Application Note

How to use the TOMBAK GATE feature

Multiboard Series

TOMBAK : Synchronization electronic board

How to use the TOMBAK Gate feature

Pre-requirement: Before using the TOMBAK board, make sure you followed all the instructions mentioned in the Operating Manual

1. Presentation

Signal gating allow user to enable output for a specific time windows. Input signal frequency is then reproduced on the output with a software programmable delay and pulse width.

2. Timing Diagram

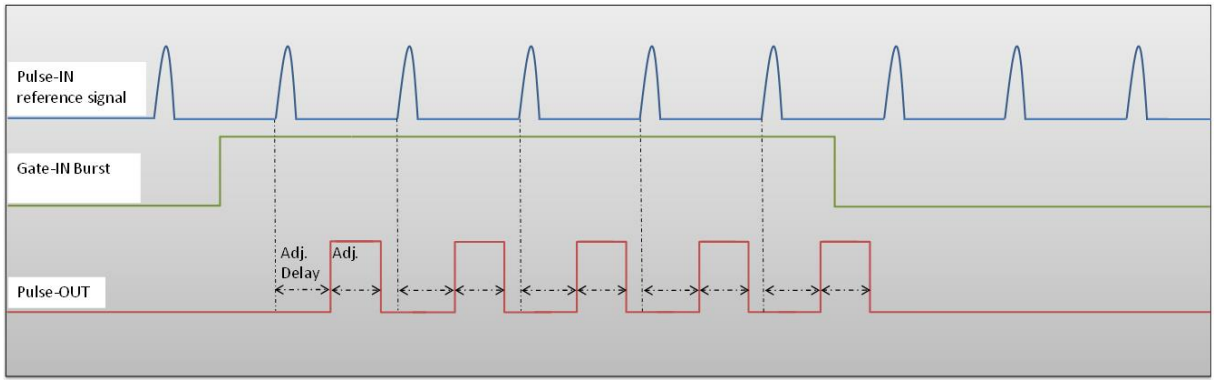


Figure 1 : Gated output from Gate-IN external signal

3. Synoptic

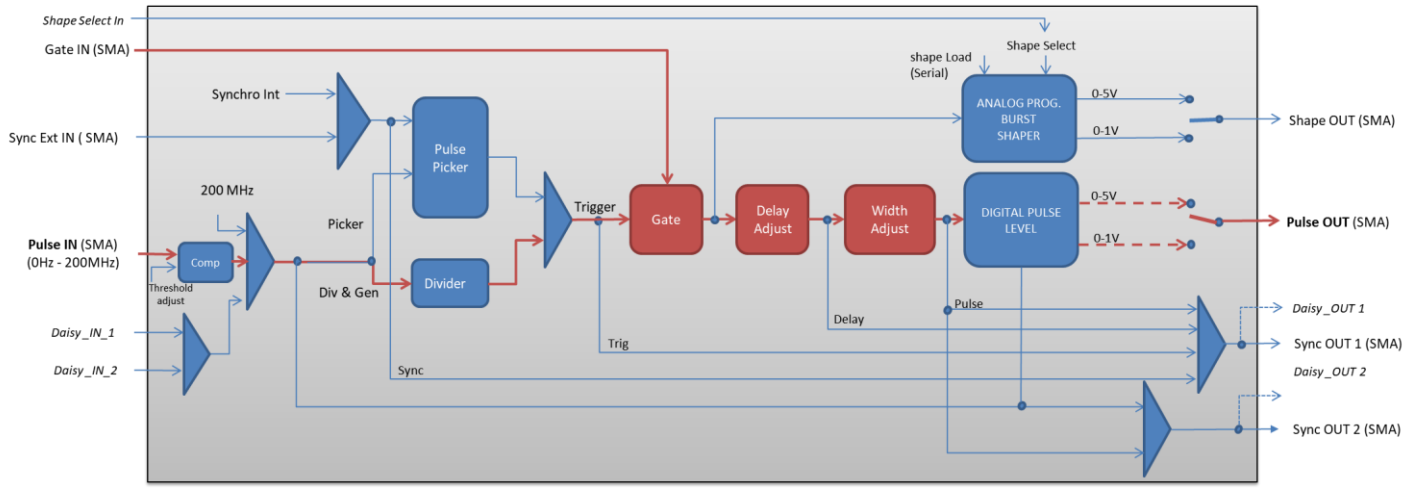
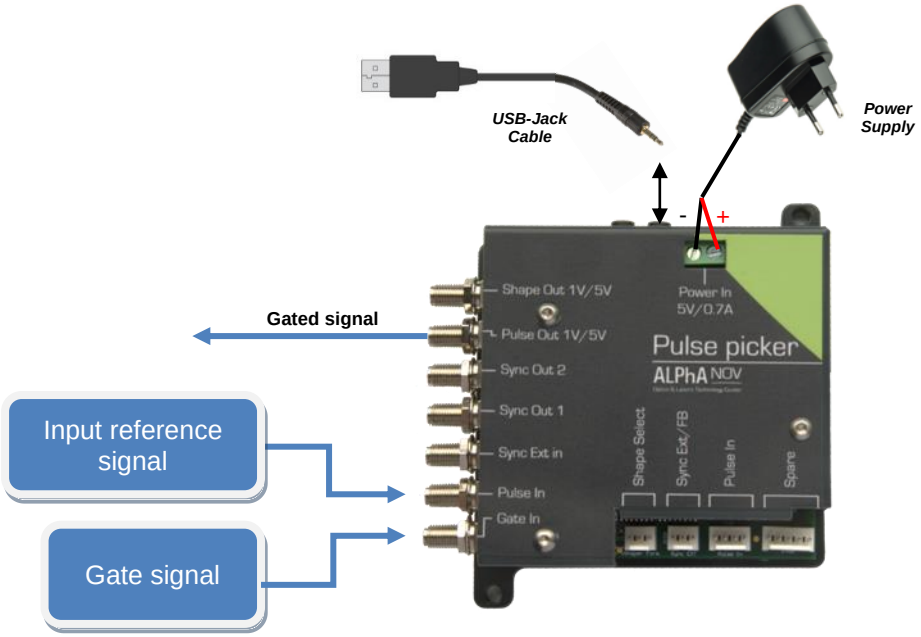


