OLYMPUS

WeldSight™ Software

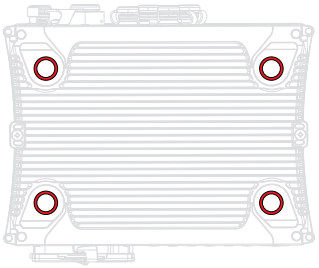
Advanced Weld Inspection and Analysis

- Intuitive, efficient workflow
- Fast setup and configuration
- High-speed data acquisition
- Advanced analysis and customizable data displays

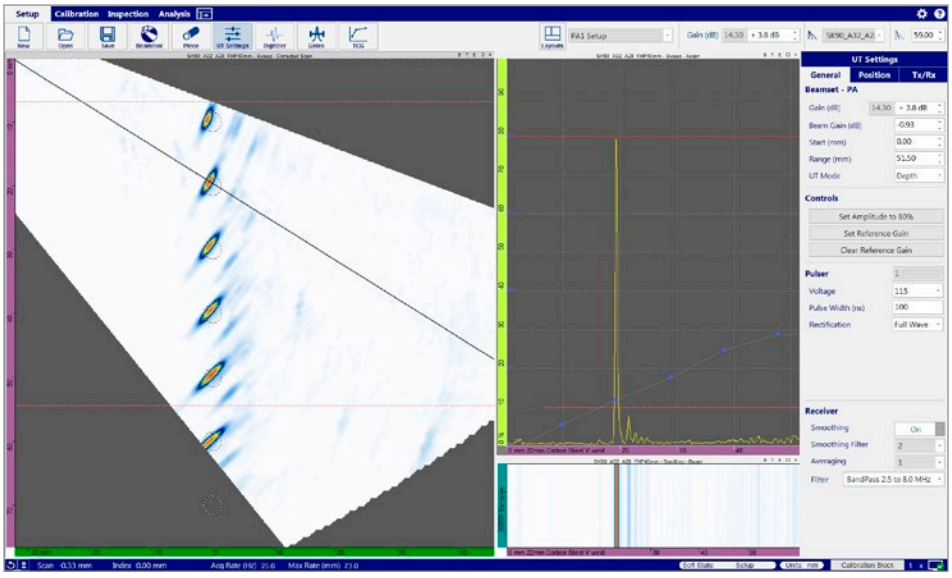
WeldSight™ Software
Advanced PAUT Weld Inspection

WeldSight software is designed to fast track the inspector to compliant and repeatable phased array (PA), ultrasonic (UT), and time-of-flight diffraction (TOFD) weld inspection. Designed for fabrication (manufacturing) or demanding in-service (maintenance) welds, WeldSight software contains the necessary tools to engineer advanced phased array inspections and analysis.

Complete system inspection solutions include Olympus' WeldSight software, FOCUS PX phased array instrumentation, mechanical scanners, weld series and custom phased array probes, wedges, and accessories.



