

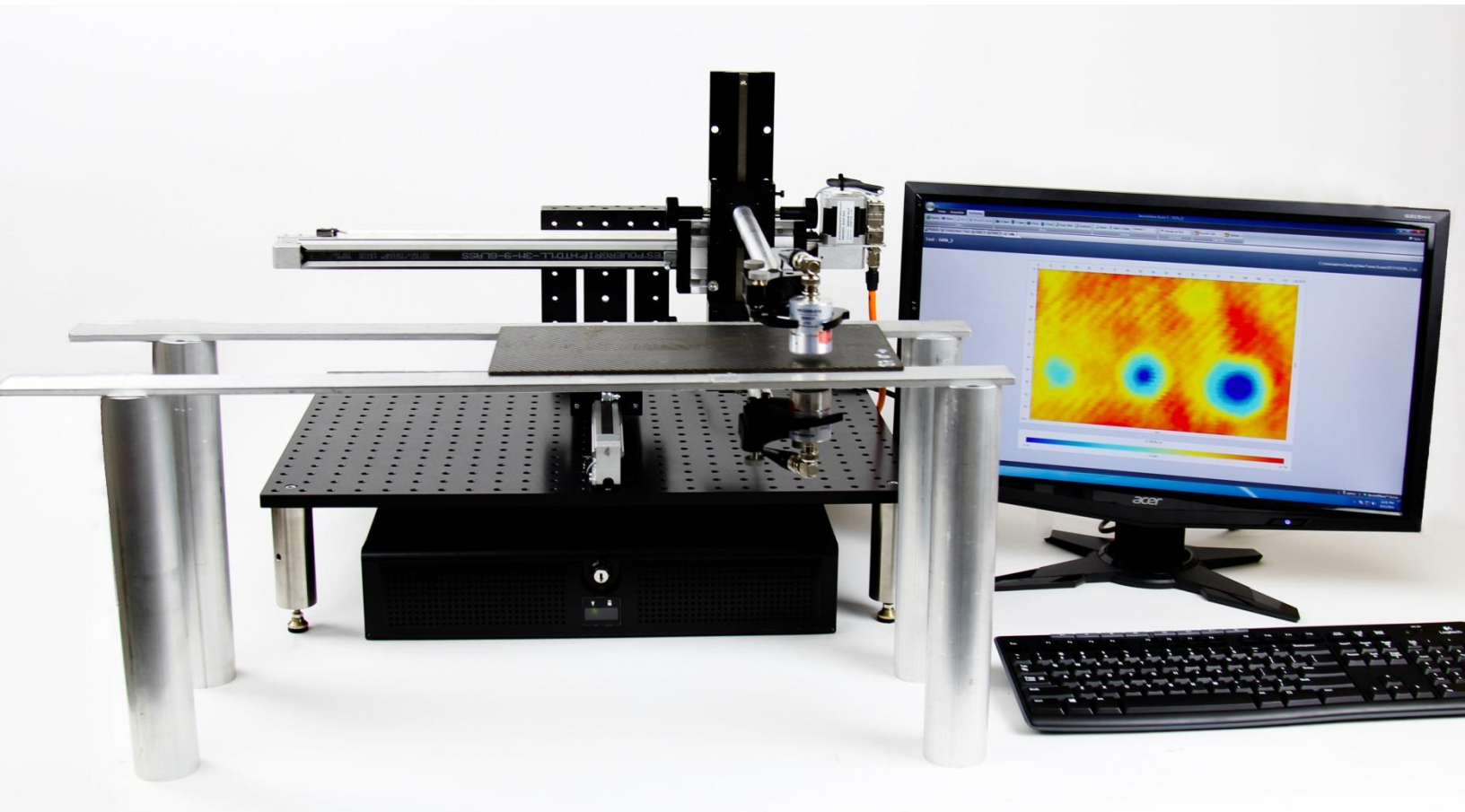


Redefining the limits of ultrasound.

U710x Ultrasonic Analysis System

Versatility for any application

Technical Datasheet and Product Overview



The Ultran Group is an uncommon company.

