SPD_A_NIR

NIR Single Photon Detector

Dual-mode photon counting complete solution [900 nm - 1700 nm]

The SPD_A_NIR photon counter brings a major breakthrough for single photon detection in the 900 nm to 1700 nm near infrared range. Built on cooled InGaAs/InP Geiger-mode single photon avalanche photodiode technology **the SPD_A_NIR is the first generation of NIR single photon detector that performs both synchronous "gated" and asynchronous "free-running" detection modes.** Based on a table-top design, the SPD_A_NIR is a complete detection solution which does not require any additionnal bulky and expensive cooling systems or control units.

Two DCR noises grades are available : the Standard and the Champion grade. The Champion offers very-low-noise DCR < 800 cps and high Quantum Efficiency up to 30%, fast timing resolution of 180 ps and low afterpulsing rates < 0.1%.
Very well-designed, the compactness and its modern interfaces make the SPD_A_NIR your essential analytical tool for the most demanding academic and industrial research.

Features

- Dual free-runnning/gated mode
- 1 or 2 independant channels
- Detection Efficiency up to 30%
- Dark Count Rate < 800 cps
- Deadtime down to 100 ns
- Master/Slave operation
- User friendly graphical interface
- Remote control
- DLL Libraries : LabVIEW, C++
- Read out in TTL

Applications

- Quantum cryptography
- Lifetime measurements
- Photon source characterization
- TCSPC measurements
- High resolution OTDR
- Optical fiber sensing
- Geiger-mode Lidar

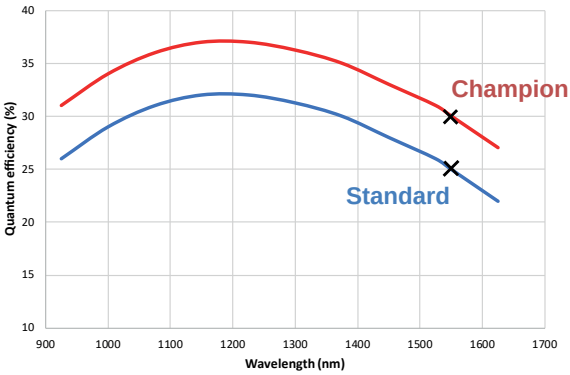
Options

- Standard grade
- Champion grade

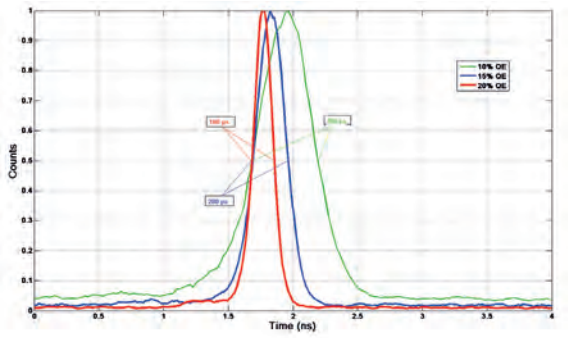
TECHNICAL SPECIFICATIONS

Single photon counting - Typical values measured @ 1550nm		
Spectral Range	900 nm to 1700 nm	
Optical Fiber type	SMF or MMF	
Grade	**Standard**	**Champion**
Dark Count Rate@10%QE	< 2 500 cps	< 800 cps
Detection Efficiency	10% - 25% [5% step]	10% - 30% [10% step]
Timing Jitter @max QE	200 ps	180 ps
Deadtime range@10%QE	from 1 µs to 1 ms	from 100 ns to 1 ms
Afterpulsing probability[1]	< 1%	< 0.1%
Synchronization - Gate		
External trigger	From CW up to 20 MHz	
Internal trigger	From CW up to 20 MHz	
Effective gate width	From 1 ns up to 100 ns [0.5 ns step]	
Trigger delay	From 0 up to 128 ns [0.5 ns step]	
Input/Output - Mechanical - Environmental		
Computer Connection	Mini USB 2.0 type B	
Optical In	FC/PC or FC/APC optical fiber connector	
Detection Out	SMA female type connector (TTL)	
Clock In	SMA female type connector (TTL)	
Clock Out	SMA female type connector (TTL)	
Power consumption	5 W	
Dimension (LxWxH)	70 x 250 x 280 mm³	
Weight	4.5 kg	
Operating temperature	+ 10°C to + 30°C	
Cooling time	< 1 min @ 25°C	

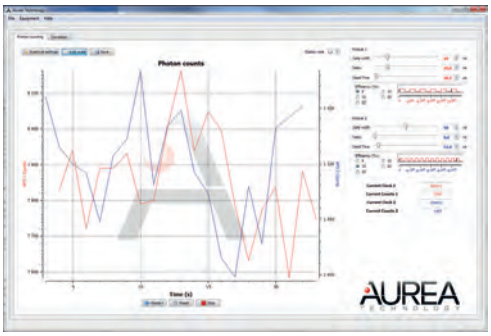
[1]At 10 µs deadtime, 10%QE, 10 ns gate



QE (%) vs Wavelength (nm)



Timing jitter (ps) vs QE (%)



A user-friendly Graphical User Interface is provided. It allows the set-up of the QE, gate width, delays, deadtime, and also the display of the 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.

RELATED PRODUCTS

AUREA Technology also provides high performance TCSPC and picosecond laser sources from 375 nm to 1990 nm

PIXEA picosecond laser source

ORDERING INFORMATION

SPD_A_NIR_MX_XX_YY

- MX — M1: 1 channel; M2: 2 channels
- XX — SM: Single Mode optical Fiber; MM: Multi Mode optical Fiber
- YY — 01 : FC/PC; *Other type on request*
- A — Standard grade
- AC — Champion grade

Please contact us for custom solutions and options

NOTE