



SINGLE QUANTUM
Excellence in photon detection

Superconducting Nanowire Single Photon Detection System



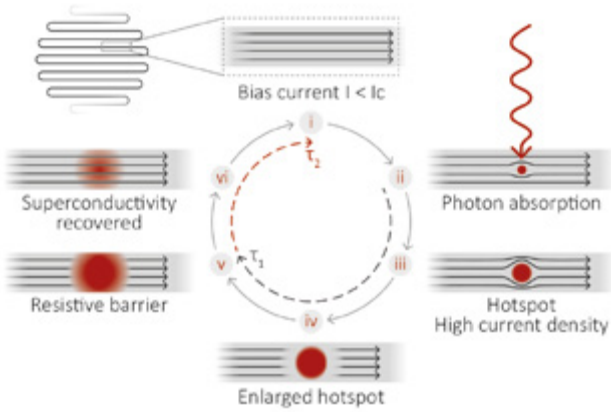
**We make the
world's fastest and
most sensitive
light sensors**

limited
only by
the laws of
physics



Single Quantum Eos R12

Superconducting nanowire single photon detection system



The photon detection

Once a single photon is absorbed in the nanowire, superconductivity is locally broken. As a result, the current is directed towards the amplification electronics and creates a voltage pulse. The detection process takes ~ 10 ps, after which the superconductivity quickly recovers in the nanowire.

Closed-cycle cryostat

The system operates at 2.5 Kelvin, cooled down by an external helium compressor.

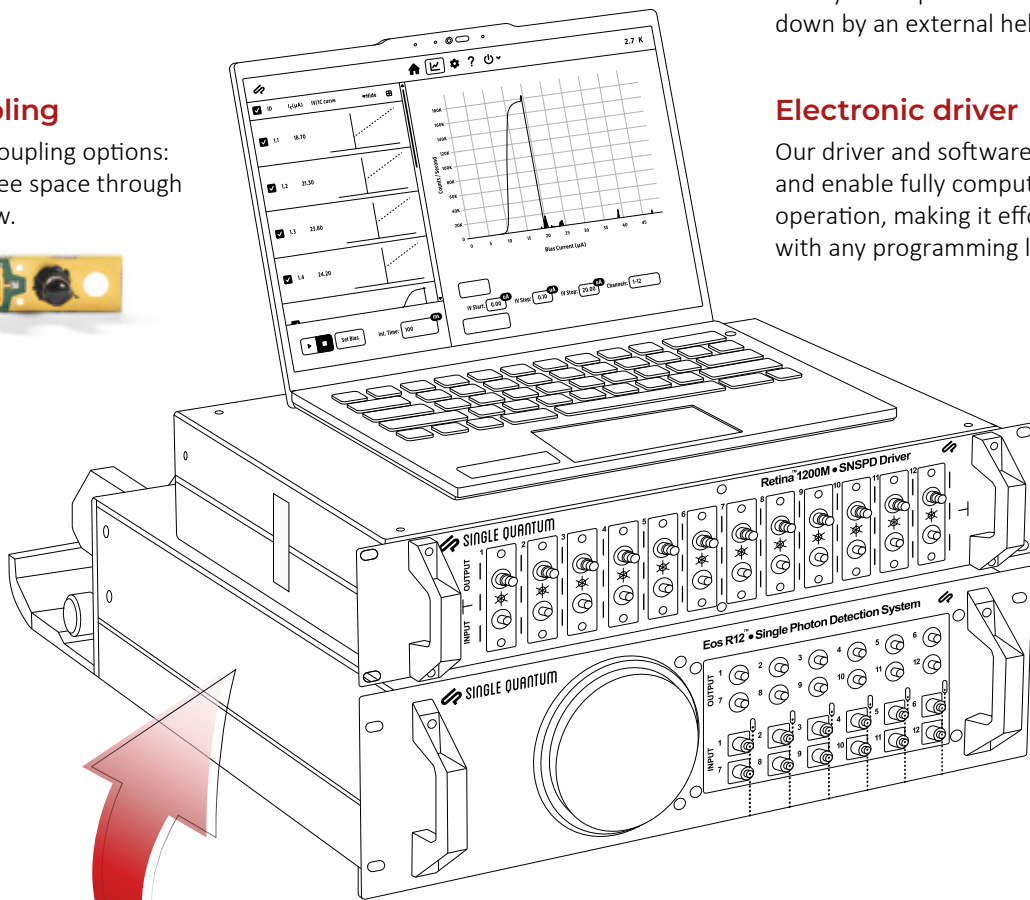
Optical coupling

Detectors offer coupling options: optical fiber or free space through an optical window.



Electronic driver

Our driver and software are unique and enable fully computer-controlled operation, making it effortless to interface with any programming language.



Integrated Pump

The upgraded Single Quantum Eos R12 with integrated pump delivers powerful new features in a compact, industrial-grade design without compromising on performance. Key features include:

- ✓ Integrated vacuum pump with fully automatic cooldown
- ✓ Remote system control for enhanced convenience
- ✓ Clean, rack-mounted setup – the size of the R12, the driver, and the vacuum pump combined is now just 5U

With over 50% space savings, the Eos R12 is now one of the most compact cryostats.

