

SyncScan B

64:128PR Phased Array Flaw Detector with TFM



More Possibilities

Advanced Solutions for Welds & Corrosion

SIUI



SyncScan 3

Phased Array Flaw Detector with TFM

● More Possibilities for Demanding Inspection

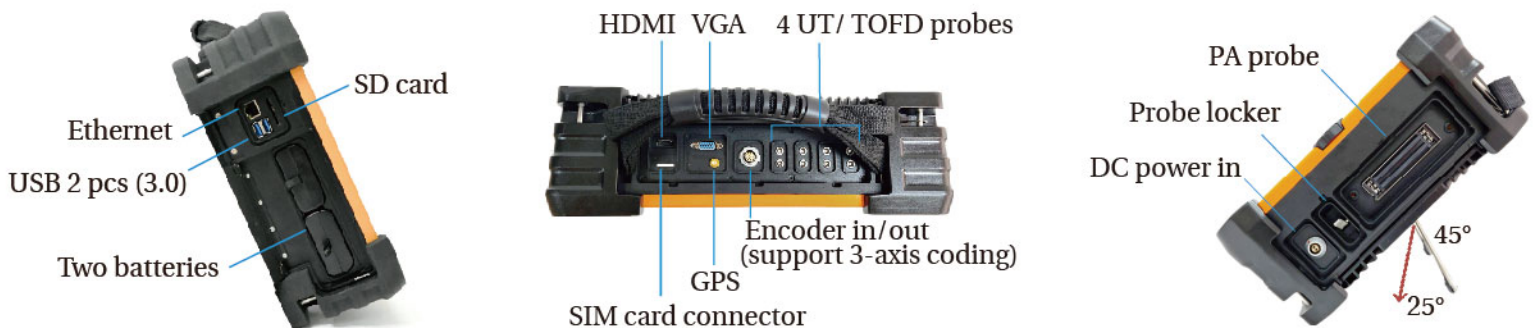


SyncScan 3 is 64:128PR PAUT flaw detector with total focusing method (TFM) and 4-ch TOFD, which brings more possibilities for demanding inspections in oil & gas, power industries, etc.

- TFM 3D real-time imaging.
- Up to 6 TFM modes in one time .
- Support TFM image resolution 1024x1024 & raw FMC data recorded.
- 64 channel PAUT with higher sensitivity and SNR, ideal for $\geq 100\text{mm}$ thick welds.

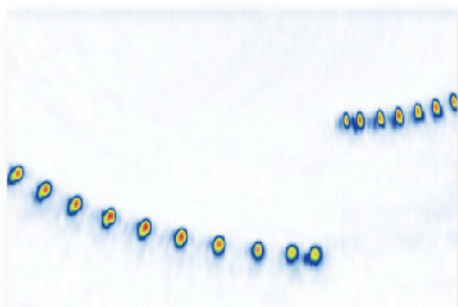
● Overview

- New practical buttons for quick access.(save, scan keys, etc)
- Compatible with SyncScan 2 files, convenient for user' s operation.
- 12.1" high-resolution touch screen, for better view and user experience.
- UT/PA/TFM/TOFD sub-mode design for fast accessing to oriented interface.
- Upgraded ABS cover ensures better sealing and anti-impact, with handy switch for easier locking and unlocking.
- Wi-Fi or SIM card provide wireless transmission, with SuperUp acquisition software to support real-time remote inspection.

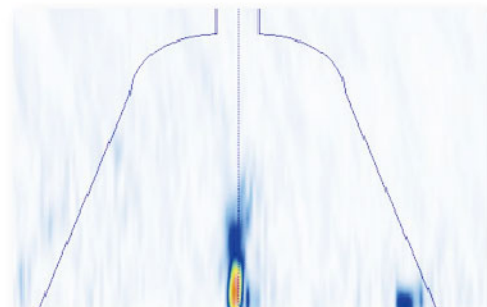


● Fitting Curve Algorithm in TFM (Published patent)

