

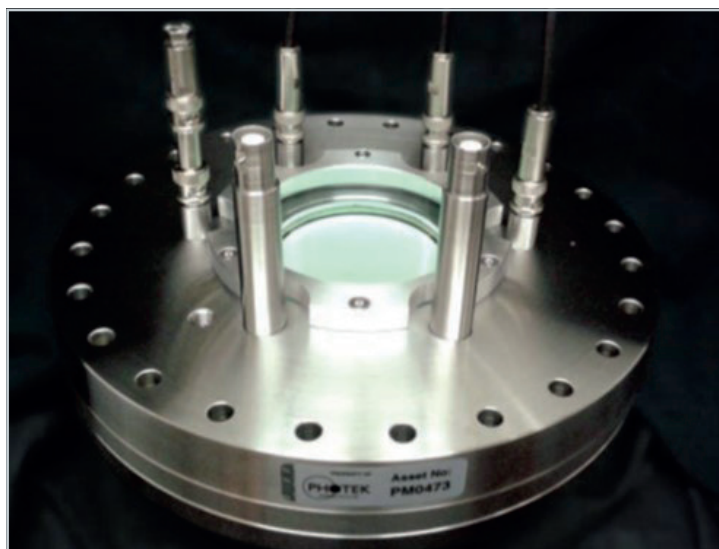


**DATASHEET**  
**DETECTORS**  
Vacuum Imaging Detector

**PHOTEK**  
ENVISAGE THE FUTURE

# Vacuum Imaging Detector

Ions and Electrons



**The Vacuum Imaging Detector (VID) for Ions and Electrons is an open faced MCP detector, suitable for charged particle vacuum imaging experiments.**

The detector is usually mounted on a vacuum flange, ready to be secured to a vacuum chamber. Standard VID sizes include 18, 25, 40 and 75 mm diameter, although other sizes and shapes can be discussed.

A typical VID will have two MCPs and a phosphor screen and can optionally include a time of flight module to provide a timing signal for each particle with a response time of 3 ns. With a Photek Gate Module, the operation of the MCP can be reduced to 8 ns, allowing dc slicing in VMI experiments. All phosphor based VIDs are available with integral camera, housing and software.

For coincidence experiments Photek has a wide range of particle counting anodes including multi-anode, resistive sea, wedge-and-strip, and cross-delay-line, all available with readout electronics and software. Contact Photek to learn more about our standard and bespoke solutions for your particle imaging needs.

## Key Attributes

- > High resolution
- > 18, 25, 40, 75 and 150 mm active diameter
- > 1, 2 or 3 MCPs (for gain up to  $10^7$ )
- > Choice of flange size, with radial or axial feedthroughs, or custom configurations
- > Optional MCP gating to 8 ns
- > Phosphor screen (P43, P46, P47, E36) with optional TOF module with 3 ns FWHM response. Decay times down to 2 ns available
- > Electronic anodes for particle counting with sub-ns timing resolution
- > Resistive sea with re-configurable anode options
- > Complete solutions available
- > Custom design of ion optics
- > Excellent maintenance program with fast turn around time

## Applications

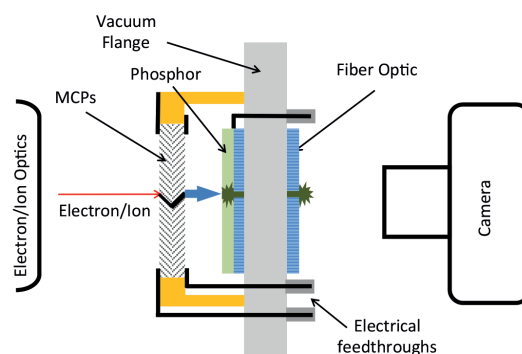
- > Ion imaging
- > DC slicing
- > Mass spectrometry
- > Photoelectron spectroscopy
- > Electron microscopy
- > Attosecond Laser Characterisation
- > Photodissociation Dynamics
- > Time Resolved Dynamics
- > Velocity Map Imaging
- > COLTRIMS
- > Space-based particle detectors
- > Field ion microscopy
- > Low temperature physics

