

# PTR-QMS SERIES



THE WORLD'S  
LEADING  
PTR-MS  
COMPANY PRESENTS



## HIGH SENSITIVITY PTR-QMS 500

LoD < 1 pptv

The IONICON High-Sensitivity PTR-QMS 500 instrument is an **ultra-sensitive detector** for volatile organic compounds (VOCs) that allows for **continuous VOC quantification**.

Our **premium PTR-QMS series** product, based on quadrupole mass spectrometry, combines market-leading **low online detection limits** reaching even **ppqv-levels**, with high selectivity and a very fast response time.

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

**Selective qualitative and quantitative analysis** of trace compounds in remarkably short measurement times combined with a system **linearity range** covering over **seven orders of magnitude** satisfy the highest claims of the world's best scientists.

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

Mass Range 1-512 amu

- > Low detection limit < 1 pptv
- > Real-time VOC quantification
- > Soft & efficient ionization technology
- > Fast and easy direct sample injection

Find out more:

[www.ionicon.com/products](http://www.ionicon.com/products)

# HIGH SENSITIVITY PTR-QMS 500



## IONICON HS PTR-QMS 500 SPECIFICATIONS\*

- Mass range: 1-512 amu
- Resolution\*\*: < 1 amu
- Response time: 100 ms
- Sensitivity (Benzene): > 300 cps/ppbv
- Detection limit\*\*: < 1 pptv
- Linearity range\*\*: 1 pptv - 10 ppmv
- Adjustable flow: 80 - 800 sccm (at 60°C)
- 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: 45 - 120°C (104 - 248°F)
- Power supply and max. consumption: 115/230 V, 1500 W
- Dimensions (w x h x d): 60x91x60 cm (23.7x35.9x23.7 in.)
- Weight (incl. SRI): 132 kg (291 lbs)
- Main interfaces:
  - 1x Touch screen display
  - 1x Ethernet 10/100 Mbit RJ45 (TCP/IP)
  - 8x DO, 4x DI, 4x AI, 4x AO

\*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.

## TECHNOLOGY

The innovative technology IONICON PTR-MS products are based on is Proton Transfer Reaction - Mass Spectrometry (PTR-MS).

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

**PTR+SRI-MS**  
SWITCHABLE REAGENT IONS

IONICON invented the Switchable Reagent Ions (SRI) technology featuring  $NO^+$  and  $O_2^+$  as additional precursor ions created in the new IONICON ULTRA-PURE ion source.

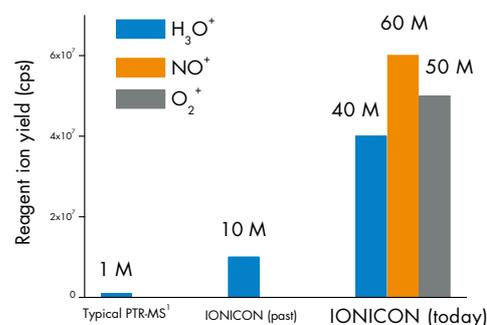
The benefits are extraordinary as not only isomeric VOCs can be separated and instantaneously quantified but also substances with a smaller PA than the PA of  $H_2O$  can now be detected with PTR-MS instruments.

## OUTSTANDING SENSITIVITY

The High-Sensitivity PTR-QMS 500, our PTR-QMS series' flagship product is incarnating the technological evolution of more than a decade's experience in PTR-MS we have at IONICON.

With the 4<sup>th</sup> generation of IONICON PTR-MS instruments, featuring technology such as the new ULTRA-PURE ion source and many other refinements, the new High-Sensitivity PTR-QMS 500 is the benchmark for extraordinary sensitivity and detection limit in the market.

Up to 60.000.000 precursor ions are responsible for a break-through in real-time mass spectrometry: for the first time an IONICON PTR-MS instrument is capable of quantifying concentrations in the ppqv-range.



<sup>1</sup> R.S.Blake, P.S.Monks and A.M.Ellis, Chem Rev., 109 (2009) 861.

## 4<sup>th</sup> GENERATION PTR-MS

The High-Sensitivity PTR-QMS 500 is the most sensitive commercial PTR-MS instrument available in the market and represents the 4<sup>th</sup> and most advanced generation of the IONICON PTR-MS evolution. It is the successor of the world's bestselling PTR-MS system: the IONICON High-Sensitivity PTR-MS, of which various versions and generations are in use all over the world in more than 100 places.

We provide flexible inlet solutions such as the integrated multi-position capability, calibration solutions and the possibility to optionally upgrade the PTR-QMS 500 series with multiplexing and data interface units thus bringing down the costs per sampling point and simplifying the integration in existing monitoring network infrastructure.