Powerful Tools for Increasing Efficiency



Workflow steps

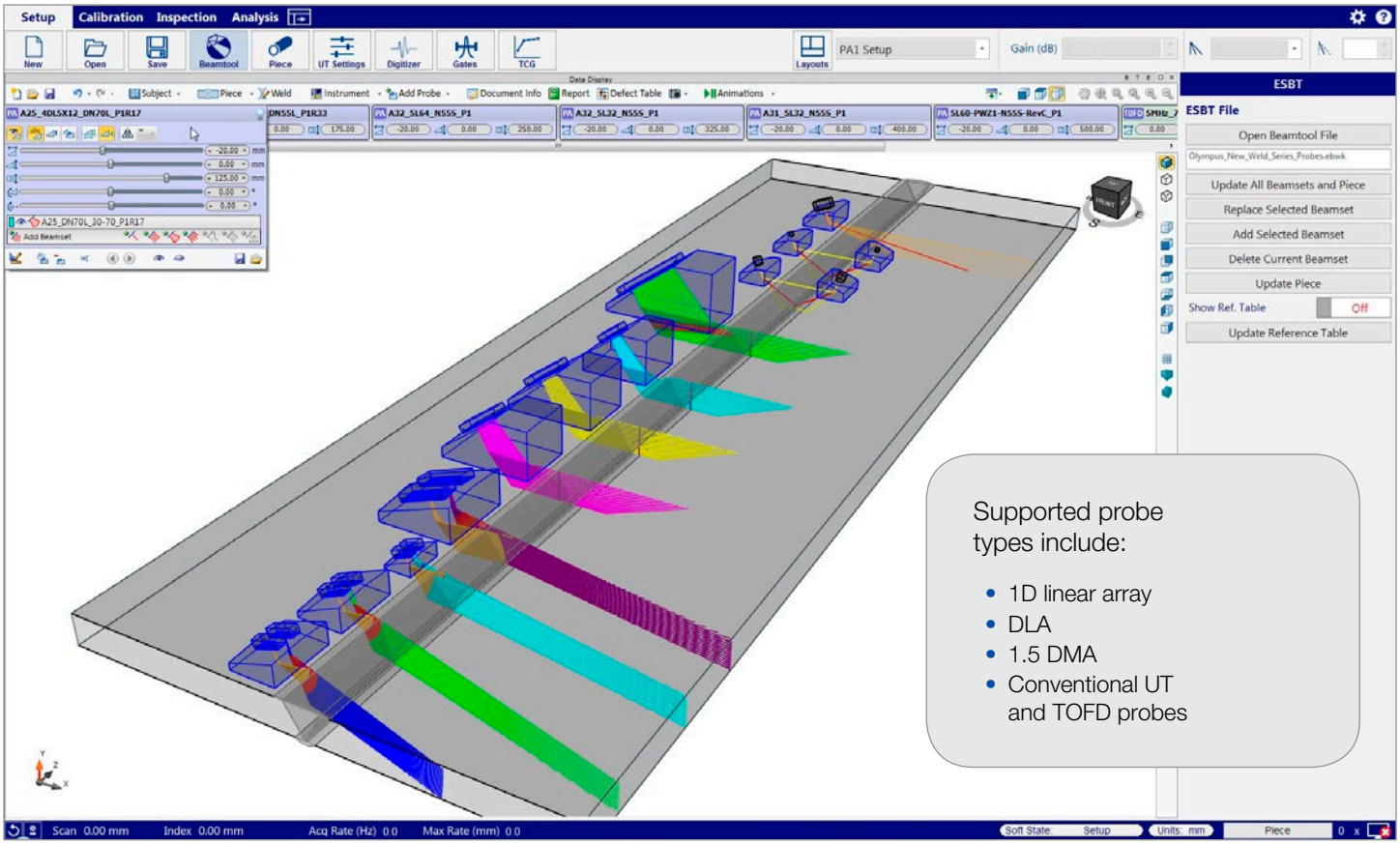
- Beam set creation
- UT configuration
- Calibration
- Data collection
- Analysis
- Reporting

Advanced software functionalities

- Automatic wedge and probe element validation
- Improved time-corrected gain (TCG)
- Autofocusing on targets
- Drag-and-drop customizable displays
- TOFD tools
- Dynamic C-scan merge views
- 3D imaging and polar view
- Dual Linear Array™ (DLA)/Dual Matrix Array™ (DMA) probe support
- Strip charts for coupling and thickness monitoring
- Indication table recording and Excel® reporting

