum pulsing rate	Up to 10 kHz (C-scan)	
Data Processing		
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	PA Channel: 3 low-pass, 3 band-pass, and 5 high-pass filters. UT channel: 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	Real time: 60 Hz	
Data Synchronization		
On internal clock	1 Hz to 10 kHz	
On encoder	On 2 axes: from 1 to 65,536 steps	
Programmable Time-Corrected Gain (TCG)		
Number of points	32: One TCG curve per focal law	
Alarms		
Number of alarms	3	
Conditions	Any logical combination of gates	
Analog outputs	2	

www.olympus-ims.com

OLYMPUS NDT INC. is ISO 9001 and 14001 certified

OLYMPUS

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