Multi-gas Infra Red Fourier Transform (FTIR) Analyzer

MIR FT

QAL 1
EN 14181
TÜV
mCERTS

One single analyzer for the measurement of:
NO, NO_2, NOx, N_2O, CO, CO_2, SO_2, HCl, HF, CH_4, NH_3, H_2O,O_2...

With the emissions limits tightening and new gases being introduced, this instrument allows future gas upgrades, providing the solution for today and what may happen tomorrow. Designed to operate under legislation such as 2000/76/EC (WID) and 2001/80/EC (LCPD), The MIR-FT offers maximum availability and complete compliance with QAL 1 of EN14181 & EN15267-3.

MIR FT rack cabinet

MIR FT mounted in air conditioned enclosure

EXCLUSIVE FEATURES:

- Based on a leading edge technology for simultaneous, multi-gas measurement of: HCl, NO, NO_2 (NOx), SO_2, CO, CO_2, HC, CH_4 (TOC), NH_3, HF, H_2O... (from a library of 50 gases)
- Fast and simultaneous measurements of up to 14 gases
- Especially designed to measure wet and corrosive sample gases
- Rugged & insensitive to vibrations
- Excellent calibration stability
- Automatic correction of spectral interferences
- Unmatched accuracy and reliability
- Windows based PC driven software with on-board data acquisition
- 180°C heated sample line / measurement cell (in association with HOFI or SEC sampling system according the application)
- High sensitivity heated sample cell
- TOC measurement by FID possible, using the complementary Graphite 52M analyzer
- **MCERTs certified to EN15267-3**
- **QAL1 as defined by EN14181, QAL3 compliance to EN14181**
- Compliant with **U.S. EPA 40 CFR Part 60** Appendix B, Performance Specification 15

MAIN APPLICATIONS:

- Municipal, Industrial, Hospital waste incinerators
- Power & Combustion
- Biomass
- Cement Kilns
- Pulp & Paper
- DeNOx (SNCR, SCR)
- Glass Plants

NO, NO_2, NOx, N_2O, CO, CO_2, SO_2, HCl, HF, CH_4, NH_3, H_2O,O_2

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SPECIFICATIONS:

	Lowest measurement ranges
NO	0-200 mg/m3
NOx	0-200 mg/m3
NO2	0-100 mg/m3
CO	0-75 mg/m3
CO2	0-10 %
SO2	0-75 mg/m3
N2O	0-100 mg/m3
HCl	0-15 mg/m3
HF	0-15 mg/m3
CH4	0-20 mg/m3
COT	0-20 mg/m3
NH3	0-15 mg/m3
H2O	0-25 %
O2	0-10 to 0-25%

Other ranges available upon request

- Zero drift: ± 1% full scale / 30 days
- Span drift: ± 1% full scale / 30 days
- Repeatability: ± 2% full scale
- Lower detectable limit: 2% full scale
- Response time: < 120s depending on the gas
- Interferometer resolution: 8 cm-1
- Measurement cell: multi-reflexion, 5 m
- Power supply: 220 V, ± 15%, 50-60 Hz, 200 VA
- Dim.: rack 19", 616 x 483 x 220 mm (DxWxH)
- Weight: 20 kg approx
- Operating temperature: + 10°C to + 35°C

MAIN OPTIONS:

- HOFI or SEC® sampling systems
- Temperature and pressure measurements
- O_2 measurement (heated zirconia sensor)
- Outputs: 0/10V - 0/4-20mA, programmable
- Solenoid valves for dynamic calibration
- The MIR-FT would be rack mounted in air conditioned enclosures or not

Complete systems would normally comprise of:

- Sample extraction and conditioning probe (with integrated temperature, pressure and flow measurement)
- Heated sample lines
- Automatic calibration units
- Instrument Air drying system
- CDAS Data Acquisition Software (WEX™)

OPERATING PRINCIPLE:

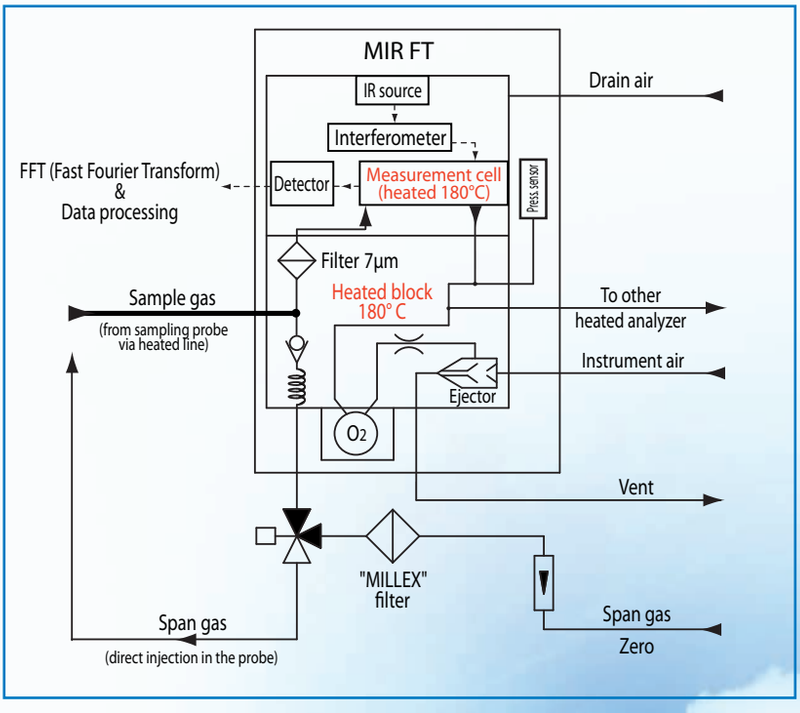
Fourier Transform Infra Red (FTIR) spectroscopy is based on the absorption of an infra-red beam by the sample gas molecules, which induces vibrational state changes for each molecule at specific frequencies.

An IR source emits a polychromatic radiation in the medium infrared, which is sent to a Michelson interferometer. This interferometer consists of a beam splitter and two mirrors placed in nearly orthogonal planes (one being static, the other oscillating).

The beam splitter is used to separate the incident beam into two identical rays, to send them be reflected on each mirror and to recombine the rays in order to obtain an interference image, which depends on the difference of the optical path induced by the mirror oscillation.

The obtained interference image or «interferogram» corresponds to an energy variation as a function of each wavelength time, with maximum when waves are in phase, and minimum when waves are in phase opposition.

Therefore, the interferogram corresponds to an energy variation as a function of time, and the optical spectrum corresponding to an energy variation as a function of frequency is obtained by Fourier Transform signal processing.



In association with MIR FT, Environnement S.A recommends the use of its HOFI sampling system (heated filtration) or its SEC® sampling system (permeation) for optimal results.

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Typical specifications subject to changes without prior notice.

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