OLYMPUS®

Your Vision, Our Future

Phased Array Acquisition Unit

FOCUS PX

Phased Array Integrated Instrumentation

NEW

- Powerful
- Scalable
- Excellent signal quality
- Rugged and compact
- Easy integration

Phased Array Instrumentation
Designed for Demanding Inspection

Olympus System Instrumentation Working in Synergy

Olympus offers a complete advanced phased array integration solution that meets the requirements of your most demanding customers. The solution includes the FOCUS PX, a powerful and scalable acquisition unit; FocusPC, a powerful data acquisition and analysis software program; and two software development kits (SDK), FocusControl and FocusData, to customize your software interface based on your application and control FocusPC for a fully automated inspection solution.

Instrument

FOCUS PX

Software

FocusPC, FocusControl, and FocusData

FOCUS PX Instrument

Excellent Signal Quality

The FOCUS PX provides excellent phased array signal quality using the latest Olympus technology, resulting in significantly improved signal-to-noise ratio.

Up to **12 dB**
SNR improvements

Up to **4**
dedicated UT channels

Scalable and Powerful

The FOCUS PX is equipped with the latest phased array technology to deliver significant performance enhancements and faster inspection speed in highly demanding applications. Up to four FOCUS PX units can be used in parallel, offering a significant increase in inspection speed and advanced multiprobe configurations.

Up to **4**
FOCUS PX in parallel

Up to **30 MB/s**
data throughput

Fast Programming

The optimized FOCUS PX communication process significantly reduces programming time, resulting in minimized cycle time and improved operator experience.

Rugged

The FOCUS PX is a rugged unit that is designed for integration in harsh production environments. Designed for IP65 rating, the casing has multiple fins for optimized heat dissipation.

Up to
40 °C
operating temperature

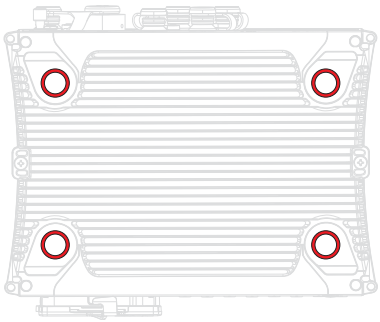
Rated
IP65

Easy Integration

The FOCUS PX bumpers can be easily removed to access four screw holes for mounting the unit directly onto a scanner or inspection system.

Easy Mounting

Easy and quick installation allows the FOCUS PX to be positioned much closer to the probes, reducing cabling and optimizing signal quality.



Four screw holes are available for mounting the unit directly onto any inspection scanner.

Simple Cabling

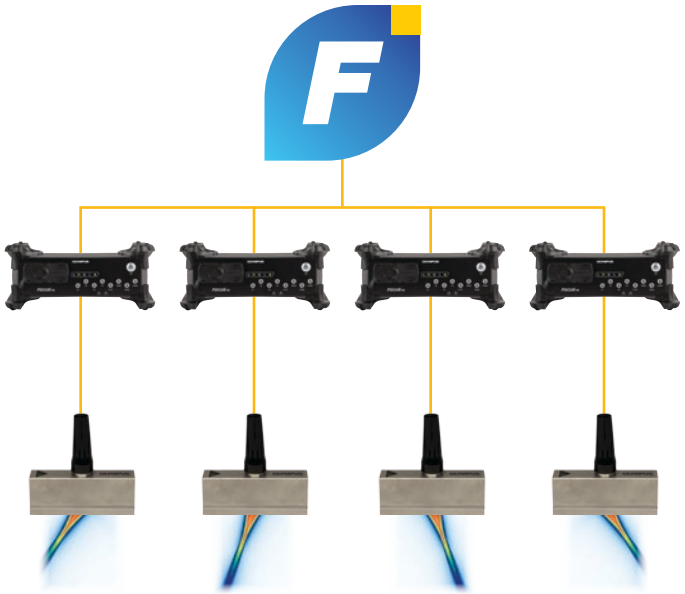
Multiple FOCUS PX units can be synchronized with each other through a simple cable configuration. This allows all I/O signals to be received by one unit, reducing cabling and greatly simplifying the overall integration.

FocusPC Software

Get the most out of your FOCUS PX

Powerful Acquisitions Features

FocusPC contains high-performance acquisition features that maximize the FOCUS PX performances and optimize inspection speed. FocusPC can drive up to four FOCUS PX units in parallel, enabling advanced multiprobe configurations and further reducing cycle time.

