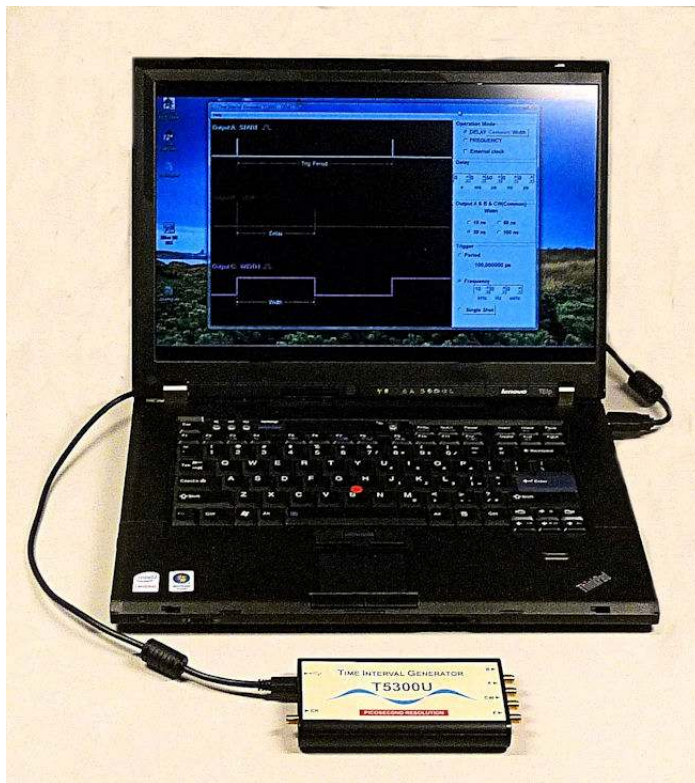


# Mobile Time-Interval/Pulse/Frequency Generator T5300U

## High Performance Miniature Instrument with USB Interface

- ◆ Small box with USB control and power supply by notebook or PC
- ◆ Precisely controlled **time interval** between the leading edges of output pulses
- ◆ Precisely controlled **width** of pulses at a separate output
- ◆ Time interval/width range: **10 ns – 10 seconds**
- ◆ Time interval/width resolution: **5 ps**
- ◆ Jitter: **< 20 ps rms** at time interval from 10 ns to 50 ms
- ◆ Output pulses: positive, 2 V amplitude on 50  $\Omega$  load, rise- and fall time < 600 ps, selectable width (10, 20, 50 or 100 ns) and polarity
- ◆ Precisely controlled **frequency** of rectangular waveform at a separate output
- ◆ Internal trigger generator with variable frequency
- ◆ Clock generator: internal TCXO or external 10 MHz reference clock
- ◆ User-friendly software for Windows

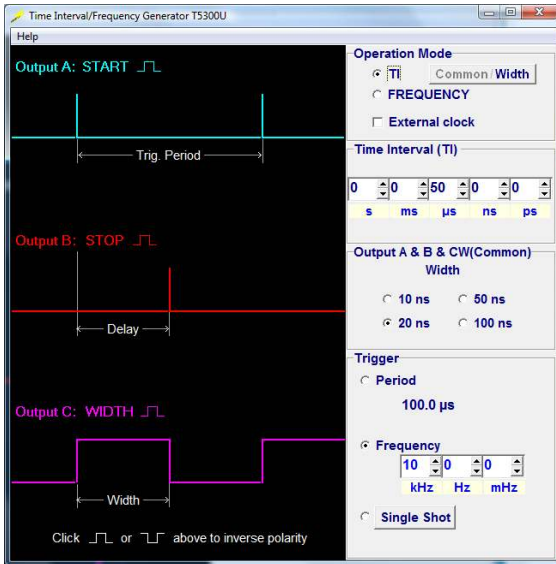
**WORLD'S FIRST TIME-INTERVAL GENERATOR WITH PICOSECOND PRECISION IN SUCH A SMALL, LIGHT, AND HANDY CASE WITH USB INTERFACE**



The T5300U Generator produces precise and low-jitter time intervals between the leading edges of pulses at two outputs (**A** → **B**) and simultaneously the pairs of such pulses are generated in the **Common** mode at a single output (**CW**). In the **Width** mode a pulse of width equal to preset time interval is generated at the **CW** output. Both the time interval and width can easily be varied using the mouse or by writing the needed value on the virtual control panel. The T5300U can also be used as a pulse generator of variable frequency.

