

QUANTUM

Image & Characterize Every “Single Photon”

DETECTION

Enabling the Quantum Era with trusted OEM Partners

SOLUTIONS

Quantum Imaging, Communication & Sensing

ATOS



Atoms to Stars



Quantum Detection Solutions

UV - VIS Single-Point SPADs

UV - VIS SPADs

Red-shifted: Peak 630 nm, 20 cps dark count

Blue-shifted: Peak 450 nm, 7 cps dark count

Timing jitter: <150 ps, Sync: 80 MHz

Free Space & Fiber Coupled



Ideal For:

Lifetime Imaging, TCSPC, Quantum Biology



Quantum Detection Solutions

NIR Single-Point SPADs

NIR SPADs

Peak efficiency at 1310 & 1550 nm

30% Detection efficiency, Timing jitter: <40 ps

Fast gating (Up to 100 MHz)

Compact & Cost Effective



Ideal For:

QKD, Quantum Communication, IR-LIDAR

SPAD Array Detectors

23-Pixel SPAD Array Detector – SPAD 23

Red (600–850 nm) and Green (450–650 nm)
Detection Probability (PDP): up to ~45%,
<150 ps jitter, Dark count rate: <100 cps/pixel

93-Pixel Hexagonal Array Detector – SPAD 93

440–660 nm range, Peak QE 55% @ 520 nm
<120 ps jitter with 20 ps time tags



Ideal For:

Multi-Channel Photon Counting & Correlation, FLIM

Superconducting Nanowire Single-Photon Detector

SNSPD

The gold standard in IR single-photon detection,
the ultimate detectors for infrared quantum

Detection efficiency: >90% @ 1550 nm

Timing jitter: <20 ps, Dark counts: <1 cps

Cryogenic operation (2–4 K)



Ideal For:

Long-Distance QKD, Entangled Photon Distribution

Photon Imaging with 95% QE

iXon EMCCD – Imaging with Lowest Dark Current

Deep cooling to $-100\text{ }^{\circ}\text{C}$ for lowest dark current

Lowest dark current $0.00011\text{ e-}/\text{pixel}/\text{sec}$

Ultra-low read noise $<1\text{ e-}$ with EM gain ON

Fast 56 fps imaging, Auto EM Calibration



Ideal For:

Cold Atoms, Entanglement Visualization, Astronomy

Photon Imaging + Counting

SPAD 512 – High Speed Photon Counting SPAD Camera

512 × 512 pixels, 400–900 nm range

1,00,000 fps (1-bit), 400 fps (8-bit)

Time gating: 6ns gating with 17ps steps

Photon Counting with single photon sensitivity



Ideal For:

Quantum Imaging, Ultrafast Light-in-Flight, Widefield FLIM

Photon Imaging + Counting + Time Correlation

ASI Timepix – Capture as Image, Count Photon & Correlate Every Event at Each Pixel

512 × 512 pixel with 55 μm pitch

Continuous operation 300 million events per second

Event-driven readout for photons, electrons, ions, X-rays etc.

Timing resolution: 195 ps (on-chip), Dead-time: 200ns + ToT

Simultaneous detection of arrival time (ToA) & intensity (ToT) in each pixel.



Ideal For:

Coincidence Imaging, Quantum Correlations, 4D STEM

Quantum Laser Light Sources – Sacher Laser

Micron Lasers (Monolithic Architecture and 14-Pin butterfly package)

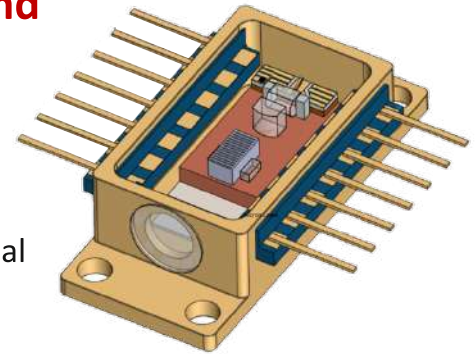
350nm – 15 μ m wavelength range, Power upto 4W

Sub-kHz Linewidth options available

Ultra-stable due to Monolithic architecture & Hermetic seal

Rb, Cs, Ca, K, Sr, Li spectroscopy,

Optical clocks and Raman spectroscopy



Ideal For:

Atomic Physics, Cold Atom Trapping, SAS Spectroscopy

Wavelength meters & Laser Spectrum Analyzers

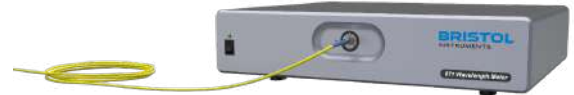
Wavelength accuracy ± 0.0001 nm

Spectral resolution up to 2 GHz

Wavelength resolution as high as 200 KHz

Automatic calibration with a built-in reference

PID Controller: Stabilizes frequency of up to 8 lasers



Ideal for:

Laser Spectral Characterization, Frequency Stabilization.



Quantum Time Tagging

Quantum Photonics Bundle

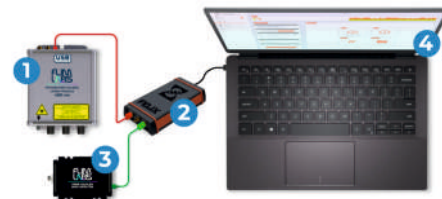
Fully integrated quantum photonics system

Fiber-coupled picosecond-pulsed Laser

TDC Felix - TDC instrument with SPAD Detector

12 ps r.m.s. response, 3.5Mcps processing, 1.5ps DNL

36.6 fs resolution, 12 ns dead time



Ideal For: Detection & Time Tagging, Communication



Quantum Security

Quantum-Safe Security – IDQ QKD

Based on BB84 & decoy state protocols

Continuous key generation for AES/IPsec/TLS/VPNs

Standards compliant (ETSI, ITU-T)

Quantum-safe security protocol, Communication

Trusted globally by governments, banks, telecoms, & R&D institutes



Ideal For:

National Security, Finance, Academic Quantum Networks

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