

USPR 100 - US Pulsar

Ultrasound Technology

THE PRODUCT

Model USPS-100 is an innovative instrument that marks a new era in ultrasonic NDT analysis. Ideally suited for almost every ultrasonic application, the instrument is designed to give the highest performance combining excellence hardware characteristics with flexible software tools. USPS-100 is fully compatible with any type of element transducer.

The versatile USPS-100 can be used in applications ranging from wall thinning measurements of internally corroded pipes to very precise thickness measurements of thin or multi-layer materials.

The instrument can be easily employed in flaw detection activity for locating and sizing hidden cracks, voids, disbondings, and similar discontinuities in welds, forgings, composites, billets, axles, shafts, tanks and pressure vessels, turbines, and any structural components.

The USPS-100 hardware and software are a reliable tool for standard A-Scan analysis upgradable to a full C-Scan instrument upon request.

Measurement of elastic properties of materials is an additional tool the instrument USPS-100 offers to Materials Engineers, Experts and Researchers, as a unique Non-Destructive Testing alternative to standard tensile strength test (destructive).

The main characteristics of the USPR 100 are:

- Fully Digital Instrument
- High Performance Ultrasound Pulsar and A/D Converter in a single Device
- Up to 1000 V Pulsar (spike/ square)
- 100 MSs / 16 bit Digital to Analog Converter
- Suitable for any ultrasound application: Thickness Gauge, Flaw Detection, C-Scan, etc.
- Data processing fully integrated into Flexible Software Tools.
- Ideal for laboratory use and for industrial 100% in-line production quality inspection.
- Standard USB 2.0 connection
- 19" rack kit available

The USPS-100 incorporates many standard features to meet your inspection needs. Each feature is Software based to give more flexibility and power.

FEATURES

APPLICATIONS

- Location and size detection of hidden cracks, voids, disbondings
- Measurements of internally corroded pipes
- Detection of discontinuities in welds, forgings, composites, billets, axles, shafts, tanks
- Measurement of elastic properties of materials
- Thickness Measurement

ADVANTAGES

- A-Scan analysis upgradable to a full C-Scan instrument
- Non-Destructive Testing alternative to standard tensile strength test (destructive)
- Material analysis
- Measurements Analysis and defect detection by the same instrument

USPR 100 - US Pulser

Ultrasound Technology

SYSTEM SPECIFICATIONS

DIGITAL PULSER

Pulse Type (main bang)	Negative
Rise Time (10 to 90%, no load)	10 ns
Pulse Amplitude (no load)	20..500V, step 20V (Option: 100..1000V, step 100V)
Pulse Shape	Spike and Square (selectable)
Pulse width (square shape)	100 ns..50 μ s, step 25 ns
Pulse Train	Burst of 1, 2, 4, 8, 16 pulses (Option: Burst of 1..1000 pulses, as pulser only)
Pulse separation	100 ns..250 μ s (step 25 ns)
Transducer Frequency Range	0,05-35 MHz
Tx/Rx Mode	Pulse-Echo (1 transducer), Dual and Through Transmission (2 transducers)
Maximum PRF (Pulse Repetition Rate)	Up to 1KHz (500 Hz with 2nd channel option)

A/D CONVERTER

Sampling Frequency (MHz)	100, 50, 25, 12,5
Data Points	256 .. 1024, step 256
Bandwidth	Dc to 35 MHz (-3dB)
Dynamic Range	> 110 dB
A/D Resolution	16 bits
High Pass Filter/Low Pass Filter	Digital
Averaging	1, 2, 4, 8 or 16 acquired data streams
Interface and communication	USB 2.0
Software	DLL & Labview Libraries

SOFTWARE OPTIONS

Thickness Gauge	SW Tool for single and multilayer thickness measurement
Flaw Detector	SW Tool for defect identification and measurement. Unlimited Gates
C-Scan	Flaw Detection SW Tool with X-Y encoder management
Material Analysis	SW Tool for Young Modulus and Poisson' s Ratio measurement

HARDWARE OPTIONS

Additional UT channel	full 2 channels instrument
Encoder inputs	2 inputs for differential incremental encoders (5 V TTL)
Digital Output	8 user controlled digital outputs
Multiplexer	Up to 16-Channel multiplexer
External Trigger Input & Output	External hardware synchronization
High Voltage Pulser	1000V pulse

SOFTWARE PACKAGE

Thickness Gauge

SW Tool for single and multilayer materials (up to 7 layers) thickness measurement.

Up to 0.1 μ m accuracy can be reached and every measurement is managed and stored.

This same tool can be used for corrosion measurement.

Flaw Detector

SW Tool for defect identification and measurement. Software supports an unlimited number of Gates, TVG.

It is an advanced ultrasonic instruments offering many standard measurement features and any others the customer may need, by simply adding new functions to the standard tool.

C-Scan and B-Scan

Flaw Detection SW Tool: with X-Y encoder management options, the instrument features powerful but simple C-Scan and B-Scan capabilities. No limits in any calculation: powerful PC processors work for your needs.

Material Analysis

SW Tool for Young Modulus, Shear modulus and Poisson' s Ratio measurement. Precision up to \pm 0.1 GPa.