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I / Presentation

The IndUScan is an industrial system of ultrasonic control and acquisition. It combines ultrasonic, piloting, and interfacing electronics in the same compact box.



- Conventional ultrasonic control and acquisition
 - Excellent acoustics performances
 - 1 way or 4 (8) way multiplex (according to version purchased)
 - Can acquire quickly at recurrence frequency (software development required).
- IT material platform
 - Processor Intel© Atom Duo core 1.8 GHz
 - 3Go RAM
 - Hard drive SSD (Solide State Drive) 100Go
 - Keyboard and mouse PS2. Screen VGA (for local piloting)
 - Many standard interfaces (USB – RS232 – Parallel – LAN Gb – Audio)
- Micro automaton material platform
 - Independent from the IT platform mais can communicate with it
 - LCD display with visualisation (Alarms –system messages ...)
 - Delivered with standard configuration (default)
 - Programmable by SREM and is progressive (More I/O can be added) so it adapts to the client's needs.

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Fiche technique IndUScan V3



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- Standard input/output Interface
 - 8 relay outputs (1A - 25V) for programmable alarms
 - 8 outputs for programmable analogs
 - 1 output for alarm material surveillance
 - 1 input for external trigger

- Software
 - Standard software for complete ultrasonic configuration and visualisation (see below description on page 3)
 - SDK (Software Development Kit) for card USPC comprising Dll Driver help and examples
 - Restoration to factory settings on USB drive
 - Remote piloting through Ethernet possible (See page 3)
 - Many evolutions possible by programing specific complementary modules (Extra cost made by SREM)

- Computer specification (to be supplied by the client) for remote piloting
 - System Microsoft® Windows® **32Bits** (XP, Vista, Seven)
 - Processor 1.6Ghz minimum
 - 2GB RAM minimum

- Measures and weight
 - Device alone : 380*250*200mm
 - 8 kg

- Options
 - Pack screen, keyboard, and mouse for local piloting (61INFO004)
 - Single element ultrasonic probes (according to parts to control)

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II/ Standard software for configuration and visualisation

3/ AScan display
Monitoring of doors
and DAC curves

1 / Titre bar :
Version and setup
name

2/ Menu bar:
Management of the
configuration files
Multi-AScan display

4/ Displays gain
values and measures

6/ Function selection

5/ Selection of the card and of the way

7 / Settings of the different parameters for each function

Settings for Emission:

- Synchro. int. (Slider: 0.00 to 20.00)
- Amplitude (Slider: 0.00 to 100.00)
- Fréquence (MHz) (Slider: 5.00 to 20.00)
- Décalage (us) (Slider: 0.00 to 100.00)
- PRF (us) (Slider: 0 to 2000)
- Fréq. globale (KHz) (Slider: 0 to 1.00)

Settings for Réception:

- Mode de synchronisation (Slider: 0.00 to 67.34)
- Retard (us) (Slider: 0.00 to 33.67)
- Zéro affichage (us) (Slider: 0.00 to 33.67)
- Type de vidéo (Slider: 0.00 to 67.34)
- Durée d'affichage (us) (Slider: 0.00 to 33.67)
- Mode d'affichage (Slider: 0.00 to 33.67)
- Mode de filtrage (Slider: 0.00 to 33.67)
- Filtre vidéo (Slider: 0.00 to 33.67)
- Affichage étendu (Toggle)
- Rejet (%) (Slider: 0 to 100)
- Affiche le rejet (Toggle)

Settings for Gain:

- Sonde (Slider: 3.00-7.50 MHz)
- Gain 1 (Slider: 0 to 70)
- Mode (Dropdown: écho)
- Gain 2 (Slider: 0 to 70)
- Atténuateur d'entrée (Slider: -70 to 70)
- Atténuateur 20 (Slider: -70 to 70)

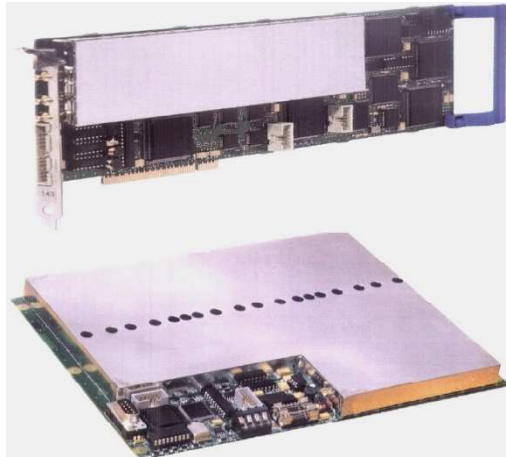
Settings for Distance:

- Amplitude (Slider: 0.00 to 100.00)
- Distance (Slider: 0.00 to 100.00)
- Synchronisation (Slider: 0.00 to 100.00)
- Position (mm) (Slider: 0 to 100)
- Mode (Slider: 0.00 to 100.00)
- Durée (mm) (Slider: 0.00 to 100.00)
- Détection (Slider: 0.00 to 100.00)
- Niveau (%) (Slider: 0 to 100)
- Détection sur la phase (Slider: 10 to 90)
- Filtre alarme (Slider: 0 to 100)
- Niveau Filtre alarme (dB) (Slider: -3 to 3)

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III/ List of integrable USPC cards



1-way version (Rep rate maximum 20kHz)

- 25USPC7100LA (*Acquisition AScan and Cscan at rep rate*)

Multiplex Version (up to 8 ways Pulse Echo, rep rate global maximum 20Khz)

- 25PCMUX7108HA (*Acquisition AScan and Cscan at rep rate / All independent settings*)

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IV/ Main Specifications for Cards USPC 7100 type

SQUARE WAVE PULSER

Negative impulsion

Voltage : 125/250 Volts (50 Ohms)

Fall-time and decay : 5 ns

Impulsion width: 25 ns à 1 000 ns

Rep rate: 20 kHz (divided by the number of active ways if multiplex version)

We can provide an external trigger (5 inputs) with divider

RECEIVER/AMPLIFIER

Impedance : 50 Ohms

Bandwidth : 0.35 to 30 MHz analogic ;
0.35 to 24 MHz digital

Gain : 70 dB, adjustable (step : 0.1dB)

Input attenuator: 0/15dB

Attenuator : 0/20dB

Dynamic range: 105dB

Mode : Pulse-Echo / Transmission

Bandwidth (MHz): 0.35-0.85/0.75-1.8/1.3-3.2/3-7.5/5-15/10-19.5/WB

Ascan rejection : 0 to 50%

Ascan base line offset: 0 to 10%

RF output : 2.0Vpp (50 Ohms) 1.5Vpp FSH

Multitest : up to 8 sequential tests per single channel PCI card

DAC

Triggers : Initial pulse / Interface echo / Artificial

Dynamic range: 70 dB

Slope : +/- 40 dB/ μ s

Segments : 30

Auto-slop adjustment

GATES

Gate IF (yellow)

Gate 1 (red) & gate 2 (blue)

All gates fully independent

Start : 80ns to 655 μ s – step 20ns

Width : 20ns to 655 μ s – step 20ns

Level : 10% to 90% -step 1%

Double threshold : Porte 1 & 2

Triggers : not active/ Initial pulse /Interface/Artificial on gate 1 & 2/ gate to gate on gate 2

Back-echo tracking on Gate 1

FLAW In-line

Flaw alarm: Positive/Negative

Noise suppression: 0 to 30 violations

Flaw mode : Max. or first echo peak in gate 1 and 2

Amplitude only for gate 1 and 2

TOF/ Wall thickness In-line (WT)

Alarms : Min. & Max.

Noise suppression: 0 to 30 violations

Mode : First echo in gate IF and echo max or first echo in gates 1 and 2

Origins : Peak, Flank, Zero crossing

Gating mode: HW +, HW -, FW & RF

WT Data process (DSP) : Upper and lower limits, Max deviation, Filtering, averaging, etc...

A-SCAN DISPLAY

Mode : HW+, HW-, FW & RF

Gates : Yellow (IF), Red (P1) & Blue (P2)

DAC curve : 0% to 70% FSH (0-70dB)

Delay : 0 to 655 μ s – step 20ns

Range : 1 μ s to 1.3ms – step 20ns

Trigger : Emission echo/ Gate 1 start/ gate 2 start/ gate 1 Trigger / Gate 2 Trigger

Displayed pic : Snapshot or Max Peak.

Velocity : Interface and Material

A-Scan length : 100 to 512 Points

Acquisition mode: free running or external

Trigonometry : Distance & depth

Units : μ s/mm/inch/ N° composite ply restitution

Moving averaging on 1/2/4/8/16 A-scan

EVALUATION

Converter : 200MS/s, 10-bits

Amplitude resolution : 1% FSH

TOF resolution : 10ns or 5ns

WT resolution: < 1 μ m in zéro crossing

MEMORY

PCI cards with high capacity memory allow to transfer A&C scan data in real time

Acquisition Conditions: Internal – External – On alarm

STANDARD AND APPROVAL

European : EN 12668-1

Russian : GOST

Chinese : JJG 746 – 2004 UT

General Electric : DFO for P29TF82 Class A,B,C and P3TF31

Rolls Royce : RPS 705 - QCTP 6265

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