The Sepema IV ultrasound system

For air-coupled ultrasound probes

- The Sepema IV system by Sonaxis is the result of a 3 years development in the framework of the Locomachs European project, and the successor of the Expert device, whose analog qualities were very appreciated in the aerospace industry.
- It represents the latest generation of ultrasound control devices and is dedicated to exciting and acquiring ultrasound signals from air-coupled, piezo-electric or capacitive probes.
- Available in single channel or multichannel (8 channels), it operates within a wide frequency range from 25 kHz to 20 MHz, offers a 12 bit digitalization at 200 MHz and manages 4 coder axis in the standard configuration.
- Easily transportable, equipped with a USB 2.0 interface which can migrate to USB 3.0 if needed, and with a powerful dedicated programmable logic (FPGA), this device is Windows-compatible 7 and 8 and can be upgraded to other OS.

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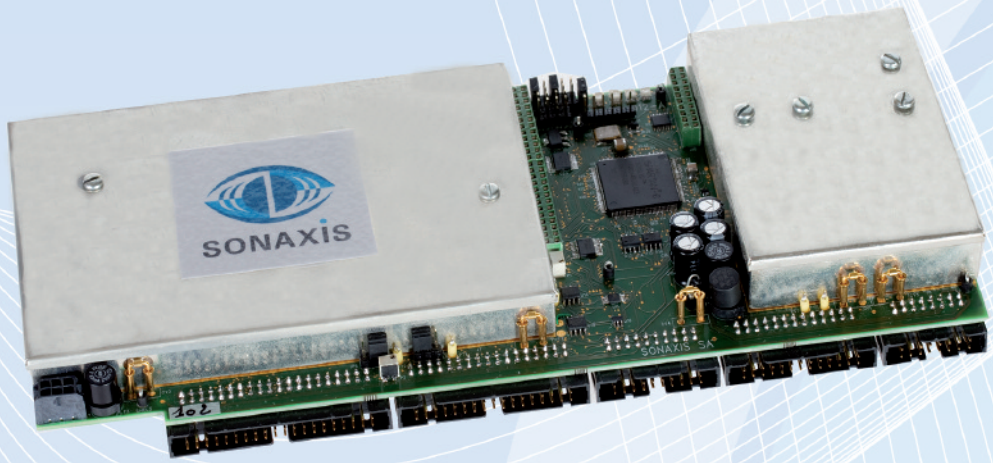
The Sepema IV ultrasound board



The ultrasound board of the Sepema IV system (1 board per channel) benefits from a particularly strong shielding which protects it from its environment.

Main features :

Transmitter

Type :	Single-pulse or tone burst
Number of pulses :	1 to 256
Frequency band :	Ajustable from 25 KHz to 20 MHz
Pulse width resolution :	1 ns
Pulse voltage :	Ajustable from 0 V to -400 V
Voltage resolution :	1 V
Rise and Fall time :	< 5 ns (under 400 V / 50 Ω)
Damping :	Active or passive, 500 Ω or 250 Ω
Load :	50 Ω
Protections :	Puissance + Temperature
Others features :	Anti-Aliasing filter Bias voltage tunable from 0 to 240 V for Electro-capacitive probe

Multiplexer

Type :	Dynamic multiplexing up to 50 KHz
Channels :	1 up to 8
Gain :	0 to 48 dB
Bandwidth :	25 KHz to 20 MHz

DAC

Resolution :	12 bits
Maximum Frequency :	200 MHz
Memory :	256 MB
Interface :	USB 2.0 (upgradeable USB 3.0)

Environnement

Power supply :	220-240 V / 50-60 Hz
Protection :	Fuse 2,5 AT
Cooling system :	2 fans
Lighting :	On/Off, High Voltage, Bias

Receiver

Input :	Straight, Pre-amplified Electro-Capacitive
Bandwitdth (-3dB) :	25 KHz to 20 MHz
Amplifier :	0 to 80 dB
Attenuation :	0, -6dB, -12dB, -18dB
Gain resolution :	0.1 dB
Gain accuracy :	± 0.5 dB
Entrance level :	550 mVpp
Filters :	Broad band 8 High pass or Low pass filters. Any combinaison of 7 High pass of Low pass filters External filters
Others features :	Tunable Bias Voltage from 0V to 240V

Variable Gain

Ultrasound board :	0 to 80 dB
Multiplexing board trigger slope :	0 to 48 dB
Trigger level :	Positive or Negative -100% to +100 % of full screen
Gain slope :	50 dB/µs

Input/Output

Encoders :	1 to 4 axis (or 8) optically isolated, 100 KHz : 32 bits per axis
Digital Input :	4 optically isolated
Digital Output :	4 optically isolated, up to 8
Synchronisation :	Trig IN and Trig Out
Analog Output :	RF signal
Analog Input :	External

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