ULTRASCAN PRO

Setting the New Standard in Wall and Concentricity Measurement Performance

NEW
UltraScan DSP Pro
Industry 4.0
Ready Connectivity.
Greater Performance.

- Increase production efficiencies and reduce material costs by better controlling product wall thickness and concentricity

- Produce the highest quality products in less time with maximum precision, multi-point measurements

- Eliminate operator error with advanced "Snap Technology" automatic set-up, search and tracking capabilities

- The most versatile Ethernet connectivity, communication and control capabilities for easy integration into production networks

- Maximize productivity with simple-to-operate system

BETA LaserMike Products

Intelligence that transforms the world.

Unmatched Performance Advantages

The BETA LaserMike UltraScan system is already the industry's leading ultrasonic wall thickness and concentricity measurement platform. Its high performance and outstanding productivity features (e.g., Snap Technology, multi-layer wall measurement capability and diameter-ovality measurement options) make it the preferred solution for manufacturers. Now with the new **UltraScan DSP Pro**, the best is even better – and primed for Industry 4.0!

A major step forward in DSP technology, the UltraScan DSP Pro offers unprecedented new levels of connectivity, communication and control in one sleekly designed enclosure. Its powerful capabilities enable the DSP Pro to integrate seamlessly into production network environments to promote better data exchange…tighten manufacturing operations… increase process efficiency…and improve product quality. Here are just a few of UltraScan Pro's many performance capabilities:

■ **Expanded Ethernet connectivity** – ModBus TCP, EtherNet/IP, Profinet IO – plus fieldbus for Profibus and DeviceNet. UltraScan connectivity supports Industry 4.0 standards and includes the foundation for future wireless connection via WIFI, BlueTooth or ZigBee.

■ **Built-in Web server** that allows PCs, tablets, or mobile devices to connect to UltraScan DSP Pro via Ethernet and Web browser (to change settings, view diagnostics, analyze wave forms, etc.). This eliminates the need for a PC-based control application or separate controller, enhancing UltraScan's ease of use and lowering its total cost of ownership.

■ **UDP Discovery Application** providing fast gauge discovery and Ethernet connection for reduced system start-up time and increased productivity.

■ **Multiple simultaneous host connections**, through Ethernet TCP proprietary protocol, that permits various types of host equipment (PLCs, controllers) to connect to and communicate with the UltraScan Pro concurrently.

■ **Measurement rates** are more than double those of similar gauges – up to 10,000 measurements per second. Extended baud rates ranging from 4.8 kbaud to 230 kbaud for greater data throughput, faster processing and measurement rates and improved production performance.

■ **Real-time clock** for keeping UltraScan Pro in synch with the NTP server and other equipment for accurate, reliable time-stamping, correlation of log files and other production-critical data. Data synching capabilities support the Industry 4.0 "smart information" concept.

■ **User-friendly integrated display** allows users to quickly and easily check various gauge statuses and settings.

UltraScan DSP Pro Snap Technology

All ultrasonic measurement systems require setup of the ultrasonic waveform. But while other systems require extensive user involvement during this process, UltraScan DSP Pro's patented Snap Technology, with its Auto-Search, Auto-Setup, and Auto-Tracking functions, makes waveform setup instantaneous and completely automatic.
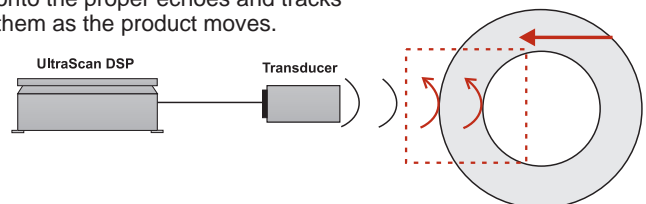
Auto-Search: UltraScan DSP Pro finds the echoes and sets a "window" around them.
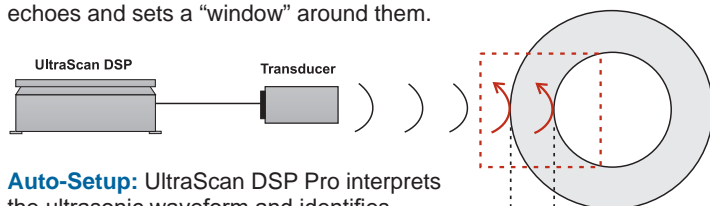
Auto-Setup: UltraScan DSP Pro interprets the ultrasonic waveform and identifies the proper echoes.
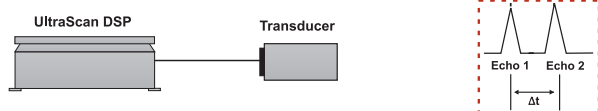
Auto-Tracking: UltraScan DSP Pro locks onto the proper echoes and tracks them as the product moves.

