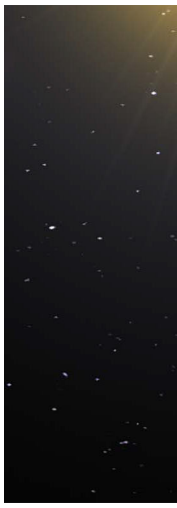
IONICON

# PTR-TOFMS SERIES

# PTR-TOF 8000

## LoD < 10 pptv  Resolution > 5000 m/Δm (FWHM)

The **IONICON PTR-TOF 8000** instrument is an **ultra-sensitive detector** for volatile organic compounds (VOCs) that allows for **continuous VOC quantification** with a **very high mass resolution**.

Our **bestselling time of flight** based product combines **very low online detection limits** in the **single-digit pptv-range** covering a **linearity range** of **six orders of magnitude,** with **high mass resolving power**.

**Quantitative analysis** of the **whole mass range within a split-second** with a resolution that even allows **separation** of **isobaric compounds** are remarkable features of the IONICON **PTR-TOFMS technology**.

**Direct injection** of sample gases **without preparation** contributes to the **speed and simplicity** that is common to all our instruments.

Our unique **soft ionization (PTR) technology** together with our extensive experience in gas-phase ion chemistry and engineering of scientific instruments are the basis for the **reliability, ultra low detection limit**, **very low mass fragmentation**, **fast response time** and **robustness** of our PTR-MS systems.

- > High resolution time of flight
- > Low detection limit - high sensitivity
- > Separation of isobaric substances
- > Full mass range acquisition in a split-second

Find out more:
www.ionicon.com/products

THE SOLUTION FOR REAL-TIME TRACE GAS ANALYSIS

IONICON

Picture: Georg Staudt / pixelio.de

# PTR-TOF 8000


## IONICON PTR-TOF 8000 SPECIFICATIONS*

- Resolution: > 5.000 m/Δm (FWHM)
- Response time: < 100 ms
- Sensitivity:
  - Benzene: > 120 cps/ppbv @ 60 kHz, > 80 cps/ppbv @ 40 kHz
  - m/z 181: > 190 cps/ppbv @ 40 kHz
- Detection limits:
  - Averaged over 1 minute: Benzene < 15 pptv, m/z 181 < 10 pptv
  - Averaged over 1 second: Benzene < 100 pptv, m/z 181 < 80 pptv

| | |
|---|---|
| Response time: | 100 ms |
| Linearity range: | 10 pptv - 1 ppmv |
| Pulse frequency: | up to 80 kHz |
| Adjustable flow: | 50 - 1000 sccm |

Inlet system (Different inlet systems available on request):
- 1.2 m long inlet hose - with internal inert (PEEK) capillary
- Inlet system heating: up to 180°C (356°F)

Reaction chamber heating range: 40 - 120°C (104 - 248°F)
Power supply and max. consumption: 100-230 V, 1000 W

| | |
|---|---|
| Dimensions (w x h x d): | 56x130x78 cm (22x51,2x30,7 in.) |
| Weight (incl. SRI): | 189 kg (417 lbs) |
| Interfaces: | - 1x Touch screen display<br>- 2x DO, 2x AI, 2x DI<br>(digital/analog I/O package on request) |

*Specifications are subject to change without prior notice.
Product pictures and illustrations may differ from actual configuration.
Detection limit, linearity range and resolution are dependent on the substances measured, integration time and system set-up.

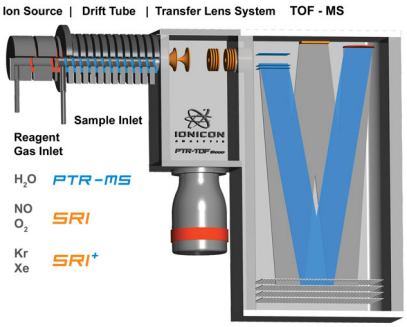
## PTR-TOF 8000 FEATURES AND BENEFITS

Discover the world's bestselling PTR-TOFMS system: expect a high mass resolution in combination with high sensitivity and low detection limit that helped many scientists to gain new insights. More than once results have been published in prestigious journals such as SCIENCE and NATURE.

Using a specially designed high-end orthogonal acceleration reflectron time of flight mass spectrometer in combination with the unique IONICON PTR technology and our ULTRA-PURE ion source, the PTR-TOF 8000 achieves a mass resolution of more than 5000 m/Δm (FWHM) and a limit of detection well below 10 pptv.
The whole mass spectrum can be recorded in a split second with isobaric species being resolved and identified. Virtually no instrumental mass range limitation and a linearity range over six orders of magnitude complete our bestselling PTR-TOFMS.

## TECHNOLOGY

We proudly rely on the unique IONICON PTR-MS soft ionization technology where by proton transfer from $H_3O^+$, all compounds with a higher proton affinity (PA) than water are ionized. Common constituents of air, such as $N_2$, $O_2$, Ar, $CO_2$ etc. have lower PAs than $H_2O$ and are therefore not detected. This is one of the main reasons for our market-leading low, real-time detection limit for trace compounds. Due to precisely controlled ion source and drift tube parameters, absolute quantification of VOC concentrations is possible.




## SRI-MS

The IONICON PTR-TOF 8000 is optionally available with our proprietary Selective Reagent Ionization - Mass Spectrometry (SRI/SRI+) technology featuring $NO^+$ and $O_2^+$ (SRI) or $Kr^+$ (SRI+) alternatively to $H_3O^+$ as precursor ions created in the new ULTRA-PURE ion source (patent pending).
$O_2^+$, but especially $Kr^+$, have a higher ionization potential than $H_3O^+$ and therefore many important (inorganic) substances such as $CH_4$, CO, $CO_2$, $NO_2$, $SO_2$, etc. can be detected and quantified using a single IONICON instrument. $NO^+$ as reagent ions help separating several isomeric VOCs that can subsequently be quantified in real-time.

## ROBUST, RELIABLE & EASY TO USE

The PTR-TOF 8000 is completely software controlled featuring a touch screen display for parameter optimization and status checks. Installed in a space-saving rack, easily transportable for variable location measurements, we deliver the PTR-TOF 8000 in a re-usable eco-friendly flightcase container.

IONICON Analytik GmbH • Eduard-Bodem-Gasse 3 • 6020 Innsbruck • Austria • Tel.: +43 512 214 800 • www.ionicon.com • info@ionicon.com