Redefining Measurement

ID120 Visible Single-Photon Detector

High Quantum Efficiency at 800 nm Large Active Area 500 µm

IDQ's ID120 series consists of compact and affordable single-photon detector modules based on a reliable silicon avalanche photodiode sensitive in the visible spectral range. Up to now, the ID100 series was limited to detectors with high efficiency values in the green region (around 500 nm). The new detector of the ID120 serie has high efficiency values in the red region of the visible spectrum and a ultra high active area. This new detector comes as free-space module, passive quenching, maximal efficiency value around 800 nm.

This detection module is highly versatile thanks to an USB connection and a Labview interface allowing the user to change the bias voltage and the temperature of the diode.

The module is equipped with a dual universal output signal port which can be set through the software interface. The module is compatible with C-mount, SM1 and cage technologies from Thorlabs. This allows an easy coupling of the light beam onto the active area of the detectors.

Key Features

- 60% quantum efficiency at 650 nm
- 80% quantum efficiency at 800 nm
- Tunable quantum efficiency
- Tunable temperature of the diode
- Adjustable deadtime
- Universal dual output
- Labview interface
- C-mount, SM1, cage compatible
- Integrated electronic counter

Applications

- Time correlated single-photon counting (TCSPC)
- Fluorescence and luminescence detection
- Single molecule detection, DNA sequencing
- Fluorescence correlation spectroscopy
- Spectrophotometry
- Laser scanning microscopy
- Adaptive optics
- Particle physics
- Dynamic light scattering (DLS)

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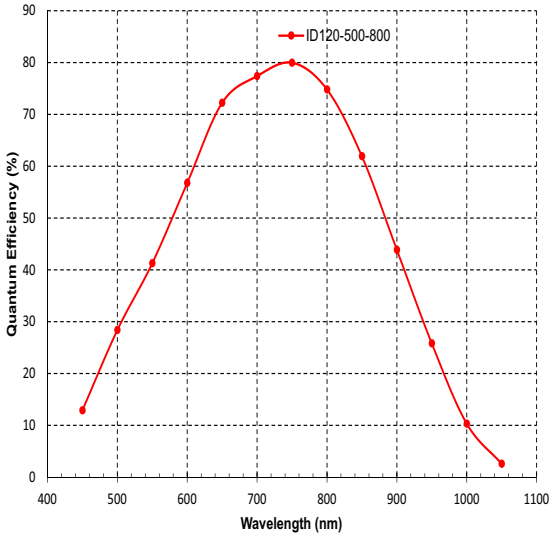
VISIBLE SINGLE-PHOTON DETECTOR

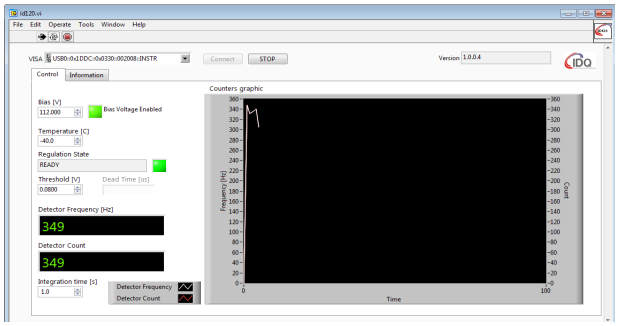
Specifications ID120-500-800nm

Parameter	Min	Typical	Max	Units
Wavelength range	350		1000	nm
Active area	500			µm
Single-photon detection probability (SPDE)				
at 650 nm (at max. excess bias)	1		60	%
at 800 nm (at max. excess bias)			80	%
Dark Count Rate (at max. excess bias)			<200	Hz
Timing resolution (at max. excess bias)	200	400	1000	ps
Deadtime		1		µs
Output pulse		NIM & LVTTL		
Output pulse width		25		ns
Storage temperature	-40		70	°C

1 Quantum efficiency vs lambda



2 Software



Delivered with software to:

- display count rate
- control quantum efficiency
- control deadtime
- control temperature

Ordering Information

ID120-500-800nm-STD	Photon counter with 500 µm active area for 800 nm with DCR < 3000 Hz
ID120-500-800nm-ULN	Photon counter with 500 µm active area for 800 nm with DCR < 200 Hz

Supplied accessories: USB cable, power supply, USB memory stick including software, adapter to mount Thorlabs components.

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