Eclipse Scientific BeamTool Integration
Proven Technique Development

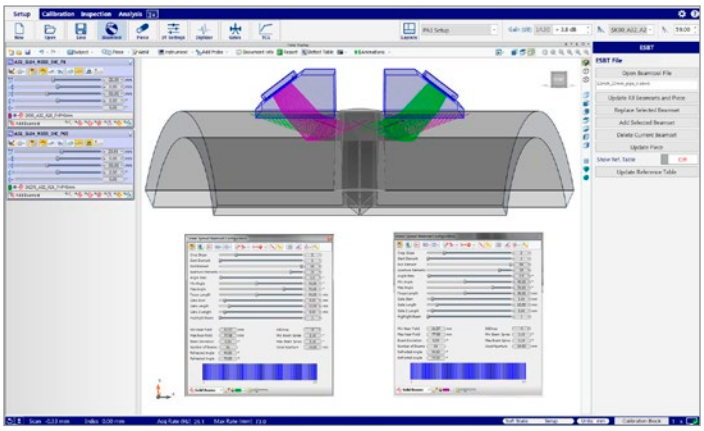
Eclipse Scientific's BeamTool UT/PA technique development software is fully integrated into WeldSight™ software for all component piece, weld bevel overlay, calibration block overlay, probe, wedge, and beam set management.



Weld and Component Piece Management and Scan Plan Design

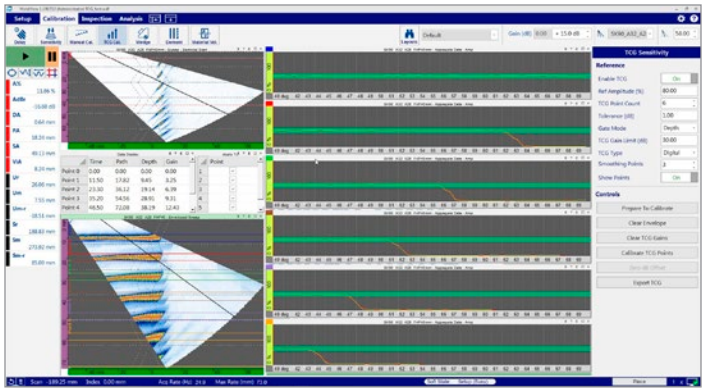
Advanced weld inspection engineering starts with a scan plan created in BeamTool and takes into account fabrication codes and unique characteristics of the weld, such as bevel design, austenitic and ferritic materials, component cladding, dissimilar metal welds, probe access, and mechanical considerations.

BeamTool has been continuously improved through years of customer feedback. It is an industry standard for both novice and expert inspectors for scan plan creation. WeldSight software's integration of BeamTool helps accelerate the learning curve and facilitates the task of engineering advanced ultrasonic phased array inspections.



Improve Productivity

Inspection productivity relies on the speed and ease of your setup and data collection. WeldSight™ software's efficient workflow, intuitive user interface, and dedicated phased array tools expedite the configuration, calibration, acquisition, and analysis process.

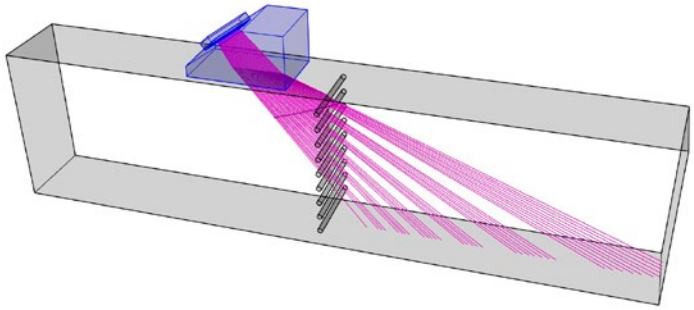


Probe Sensitivity Calibration for Amplitude-Based Code Compliance

Repeatability is the foundation of amplitude-based acceptance criteria and directly related to weld reject rates and compliance. WeldSight software contains a complete toolbox, including TOF, wedge delay, and amplitude sensitivity calibrations of PA, TOFD, and UT probes, designed to meet industry reference codes, including:

