SOCOMATE INTERNATIONAL

SOCOSCAN-PA

PAUT EQUIPMENT FOR NDT APPLICATION

UT EXCELLENCE SINCE 1977

WWW.SOCOMATE.COM

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 demanding requirements for complex and high-speed inspections. Designed to be used in harsh environments, the Socoscan is perfect for automated inspection systems.

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) allows you to meet your most state-of-the-art requirements. Both API's and SDK will offer the perfect combination to create custom inspection solutions.

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

FLEXIBILITY

PHASED ARRAY TECHNICS:

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 allows you to carry out inspections 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 meet with all kind of requirements, from the simplest to the most challenging, it will be possible to drive up to 16 Socoscan units from the same DLL.

CONFIGURATION

The available configurations are optimised for the most economical solutions.
16/64 or 2x16:64, 16/128 or 2x16:128
32/64 or 2x32:64, 32/128, 32/256
32/32, 64/64, 96/96, 128/128, 256/256

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COMPETITIVE ADVANTAGES

SWIFT:

The real strength of the SWIFT mode lies in its capacity to have up to 4 active apertures or 1 large band emission, to then process in reception up to 4 apertures in parallel for faster inspections without downgrading the resolution.

SWIFT mode together with Dynamic Depth Focusing (DDF) method increase drastically the inspection speed of thicker materials. This feature also offers high advantages for tubular goods inspection.

UNIQUE FEATURES

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

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

EASY INTEGRATION:
IN-LINE/OFF-LINE INSPECTION

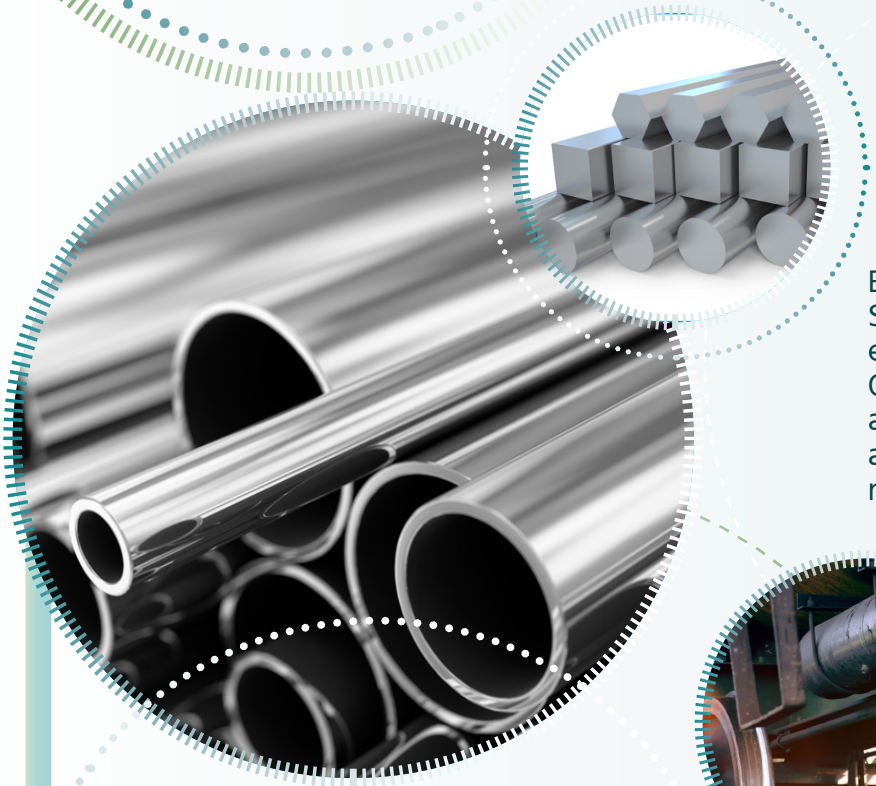
DO NOT LEAVE ANY DEFECTS AWAY

SOCOSCAN APPLICATIONS

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

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

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



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 advantage of an advanced instrument to create a custom and automated solution based on your requirements.

Transportation:

With an increase in infrastructure and the number of vehicles in circulation, the transportation industry is more and more sensitive to safety aspects. For in-process control, or periodic inspection of axles, wheels or rail, the Socoscan will bring high performances to create the best solution.

TECHNICAL SPECIFICATIONS

ULTRASONIC CONFIGURATION

Configurations	16/64 or 2x16:64, 16/128 or 2x16:128, 32/64 or 2x32:64, 32/128, 32/256, 32/32, 64/64, 96/96, 128/128, 256/256
PA Firing mode	Pulse-Echo, Transmission, Customized focusing, Electronic scanning, Sectorial scanning, Parallel firing, DDF
Imaging	A-Scan, B-Scan, C-Scan
Phased Array connector ions	2x Hypertronics (FRB) per instrument

PULSER

Pulser Voltage	Adjustable up to 250V (1V step)
Pulser Type	Negative Square
Pulse Width	25ns to 500ns (2.5ns step)
Delay-laws Resolution	2.5 ns
Fall & Rise time	Less than 5ns
Short-circuit Protection	Yes

RECEIVERS

Bandwidth (at -3 dB)	0.6 to 20MHz
Gain	Adjustable Gain on each channel from 0 to 80 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	Analogue Filter and Multi-Band digital FIR

