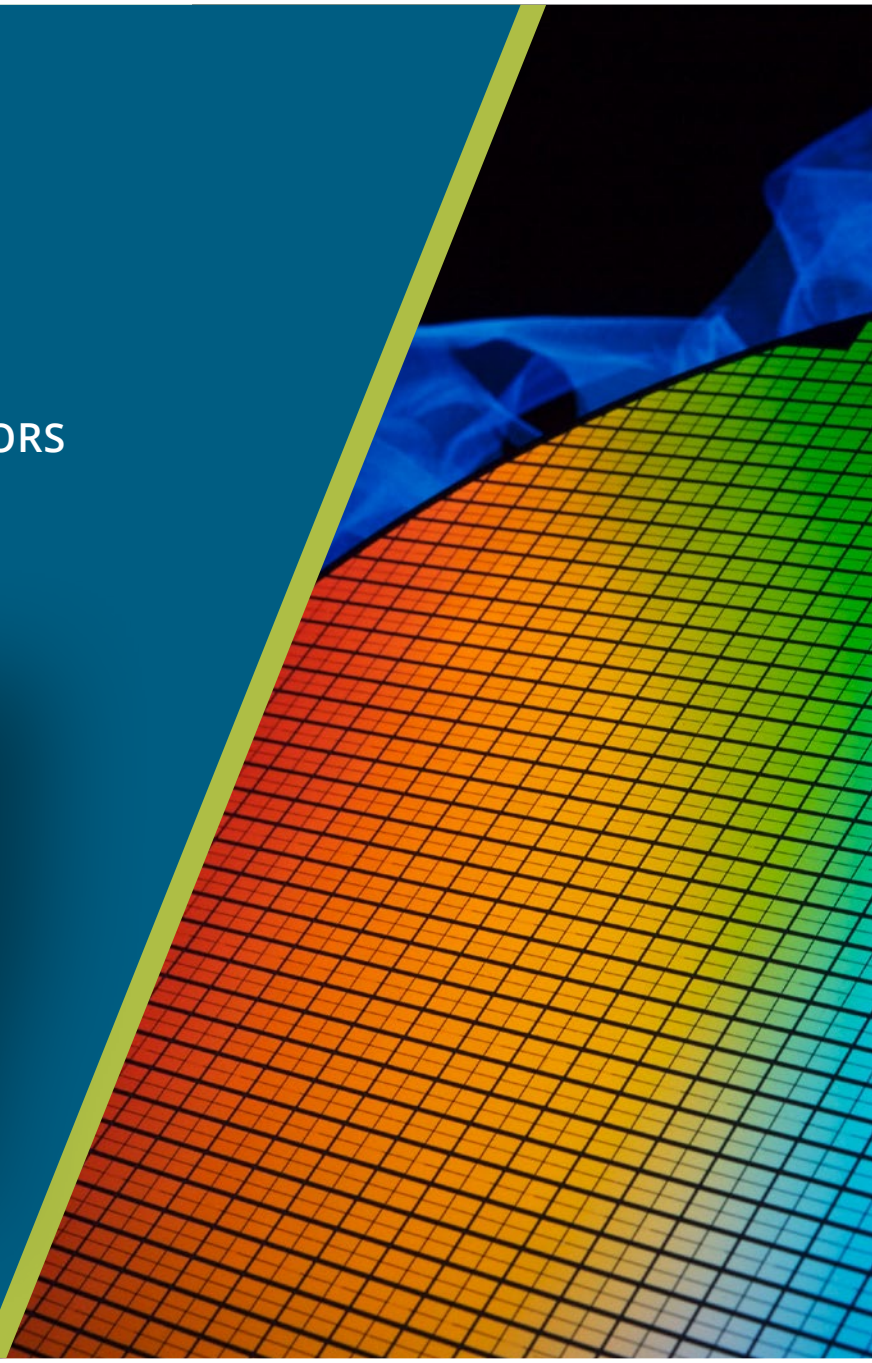
Process Insights™
Premium Insights Into Process

PRODUCT DATASHEET

T-I Max™

NEXT-GENERATION AMC MONITORS



Based on Tiger Optics' new global platform, the T-I Max series monitors for Airborne Molecular Contaminants (AMCs) deliver unprecedented performance, including:

- Sensitive, absolute measurement technique, using Cavity Ring-Down Spectroscopy (CRDS)
- Dramatically improved speed of response
- Parts-per-trillion detection limits
- Drift-free, with calibration traceable to the world's leading reference labs
- Lowest Cost of Ownership and maintenance

Next-Generation Trace Gas Analyzers for Detection & Continuous Monitoring of Airborne Molecular Contaminants 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 our T-I Max™ 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 & sustaining low defect rates on devices.