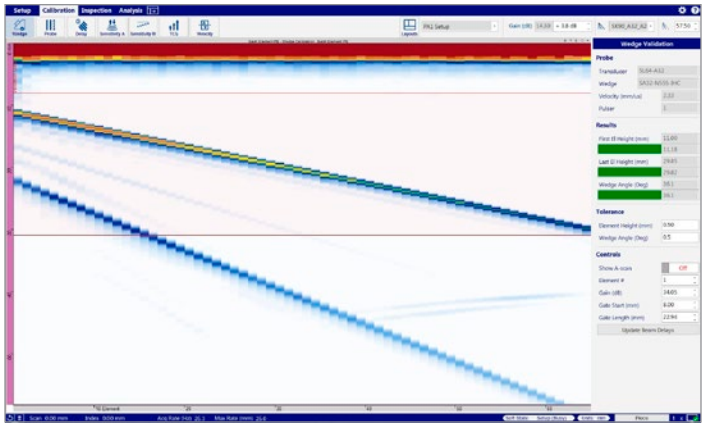
- ASME
- API
- ISO
- ASTM
- DNV

The WeldSight time-corrected gain (TCG) feature innovates probe sensitivity adjustment, enabling calibration of multiple points simultaneously, individual points in succession, or combinations of both, helping to avoid the limitations typical of industry software and work procedures.



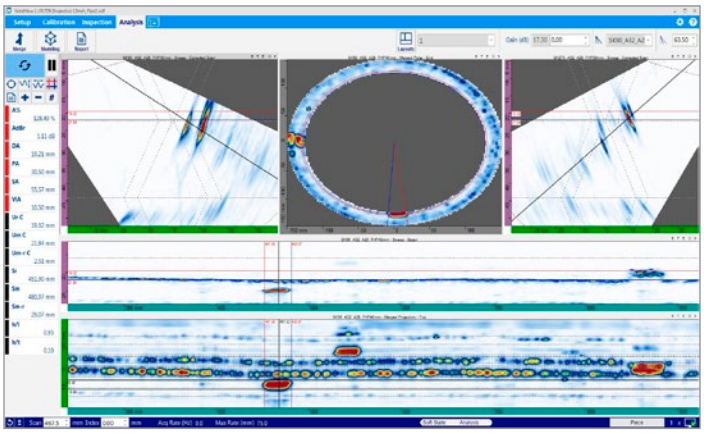
Time-of-Flight and UT Optimization

A system's acoustic performance and UT optimization are directly related to flaw probability of detection (POD), flaw sizing precision, and the weld reject rate for fracture mechanics-based acceptance criteria. WeldSight software has tools such as one-click validation of wedge parameters and wear as well as instrument pulser and probe element activity to help ensure your system provides optimal results.



