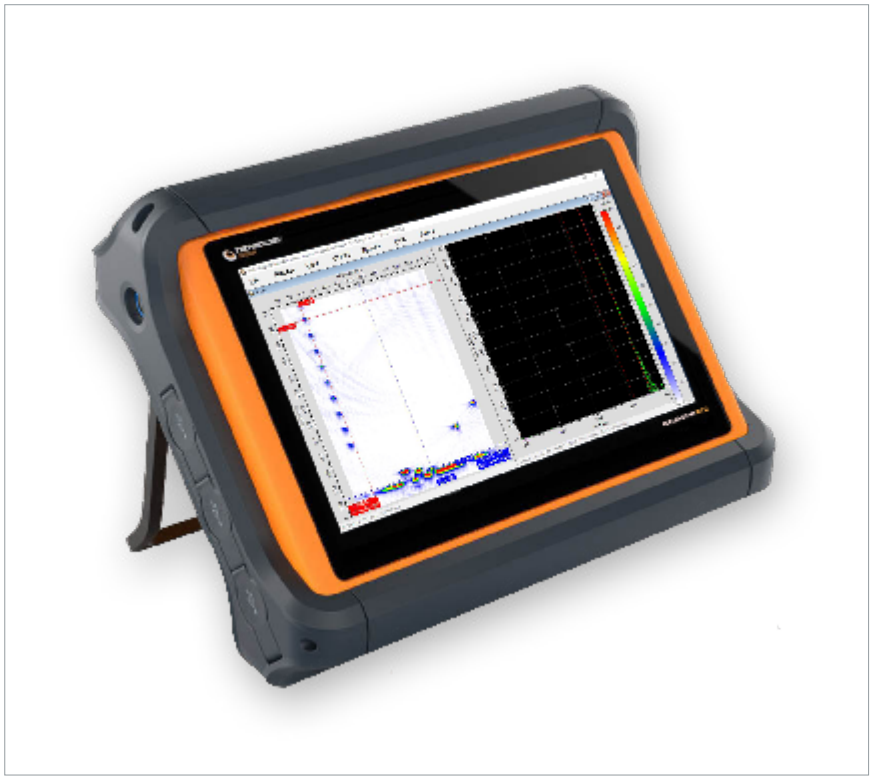
FocusScan RX II - Multi-Function Ultrasonic Inspection Systems



Features

- Extensive On-Board Analysis Tools
- FMC/TFM
- Powerful Reporting Functions
- On-Board 2-axis Motor Control Drive Unit
- Import Setups from ESBeamTool®
- User Replaceable Batteries (hot swappable)
- Up to 64/128PR Phased Array
- 8 Independent Conventional Ultrasonic Channels
- 2 Axis Encoding, video tracking
- Simultaneous PA,ToFD and/or PE data collection
- 128GB SSD Storage

Applications

- Pressure Vessels
- Pipeline Welds
- Composites
- Structural Welds
- Forgings & Castings
- Turbine Disks & Blades
- Aircraft Components
- Hydrogen Damage Surveys
- Corrosion Surveys
- HTHA Surveys

Techniques

- Phased Array
- FMC/TFM
- TOFD
- Pulse Echo
- Corrosion Mapping
- Weld Zone Discrimination
- General Flaw Detection
- 2D Matrix Arrays
- Dual Linear Arrays

Software

- Phased Array/TFM
- TOFD
- Pulse Echo
- AWS
- Strip-Scan
- Long Range (Creep Wave & Corrosion Mapping)
- TD Super-View
- ESBeamTool® included
- AVG Antivirus

TECHNOLOGY DESIGN

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NOVA INSTRUMENTS

FocusScan RX II - Technical Specification

Hardware

System Options

16/128PR	16 Active, 128 Elements, 8 Conventional
32/128PR	32 Active, 128 Elements, 8 Conventional
64/128PR	64 Active, 128 Elements, 8 Conventional

General

Number of Active Channels	Up to 128
Number Of Focal Laws	Up to 890
Dynamic Depth Focusing	Yes

Digitisation

A/D Sampling Frequency	Phased Array = 8Bit & 14Bit Conventional = 8Bit & 14Bit
System Bandwidth(-3dB)	Phased Array = 0.25MHz to 25MHz Conventional = 0.25MHz to 25MHz
Max Pulse Repetition Frequency	Variable up to 5KHz

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	0 to 100dB in 0.1dB steps
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 peaks
Threshold Setup	5 to 100% in 1% steps per hardware Gate
Number Of Peaks Per Gate	16 max

FMC/TFM

Data Acquisition mode	Full matrix capture, Half matrix capture, Custom
Wave Propagation	Any combination of T & L
Amplitude Fidelity	Yes
Encoded TFM	Yes
TFM Data Saving	Yes

Scanner Interface Ports

Input Type	Encoder, Video Camera
Number of Axis	2 Axis
Encoder Interface	TTL compatible, 5V @ 1A, 12V @ 0.4A
Video Input	1Vpp Composite
Motor Drive	2 Axis (24v, 5 Amps)

PC (Internal)

Operating System	Windows® 10
3rd Party Software	AVG Antivirus® ESBeamTool® (Eclipse Scientific)
Processor	Intel Atom E3845
Memory	4GB
Display	Colour TFT (industrial type) 12.1”
Display Resolution	1280 x 800 (Sunlight Readable Screen)
Storage	128GB SSD
Ports	3 x USB 2.0 1 x 10/100/1000 Ethernet, GPIO 1 x Video

Size, Weight and Environmental

Unit Dimensions	370 x 294 x 114 (WxHxD)
Weight	7.3kg (1 Battery)
Rating	Designed to IP66
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 and FMC/TFM data collection
- Operator definable weld geometry overlays
- Real-time A, B, C and D-Scan images, with user defined display modes
- On-Board 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 acquiistion for Phased array, TOFD and Pulse Echo
- Import ESBeamTool® setups

Phased Array

- User configurable control of beam angle, focal distance and spot size
- Linear, Sectorial, Linear spread (Simple & Compound) and Single beam scans
- Dynamic Depth Focusing (DDF) provides a user-definable focal range
- Supports Linear, Dual Linear, 2D Matrix and Dual Matrix probe/wedge geometries
- Normalisation of amplitude across sectorial scan angles or fixed angle focal laws
- Skip Correction provides correct depth/range relationship for multiple legs

FMC/TFM

- Integrated with TDScan
- Envelope processing
- Multi-channel data acquisition
- Multi-mode data processing
- Amplitude fidelity configurator

ToFD

- Perform multi-channel TOFD, Phased Array, FMC/TFM 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, SAFT, Parabolic cursors
- File utilities include file join/split, reverse, save partial, output data to text file etc.

Pulse Echo

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

Weld Zone Discrimination

- Combined TOFD, Time/Amplitude view, Map, Couplant Check, Go/No-Go and Weld overlay views in a single pass
- Inspection data displayed as strip-charts indicating weld zones
- Integrated TOFD analysis
- Automated report generator with acceptance configurator