



# Frequency Divider

## TOMBAK



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 <sup>9</sup> ]
Adjustable pulse width <ul style="list-style-type: none"> <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 <ul style="list-style-type: none"> <li>▪ resolution</li> </ul>	[70ns – 2 <sup>62</sup> ns] 10ps
Jitter <ul style="list-style-type: none"> <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

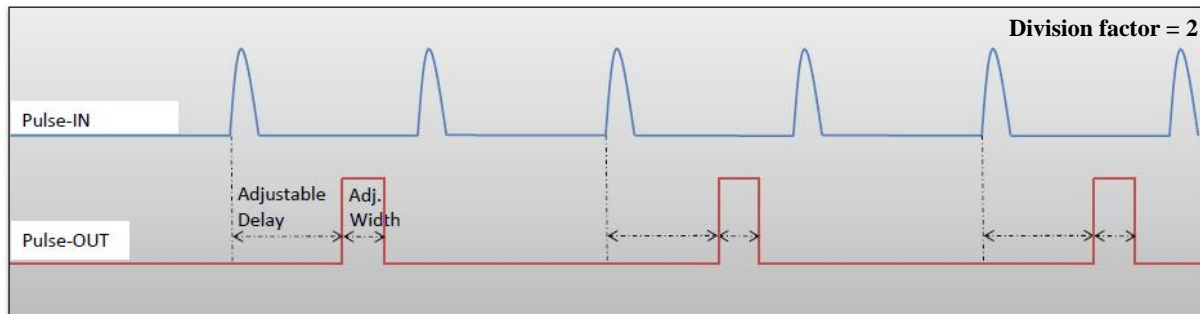


Figure 1 : Frequency divided, delayed and pulse width adjusted signal from input to output

## Synoptic

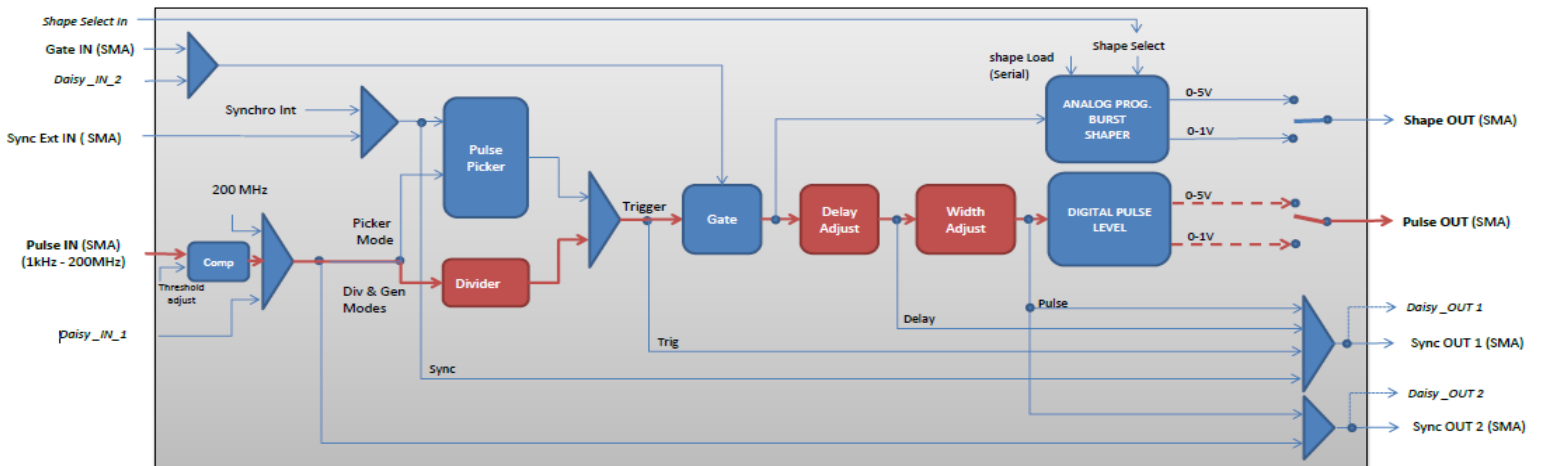
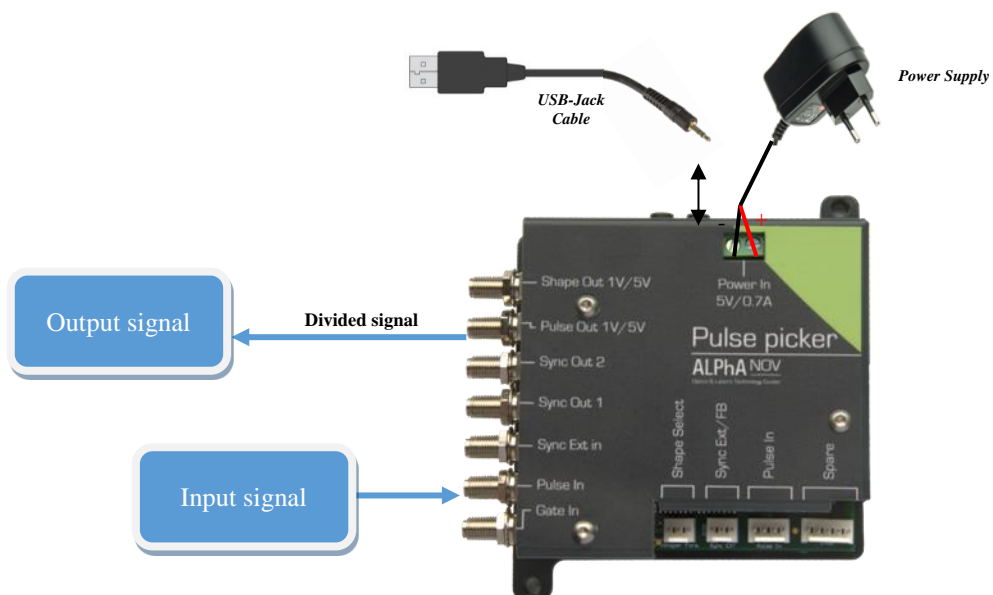


