

## High Performance Imaging Flaw Detector



### Applications

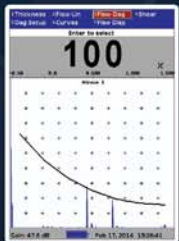
- Flaw detection and thickness gauging in most materials
- Corrosion mapping on pipes, tanks, vessels
- A-, B-, C-scan imaging
- Composite Inspection using thickness or amplitude flaw gates

### Features

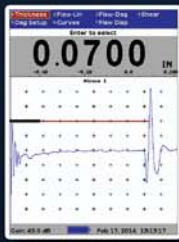
- All-in-one high-resolution, high-speed, flaw detector, thickness gauge and B-, C-scan imaging system
- Robust aluminum case with rubber end caps
- 5.7" VGA sun readable Color display
- Spike and square wave tuneable pulser, 5000Hz PRF
- Supports range of manual and automatic scanners for encoded B-scan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



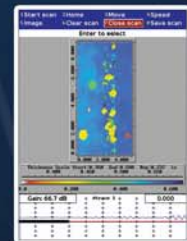
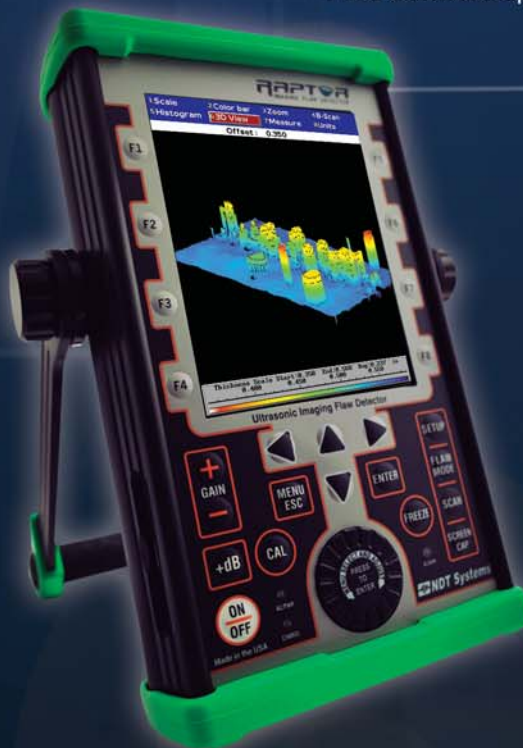
**FLAW MODE**



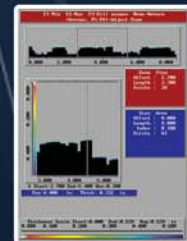
**DAC CURVES**



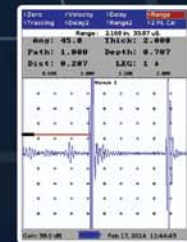
**THICKNESS MODE**



**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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