

Configurable MIR Spectral Sensing Solutions

The NeoSpectra-MIR Platform is a configurable spectral sensing solution that can be used in a wide variety of material sensing applications for qualification and quantification of gases, liquids, and solids. The platform operates in the extended wavelength ranges of the Mid-Infrared (MIR).



At the heart of the platform is a sensor based on Fourier Transform InfraRed (FT-IR) technology, which is a standard technique that offers a wide spectral range for the best qualification and quantification of materials. The sensors use patented Micro Electro Mechanical Systems (MEMS) technology, which allows for a Michelson interferometer to be created monolithically on a MEMS chip.

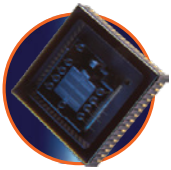
Extended Wavelength Range

- o MIR enables enhanced sensitivity & selectivity

Versatile Configurable Platform

- o Sensing interfaces for gases, liquids, and solids

Building Blocks



Optical Core Module

- o Monolithic MEMS FT-IR
- o Onboard detection capability



Chemometrics

- o Application development
- o Analytical detection models



Electronics

- o ASICs & embedded electronics



Software & Connectivity

- o Wired / wireless / cloud
- o API's, full UI/UX, automation



Sampling Interfaces

- o Liquids - flow/sample/ATR
- o Solids - diffuse reflectance
- o Gases - short/long path



System Level Packaging

- o Sample handing/conditioning
- o Application specific enclosure
- o Certification - UL/NEMA/IP

Performance

- o FT-IR is a standard technique with superior performance
- o Detection of fundamental molecular vibrations
- o Low power consumption

Implementation

- o Miniature form factor
- o Robust to shock & vibration

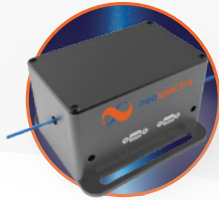
Economic Benefits

- o Low cost
- o Low maintenance
- o Designed for high volume production

Platform Technical Specifications

Parameter	Conditions	Value
Wavelength Range	PSD > 10% of peak PSD	2,125 - 7,400 cm ⁻¹ / 1,350 - 4,700 nm
Resolution	FWHM criterion	70 cm ⁻¹ (40 cm ⁻¹ optional)
SNR (rms)	10 s scan @ 2,740 cm ⁻¹	3,000:1
Wavelength Accuracy	@ 2,740 cm ⁻¹	± 2 cm ⁻¹

Select Hardware Prototypes:



Liquid Analyzer

Applications:

Lubricant / engine oil analysis
Food & beverage QA / QC monitoring



Gas Analyzer

Applications:

Smart Gas Meter - energy content monitoring
Environmental & air quality monitoring

What's Possible

Enabling a broad range of applications and use cases across multiple industries.



Smart Farming



Smart Food



Smart Industry

Customized Application Specific Solutions

The NeoSpectra-MIR Platform can be customized for dedicated solutions with a variety of sampling interfaces from prototypes to full volume manufacturing for measuring solids, liquids & gases in a variety of industries & environments.

Contact us to discuss a solution for your industry specific application.



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