SPD_A_NIR

Ultra-low-noise NEAR INFRARED
1 or 2-channels SINGLE PHOTON COUNTING MODULE

Enhanced in 2014!

The first worldwide 2-channels single photon counter

The SPD_A_NIR from AUREA Technology is the "best-in-class" high-performance and easy-to-use single photon counting modules engineered for the most demanding low-level-of-light applications. The SPD_A_NIR provides undeniable superior detection performances over existing commercial detection technologies, such as solid-states, photomultipliers and Micro Channel Plates technologies.

Thanks to its outstanding low-noise and high photon detection efficiency, the self-contained SPD_A modules enable worldwide scientists and engineers to measure very-low-light-level down to the single photon level. By achieving extremely low light level analytical measurements, it allows our worldwide customers to focus on their own challenges, and remain at the cutting edge of their field.

Engineered with "high performance, and ease-of-use" innovative mindset, the SPD_A_NIR includes the world's most advanced InGaAs Geiger-mode avalanche photodiode (Geiger-APD) technologies, integrated cooling systems, the latest fast data processing and the most intuitive and practical user interfaces.

Very compact the newly designed SPD_A is the only commercially available photon counting module which provides 1 or 2 channels, and also a large variety of valuable options, such as the fully integrated Time-to-Digital Converter or the extremely-low-noise "champion" version.

The SPD_A series were designed to meet the needs of a large variety of applications. In order to meet each application, the SPD_A can be qualified or customized based on the customers' technical requirements. At each delivery, a precise test report is provided.

The SPD_A_NIR is becoming the most popular photon counting module in today's industry!

> Features <

- High Quantum Efficiency up to 25%
- Very low Dark Count Rate
- 1 or 2 independant channels
- Self-contained, compact and easy-to-use
- Adjustable PDE, dead-time and gate width
- Remote control USB 2.0 interface
- LabVIEW and C++ DLL librairies

> Applications <

- Quantum Optics, Quantum Cryptography
- Quantum Dots
- Photon Source characterization
- Eye-safe Laser Ranging (LIDAR)
- Fiber optics characterization (OTDR)
- Time Correlated Single Photon Counting (TCSPC)
- Fluorescence, fluorescence life time
- Spectroscopy, Raman spectroscopy
- Photo-luminescence
- Singlet Oxygen measurement

> Options available on request <

- Detection Efficiency up to 30%
- Champion (Extremely-low-noise)
- Fully integrated 60 ps TDC for TCSPC
- Analog output (0 to 5 Volts)
- Wireless Bluetooth connection
- Monochromator interface

SPECIFICATIONS

Parameter	Typical values calibrated @ 1550 nm
DETECTION	
Spectral range	**900 nm to 1700 nm** (InGaAs)
Optical fiber type	**SMF** (9 µm core) or **MMF** (50 µm core)
Detection Efficiency	Adjustable from 10% **up to 25%** [5% increments] *Adjustble up to 30% for "Champion" option*
Dark Count Rate	**< 5,000 cps** @10% QE with SMF *< 1,000 cps @10% QE with SMF for "Champion" option*
Timing jitter	**< 200 ps @ 20% QE**
Dead-time range	Adjustable from 500 ns to 1 ms [100 ns increments]
Afterpulsing probability	< 0.1% at 100 kHz @ 10 ns gate and 10% QE < 5% at 1 MHz @ 10 ns gate and 10% QE
Cooling time	**< 2 min @ 25°C**
GATE trigger input signal	
External trigger	Variable **up to 20 MHz,** TTL and sinusoidal
Internal trigger generator	Variable up to 20 MHz (internal generator is provided)
Effective gate width	Adjustable from 1 ns to 100 ns [0.5 ns increments]
Trigger delay	Variable from 0 to 128 ns [0.5 ns increments]
Detection output signal	
Detection OUT	TTL signal [20 ns width]

