

MAX-iAQ Continuous Ambient Air Monitoring System

Comprehensive, factory-ready solution for multipoint low-level detection, even in high humidity environments

The Thermo Scientific™ MAX iAQ™ fully automated FTIR-based ambient air monitoring system can quantify 10 – 100+ compounds from up to 20 sample locations

The instrument's comprehensive design includes a temperature-controlled rack, an integrated sample multiplexer, an industrial computer, and interface hardware for easy factory communication. The multiplexer incorporates sampling and bypass pumps to allow for continuous sample flow on all channels, a programmable logic controller (PLC), and touchscreen human-machine interface (HMI). All sample, calibration gas, and nitrogen connections are neatly aligned on the rear of the system for quick coupling. Two enclosure options are available to meet the facilities needs: a Standard Enclosure, and a Purged Enclosure. Both are designed for installation in non-rated areas.

At the heart of the MAX-iAQ system is the Thermo Scientific™ MAX-iR™ FTIR gas analyzer. The standard MAX-iR analyzer has a deuterated triglycine sulfate (DTGS) detector which allows for acquisition of the full mid-IR spectrum and quantification of nearly any organic or inorganic compound, including chlorinated and fluorinated gases down to 10s of ppb. For even lower detection limits for target applications, such as ethylene oxide monitoring, the MAX-iAQ system can be deployed with patented Thermo Scientific™ StarBoost™ Technology. In these configurations, an optical filter is combined with a Peltier-cooled mercury-cadmium-telluride (MCT) detector or an indium arsenide (InAs) detector to obtain the lowest possible method detection limits (MDLs) (less than 1 ppb). All FTIR configurations in the MAX iAQ system are designed to operate for 10+ years with minimal maintenance and are reliable solutions for 24/7/365 ambient air monitoring.

The system analyzer can be factory calibrated and operate continuously for its useful life without recalibration because it's an FTIR-based system. If necessary, the system can accept reference gas cylinders for validation purposes (QA/QC).



MAX-iAQ continuous ambient air monitoring system.

The MAX-iAQ system is deployed with user-friendly Thermo Scientific™ MAX-Analytical™ STANDARD Software Suite. A flexible Workflow function in the software directs each device within the system on a time basis. Modbus™ data publishing and optional remote control are also included in the software to provide seamless factory integration and data publishing to existing infrastructure.

MAX-iAQ system specifications
Multiplexer

Number of sample channels	20
Sample pump flow	4-10L/min
Bypass pump flow	1-2L/min on each channel
System response time*	≤ 15-sec
Time per channel*	≤ 30-sec (includes 15-sec equilibration time)
Time per sample cycle*	≤ 10-min (20 channels)

*Performance specification based on 10L/min sample flow rate and 10-sec MAX-iR analyzer measurement

Gas requirements

Purge gas	Nitrogen, ultra-high purity (UHP) grade or better, 20psig
Valve actuation gas	Nitrogen or clean dry air (CDA), 80psig (models with MAX-OXT only)

Facilities requirements	Standard Enclosure	Purged Enclosure
Environmental temperature	15-30°C (59-86°F)	-40-50°C (-40-122°F)
Environmental humidity	10-90% RH, non-condensing	0-100% RH
Power	208-240VAC, 50-60Hz, 12A max	208-240VAC, 50-60Hz, 20A max
Dimensions (W x H x D)	651 x 1890 x 944mm (25.6 x 74.4 x 37.2")	1151 x 1912 x 976mm (45.3 x 75.3 x 38.4")

Factory integration

Data outputs	Modbus TCP/IP
	8 Relay outputs (Form C)
	2 Analog outputs (4-20mA)
	4 Digital outputs (24V)
Data inputs	Modbus TCP/IP remote control
	2 Analog inputs (4-20mA)
	2 Digital inputs (24V) for remote start and stop

 Learn more at thermofisher.com/max-iaq

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