With a particular focus on the major contributors to the "chemical contamination" element of AMCs, the T-I Max series, based on Tiger's new analyzer platform, can detect and continuously monitor HF, HCl, and NH_3 with an unprecedented combination of sensitivity, selectivity, and speed of response.

Our GO-cart™ for AMCs adds additional flexibility by providing a mobile platform that can be moved quickly to different critical monitoring points.

Specifications

Performance

Operating range:	See table below
Detection limit (LDL, 3σ@100s):	See table below
Precision (1σ@100s, greater of):	± 0.5% or 1/3 of LDL
Accuracy at span:	± 4% of reading
Accuracy at zero:	See table below
Speed of response @ 20ppb: (T10/90 + T90/10)	See table below
Environmental conditions:	10°C to 40°C, 10% to 90% RH (non-condensing)
Sample conditions:	30% to 70% RH at 20°C, 20% to 50% RH at 25°C, 15% to 40% RH at 30°C
Storage temperature:	–10°C to 50°C

Gas Handling System and Conditions*

Wetted materials:	Optimized for ppt-level AMCs and fast speed of response
Gas connections:	1/4" PFA Swagelok® inlet & outlet
Inlet pressure:	Atmospheric pressure†
Outlet pressure:	Vacuum (<10 Torr)
Flow rate:	~3 slpm@1 atm pressure (NH_3), ~2 slpm@1 atm pressure (HF, HCl)
Sample gases:	Cleanroom air, CDA or N_2
Gas temperature:	Up to 60°C

Dimensions & Weight

Standard sensor (w/o ext. particle filter)**:**	H × W × D: 8.73 x 8.57 x 23.6 in (222 x 218 x 599 mm)
Sensor rack (fits up to two sensors)**:**	H × W × D: 8.73 x 19.0 x 23.6 in (222 x 483 x 599 mm)
GO-cart:	H × W × D: 50.0 x 23.0 x 36.0 in (1270 x 584 x 914 mm)
Standard sensor weight excl. vacuum pump**:**	33 lbs (15 kg)
GO-cart weight excl. vacuum pump**:**	260 lbs (118 kg)

Electrical and Interfaces

Platform:	Max series analyzer
Alarm indicators:	2 user programmable, 1 system fault, Form C relays
Power requirements:	90 − 240 VAC, 50/60 Hz
Power consumption:	40 Watts max.
Signal output:	Isolated 4−20 mA per sensor
User interfaces:	5.7” LCD touchscreen, 10/100 Base-T Ethernet USB, RS-232, RS-485 Modbus TCP (optional)
Data storage:	Internal or external flash drive
Certification:	CE Mark

Performance in cleanroom air:	Range	LDL (3σ)	Accuracy at zero	Speed of Response (T10/90+T90/10)
T-I Max HF:	0 − 1 ppm	20 ppt	± 20 ppt	< 3 minutes @ 20 ppb
T-I Max HCl:	0 − 4 ppm	100 ppt	± 100 ppt	< 30 seconds @ 20 ppb
T-I Max NH_3:	0 − 40 ppm	300 ppt	± 300 ppt	< 3 minutes @ 20 ppb

*Vacuum source with >2 slpm @ 10 Torr required
†Contact us for details about operating the analyzer at elevated inlet pressure.

Contact us for additional analytes, matrices and ranges.
U.S. Patent # 7,277,177

GO-cart

Surveying different micro-environments in a fab is now fast and easy with our mobile GO-cart.
It can be equipped with any combination of T-I Max units to monitor simultaneously for the most critical contaminants in cleanroom air.

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

- Space for up to three T-I Max analyzers with low-power, fanless vacuum pumps
- Top-mounted central control touchscreen
- Integrated back-up power supply (optional)
- Conductive ESD paint (optional)

Annual Performance Verification

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

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NEXT-GENERATION AMC MONITORS

GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights manufactures and delivers premium sensors, monitors, detectors, analyzers, instrumentation, and software that are mission-critical to keep your operations, personnel, and the environment safe – every day across the globe.

Get the most reliable, precision analytical technologies available on the market today. We will work to match your needs and budget, and provide the optimal, and most stable process analysis solution for your application.

CENTERS OF EXCELLENCE | PROVIDING PROVEN SOLUTIONS

Process Insights is committed to solving our customers' most complex analytical, process, and measurement challenges everyday.

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