

NextSPOT 800

The Next-Gen PA UT TFM/FMC Spotweld
All-In-One Analyzer



NextSPOT 800 Introduction

Introducing the NextSPOT 800.

By leveraging the many years of experience and expertise to inspect spot welds in the NDT industry, we have upgraded the 800 with the latest state-of-the-art hardware and software and integrated it with a TFM/FMC scanner with real-time 3D scanning capabilities. The new system is the best-of-class ultrasonic flaw detector to handle all your automotive spots weld NDT needs, whether in production lines or field environments.

In today's ever-increasing competitiveness in the automotive manufacturing segment, NextSPOT 800, its easy-to-use and powerful feature interface can save valuable time and hugely increase productivity.

NextSPOT 800 - Solving All Your Automotive NDT Issues



Spot Welding - Battery Welds - Adhesive Bonding - Laser Welds - Carbon Fiber - Friction Welding, and many others ... Do you have an NDT issue? NextSPOT 800 has a solution. And if it isn't available, we will customize one for you. At NextNDT, we develop all our hardware and software systems in-house.



NextNDT State-Of-The-Art Probe Factory

The probe is the EYE of the system. Our state-of-the-art medical and NDT probe factory can rapidly customize 18-25+Mhz, 128+ element probes to accurately scan down to 1mm thick metal plates and beyond.

We understand that every issue is unique and requires a customized solution, whether hardware or software systems, robotic automation, or probes; at NextNDT, we have you covered.



Ultrasonic Spot Weld Flaw Analyzer

Accurate Measurement - 64 Channels, 1MHz - 25MHz Bandwidth, 400 Mhz/12 bits DSP

By adopting a parallel 64 channel design, 1MHz-25 MHz analog bandwidth, and 12 bits DSP, it gives **NextSPOT 800** the most accurate measurement of welding nuggets and indentations. Furthermore, the results are all visual and can be immediately determined whether the results are passed or failed.



Real-time Imaging and Other Testing Methods

NextSPOT 800 can provide A & C scan and real-time display on spot weld. It can also support single element probe testing, PA imaging testing as well as various non-ultrasonic methods, data capture, chisel inspection, visual inspection, and many more.

Application



Joint Structures

2-Layers, 3-Layers, and 4-layers (Non-Glue/Glue Bonded)



Material Coverage

Mild steel, Cold Pressed High Strength Steel, Hot Stamped Ultra High Strength Steel, Aluminum Alloys, Stainless Steel, and Titanium



Plate Thickness Calibration

0.5 mm ~ 4.0 mm



Surface Processing

Bare Metal, Al-Coating, Zinc Coating, Electrophoretic Coating, and Paint Coating.

KEY FEATURES

- 1 Real-Time Detect and Visual Feedback
- 2 Multi-Channel Phased Array System
- 3 **NextSOFT** Studio Cloud Data Management



Ultrasonic Matrix Transducer

52 Channels
Matrix Diameter: 10 mm
Frequency: 16 MHz
Stainless steel housing
Hard delay line

Available Size - Tip Diameter

10, 15, 20 mm

Cabling

Length: Custom
52 coaxial channels
Protective Shell

NextSPOT 800 - The Next-Gen PA UT TFM / FMC Analyzer

Designed from the ground - up.

NextSPOT 800 is the most versatile NEXT generation

high - performance PA UT with Total Focusing Method (TFM)

and Full Matrix Capture (FMC) scanner for field flaw inspections.

NEXT-Gen TFM / FMC Analyzer

NextSPOT 800 uses FMC, TFM, and PA technologies that can rapidly produce accurate and real-time 3D imaging. Using conventional ultrasound technology, single-beam, or multi-group, adding PA functions produces even more detailed and dynamic results. Synchronous multi-axis encoder linkage makes automatic and semi-automatic detection even more efficient.

- Full Matrix Capture (FMC) - up to 128 elements capture at 2GB/S
- Total Focus Method (TFM) - Real Time High Efficiency & High Resolution
- Built-in Focal Law Calculator (FLC) - 3D simulation technology predicts sound field distribution
- A variety of hardware configurations to meet different detection needs - 32: 64PR 32: 128PR 64: 128PR, etc.

