

CHRONOXEA

Time Tagger Unit for SPAD

Picosecond resolution



The **CHRONOXEA** is a stand-alone and easy to use **Time Tagging Unit** compatible with all commercial **Single Photon Avalanche Photon Detectors**. The CHRONOXEA integrates **internal and external clock synchronization**, as well as **multiple independent event input channels** with adjustable delay, enabling time tagging measurements with a timing resolution **down to a few picoseconds**.

In addition, the system includes an ergonomic **Graphical User Interface** for control, as well as an Application Programming Interface with turnkey libraries for **Python and C++**. Very well-designed, the CHRONOXEA offers a small footprint and custom housing for integration in **standard 19-inch 2U racks**. The modern interface and the flexibility of the CHRONOXEA make it your essential tool for **advanced Quantum Key Distribution (QKD)** applications.

Features

- Commercial SPADs compatibility
- Time Tagging capabilities
- Picosecond resolution
- Adjustable internal clock frequency
- External synchronization
- Adjustable time delay
- Graphical User Interface for control
- Programming APIs: Python & C++

Applications

- Quantum Communications
- Quantum Internet / Network
- Entanglement Swapping

Options

- Industrial housing
- White brand

TECHNICAL SPECIFICATIONS

TIME-TAGGING & TIMING PERFORMANCE	
Digital Resolution	13 ps
Timing Jitter (RMS)	8 ps
Timing Jitter (FWHM)	20 ps
Max Event Rate (Continuous)	1 Mtags/channel
Max Event Rate (Burst) ¹	200 Mtags/channel
Sustained Data Transfer Rate	4 Mtags/channel
Internal Clock Range	18Hz to 4 MHz (adjustable)
External Clock / Sync Frequency	Up to 100 MHz
Frequency Divider	1 to 255 (adjustable)
Adjustable Channel Delay	0 to 10 ns (10 ps step)

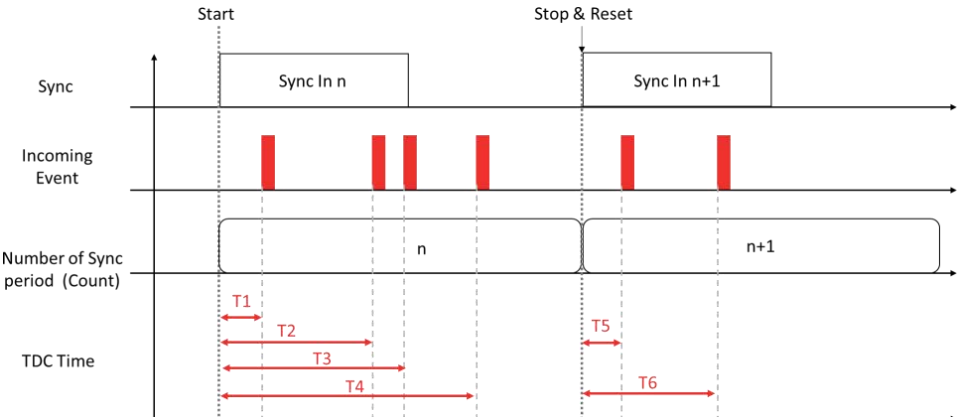
¹ For a burst of 15 successive events.

MECHANICAL - POWER - ENVIRONMENTAL	
Form Factor	2U rack compatible
Dimensions	163 x 195 x 55 mm ³
Weight	0.5 kg
Power Consumption	< 12 W
Operating Temperature	+ 10 °C to + 35 °C

INPUT/OUTPUT - DIGITAL INTERFACE - SOFTWARE	
Sync / Start Input	1x Channel, SMA
Event / Stop Inputs	4x Independent channels, SMA
Input Signal Logic	TTL, CMOS, LVTTTL, LVCMOS, NIM
Electrical Interface	SMA, 50 Ω
Host Interface	USB 2.0 port
Graphical User Interface	Proprietary software interface
Programming APIs	Python, C++
Supported OS	Windows, Linux

TIME-TAGGING PRINCIPLE

Tag Value	TDC Time
n	T1
n	T2
n	T3
n	T4
n+1	T5
n+1	T6



SOFTWARE

The CHRONOXEA features a user-friendly software interface for real-time channel delay adjustment, clock synchronization, and time-correlated event logging.

Full software support includes a dedicated GUI alongside Python and C++ APIs with ready-to-use code examples for custom automation. Designed for MacOS, Microsoft Windows, and Linux operating systems.

CUSTOMER SUPPORT

Integrating advanced technologies can be challenging, but AUREA Technology is here to help you achieve your objectives.

Work with AUREA Technology and benefit from our dedicated technical support team. Our experts in single-photon detection, low-light detection, and QKD systems are available to support you throughout your integration.

Contact our technical support team and receive an answer within a day at sales@areatechnology.com.

ORDERING INFORMATION

CHRONOXEA

Please contact us at sales@areatechnology.com for custom solutions and options.

WARRANTY

Any warranty shall be void if the Product has been damaged, disassembled, modified, misused, neglected, improperly installed, used beyond its specified ratings or operating conditions, otherwise abused, or used in hazardous activities.

DISCLAIMER

The manufacturer reserves the right to modify this document at any time without prior notice and disclaims liability for editorial, pictorial, or typographical errors.

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RELATED PRODUCTS



SPD_OEM_NIR

Compact NIR Single Photon Counter