Founded in 1978 by Mahesh Bhardwaj, with the simple goal of bringing ultrasound to the forefront of inspection technology. We provide products to over 40 countries where we work

with industry and academic leaders to solve previously unattainable applications. Contact us at info@ultrangroup.com to find out how our ultrasonic solutions can help you.

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Overview:

U710x is Ultran's next generation, turnkey inspection solution optimized for use in **non-contact (air-coupled)**, **immersion**, and **direct/delayed contact** conditions. The **U710x** is faster and has higher sensitivity than any other non-contact quality inspection system in the industry. Its lightweight design allows its use in a wide variety of applications, including those needed for fieldwork.

- **High throughput** with XY scanning speed of up to 1 meter/sec.
- **100%** inspection of **uncured** or **cured** parts.
- One-click **inspection report** generation.
- **On-line** and **off-line inspection** with multiple channel options (2, 4, & 8).
- **Operator friendly**, windows 7 based software with graphical user interface.

Specifications*

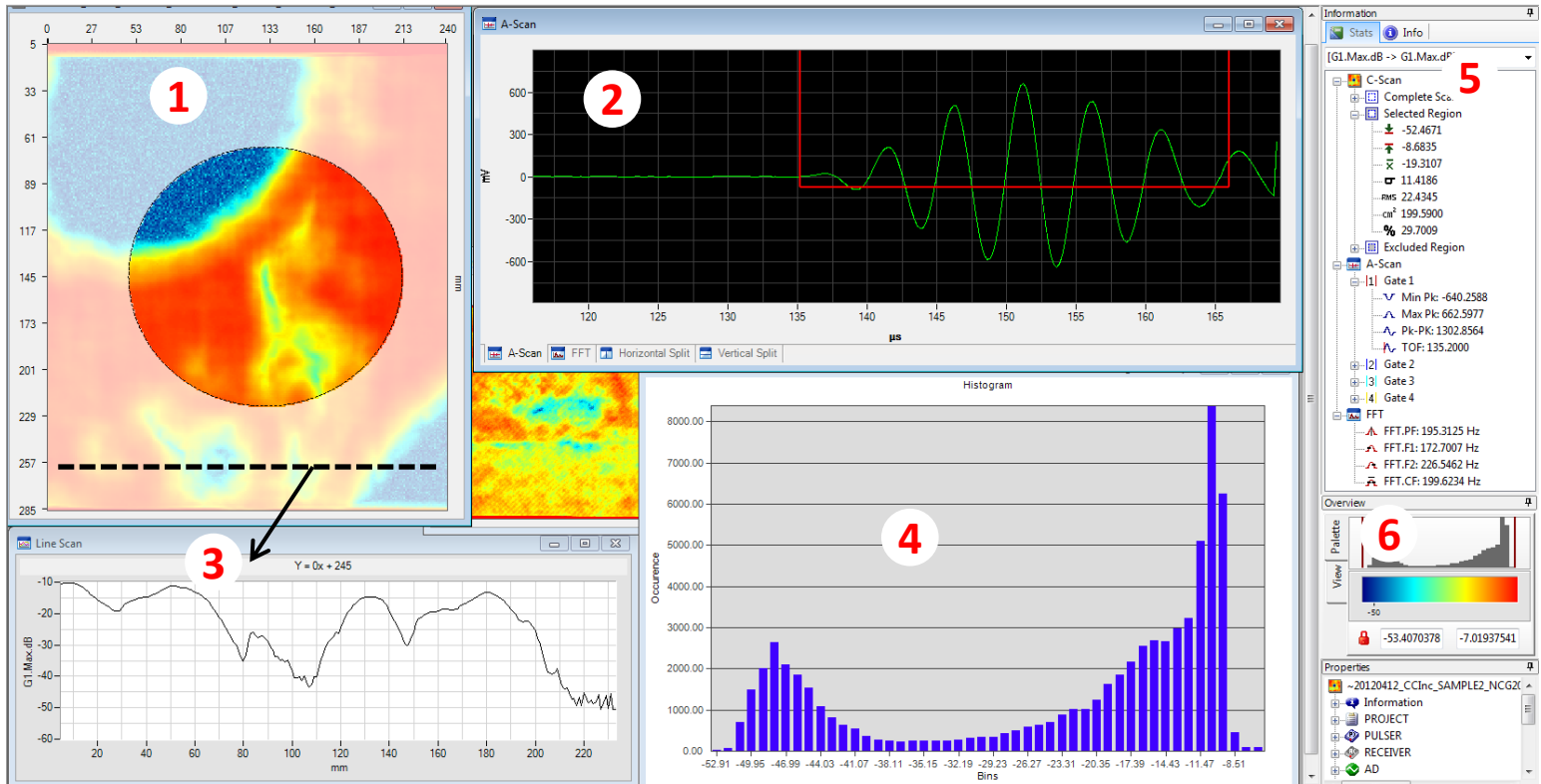
Function	Description
Inspection Methods	Non-Contact (air-coupled), Immersion, Direct/Delayed Contact
Transducer Modes	Through Transmission, Pitch-Catch, Pulse-Echo
XY Scanning Speed	Up to 1 meter/sec
Frequency	20kHz to 6.25MHz
Pulse Voltage	390V tone burst
Gain Range	0 dB to 84 dB
Pulse Width	25 ns to 12 us
Sampling Rate	upto 50MS/sec
A/D Resolution	14 bit
Number of Pulses	1 to 16
Trigger	External and Internal
High Pass Filters	40kHz, 80kHz, 200kHz, 400kHz, and 800kHz
Low Pass Filters	200 kHz, 800 kHz, 1 MHz, 2 MHz, and 10 MHz
Channels	2, 4, or 8 channels
Scan Types	A-Scan, Line Scan, C-Scan
Measurement Gates	4 gates per channel
Measurements	Pk-Pk Amplitude (dB and mV), Time of Flight (ToF us), FFT, Pk Loc (us)
Material Characteristic Monitoring	Attenuation, defects, delamination, porosity, velocity/density, thickness, ToF
Configuration	Bench-top or On-line