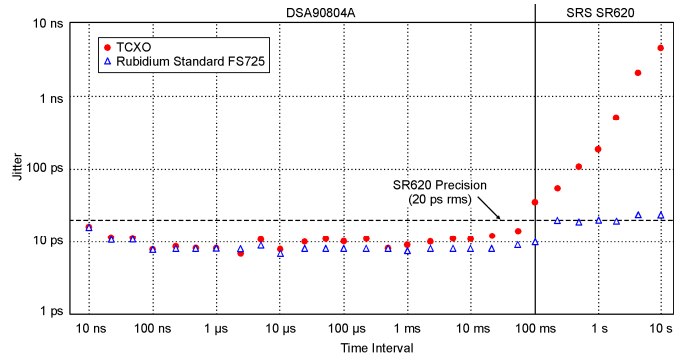
The generator T5300U contains a *Temperature-Compensated Crystal Oscillator (TCXO)*, which provides high accuracy and stability at reasonable cost. An external (for example, atomic) frequency standard can also be used (input **CK**).

The T5300U Generator is a small box connected by the USB interface to computer (notebook, laptop, or PC). It combines the digital control and picosecond precision of time-interval generation with affordable cost and reliability for thorough industrial and scientific applications. All instrument functions can be accessed through a simple, intuitive, and user-friendly graphic interface. The supplied Programmer's Guide allows for easy custom programming in system applications.



◀ Virtual Control Panel in **TIME-INTERVAL/Width** mode

**Jitter** - measured by Agilent oscilloscope DSA90804A (8 GHz, 40 GS/s, noise floor 2 ps rms) and SRS counter SR620 (precision 20 ps rms)



## Specifications

### Functions

**Time Interval** between the leading edges of two pulses appearing at the **A** and **B** outputs or between the leading edges of two pulses appearing consecutively at the **CW** output in **Common** mode

**Pulse Width** at the **CW** output in **Width** mode

**Frequency** of rectangular waveform generated at the **F** output

### Time Interval & Width

*Range*

*Incremental Resolution*

*Jitter*

10 ns – 1 second (TI **A** → **B**, Common mode (**CW**), Pulse Width (**CW**))

5 ps

< 20 ps rms at TI from 10 ns to 50 ms (internal TCXO timebase)

< 20 ps rms at TI from 10 ns to 10 seconds (external atomic timebase)

### Trigger generator

#### Frequency

*Range*

*Period jitter*

internal, with digitally variable frequency from 10 mHz to 1 MHz

Output **F**

0.1 Hz to 500 Hz with 1 μHz step; 500 Hz to 1 MHz with a 1 mHz step;

1 – 75 MHz with a 1 Hz step

< 20 ps rms from 10 kHz to 75 MHz

### Outputs A, B, CW, F

*Load*

*Amplitude*

*Rise & Fall time (20 – 80 %)*

*Polarity*

*Pulse width*

50 Ω, DC coupled; SMA sockets

2 V referred to ground

< 600 ps

selectable, positive or negative leading edge (except output **F**)

10, 20, 50 or 100 ns ± 0.5 ns at 1 V threshold (except outputs **F** and **CW/Width**)

### Internal Clock Generator

10 MHz TCXO, stability  $5 \times 10^{-7}$  (-40 to +85 °C), ageing  $1 \times 10^{-6}$ /year

### External Clock Generator

Input **CK** - 50 Ω, DC coupled; SMA socket

10 MHz, sine or pulse, min. 100 mV on 50 Ω input impedance



USB receptacle

Type B, USB 2.0

### Power Supply

provided by the USB 2.0 interface

### Supplied Software

for Windows® XP/Vista/7, DLL file for other applications

### Size

140 (L) × 70 (W) × 17 (H) mm

### Weight

150 g