

Performance

Option	Parameter	
Configuration	Receiver/Pulser	256/256, 128/128, 64/64
	Velocity	340-15240m/s
Pulser	Test Mode	PE/PC
	Voltage	40V/70V/100V/130V/150V/200V (256/256PR)
	Pulse Shape	Bipolar Square Wave
	Pulse Width	20-1000ns/2.5ns
	Rise Time	<8ns
	PRF	40KHz
	Delay	0-20μs/2.5ns
Receiver	Gain	0-120dB
	Bandwidth	0.4-25MHz
	Delay	20μs/2.5ns
Data Acquisition	Sampling Rate	200MHz
	ADC	16bit
	Maximum A-scan points	16384
	Number of focusing rules	1024
	Focus Type	True Depth/Sound Path/Projection/Focal Plane
Scan/Display	Detection	FW/HW+/HW-/RF
	Type	TFM/Linear/Sectorial/Compound scanning
	Display Mode	A/B/S/C/TFM/3D/TopC/Strip Chart
TCG	Unit	mm/inch
	Point	16
Gate	Gain Range	40dB
	Number	A/B/C/I+ Custom Gate
Language	Threshold	0-100%
	Trigger Mode	Peak/Leading Edge
I/O Port	Language	Chinese/English/Russian
	PA channel number	Maximum support of 256 channels
	Ethernet	1000Mb/s, 10Gb/s
	Encoder	Dual-axis, LEMO 16-pin
Physical specification	SFP	10Gb/s
	Size	390.03x243x227mm (256) 、388.53x243x137mm (128) 、266x216x65mm (64)
	Weight	12.2kg (256) 、7kg (128) 、4kg (64)
	Power Supply	15V DC

Stock code: 301528



DOPPLER ELECTRONIC TECHNOLOGY

Ultrasonic Phased Array Detection System **ROBUST F1**



Supports secondary development based on the Windows platform



Full-focus inspection Maximum point count of 4 million



Support Matrix-/Dual Matrix probe



Automatic defect area calculation



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ROBUST F1 Ultrasonic Phased Array Detection System

The ROBUST F1 device uses high-speed processing chips to ensure stability and reliability during high-speed operation, while also reducing energy consumption and improving energy efficiency. Its large channel count design fully leverages the advantages of matrix array and DMA probes, expanding the application range of phased array technology. It is widely used in fields such as nuclear power, aerospace, high-speed rail, electricity, and shipping, meeting the needs for high-precision, high-resolution, and non-destructive testing. It performs exceptionally well in special scenarios such as austenitic stainless steel welds, dissimilar metal welds, and thick-walled, high-attenuation components.

To meet diverse needs, it offers three versions: 64/64PR, 128/128PR and 256/256PR.

Performance characteristics

- Supports phased array multi-element parallel detection, greatly improving the efficiency of line scan imaging.
- Supports 3D-TFM detection, providing visual real-time inspection images.
- Higher resolution: Supports 2D-TFM and PWI-TFM, with each frame containing up to 4 million data points.
- Supports simultaneous phased array and TFM mode detection, allowing a single main unit to adapt to different detection environments. Different detection modes can be used for comparative analysis, resulting in more accurate analysis.
- In certain detection environments, using DLA/DMA probes provides a higher signal-to-noise ratio than conventional linear array probes, achieving better detection results.
- The newly designed bipolar pulse generator provides more energy to penetrate thick-walled components, improving defect detection rates.
- The maximum pulse repetition frequency can reach 40KHz, suitable for various high-speed automation detection scenarios.
- Capable of multi-channel high-speed, high-precision data acquisition, multi-channel ultrasonic signal high-speed real-time processing, with results in C-scan and S-scan imaging modes after data acquisition.
- Optional UT channels can be added for PA-UT or PA-TOFD combined detection.

