

High Performance Imaging Flaw Detector



Applications

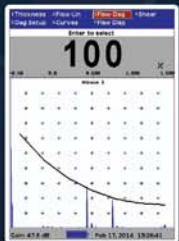
- Flaw detection and thickness gauging in most materials
- Corrosion mapping on pipes, tanks, vessels
- A-, B-, C-scan imaging
- Composite Inspection using thickness or amplitude flaw gates

Features

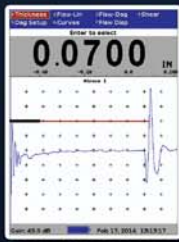
- All-in-one high-resolution, high-speed, flaw detector, thickness gauge and B-, C-scan imaging system
- Robust aluminum case with rubber end caps
- 5.7" VGA sun readable Color display
- Spike and square wave tuneable pulser, 5000Hz PRF
- Supports range of manual and automatic scanners for encoded B-scan and C-scan imaging
- Free Software updates



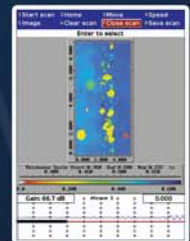
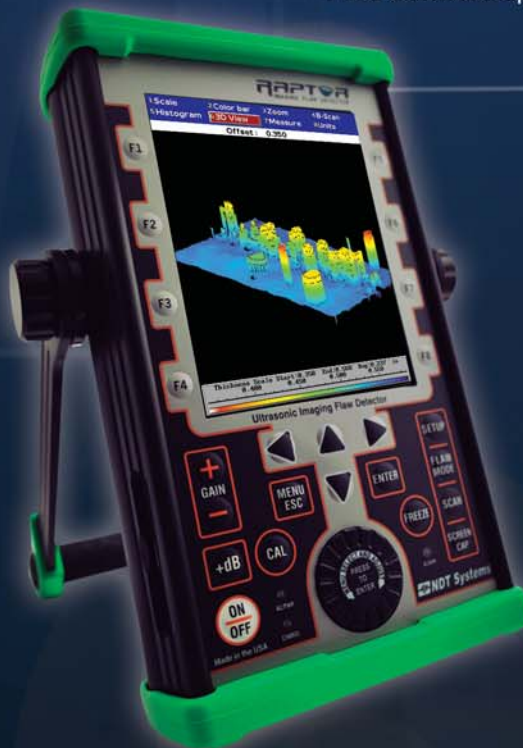
FLAW MODE



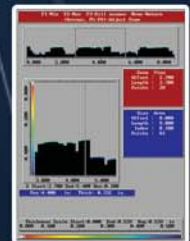
DAC CURVES



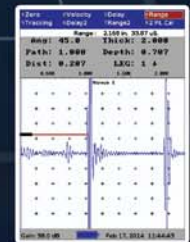
THICKNESS MODE



C-SCAN



B-SCAN



WELD TRIG

Introduction

Flaw detection is the process of identifying and sizing sub-surface defects in materials. One of the most common techniques to identify defects is ultrasonic inspection where sound waves, propagated through the material, are used to identify such anomalies. Flaw detection can be applied in almost any industry from composites and metals used in aerospace, to petrochemical oil and gas pipelines, storage tanks and power generation including nuclear power. The most common anomalies include cracks, voids and porosity in metals, ceramics and plastics in addition to delaminations and disbonds in composites.

Imaging is the ability to generate a full-field results image, or mapping, of an area of interest. Manual or automated scanners generate easy to understand, C-scan images of the material and reduce inspection time dramatically.

Three-in-One Instrument

The Raptor is an all-in-one high-resolution thickness gauge, flaw detector and imaging flaw detector capable of driving a range of manual and automatic scanners. As a high-speed flaw detector, the Raptor is unique with its robust aluminum construction, class leading 5kHz PRF, spike or tuneable square wave pulser at 50V-450V and large 5.7" sun readable screen, as standard. Capable of operating in a frequency range from 0.5MHz to 30MHz it can run single, dual, contact, angle, delay line and immersion transducers. Data storage is through an SD card for easy transfer and a field-replaceable Li-ion battery gives 8-10 hours longevity.