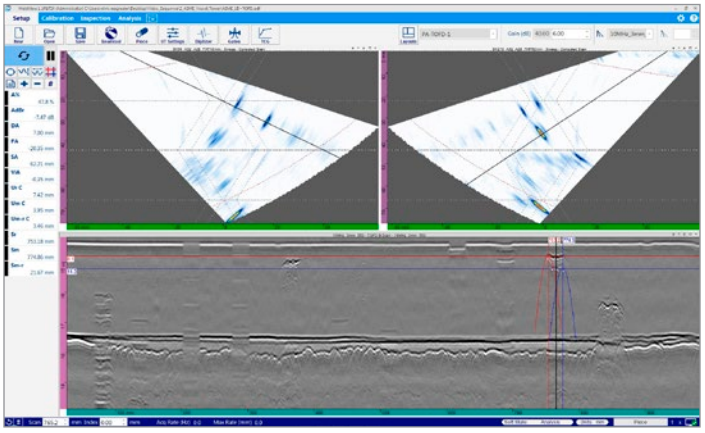
Application Solutions

Pressure Vessel and Piping Fabrication

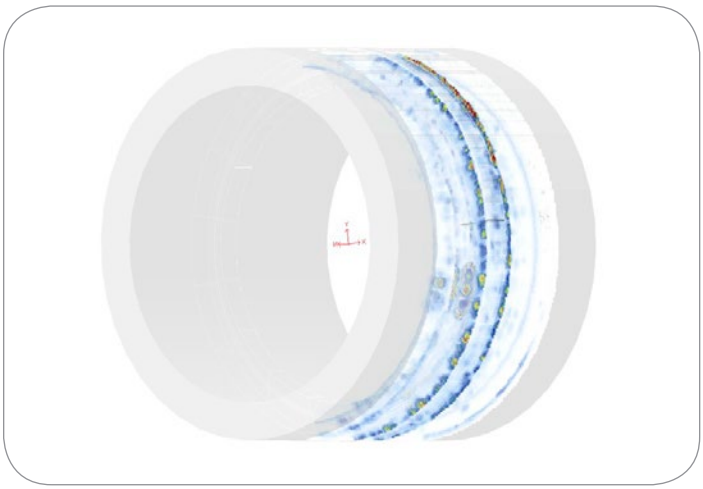


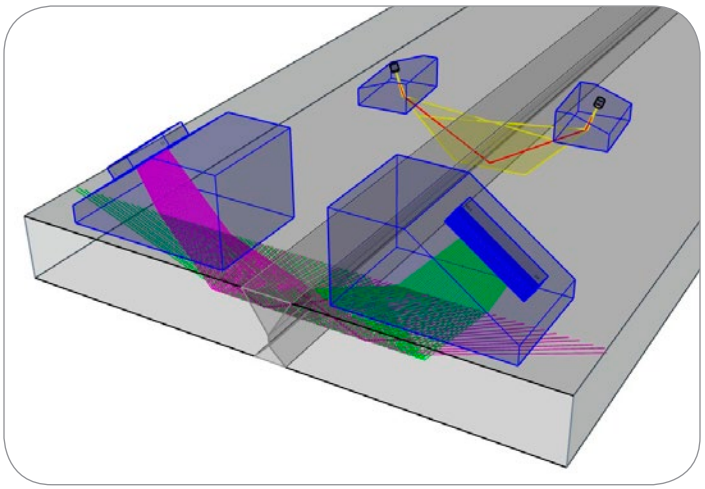
Advanced phased array (PA) inspection technology provides numerous advantages when used in place of radiography testing (RT) to perform piping and vessel weld inspections in compliance with ASME, ISO, and similar fabrication codes. Olympus' PA solution, including WeldSight™ software, uses 1D phased array probes, TOFD, and DLA\DMA phased array probes for austenitic materials, including cladded piping and dissimilar metal welds.

Wind Tower Fabrication



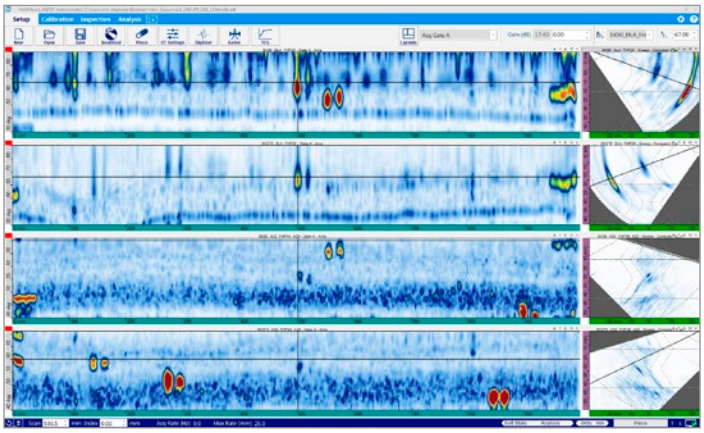
High-speed automated PA and TOFD inspection of wind tower welds in compliance with ISO, AWS, and similar fabrication codes can replace manual probe-in-hand UT scanning. Olympus' automated PA and TOFD solution reliably inspects wind tower bevel designs, including the thickness of transition welds and vertical weld bevels that require unique probe and scan plan considerations.