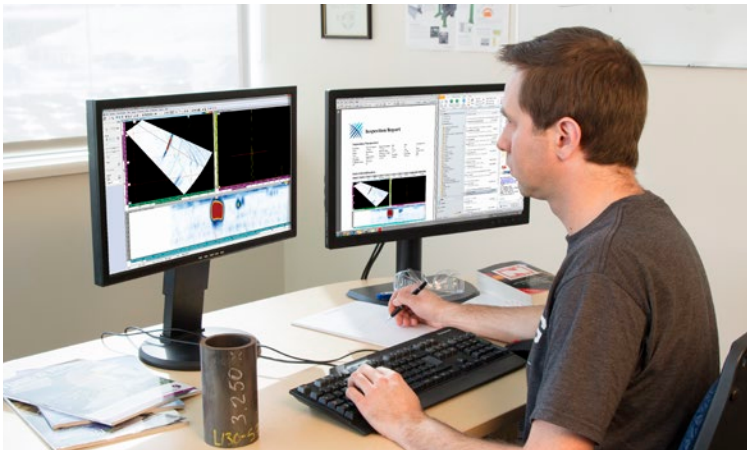


Easy Connection

The FOCUS PX seamlessly connects to any computer that has FocusPC installed, greatly simplifying the configuration process.

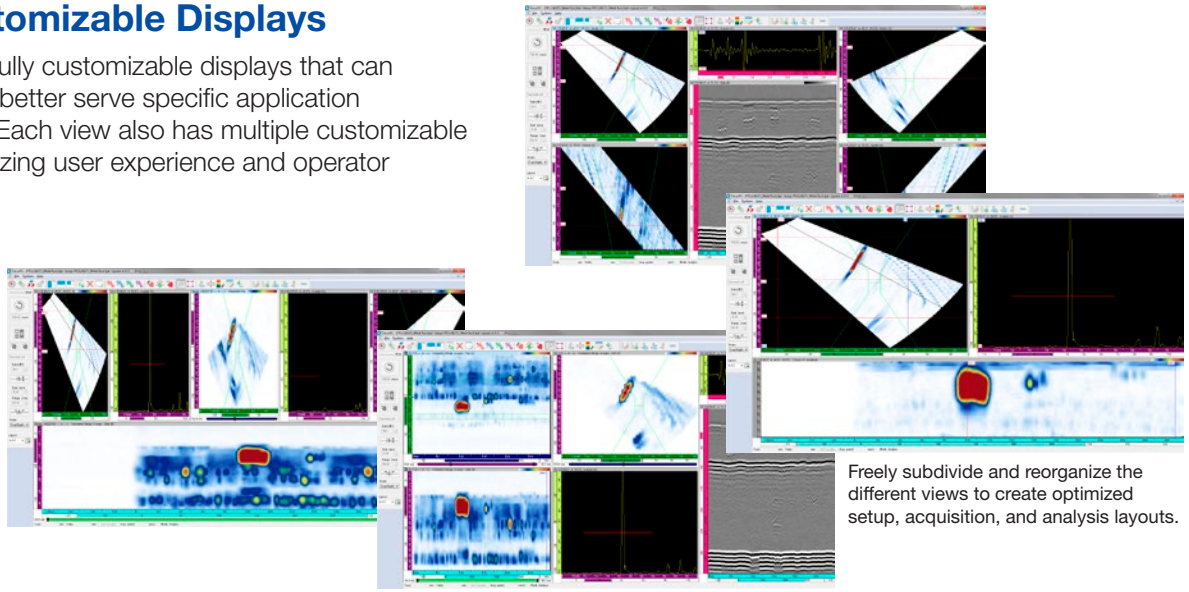
Advanced Analysis Tools

Advanced analysis tools are available in FocusPC so that you can get the most out of your FOCUS PX inspection data. Use the advanced data processing algorithms to extract valuable information and make the analysis process more efficient.



Fully Customizable Displays

FocusPC has fully customizable displays that can be adapted to better serve specific application requirements. Each view also has multiple customizable options, optimizing user experience and operator efficiency.



Freely subdivide and reorganize the different views to create optimized setup, acquisition, and analysis layouts.

Software Development Kits (SDK)

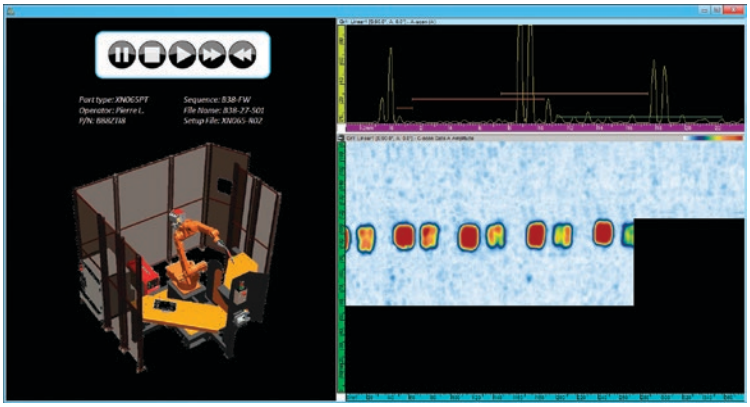
Build your software… Your way!

