



# ID230

## Infrared Single Photon Detector

Ultra-low noise and high precision single-photon detection in a standalone system



The ID230 delivers reliable and robust telecom-wave-length single-photon detection, with the performance and versatility of a semiconductor system.

With the ID230, unwanted detector noise is uniquely low. Thanks to an advanced cooling system and best-in-class device control electronics, the temperature of the ID230's InGaAs/InP avalanche photodiode can be cooled stably to  $-90^{\circ}\text{C}$ , giving detector dark counts as low as  $<50$  Hz.

Specially designed for applications with asynchronous detection, this single-photon counting module can detect up to 25% of all photons arriving through its optical fibre-couple input (MMF or SMF), with a user-definable detector deadtime of  $2\text{ }\mu\text{s}$  to  $100\text{ }\mu\text{s}$ .

Get the most out of your ultra-sensitive photonic experiments and applications with the ID230 Infrared Single-Photon Detector today.



### ID1000 Time Controller Series Bundle

Take your experiment to the next level. Use the Time Controller to register single-photon pulses and control your experiment, within a combined time-tagger, pulse generator, delay generator package. All with advanced on-board logic for real-time four-fold coincidence measurements.

### Key Features

- ▶ **Self-contained single photon detection module**
- ▶ **High detection efficiency:** up to 25%
- ▶ **Ultra low noise:** as low as  $< 50$  Hz dark count rate
- ▶ **Superb precision:**  $< 200$  ps timing jitter, typ.  $< 150$  ps
- ▶ **Broadband NIR detection:** 900–1700 nm light
- ▶ **Reliable and robust performance, with worldwide round-the-clock technical support included**

### Applications

- ▶ QKD and quantum communication
- ▶ Quantum optics and computing
- ▶ Single-photon source characterisation
- ▶ Fluorescence lifetime imaging
- ▶ Failure analysis of integrated circuits
- ▶ VIS, NIR and MIR spectroscopy
- ▶ Deep tissue imaging

## Specifications

### ID230 infrared single photon detector

|                                                                   |                                                                                                       |                               |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------|
| Wavelength range                                                  | 900 nm to 1700 nm                                                                                     |                               |
| Deadtime                                                          | 2 $\mu$ s to 100 $\mu$ s, in 1 $\mu$ s steps                                                          |                               |
| Output pulses                                                     | LVTTTL, 100 ns width                                                                                  |                               |
| Optical coupling                                                  | Optical fibre (SMF or MMF62.5)                                                                        |                               |
| Efficiency range <sup>(1)</sup> calibrated at $\lambda = 1550$ nm | 10%, 15%, 20%, 25%                                                                                    |                               |
| Timing jitter @ 25% efficiency level                              | Maximum 200 ps (150 ps typical)                                                                       |                               |
| Noise performance @ efficiency level <sup>(2)</sup>               | 10%                                                                                                   | 20%                           |
| Dark count rate                                                   | < 80 Hz (as low as < 50 Hz)                                                                           | < 200 Hz (as low as < 100 Hz) |
| Dimensions                                                        | 60 cm x 27 cm x 25 cm                                                                                 |                               |
| Weight                                                            | 30 kg                                                                                                 |                               |
| Control interface                                                 | USB 2.0                                                                                               |                               |
| Operating temperature                                             | +10°C to +25°C, max. 60% humidity                                                                     |                               |
| Power supply                                                      | 90-264 VAC, 127-327 VDC (50-60 Hz)<br>Max current @ 115 VAC: 5.6 A<br>Max. current @ 2.75 VAC: 2.75 A |                               |

#### Supplied Accessories:

- Optical fibre patch cable, SMF or MMF as ordered
- Optical fibre cleaner
- Region adapted power supply cable
- USB thumb drive
- USB cable

#### Notes:

<sup>(1)</sup> Additional efficiency levels can be calibrated on demand.

<sup>(2)</sup> Dark count rate measured with a 50  $\mu$ s deadtime at -90°C detector temperature.

### Need something smaller?

#### Consider the ID Qube NIR Series of single-photon detectors:

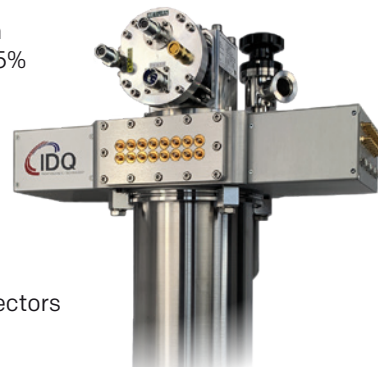
- Compact & cost effective
- High detection efficiency (up to 35%)
- Low noise (<800 Hz dark counts)



### Only the best will do?

#### Consider the ID281 Superconducting Nanowire Series:

- Ultra high detection efficiency: up to >95%
- Ultra low noise: as low as <1 Hz dark counts
- Superb precision, as low as <25 ps timing jitter
- Up to 16 built in detectors



**ID Quantique**

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