PHOTEK
ENVISAGE THE FUTURE

PCS-256

Multi-Channel Photon Counting System

AuraTek™
DISCOVERY AT THE SPEED OF LIGHT

The AuraTek PCS-256 is an innovative, photon counting system that combines a Multi-Anode MCP-PMT with the high performance TOFPET readout electronics. The easy-to-use system contains 256 independent, high performance photon counting channels, each having a time stamp with 44 ps resolution and timing performance of < 100 ps rms after amplitude walk correction. The system is self-triggering and event driven, with time and amplitude data provide for each photon detected. The maximum count rate for each channel is 160 kcps, with a maximum total system count rate of about 10 Mcps. An optional user provided event identifier can be time stamped and included in the data stream by replacing one of the 256 anodes with an external input. The 160 MHz clock used by the sensor head is available to synchronize external circuits, or optionally, the user can provide their own 160 MHz clock. A Gigabit Ethernet link (640 Mbps max data rate) makes the final connection to a data acquisition computer providing online data display and storage of raw data to disk for later processing. The PCS-256 is available with any of Photek's high sensitivity photocathodes, each providing high quantum efficiency with extremely low dark counts for optimal signal-to-noise performance. Customization of the PCS-256 for your specific needs includes; fibre optic input window for proximity focusing, multi-photon pulse readout, and varying pixel size and geometry using Photek's proprietary Anisotropic Conductive Film technology. Software is provided to allow real-time monitoring of data and to optimize data post-processing.

APPLICATIONS

- High Content Screening
- Time Resolved Spectroscopy
- Wide Field Time Correlated Single Photon Counting
- Fluorescence Lifetime Imaging Microscopy (FLIM)
- Forster Resonance Energy Transfer (FRET)
- LIDAR
- Wavelength Shifting Fibre Readout
- Scintillating/Cherenkov Fibre Readout
- Microplate readout
- Beam monitor

PRODUCT OVERVIEW

General Characteristics	
Window	Fused Silica (Optional Fibre Optic)
Active Area	26.5 x 26.5 mm
Electron Multiplier	Dual MCP
Anode Format	16 x 16
Anode Pitch	1.656 mm
Photocathode	Solar Blind, Bi-Alkali, S20, S25

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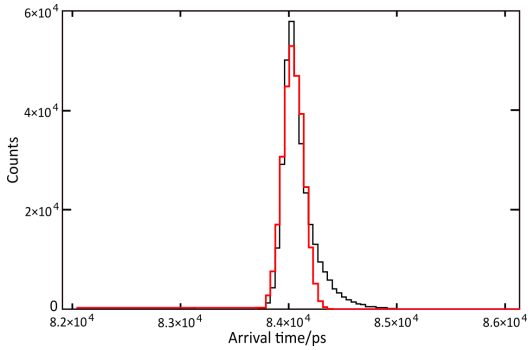
Issue	02
Date	1st May 2019

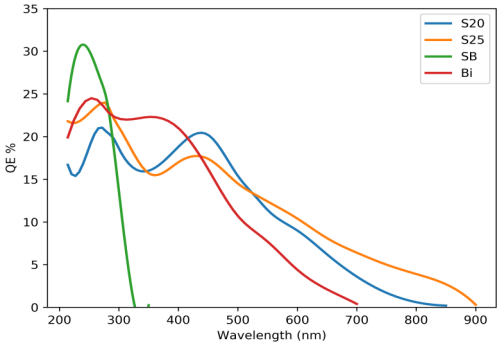
PCS-256

SPECIFICATIONS

Single Photon Response	
Dark Counts per Channel	~ 2 cps
Time Stamp Resolution	44 ps
Transit Time Spread (Time Walk Corrected)	<100 ps σ_{rms}
Channel Trigger Rate—Max	160 kHz
Maximum Ratings	
Sensor High Voltage	<3000 V
Average Total Count Rate (Averaged Over Detector)	10^7 cps
Operating Temperature	-50 to +50°C
Storage Temperature	-50 to +50°C
Power	12 V @ 5 A
Sensor Head (W x H x D)	188 mm x 120 mm x 82 mm

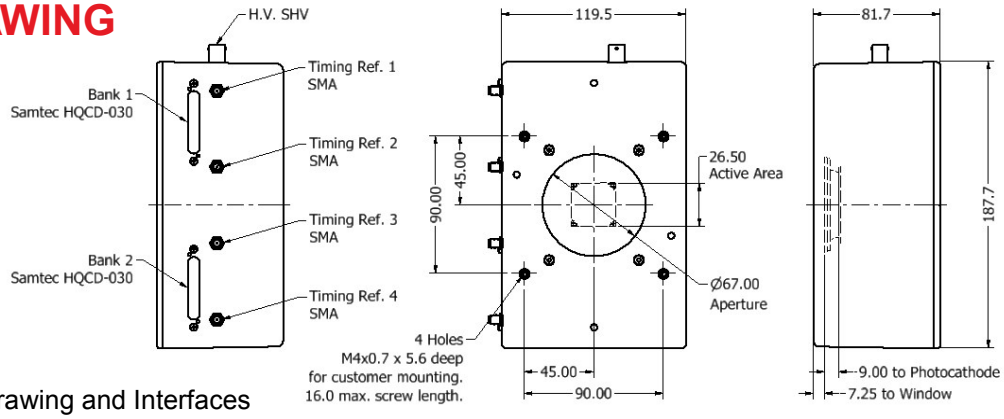


Example single photon timing resolution, measured using an LPG-650 (40 ps FWHM pulsed laser). Black shows uncorrected data, with red showing amplitude walk corrected data (100 ps RMS).

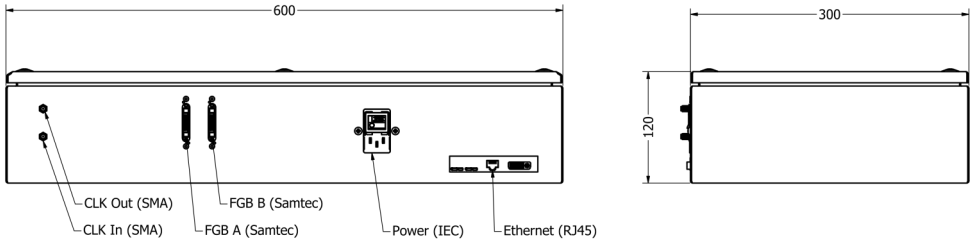


Available photocathodes on fused silica window. Optional fibre optic window will reduce sensitivity and no response below 300 nm.

OUTLINE DRAWING



Sensor Head Outline Drawing and Interfaces



Data Processing Unit Outline Drawing and Interfaces

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