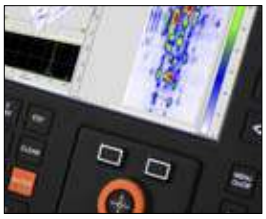
TD HANDY-SCAN RX - Multi-Function Ultrasonic Inspection Systems



Features

- Highly Portable
- Sunlight Readable Screen
- Extensive Analysis Tools
- Powerful Reporting Functions
- Removable Battery
- 2 Axis Encoder; Video tracking
- Import setups from ESBeamTool®
- Up to x 8 Conventional Channels
- Up to 32/64 Phased Array
- Simultaneous PA, ToFD and/or PE data collection
- 128GB SSD storage

Applications

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

Techniques

- Phased Array
- ToFD
- Pulse Echo
- Corrosion Mapping
- Weld Zone Discrimination

Software

- Phased Array/Pulse Echo
- ToFD
- Strip-Scan (AUT)
- Long Range (Creep Wave & Corrosion Mapping)
- TD Super-View
- ESBeamTool® included

TECHNOLOGY DESIGN

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NOVA INSTRUMENTS

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TD Handy-ScanRX Hardware Specification

Hardware

System Options	
64 Elements (D Type 78 way)	32 Active 4 Conventional (Lemo 00)
General	
Number Of Focal Laws	1700 max
Dynamic Depth Focusing	Yes
Digitisation	
A/D Sampling Frequency	Phased Array = 8Bit & 14Bit @ 100MHz Conventional = 8Bit & 14Bit @ 100MHz
System Bandwidth(-3dB)	Phased Array = 0.25MHz to 25MHz Conventional = 0.25MHz to 25MHz
Max Pulse Repetition Frequency	Variable up to 10KHz
Pulser	
Pulser Delays	0µs to 20µs in 2.5ns steps
Output Impedance	6 Ohms
HT Pulse Shape	Square wave
HT Pulse Voltage	Phased Array = 5 to 190V in 1V Steps Conventional = 5 to 190V in 1V steps
HT Pulse Width Range	20ns to 500ns in 2.5ns steps
Rise/fall time	< 5ns
Receiver	
Receiver Delays	0µs to 20µs in 1ns steps
Gain Range	P/E=0 to 90dB in 0.1dB steps, P/A=0 to 72dB in 0.1dB steps
Input Noise Level	2.5nV/(Hz) ½ across full system bandwidth
Input Impedance	50 Ohms
Dynamic Depth Focusing	
Operation	Dynamically optimises receive focus delays
Range Of Operation	User specified depth/range in mm or µs
Performance	100MHz real-time
Receiver TCG Curves	
Number Of Curves	Conventional - 1 per channel Phased Array - 1 per Focal Law
A-Scan Digitizing	
A-Scan Points Per Channel	8000 samples per channel
Number Of Gates Per Channel	3 overlapping hardware Gates
Gate Start/Width	User definable in 40ns steps
Gate Reference Points	Transmit Pulse or Material Interface Echo
Storage Modes Per Gate	A-Scans, Peak Depth and Amplitude, both

Signal Averaging	
Number Of Channels	All (128 software channels)
Averaging Rates	Real-time averaging 2 - 256, user definable
Peak Processing	
Peak Storage Modes	All Peaks, First Peak, Largest Peak/s, Loss of Signal, Between
Threshold Setup	5 to 100% in 1% steps per hardware Gate
Number Of Peaks Per Gate	16 max
Scanner Interface Ports	
Input Type	Encoder, Video Camera
Number of Axis	3 axis, TTL compatible
Encoder Interface	TTL compatible, 5V @ 1A, 12V @ 0.4A
Video Input	1Vpp Composite
Motor Drive	Internal
PC (Internal)	
Operating System	Windows® 10
3rd Party Software	AVG Antivirus® ESBeamTool® (Eclipse Scientific)
Processor	Intel Atom E3800
Memory	4GB
Display	Colour TFT (Industrial type) 12.1”
TFT Display Resolution	Sunlight Readable Screen 1280 x 800
Storage	128GB SSD
Ports	3 x USB, 1 x 10/1000/GPIO Ethernet, 1 x Video
Size, Weight and Environmental	
Unit Dimensions	tbc
Weight	tbc
Temperature	-10ºC to 40ºC operating, -25ºC to 85ºC storage
Power Requirements	
Batteries	2 x Hot Swappable
DC Input	19V
AC Input	90 to 260VAC @ 40Hz to 60Hz

Software

General Features

- Simultaneous Phased Array, ToFD & Pulse Echo data collection
- Operator definable weld geometry overlays
- Real-time A, B, C and D-Scan images, with user defined display modes
- Internal report generation including interactive print-preview & user-definable report fields
- Full cursor analysis indicating peak depth, amplitude and x,y position
- Export Bitmap images to any Windows application
- 8 or 14 bit Data collection (Phased array/Pulse Echo/ToFD)
- Import ESBeamTool® setups

Phased Array

- User configurable control of beam angle, focal distance and spot size
- Fixed-angle electronic or sectorial scans
- Dynamic Depth Focusing (DDF) provides a user-definable focal range
- Supports linear probe/wedge geometry
- Normalisation of amplitude across sectorial scan angles or fixed angle focal laws
- Beam Apodization
- Skip Correction provides correct depth/range relationship for multiple legs
- 2D Matrix Arrays
- Duel Linear Arrays

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

- 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

- 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
- Automated report generator