UltraScan DSP   Transducer

Echo 1   Echo 2
Δt

UltraScan DSP   Transducer

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Most Advanced Solution for Multi-Layers and Thin Walls

UltraScan Pro with its DSP Pro intelligence module delivers unmatched performance and repeatable measurement accuracy for the most difficult product applications. With advanced measurement sensitivity, UltraScan Pro offers the most subtle discrimination of multiple layers compared to any other gauging system on the market today – **up to 4 layers**. A thin-wall algorithm enables you to even measure the smallest of wall thicknesses across a range of transducer frequencies.

Multi-Point Wall & Concentricity

UltraScan Pro surrounds the product with four to eight adjustable transducers. This enables UltraScan Pro to fully evaluate the product at all critical locations for fast, accurate measurement of wall thickness and concentricity.
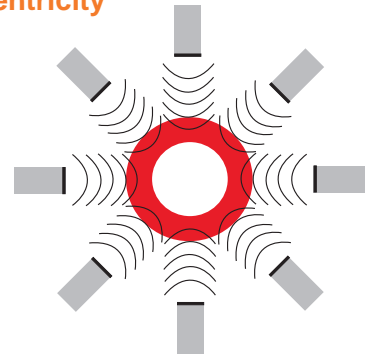
Advanced UltraScan Pro Options

High-Speed Tolerance Checking

Ultrasonic systems are often implemented in extrusion lines to monitor for and correct gradual changes in the wall thickness. Short-term variations in wall thickness are often missed when the ultrasonic system is averaging data and monitoring for periodic changes. But the UltraScan Pro system is capable of taking approximately 10,000 wall measurements per second, dependent on thickness, and has an advanced feature for **High-Speed Tolerance Checking**. The UltraScan DSP Pro checks each scan of each transducer and compares the measurement against wall tolerances. This high-speed checking of tolerances is designed to catch short-term wall variation on each individual layer of the product.
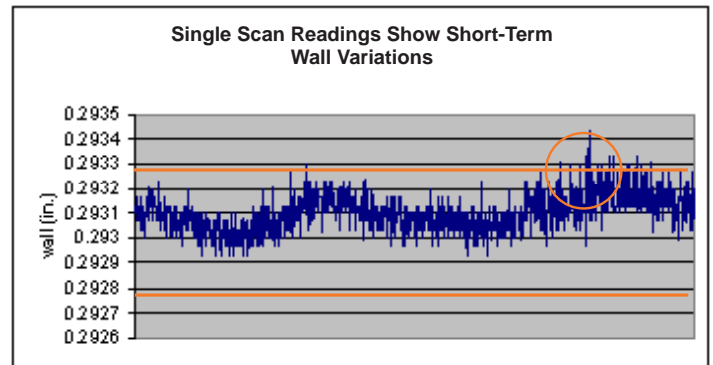
Once a high-speed tolerance error is found, the UltraScan DSP Pro sends a signal to the InControl controller to indicate that an error has occurred. InControl can then send a signal to a device downstream that will mark or cut out the area of the product that is out-of-tolerance. A length delay is implemented by InControl after the error message is received, so that the mark or cut matches with the position of the error.

OD Ultrasonic Measurement

The **UltraScan Pro OD Option** provides fast, easy-to-understand information about the outer diameter of the product. Working hand-in-hand with this advanced software option, UltraScan Pro produces the optimum transducer echoes to create a high-precision OD measurement. UltraScan Pro OD shortens the delay time and gives you more control over measurements. UltraScan Pro OD also provides a cost-effective alternative for adding Laser OD scanning capabilities to our system, enabling you to handle a range of OD measurement applications from small-to-large size products.

"Smoothed" Wall Readings with Averaging
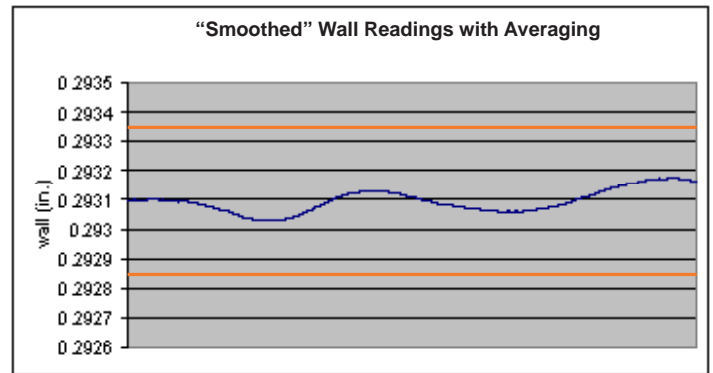
Standard tolerance checking compares averaged wall values against tolerance limits

