

Redefining Measurement

ID230 Infrared Single-Photon Detector

Free-Running InGaAs/InP Photon Counter with Extremely Low Dark Count

The ID230 is a major breakthrough for single-photon detection in free-running mode at telecom wavelengths. Based on the existing ID220, this new series offers a significantly decreased dark count rate thanks to an improved cooling system and adapted electronics. The avalanche photodiode working in Geiger mode is cooled down to -90°C . This series has been especially designed for applications in which asynchronous photon detection is essential.



The module can operate at detection probability levels of up to 25%, with a deadtime that can be set between $2\ \mu\text{s}$ and $100\ \mu\text{s}$. The photon arrival time is reflected by a $100\ \text{ns}$ LVTTTL pulse, with a timing resolution of below $150\ \text{ps}$ at 25% efficiency. A simple USB interface allows the user to set all parameters.

Key Features

- ▶ 900-1700 nm
- ▶ Best-in-class dark count rate
 - < 50 Hz at 10% quantum efficiency
 - < 200 Hz at 20% quantum efficiency
- ▶ Adjustable quantum efficiency up to 25%
- ▶ 150 ps timing resolution
- ▶ Adjustable deadtime from $2\ \mu\text{s}$ to $100\ \mu\text{s}$
- ▶ Adjustable temperature from -50°C to -90°C
- ▶ Singlemode or multimode fibre optical input

Applications

- ▶ Quantum cryptography
- ▶ Fibre optics characterization
- ▶ Single-photon source characterization
- ▶ Failure analysis of electronic circuits
- ▶ Eye-safe laser ranging (LIDAR)
- ▶ Spectroscopy, Raman spectroscopy
- ▶ Singlet oxygen measurement
- ▶ Photoluminescence
- ▶ Fluorescence lifetime measurement

INFRARED SINGLE-PHOTON DETECTOR

Specifications

Parameter	Min	Typical	Max	Units
Dark count rate @ -90°C				
10%	50		80	Hz
20%	100		200	Hz
Wavelength range	900		1700	nm
Optical fibre type	SMF or MMF62.5			
Efficiency range at 1550 nm	0		25	%
Timing resolution at 25% quantum efficiency		150	200	ps
Deadtime range	2		100	µs
Deadtime step		1		µs
Detection output pulse	LVTTTL / 100 ns width			
Output connector	SMA			
Size	60x27x25			cm
Weight	30			kg

Quantum efficiency vs wavelength (tendency)

