

Tiger-i 2000

Monitors for Airborne Molecular Contaminants

GASES & CHEMICALS

CEMS

ENERGY

ATMOSPHERIC

SEMI & HB LED

SYNGAS

LABORATORY

A compact and user-friendly solution for monitoring airborne molecular contaminants (AMC), the Tiger-i 2000 offers:

- Fast, absolute measurement technique, using Cavity Ring-Down Spectroscopy (CRDS)
- Drift-free, with calibration traceable to the world's leading reference labs
- Lowest Cost of Ownership – maintenance-free
- Best-in-class sensitivity and extraordinarily wide dynamic range

State-of-the-Art Trace Gas Analyzers for Detection & Continuous Monitoring of Airborne Molecular Contaminants (AMCs) in Semiconductor Cleanrooms

You can spend a long time “looking” for Airborne Molecular Contaminants (AMCs) when the catastrophic product performance or yield loss is discovered at your device final test stage; or you can deploy Tiger Optics’ Tiger-i 2000 series analyzers to locate and to monitor these invisible defect generators, commonly found lurking in and around equipment, personnel, wafer carriers and cleanroom bays.

In today’s advanced semiconductor processing, the residual gases, vapors and chemicals emanating from the various materials, accelerated processing operations, and substrate storage and transport have become a critical concern. So much so that the

International Technology Roadmap for Semiconductors (ITRS) now highlights AMC contamination as a key technical challenge in achieving and sustaining low defect rates on devices.

With a particular focus on the major contributors to the “chemical contamination” element of AMCs, the Tiger-i 2000 series analyzers can detect and continuously monitor HF (viewed by many as the most critical contaminant), HCl and NH₃. Others, such as CH₄, CO, CO₂, CH₂O, HCN and H₂S, are also available.

The new Tiger Optics AMC Cart adds additional flexibility by providing a mobile platform that can be moved quickly to different critical monitoring points.

Tigeroptics

21ST CENTURY SPECTROSCOPY

Tiger-i 2000

Monitors for Airborne Molecular Contaminants



Performance	
Operating range	See table below
Detection limit (LDL, 3σ or peak-to-peak over 24 hours)	See table below
Precision (1σ, greater of)	± 0.75% or 1/3 of LDL
Accuracy (greater of)	± 4% or LDL
Zero drift	None
Speed of response	See table below
Environmental conditions	10°C to 40°C 30% to 80% RH (non-condensing)
Storage temperature	-10°C to 50°C

Gas Handling System and Conditions*	
Wetted materials	Sample gas compatible
Gas connections	1/4" male VCR inlet and outlet
Leak tested to	1 x 10 ⁻⁹ mbar l / sec
Inlet pressure	0 – 15 psig (1 – 2 bara)
Outlet pressure	Vacuum (<10 Torr)
Flow rate	~1 slpm
Sample gases	Ambient air, dry air (CDA) or N ₂
Gas temperature	Up to 60°C

Dimensions	H x W x D [in (mm)]
Standard sensor	8.75 x 8.5 x 23.6 (222 x 216 x 599)
Sensor rack (fits up to two sensors)	8.75 x 19 x 23.6 (222 x 483 x 599)
AMC Cart (excl. casters)	36 x 23 x 36 (914 x 584 x 914)

Weight	
Standard sensor	33 lbs (15 kg)
AMC Cart (excl. sensors and pumps)	260 lbs (118 kg)

Electrical	
Alarm indicators	2 user programmable 1 system fault Form C relays
Power requirements	90 – 240 VAC, 50/60 Hz
Power consumption	40 Watts max. per sensor
Signal output	Isolated 4–20 mA per sensor
User interfaces	5.7" LCD touchscreen 10/100 Base-T Ethernet 802.11g Wireless (optional) RS-232

Performance in ambient air:	Range	LDL (3σ)	LDL (peak-to-peak)	Speed of Response
Tiger-i 2000 HF	0 – 1 ppm	0.15 ppb	0.2 ppb	2 min to 80%
Tiger-i 2000 HCl	0 – 4 ppm	0.75 ppb	1.0 ppb	2 min to 80%
Tiger-i 2000 NH ₃	0 – 40 ppm	2.5 ppb [†]	3.5 ppb [†]	3 min to 95%

*Vacuum source with >2 slpm @ 10 Torr required

[†]Specified LDL achievable with humidity variation of less than 7% RH

Contact us for additional analytes.