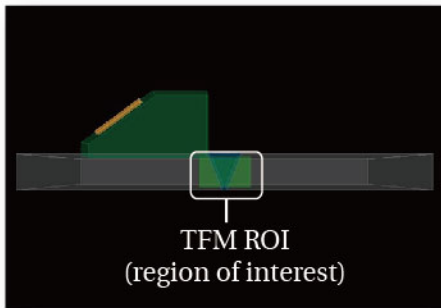
- The algorithm can enhance data transmission and computing ability, to improve SNR and TFM imaging speed.
- Free selection for TFM image resolution and up to 1024x1024.
- Raw FMC data can be recorded and exported, allowing TFM re-imaging by multiple propagation modes without re-scanning. (10 propagation modes available for now.)



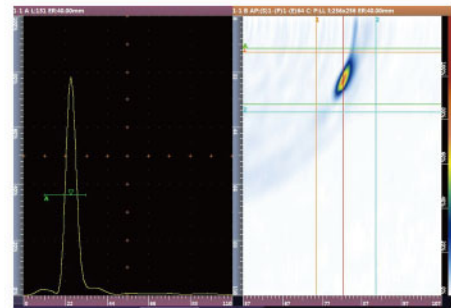
PA block type B



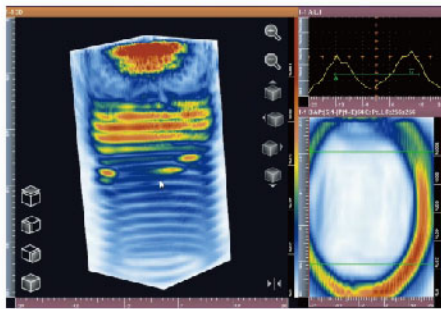
Surface longitudinal crack



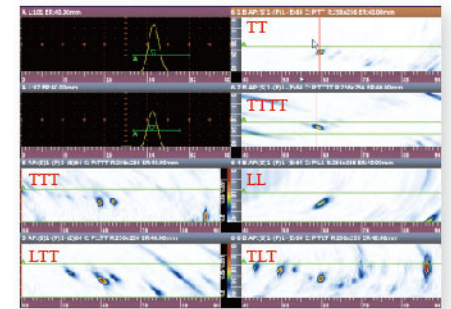
TFM test wizard reserves PAUT step-by-step features from calibration to testing, with familiar & friendly experience.



AF wizard is used to calculate the amplitude fidelity value to verify the TFM resolution according to ASME standard.



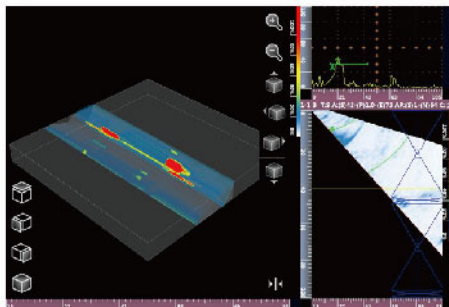
TFM 3D real-time imaging, with higher resolution & more intuitive result.



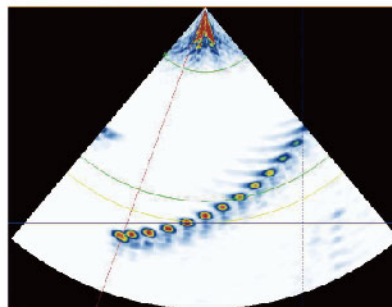
Up to 6 propagation modes can be displayed simultaneously to better identify and size flaws.

● 64:128PR PAUT

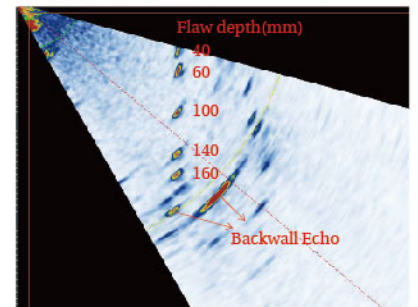
- 2.5X faster PAUT scanning speed, up to 7m/min.
- CAD import function, convenient for complex workpiece setup.
- 64 channel PAUT provides better coverage and SNR, especially suitable for inspecting $\geq 100\text{mm}$ thick materials, complex composite materials, etc.



