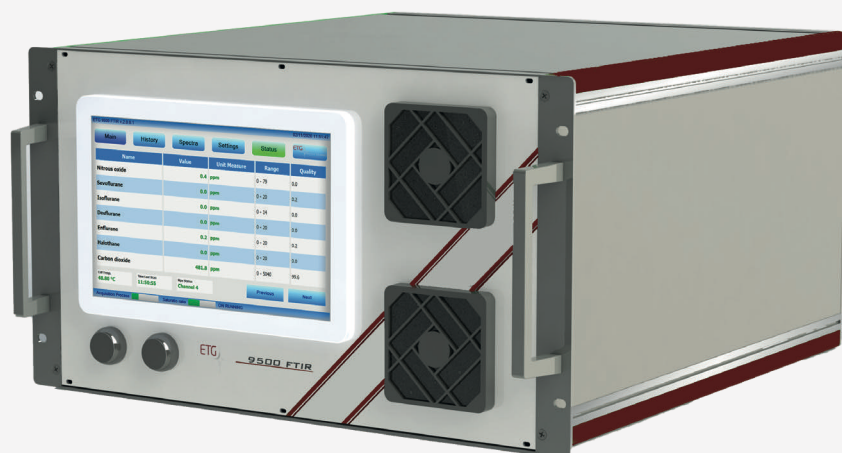


Limitless gas analysis withstanding  
any industrial process.

# ETG 9500 FTIR, the new standard of FTIR technology that faces any threat



## Multicomponent gas analysis

FOR

CEMS, air pollution, engine emissions, food processing. Biogas & Syngas, petro-chemistry, work safety,  
fire fighting, food processing, cement kilns, mining, aerospace and many more.

**RUGGED**



## PORTABLE VERSION

Besides the standard 19" Rack format, which is perfect for integration into complex measurement systems or research laboratories, ETG Risorse e Tecnologia has developed **the transportable version of the ETG 9500 FTIR analyser**. Configurable to suit each customer's needs, it provides a small measurement and sampling system for every situation. Equipped with a heated line to prevent gas condensation, it becomes an invaluable ally in monitoring **VOCs, industrial emissions, filtering systems and siloxanes**. Its great flexibility allows unlimited analysis possibilities, which, combined with its ease of transport, makes it the ideal instrument for monitoring **greenhouse gases, anaesthetic gases** in operating theatres, leakages in **Biogas and Syngas** plants and many others.



2

Forget about problems and expensive maintenance. The ETG 9500 is the most flexible and cost-effective solution for FTIR analysis. We have developed a spectrometer with the best materials, resulting in a high signal, low noise and long lifetime of its components. Its simple interface and practical functions make it the number one ally in industrial monitoring.

## HIGHLY-EFFICIENT

There is no limit to the potential of the ETG 9500. Thanks to the long path and small cell volume, we achieved excellent stability, high sensitivity and fast response time. ETG 9500 analyzes the Infrared Spectrum in its entirety and at the same time, adding new compounds is a straightforward and quick process.

## USER FRIENDLY

The analyzer has a large touchscreen. It allows numerous automated and convenient functions, such as separate data logs and customised alarms. The ETG 9500 can be remote-controlled over a LAN or Wi-Fi network, and is compatible with most industrial communication protocols.

**ETG**

Risorse e Tecnologia

Products for every analysis need

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# SPECIFICATIONS

	ETG 9500 FTIR	ETG 9500P FTIR
Enclosure	19" Rack	Rugged Case
Display	10.1" touchscreen	External (remotely controlled)
Dimensions (L x W x D)	19" x 6hE x 550 mm	625 x 500 x 297 mm
Weight	16kg	14kg
Power Supply	230/115 V 50/60Hz	230/115 V 50/60Hz (12 VDC Optional)
Analyzer Power Consumption	100W(max) - 70W(typ)	90W (max) - 60W(typ)
Heater Power Consumption	450W (max)-70W(typ)	450W (max) - 70W (typ)
Heated Line Power Consumption	80 W/m	80 W/m
Sample Pump	Included	Included
IP Class	N/A	IP54 (optional)
Certification	CE	CE

The screenshot shows the 'Status' page of the ETG 9500 FTIR. It features a table with columns for Name, Value, Unit Measure, Range, and Quality. The table lists several gases: Nitrous oxide (0.4 ppm), Sevoflurane (0.0 ppm), Isoflurane (0.0 ppm), Desflurane (0.0 ppm), Enflurane (0.2 ppm), Halothane (0.0 ppm), and Carbon dioxide (481.8 ppm). Below the table, there are status indicators for Cell Temp (48.70 °C), Time Last Scan (11:50:55), and Gas Status (Channel 4). At the bottom, there are progress bars for Acquisition Process, Saturation ratio, and a warning for 4023 - N2 Cylinder Empty.