Inspection Process Automation

Use the FocusData and FocusControl SDKs to develop custom software to control the FOCUS PX and fully automate the inspection process, optimizing cycle time and improving overall system efficiency.

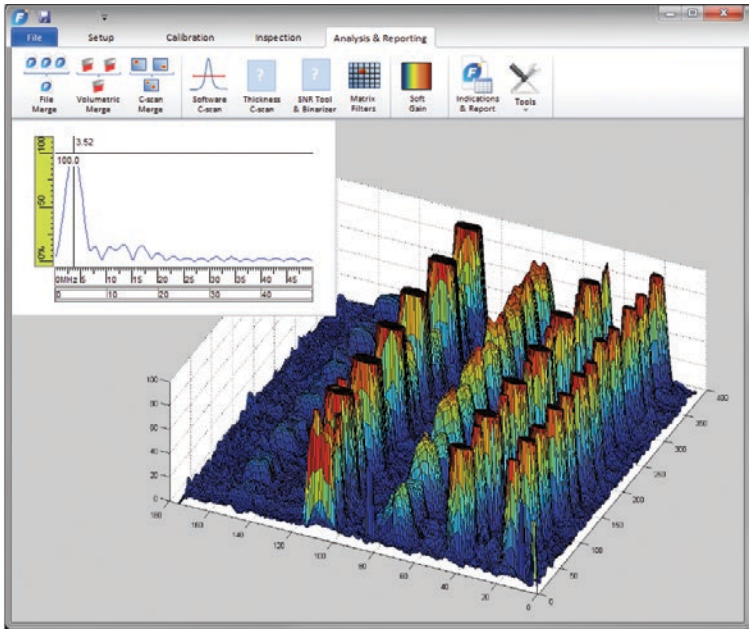
Application-Dedicated User Interface

Build dedicated user interfaces based on the application requirements and make the inspection process more efficient. This provides better system workflow control and helps reduce the chance of operator-related mistakes.



Custom Data Analysis

Use the SDKs to gain direct access to inspection data from custom software, enabling the development of application-dedicated data representations and customized analysis tools.



FOCUS PX Applications

Aerospace and Defense

The sustained growth of the aerospace and defense industry over the last decade has intensified the production demand on aircraft manufacturers and their suppliers. The requirement to inspect increasingly complex-shaped parts while minimizing cycle time puts pressure on manufacturers to improve their inspection process efficiency.

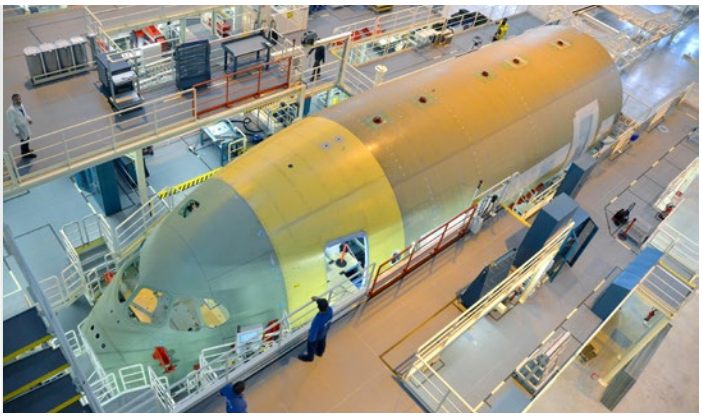
Inspection of:

- Composite parts
- Honeycomb-reinforced composite parts
- Friction stir welds (FSW)

Reduce inspection time with full volumetric coverage

Up to **7 X** faster than equivalent FOCUS LT configuration

Up to **1024** focal laws for full volumetric coverage



Transportation

Stringent quality control requirements are imposed in the transportation industry on railway component manufacturers and operating companies. Train wheels and axles must be inspected at the end of the production process and regularly during their life cycle to ensure train safety and integrity.

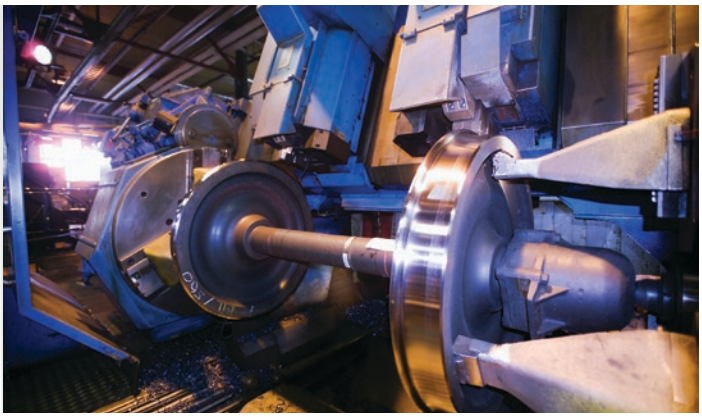
Inspection of:

- Train wheel
- Train axle

Full wheelset inspection with optimized signal-to-noise ratio

Down to **30 s** for complete wheelset inspection

Up to **12 dB** signal-to-noise ratio (SNR) improvement



Metal Manufacturing and Fabrication

Manufacturers in the foundry industry are required to provide high quality parts for a wide range of applications. They need to have access to high performance inspection solutions that can perform stringent inspections while minimizing cycle time in order to optimize production rates.

