

Vocus CI-TOF Measurement System

Real-time chemical analysis of trace gases, aerosols, or atmospheric ions.

Interchangeable Reactors and Sampling Inlets

The Vocus CI-TOF is used with multiple inlets and reactors, which can be easily interchanged by the user.



Vocus
CI-TOF
Flex Pictured

Inlets		Reactors		Vocus CI-TOF
Particle Phase	Gas Phase	Switchable Reagent Ions		Mass Spectrometer Models
	PAM	+	EESI Na ⁺ ATM PRESSURE	Flex, HR These models work with all reactors
VIA	+	PAM	+	
VIA	+	GC PAM	+	
FIGAERO	+	GC PAM	+	
			AIM I ⁻ , Br ⁻ , NH ₄ ⁺ , (C ₃ H ₆ O) ₂ H ⁺ MEDIUM PRESSURE	B2 / B4 Works with AIM (Fast Polarity Switching)

Advantages

- Interchangeable ionization sources for selective detection of different chemical classes
- Quantitative response with broad dynamic range
- Sub pptv gas-phase limits of detection
- Molecular identification and elemental speciation
- High-speed data acquisition
- Low power, field portable assembly

Applications

- Online identification and quantification of trace gas- or particle-phase compounds
- Laboratory, field, or mobile platform based experiments
- Air quality and climate change research

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Inlets

Aerodyne Gas Chromatograph

Our Fast Compact GC system can be attached to the front of the Vocus for thermal desorption preconcentration for in-situ analysis of VOCs and OVOCs.

Potential Aerosol Mass Oxidation Flow Reactor

The PAM-OFR provides a highly oxidizing environment that simulates oxidation processes on the timescales of day in the atmosphere in minutes in real time.

VIA (Vaporization Inlet for Aerosols)

The Vocus Inlet for Aerosols (VIA) is used for thermal desorption of organic aerosols for on-line analysis by the Vocus.

FIGAERO (Filter Inlet for Gas & Aerosols)

The FIGAERO is an aerosol sampling inlet/interface for analysis of organic aerosol chemical composition and volatility.

CI-TOF Reactors

EESI (Extractive Electrospray Ionization Reactor) - a powerful real-time (seconds) system for aerosol chemical composition measurements.

NO₃ Reactor - a wall-less flow reactor for the measurement of low-volatility and highly oxidized gases.

AIM Reactor - provides fast and sensitive detection of trace oxidized organic and inorganic compounds spanning the entire volatility range.

PTR Reactor (Proton Transfer Reaction) - a VUV-based reactor with exceptional stability, sensitivity, and detection limits for analysis of a broad range of volatile organic compounds (VOCs).

Specifications

	Vocus CI Series				Vocus B Series	
CI-TOF Models	Flex Scout	Flex S	Flex 2R	HR	B2	B4
Sensitivity cps/ppb	4,000	30,000	30,000	>2,500	10,000	10,000
Resolving Power Th/Th M/ΔM	4,000	6,000	10,000	25,000	5,000	10,000
LOD (pptv, 1 minute)	<10	<1	<1	<1	< 1	< 1
Bipolar Analyzer Switch	10 min	10 min	10 min	10 min	50 ms	50 ms
Ion Mobility Spectrometry				Yes		
Mass - lbs kg	375 170	408 185	408 185	705 320	375 170	408 185
Volume (m3)	.39	.39	.39	.96	.40	.41
Dimensions Inches [mm]	22.44 x 26.77 x 39.76 [570 x 680 x 1010]			25.98 x 37.01 x 61.02 [660 x 940 x 1550]	18.90 x 24.21 x 52.56 [480 x 615 x 1335]	18.90 x 25.00 x 52.56 [480 x 635 x 1335]
Power	< 1100 W (600- 800 W typical) 100 - 240 VAC, 50/60 Hz, single phase					