Name	Value	Unit Measure	Range	Quality
Nitrous oxide	0.4	ppm	0 - 79	0.0
Sevoflurane	0.0	ppm	0 - 20	0.2
Isoflurane	0.0	ppm	0 - 14	0.0
Desflurane	0.0	ppm	0 - 20	0.0
Enflurane	0.2	ppm	0 - 20	0.2
Halothane	0.0	ppm	0 - 20	0.0
Carbon dioxide	481.8	ppm	0 - 5040	99.6

User Interface Overview

Measurement Technique	FTIR Spectrometry
Measurable Gases and Vapors	Most molecules except for He, Ar, N <sub>2</sub> , H <sub>2</sub> , and O <sub>2</sub>
Ranges	Concentration setting between 10ppb and 100% Full Scale (depending on gas type)
Spectral Resolution	0.5 cm <sup>-1</sup>
Spectral Range	5000-830 cm <sup>-1</sup> (2-12μm)
Scan Frequency	0.7 s <sup>-1</sup>
Light Source	Broadband SiC, 1550 K
Reference Laser	Stabilized semiconductor laser
Detector	MCT (4-TE cooled)
Detectivity D	>2.5x10 <sup>9</sup> cmHz <sup>1/2</sup> W <sup>-1</sup>
Signal-to-noise ratio	>3500:1 (for one single scan)
Pneumatic Connections	Swagelock 6 mm O.D.
Communications	RJ45 Ethernet, USB, WiFi
Output Options	Modbus, Profinet, Profibus...

## SAMPLING PARAMETERS

Sample Temperature	Ambient to 180°C (calibration temperature dependent)
Sample Flow	1-3 l/min
Sample Pressure	Ambient



## GAS CELL

Path Length	5 m
Internal Volume	0.2 l
Transmission	>50%
Temperature Range	20 to 180°C
Construction	Aluminum with inert coating
Mirrors Parabolic	Rhodium protected, gold coated aluminum
Windows	BBAR ZnSe

## PERFORMANCE SPECIFICATIONS

Zero-point Drift	< 2 % of measuring range per 48 h background measurement interval
Sensitivity Drift	None
Linearity Deviation	< 2 % of measuring range
Temperature Drift	< 1 % of measuring range per 10 K temperature change. Ambient temperature changes are measured and compensated.
Pressure Influence	1 % change of measuring value for 1 % sample pressure change. Ambient pressure changes are measured and compensated
Background Measurement Interval	Every 48h (recommended)

## Suitable applications

### STACK EMISSIONS MONITORING:

- \* Continuous emissions monitoring (CEMS)
- \* Portable stack emissions monitoring (PEMS)

### TOXIC EMISSIONS:

- \* Toxic Industrial Chemicals (TICs) Monitoring
- \* Toxic and Harmful Gas Monitoring System in Fire Fighting
- \* Toxic gas control for containers

### HEALTHCARE ANALYSIS:

- \* Medical anesthetic Gas Detection

### GREEN HOUSE GASES MONITORING:

- \* Greenhouse gases produced by agricultural activity, landfills and digesters monitoring

### MEASURABLE SUBSTANCES:

- \* Measurement of Siloxanes deriving from the Biogas production process

4

STEP INTO THE ADVANCED.

## The CEMS application

CEMS (Continuous Emissions Monitoring System) technology is an advanced monitoring system that provides real-time measurement and monitoring of industrial emissions. It is widely used in power plants, refineries, and other heavy industrial facilities to measure and control the release of pollutants into the atmosphere. CEMS technology uses various sensors and instruments, such as gas analyzers, particulate analyzers, and flow meters, to accurately measure and report the levels of pollutants such as sulfur dioxide, nitrogen oxides, and particulate matter.

CEMS is an essential tool for ensuring compliance with environmental regulations and promoting sustainable production processes. The data collected by CEMS helps facilities to track their emissions and identify areas for improvement, reducing the impact of industrial activities on air quality. In addition, CEMS can be used to optimize production processes, increase efficiency, and reduce costs by detecting and addressing issues in real-time.

### TARGET GASES

GAS	RANGE
CH <sub>4</sub>	0-100 ppm
CO	0-500 ppm
CO <sub>2</sub>	0-50000 ppm
H <sub>2</sub> O	0-60%
HCl	0-100 ppm
HF	0-100 ppm
N <sub>2</sub> O	0-100 ppm
NH <sub>3</sub>	0-100 ppm
NO	0-150 ppm
NO <sub>2</sub>	0-250 ppm
SO <sub>2</sub>	0-150 ppm
O <sub>2</sub> *	0-25%

\*O<sub>2</sub> values are measured using a ZrO<sub>2</sub> sensor, which is compliant with most CEMS requirements.  
Other kinds of sensors can be used, based on customer or regulator request  
All ranges can be adapted to customer or regulator request

5

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