* Subject to change without notice



SecondWave™ Studio – Data Acquisition, Control and Analysis Software

- Rolling and multi-channel A-Scan, C-Scan and Line-Scan with multiple layout configuration
- Simultaneous multi channels measurements display in both dB and mV units
- Flexible scan manipulation capabilities – customized color per channel, toggle between views, zoom and pan
- Project Manager with feature based multiple access control levels – Administrative, Operator, Engineer
- SQL Database integration
- Generate customized inspection report of each scanned part to support manufacturing quality control



SecondWave™ Research Studio Screen Layout

(1) C-Scan image (2) A-Scan image of a user selected data point (3) Line-Scan Image of a cross section (4) Histogram
(5) Scan statistics (6) Palette color legend

SecondWave™ Research Studio – Data Post-Processing and Statistical Analysis Software

- Flexible graphical user interface with side by side viewing of multiple scans
- Generate cross-sectional material profiles
- Powerful image processing functions to easily find and highlight defects and setup parametric correlation
- Easy export of entire scanned data set to CSV files for additional processing and analysis
- Point and click processing – analyze a selected scan data point in A-Scan and C-Scan window simultaneously
- Include/exclude data regions, display statistical properties, data histograms and line scans
- Common Morphology functions



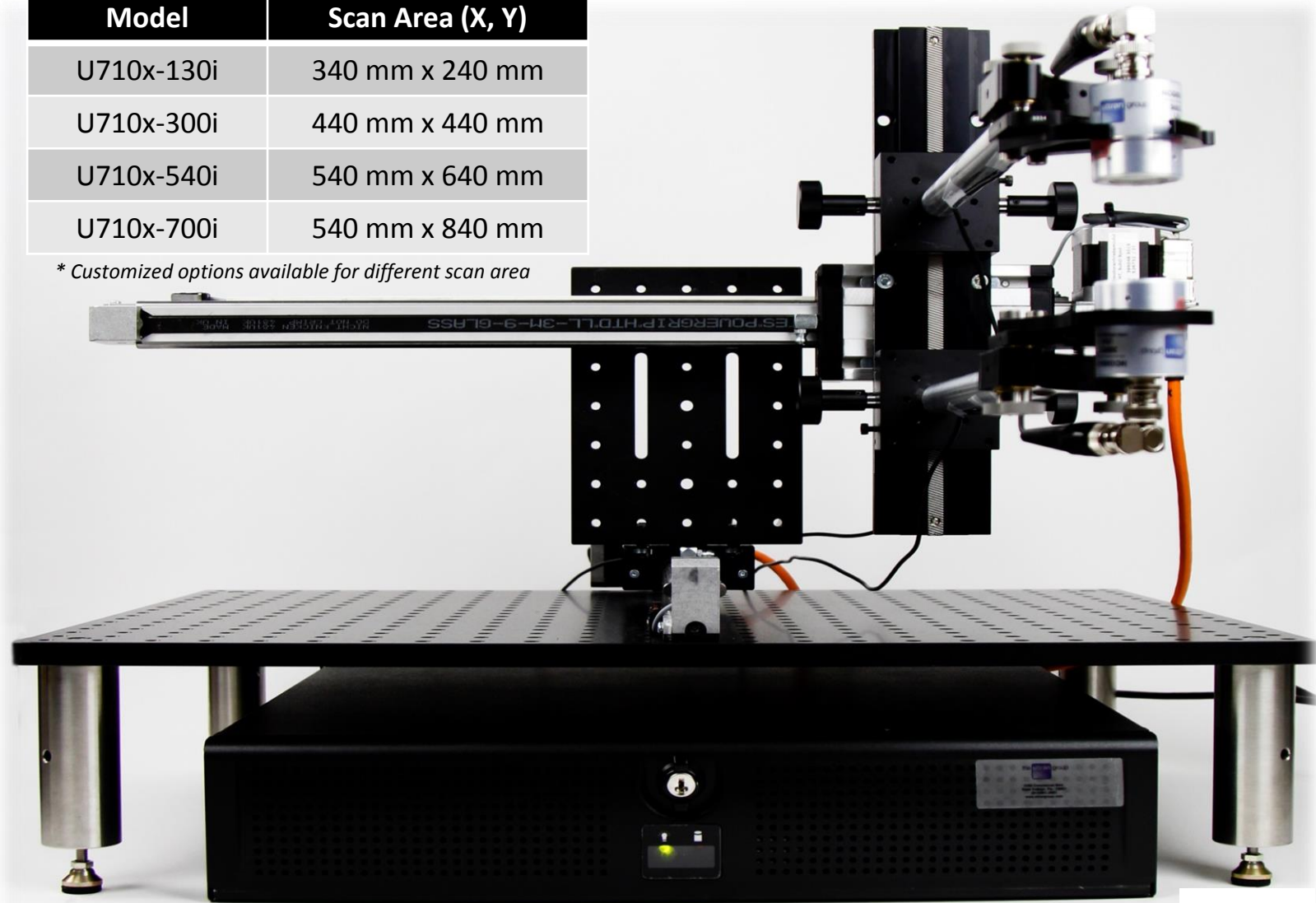
Model U710x with 2D scanning capability:

Fully configured ultrasonic analysis system ideal for internal and surface imaging to investigate defects and heterogeneity, delamination, porosity, velocity/density, thickness, Time of Flight.

