格物光学 GOPTICA

ST08--Portable time-dependent single photon counting system

Overview

ST08 is the latest lightweight time-dependent single-photon counting system launched by Goptica. Integrating the latest time measurement chip technology, the ST08 features a time resolution as low as 4ps, a root mean square jitter of only 25ps, and a dead time of just 4ns, supporting an instantaneous saturation count rate of up to 250Mcps.

ST08 offers 9 channels, including 1 synchronous channel and 8 counting channels. The Goptica ST08 adopts a brand-new lightweight design, significantly enhancing the flexibility and convenience of equipment deployment. It enables photon measurement to break free from spatial constraints and adapt to deployment in various diverse environments, demonstrating outstanding adaptability in complex environments and compact system integration requirements.

Features

■ Accurate and efficient counting
Precisely measure the arrival time of photons, with strong measurement stability and a dead time as low as 4ns, making it suitable for efficient counting scenarios.

■ Multi-channel counting feature
ST08 offers 9 counting channels. The multi-channel counting allows for the simultaneous processing of multiple detector signals, significantly enhancing the counting efficiency.

■ Lighter and more flexible
It is smaller in size and lighter in weight, making it more flexible for use in laboratories or on-site scenarios.

■ Multiple working modes
Supports multiple working modes, including histogram mode, time label mode, fit mode, high-value fit mode, and second-order fit function g2 mode.

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Parameters

Channel characteristics

Number of counting channels	9 (1SYNC+8CH)
Synchronous channel/ counting channel input	−2V〜+3V (The threshold is adjustable)
Synchronous/counting channel trigger mode	Rising edge/falling edge trigger (Adjustable)
Minimum trigger pulse width	0.1 ns
MARKER signal input level	LVTTL (High resistance)
Reference clock input/output levels	LVTTL (High resistance)
Root mean square jitter	<25ps
Input impedance	50Ω/High resistance

Time and intensity labels (TTTR & ITTR)

Mode selection	T2/T3/ITTR
T2 mode time resolution(ps)	4
T3 mode time resolution(ps)	4/…/33554432
The minimum statistical period of ITTR mode(us)	1
TTTR data cache depth	32G bit
Maximum range	Unlimited@T2
	1.09s@T3
	Unlimited@ITTR

External clock

Input frequency	10Mhz
Level standard	LVTTL

TDC characteristics

Instantaneous saturation count rate	250 Mcps
Dead time	4 ns
Maximum event transmission rate	20M Events/s(USB3.0)
Adjustable time delay range	−1000.0〜+1000.0 ns

Histogram

Time resolution(ps)	4/…/33554432
Maximum counting depth	2^32
Maximum number of time channels	1048576 (Configurable)
Maximum range	4.19 μs @4 ps
	1.07 ms@1024 ps
	35 s @33554432 ps

Conform to the pattern

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Maximum number of strategies	16
Optional number of channels	2~ Max (The maximum number of channels of this machine)
Window width	0.1 〜 604080 ns
Conform to the pattern	Online/Offline

Others

Data transmission interface	USB3.0
Power consumption	20W
Size	157*227*47mm³
Power connection	DV12V/5A

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Control software

Mechanical dimensions
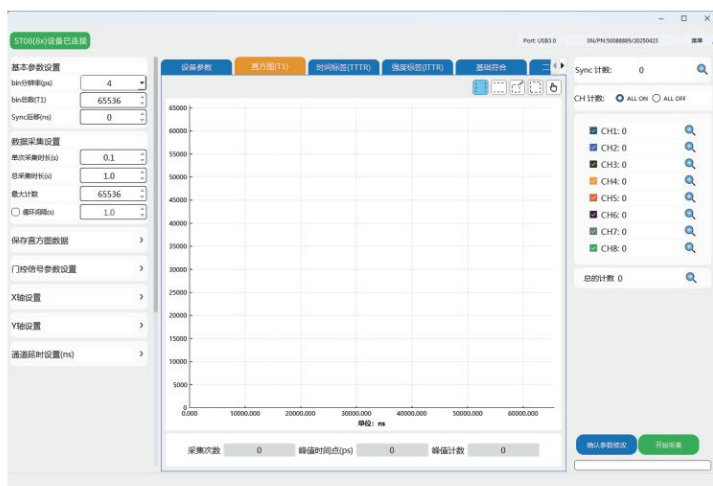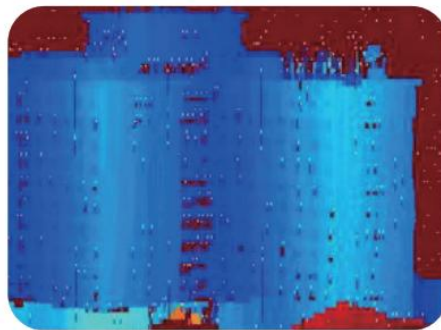

Application field
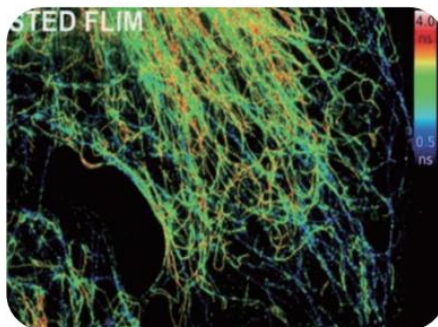
STED microscopic imaging

Lidar imaging

Quantum communication

Fluorescence lifetime measurement

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