## Complete Solutions

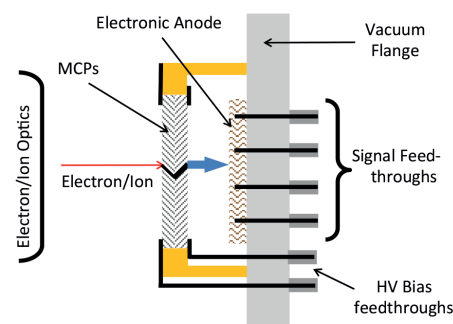
The **PHOSPHOR SCREEN** version of the Electron and Ion Vacuum Imaging Detector can be supplied with a high resolution camera, high voltage power supplies, time-of-flight and gating electronics. This complete detection solution for your vacuum imaging experiment enables you to concentrate on obtaining data rather than finetuning your detection hardware. We will help you specify the best camera for the demands of your experimental application. The camera and lens assembly can be mounted on your detector flange in a configurable, light tight housing, for ideal operation in the laboratory.

**ELECTRONIC READOUT** versions can be configured with multi-anodes, resistive, wedge-and-strip or cross-delay line anodes depending on your applications requirements. Photek specialists will help you determine the best readout system given your timing, spatial and count rate requirements. All of our electronic readout systems can be provided with readout electronics and software for simple set-up.

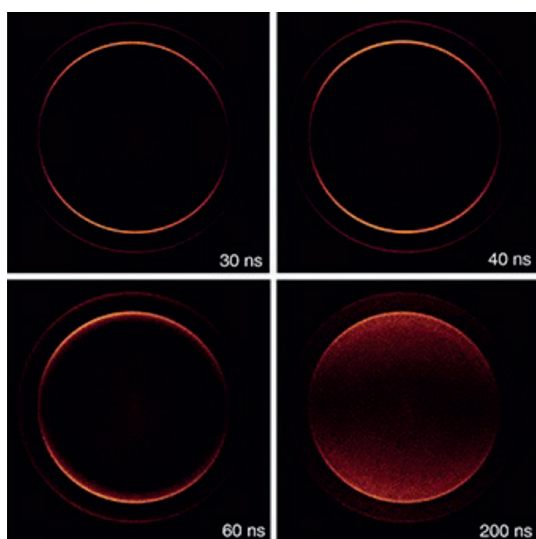
**IMAGE32 SOFTWARE** supports all of our VID configurations including camera and electronic anodes. Image32 has numerous operating modes, including centroiding and particle counting, with the option of control via multiple programming languages. Photek can help provide scripting to control your entire experiment.



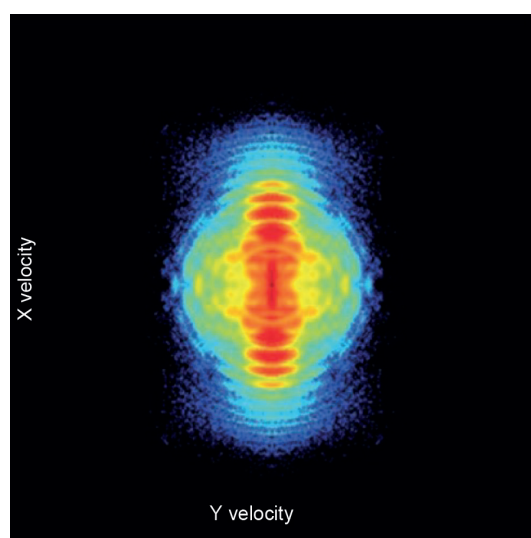
**Phosphor Screen Detector Configuration**



**Imaging Electron Anode Configuration**



Slice images from VMI of Br from photodissociation of IBr in Photek VMI DOUBLE PRIME, with gate widths as indicated (full Newton sphere). With permission from University of Bristol.



VMI of photoelectrons from ATI of Xe at  $1 \times 10^{14} \text{ Wcm}^{-2}$ . With permission from MBI, Berlin.

**DATASHEET****Vacuum Imaging Detector****About Photek**

**Photek is a specialist manufacturer of vacuum based tubes and camera systems for photon detection.**

Our product range includes; Camera Systems, Image Intensifiers, Photomultiplier Tubes, Streak Tubes plus a range of associated electronics.

We are experts in large area and ultra-high speed imaging and advanced photon counting camera systems.

Our continuing success is built upon continuous innovation and product development, and by harnessing and applying knowledge to find solutions for all of our customers' applications.

**Photek is accredited to ISO 9001 and ISO 14001.**

**Contact Us**

**Our team of specialist engineers and scientists are ready to discuss your application requirements in depth.**

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