PA 3D: Supports 3D display of workpiece, probe, wedge, beam simulation and flaws.



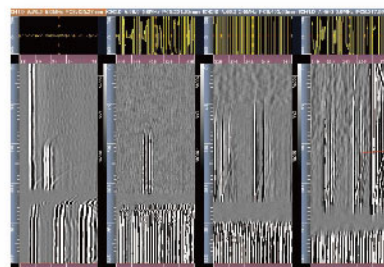
PA block type B



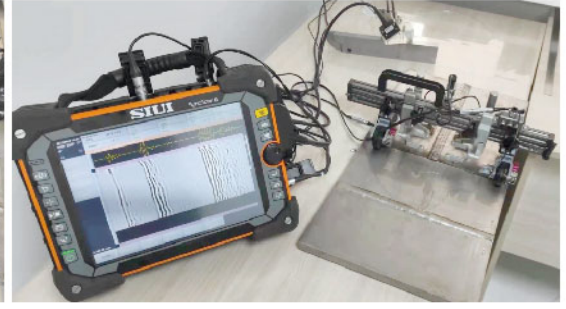
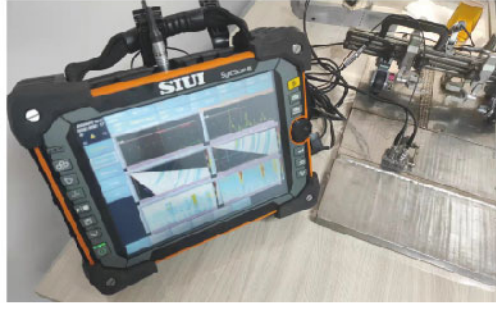
Workpiece thickness 168mm

● 4 channel TOFD

- 3X faster TOFD scanning speed, up to 15m/min.
- 4-ch TOFD are especially suitable for welding inspection with thickness up to 300mm.
- Simultaneous display of TOFD + UT provides full coverage of workpiece without any blind zones.



Workpiece thickness 200mm



Technical Specification

TFM	
Propagation Modes	LL, LLL, LLLL, TT, TTT, TTTT, LTT, TLT, TLL, TTL
Multi-mode	Up to 6 TFM modes in one time
Image Resolution	Up to 1024×1024; Horizontal/vertical resolution: 64-1024, step 16
Live TFM Envelope	Yes
No. of Channel	64
Probe Connector	Tyco, 1 pc
Max. Supporting Elements	128
Display Mode	B, A + B, A + B + C1, A + B + C1 + C2, A+B+3D
Scanning Length	≤3.2m/scan (default parameter, resolution 256×256, step 0.5mm)
Scanning Speed	≤0.6m/min (default parameter, display mode A+B+C, step 0.5mm)
FMC Data Acquisition	8192points/channel, 16bit/point
PRF	100Hz-6500KHz(resolution 64×64), step: 100/200/500/1000Hz
Pulse Voltage	10-100V, step 10V/20V
Pulse Width	50-1000ns, step: 10ns
Gain	0-80dB, step:0.1/0.5/2/6/12dB
Bandwidth	0.7-20MHz (-3dB)
A/D Sampling Rate	100MHz/12bit
Wizard	Amplitude Fidelity wizard; Velocity/ TCG calibration

