

Thermal Oxidizer Module

Eliminates noise from spectral interference on FTIR gas analyzer

The Thermo Scientific™ MAX-OXT Thermal Oxidizer Module attaches to the Thermo Scientific™ MAX-iR™ FTIR Gas Analyzer to eliminate noise from spectral interferences, such as water. By using the MAX-OXT module with the analyzer, users can dramatically enhance the quality of spectral analysis and easily validate results

Coupling the MAX-OXT module with the MAX-iR analyzer results in lower limits of detection for compounds such as formaldehyde and ethylene oxide compared with the MAX-iR analyzer alone. Ethylene oxide is a potent carcinogen – a mutagen that must be monitored in medical sterilization facilities to protect employees. When the MAX-OXT module is applied to the analysis of ethylene oxide, a MAX-iR analyzer with Thermo Scientific™ StarBoost™ Technology can easily detect an ethylene oxide absorbance peak >1,000 times smaller than the moisture peaks – essentially a needle in a haystack.

The MAX-OXT module is a low temperature catalytic oxidizing system that has two modes: one that leaves the sample unchanged (Bypass Mode) and one that modifies the sample by oxidation (Oxidation Mode). Materials that enter the oxidation pathway and can be catalytically oxidized at low temperature are removed from the sample. In Oxidation Mode, materials like oxygenates (alcohols, ketones, aldehydes, acids, ethers, and oxides) and aromatic compounds (benzene, toluene) are removed from the sample while other potential interfering gases like H₂O, CO₂, CH₄, C₂H₆ and other aliphatic hydrocarbons pass through unchanged. When an infrared spectrum of this oxidation gas mixture is added to the regression analysis as a reference, spectral interferences from gases like water can be reduced by more than 100-fold because the reference is a near perfect match to the sample spectrum.



MAX-OXT thermal oxidizer module.

The module's oxidation chamber can be operated up to 200°C. Two redundant oxidation catalyst cores prevent analyte breakthrough and allow for higher sample flow rates and fast response times. A thermal cutoff switch prevents overheating of the MAX-OXT module in the unlikely event of a relay failure.

While the principle of operation is complex, the MAX-OXT module is easy to use. Both the MAX-iR analyzer and module are controlled automatically through the Thermo Scientific™ MAX-Acquisition™ Automation Software.

MAX-OXT module specifications

Features

Two redundant oxidation catalyst cores

Oxidation temperature range: 35-200°C

Sample flow: 1-10L/min

Two high-temperature pneumatic valves for stream switching

Watlow™ heater controller to prevent moisture condensation

Programmable logic controller (PLC)

Thermal cutoff switch

Rack mountable, 3U

Facilities requirements

Power	110 VAC, 50/60Hz, 5.3A max
	208-240 VAC, 50/60Hz, 2.6A max
Valve actuation gas	Nitrogen or clean dry air (CDA), 80psig

Dimensions

W x D x H	483 mm x 589 mm x 134 mm
Weight	11.5 kg

Learn more at maxanalytical.com/max-ir

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