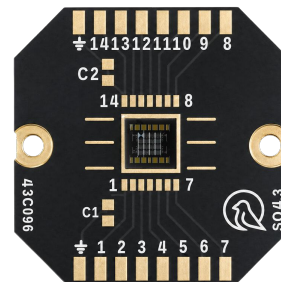


Sparrow Core

Deterministic single-photon source

Single-Photon Chip 920–960 nm

Sparrow Core is a quantum dot single-photon source on a photonic nano-chip. It emits single photons on demand with the purity, brightness and indistinguishability that photonic quantum experiments require. Delivered on a wire-bonded carrier, the chip integrates into an existing cryostat and free-space optical setup. The values below are typical of shipped chips measured on Sparrow Quantum's reference setup:



93–97%

Indistinguishability
(raw HOM, 12.5 ns)

99–99.9%

Single-photon
purity

60–75%

Efficiency at
chip output

920–960 nm

Output
wavelength

Up to 1 GHz

Trigger rate
(80 MHz typical)

Who Sparrow Core is for

Sparrow Core is a component for custom experiments. It is built for teams that already run an optical table, a cryostat at 2–4 K and a pulsed resonant laser, and want a deterministic photon source they can trust. Intended end-users include, but are not limited to: quantum optics groups, photonic quantum computing R&D, quantum network labs, and instrumentation developers.

Optical and quantum performance

Parameter	Description	Typical values
Excitation	Pulsed resonant optical excitation, pulse width	7–15 ps
Indistinguishability	Hong–Ou–Mandel interference between photons emitted 12.5 ns apart. Raw values, no correction applied.	93–97%
Single-photon purity	Probability that a pulse contains one photon, and only one	99–99.9%
Efficiency	Probability that one excitation pulse yields an emitted photon, at chip output.	60–75%
Output wavelength	Equal to the excitation wavelength. Fixed per chip, with fine tuning around the centre wavelength via voltage.	920–960 nm <0.1 nm tuning
Repetition rate	Typical excitation laser rate Maximum excitation laser rate	80 MHz Up to 1 GHz
Lifetime	Exponential decay constant	150–500 ps

Test conditions. Typical values measured at 3–4 K under resonant pulsed excitation on Sparrow Quantum's reference setup. Indistinguishability, purity, efficiency, wavelength and lifetime are documented per chip in its test report. Full datasheet, reference optical design and terms of sale available on request.

Get in touch

info@sparrowquantum.com • Sparrow HQ: Nordre Fasanvej 215, 2000 Frederiksberg, Denmark