	Conventional UT	Phased Array System	TOFD
No. of Channel	4	64	4
Probe Connector	LEMO 00, 8 pcs	Tyco, 1 pc	LEMO 00, 8 pcs(same as UT)
Max. Supporting Elements	8	128	8
PR (Pitch & Catch)	—	Available	—
Pulser	Negative square	Bi-polar square	Negative square
PRF	Adjustable 10-2000Hz, step: 20Hz	100Hz-20KHz, step: 100/200/500/1000Hz	Adjustable 10-2000Hz, step: 20Hz
Pulse Voltage	50V-400V, min. step 1V	10-100V, step 10V/20V	50V-400V, min. step 1V
Pulse Energy	—	4 levels	—
Pulse Width	30-1000ns, step:10ns	50-1000ns, step: 10ns	30-1000ns, step: 10ns
Damping	25/75/200/1000Ω, 4 levels	—	25/75/200/1000Ω, 4 levels
Pulser Delay	—	0-20μs, resolution 5ns	—
Pulser Focusing	—	Single point focusing	—
Receiver			
Gain	0-110dB, step:0.5/2/6/12dB Fine gain: -4~+4, step:1	0-80dB, step:0.1/0.5/2/6/12dB	0-110dB, step: 0.5/2/6/12dB
Bandwidth	0.5-20MHz (-3dB)	0.7-20MHz (-3dB)	0.5-20MHz (-3dB)
A/D Sampling Rate	170MHz/12bit	100MHz/12bit	170MHz/12bit
Sampling Point	1024, 16bit/ point	Adjustable 256/512/1024, 16bit/point	1024, 16bit/point
Rectification	Positive/ Negative/ Full/ RF	Positive/ Negative/ Full/ Filter/ RF	RF
Receiver Delay	—	0-20μs, resolution 2.5ns	—
Receiver Focusing	—	Max. range: 1008 foci per scan line	—
Filter	Digital 10 levels: 1-4/0.5-10/2-20/ 1/2.5/4/5/10/13/15MHz Analog 4 levels: 3/5/10MHz/whole	14 levels: Band-pass: 0.7-4/2.5-7/4-8.5/7-10/9-15/0.7-20MHz High-pass: HPF2.5/HPF4.0/HPF7.0/HPF9.0 Low-pass: LPF7.0/LPF8.5/LPF10.0/LPF15.0	16 levels: 0.5-5/0.5-10/3.5-10/0.5-15/5-15/ 0.5-20/1-4/0.5-10/2-20/1/2.5/4/5/10/ 13/15MHz
Reject	0-80%, step: 1%	—	—

Technical Specification

	Conventional UT	Phased Array	TOFD
Scan			
Scan Type	—	Linear/ Sector/ Compound	—
Trigger Mode	—	Time-based/encoder	Time-based/encoder
Scanning Length	—	≤19m/scan (default parameter, step 0.5mm)	≤50m/scan, 0.5mm/step
Scanning Speed	—	≤ 7.5m/min (display mode A+B+C, step 0.5mm, subject to PRF)	≤15m/min
Focal Laws	—	512	—
Scan Angle Range	—	-89°~+89°, step 1°	—
Angle Spacing	—	0.1°-5°, step 0.1°	—
Line Average	—	—	4 levels, 1/2/4/8
Focus Position	—	3-500mm, step: 1mm	—
Focal Mode	—	Depth, Sound Path	—
Measurement			
Range	0-15000mm Min. display range 5mm	0-1000mm, min. step 0.01mm, Min. display range 3mm	0-15000mm, min. step 0.1mm, Min. display range 5mm
Material Velocity	500-15000m/s, min. step:1m/s	500-15000m/s, min. step:1m/s	500-15000m/s, min. step:1m/s
Display Delay	-10-1000mm, min. step: 0.01mm	0-1000mm, min. step: 0.01mm	-10-1000mm, min. step 0.01mm
Probe Zero	0-200us, min. step: 0.01us	—	0-200us, min. step 0.01us
Probe Flank	0-100mm, step: 0.01mm	—	0-100mm, step 0.01mm
Test Point Selection	Peak/ Flank/ J Flank/ G Peak	Peak/ Flank/ J Flank/ G Peak	—
Wizard	Plate/ weld/forging scan DAC, AVG/ DGS, Angle calibration, Auto calibration (velocity, zero),	Scan wizard, Velocity/delay/sensitivity/TCG/manual TCG/ Horizontal zero / Wedge calibration	Scan wizard, PCS Calculation, Time Window, Probe Zero Calibration, Ultrasound Parameter
Curve Function	AVG/DGS; TCG & DAC: Max. 6 lines & 16 points for each line	TCG & DAC: Max. 6 lines & 16 points for each line; Manual TCG	—
Auxiliary Function	Coordinates switch (sound path/depth horizontal), full screen, auto freeze, auto gain (single/continuous), second leg color, wave compare, gate expansion, wave filling, peak envelope, Cineloop, screenshot	Auto gain: Single/ Continuous Auto Search: Search the highest echo amplitude scan line within gate range in B scan.(available when in R view); CAD import; Probe/wedge import/export	—
Measurement	Three gates: to measure echo amplitude, amplitude dB difference, sound path, Ra/Da Cursor: two cursors to measure horizontal and vertical position of B scan and distance between cursors.	Three gates for each A scan, max. 18 gates: to measure echo amplitude, sound path, Ra/Da Cursor: two cursors to measure horizontal and vertical position of B/C/D scan and distance between cursors on B/C/D scan.	Flaw height and length measurement.
Gate Mode	Normal, Tracing	Sound Path, Depth	—
Gate Start	Full range	Full range	—
Gate Width	Full range	Full range	—
Gate Thresh	10-90%, step: 1%	10-90%, step: 1%	—
Display Mode	—	A, B, C, D, A+B, B+C, B+D, A+B+C, A+B+D, 3A+B, A+B+C+D, A+B+R, A+B+C+R, A+[B], A+C, A+B+3D, full screen.	—
Alarm Signal	Signal&sound alarm: positive/ negative	Signal&sound alarm: positive/ negative	—
Display Measure Value	—	8 positions can be user-defined.	—
Data Analysis	—	Image mode switch, image gate dynamic reconstruction and report generation	LW/BW straightening/ removal, contrast adjust, gain adjust, zoom
Testing Index			
Time Base Linearity	≤0.5%	—	—
Vertical Linearity	≤3%	—	—
Amplitude Linearity	≤±2%	—	—
Attenuator Precision	20dB±1dB	—	—
Dynamic Range	≥32dB	—	—