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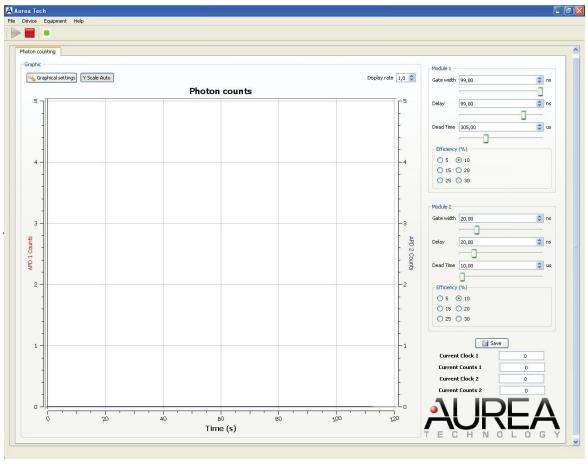
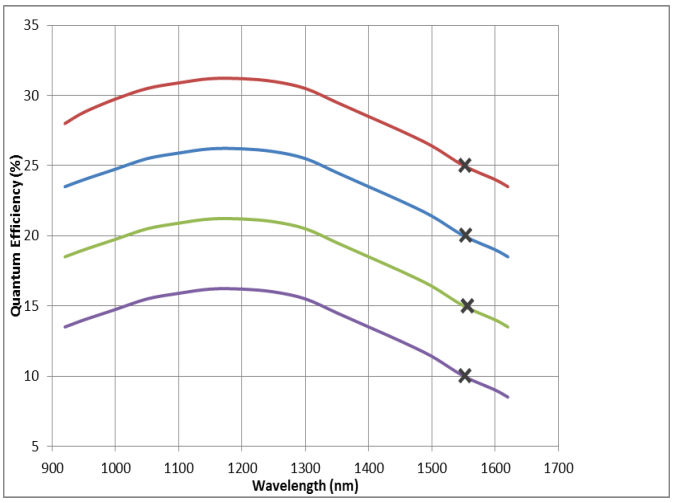
User Interfaces



A very well-designed and easy to use Graphical User Interface is provided.

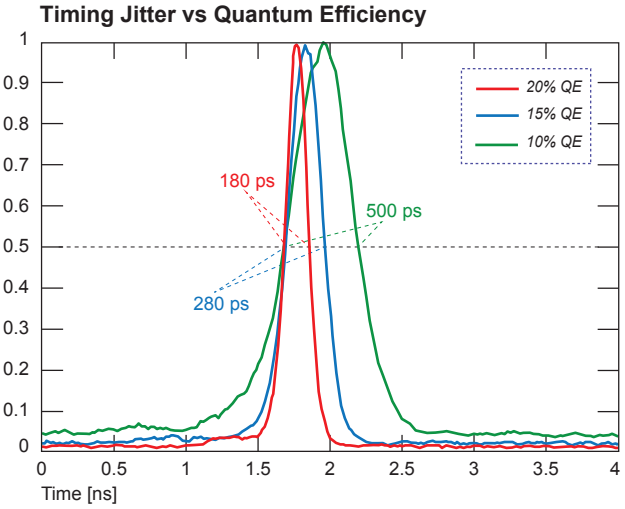
Typical Photon Detection Efficiency vs Wavelength



Connectors

CTL_USB	Mini USB 2.0 type B
Opt IN	FC/PC optical connector
Detection OUT	SMA female type
Trigger (Clock IN & OUT)	SMA female type

Timing Jitter vs Quantum Efficiency



Electrical, Mechanical and Environmental

Power supply	110 – 230 VAC
Power consumption	< 10 Watts @ 5 VDC (1 channel) < 20 Watts @ 5 VDC (2 channels)
Dimension (LxWxH)	315 x 285 x 85 mm^3
Weight	5 kg
Operating temperature	+ 10°C to + 30°C
Storage temperature	- 40°C to + 70°C

Other available Single Photon Counting modules

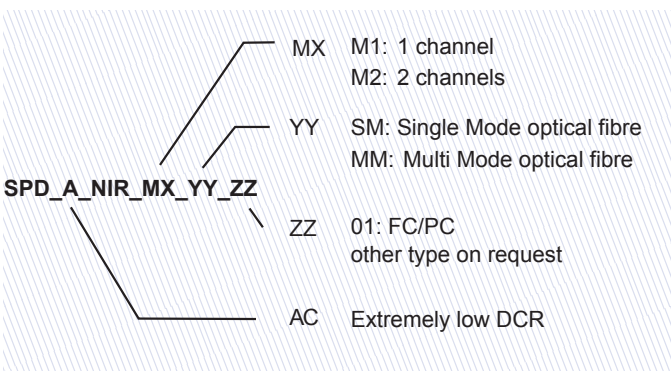
AUREA Technology provides a large portfolio of high-performance Photon Counting and TCSPC solutions from 400 nm to 1700 nm.

TCSPC versions and available options

The LynXea serie is also available with 60 psec time resolution for TCSPC applications. Its Graphical User Interface directly provides fluorescence decay curve, time correlation...

The SPD_A also provides many options, such as the “champion” serie which performs extremely low DCR and high Quantum Efficiency.

Ordering Information



Contact Information

For more information contact us at support@aureatechnology.com

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