

CAPTURE EVERY CELL



Imaging Photon Counter

Photonis' Imaging Photon Counter provides a unique set of capabilities to support fast imaging techniques under light-starved conditions. The Imaging Photon Counter combines innovative MCP detector technologies and specially-designed fast electronics. With no read noise and a wide field of view, the Imaging Photon Counter supports TCSPC applications in extreme low light.

The Imaging Photon Counter offers some innovative features such as:

- **Wide Field of View:** full C-Mount wide field of view (18mm round)
- **Single Photon Time Tagging:** 100pS timing resolution
- **High Spatial Resolution:** spatial resolution on the X and Y axis <40µm
- **High Count Rates:** Equipped for input event rates up to 5MHz and local count rates to 10kHz



Innovative Technology

Photons are converted into electrons and the electron signal is amplified by a proprietary low light dual MCP-based detector with a custom cross-strip anode. Events detected in the anode strips are digitized by the electronics unit; the X and Y positions of each photon are calculated by the charge distribution in the bi-dimensional anode. The spatial resolution in both directions is <40 microns.

A double sampling TDC measures the time between the user trigger pulse (a laser) and the detected event. The timing resolution, obtained from the MCP stack, is < 100pS.

The Imaging Photon Counter can process up to 5MHz input event rates, with local count rates (100 micrometer spot) up to 10kHz.

A graphical user interface (GUI) provides a range of user settings for data collection and storage using a Gigabit Ethernet cable.

The Imaging Photon Counter can be customized to spectrally match your needs. Photonis offers a Hi-QE photocathode to increase quantum efficiency by 50% compared to traditional S20 or S25 photocathodes. In addition, our Hi-QE photocathodes decrease the dark count rate as much as 10x.

Optical (ambient at 20°)	Specifications		
Lens Interface	C-Mount		
Input Window	Quartz		
Photocathode Type	User Specified, see chart		
Input Useful Diameter	Min 17.5mm		
Photocathode Sensitivity	Varies by photocathode type selected		
Peak Quantum Efficiency	Dependent on photocathode type selected; see chart		
Dark Emission Rate	Dependent on photocathode: 100 cps/cm ² - 10 kcps/cm ²		
Photocathode Protection Gating	Controlled via GUI		
Photocathode High Speed Shutter Gating	100ns		
Supply Voltages	+ 12 V; 2.5 A		
Camera			
Spatial Resolution	40μm FWHM in both X and Y		
Position Digitization	2048 x 2048px		
Timing Resolution	100ps		
Time Stamp	50ps		
Event Rate	5MHz		
Localized Event Rate 100 μm spot	10kHz		
Dead Time per Output Event	80ns		
Communications			
Connection	Ethernet RJ-45		
Speed	1000 Mbps		
Gate input	SMA		
Data Format	Provided in Full Manual		
Environmental			
Operating Temperature	0°C	20°C	55°C
Storage Temperature (4 hour max.)	0°C	20°C	65°C
Storage Temperature (long term)	0°C	20°C	35°C

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