Technical Specification

Software			
Basic Version	UT API 5UE UT AWS UT TCG UT CSC UT FFT UT B-Scan UT FlatWeldSim UT CrackMeas	PA DAC PA Groups PA Probe Element Testing PA FlatWeldSim PA C Scan In-Depth	—
	SuporUp PC Analysis Software: Analysis Software		
Full Version	UT API 5UE UT AWS UT TCG UT CSC UT FFT UT B-Scan UT FlatWeldSim UT CrackMeas	PA DAC PA Groups PA Probe Element Testing PA FlatWeldSim PA C Scan In-Depth PA Flat Weld Solution PA Angle Weld Solution PA Corrosion Solution PA Pipe Girth Weld Solution PA Long Pipe Solution PA Corner Joint Solution	1-ch TOFD 2-ch TOFD 3-ch TOFD 4-ch TOFD TOFD SAFT Simultaneous Display of PAUT and TOFD Software
	SuporUp PC Analysis Software:	Analysis Software	Two-ways Activation: •License •Dongle
		PA Corrosion Software	
PA Emulator Software			
	Acquisition Software		



General Technical Specification

Display Screen	12.1" high brightness TFT LCD, 1024×768 pixels
Dimension (W×H×D)	365×270×115 (mm)
Weight	7.7kg with 2 batteries
Battery	Lithium batteries, 2 pcs
Battery Capacity	10.3 Ah /pc, operation time ≥4 hours
External Power Supply for Adaptor	AC 100-240V 50Hz/60Hz
Adaptor Output	15V DC
Power	≤63VA
Data Storage	64 GB SSD
Language	English/ German/ French/ Polish/ Czech/ Hungarian
USB Connector	2 pcs (3.0)
SD Card Connector	Standard SD card (16G); SDHC/SDXC cards (up to 64G)
Ethernet Connector	1 pc
Video Output	VGA/ HDMI ports
Encoder Connector	1 pc (14-core); including 6 digital inputs/outputs, TTL
GPS	1 pc
SIM Card Connector	1 pc
WIFI	Yes
Bluetooth	Yes
Operation Temperature	-10℃-45℃
Storage Temperature	-20℃-60℃
IP Code	IP65
Certifications	ISO22232-1 or EN12668-1 or ISO 18563-1 (Extra Cost)

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