



TD Scan · Portable Multi-Function Ultrasonic Inspection Systems



Features

- Exceptional Performance
- Exceptional Price
- Portable yet Powerful
- High Speed Real-time Data Collection
- Fast Inspection Speed
- Extensive Analysis Tools
- Easy to Use Menus
- Powerful Reporting Functions
- On-board 2-axis Drive Control
- 2 Axis Encoders & Video Tracking

Techniques

- TOFD
- Pulse Echo
- Corrosion Mapping
- Pipeline Inspection

Applications

- Pressure Vessels Welds
- Pipeline Welds
- Structural Welds
- Forgings & Castings
- Turbine Disks & Blades
- Aircraft Components
- Complex Geometries
- Hydrogen Damage Surveys

Software Options

- Pulse Echo
- ToFD
- Strip-Scan
- Long Range (Creep Wave & Corrosion Mapping)
- TD Super-View

TD Scan Technical Specification

Hardware

General	
Number Of Probe Inputs	16
Number Of Software Channels	128

Digitiser	
A/D Sampling Frequency	14Bit @ 200MHz
System Bandwidth	0.25MHz to 50MHz
Pulse Repetition Frequency	Up to 10KHz

Pulser	
Number of Pulsers	16
Pulser Delays	0us to 40us in 2.5ns steps
Output Impedance	6 Ohms
HT Pulse Shape	Negative square wave
HT Pulse Voltage	20 to 200V in 5V steps
HT Pulse Width	Range 20ns to 500ns in 2.5ns steps
Rise/fall time	< 5ns

Receiver	
Number Of Receivers	16
Signal Bandwidth	(-3dB) 0.25MHz -50MHz
Gain Range	0dB to 100dB's controllable in 0.1dB steps
Gain Linearity	0.5dB (typical)
Input Noise Level	2nV/(Hz) ^{1/2} (typical) across full system band width
Input Impedance	50 Ohms

Time Corrected Gain (TCG)	
Number Of Curves	1 to 8
Gain Range	0 to 80dB in 0.1dB steps T
Rate Of Gain Change	Up to 40dB/Js

Analogue Signal Filtering	
High Pass Filters	(-3dB) 0.25, 0.5, 0.75, 1.0, 2.5, 5, 7.5, 10
Low Pass Filters	(-3dB) 1, 2.5, 5.0, 7.5, 10, 15, 20, 25, 30, 35, 40, 50
Post Rectification Filters	(-3dB) No filter, 1, 2, 3, 4, 5, 6, 7MHz

A-Scan Digitisation	
A-Scan Points Per Channel	8000 points per channel
Sampling delay	0 -10ms, in 10ns steps @ 100MHz sampling rate
Number Of Gates Per Channel	3 hardware Gates
Gate Start/Width	User definable in 10 ns steps
Gate Reference Points	Transmit Pulse or Material Interface Echo
Storage Modes Per Gate	A-Scans, Peak Depth and Amplitude
Data Storage Rates	6MByte/sec

Software

General Features	
• Simultaneous Phased Array, ToFD &/or Pulse Echo data collection	
• Operator definable weld geometry overlays	
• Real-time A, B, C and D-Scan images, with user defined display modes	
• Multiple TCG curves	
• Internal report generation including interactive print-preview & user-definable report fields	
• Full cursor analysis indicating peak depth, amplitude and x,y position	
• Supports single, dual, & encoder/motor drive	
• Export Bitmap images to any Windows application	
• 8 or 14 bit Data collection (Phased array/Pulse Echo)	

Signal Averaging	
Number Of Channels	All
Averaging Performance	100 million points per second
Averaging Rates	Real-time averaging 1-256, user definable

Peak Processing	
Peak Storage Modes	All Peaks, First Peak, Largest Peak/s, Loss Of
Thickness Measurement Modes	Thinnest/Thickest/Between Peaks
Threshold Setup	5 to 100% in 1% steps per hardware Gate
Number Of Peaks Per Gate	14

Scanner Interface Ports	
Input Type	Encoder, Potentiometer, Video Camera, Temperature
Number Of Axis	2 TTL compatible
Number Of Limit Inputs	4, TTL compatible
Encoder Interface	TTL compatible, 5V @ 1A, 12V @ 0.4A
Temperature Inputs	RTD. 2 or 4 wire
Potentiometer Interface	0 to 2.5V, sampled at 100Hz
Video Input	1Vpp Composite

Motor Drive (Internal)	
Motor Types	DC Servo, 12Volts or 24Volts
Current Drive	2Amps (Continuous) Up to 4Amps (Peak)
Current Limit	Software definable

PC (Internal)	
Operating System	Windows XP Professional
Processor	Celeron 1GHz
Memory	1GByte
Display Colour	TFT (Industrial type)
FT Display Resolution	1024 x 768
Hard Disk	60GBytes
Ports	4 x USB, 1 x 10/100 Ethernet, 1 x Video

Size, Weight & Environmental	
Unit Dimensions	360mm x 300mm x 86mm
Weight	7Kg
Rating	IP54
Temperature	0°C to 40°C operating, -25°C to 85°C storage

Battery Capability	
Operating Time	5 Hours

Power Requirements	
DC Input	30V to 72VDC @ 40W (Operating), 100W
AC Input	90 to 260VAC @ 40 to 60Hz

Pulse Echo	
• Independent control of transmit and receive parameters	
• C-scan with end views for corrosion mapping	
• Trigger reference modes including Interface Echo or Tx Pulse	
• Multiple peak data storage modes, including full/selective A-Scan storage	

ToFD	
• Very fast inspection rates up to 400mm /sec	
• Perform multi-channel TOFD and Pulse Echo inspections simultaneously	
• Full suite of image analysis tools for defect/crack sizing	
• Real-time multi-channel averaging significantly improves signal quality	
• Linearization, Straightening, Synthetic-Aperture-Focusing-Technique (SAFT)	
• File utilities include file join, split, reverse, save partial, output data to text file etc.	

Weld Zone Discrimination	
• Fast, accurate inspection at up to 200mm/sec	
• Combined TOFD, Time/Amplitude view, Map view,	
• Couplant Check & Go/No-Go in a single pass	
• Inspection data displayed as strips indicating weld zones	
• Integrated TOFD analysis	
• Supports internal fixed or rotating head scans using Phased Array or conventional probes	
• Perform inspections over km's of pipeline	



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