IONICON

PTR-TOFMS SERIES

PTR-QiTOF

LoD < 1 pptv Resolution > 6000 m/Δm (FWHM)

The IONICON PTR-QiTOF is a fast and ultra-sensitive instrument for trace analysis of volatile organic compounds (VOCs) at a very high time-resolution and mass resolving power.

The PTR-QiTOF featuring a Quadrupole ion guide (Qi) is the most powerful PTR-TOFMS series instrument on the market: 25x more sensitive, one order of magnitude lower detection limit and at least 20% higher mass resolution than the world's current bestselling PTR-TOFMS instrument - the IONICON PTR-TOF 8000.

Quantitative analysis of the entire mass range within split-seconds and highest ever recorded mass resolution for separation and unambiguous identification of complex samples are key benefits of the new PTR-QiTOF.
Paired with lightning speed and extreme sensitivity, the PTR-QiTOF sets a new standard for applications such as flux measurements.

Our unique soft ionization (PTR) technology and extensive know-how in engineering of scientific instruments are the basis for the reliability, ultra-low detection limit, fast response time and robustness of our PTR-MS systems.

> Qi Quadrupole ion guide
> Flagship PTR-TOFMS series instrument
> Most sensitive and lowest detection limit
> Highest mass resolving power

Find out more:
www.ionicon.com/PTR-QiTOF

THE SOLUTION FOR REAL-TIME TRACE GAS ANALYSIS

IONICON

PTR-QiTOF

IONICON PTR-QiTOF SPECIFICATIONS*

- Mass resolution: > 6000 (up to 10,000) m/Δm (FWHM)

- Sensitivity
  m/z 79 > 1000 (up to 2500) cps/ppbv; LoD < 10 pptv (60 sec)
  m/z 181 > 2000 (up to 4500) cps/ppbv; LoD < 1 pptv (60 sec)

- Response time: < 100 ms
- Pulse frequency: up to 200 kHz

- Mass range: 1-10,000 amu
- Linearity range: 1 pptv - 0.5 ppmv
- Adjustable flow: 50 - 1000 sccm
- Inlet system (Different/Multiplexing inlet systems available on request):
  1.2 m long inlet hose - with inert (PEEK) capillary
  Inlet system heating: 40-180°C (104-356°F)

- Reaction chamber heating range: 40 - 120°C (104 - 248°F)
- Power requirements: 100-115/200-230 V, max. 1500 W
- Dimensions (w x h x d): 60x110x80 cm (23.7x43.4x31.5 in.)
- Weight (incl. SRI): < 175 kg (386 lbs)
- Interfaces: 1x Touch screen
  8x DI/O, 2x AI, 2x AO
  (additional I/Os on request)

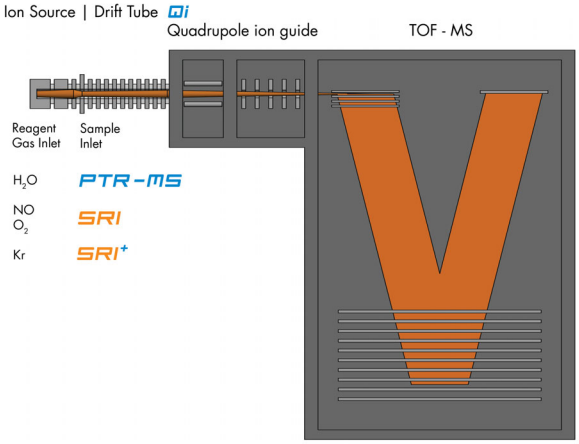
*Specifications are subject to change without prior notice.
Product pictures and illustrations may differ from actual configuration.
Detection limit, linearity range and resolution are dependent on the substances measured, integration time and system set-up.

PTR-QiTOF - FEATURES AND BENEFITS

Welcome to the future of ultimate performance!
Using a specially crafted high-resolution time of flight (TOF) mass spectrometer including the new Quadrupole ion guide (Qi) in combination with the refined IONICON PTR technology, the PTR-QiTOF achieves a mass resolution of more than 6000 (up to 10,000 m/Δm FWHM), a limit of detection well below 1 pptv (in 60 sec), and an unmatched sensitivity of more than 2000 (up to 4500 cps/ppbv).
This boost in sensitivity is especially beneficial for cutting edge applications like eddy-covariance flux measurements, where ultra-low VOC concentrations have to be quantified with more than 10 Hz.
No sample preparation and the direct injection of analytes means no waiting time and no loss in capturing of relevant process parameters. This, together with a known simplicity, reliability and robustness is common to all our instruments.

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-QiTOF 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.

■ Article in press:
P. Sulzer, et al., Int. J. Mass Spectrom. (2014), DOI: 10.1016/j.ijms.2014.05.004