Tombak
Pulse & Digital Delay Generator
Pulse-Picker | Voltage Converter
AWG (Arbitrary Waveform Generator)
Freq. Divider | Burst generator/shaper

AeroDIODE
Tombak
Pulse Delay Generator

This Pulse Delay Generator is a precision instrument that enables the user to consolidate multiple functions into one compact device.

Key features
- 10 ps delay resolution
- 80 ps RMS jitter (few ps in direct mode)
- Min input voltage: 30 mV (<10 mV optional) with adjustable threshold
- 150 MHz voltage level converter / Digital Delay
- 20 MHz standalone generator
- 2 ns pulse resolution
- Photodiode input (optional photodiode)
- Burst/Gate generator
- Down to 12 ns insertion delay
- USB and many libraries (LabVIEW, DLLs, Hexa etc.)

This unit is a great asset to generate high frequency pulses, delays and bursts. It’s an ideal testing and timing control instrument for electronics, lasers or camera setup.

Key applications
- Ideal for OEM integration
- Components test
- Laser timing control
- Laser pulse-picking
- Precision pulse application
- Instrument triggering
- ATE applications
- Camera synchronization

GUI control software

Exemple of using cases : pulse picking from external synchronization signal
This Pulse Delay Generator offers several operating modes including pulse generator, Digital delay generator, frequency divider, burst generator, pulse picker and Voltage converter.

**Pulse/Digital Delay Generator**
- Adjustable pulse delay: 10 ps to >1000 s
- Adjustable pulse width: 5 ns to >1000 s
- Delay resolution: 10 ps
- Width resolution:
  - 2 ns for pulse width: 5 to 510 ns
  - 5 ns for pulse width: 511 ns to 1000 s
- Jitter:
  - < few ps up to 10 ns delay
  - < 80 ps RMS up to 100 ns delay
  - < 200 ps RMS up to 500 ns delay
  - 1.5 ns RMS otherwise

**Standalone generator**
- Rate up to 20 MHz
- Programmable duty cycle

**Pulse-Picker / Clock synchronizer**
- Pulse picking up to 200 MHz input / 20 MHz output

**Voltage level converter**
- Rate: up to 150 MHz
- Input Voltage: <30 mV to 3.3 V
- Adjustable output level: 1 V/3.3 V/5 V_TTL
- 12 ns insertion delay
- < 30 ps Jitter

**Frequency divider/prescaler**
- 200 MHz maximum input freq
- Division by 1 to 10^9

**Burst/gate generator**
- 1 to 10^9 pulses (burst)
- Adjustable trig to burst delay
- Intra burst resolution (internal source): 5 ns
- External or internal source generator
- External or software trigger/gate

Example of two simple using cases: Digital delay (top) and frequency divider (bottom)

Example of a complex case: pulse picking with burst shaping
# Technical Specifications

## Electrical

**Pulse_Out Outputs [SMA connector]**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Impedance</td>
<td>50 Ω recommended coupling</td>
</tr>
<tr>
<td>Adjustable output level</td>
<td>1 V / 3.3 V / 5 V_V_TTL</td>
</tr>
<tr>
<td>Rise time</td>
<td>&lt; 2 ns typical</td>
</tr>
<tr>
<td>Max output rate</td>
<td>20 MHz (up to 150 MHz as Digital Delay Generator)</td>
</tr>
</tbody>
</table>

**Pulse_In (SMA connector)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>&lt;30 mV to 3.3 V</td>
</tr>
<tr>
<td>Threshold</td>
<td>0-3.3 V DC software adjustable (Pulse In)</td>
</tr>
<tr>
<td>Max Input rate</td>
<td>200 MHz</td>
</tr>
<tr>
<td>Insertion delay</td>
<td>12 ns / 15 ns / 70 ns [see user manual]</td>
</tr>
</tbody>
</table>

**Sync Ext/Gate Inputs (SMA connector)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>0 to 3.3 V</td>
</tr>
<tr>
<td>Max input rate</td>
<td>1.2 V</td>
</tr>
<tr>
<td>Threshold</td>
<td>20 MHz</td>
</tr>
</tbody>
</table>

## Synoptic [probably the most efficient way to understand the product]:

![Synoptic Diagram]

## General

Power voltage/current: +5 VDC/500 mA (charger included)

USB: USB 2.0 (cable included)

Stackable units: Multiple channel setup using several units (single USB/single power supply/single synchronization input signal)

Dimensions (mm): 104 x 95 x 28.2