

## Advanced Performance Detectors



**PHOTONIS** offers hundreds of standard and custom APD designs to detect and amplify charged particles and electromagnetic radiation.

Scientific instrument applications include mass spectrometry, SIMS, SEM, FIB, leak detectors, VUV spectrometers, and RGA.

**PHOTONIS** Advanced Performance Detectors are also used in high energy physics and space exploration.

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## PHOTONIS Advanced Performance Detector Assemblies

### Superior Sensitivity and Unsurpassed Dynamic Range

Advanced Performance Detectors are available with Photonis' full performance range of micro-channel plates. PHOTONIS' 2  $\mu\text{m}$  and 5  $\mu\text{m}$  pore Long-Life™ MCPs, available singly, as a two-piece matched chevron or a 3-piece matched z-stack, provide superior detection sensitivity. The Extended Dynamic Range™ option will typically increase the detection limit by a factor of ten.

### Wide Range of Performance and Configurations

Advanced Performance Detectors range from 3.9 mm to 120 mm diameter and up to 100 mm x 80 mm rectangular designs. User selections to optimize performance include pore size and pitch, bias angle, image grade, aspect ratio, bias current, high temperature, additional coatings, mounting options and readouts. PHOTONIS also offers the world's largest selection of Time-of-Flight (TOF) detectors.

### Designed for Easy Integration and Long-Life

The detectors are packaged in a variety of standard, custom and low profile housings for easy system integration. Mounting options include conflat and metric flanges, front, rear or side mountable, additional feed-throughs, keyed hardware and SMA connectors. The new patented Mounting-Pad™ MCP option virtually eliminates MCP warping and cracking that can occur with moisture absorption.

### Advanced Performance MCP Detectors

PHOTONIS USA offers over 200 types of standard and custom Advanced Performance Detectors. These fully inspected and tested MCP assemblies are manufactured in Class 1000 clean rooms with Class 100 flow benches, to ensure superior performance.

Advanced Performance Detectors are available with cartridge-mounted microchannel plates for easy and cost-effective replacement. Spare cartridges can be easily stored, with no degradation of MCP performance.



### Sub-Miniature Advanced Performance Detectors

QUANTUM™ and MICROTRON™ Sub-Miniature Advanced Performance Detectors offer previously unobtainable levels of amplification, dynamic range, and detection sensitivity in an ultra compact, easy to use package. They are specifically designed for miniature sensors and hand held analytical instruments, such as mass spectrometers, Residual Gas Analyzers, VUV spectrometers, and leak detectors.



# Advanced Performance Detectors

## Performance Options for PHOTONIS Advanced Performance Detector Products

### • Center Hole

Enables the unobstructed passage of a primary beam through the channel plate.

### • Center Tab

Enables independent biasing of two or more MCPs.

### • Grid

Used as a charged particle discriminator; can also be used to improve detection efficiency by reflecting secondary electrons back into the microchannel plate.

### • Flange Mount

Bakeable vacuum flanges are available for easy installation onto instrument chambers.

### • Metal Anode

A simple, electrically conductive readout device.

### • Multi Metal Anode

Multiple, electrically isolated conductive readouts.

### • Resistive Anode Encoder

A 1-D position sensor with a 25  $\mu\text{m}$  resolution, can count at 20,000 cps.

### • Phosphor Screen

A phosphor-coated fiber-optic substrate for a 2-D image of the output signal.

### • CCD

A solid state camera for high resolution 2-D video images.

This table will help you select the right APD configuration for your specific application.

APD		2	MA	18/12/10/12	D	60:1	6.4CH	EDR	MGO	P43
<b>MCP Count</b>		<b>Quality Diameter (mm)</b>		<b>Pitch / Pore Size (microns)</b>		<b>MCP Grade</b>		<b>Added MCP options</b>		<b>Detector Options</b> (For deviations from the normal for a given detector type)
1 - Individual Plate (CEMA)		18		3/2		D - Detection				
2 - Chevron™		25		6/5		I - Image				
3 - Z-Stack		40		10/8		P - Premium				
		75		12/10						
		120		32/25						
		79x97								
		97x79								
<b>Detector type</b>				<b>Bias Angle (degrees)</b>		<b>Aspect Ratio (thickness / pore size)</b>				
(Blank) – Metal assembly without anode				0		40:1				(Blank) - Standard Model
APTOF – Advanced Performance Time-Of-Flight detector				5		46:1				#ANODE - Multi metal anode
BPTOF – BiPolar Time-Of-Flight detector				8		60:1				#”FM - Conflat Flange Mount size, in inches
CRT – Cartridge for another detector				12						FFM - Front Flange Mountable
LPD – Low Profile detector				19						RFM - Rear Flange Mountable
MA – Metal Anode										SFM - Side Flange Mountable
MICROTRON – Microtron brand detector										CRT - Cartridge
MINITOF – Miniature Time-Of-Flight detector										CT - Center Tabs
PS – Phosphor Screen										FEEDTHRUS - Additional Feed Throughs
RAE – Resistive Anode Encoder										HT - High Temperature
TOF –Time-Of-Flight detector										IPB - InterPlate Bias
										KEYED -The hardware is keyed to eliminate one rotational degree of freedom
										P## - Type of phosphor screen
										GRID - Grid
										NOGRID - No Grid
										NW100FM - Metric NW100 flange
										SMA - SubMiniature version A Connectors

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For more information, please visit [www.photonis.com](http://www.photonis.com)

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