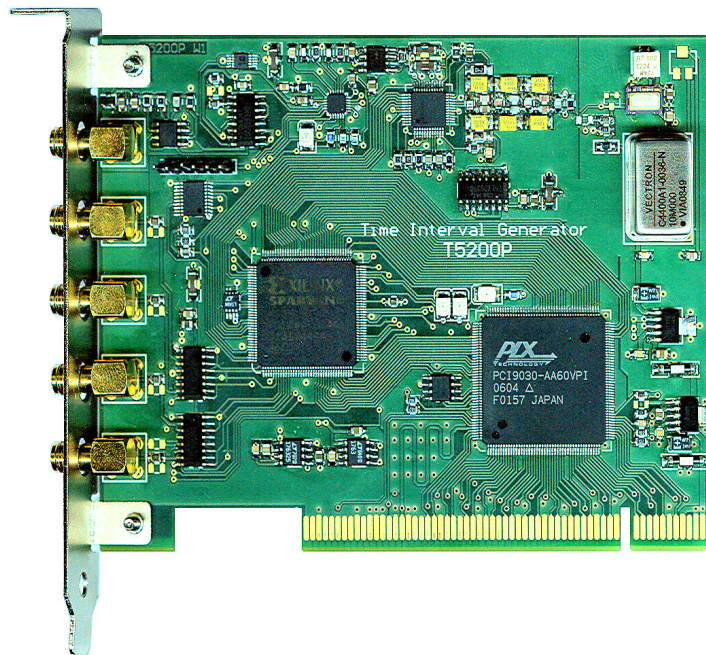


# Time Interval/Pulse/Frequency Generator T5200(S)

## High Performance Instrument with PCI Interface

- ◆ Single PCI board for 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
- ◆ Output pulses: positive, 2 V amplitude on 50 Ω load, rise- and fall time < 600 ps, selectable width (10, 20, 50 or 100 ns) and polarity
- ◆ Jitter: < 20 ps rms at time interval from 0 to 10 ms (TCXO)
- ◆ Precisely controlled frequency of rectangular waveform at a separate output
- ◆ Internal trigger generator with variable frequency
- ◆ Clock generator: internal TCXO or OCXO (option S) or external 10 MHz reference clock
- ◆ User-friendly software for Windows



The T5200(S) Time Interval/Pulse/Frequency Generator produces precise and low-jitter time interval 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 T5200 can also be used as a pulse generator of variable frequency (output **F**). The generator T5200 has on-board a *Temperature-Compensated Crystal Oscillator (TCXO)*, while the model T5200S contains an *Oven-Controlled Crystal Oscillator (OCXO)* which provides still higher accuracy and stability at reasonable cost. An external (for example, atomic) frequency standard can also be used (input **CK**).

The T5200 Generator occupies a single PCI slot in a PC and 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.



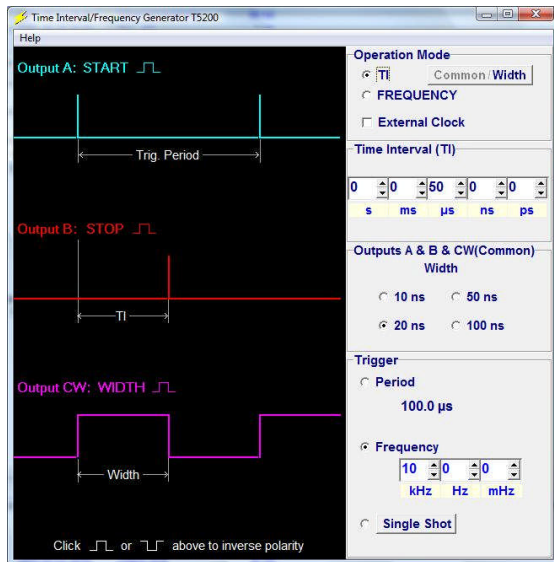
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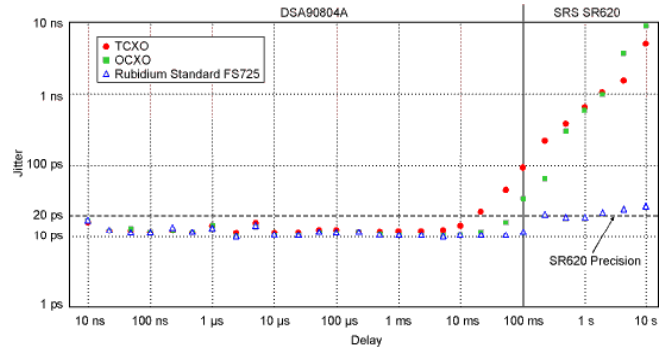
Sales: [amaciak@vigo.com.pl](mailto:amaciak@vigo.com.pl)  
[www.vigo.com.pl](http://www.vigo.com.pl)





◀ Virtual Control Panel in **Time Interval/Width** mode

**Time Interval jitter** - measured by Agilent oscilloscope DSA90804A (8 GHz, 40 GS/s) 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 (Time Interval **A** → **B** or **CW** → **CW**, or Pulse Width (**CW**))  
 5 ps  
 < 20 ps rms at TI from 10 ns to 10 ms (TCXO timebase, Model T5200)  
 < 20 ps rms at TI from 10 ns to 50 ms (OCXO timebase, Model T5200S)  
 < 20 ps rms at TI from 10 ns to 10 s (external atomic timebase)

### Trigger generator

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

### Frequency

Output **F**

*Range*

0.1 Hz to 500 Hz with a 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

*Period jitter*

### 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

**T5200:** 10 MHz TCXO, stability  $5 \times 10^{-7}$  (-40 to +85 °C), ageing  $1 \times 10^{-6}$ /year  
**T5200S:** 10 MHz OCXO, stability  $1 \times 10^{-7}$  (-20 to +70 °C), ageing  $1 \times 10^{-8}$ /day\*

### External Clock Generator

Input **CK** - 50 Ω, DC coupled; SMA socket  
 10 MHz, sine or pulse, min. 100 mV on 50 Ω input impedance

### Supplied Software

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

\*after 30 days of operation