SPD_OEM_NIR
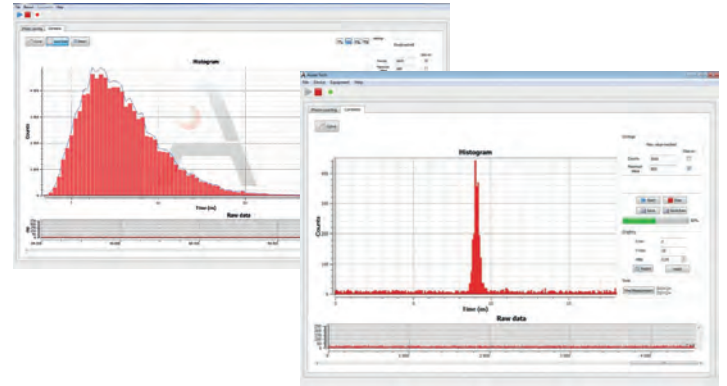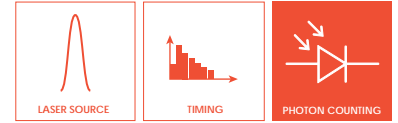# Compact NIR Single Photon Counter

Dual-mode photon counting solution - Compact design
[900 nm - 1700 nm]

LASER SOURCE | **TIMING** | **PHOTON COUNTING**

The compact SPD_OEM_NIR brings a major breakthrough for single photon detection in the 900 nm to 1 700 nm near infrared range. Built on cooled InGaAs/InP Geiger-mode single photon avalanche photodiode technology **the SPD_OEM_NIR is the first generation of NIR single photon detector that performs both synchronous ''gated'' (GM) and asynchronous ''free-running'' (FR) detection modes.** The user selects the detection mode via the provided software interface.

The champion grade features ultra-low-noise down to 800 cps, high calibrated Quantum Efficiency up to 30 %, 100 ns minimum deadtime, 100 MHz external trigger, fast timing resolution of 150 ps and very low afterpulsing. The standard grade provides very valuable and cost effective solution when photon counting is required.

Based on an industrial design, this self-contained detector does not require any additionnal bulky cooling systems and control units. Very well-designed, the compactness and its modern interfaces make the SPD_OEM_NIR very easy to integrate in the most demanding analytical instruments and Quantum systems.

Features

- Free-Running & Gated mode
- Calibrated QE up to 30%
- Dark Count Rate < 800 cps
- Min Deadtime 100 ns
- External Trigger up to 100 MHz
- Integrated Counting Electronics
- TTL and NIM compatibility
- Software for remote control
- Cooling plate compatible EU/US
- DLL Libraries : Python, C++, LabVIEW

Applications

- Quantum Key Distribution
- Quantum Communications
- Geiger-mode LIDAR
- High resolution OTDR
- Time Correlated Single Photon Counting (TCSPC)
- Low level of light detection
- Fluorescence Microscopy FLIM

Options

- Analog output

RoHS compliant

V3.0 Jan 2020

TECHNICAL SPECIFICATIONS

Single photon counting - Typical values measured @1550nm		
Spectral Range	900 nm to 1700 nm	
Optical Fiber type	SMF or MMF	
Detection mode	Free-running (FR) & Gated mode (GM) - User selectable	
Grade	**Standard**	**Champion**
Dark Count Rate@10%QE	< 2500 cps	< 800 cps
Calibrated QE	10% - 25% [5% step]	10% - 30% [10% step]
External trigger	from CW to 20 MHz	from CW to 100 MHz
Timing Jitter @max QE	200 ps	150 ps
Deadtime range	from 1 µs to 1 ms [1a]	from 100 ns to 1 ms [1b]
Afterpulsing probability [2]	< 1%	< 0.1%
Input/Output - Mechanical - Environmental		
Computer Connection	Mini USB 2.0 type B	
Optical IN	FC/PC optical fiber connector	
Trigger IN	SMA - TTL only - Min effective gate width 1 ns	
Detection OUT	SMA - User selectable TTL/NIM	
Dimension (DxHxW)	147 x 68 x 52 mm³ (without cooling plate) 147 x 120 x 60 mm³ (with cooling plate)	
Weight	500 g	
Cooling time	< 1 min @ 25°C	
Power consumption	10 W	

[1a] Standard : *Min deadtime GM : 1 µs | Min deadtime FR mode : 10 µs*
[1b] Champion : *Min deadtime GM : 100 ns | Min deadtime FR mode : 5 µs*
[2] At 10 µs deadtime, 10% QE, 10 ns gate
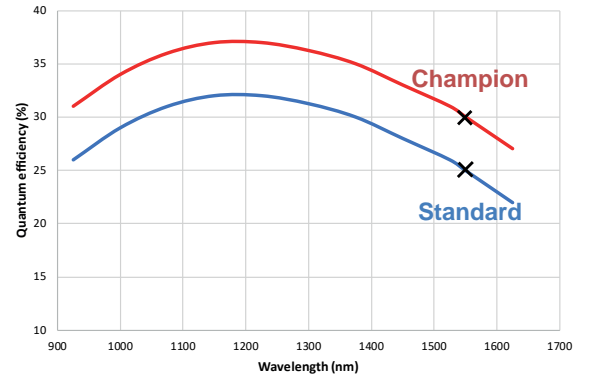
QE (%) vs Wavelength (nm)

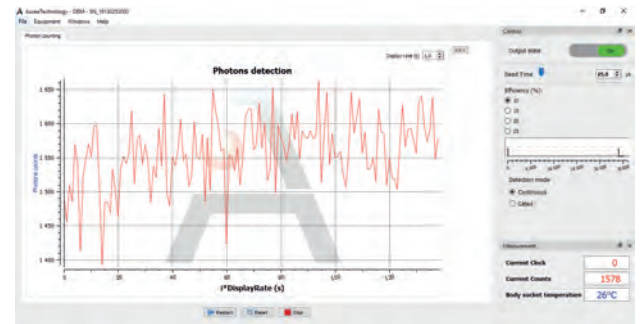*SPD_OEM_NIR and its cooling plate*

OTHER PRODUCTS : COMPLETE QUANTUM SYSTEMS

AUREA Technology also provides complete Quantum Optics systems with Entangled Photon Sources, Photon Counters, Timing Electronics and Software. Both 1550 nm and 810 nm versions are available.

Complete Quantum instruments suite

SOFTWARE INTERFACE

An user-friendly software interface allows tuning the QE, deadtime and also displaying the live photon count, the clock, the temperature and the alarm to protect against accidental overload. The DLL libraries compatible to the most well-known programming languages are also provided.

ORDERING INFORMATION

SPD_OEM_NIR_X —— C : Champion grade
S : Standard grade

Please contact us for custom solutions and options

NOTE