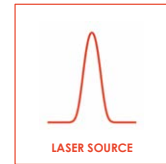


SPD_SLIM_NIR

NIR Single Photon Counter

Ultra-Compact Detection Module

900 nm – 1700 nm · Scalable · Low Noise



AUREA Technology's **SPD_SLIM_NIR** is an ultra-compact single-photon counting module covering the **900–1700 nm** near-infrared range, including telecom wavelengths. Powered by a cooled InGaAs/InP SPAD, it supports both **free-running operation** and **external gating up to 100 MHz**, delivering calibrated detection efficiency up to **30%**, dark count rates down to **500 cps**, and timing resolution down to **150 ps**.

With **100 ns** dead times boosting throughput by **5×**, the **stackable 1U chassis** interconnects up to **four single-channel modules** using shared power and UART links. Engineered for **scalable quantum systems**, it maximizes channel density while maintaining **uncompromised low-noise performance** for advanced lab and industrial applications.

Features

- Stackable 1U multi-channel system
- Calibrated QE up to 30%
- Dark Count Rate 500 cps typ.
- Dead Time down to 100 ns
- External Trigger up to 100 MHz
- Industrial operation up to 40°C

Applications

- Quantum Key Distribution (QKD)
- Geiger-Mode Single-Photon LiDAR
- TCSPC & FLIM Microscopy
- High-Resolution OTDR
- Laser Doppler Vibrometry

Related Products

- TPS_1550_TYPE_S Entangled Photon Source
- CHRONOXEA Time Tagger

TECHNICAL SPECIFICATIONS

DETECTION PERFORMANCE ¹	
Spectral Range	900 nm – 1700 nm
Optical Fiber Type	MMF SMF
Operating Modes	Free-Running (FR) Gated (GM)
Dark Count Rate (DCR) ²	500 cps typ. ULN option ³ 10%
Calibrated QE	– 30% (5% step)
External Gate Frequency	from CW to 100 MHz max.
Timing Jitter ⁴	150 ps typ.
Dead Time Range (FR)	5 µs – 1 ms
Dead Time Range (GM)	100 ns min.
Afterpulsing Probability	0.1% typ.

¹ Detection performance measured at 1550 nm and 25 °C.

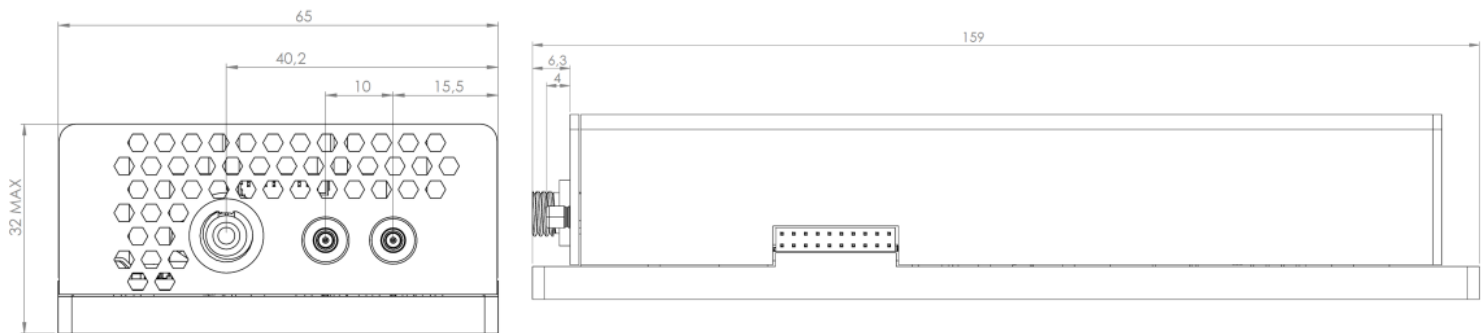
² DCR measured at 10% QE and 20 µs dead time in FR Mode.

³ Ultra-low-noise detection option available on request.

⁴ Timing Jitter measured at 30% QE.

MECHANICAL – POWER – ENVIRONMENTAL	
Form Factor	1U Rack Compatible
Dimensions (L x W x H)	159 x 65 x 32 mm
Weight	0.5 kg
Power Consumption	10 W (5 V / 2 A)
Cooling Time	< 1 min @ 25 °C Ambient
Operating Temperature	+15°C to +40 °C
DIGITAL INTERFACES – INPUT/OUTPUT – SOFTWARE	
Optical Input	FC/PC
Trigger Input	SMB TTL/LVTTL
Detection Output	SMB LVTTL
Embedded Interface	UART port (PC/MCU control)
Programming APIs	Python
Supported OS	Windows Linux MacOS

MECHANICAL DRAWING (measurements in mm)



Ultra-compact form factor.

REMOTE CONTROL

Easily control the SPD_SLIM_NIR via straightforward UART commands. Adjust the QE and dead time, and monitor your detector in real time by reading photon count, clock rate, temperature, and alarm status.

Thanks to its stackable architecture, managing up to four SPD_SLIM_NIR modules is as effortless as controlling a single unit: only the primary module connects to the host PC, while power and UART are daisy-chained to subsequent modules via built-in interconnection boards to reduce cabling.

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@aureatechnology.com.

ORDERING INFORMATION

SPD_SLIM_NIR

Factory-calibrated ULU option with DCR < 300 cps. Available on request.

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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ACCESSORIES ON REQUEST

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