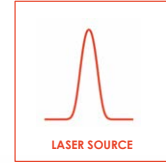


GIGAXEA

Ultrafast & Ultra Low Noise

GHz-gated NIR Single Photon Detector



The **GIGAXEA** is a game-changing **ultra-fast, ultra-low noise** telecom-wavelength **Single Photon Detector**, capturing the **900 to 1700 nm range**. Engineered to push the boundaries of what's possible in next-generation Quantum technologies and long-range **LiDAR systems**. Powered by cutting-edge cooled InGaAs/InP Geiger-mode **Single-Photon Avalanche Diode** technology, it achieves unprecedented photon counting rates **up to 300 MHz**, quantum detection efficiency **up to 30%**, ultra-low noise levels, and timing resolution **down to 150 ps**.

With its **air-cooled, room-temperature design**, the GIGAXEA eliminates bulky cryogenic systems to deliver a compact, scalable, and energy-efficient solution. In **Quantum Key Distribution**, it accelerates Secret Key Rate by **up to 25x more** compared to conventional fast-quenching detectors, enabling faster and more secure data transmission. The GIGAXEA integrates seamlessly with **1.25 GHz or 10 MHz** synchronization clocks, featuring built-in pulse generation, active gate-phase control, and an **intuitive GUI** for full automated operation.

Features

- Integrated 1.25 GHz gate generator
- Gate-phase control and signal shaping
- 10 MHz ref. or 1.25 GHz ext. sync
- Detection rate up to 300 MHz
- Ultra-low dark-count rate (<400 cps)
- Detection efficiency up to 30%
- Timing jitter down to 150 ps
- 200 ps effective gate width
- Air-cooled operation (no cryostat)
- USB & UART remote control
- Programming APIs: Python & C++

Applications

- Quantum Communications
- Quantum Networking
- Quantum Sensing & Metrology
- Long-range LiDAR & TCSPC

Related Products

- TPS Entangled Photon Source 1550 nm
- CHRONOXEA Time tagger

TECHNICAL SPECIFICATIONS

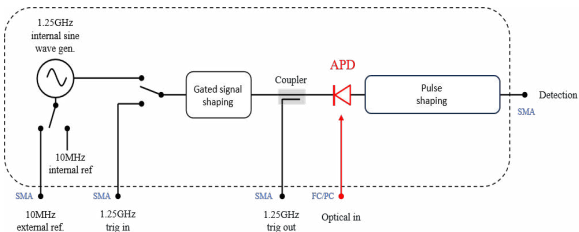
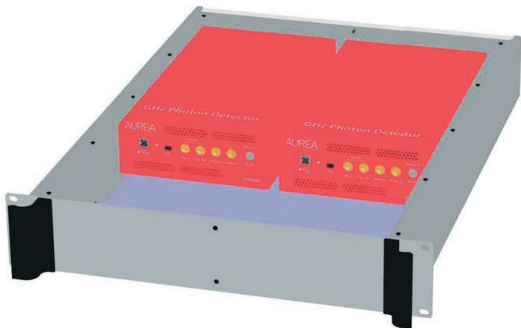
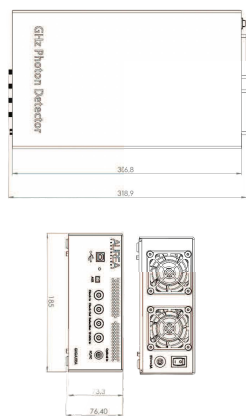
DETECTION PERFORMANCE ¹	
Spectral Range	900 nm to 1700 nm
Optical Fiber Type	MMF & SMF
Detection Mode	Gated Geiger-mode
Gate Generation	Internally or Externally
Calibrated QE	10%, 20%, 30%
Dark Count Rate	< 400 cps ²
Timing Jitter	150 ps ³
Effective Gate Width	200 ps
Max. Detection Rate	300 MHz ²
Min. Dead Time	3 ns

¹ All specifications measured at 1550 nm and 25 °C.
² DCR and Max. Detection Rate measured at 10% QE.
³ Timing Jitter measured at 30% QE.

MECHANICAL - POWER - ENVIRONMENTAL	
Form Factor	Compact standalone
Dimensions	319 x 185 x 74 mm ³
Weight	3.8 kg
Cooling System	Air-cooled
Operating Temperature	+ 10 °C to + 35 °C

INPUT/OUTPUT - SOFTWARE	
Optical Input	FC/PC
1.25 GHz Sync Input	SMA, Sine (-10 to + 10 dBm)
10 MHz Ref. Input	SMA, Sine/Square (-10 to + 10 dBm)
Detection Output	3V LVTTTL, 50 Ω, < 2 ns [SMA]
Trigger Output	1.25 GHz, < 5 dBm [SMA] Dedicated
Embedded Interface	UART port
Host Interface	USB 2.0 Mini-B port
Programming APIs	Python, C++
Supported OS	Windows, Linux

MECHANICAL DRAWINGS AND INTERFACE OVERVIEW



Dimensions: 319 x 185 x 74 mm³

Designed for easy telecom-rack integration

Synchronous GHz gating for high-rate QKD

QUANTUM PLATFORM

Build your custom quantum communication system now!

AUREA Technology provides a complete Quantum platform:

- TPS_1550_TYPE_S: The Narrow bandwidth EPS Source
- CHRONOXEA: The picosecond Time Tagger
- SPD_OEM_NIR: The best-in-class NIR Photon Counter

For a seamless integration, all instruments are provided with their GUI and DLL for remote control!

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

GIGAXEA_1250

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

- + 12 V, 60 W, AC/DC power adapter, with AC power cord