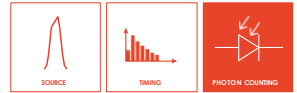


SPD_SLIM_NIR

NIR Single Photon Counter

Very compact and scalable NIR photon counting solution
[900 nm - 1700 nm]



Stackable 1U multi-channel system

The SPD_SLIM_NIR delivers a breakthrough in near-infrared single-photon detection across the 900 –1700 nm range. Patent pending and design pending, it offers the first world's most compact and scalable single-photon counter architecture for Quantum communications, enabling system designs and form factors that were not possible before. Built on cooled InGaAs/InP Geiger-mode SPAD technology, SPD_SLIM_NIR supports both synchronous gated (GM) and asynchronous free-running (FR) operation, ensuring best-in-class low-light-level performances.

SPD_SLIM_NIR features ultra-low-noise down to 700 cps (Extremely-low-noise detectors available upon request) with calibrated Quantum Efficiency up to 30%, 100 ns dead time, 100 MHz external trigger capability, 150 ps timing resolution, and very-low afterpulsing. Its reduced dead time delivers a throughput increase of up to 5x, enabling higher count rates without any compromises.

Engineered for robust, maintenance-free industrial operation up to 40°C, SPD_SLIM_NIR is designed for scalable systems through a stackable multi-channel architecture supporting up to four channels. Only the first unit requires direct power and control. This eliminates bulky cabling, simplifies integration, and enables a highly compact integration in a standard 1U telecom rack.

Features

- Scalability in 1 U telecom rack
- Maintenance free
- Operates up to 40°C
- Ultra-low profile < 3.5 cm
- Free-Running & Gated mode
- Calibrated QE up to 30%
- Dark Count Rate < 700 cps
- Min Deadtime 100 ns
- External Trigger up to 100 MHz

Applications

- Quantum Key Distribution
- Quantum Communications
- Geiger-mode LIDAR
- High resolution OTDR
- Time Correlated Single
- Photon Counting (TCSPC)
- Vibrometer
- Fluorescence Microscopy FLIM

Pairing products

- Entangled Photon Source 1550nm
- Time Tagging electronics CHRONOXEA

TECHNICAL SPECIFICATIONS

TYPICAL SPECIFICATIONS	
Spectral Range	900 nm to 1700 nm
Optical Fiber type	SMF and MMF
Detection mode	Free-running & Gated mode
OPTICAL @1550nm @25°C	
Dark Count Rate @10%QE	< 700 cps ¹ , ExLn option ²
Calibrated QE	10% - 30% [5% step]
External trigger	from CW to 100 MHz
Timing Jitter @maxQE	< 200 ps, 150 ps typical
Min Deadtime GM	100 ns
Min Deadtime FR	10% 1 µs 20% 5 µs 30% 10 µs
Afterpulsing probability	< 0.1% ³

¹ FR Mode | deadtime: 20 µs
² Extremely-low-noise detectors available upon request
³ Gated Mode | @10%QE | 10 ns gate | 10 µs deadtime

INPUT/OUTPUT- MECHANICAL - ENVIRONMENTAL	
Optical IN	FC/PC optical fiber connector
Trigger IN	SMB TTL/LVTTL
Detection OUT	SMB LVTTL
Cooling time	< 1 min @ 25°C
Power consumption	< 10 W (5V/2A)
Operating temperature	15°C to 40°C
Weight	0.5 kg
Dimensions (L x W x H)	159 x 65 x 32 mm
CONNECTIVITY	
Remote Control	UART connection
Wrapper example	Python
System	LINUX, MacOS, Windows, MCU

REMOTE CONTROL

Control the SPD_SLIM_NIR easily thanks to its user-friendly UART commands! Tune the QE, deadtime and read the photon count, clock rate, temperature and alarm to monitor your photon counter live.

With the stacking architecture, you control up to four SPD_SLIM_NIR modules as easily as one: only the first detector is connected to the host, while power and UART are daisy-chained through the interconnection modules to the others, with no extra cabling.

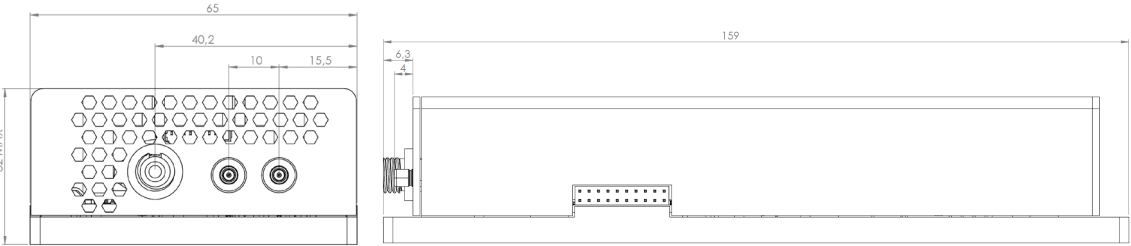
CUSTOMER SUPPORT

Integration of high-end technologies can be challenging but AUREA Technology is here to help you reach your objectives!

Work with AUREA Technology and benefit from the help of our dedicated technical support team. Our team made of the best experts in single photon detection technology and QKD systems can be reached any time!

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

MECHANICAL DRAWING (All dimensions in mm)



ORDERING

SPD_SLIM_NIR

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

ACCESSORIES ON DEMAND

- Power/UART connector
- Link connector
- USB to Serial converter cable
- Dual 20 mm active cooling fans