SOCOSCAN-PA
PAUT EQUIPEMENT FOR NDT APPLICATION

SOCOMATE
INTERNATIONAL

AdvancedNDT

SOCOSCAN-PA

STATUS
- LV
- HV
- Overheat
- Ready

UT EXCELLENCE SINCE 1977

A MERGE OF HIGH PERFORMANCES
SPEED, FLEXIBILITY AND RELIABILITY

Socoscan is the latest PAUT instrument from Socomate International for Phased Array Ultrasonic Inspection. It provides high tech features to answer the most severe requirements for complex and high-speed inspections. Designed to be used in harsh environments, the instrument will perform the inspection without compromise, to make your inspection tasks simpler.

The instrument is delivered with advanced API's UTView and SiPaTools to manage all the necessary parameters regarding Phased Array, The complete Software Development Kit (SDK) supplies the Software ability to meet your most state-of-the-art requirements. Both API's and SDK will offer the perfect combination for creating custom inspection solutions.

The Socoscan system is a versatile instrument which offers several different inspection techniques. As all requests are unique, we have created an instrument that will satisfy all the requirements of your customers.

PHASED ARRAY TECHNICS:

FLEXIBILITY

STANDARD PHASED ARRAY:
Socoscan offers the use of a 1D Linear or a 2D matrix probe, flat, round or curved, for the following techniques: Pulse/Echo, Pitch-Catch, Through Transmission (TTU) and Electronic scanning (Linear or Sectorial/Angular)

SURFACE SHAPE ADAPTATION (SSA)*:
This method makes it possible to carry out an inspection on parts having complex shapes, such as composite panels. It may be used to simplify the mechanical system when scanning complex parts.

SCALABLE UNIT:
To satisfy the widest testing requirements, from the simplest to the most demanding, it will be possible to drive up to 16 Socoscan units from the same DLL.

SWIFT:
This feature optimises parallel firing of multiple apertures on one or more probes to improve productivity without compromising the resolution.
The SWIFT mode also includes the facility to fire a full aperture with one single pulse when performing electronic scanning using Dynamic Depth Focusing (DDF)* to achieve faster inspection of thicker materials.

CONFIGURATION
The available configurations are optimised for the most economical solutions.
16/64 or 2x16:64, 16/128
32/64, 2x32:64, 32/128
32/32, 64/64, 128/128, 256/256

FORCEFULNESS INSTRUMENT

HIGH POWER PHASED ARRAY CHANNELS:

Socoscan incorporates a real 80Vpp pulser for the Phased Array channels. Using sinusoidal signals, all the energy is concentrated within the bandwidth of the sensor which allows better power and results when inspecting thick or difficult to penetrate materials. Thanks to this sinusoidal Pulser, the resolution of the delay laws is **1ns.**

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INTEGRATED PROBE SPLITTER:

Socoscan offers the possibility of connecting 2 Phased Array probes without additional accessories. However, if the application requires more probes, it is possible to add an external splitter
(ie with 64/64 channels, to connect 4x 16 elements probes)

EASY INTEGRATION:
IN-LINE/OFF-LINE INSPECTION

HIGH DATA THROUGHPUT:
As some applications require a data throughput, the Socoscan can deliver up to 50MB/s fast data transfer.

UNIQUE FEATURES

DO NOT LEAVE ANY DEFECTS AWAY

Composite, Engine discs, Compressor discs, Titanium and Aluminium plates,

The evolving requirement of complex parts for the aeronautics sector leads to a constantly increasing need for **speed and flexibility** in order to meet high-end demand. Developed to meet rising **quality** requirements and inspection standards, Socoscan will provide **optimized testing times** while respecting the inspection procedures.

Socoscan and Surface Shape Adaptation (SSA) will both provide **high benefits** when inspecting complex parts, avoiding the need to follow the workpiece mechanically.

Tubes, Pipes and Bars:

Especially designed for fast inspection, Socoscan will be the perfect candidate to equip inspection benches for Inline or Offline application. Take advantages of an advanced instrument to create a custom and seamless automated solution based on your requirements.

