

Time-of-Flight[®]

DETECTION TECHNOLOGY



**MARKET-LEADING
TOF DETECTION TECHNOLOGY PLATFORMS**

PHOTONIS



Photonis is the leader in Time-of-Flight (TOF) detection technology for Mass Spectrometry, enabling you to achieve your goals through collaboration and innovation. Our approach is focused on being a trusted partner in your technology development.

PHOTONIS TOF: YOUR TECHNOLOGY PARTNER **TOTAL PROCESS CONTROL, LONGEVITY, ROBUSTNESS, AND PERFORMANCE**

With over 50 years of experience in mass detection technology, we concentrate on creating the right detector for your mass spectrometry needs.

From our Bipolar TOF (BPTOF) to our ultrafast Advanced Performance TOF (APTOF), Photonis detection technology is fully customizable, results driven, and manufactured using state-of-the-art modular building blocks to meet the most exacting MS needs.

It's more than just designing detectors, they need to be manufactured to the highest quality. Our facility controls the manufacturing process end-to-end. From making our own special, industry-leading glass, to designing and constructing the electronics and micro channel plates, we can ensure the highest quality, reproducibility, and performance — creating the longest lasting detectors on the market.

This end-to-end process control, from raw materials to final product, allows the ability to tune TOF detector attributes to suit your specific technology needs, be they lifetime, sensitivity, or dynamic range.

Throughout the ISO9001 certified process, rigorous QC procedures and continuous improvement programs are employed, such as Lean Manufacturing, 6 Sigma, Quick Response Manufacturing (QRM), and Planning Control — ensuring the highest quality at every stage of product manufacturing.

MASS SPECTROMETRY IS AT THE HEART OF THE MODERN WORLD

IN TODAY'S MODERN WORLD, HIGH RESOLUTION MASS SPECTROMETRY (HRMS) IS A CORE TECHNOLOGY. IN THE FIELD OF FOOD SCIENCE, IT PROTECTS CONSUMER SAFETY AND ENSURES PRODUCT AUTHENTICITY AND QUALITY. THE SENSITIVITY AND SPECIFICITY OF HRMS IS KEY IN PROTECTING OUR ENVIRONMENT, DELIVERING SAFE DRINKING WATER.

THE PHOTONIS DIFFERENCE

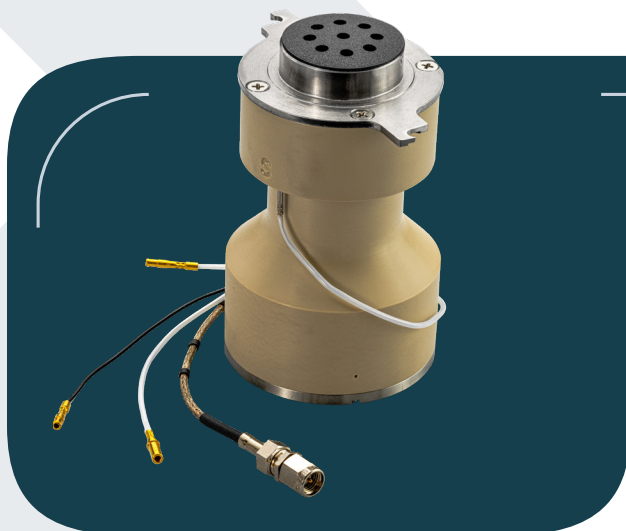
Modern pharmaceutical research development and manufacturing relies on Mass Spectrometry (MS) to deliver new, novel medicines and ensure their safety. Researchers in the fields of Health Science, Environmental, and Food rely not only on the sensitivity and accuracy of the mass spectrometer to do their job, but on the day-to-day, week-to-week and month-to-month reproducibility and reliability of the instrumentation.

The stability and reproducibility of the Photonis Scientific TOF Detection Platform reduces the need for calibration and tuning, increases instrument uptime and maximizes day-to-day reproducibility. These detector attributes reduce cost of ownership, increases data quality and allows data integration — not only month-to-month, but laboratory-to-laboratory.