The display can run in Splitview screen mode with auto-tracking of the echo and a simultaneous view of the B- or C-scan and the live A-trace. Dual gates, a 20 point DAC, peak echo hold, weld trig and many other features are all included as standard.

Advanced Imaging Capability

The power of an image cannot be understated and can significantly speed up an inspection and help with interpretation. The Raptor is compatible with a range of manual and automatic scanners. The standard software can define the scan area, index resolution and speed and displays the resulting images live as they are generated.

A full suite of software functions is included for further analysis of the results, including B-scan sections, 3D images, statistical tools for defect sizing and much more. The scanner can also be positioned back to any point of interest. The combined imaging system boasts an unmatched performance for a very low price and is a perfect way to enter the world of imaging and speed up inspection processes in hard to reach areas.

| TECHNICAL SPECIFICATIONS | | | |
|--------------------------|---|--|---|
| Physical | Package Includes: | Standard package includes Raptor instrument, Pelican style shipping case, manual, battery, AC charger (110-240V) and Calibration Certificate | |
| | Dimensions | 5.75in. x 9.50in. x 3.00in. (146mm x 241mm x 76mm) | |
| | Weight | 5.6lb (2.54kg) including battery | |
| | Case Construction | Aluminum body, rubber end caps | |
| | Connector Type | BNC | |
| | Keypad type | Tactile membrane feedback keys, wheel control | |
| | Operating Temperature | 15 °F to 122 °F (-10 °C to 50 °C) | |
| | Power Source | Single field-replaceable Li-ion Battery (8-10hrs) or AC mains | |
| | Display | Type | Sun readable Color VGA |
| | | Size | 60Hz , 640 x 480 pixels, 3.40in. x 4.55in. (86mm x 116mm) |
| Transducer | Type | Single, Dual, Angle, Contact, Delay, Immersion | |
| | Freq range | 0.5MHz to 30.0MHz | |
| Measurements | Resolution | 0.0001in. (0.0025mm) | |
| | Thickness Range | 0.010in. to 400in. (0.254mm to 10,160mm) | |
| | Velocity Range | 0.0490 to 0.9999in./μs (1.24 to 25.40mm/μs) | |
| | Display modes | RF, +HW, -HW, FW filled or outlined | |
| | DAC | 20 points | |
| | Units Displayed | In. / mm | |
| Pulser/ Receiver | Pulse Type | Spike or Square wave pulse | |
| | PRF | 10Hz to 5000Hz, 50V to 450V | |
| | Pulse Width | 20ns to 10,000ns in square wave mode | |
| | Gain | 100dB | |
| | Damping | 8 damping levels 25-375Ohms | |
| | Gates | Contact, IP-1st, 1st-2nd (permits thru coating, delay, bubbler, immersion), 2nd-3rd IP Blocking, IF Blocking, IF-1st, 1st-2nd, Echo Blk, POS or NEG gating | |
| Connectivity | Storage | Up to 2GB removable SD card | |
| | PC Software | Windows based RAPWIN software for imaging analysis | |
| Alarms | Type | Audible & visual alarm modes, thickness high, low or high/low. Amplitude +/- level | |
| Imaging | Display Type | Encoded B-scan, C-scan mapping | |
| | Compatible Scanners | Name: | Type: |
| | | RCA-10, RCA-18. | Magnetic Wheeled X-Y Cantilever Scanner |
| | | CrosScan | Automatic Standard Resolution X-Y Scanner |
| | | TunnelScan | Automatic High-Resolution X-Y Scanner |
| | | StringScan II | Manual X-Y Scanner |
| Armadillo | Hand-scanner (B-scan) | | |
| OPTIONS | Transducers, ballistic case, battery external charger | | |

The specifications in this document are subject to change without notice.

Version: PI-Raptor-14v1

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