Transportation:

With an increase in infrastructure and the number of vehicles in circulation, the transportation industry is vigilant about the safety aspect. For in-process control, or periodic inspection of axles, wheels or rail, Socoscan will bring the necessary performance to create the right solution

TECHNICAL SPECIFICATIONS

ULTRASONIC CONFIGURATION

Configurations	16/64 or 2x16:64, 16/128, 32/64 or 2x32:64, 32/128, 32/32, 64/64, 128/128, 256/256
PA Firing mode	Pulse-Echo, Transmission, Customized focusing, Electronic scanning, Sectorial scanning
Imaging	A-Scan, B-Scan, C-Scan
Phased Array connector ions	2x Hypertronics (FRB) per instrument

PULSER

Sinusoidal Frequency	0.5 to 15 MHz
Delay Resolution	1 ns
Adjustable Voltage	0V to 80V
Pulse Voltage (at 50Ω)	80V Peak-to-Peak, Sinusoidal Pulser
Max PRF	20 kHz

RECEIVERS

Bandwidth (at -3 dB)	0,5 to 20MHz
Gain	Adjustable Gain on each channel from 0 to 70 dB
Cross-talk between 2 channels	40 dB
DAC function	Dynamic DAC at 70 dB - DAC Slope (Max ±70dB/0,1 µs)

DATA ACQUISITION

A-Scan length display	Up to 512 points
Parallel Firing (SWIFT)	Up to 4 active beams
Maximum number of samples	4000 samples for post-processing or real time without limit
Measurement Gates	4 gates IF, G1, G2 & G3
Data Throughput	Up to 50MB/s
Digitizing frequency	UP to 200MHz
Summed data amplitude Resolution	16 Bits
Filters	FIR band-pass Analog/digital band-pass, High-pass and Low-pass

TECHNICAL SPECIFICATIONS

DIGITIZER

Global delay	0 up to 1,6 ms / step of 20ns
Delay-laws at transmission/reception	0 to 40 µs, step of 5ns
Range	16 bits
FIR FILTER	Yes
Input impedence	50Ω

INTERFACING

Data Interfaces	Ethernet 1000Base-T
Encoder	6 Axis

I/O MANAGEMENT

Encoder Modes	Quadrature, Direction Count, Forward backward
Synch In	Sequence Trig
Synch Out	Pulse trig, Sequence Trig
Pin Assignments	Programmable
Number I/O	Up to 64 abalogue outputs / Up to 128 digital outputs 18 digital inputs / 6 trigger inputs

HOUSING

|	
Size (H x W x D)	133 (3U) x 482 x 500 mm (5,2 x 19 x 19,7 in.)
Weight	~9kg

*Features available within 2018
SOCOMATE maintains the right to modify the specifications of their equipments,
at any time and in whatever manner, in order to improve their performances.

UTView:

UTView – A standard software interface to set up UT parameters using both, conventional and Phased Array instruments from Socomate International.

