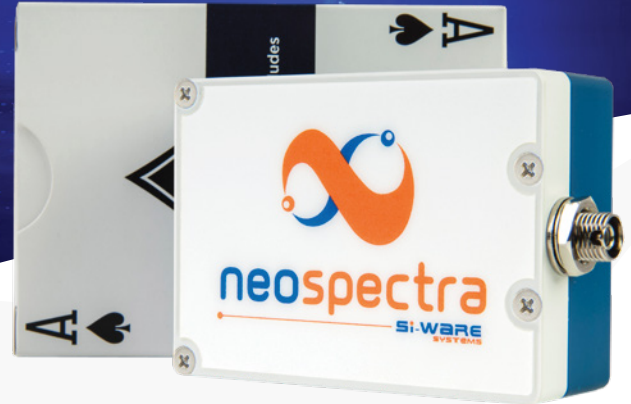




Plug-and-Play Spectral Sensing Module

The NeoSpectra-Module is a plug-and-play spectral sensing module that can be used in a wide variety of material sensing applications for qualification and quantification. The sensor offers performance comparable to laboratory based spectrometers, but at a dramatically smaller size and lower cost.

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



Rugged Housing

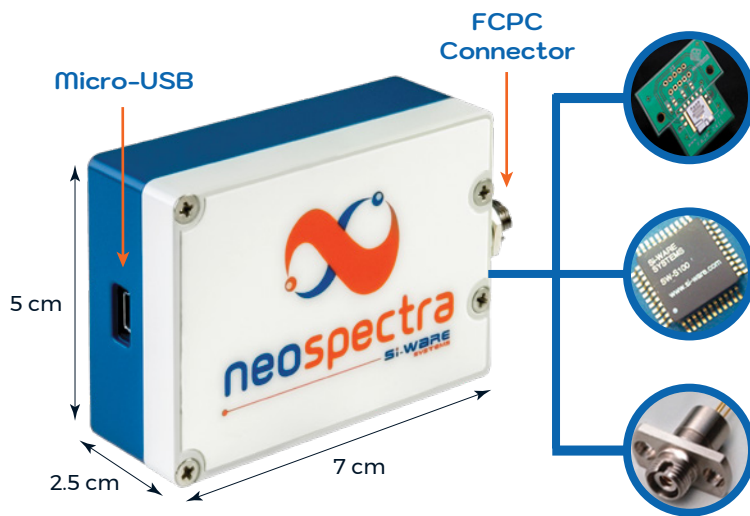
Rugged housing allows for standalone usage or implementation into a larger system.

Standard Fiber Optical Interface

Flexible optical interface that allows for different optical setups for RX or TX measurements.

USB Interface

Power and control and readout via USB.



What's inside:

Monolithic MEMS Michelson interferometer

Electronics

- o Application Specific Integrated Circuits (ASICs) for system control and data processing
- o Proprietary design for performance optimization

Single uncooled InGaAs photodetector

Features:

Performance

- o Wide spectral range
- o USB powered
- o Sensitivity optimization enabled

Implementation

- o Compact
- o Standard fiber interface
- o No cooling required

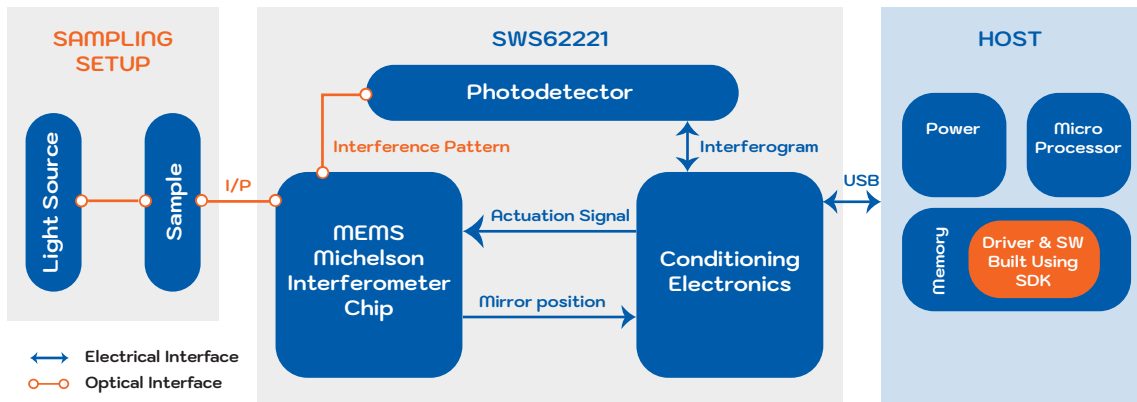
Economic Benefits

- o Low cost
- o Designed for high volume production
- o Easy implementation and service free

Technical Specifications:

| Parameter | Conditions | SWS62221-17 | SWS62221-21 | SWS62221-25 | Units |
|----------------------------|---|--------------------------------------|---------------|---------------|-------|
| Spectral Range | Power Spectral Density: Max PSD/10 | 1,250 - 1,700 | 1,300 - 2,100 | 1,350 - 2,500 | nm |
| Resolution | @ $\lambda=1.55 \mu\text{m}$, FWHM criterion | 8 or 16 | | | nm |
| Typical SNR (Transmission) | 0.5 s scan time, Resolution: 16 nm | > 3,000 : 1 | > 3,000 : 1 | > 3,000 : 1 | - |
| Typical SNR (Reflection) | 2 s scan time, Resolution 16 nm | > 1,000 : 1 | > 1,000 : 1 | > 1,000 : 1 | - |
| Wavelength Accuracy | @ $\lambda=1.4 \mu\text{m}$; Temperature < 40°C | ± 1.5 | | | nm |
| Wavelength Repeatability | @ $\lambda=1.4 \mu\text{m}$, absorbance level: 0.5 A.U, Resolution: 16nm | ± 0.1 | | | nm |
| Temperature | Operating range | -5° to 40° (configurable on request) | | | °C |

Usage Model - Typical Block Diagram



What's Possible

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



Smart Farming



Smart Food

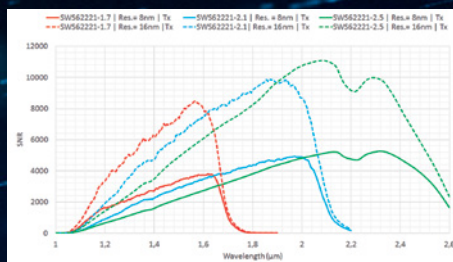


Smart Healthcare

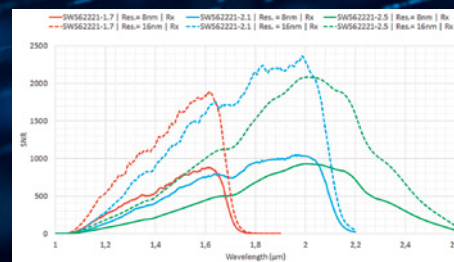


Smart Industry

Typical Spectral Response (varies with setup)



Transmission



Reflection