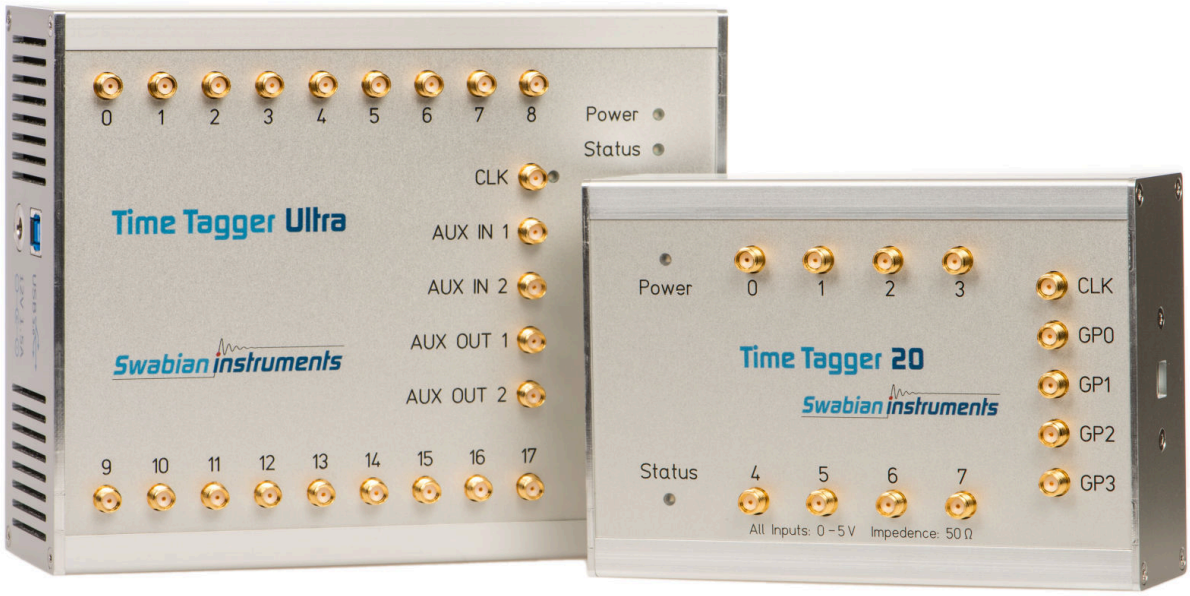
Swabian instruments



Time Tagger Series

Time-Correlated Single-Photon Counting

Key hardware features

- time resolution down to 3 ps
- 8 to 144 fully equivalent input channels

Key software features

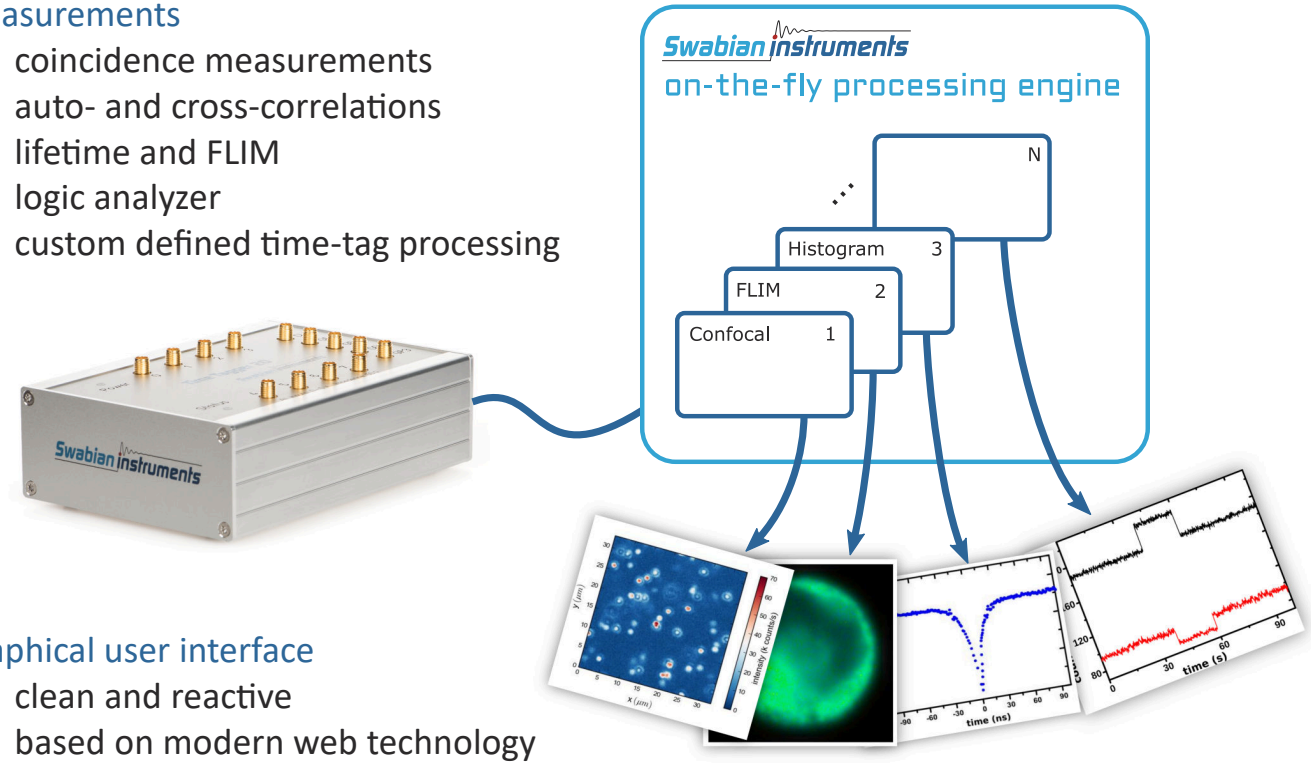
- on-the-fly processing of your measurements
- monitor all your signals in real-time
- run unlimited measurements simultaneously
- auto- and cross-correlation, multiple-start / multiple-stop

General description

Swabian Instruments' Time Tagger Series are versatile multi-channel time-to-digital converters with a timing resolution down to 3 ps. Its time-tag-streaming engine enables you to implement your own unique TCSPC setup easily. You benefit from live updates of all your measurements. Its processing capabilities cover all typical TCSPC measurements and many more.

Measurements

- coincidence measurements
- auto- and cross-correlations
- lifetime and FLIM
- logic analyzer
- custom defined time-tag processing



Graphical user interface

- clean and reactive
- based on modern web technology

Supported operating systems

- Windows, Linux (Cent OS, Ubuntu)

Native software libraries

- Python, Matlab, LabVIEW, C++, C#, .NET, Mathematica

Benefit from live processing

- run any number of measurements simultaneously
- monitor all your input signals in real-time

Adjust your input delays with one click

- define flexible input delays to shift your input signals with 1 ps precision

Know how to handle high-frequency signals

- a smart hardware event filter enables you to capture all time tags that are relevant to your application
- adjustable dead times allow you to control your input signal rate

Implement and work intuitively

- create live measurements with few clicks or few lines of code
- use native libraries in your favorite programming language

