

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 μm and 5 μm 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.





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 μm 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		P20	
MCP Count 1 - Individual Plate (CEMA) 2 - Chevron™ 3 - Z-Stack		Quality Diameter (mm) 18 25 40 75 120 79x97 97x79		Pitch / Pore Size (microns) 3/2 6/5 10/8 12/10 32/25		MCP Grade D - Detection I - Image P - Premium		Aspect Ratio (thickness / pore size) 40:1 46:1 60:1		Added MCP options		Detector Options (For deviations from the normal for a given detector type) (Blank) - Standard Model #ANODE - Multi metal anode #”FM - Conflat Flange Mount size, in inches FFM - Front Flange Mountable RFM - Rear Flange Mountable SFM - Side Flange Mountable CRT - Cartridge CT - Center Tabs FEEDTHRUS - Additional Feed Throughs HT - High Temperature 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							
Detector type (Blank) – Metal assembly without anode APTOF – Advanced Performance Time-Of-Flight detector BPTOF – BiPolar Time-Of-Flight detector CRT – Cartridge for another detector LPD – Low Profile detector MA – Metal Anode MICROTRON – Microtron brand detector MINITOF – Miniature Time-Of-Flight detector PS – Phosphor Screen RAE – Resistive Anode Encoder TOF –Time-Of-Flight detector								Bias Angle (degrees) 0 5 8 12 19		MCP Coatings (Blank) - Standard NiChrome AU - Gold CSI - Cesium Iodide MGF2 - Magnesium Fluoride MGO - Magnesium Oxide KBR - Potassium Bromide CUI - Copper Iodide									



New 25 mm UltraFast BiPolar TOF detector



Square APD



Imaging APD with Integrated CCD camera

PHOTONIS

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