OPBOX ver 2.0 - USB 2.0
Mini Ultrasonic Box
with Integrated Pulser and Receiver

http://www.optel.eu

OPBOX 2.0 is a complete ultrasonic testing device, suitable for all ultrasonic measurements and due to many additional digital inputs/outputs and internal processor it can be used as a controller for more complicated devices.

The box can work together with following devices:
· multi channel multiplexer
· Phased array systems
· Scanner - it has input for incremental encoders;

The box has an implemented one channel pulser & receiver and can be used with one transducer or with two (one is sending, and the second one receiving).



Features

-Low noise preamplifier (0.74 nV/√(Hz))
-High gain up to +92 dB
-Switchable analog filters
-Support fast TGC (time gain compensation)
-2 signal inputs PE and TT
-Input attenuator (-20dB)
-Input Impedance 50 Ohm, 10pF
-100MHz sampling frequency, 10bit resolution
-Up to 512k x 16bit samples memory
-Delay settings up to 65535 sample periods
-various triggering mode
-BNC or Lemo analog connectors
-dimensions: L 100mm W 82mm H 32mm
-DB15 connector: I/O lines 6 Inputs and 6 Outputs
-USB 2.0 HiSpeed
-Power supply: delivered by the USB connector (5 VDC)

Technical Data

Analog parameters:

Input Amplifier Gain:	-28dB to 68dB (step 0.5dB)
Input Post-Amplifier:	off or +24dB
Input Attenuator:	off or -20dB
Input Range:	±275mV (±2V with Attenuator active)
Full Bandwidth:	0.5 MHz - 25 MHz (-3dB)
Switchable Filters(-3dB):	0.5 - 6MHz, 0.5 - 10MHz, 0.5 - 15MHz, 0.5 - 25MHz, 1 – 6MHz, 1 - 10MHz, 1 - 15MHz, 1 - 25MHz, 2 - 6MHz, 2 – 10MHz, 2 – 15MHz, 2 - 25MHz, 4 - 6MHz, 4 - 10MHz, 4 - 15MHz, 4 – 25MHz

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Technical Data - cont

Pulser:

Pulse Voltage	off(0V) to 360V (positive pulse, Short circuit step pulser)
Charging Time	regulated from 0 to 3.1us in 0.1us steps
Fall Time	<= 20 ns
Pulse Duration	Short circuit, bandwidth up to about 50MHz
Output impedance	< 1 Ohm

A/D data acquisition:

Resolution	10 bit
Sampling Frequency(MHz)	100; 50; 33,3; 25; 20; 16,7; 14,3; 12,5, 11,1; 10; 9,1, 8,3; 7,7; 7,14 and 6,67
Data Buffer	from 0 to 256k samples in step of 1
Delay Time	Post trigger from 0 to 65535 sample periods in step of 1

Hardware data processing:

RF, Positive[1)], Negative[1)], Absolute data processing;
3 x measure gate;
peak detector;
Hardware averaging;
PRF up to 10000[1)].

DAC (TGC) with arbitrary waveform generator:

Frequency:	100MHz
Resolution:	8 bit
Max. gain changing:	48dB pro step

Trigger:

On-board trigger timer;
Application trigger rate Software controlled;
External trigger 2x inputs, TTL Signal.

Counters / Input for incremental encoder:

Counters for Incremental Encoders, 2 full channels, 32-bit.

Inputs / Outputs

Analog:

2 x BNC or Lemo connectors

DB15 connector:

Inputs:	6 inputs for 2 Incremental encoder channels (A, B, Index signal) or general purpose lines;
Outputs:	Trigger output signal (Sync Out); 5 general purpose outputs; +5V fused supply for powering external devices.



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[1)]available in selected designs

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