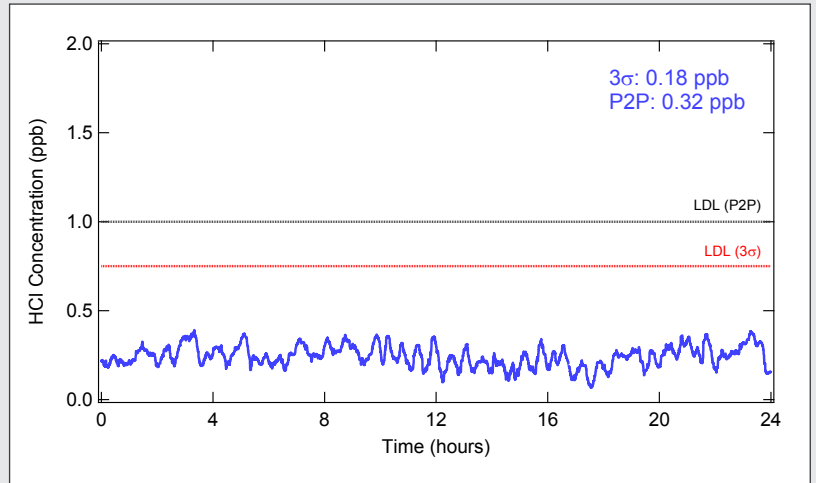
U.S. Patent # 7,277,177

Tiger-i 2000 Monitors for Airborne Molecular Contaminants

Reliable and Accurate Measurement

Tiger Optics' Tiger-i 2000 series of AMC monitors delivers 24/7 drift-free, calibration-free performance from parts-per-trillion to parts-per-million concentrations of HCl, HF, and NH₃.

The Tiger-i's low baseline noise and fast speed of response allow users to react quickly to the presence of contaminants in the cleanroom. The graph shows an example of a 24-hour baseline measurement with a **Tiger-i 2000 HCl**. Tiger units go through rigorous performance tests to verify that every single analyzer meets its guaranteed specifications. Our stringent quality control ensures that customers can rely on the analyzer's performance even under the most challenging operating conditions.

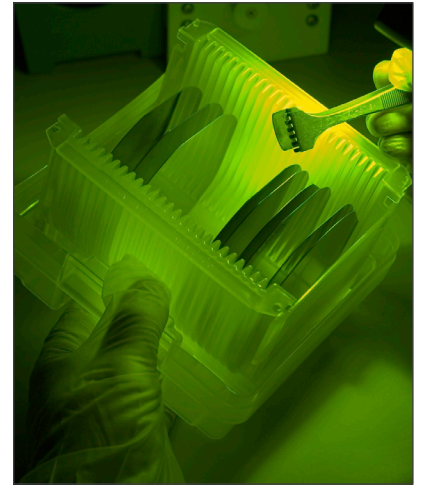


Tiger Optics AMC Cart[§]

Surveying different micro-environments in a fab is now fast and easy with Tiger Optics' mobile **AMC Cart**. It can be equipped with any combination of **Tiger-i 2000** units to monitor simultaneously for the three most critical contaminants in cleanroom air.

The cart is easy to move around the fab and comes with the following features:

- Space for up to four Tiger-i 2000 monitors
- Integrated low-power and fanless vacuum pump
- Integrated back-up power supply for seamless operation while changing cart location (optional)
- Retractable power extension cord for maximum flexibility (optional)



Annual Remote Certification

- Low-cost and easy remote certification process, with no need to return the analyzer to the factory
- Annual re-certification by Tiger Optics ensures that your analyzer continues to meet its original specifications
- Up-to-date Verification Certificate to comply with your QA/QC standards



[§]Cart image is for illustration purposes only, actual design may vary.

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