With a 12 inches brightly lit resistive touch screen that is suitable even for outdoor harsh weather. The outer case adopts a high-strength aluminum alloy shell, which is sturdy and durable and has excellent shielding; a large-size industrial capacitive screen; supports up to 1TB storage capacity; 2 hot-swappable lithium batteries can meet the daily working time of 5 to 8 hours.

Up to 128 channels of TFM that unlocks more detection details.

Complete TFM toolbox including TCG calibrated high-resolution TFM imaging, up to 128 wafers, 3-axis cannula fillet weld inspection with real-time overlay display.

Cutting-Edge Performance

Below is just a shortlist of some top-notch specifications:

- PA/UT pulser and receiver configuration: 64: 128PR
- Max focal laws: 8192
- Max data throughput: 2GB/s
- Digitizing Frequency: 100MHz/200MHz
- Pulser Voltage (PA): 100V/200V
- Bandwidth (PA): 0.4Mhz to 25-MHz
- Storage: 256GB SSD - up to 1 Tb
- Connectivity: Wifi, 3.0 USB, Gigabit Ethernet, MiniDP, Remote Management



- 1 HD Capacitive Touch Screen
- 2 Phased Array Probe Interface
- 3 System Integration Interface
- 4 Encoder Interface
- 5 Power Input
- 6 USB 3.0
- 7 Mini DP
- 8 RJ45 network port
- 9 Battery Installation Port



Ultra-High Real-Time Imaging Powered By NextSOFT

NextSPOT 800 includes NextSOFT, our time-tested, powerful, yet easy-to-use software. NextSOFT has many advanced features and functions to assist in capturing all your Parallel PA & TFM UT signals. Most importantly, NextSOFT delivers to you the highest real-time 3D imaging and resolution the industry has to offer with many options via A, B, C, D, and S scans

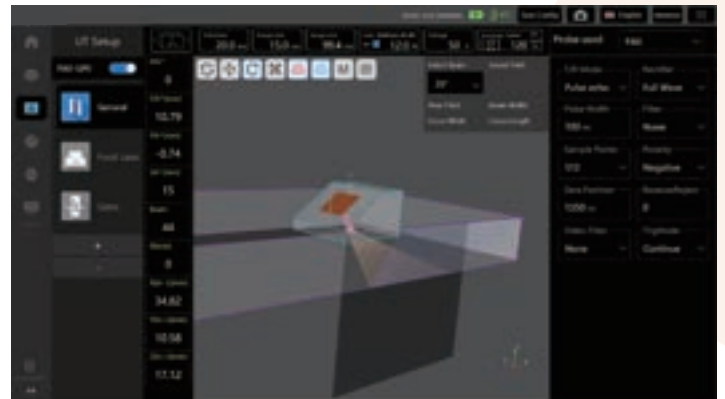
NextSOFT Studio Admin

The admin version can upload any testing required part images into the system. The system can then create visual labels on exactly where and what to test, and also setup the testing sequences. All inspection points' results will then be individually captured and logged into a database for further statistical evaluation.

NextSOFT Studio

Each NextSPOT 800 comes with the standard version of the our NextSOFT Analyser System, which works well as an independent stand-alone spot weld inspector. But often NDT inspections require to function as a group or a team that is supervised by management. The NextSOFT Studio Admin (software) provides this function.

Isn't it nice to know that the engineers that build and design NextSPOT 800 circuit boards and software work side-by-side with the engineers that build the probes the eye of the system? With ever-growing complex NDT issues in the industry today, NextNDT, with all in-house engineers, can help customize a tailor-made solution specifically for you, everything from the hardware, software, and sensors. At NextNDT, we can build it faster, better, and more economical than our competitors, we guarantee it.



Highlights

- The 300Gb DDR bandwidth enables real-time smooth TFM display.
- The 16bit / 100MSPS ADC enables the ultra-high dynamic range to see more details. A special circuit design dramatically reduces the loss of transmission and reception and achieves an ultra-high signal-to-noise ratio.
- Built-in new focal law calculator with independent intellectual property rights, direct 3D simulation of sound field distribution. The emission voltage of up to 200V makes detecting small and large precision workpieces a perfect solution. At the same time, 64 channels can meet various special application requirements such as area array and double-sided array.
- The FMC data collection speed can reach 2GB/S, far exceeding the data collection rate of existing portable inspection systems. It can realize the parallel use of multiple machines and the application of large-scale system functions.



