AP-TOF

18 mm BiPolar
Time-of-Flight Detector

Application
- ✓ High performance, fast timing detectors for TOF mass spectrometry

Features
- ✓ Improved high mass resolution
- ✓ Positive and negative ion detection
- ✓ Post acceleration to ± 10 kV
- ✓ < 2.5 Nanosecond pulse width
- ✓ < 1 Nanosecond rise time
- ✓ Low profile
- ✓ Replaceable MCP cartridge

The PHOTONIS **Advanced Performance Bipolar Time-of-Flight Detector** offers previously unobtainable levels of temporal resolution, dynamic range, and high mass detection sensitivity for Time-of-Flight Mass Spectrometry.
The detector is contained in a low-profile assembly integrating a newly developed high sensitivity microchannel plate and electro-optically isolated signal output. The 25 mm detector offers a large collection area (5.4 cm2) and is available in a free standing vacuum module which can be mounted directly to the flight tube or a conflat flange mounted assembly for easy systems integration.

This new, patent pending Time-of-Flight Detector features post acceleration. The ion conversion surface of the MCP can be biased up to ± 10 kV in order to enhance the detection efficiency of high mass, positive or negative ions. In addition, a proprietary enhancement coating is added to the ion conversion surface to further enhance conversion efficiency. The output signal polarity is maintained at ground potential by electro-optically isolating the signal, thereby protecting your digitizer and simplifying electronics.

PHOTONIS exclusive extended dynamic range, small pore (5 micron diameter) MCPs, offer one of the highest channel densities of any MCP in the world. This channel density provides **dynamic range improvements** of ten times that of conventional microchannel plates. The new microchannel plate technology extends the dynamic range far beyond previously attainable levels. These MCPs also give the new Advanced Performance Bipolar Time-of-Flight detector **superior sensitivity and the best temporal bipolar resolution available.** The flat input surface provides uniform ion conversion and the higher aspect ratio of the MCPs provides higher system gains in excess of 108.

Installation is a snap with PHOTONIS replaceable MCP cartridge. Each cartridge includes a Long-Life™ small pore Extended Dynamic Range MCP, and a high transmission grid mounted in a rugged module. This module can be purchased separately and allows the operator to replace the MCP quickly and easily.

High mass resolution, dynamic range improvements, and superior sensitivity, all from the world's largest supplier of standard, retrofit, and custom detectors for mass spectrometry.

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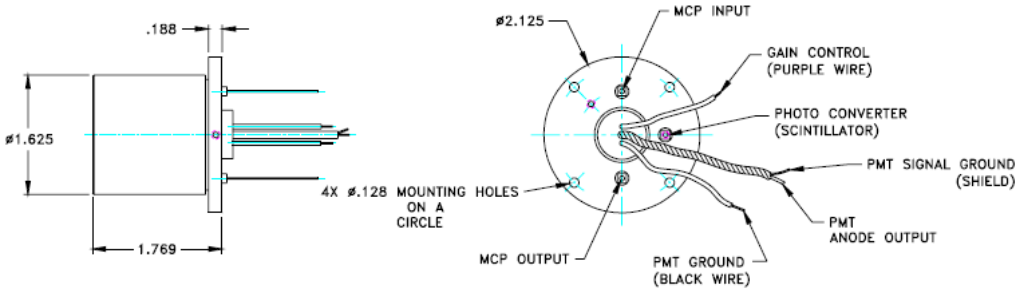
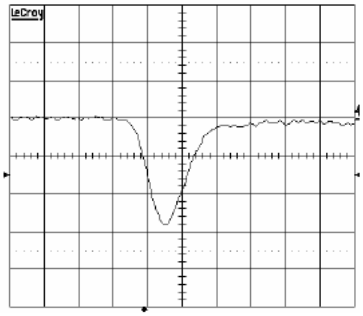
General Specifications		Unit
Microchannel Plate	Long-Life™ Extended Dynamic Range	
Dark Count (maximum)	60	counts/min
Sigle ion output pulse into 50 ohms (user defined)	100 - 3000	mV
Detection Diameter	18	mm
Operating Temperature Range	-50 to 50	°C
Operating Pressure (maximum)	1.0×10^{-6}	Torr
Vacuum Flange	4.5” and 6” conflat available	

Detector configuration



Typical single ion pulse



X = 2 ns/div

Y = 50 mV/div

16 G samples/sec

For optimal performance of the Bipolar Time-of-Flight Detector, we recommend the use of the PHOTONIS PF1055 Power Supply. Reference TP212.