Inspection of:

- Heavy forging
- Plate
- Tube
- Bar

Optimized minimum detectable defect size with complete volume coverage

Up to
512
phased array elements for multiprobe configurations

Down to
1
uninterrupted inspection sequence for very large specimens

Oil and Gas

The oil and gas industry imposes rigorous inspection requirements in order to ensure environmental and public safety. Inspections must be regularly performed to monitor degradation and prevent accidents.

Inspection of:

- Welds (including austenitic)
- Corrosion mapping

Increased inspection speed with optimal defect identification and sizing

More than
2X
faster than single unit configurations

Up to
4
64-element probe sets per configuration

Up to
4 TOFD
probe sets per FOCUS PX

Specifications*

Phased array channels	16:64PR: 64 16:128PR/32:128PR: 128
Number of pulsers	16:64PR/16:128PR: 16 consecutive elements 32:128PR: 32 consecutive elements
Conventional UT channels	4 dedicated UT channels (8 connectors for pulse-echo and pitch-catch configurations support)
Data acquisition rate	Up to 30 MB/s (1 FOCUS PX) Up to 60 MB/s (2 to 4 FOCUS PX)
Acquisition speed	Up to 20000 12-bit A-scans/second of 750 points each
Amplitude resolution	8-bit / 12-bit
Maximum number of A-scan samples	16380
Real-time data compression	1 to 2000 ratio
Rectification	FW, HW+, HW–, and RF
Filtering	Digital band-pass, high-pass and low-pass filters
Voltage	PA : 4 V, 9 V, 20 V, 40 V, 80 V, and 115 V UT : 50 V, 100 V, and 190 V
Gain	PA : 80 dB (46 dB analog + 34 dB digital) UT : 120 dB (digital)

Pulse width	PA : 30 ns to 500 ns (steps of 2.5 ns) UT : 30 ns to 1000 ns (steps of 2.5 ns)
Bandwidth (-3 dB)	PA : 0.6 MHz to 17.8 MHz UT : 0.25 MHz to 28 MHz
Number of beams	Up to 1024
Pulse repetition frequency (PRF)	1 Hz to 20 kHz
Real-time averaging	PA : 1, 2, 4, 8, 16 UT : 1, 2, 4, 8, 16, 32, 64
Number of gates	4 for detection; 1 for synchronization
Encoder	2 axes (quadrature, clock direction)
Network interface	1000BASE-T
Size (W x H x D) With bumpers	30.7 cm × 13.5 cm × 23.6 cm (12 in. × 5.3 in. × 9.3 in.)
Size (W x H x D) Without bumpers	27.6 cm × 9.2 cm × 23.1 cm (10.9 in. × 3.6 in. × 9.1 in.)
Weight **With bumpers**	4.8 kg (10.5 lb)
Weight Without bumpers	4.2 kg (9.2 lb)
IP rating	IP65

Ordering Information

FOCUS PX

Part Number	Description
FPX-1664PR	FOCUS PX 16:64PR + 4 UT channels
FPX-16128PR	FOCUS PX 16:128PR + 4 UT channels
FPX-32128PR	FOCUS PX 32:128PR + 4 UT channels
FPX-OPT-2	Accessories for 2 FOCUS PX multipod configuration
FPX-OPT-3	Accessories for 3 FOCUS PX multipod configuration
FPX-OPT-4	Accessories for 4 FOCUS PX multipod configuration

FocusPC and SDK

Part number	Description
FPC-10-F	FocusPC 1.0 inspection and analysis software
FPC-10-A	FocusPC 1.0 analysis software
FDATA	FocusData SDK
FCONTROL	FocusControl SDK
FPC-INTEG	FocusPC 1.0 Full, FocusControl, FocusData and onsite training and support (special pricing)

Developing a new solution?

Contact Olympus at: **Info.IntegratedInstruments@olympus-ossa.com** for special Integration Packages including the FOCUS PX, FocusPC, FocusControl and FocusData SDK along with customized training sessions and support.

OLYMPUS CORPORATION OF THE AMERICAS is certified to ISO 9001, ISO 14001, and OHSAS 18001.

*All specifications are subject to change without notice.

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