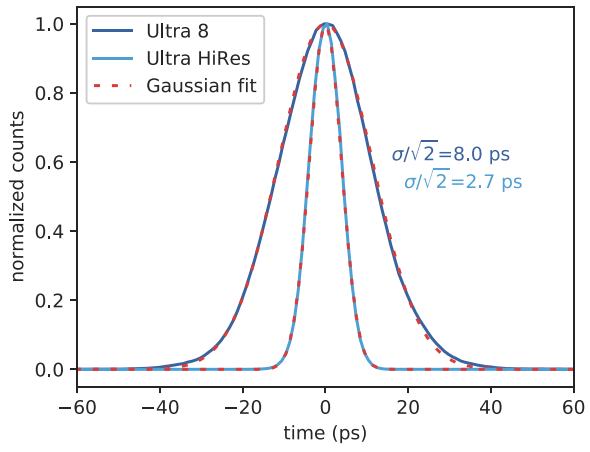
Specifications

Model	Time Tagger	20	Ultra 8	Ultra 18+	Ultra HiRes*
Timing precision					
RMS jitter	(ps)	34	10	10	3
FWHM jitter	(ps)	80	24	24	7
Minimum bin width	(ps)	1	1	1	1
Processing capabilities					
Number of inputs		8	8	18 - 144	8
Dead time	(ns)	6		2	
Data transfer rate	(M tags/s)	8.5		65	
Burst memory	(M tags)	8		512	
Maximum sync rate	(MHz)	167		500	
Input signals					
Input impedance	(Ω)	50		50	
Input signal range	(V)	0 to 3		± 3	
Maximum input level (no damage)	(V)	0 to 5		± 5	
Trigger level range	(V)	0 to 2.5		± 2.5	
Min pulse width	(ns)	1		0.5	
Min pulse height	(mV)	100		100	
General parameters					
Input connector		SMA		SMA	
Data interface		USB 2.0		USB 3.0	
Dimensions (L x W x H)	(mm)	145x100x50		190x140x60	

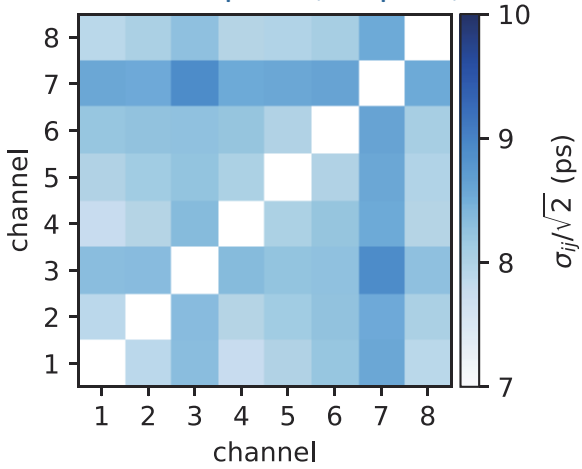
* Pre-release systems are available - please contact us!

Typical performance

instrument response, two channels



instrument response, all pairs, Ultra 8

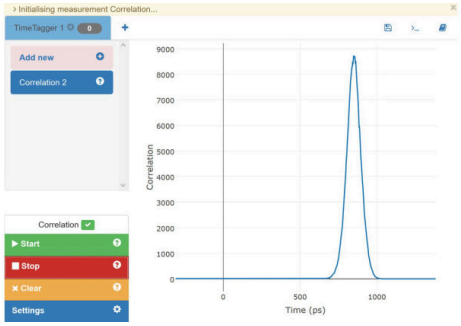


Test conditions: 1 MHz square wave applied to two input channels, 200 ps rise time, 0.5 Vpp, trigger 50 %. The right plot shows the normalized standard deviation $\sigma_{ij}/\sqrt{2} = \sqrt{((\sigma_i^2 + \sigma_j^2)/2)} \approx \sigma_i \approx \sigma_j$ for all channel pairs. Here σ_i is the RMS input jitter of channel i.

Implement your research ideas strikingly faster.

Hardware

+



Software Package

Time Tagger bundle

- streaming time tagging system
- full software package included
- three-year warranty
- free software and firmware updates

Your Time Tagger options

Time Tagger 20

34 ps rms jitter
8.5 M tags/s
8 channels

Ultra 8

10 ps rms jitter
65 M tags/s
8 channels
upgradable to 18+

Ultra 18+

10 ps rms jitter
65 M tags/s
18 to 144 channels

Send us an email at sales@swabianinstruments.com to request your quotation or free test device!

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