

PTR-TOF 1000



Compact PTR-TOFMS - Trace VOC Analyzer

Sensitivity > 120 cps/ppbv LoD < 10 pptv Resolution > 1500 m/ Δ m

The IONICON PTR-TOF 1000 is a fast and sensitive instrument for trace **volatile organic compounds (VOCs) quantification** at a very high time resolution.

This PTR-TOFMS system has been extensively tested by leading scientists in field measurement and flight campaigns. It is also basis of many air monitoring solutions in industrial applications. It is the **smallest, lightest and most affordable** time of flight based PTR-MS we ever constructed.

Quantitative analysis of the **entire mass range within split-seconds** and higher resolution for **better separation and identification** are now available in an instrument with the size, weight and price usually restricted to quadrupole PTR-MS.

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

The IONICON-exclusive **genuine PTR-MS technology** allowing for precise E/N conditions, well-reproducible measurement results and the highest possible level of quantification accuracy.

- > Ultra-fast, sensitive and affordable
- > Proven in field and flight campaigns
- > Smallest and lightest PTR-TOFMS
- > Entire mass range in split-seconds

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IONICON PTR-TOF 1000 SPECIFICATIONS*

- Mass resolution: $> 1500 \text{ m}/\Delta\text{m}$ (FWHM) for $\text{m}/z > 60$
- Response time: $< 100 \text{ ms}$
- TOF pulse frequency: up to 150 kHz
- Sensitivity & Limit of Detection:

$\text{m}/z 79$	$> 60 \text{ cps/ppbv}$;	$\text{LoD} < 20 \text{ pptv}$ (60 sec)
$\text{m}/z 181$	$> 120 \text{ cps/ppbv}$;	$\text{LoD} < 10 \text{ pptv}$ (60 sec)
- Mass range: 1-10,000 amu
- Linearity range: 10 pptv - 1 ppmv
- 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: $40\text{-}180^\circ\text{C}$ ($104\text{-}356^\circ\text{F}$)
- Reaction chamber heating range: $40 - 120^\circ\text{C}$ ($104 - 248^\circ\text{F}$)
- Power supply and max. consumption: 115/230 V, 1500 W
- Dimensions (w x h x d): $60 \times 91 \times 80 \text{ cm}$ ($23.7 \times 35.9 \times 31.5 \text{ in.}$)
- Weight (incl. SRI): $< 125 \text{ kg}$ (275.6 lbs)
- Interfaces: 8x DI/O, 2x AI, 2x AO (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 1000 FEATURES AND BENEFITS

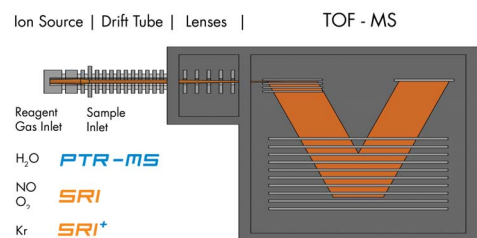
The PTR-TOF 1000 is an IONICON PTR-TOFMS instrument with dimensions, weight and price usually restricted to quadrupole PTR-MS, but having all the advantages of the more powerful time of flight based solutions: acquisition of the entire mass range in split-seconds and higher resolution for better separation and identification.

The instrument demonstrated its reliability and robustness but also its remarkable technical abilities and speed during various international campaigns and is ideally suited for analysis of VOCs at a very high time resolution. It comes with a fully integrated IONICON data acquisition and data treatment software suite.

Enter into the world of PTR-TOFMS with IONICON's PTR-TOF 1000: it is the smallest, lightest and most affordable time-of-flight based PTR-MS we have ever constructed.

PTR-MS

We proudly rely on the IONICON-exclusive genuine 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 1000 is also available with Selective Reagent Ionization - Mass Spectrometry (SRI/SRI+), featuring NO^+ , O_2^+ and NH_4^+ (patent pending) or Kr^+ (SRI+, US Pat. 9,188,564, EP 2606505 A1) alternatively to H_3O^+ as precursor ions created in the IONICON ULTRA-PURE ion source.

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 for subsequent real-time analysis. NH_4^+ offers improved selectivity, simplified mass spectra and suppressed fragmentation.

ROBUST, RELIABLE & EASY TO USE

The PTR-TOF 1000 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 1000 in a re-usable eco-friendly flightcase container.