SyncScan 3

64:128PR Phased Array Flaw Detector with TFM

More Possibilities

Advanced Solutions for Welds & Corrosion

SIUI

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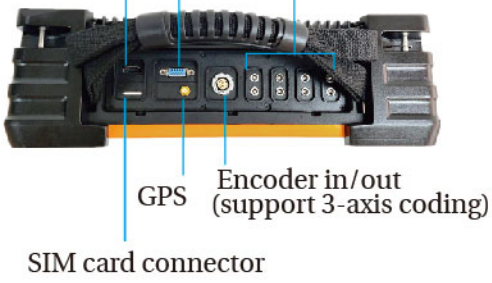
Phased Array Flaw Detector with TFM

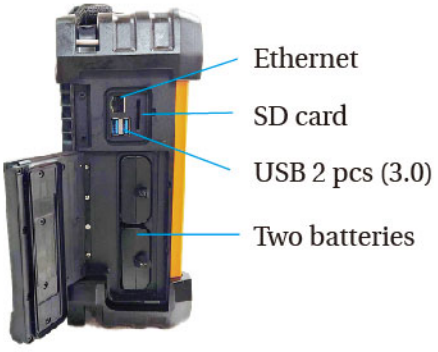
More Possibilities for Demanding Inspection

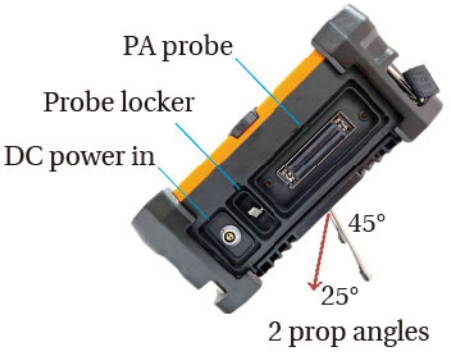
SyncScan 3 is 64:128PR PAUT flaw detector with total focusing method (TFM) and 4-ch TOFD, which brings more possibilities for demanding inspections in oil & gas, power industries, etc.

- TFM image resolution up to 1024×1024.
- 64-ch PA with higher sensitivity and SNR, ideal for ⩾100mm thick welds.
- Support raw FMC data recorded, no need to re-scan.
- 12.1" high-resolution touch screen, can be operated with gloves.
- 7.7kg with 2 batteries, portable and suitable for field work.
- Compatible with SyncScan 2 files, convenient for user's operation.

Overview (Compatible with SIUI current PAUT/TOFD probes, crawlers.)







Protection Cover:

- ABS material, more anti-impact.
- Handy switch for easy open and locking, ensures better sealing.

Integrated fans 3 pcs:

- Enhance heat dissipation during continuous inspection.

Wireless Transmission

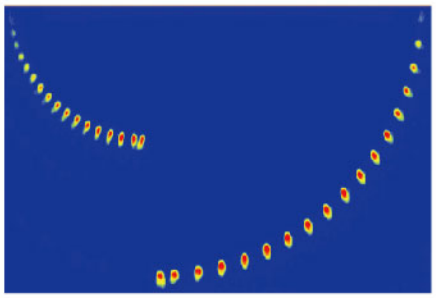
- Wi-Fi is used for SuporUp acquisition software, ensuring real-time data transfer from SyncScan 3 to laptop, convenient and high efficiency.
- If no Wi-Fi on-site, user could insert a SIM card to turn on 4G network, enabling wireless connection anytime and anywhere.
- Access to NDT ultracloud platform. (reserved)

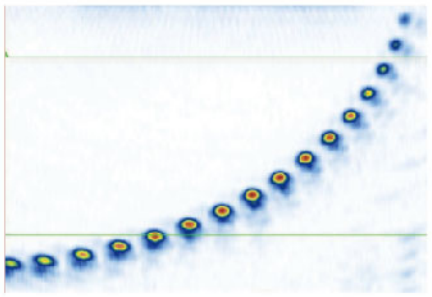
● FTFM - Unique TFM Algorithm

● Unique FTFM quad-core algorithm, based on reducing data transmission and computing resources, to achieve fast-speed and high-definition imaging during real-time scanning.

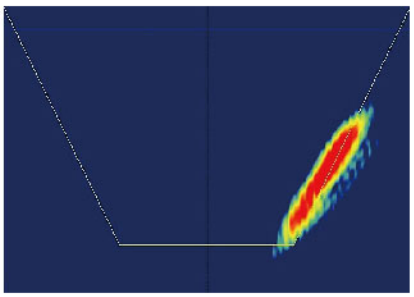
● 9 propagation modes for selection based on the expected defect orientation, to ensure precise defect characterization.

● The envelope processing provides more stable amplitude and reduces noises, which further improves TFM performance.





TFM for PA block type B



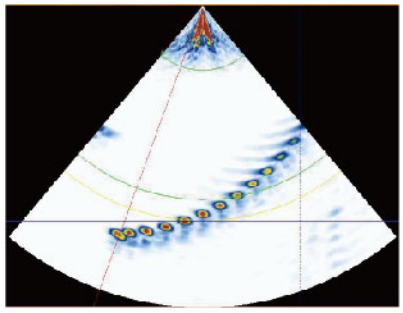
TFM for no-fusion defect

● FMC – Supports Raw Data Recorded

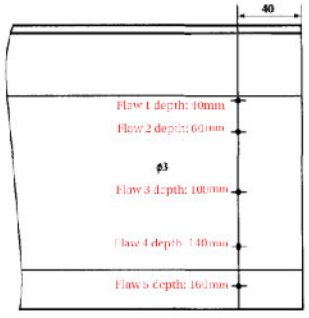
Raw data can be recorded during full matrix capture (FMC) scanning, allowing users to calculate TFM using more than one propagation mode without the need to re-scan.