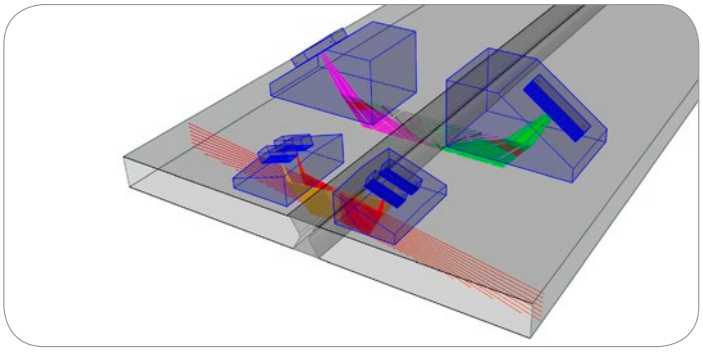


Application Solutions

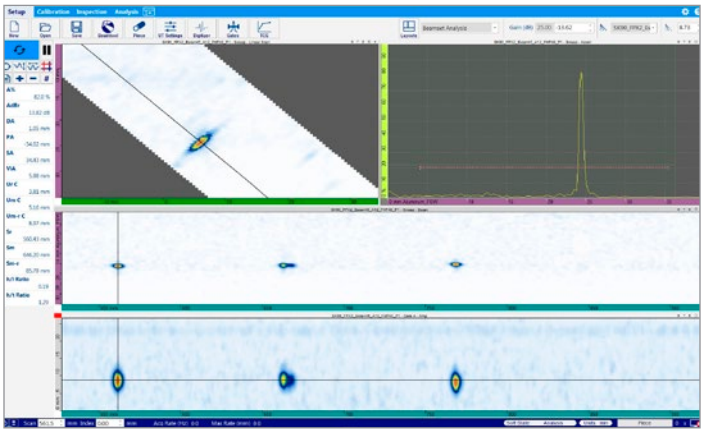
LNG Tank Manufacturing



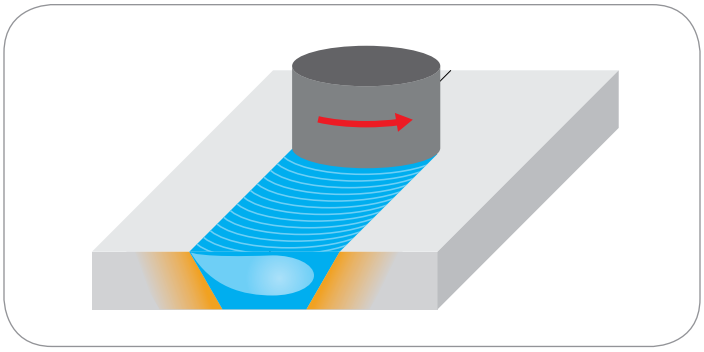
Our PA solution for liquified natural gas (LNG) tank fabrication inspections to API and similar fabrication codes is an advantageous replacement for radiography and conventional UT systems. The solution based on WeldSight™ software provides improved productivity and real-time analysis, and Olympus' DLA PA probes are effective for the austenitic 9% nickel shell to I625 dissimilar metal welds typical of cryogenic storage tanks.

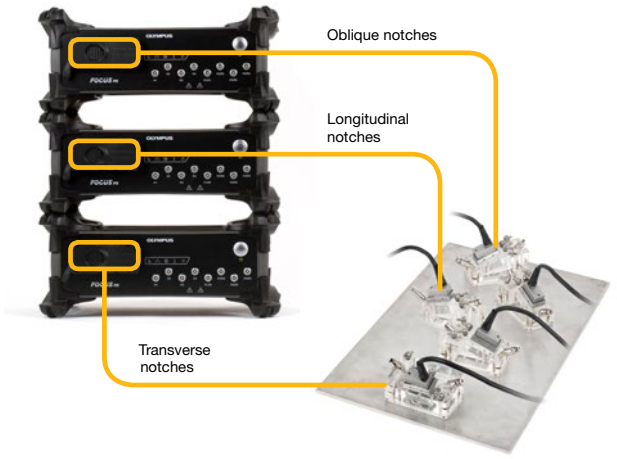


Friction Stir Welding



Friction stir welding (FSW) is a solid-state weld process without consumable weld material, and it is typically used in high-grade aerospace and defense industry aluminum components. Detection and sizing of FSW flaws requires unique considerations. Olympus' phased array solution includes WeldSight software, specifically designed angle beam water wedges, high-frequency probes (10–15 MHz) optimized for small flaws in thin material, and laterally oriented 1D PA probes for reliable detection of transverse flaws.