- ULTRAN’s Proprietary Scanning package to support 2D C-Scan imaging for 100% inspection of uncured or cured parts
- SecondWave™ Studio software for A-scan point measurements, Line-Scan and FFT analysis
- SecondWave™ Research Studio software for post processing analysis and statistical evaluation of C-Scan images
- Supports dual and single (pulse-echo) transducer mode and frequencies from 20kHz to 6.25MHz
- Operates in non-contact (air-coupled), immersion, and direct/delayed contact inspection modes
- 4U or 2U desktop or rack mountable chassis with robust pulser, receiver, and A/D hardware
- 2 channels (simultaneous or dedicated for dual or single transducers modes)
- SecondWave™ Imaging frame (see below for available sizes)
- Add-ons: 4-channel or 8-channel configuration

Model	Scan Area (X, Y)
U710x-130i	340 mm x 240 mm
U710x-300i	440 mm x 440 mm
U710x-540i	540 mm x 640 mm
U710x-700i	540 mm x 840 mm

** Customized options available for different scan area*



U710x-200i



Model U710x with continuous scanning capability:

Fully configured turnkey online system ideal for continuous inspection for **quality control across moving web or piece-part production lines.**

- Provide inspection at multiple locations for continuous feedback on your production line
- Integrated data acquisition and post processing software suite
- User friendly graphical user interface for easy monitoring and controlling manufacturing process
- Supports frequencies between 20kHz and 6.25MHz
- Transducer arrays with standard 4-channel linear transmitter-receiver pairs
- Full customizable arrays for additional channels in brick and linear patterns for either full or partial coverage across moving web or piece-part production lines
- Modular system configuration for easy installation, maintenance and support
- Optional: Dual transducer and signal transducer (pulse-echo) modes



*Top: 32 channel brick array pair
Bottom: 4-channel linear arrays*

Model	Number of Channels
U710x-i2	2 channels
U710x-i4	4 channels
U710x-i8	8 channels
U710x-i16	16 channels

**Additional channels can be added per customer specifications*



32 channel brick array setup for online inspection



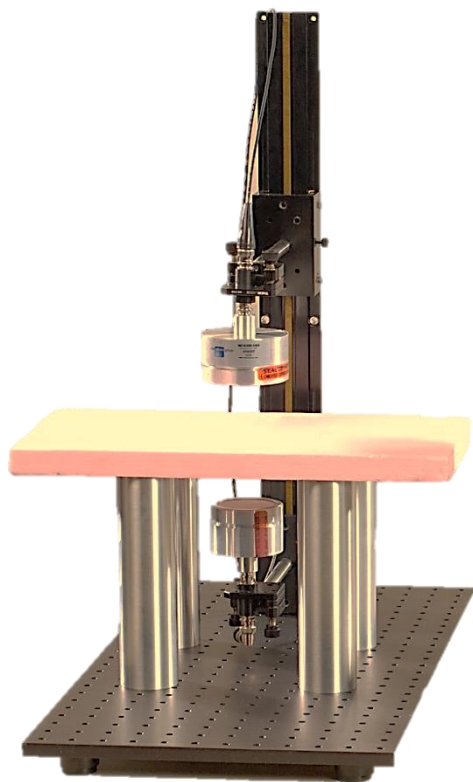
Customized Transducer Library:

Ultran offers compressive analysis of a sample (or samples) of the product(s) using U710x system with a wide range of non-contact ultrasound transducers to determine the exact frequency, size, focal length and other characteristics of the transducer required to analyze the product. Once determined, customized transducers can be built and shipped with the U710x system.



Left: Non-Contact Transducers **Right:** Low Frequency Contact/Immersion Transducers using our breakthrough GMP technology

Vertical/Horizontal Acoustic Bench (Model AB-1000):



Vertical/Horizontal Bench

- AB-1000 Vertical Acoustic Bench is extremely suitable for A-Scan point measurements.
- Accommodates stationary inspection of various samples with Ultran's NCU transducers.
- Includes vertical rack & pinion slide, large base plate, sample support discs, and clamping gimble devices for transducer alignment.
- Base platform dimensions: 300 mm x 600 mm, M6 x 1.0 holes with 25 mm spacing, black anodized aluminum.
- Vertical rack specs: 550 mm length, 62 mm width, straight line accuracy 0.1 – 0.25 μ m, black anodized aluminum.
- Vertical slide specs: stage size (mm) 62 x 60 x 30, black anodized aluminum
- Transducer holder specs: holds round objects from 2.5 mm to 51 mm diameter, automatically centers transducers as it is tightened, black anodized aluminum.

