

Photochron 5

Streak tubes are used for the study of ultra fast optical phenomena and specifically measure the variation in light intensity as a function of time. Installed in some of the world's best streak cameras the Photek streak tubes are proven in performance and reliability. Photochron 5 was developed in collaboration with St Andrews University for use in Synchroscan cameras, and can achieve better than 2 ps time resolution in both single shot and synchroscan modes.

KEY ATTRIBUTES

- Timing resolution to 400 fs ٠
- 8mm photocathode size ٠
- Synchroscan up to 250 MHz ٠
- UV, solar blind, visible & NIR responses ٠
- Can be supplied with a mu-metal shield for high magnetic field environments



APPLICATIONS

- Streak cameras
- **Fusion Research**
- Optical oscilloscope ٠
- LIDAR systems
- FLIM
- Real time Imaging of beam-profiles in ٠ **Synchrotrons**

PRODUCT OVERVIEW

Cathode Size (mm)	m) 8mm slit		
Synchroscan	> 200 MHz		
Time Resolution (typical)	2 ps		
Time Resolution (maximum)	400 fs (1)		
Spatial Resolution (typical)	50 lp/mm		
Magnification (spatial)	2-4		
Deflection Sensitivity: Time Axis	75 V/cm		
Deflection Sensitivity: Spatial Axis	250 V/cm		

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OPTIONS AVAILABLE INPUT WINDOW

Photek streak tubes are available with a choice of input window materials. These include MgF_2 , fused silica and fibre optic.



SPECTRAL RESPONSE

Photek offer a full range of Gen II photocathodes, these include CsI, Solar Blind, Bialkali, Low Noise S20, S20 and S25.



Above is the broad spectral response that you would expect to achieve with Photek's range of Gen II photocathodes. Please note that input window material will affect overall sensitivity.

PHOSPHOR SCREEN

Photek can offer two types of phosphor screen substrates; glass or fibre optic. Our standard phosphors include P20, P43, P46, P47 & FS depending on the brightness and decay time required. Other phosphors are available on request.

Type (wavelength nm)	Anode efficiency % (Optical Watts / Electrical Watt)	Photons/ Electron at 5 kV	Decay Characteristic
P20 (540)	12	320	Fast initial decay with long decay at low level. 1 ms to 1%
P43 (548)	8.7	240	1.2 ms/decade, true exponential
P46 (530)	1.8	55	300 ns
P47 (410)	3	64	80 ns
FS (513, 668, 768)	4.2	96	12 μs to 10 %

ENVIRONMENTAL

Operational Limits: -40 °C to +45 °C Storage: -40 °C to +60 °C

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MECHANICAL



Dimensions (mm) are indicative and may vary depending on the optics and housing required.

OPTIMISATION AND OPERATING VOLTAGES

These tubes have an accelerator mesh and three focus electrodes. The tube can be operated over a range of voltages to change electron optical magnification while maintaining minimum beam size within the deflector region to suit user requirements, which may be influenced by choice of solid state camera chosen.

Voltages in the table below are given as percentages of overall voltage applied to the cathode with screen and deflector region at ground. Typical overall voltage is 7000 V.

		v	oltages (V)		Magnif	ication
	Cathode	Grid	Focus 1	Focus 2	Focus 3	Time	Spatial
Mode 1	-100	-75	-82	-78	-74.6	1.8	1.8
Mode 2	-100	-50	-65	-66	-76.6	1.8	2.1
Mode 3	-100	0	-29	-40	-76	2.6	2.6
Mode 4	-100	0	-44	-90	-71	3.9	3.9

Photek Ltd reserves the right to update and improve this specification without prior notice

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