TECHNICAL SPECIFICATIONS

DIGITIZER

Global delay	0 up to 1.6 ms / step of 20ns
Delays-laws at reception	0 to 40 µs, step of 5ns
Range	16 bits
FIR Filters	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 analogue 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	~ 4 to 11kg according to configuration

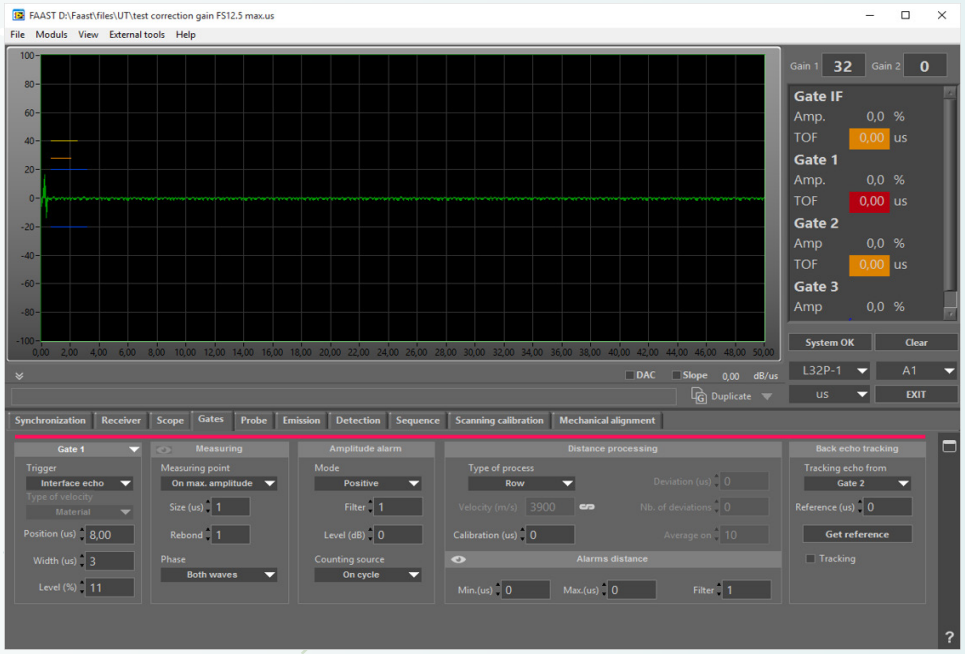
SOCOMATE maintains the right to modify the specifications of their equipments, at any time and in whatever manner, in order to improve their performances.

UTVIEW – SIPATOOLS AND SDK

UTView:

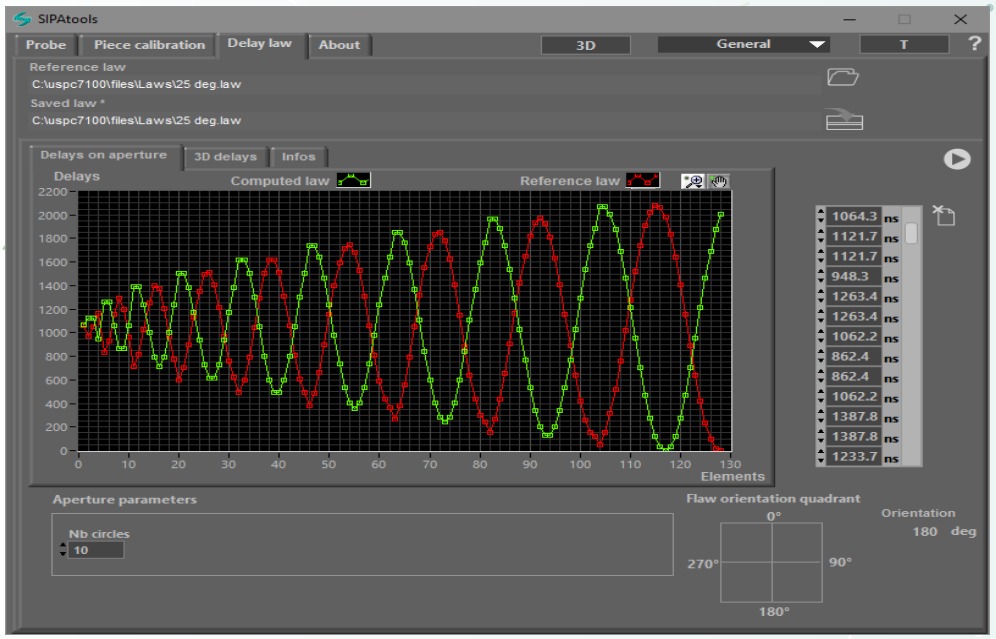
UTView – A standard software interface to set up UT parameters using both, conventional and Phased Array instruments from Socomate International.

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 to define and calculate delay laws for any applications.



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

- 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 use, SiPatools would help to define your required configuration when using Phased Array.

SDK & DLL:

Thanks to our open platform product, take advantage of the most complete DLL to develop your own customized software in any languages available that work on Win7 and Win10 operating systems, 32 and 64 bits.

The most standard languages such as C++, Visual Basic or LabView, benefit concrete example of coding with Socomate International DLL. The advantages of making its own application software is to perfectly meet your customers' requirements instead of providing a standard and often complex software.