Single Scan Readings Show Short-Term Wall Variations

High-speed tolerance checking compares individual scans against tolerance limits

For External to Trough Measurement Applications

For those applications requiring measurements to be taken outside of a cooling trough, UltraScan Pro can be configured as a **self-flooding gauge**. A sealed, water-tight diaphragm assembly immerses the UltraScan Pro gauge in water to perform measurements, and can be mounted external to the trough.

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UltraScan Pro Specifications

	UltraScan 1012	UltraScan 1025	UltraScan 1040	UltraScan 1063
OD Range	0.25 – 12 mm (0.01 – 0.5 in.)	2.5–25 mm (0.1–1.0 in.)	4.0–40 mm (0.16–1.57 in.)	7.5–63 mm (0.30–2.5 in.)
Minimum Wall Thickness[1]	Without Thin Wall: 10 MHz: 0.254 mm (0.010 in) 20 MHz: 0.127 mm (0.005 in) With Thin Wall: 20 MHz: 0.025 mm (0.001 in)	Without Thin Wall: 10 MHz: 0.254 mm (0.010 in) 20 MHz: 0.127 mm (0.005 in) With Thin Wall: 20 MHz: 0.025 mm (0.001 in)	10 MHz: 0.254 mm (0.010 in)	1 MHz: 2.540 mm (0.100 in) 2.25 MHz: 1.125 mm (0.044 in) 5 MHz: 0.508 mm (0.020 in) 10 MHz: 0.254 mm (0.010 in)
Transducers	4, 8	4, 8	4, 8	4, 6, 8
Transducer	5 MHz, 10 MHz, 20 MHz	5 MHz, 10 MHz, 20 MHz	5 MHz, 10 MHz	1 MHz, 2.25 MHz, 5 MHz, 10 MHz
Thin Wall Algorithm	To 25 µm (0.001 in.) on products as small as 250 µm (0.010 in.)			

	UltraScan 1125	UltraScan 1175	UltraScan 1305	UltraScan 1510	UltraScan 1660
OD Range	10.5 – 125 mm (0.413 – 5.0 in)	30 – 175 mm (1,181 – 7,0 in)	75 – 305 mm (2.95 – 12.0 in)	150 – 510 mm (5.9 – 20.0 in)	225 – 660 mm (8.86 – 26.0 in)
Minimum Wall Thickness[1]	1 MHz: 2,540 mm (0,100 in) 2.25 MHz: 1.125 mm (0.044 in) 5 MHz: 0.508 mm (0.020 in) 10 MHz: 0.254 mm (0.010 in)	1 MHz: 2.540 mm (0.100 in) 2.25 MHz: 1.125 mm (0.044 in) 5 MHz: 0.508 mm (0.020 in) 10 MHz: 0.254 mm (0.010 in)	1 MHz: 2.540 mm (0.100 in) 2.25 MHz: 1.125 mm (0.044 in)	1 MHz: 2.540 mm (0.100 in) 2.25 MHz: 1.125 mm (0.044 in)	1 MHz: 2.540 mm (0.100 in) 2,25 MHz: 1.125 mm (0.044 in)
Transducers	4, 6, 8	4, 6, 8	4, 6, 8	8	8
Transducer Frequency	1 MHz, 2,25 MHz 5 MHz, 10 MHz	1 MHz, 2.25 MHz, 5 MHz, 10 MHz	1 MHz, 2.25 MHz	1 MHz, 2.25 MHz	1 MHz, 2.25 MHz

General Specifications	
Connectivity	Ethernet (ModBus TCP, EtherNet/IP, Profinet IO); fieldbus (Profibus, DeviceNet)
Simultaneous host connections	Multiple TCP sockets
Baud Rates	4.8 kbaud to 230 kbaud
Enclosure	IP65 protection-rated enclosure, milled aluminum (for efficient heat dissipation), metallic silver finish
Display	Organic Light Emitting Diode (OLED)
Product Warranty	2 years
Options	Diameter and ovality measurement; high-speed tolerancing; self-flooding gauge configuration; trough height stand; small trough (for mounting outside existing cooling troughs)

[1]*Maximum wall thickness is dependent on type of material.*

Nordson Measurement & Control is represented in over 60 countries worldwide. **www.ndc.com/betalasermike**

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