BPTOF DETECTION

Photonis' patented flagship Bipolar TOF Detection is an optically coupled platform that provides unmatched performance and operational lifetime, while providing a cost savings to the customer



MICROCHANNEL PLATES (MCP)

- ◆ Configurations can be optimized to suit virtually any application, including special coatings
- ◆ Longest lifetime, stable operation detectors via proprietary L3N glass
- ◆ Smallest commercially available pore size (2 μ m) producing an inherently fast detector
- ◆ Large ion detection areas and very slim overall profile, allowing compact instrument designs
- ◆ MCP sets can be customized for speed, dynamic range, and operational lifetime

PHOTOMULTIPLIER TUBE (PMT)

- ◆ Bipolar TOF Detector ion detection is via the PMT
- ◆ Two PMT options:
 - World's fastest performing PMT (FWHM ~400ps)
 - High peak output linearity (>2V) with a slower time response (1.2ns)
- ◆ Optical coupling allowing for the highest isolation voltages (up to 20kV) protecting detection electronics

SCINTILLATOR

- ◆ At the core of the BPTOF detector is the scintillator
- ◆ Producing a fast flash of light, enabling worry-free optical coupling and high voltage isolation
- ◆ Two scintillator variants, optimized for either:
 - Pure speed (700ps decay time)
 - Operational lifetime (1000ps decay time)



APTOF DETECTION

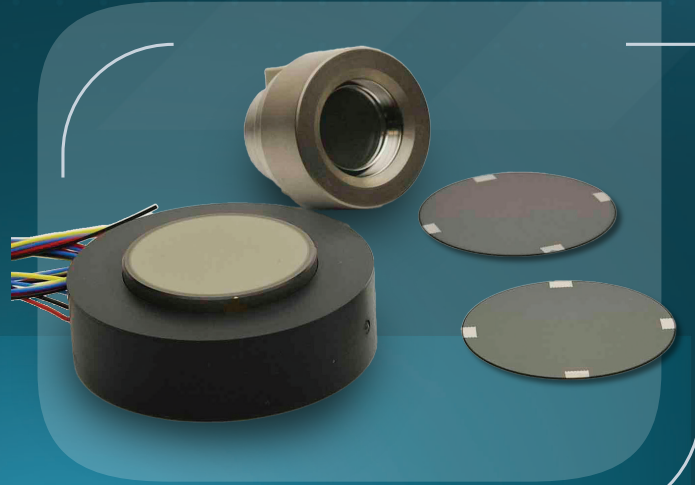
The fastest line of detection technology consisting of two (chevron) or three (Z-stack) microchannel plates

MECHANICAL AND SERVICEABILITY

- ◆ Capacitively-Coupled TOF detector platform with high voltage isolation for reduced impact to digitizer and a cost savings to the customer
- ◆ Configuration and mechanical optimization for real-world instruments and applications
- ◆ Optional cartridge-based designs for easy handling and replacement
- ◆ Photonis has produced hundreds of custom designs with differing input areas and shapes, mounting schemes, and overall geometric requirements — all with our commitment to lifetime and serviceability at their heart

READ OUT

- ◆ Tailored to match your requirements —allowing for multi-channel or position-sensitive output
- ◆ Seamlessly interface between detectors and instrument electronics
- ◆ Customization for any particular application or technique



EXPOSE EVERY DETAIL WITH PHOTONIS

"Our lab has multiple QTOF MS systems using Photonis detection technology actively for over two years. During that time, we have experienced exceptional stability, reproducibility and performance with minimal maintenance issues with these particular instruments. Photonis detectors are extremely stable on a day-to-day and month-to-month time scale and data sets are highly reproducible between instruments."



LEADING YOU TO PEAK PERFORMANCE

PHOTONIS
Reveal the invisible



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