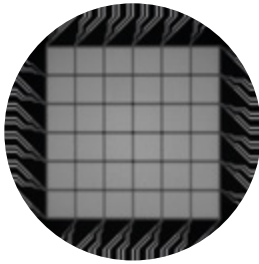


New developments



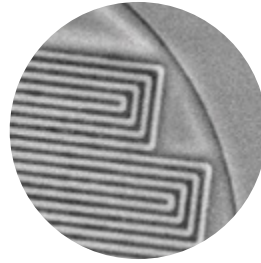
Eos R48™

Rack-mountable, 48-channel SNSPD system with cryostat, retina driver, and compressor



Iris X™

Free space SNSPD camera



Interleaved Detectors

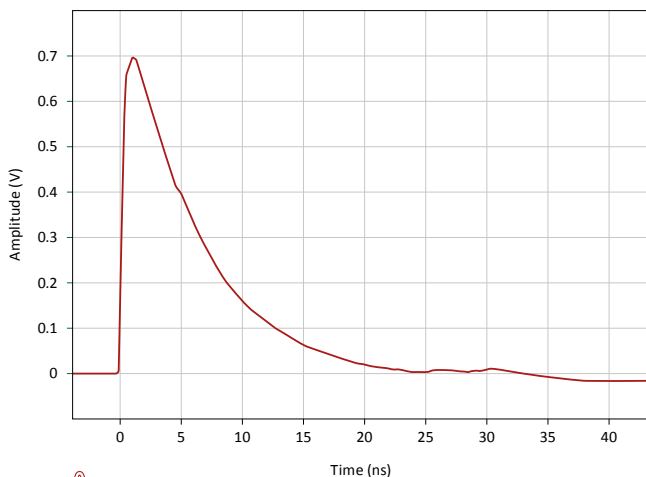
Photon Number Resolving and Ultra-high Count Rate



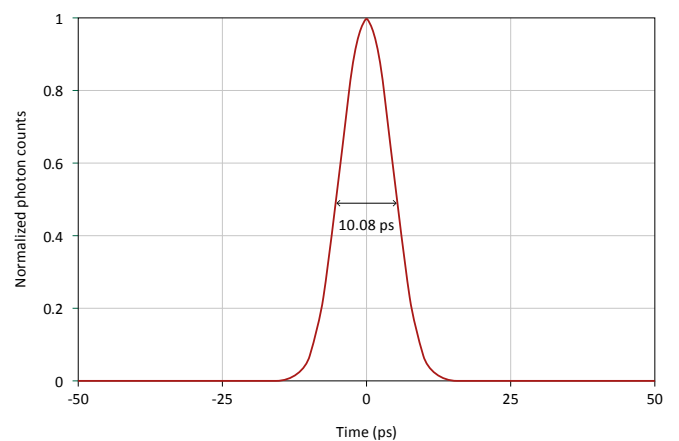
Switch 1200™

Gating Module

Electronics



The best timing jitter on the market



If you are interested in different specifications and industry lines, please visit singlequantum.com/solutions



350+
satisfied users



13 Years
of experience



Global sales
network and service

Want to know more? Contact us at
sales@singlequantum.com



At Single Quantum, we confront every challenge with innovation, dedication, and passion.

Founded in 2012 in the Netherlands, our team emerged as true pioneers of single photon detection technology: we were among the first to manufacture and commercialize superconducting nanowire single photon detectors.

Since then, our multi-channel Single Quantum Eos photon detection system has been chosen by more than 350 academic and industrial labs all over the world.

 singlequantum.com  [single-quantum](https://www.linkedin.com/company/single-quantum)

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Specifications

Single Quantum offers an extensive detector portfolio spanning the visible through the mid-infrared, covering Vis, NIR (near-infrared), and telecom wavelengths to match a wide range of applications.

	VIS		NIR			TELECOM		MIR			
Optimization wavelength	500 nm	600 nm	800 nm	900 nm	1064 nm	1310 nm	1550 nm	1.8 μm	2 μm	2.2 μm	3 μm
System detection efficiency	$\geq 85\%$	$\geq 85\%$	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$	$\geq 70\%$	$\geq 70\%$	$\geq 30\%$	$\geq 10\%$
Timing jitter	≤ 15 ps	≤ 15 ps	≤ 15 ps	≤ 15 ps	≤ 15 ps	≤ 15 ps	≤ 15 ps	≤ 50 ps	≤ 50 ps	≤ 50 ps	≤ 100 ps
Dark count rate	≤ 0.1 cps	≤ 0.1 cps	≤ 1 cps	≤ 1 cps	≤ 10 cps	≤ 10 cps	≤ 1 cps	≤ 1 kcps	≤ 5 kcps	≤ 50 kcps	≤ 200 kcps
Maximum count rate	≥ 80 MHz	≥ 80 MHz	≥ 80 MHz	≥ 80 MHz	≥ 50 MHz	≥ 50 MHz	≥ 50 MHz	≥ 10 MHz	≥ 10 MHz	≥ 10 MHz	≥ 5 MHz
Ultra-high count rate detectors	N.A.	N.A.	≥ 250 MHz	N.A.	N.A.	N.A.	≥ 500 MHz	N.A.	N.A.	N.A.	N.A.

*Not all specs can be achieved simultaneously