





ALPhANOV – Optical and Laser Technological Center Phone: +33 (0)5 24 54 52 00 – Fax +33 (0)5 40 00 64 07 – info@alphanov.com – www.alphanov.com Bât. IOA, rue François Mitterrand - 33400 Talence – France SIRET 493 635 817 00031 - N° TVA intracommunautaire : FR 24493635817 Page 1/5 - v1.3 The board provides a software configurable frequency divider with specific delay and pulse width signal from a reference pulse signal.

### **Main features**

Frequency divider factor	$[1 - 10^{9}]$	
<ul> <li>Adjustable pulse width</li> <li>resolution (for pulse width [5ns - 510ns])</li> <li>resolution (for pulse width [511ns - 2<sup>62</sup>ns])</li> </ul>	[5ns – 2 <sup>^62</sup> ns] 2ns 5ns	
Adjustable pulse delay resolution	[70ns – 2 <sup>^62</sup> ns] 10ps	
Jitter <ul> <li>for delay &lt; 570ns &amp; pulse width &lt; 510ns</li> <li>for any other delay &amp; pulse width</li> </ul>	<200 ps RMS 1.5 ns RMS	
Input PulseIn voltage	30 mV - 3,3V	
Input maximum frequency	200 MHz	
Output Voltage	1 / 3,3 / 5 Volts (hardware setup)	
Output maximum frequency	20 MHz	

# **Timing diagram**



Figure 1 : Frequency divided, delayed and pulse width adjusted signal from input to output







Figure 2 : Main firmware features used in frequency divider mode

# Cabling

- 1. Plug the USB-Jack cable in the "USB In" connector
- 2. Plug the signal you want to convert in the "Pulse In" SMA connector
- 3. The upgraded signal will output on the "Pulse Out" SMA connector
- 4. Finally, plug the power supply to the "Power In" connector to power on the board





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# Software configuration

Launch the ALPhANOV Control Software and click on *Connect* to start the Pulsepicker hardware detection. The software automatically detects the Pulse-Picker board.



### A window will appear for each Pulsepicker connected to the computer.

The main configuration windows must be configured as follow :

PP 17E01 - Line 1 - Alpha File Config Info	anov Control Soft	tware			×
Working Mode		_		_	
On Off	On	Off	On	Off	
Board	Shaper		Inverse		1
High Pick	Gen	Sync	5		
Advanced Mode					
Input Pulse					
2,00 V	( <b>0</b> )		100,0 kHz		1
Threshold		Pulse Free	b.		
2	÷	Direc	it 👘	Daisy	
Division		Source		_	_
Ouput Pulse					
1,000 µs	100,00	ns 🖹	0,00	) ns 🔤	
Width	Delay		Auto Fine	Delay	1
Synchro Input					
Ins Ext	None	Gate	Burst	Soft	
Source	Mode				
100,000 kHz	1	1¢.	In		
Frequency	Burst Size				9
Synchro Output					
Sync Trig	Delay	Pulse	AI Ph	ANON	1
Source			Centra Testrologia	or Option of Land	
		_		_	-

Working Mode window :
 Set the **Board** On



- Set the **Shaper** button to **Off**
- Set the **Inverse** button to **Off** unless you need to invert the output signal
- Set Advanced Mode to Sync

Working Mo	ode				
On	Off	On	Off	On	Off
Board		Shaper		Inverse	
High	Pick	Gen	Sync		
Advanced N	1ode				

- Input pulse window :
  - Configure the **Threshold** voltage so that the input **pulse frequency** is detected and equal to your pulse generator system
  - Set the **Division** factor **according to your application**
  - Set the input pulse **Source** to **Direct**
  - 0



- Output Pulse window :
  - Choose the output **delay value**
  - Choose the output **pulse width**
  - Auto Fine Delay may be let in auto mode

Ouput Pu	lse					
1,00	0 µs	Å	100,00 ns	A V	0,00 ns	÷
Width			Delay		Auto Fine Delay	

None

Burst Size

Mode

Synchro Input

10,000 kHz

Source

Frequency

- Synchro input windows (default settings) :
  - Source : not used in this mode
  - o Gate Mode : None
  - Frequency : not used in this mode
  - $\circ$  Burst size : not used in this mode



Gate

Burst

Soft

- Synchro ouput window (default settings) :
  - Source : Pulse

