Function	Unit	Specifications
Attenuator Error	dB	Every 12dB ±1dB
Vertical Linearity Error	%	≤3
Dynamic Range	dB	≥30
Detection Sensitivity Surplus	dB	≥65 (with a 2.5Z20N probe)
Far-field Resolution	dB	≥26
Horizontal Linearity Error	%	≤0.5
Noise Level	%	≤10 (1~4MHz)
Operating Frequency Range	MHz	0.5~15, with 3 steps of 1~4 / 0.5~8 / 2~15 selectable
PRF	Hz	10 steps (20~500Hz adjustable but subject to detection range, material velocity, pulse shift, probe delay, etc.)
Thin Plate Resolution	mm	≤3 (with a 5C10N probe)
Detection Range	mm	0 ~ 5000 (Longitudinal wave in steel)
Pulse Shift	mm	-10 ~ 1000 (Longitudinal wave in steel)
Probe Zero	μs	0 ~ 200
Material Velocity	m/s	400 ~ 9999
Damping		Low /High
Reject	%	0 ~ 80
Rectify		Positive, Negative, Full, Filter , RF
Gain Adjustment	dB	0 ~ 110, with steps of 0.5 / 2 / 6 / 12
Ethernet Port		Real-time communication with a PC (Host) and remote control
Probe Frequency Measure		Calculate probe echo frequency with FFT
AWS D1.1/D1.5		Calculate steel structure and bridge welds level based on American Welding Society (AWS) D1.1/D1.5
API 5UE		A quantitative method for calculating flaw depth based on American Petroleum Institute (API) Recommended Practice 5UE
Curved Surface Correction		For depth and horizontal distance correction when testing circular tubes with an angle probe. Correction mode: inner arc / outer arc
Crack Height Measurement		Measure crack height by edge peak echo method with an angle probe
B Scan		Acquire B-scan images by amplitude B-scan method
Gate Magnifier		Magnify the echo within the gate to the whole echo area
DAC Curve		For making, setting and applying DAC curves
AVG Curve		For making, setting and applying AVG curves
Screenshot		Print the system screen as an image and output to a USB disk
Cineloop		Up to 7-min echo record function
USB Storage		Save the system internal data sets to a USB disk via the USB port
Gate		Gate mode: off / positive / negative / positive with alarm / negative with alarm
Storage		500 data sets, including system setup, detection state, echo figures, etc.
Auto Gain		Enabling the echo amplitude within the gate auto adjusted to a designated amplitude Amplitude setup: 40% / 50% / 60% / 70% / 80% / 90% / 100%
Peak Memory		Display waveform envelope
Peak Echo		Record waveforms including the highest echo
Freeze		Freeze screen waveforms
Auto Calibration		For calibrating material velocity and probe delay. Calibration mode: Velocity and Zero / Velocity / Zero
Angle Measurement		Measure probe angle
Display		5.7" high brightness TFT LCD, 320 x 240 pixels
Operating Time	h	≥7
Operating Voltage	V	9~12 DC (external power supply); 6.0~8.4 (battery)
Operating Temperature	℃	-10~40
Weight	kg	Approx. 1.15 (including battery)
Dimension	mm	152 × 240 × 52 (W×H×L)

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Digital Ultrasonic Flaw Detector

CTS-9009

Advanced Functions

Small Size

Low Consumption

High Performance

Easy Operation

Multi-Purpose

Lightweight

SIUI

CTS-9009

Portable, Easy-to-Use, Reliable

—— New Generation General-Purpose Digital Flaw Detector

Compact & Portable: The whole unit weight (battery included) is approx. 1.15kg, suitable for aloft and field work.

Easy to Use: There are just a few concisely-defined keys, easy to be operated with only one hand.

Environmental Protection: This system is designed based on IP67 standard, suitable for complex industrial flaw detection environment.

Super-low Consumption: The configured Li-polymer battery can support up to 7-hour continuous operation.

Strong Performance: High resolution and penetration, achieving precise flaw detection from thin plates to large forged pieces.

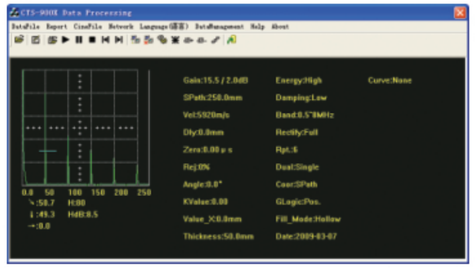
Complete Functions: Cineloop, probe frequency measurement, curved surface correction, RF display, USB storage, amplitude B-scan, AWS D1.1/D1.5, API 5UE evaluation standard.