Applications

- Multi-group weld inspection procedures fully covered
- HTHA and hydrogen damages inspection with TFM
- Thick welds and CRA/stainless steel weld inspection enhanced with 128-element aperture
- Corrosion mapping of large areas (up to 5 x 5 m/ 1 mm step)
- Complex geometry dedicated solution for nozzle and fillet welds (Y and T joints)

Solutions

- Complete toolbox for TFM including TCG calibration
- Ultra-high imaging TFM imaging up to 128 elements
- 3-axis nozzle inspection with live overlay display
- 3-axis paintbrush for composite and corrosion mapping
- Real-time Adaptive TFM (ATFM) for inspection of wavy surfaces

Specification

GENERAL PARAMETERS

Dimensions (W x H x D)	310*247*96 mm (23.2*9.7*3.8in)
Weight	5 kg (Including 1 battery)
Screen size	11.6 inches (1920*1080)
Touch screen technology	Capacitance
Working temperature	-10°-45°C (14°-113°F)
Storage temperature	-10°-60°C (14°-140°F) (Built in battery)
Cooling fan	2
Operating temperature	70% maximum without cooling at 45 ° C (113 ° f)
Battery running time	2 batteries for 4-5 hours (Hot plug performance)
Hard disk capacity	256 GB SSD (Scalable to 1T)
USB 3.0	2
Encoder I/O	2 axis
Simulation / Number I/O	2 Analog input and output; 1 external trigger
Call the police	4
Wireless connection	yes
Video output	Mini DP
PA Passageway	yes

TFM / FMC

TFM / FMC function	TFM / FMC
Pulse receiver	64:128
Bit depth	16
Frame rate	256 x 256: Max to 80Hz
Parallel multi-mode full focus mode TFM	yes
Parallel PA + TFM acquisition	yes
Image resolution	1024 x 1024
A Scan storage	yes
TFM post processing support	yes
Surface adaptation support	ATFM
Support mode	LL LLL LLLL TT TTT TTTT LTT TLT TLL

DATA & VIEWS

Display mode	A-scan, C-scan
Welding Nugget	Real-time welding nugget diameter measurement
Indentation	Real-time detect, Smart Average
Stack of Welding Joint	Real-time detect, Smart Average
Data Synchronism	USB; NAS (Optional)

PA CONFIGURATION

PA configuration	64:128 PR
Number of groups	It can be upgraded to 4 probes and 8 groups
Inspection technology	PA
Digit	16 bit
A Scanning height	Max to 200%
A Max number of scanned data points	Max to 16384
Max number of focus rules	8192
Max PRF	20 kHz
Max data transmission	2 GB/s
Digital frequency	100MHz / 200MHz
Pulse shape	Negative square wave pulse / Upgradable positive and negative square wave pulse
Pulse generator voltage	PA: 100V / 200V
Pulse width	25ns to 1250ns
System broadband	0.4 MHz to 25 MHz
Gain range	0-81 dB
Real time average	Maximum to 64
TCG multipoint acquisition	yes

SOFTWARE FEATURES

User experience	Smooth operation
Automatic probe identification	yes
Automatic scanner identification	yes
Automatic wedge recognition	yes
Focusing mode	True depth, sound path, projection
2D focus rule calculation	yes
Installation wizard	yes
Screen wireless image	yes
Wireless remote control	yes
S scan	yes
Real time file merge	yes
3D Data view	yes
Support wireless transmission	yes

ULTRASOUND SPECIFICATIONS

Number of Channels / Elements	64 Channels / 52 Elements
Voltage	50V
Pulse shape	Negative square wave
Initial pulse rise time	< 2.5 ns
Damping	50 ohm
Thickness Measuring Range	0.5 - 9mm
Velocity range	2000 - 8000 m/s
Probe delay	2 - 8 us
Frequency (Center Frequency)	1Mhz - 25Mhz (16Mhz)
Gain	40 dB
Sampling	12 bit 100 MSPS

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