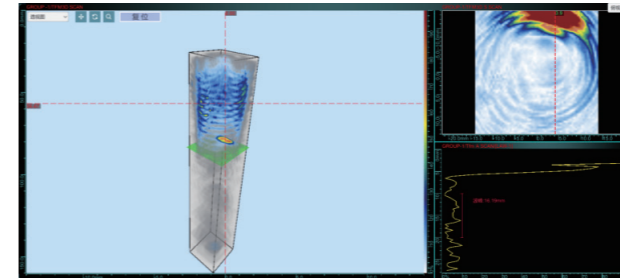


Software Features

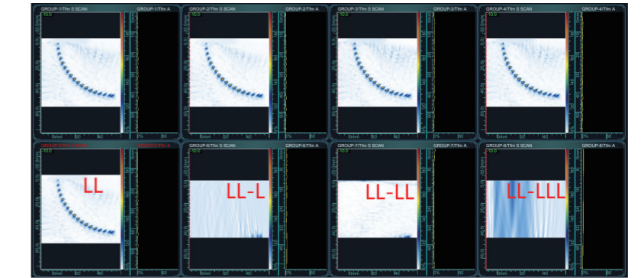
The product provides a comprehensive secondary development package, including data structures, interface information, and demo software, allowing customers to build a suitable software platform based on their needs. For customers without development experience, the system also offers powerful standardized software that supports high-speed data acquisition and transmission, multi-mode imaging on the host computer, data post-analysis, and intelligent judgment. The standard software supports various detection functions such as 3D-TFM, PWI-TFM, and phased array, making it suitable for a variety of different application scenarios.

Supports Matrix Array 3D-TFM / 2D-TFM

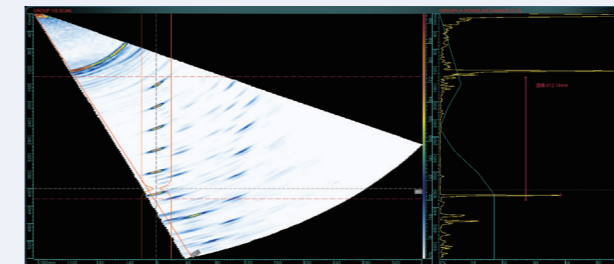
High-quality imaging is one of the key prerequisites for improving detection accuracy. The Robust F1 board features 3D-TFM real-time imaging, PWI-TFM imaging, phased array 3D real-time imaging, as well as multi-group simultaneous operation of phased array, FMC-TFM, and PWI-TFM. It also supports multiple 2D scanning groups. TFM supports A, S, and C imaging displays. Using GPU parallel computing technology, it can achieve real-time full-focus imaging with up to 2048x2048 points (a maximum of 4 million points) for computational processing.



Bolt 3D Imaging

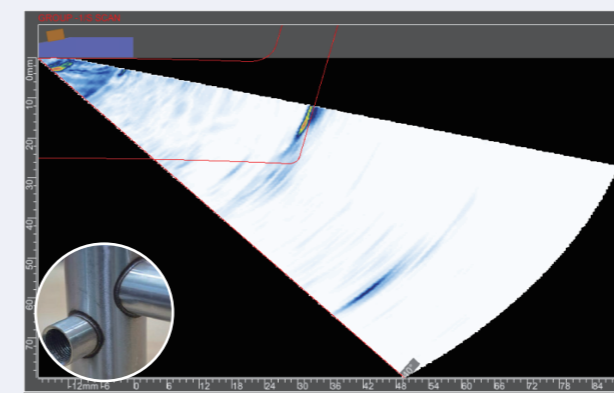


Multiple TFM Groups



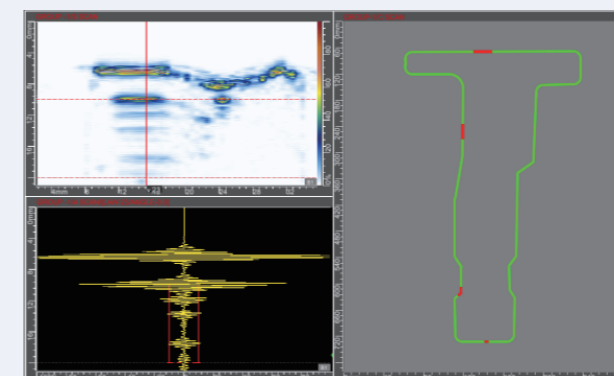
Tackling High-Difficulty Detection Challenges

The system uses full-channel parallel transmission/reception technology, breaking through the performance limitations of traditional detection equipment. For complex detection scenarios such as high-attenuation materials and ultra-thick workpieces, the system demonstrates outstanding penetration capability and signal resolution, providing reliable solutions for the inspection of key components in high-end manufacturing fields such as aerospace and energy power.



Rich Workpiece Type Support

The system supports a variety of workpiece settings, including common types such as flat plates, round tubes, tube seats, corner welds, and dissimilar thickness plate butt joints, with parameters that can be freely defined. The software calculates the intersection between the ultrasound and the workpiece based on workpiece parameters and focusing laws, and presents the workpiece illustration of the current position in the S-scan view in real time. This effectively distinguishes between real defects and workpiece structure echoes.



Powerful Application Expansion

Supports various automation detection application expansions and offers a range of selectable intelligent analysis modules. It is suitable for multiple automated and semi-automated detection scenarios, such as automatic pipeline corrosion detection and analysis, composite material delamination automatic detection and analysis, liquid cooling plate brazing rate automatic detection and analysis, and electronic copper-clad board automatic detection and analysis.