Superior Features

- Max. sampling rate 240MHz; Measurement resolution 0.1mm.
- Featured with AWS D1.1/D1.5 and API 5UE evaluation standards.
- The gate magnifier function magnifies the echo area within the gate to the whole screen display.
- Ethernet communication: Achieving real-time communication with a PC and remote control.
- The convenient and useful probe echo frequency measure function enables the users to know the probe center frequency quickly, resulting in more precise flaw detection evaluation.
- Operating frequency range: 0.5~15MHz, at least 65dB detection sensitivity surplus, highlighting advantages of high sensitivity and broadband.
- 20 ~ 500Hz PRF with 10 steps adjustable: avoid reverberation signals during flaw detection.
- Measure crack height by edge peak echo method.
- RF (Radio Frequency) echo display: good to thin-wall material measurement, academic research or qualitative analysis.
- Acquire B-scan images by amplitude B-scan method.
- The AGC (auto gain control) function, together with peak echo and image freeze function, help quickly identify the flaw highest echo, enabling efficient flaw detection.
- The AVG curve can make three curves of different equivalent values with one known flat-bottom hole or large flat-bottom echo.
- The DAC curve works with echo compare function, making echo quantification of different distances and amplitudes more convenient.
- The 5.7″ color TFT LCD of wide viewing angle, high brightness and high definition delivers every clear detail.
- Up to 7-min dynamic cineloop and 1500-frame review, achieving dynamic scan process recording.
- Three different color schemes can meet the requirements of different application environments and habits.
- Up to 500 sets of curve and waveform can be saved for various workpieces and flaw detection standards.

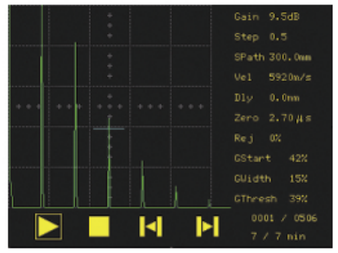
Application Examples

Data Storage



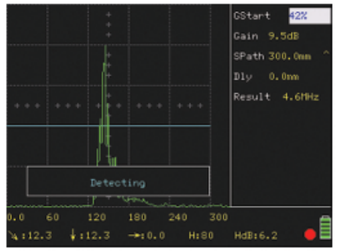
- Detection echoes, curves or parameters may be losslessly stored to a PC via the USB port, facilitating report editing and data management.

Dynamic Cineloop



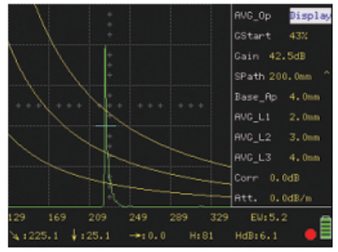
- Replay up to 7 minutes continuously of waveform display and system operation process.
- The cineloop can be divided into 7 parts (one minute each part) for reviewing 1500 frames (frame by frame).

Probe Frequency Measure



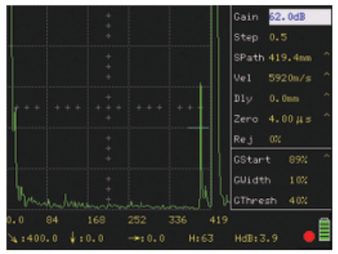
- The probe center frequency can be measured precisely by capturing echoes.
- Perform the measurement on any amplitude echo within 500mm range with one keystroke only.

AVG Curve



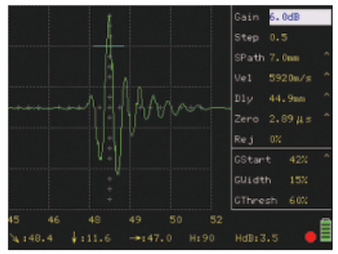
- Three curves of different equivalent values will be auto created by taking a known flat-bottom hole or large flat-bottom echo for reference.

Detection on Large Forged Pieces



- The maximal detection range is 5000mm. It is suitable for detection on large forged pieces or coarse crystal materials.
- This picture shows an echo from a 400mm Φ 2 flat-bottom forged test block.

RF Echo



- Display original waveforms, especially suitable for R&D purpose in qualitative and spectrum analysis on echo signals.