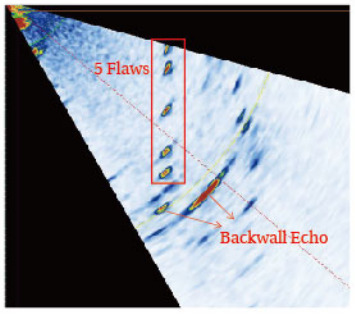
● 64 channel PA & 4-ch TOFD – For Demanding Inspections

● 64 channel PA provides better coverage and SNR, especially suitable for inspecting ⩾100mm thick materials , complex composite materials, etc.



64-ch PA for PA block type B





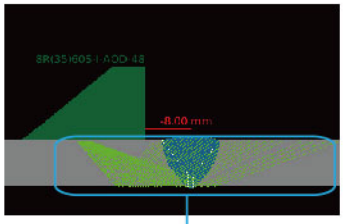
64-ch PA image for 5 flaws (Workpiece thickness 168mm)

● Equipped with 4-ch TOFD. With special adapter can convert to TOFD to achieve 5-ch TOFD inspection, suitable for thick weld up to 400mm, with low carbon steel/ alloy steel materials.

● Test Wizard – Retain Friendly

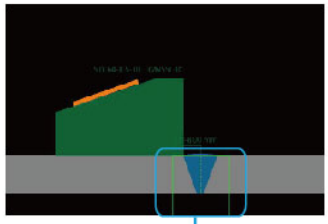
● SyncScan 3 continues to adopt step-by-step test wizard to guide users during the whole testing process, retains always friendly experience.

● Easier focus law setup: Usually user can go to Beam Coverage Simulation Wizard to set up the focus law with a few steps. In TFM, user can easily use a ROI (region of interest) to select the beam coverage area.



PA beam coverage simulation

Upgrade



TFM ROI

Technical Specification

TFM	
Propagation Modes	LL, LLL, LLLL, TT, TTT, TTTT, TLT, TLL, LTT
Image Resolution	1024×1024, 256×256, 128×128
Live TFM Envelope	Yes
No. of Channel	64
Probe Connector	Tyco, 1 pc
Max. Supporting Elements	128
Focusing Mode	Focusing in all points TFM
FMC Data Acquisition	4096points/channel, 16bit/point
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
Scan Type	A/ B/ C
Wizard	Scan wizard

	Conventional UT	Phased Array	TOFD
System			
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-10KHz, 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	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	10 levels: 1-4/0.5-10/2-20/ 1/2.5/4/5/10/13/15MHz	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%	——	——
Scan			
Scan Type	A	A/S/L/C/D	A/ TOFD
Trigger Mode	——	Time-based/encoder	Time-based/encoder
Scan Length	——	≤4m/scan (default parameter, step 0.5mm)	≤50m/scan, 0.5mm/step
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 Flank, G Peak	Peak/ Flank/ J Flank/ G Flank, G Peak	——
Calibration	DAC, AVG/ DGS, Angle calibration, Auto calibration (velocity, zero), Plate/ weld/forging scan	Scan wizard, velocity/delay/sensitivity/TCG calibration wizard, Zero 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	——
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)	——

Technical Specification

	Conventional UT	Phased Array	TOFD
Auxiliary Function	CrackMeas, API 5UE, AWS, FFT, CSC, TCG, B-Scan, FlatWeldSim, BEA	PA Group: max. 6 groups FlatWeldSim, C Scan In-Depth Probe Element Testing	——
Measurement	Three gates: to measure echo amplitude, amplitude dB difference, sound path, Ra/Da	Three gates for each A scan, max. 18 gates: to measure echo amplitude, sound path, Ra/Da	Flaw height and length measurement.
	Cursor: two cursors to measure horizontal and vertical position of B scan and distance between cursors.	Cursor: two cursors to measure horizontal and vertical position of B/C/D scan and distance between cursors on B/C/D scan.	
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, 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	——	——
Software			
SyncScan 3 Optional Software	——	PA Flat Weld Solution PA Angle Weld Solution PA Corrosion Solution PA Pipe Girth Weld Solution PA Long Pipe Solution PA Corner Joint Solution	SAFT 1-ch TOFD, 2-ch TOFD 3-ch TOFD, 4-ch TOFD Simultaneous Display of PAUT and TOFD Software
SuporUp PC Analysis Software	Analysis Software (Standard)		
	PA Corrosion Software (Optional)		Two-ways Activation: •License •Dongle
	PA Emulator Software (Optional)		
	Acquisition Software (Optional)		

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	7.5 Ah/pc, operation time around 3.5 hours
External Power Supply for Adaptor	AC 100-240V 50Hz/60Hz
Adaptor Output	15V DC
Power	52W
Data Storage	64 GB SSD + Standard SD card (16G)
Language	English/ German/ French/ Polish/ Czech/ Hungarian
Input/Output	
USB Connector	2 pcs (3.0)
Ethernet Connector	1 pc
Video Output	VGA/ HDMI ports
Encoder Connector	1 pc (14-core)
Environment Tests	
Operation Temperature	-10℃-45℃
Storage Temperature	-20℃-60℃
IP Code	IP65
Certifications	ISO 18563-1:2015 & EN12668-1:2010

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