



Ion Beam Profiler

Features

- Low Light CMOS High-Speed Camera
- Large, Customizable Microchannel Plate
- Simple Acquisition of Analog or Digital Images
- Immediate Feedback of Ion Loss and Optimization



Increased Detector Efficiency

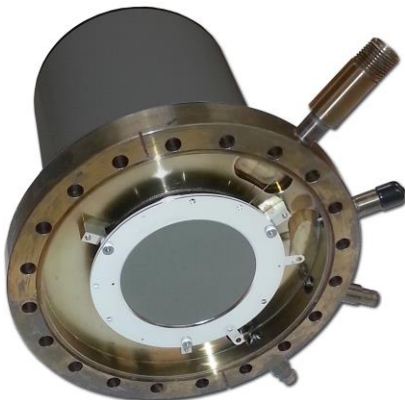
Photonis' Ion Beam Profiler combines a large Microchannel Plate (up to 120mm) and our digital CMOS low-light Nocturn camera which is immune to sudden bursts of light. Together these highly sensitive imaging components offer a detailed image of your instrument's ion beam, allowing system designers to identify and correct any areas of ion loss that had previously been overlooked.

The new Photonis Ion Beam Profiler can visualize the location of any charged particle (Ion, Electron, UV, photon or soft X-Ray), enabling the instrument designer to ensure all available signal ions are collected. By eliminating the need to align the ion beam with an electron multiplier integrated with an electrical current, Photonis has significantly improved detection efficiency.

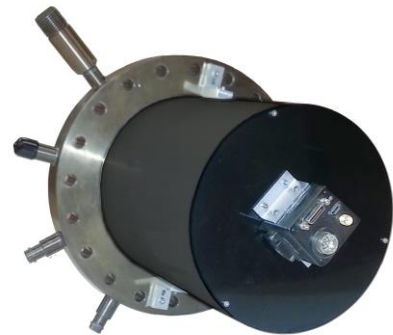
The unit can capture images from the phosphor screen at up to 100 frames per second and store them on a PC for collaboration and comparison testing. A strobe trigger is available to synchronize the camera to a specific event.

Versatile Applications

The new Ion Beam Profiling unit can be used in wide range of applications, including ion optic model verification, Imaging TOF, VUV Spectroscopy and high energy physics as well as ion beam profiling. As the manufacturer, Photonis can custom-fit each unit with a specific microchannel plate and electro-optic housing to fit your unique application.



Front View of Ion Beam Profiler



Rear View of Ion Beam Profiler

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PHOTONIS
Scientific Detectors

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Physical Characteristics of MCPs	Specifications
Quality Diameters Available:	25, 40, 75, 100 mm
Center-to-Center Spacings Available:	6, 12, 32 μm Nominal
Pore Sizes Available:	5, 10, 25 μm Nominal
Bias Angles:	0, $^{\circ}$ 8 $^{\circ}$, 12 $^{\circ}$, 19 $^{\circ}$ \pm 1 $^{\circ}$
Pixel Size: (H X V)	Varies by MCP used. Example: 75mm MCP results in 81 x 88 micrometers [0.0032 x 0.0034 inch] typical.
Open Area Ratio:	45% -65% depending on MCP configuration
Electrical Characteristics of Detector	Specifications
Electron Gain @ 2400 Volts Maximum:	1 x 10 ⁷ Minimum
Bias Current Range @ 2400 Volts:	20-199 Microamps (For Reference Only)
Resistance:	12-120 Megohms
Dark Count:	5 cts/sec/cm ² Maximum
Pulse Height Resolution @ FWHM:	150 % Maximum
Maximum Specified Operating Voltage (Across MCPs):	2400 Volts
Linear Output Current Density: (Microamps/cm ²)	Typically 10 % of Bias Current Density
CMOS Camera and Frame Grabber	Specifications
CMOS Camera:	Nocturn XL Monochrome
CMOS Sensor pixel size:	9.7 x 9.7 μm
Pixels: (H X V)	1280 x 1024
Horizontal Resolution:	525/625 TV Lines
Signal Format:	NTSC / PAL / CameraLink [®] compatible
Features:	AGC
Gamma:	Adjustable
Frame Rate:	User selectable to 30, 50, 60, 100 FPS
Suggested Frame Grabber Board (not included):	Framelink PCIe x1 Card (VCE-CLPCIe02) Windows XP, Vista, 7 or 8 (32 or 64 bit) Full Size PCIe Slot, 110 MBytes/sec. Includes 4 external inputs each configurable as TTL, LVDS or Opto-coupled or Open Collector.

Electrical characteristics are measured at the optimum MCP operating voltage (the lowest bias voltage required to attain the specified values).

The Chevron™ detector assembly contains two Imaging Quality Advanced Performance™ Long-Life™ MicroChannel Plates and a fiberoptic phosphor screen with P43 phosphor mounted to an 8" vacuum flange. The phosphor screen is frit sealed into the flange to form a vacuum seal that is tight to a leak rate of 1x10⁻¹⁰ cc/sec of helium. The vacuum feedthroughs are mounted radially on the flange to facilitate viewing and access to the phosphor screen. The flange mounted assembly is equipped with one BSHV vacuum feedthrough rated to 7.5kV (for the phosphor screen) and three SHV vacuum feedthroughs rated to 5kV (two for the MCPs with one spare).

The detector assembly is bakeable to 300°C, but the camera must be removed prior to baking.

Image Quality detector assemblies are used in imaging or position sensitive applications. When used in conjunction with an appropriate readout, these devices provide an intensified high spatial resolution image. These detector assemblies are typically used in applications such as high energy physics experiments, ultrafast cathode ray tubes, and detectors for vacuum ultraviolet spectroscopy.

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