neospectra Si-WARE SYSTEMS

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NeoSpectra-MIR Platform

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.
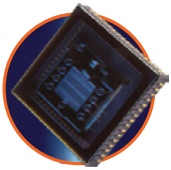
Extended Wavelength Range
o MIR enables enhanced sensitivity & selectivity

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
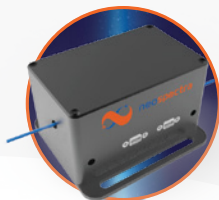o Miniature form factor
o Robust to shock & vibration

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.