

Si-NIR

Matrix

The advanced FT-NIR sensor for instant, accurate analysis of inconsistent materials.



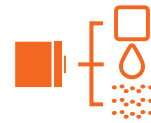
How Does Si-NIR Matrix Enable You to Build Smarter Products?



Enable material analysis functionalities in your next-gen products and systems.



Develop highly accurate products and systems, that empower customers and users with instant insights at the point of need.



Deliver solutions that adapt to samples, from powders and liquids to grains and complex mixtures, without altering them.

Why Should You Choose the Si-NIR Matrix ?



Larger Sample Coverage (10 mm)

Captures more representative data in one scan for accurate results on heterogeneous and complex materials.



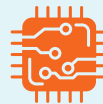
Widest Spectral Range (1,350–2,550nm)

Analyzes more materials & detects multiple parameters at once.



Instant, Non-Destructive Testing

Provides fast results in real-time while keeping samples intact.

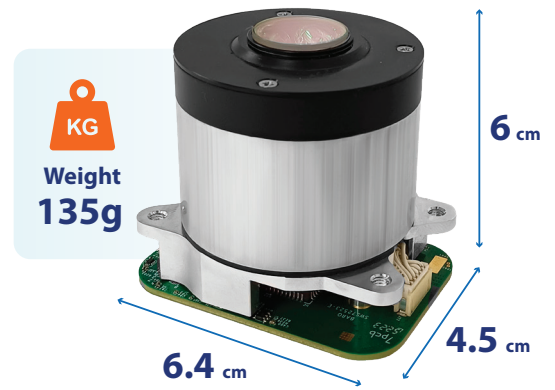


Trusted, Accurate Technology

Built with validated MEMS FT-NIR technology for reliable operations in the field.

Technical Specifications

Parameter	Value
Wavelength Range	1,350 - 2,550 nm
Diameter of collected light beam	≥ 10 mm
Resolution	16 nm at $\lambda=1,550$ nm
Signal-to-Noise Ratio	2,000:1
Communication	SPI
Power Modes	Active & Low Power Modes
Operating Temperature	-5° to 40° C



Built for Fast Integration, Reliable Operation

Efficient Architecture



Single photodetector captures full spectral range. Cuts system complexity. Lowers cost.

Field-Ready Reliability



Field-tested for environmental robustness, including shocks and vibrations.

No Cooling Needed



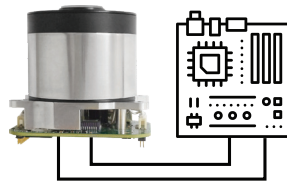
Delivers accurate results without power-hungry thermal control. Works in sealed, battery-based setups.

Flexible Sensor Integration for Every Development Stage



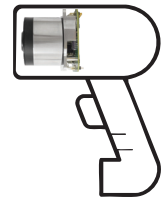
Evaluation & Development

Use our plug and play kit to evaluate if the sensor performance fits your application, with no coding and no friction.



Hardware Prototyping

Develop and deliver your first prototype with ease. The sensor's design ensures easy connectivity and mounting.



Product Integration

Integrate the sensor and calibration models in your production lines. Our team of experts can help you in every step.



Want to Explore How Si-NIR Matrix Fits Your Innovation Roadmap?
Get in touch to book a free consultation with our experts or explore Si-Ware's sensing solutions.



Si-NIR

Matrix | DVK

Accelerate Development to Analyze Complex, Non-Uniform Materials

A plug-and-play platform for exploring Si-Ware's Si-NIR Matrix Sensor — built to evaluate heterogeneous samples and prototype faster.



Scan to explore the DVK's sensor [Si-NIR Matrix >](#)



A Complete Platform for Fast, Hands-On Evaluation



Advanced Sensing Hardware & Connectivity



Si-NIR Matrix Sensor

Large-spot FT-NIR sensor (≥ 10 mm) covering the 1,350–2,550 nm spectral range. Captures representative spectra from powders, grains, and other non-uniform materials with high fidelity.



Electronics & Communication Board:

Provides USB-C and Ethernet interfaces for power, data transfer, and control; supporting both evaluation and prototyping in lab or embedded setups.



Compact & Modular Enclosure:

Designed for flexible integration, with mechanical mounting points and removable optical adapters for easy alignment and repeatable measurements.



The User-Friendly Si-Spect Software



Control the device

Adjust sensor settings and operate the device.



Collect spectral data

Acquire data from the device, visualize spectra, and store measurement files easily.



Access to historical data

Review previously collected spectral data at any time.

How Si-NIR Matrix DVK Accelerates R&D

Evaluate and Experiment



Collect spectra within minutes using Si-Spect. Adjust settings and sampling geometry to explore how parameters affect results — ideal for heterogeneous materials.

Develop Early Hardware Prototypes



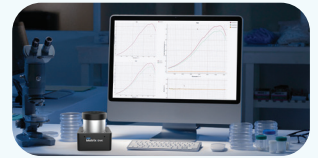
Flexible mechanical and electrical interfaces make it easy to connect optics, light sources, or control electronics for experimental setups.

Build your own Software



Use the SDK and APIs to automate measurements, integrate with external tools, or integrate the kit in early hardware prototypes.

Collect Data for Model Development



Generate consistent, large datasets for model development and export them in formats readable by chemometrics development tools. Models built with the Si-NIR Matrix DVK are easily transferable to the sensors in the integration phase.

Extend the Kit to Match Your Samples

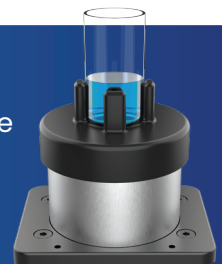
Solid Kit

Enables consistent diffuse-reflectance measurements of powders and solids.

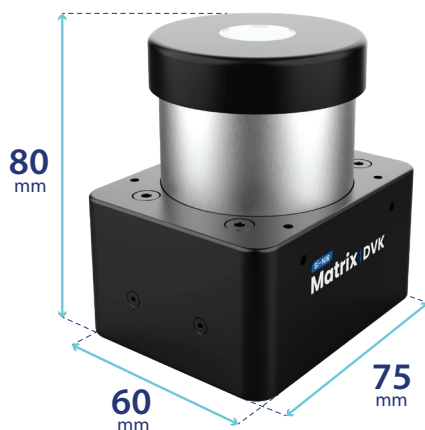


Liquid Kit

Designed for transmittance measurements of liquids with controlled path lengths.



Si-NIR Matrix DVK Specifications



Operation Temperature
-5 : 40° C



Weight
145 g



Bulb lifetime
> 10,000 hrs.

Technical specifications

Parameter	Value
Wavelength Range	1,350 - 2,550 nm (7,400 - 3,920 cm ⁻¹)
Resolution	16 nm 66.6 cm ⁻¹
Typical SNR (rms)	≥ 2,000: 1
Diameter of collected light beam	≥ 10 mm
Interfaces	USB-C & Ethernet

Si-NIR

Matrix | DVK



Advance What's Possible with NIR

Contact our team to explore how Si-NIR Matrix DVK fits your research & development goals.



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