Figure 2 : Synoptic in Gate mode

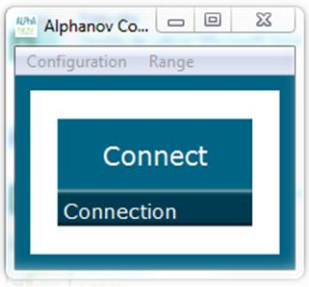
4. Cabling

1. Plug the USB-Jack cable in the "*USB In"* connector
2. Plug the power supply to the "*Power In*" connector to power on the board
3. Connect the Gate signal that will enable the output to Gate-In connector
4. Connect the reference signal (i.e. the signal that will drive the output when Gate-In signal is high level) to "*Pulse In*" connector
5. Gated signal will output on the "*Pulse Out*" connector



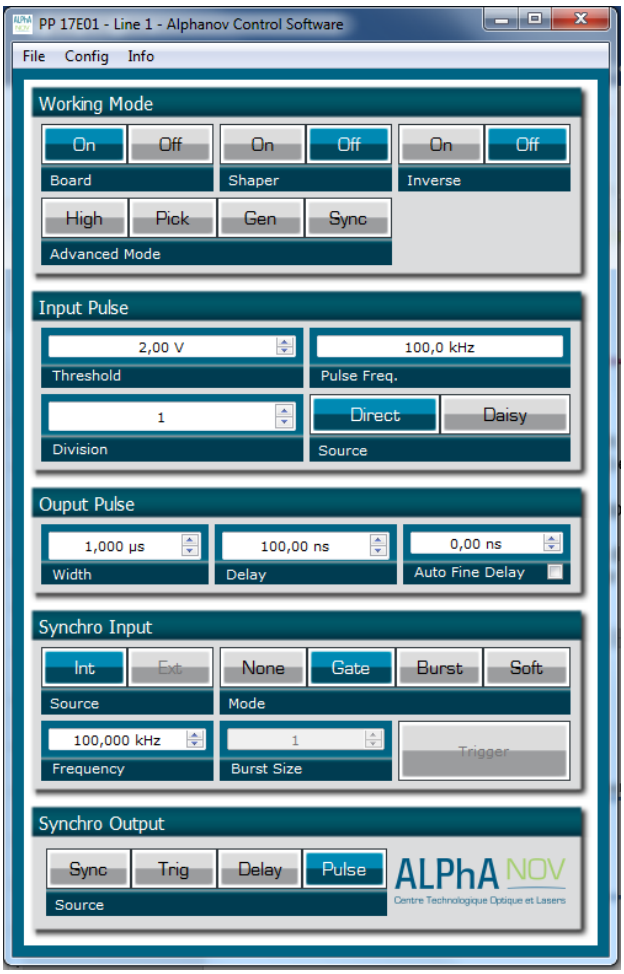
5. Software configuration

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

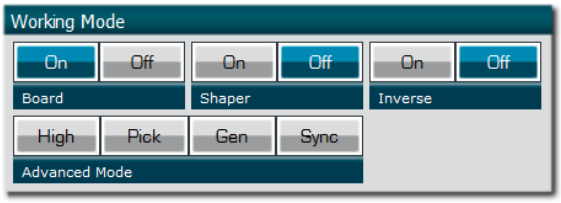


A window will appear for each TOMBAK connected to the computer.

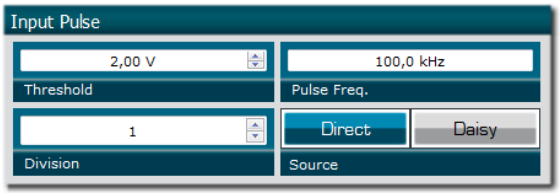
The main configuration windows must be configured as follow :



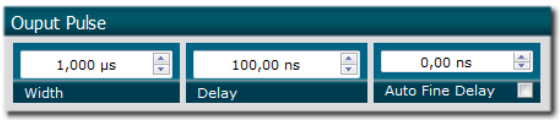
- Working Mode window :
  - Set the **Shaper** button to **Off**
  - Set the **Inverse** button to **Off** unless you need to invert the output signal
  - Unset all **Advanced Mode**
  - Finally set the **Board** On



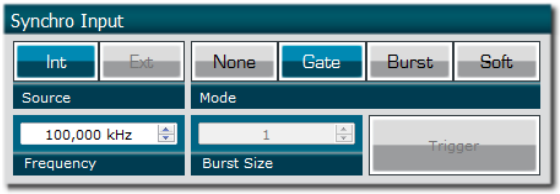
- Input pulse window :
  - Configure the **Threshold** voltage so that the input **pulse frequency** is detected and the same as your pulse generator system
  - Set the **Division** factor to **1**
  - Set the input pulse **Source** to **Direct**



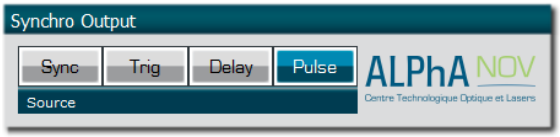
- Output Pulse window :
  - Choose the output **delay value**
  - Choose the output **pulse width**
  - **Auto Fine Delay** may be let in auto mode



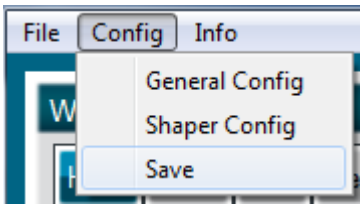
- Synchro input windows:
  - Source : not used in this mode
  - Mode : Gate
  - Frequency : not used in this mode
  - Burst size : not used in this mode



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



Don’t forget to save the settings by clicking on the “Save” button in the bar menu.



6. Main features

Adjustable pulse width ⇨ resolution (pulse width [5ns – 510ns]) ⇨ resolution (pulse width [511ns – 2^62ns])	[5ns – >>1000s] 2ns 5ns
Adjustable pulse delay ⇨ resolution	[70ns – >>1000s] 10ps
Input Gate Voltage ⇨ Logic Low ⇨ Logic High	 [0-0.8V] [1.7-3.3V]
Input PulseIn voltage	30 mV – 3,3V
Output Voltage	1 / 3,3 / 5 Volts (hardware setup)
Output maximum frequency	20 MHz