The software interface is delivered with the source codes, meaning that it is possible to customize it under Labview, with your own Company's logo and to modify the interface the way you wish to.
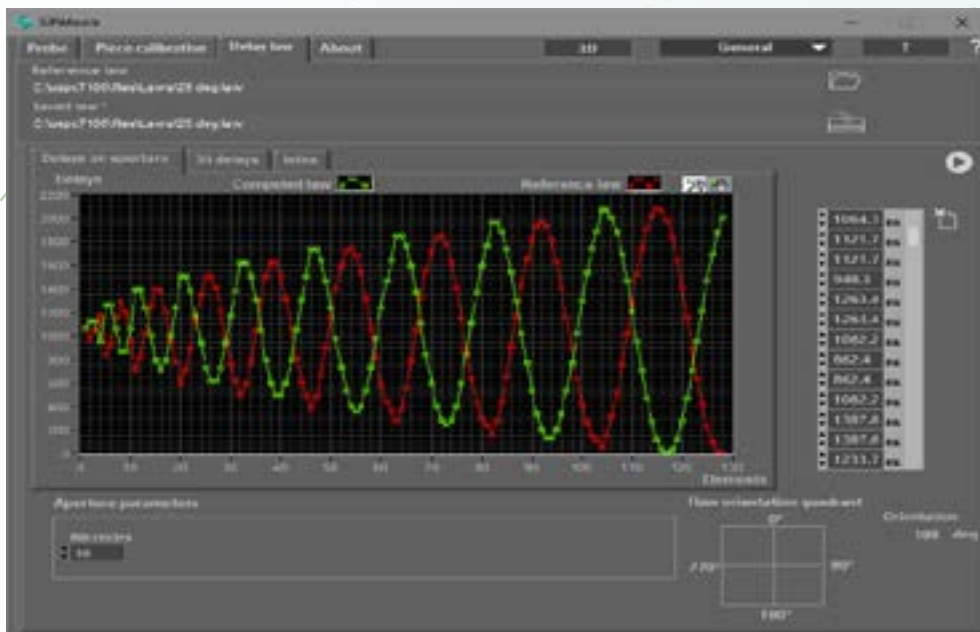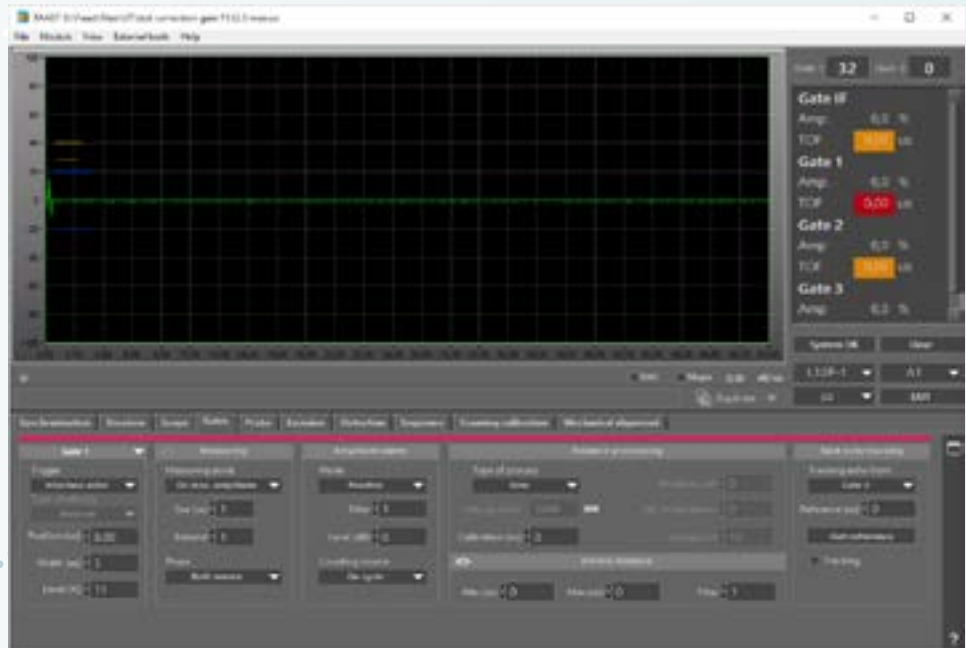
SiPatools:

SiPatools is a specific software, developed by Socomate International and delivered with all Phased Array instruments used for defining and calculating the delay laws for any applications.

The software offers several possibilities to configure your application, such:

- Designing a probe
- Once the probe has been designed, the benefit of having a 2D and 3D view
- Defining the UT beam and the part to be inspected with all characteristics

- Example of delay laws with Sectorial probe

Easy to take in hand, SiPatools would help to define your required configuration when using Phased Array.

SDK & DLL:

As Socomate International business model is to supply customers with OEM instruments, the Company delivers with all products one of the best Software Development Kit (SDK), and DLL to create customized application software. Within the DLL, 3 languages are supported such LabView, C++ and Visual Basic