Figure 2 : Main firmware features used in frequency divider mode

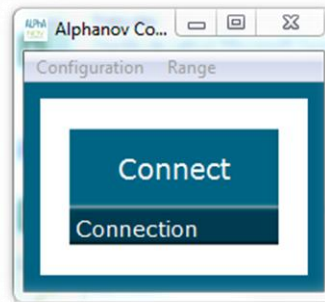
## Cabling

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



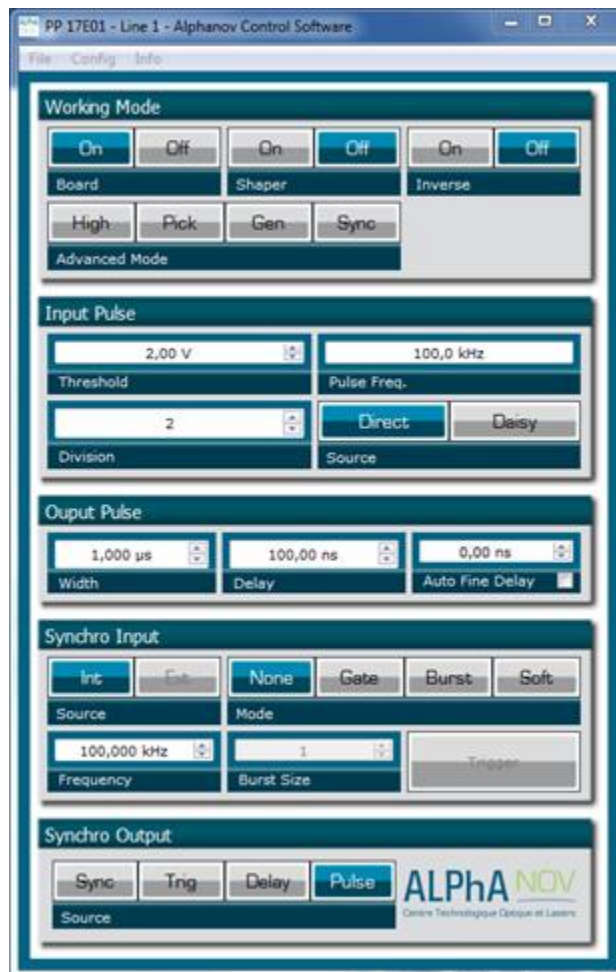
## Software configuration

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



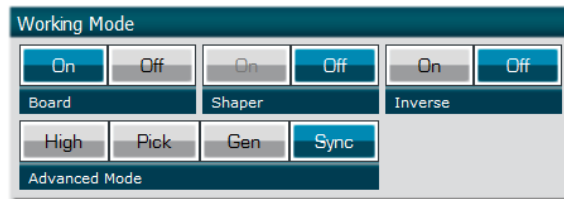
**A window will appear for each Pulsepicker connected to the computer.**

The main configuration windows must be configured as follow :



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

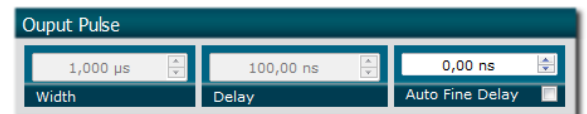
- Set the **Shaper** button to **Off**
- Set the **Inverse** button to **Off** unless you need to invert the output signal
- Set **Advanced Mode** to **Sync**



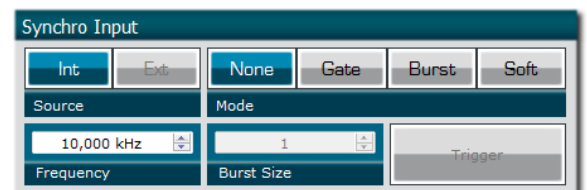
- Input pulse window :
  - Configure the **Threshold** voltage so that the input **pulse frequency** is detected and equal to your pulse generator system
  - Set the **Division** factor **according to your application**
  - Set the input pulse **Source** to **Direct**
  -



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



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



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

