Compact high-resolution PTR-TOFMS - Trace VOC Analyzer

Sensitivity > 6000 cps/ppbv  LoD < 5 pptv  Resolution > 4000 m/Δm

The PTR-TOF 4000 is our smallest and lightest, high-resolution PTR-TOFMS real-time trace VOC analyzer.

It offers all benefits of a small footprint and low weight, now complemented by high mass resolving power and extreme sensitivity.

The PTR-TOF 4000 features the IONICON hexapole ION-GUIDE technology and a high-resolution ioniTOF for improved VOC separation and identification capabilities. Now the X2 option additionally includes the ION-BOOSTER funnel for utmost sensitivity and sub-pptv detection limits.

Quantitative analysis of the entire mass range in a split-second and high mass resolution are features of all IONICON time-of-flight mass spectrometers. Direct injection of sample gas without preparation contributes to the speed and simplicity our instruments are known for.

The IONICON-exclusive genuine PTR-MS technology includes our patented ion chemistry quality and TRU-E/N, allowing for precise E/N conditions, well-reproducible measurement results and the highest possible level of quantification accuracy.

Find out more: www.ionicon.com/products
IONICON PTR-TOF 4000

**IONICON PTR-TOF 4000 SPECIFICATIONS**

- Mass resolution:  > 4000 m/Δm (FWHM) for m/z > 147  
- Response time:  < 100 ms  
- Sensitivity:  m/z 181  > 600 cps/ppbv  
- Limit of Detection: < 10 pptv (1 sec), < 1 pptv (60 sec)  

**X2 with X2 Performance Option:**  
- Sensitivity:  m/z 181  > 6000 cps/ppbv  
- Limit of Detection: < 1 pptv (60 sec)  
- Mass range:  1-10000 amu  
- Adjustable inlet flow:  50 - 800 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:  
  115/230 V, standby/typical operation: < 400/550-850 W  
- Dimensions (w x h x d):  60x91x80 cm (23.7x35.9x31.5 in.)  
- Weight:  < 135 kg (297.6 lbs)  
- Interfaces:  8x DIO, 2x AI, 2x AO  
  (digital/analog I/O package on request)  

**PTR-TOF 4000 BENEFITS**

The PTR-TOF 4000 is a class of its own. Enter into the world of high-resolution TOF-MS but on a small footprint and benefit from the advanced IONICON hexapole ION-GUIDE, focusing the ions from the drift tube into the TOF analyzer, thereby increasing sensitivity and mass resolving power.

**NEW: X2 Ultimate Performance Option**

We now offer the possibility to push the PTR-TOF 4000’s sensitivity even further with the new X2 option. X2 combines the hexapole ION-GUIDE with the unique ION-BOOSTER funnel for extreme PTR-MS sensitivity of up to 10000 cps/ppbv, delivering low detection limits in incredible short integration times and even entering the sub-pptv range.

The combination of resolution and sensitivity in a compact, robust and fast instrument, makes the PTR-TOF 4000 an ideal analyzer for complex samples, fostering substances identification in time critical dynamic processes where e.g. quadrupole or low-resolution analyzers fail to perform.

**PTR-MS**

We proudly rely on the IONICON-exclusive genuine PTR-MS soft ionization technology where by proton transfer from H3O+, all compounds with a higher proton affinity (PA) than water are ionized. Common constituents of air, such as N2, O2, Ar, CO2 etc. have lower PAs than H2O 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 PTR-TOF 4000 is also available with Selective Reagent Ionization - Mass Spectrometry (SRI/SRI+), featuring NO+, O2+ and NH4+ (patent pending) or Kr+ (SRI+, US Pat. 9,188,564, EP 2606505 A1) alternatively to H3O+ as precursor ions created in the IONICON ULTRA-PURE ion source. O2+, but especially Kr+, have a higher ionization potential than H3O+ and therefore many important (inorganic) substances such as CH4, CO, CO2, NOx, SOx, etc. can be detected and quantified using a single IONICON instrument. NO+ as reagent ions help separating several isomeric VOCs for subsequent real-time analysis. NH4+ offers improved selectivity, simplified mass spectra and suppressed fragmentation.

**ROBUST, RELIABLE & EASY TO USE**

The PTR-TOF 4000 is completely software controlled. Installed in a space-saving rack and mounted on wheels, it allows for easy transportability and variable location measurements. We deliver the PTR-TOF 4000 in a re-usable eco-friendly flightcase container.