FOCUS PX Phased Array Instrumentation
Designed for Demanding Inspections

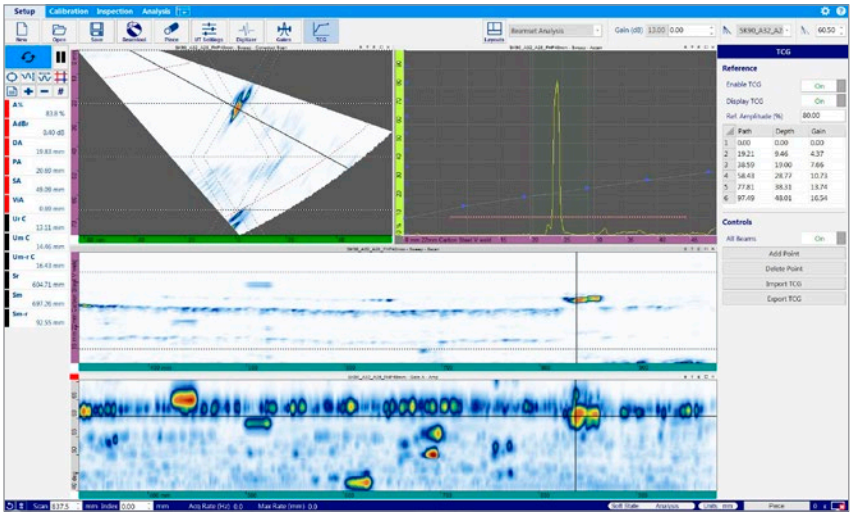
The FOCUS PX phased array instrument is a lightweight, compact, rugged unit built for use in harsh environments at operating temperatures of up to 40 °C (104 °F). Engineered to IP65, the FOCUS PX unit's casing is protected by removable industrial strength bumpers, enabling easy rack mounting or installation directly on the inspection system. The FOCUS PX instrument provides excellent PA and UT signal quality, resulting in improved signal-to-noise ratio inspection data. Other features include 12-bit amplitude digitization, 30 MB\s data throughput, 65K samples per A-scan, and two encoder inputs.

Specifications*

Phased array channels	16:64PR: 64 channels 16:128PR/32:128PR: 128 channels
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 configuration 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

WeldSight™ Software



WeldSight software was designed for an efficient workflow and fast training track, leveraging BeamTool software for inspection engineering. Historically, much of the skill and expertise required for advanced phased array inspection was due to complicated software and an inefficient workflow. WeldSight supports high production of compliant, repeatable inspections for the weld fabricator market.

Ordering Information

FOCUS PX	Part Number	Description
FOCUS PX 32–128	Q7750036	High-performance 32–128 pulser receiver (PR) phased array + 4 UT channels acquisition unit
FOCUS PX Multiple Instruments		
FPX-OPT–2	Q7750043	Synchronization cable and Ethernet switch for connecting two FOCUS PX units
WeldSight Software		
WeldSight I	Q1480002	WeldSight USB key license for data acquisition and analysis
WeldSight A	Q1480003	WeldSight USB key license for analysis only
FOCUS PX Kit Options		
FOCUS PX LNG kit	Q1200003	Complete solution for LNG tank inspection
FOCUS PX wind tower kit	Q1200004	Complete solution for wind tower inspection

OLYMPUS SCIENTIFIC SOLUTIONS AMERICAS CORP.
is certified to ISO 9001, ISO 14001, and OHSAS 18001.

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