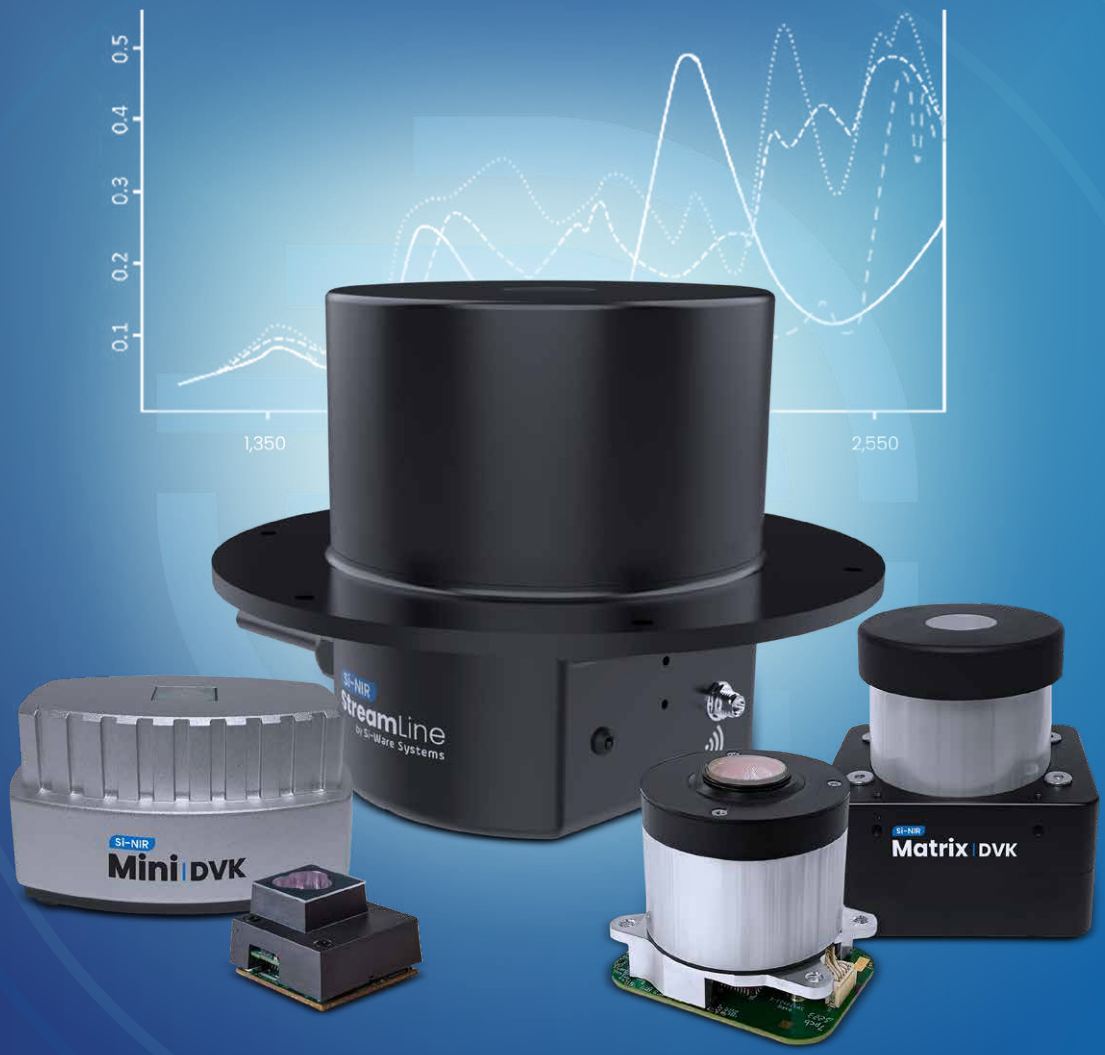
Si-Ware™ Systems



Si-Ware Systems NIR Portfolio

Pioneering Miniaturized FT-NIR Solutions from OEM Sensors to Deployable Devices

For a World That Makes More Sense

Proven Leadership in Miniaturized Spectral Sensing Technology

20+	130+	15,000+
years of innovations	patents	sensors delivered

Meet Si-Ware Systems NIR Portfolio

Your Path to Smarter NIR Material Analysis

Enable non-destructive material analysis anywhere across various applications with Si-Ware Systems diverse portfolio of miniaturized NIR solutions. Explore the world's most compact NIR OEM sensors and our deployable inline/online analyzer, featuring the widest NIR spectral range (1,350–2,550 nm) in compact form.

Start anywhere: integrate, evaluate, or deploy.

The entire NIR material analysis ecosystem is ready when you are.

If Your Goal Is Integrating Material Analysis NIR Sensors into Your Products

Choose OEM Sensors

Si-NIR Mini & Matrix OEM Sensors deliver:

- Compact & ultra compact designs
- Widest NIR range (1350–2550 nm)
- Non-destructive testing
- 1-second analysis
- Integration-ready electrical & optical interfaces
- Designed for cost-sensitive, high-volume OEM products
- Various parameters in one scan
- Flexible sampling options

For companies building:
Instruments, handheld devices, smart automation systems, robotics, mobility platforms and more

Si-NIR Mini

- World's smallest MEMS-based FT-NIR sensor for products with size limitations. Ideal for homogeneous materials like powders, liquids and thin films.

Si-NIR Matrix

- Compact FT-NIR sensor with a large sampling area for all kinds of materials including mixtures, pellets, and granular samples.

If Your Goal Is Fast Evaluation or Prototyping with Si-Ware OEM Sensors

Choose our Development Kits

Si-NIR Mini DVK: Ideal for homogenous material sensing

Si-NIR Matrix DVK: Ideal for sensing all types of materials including non-homogenous samples

Mini DVK & Matrix DVK offer:

- Plug-and-play setup
- Si-Spect software
- Immediate spectral sensing

For engineering teams who want to:

- Validate our OEM sensors' performance
- Try different sampling scenarios/ methods
- Test the sensors & make feasibility decisions quickly
- Prototype without hardware/firmware work

If Your Goal Is Online/InLine Material Analysis

Choose StreamLine

For manufacturing, process monitoring, and field installations needing:

- Real-time composition monitoring
- Continuous inline measurement
- Operation in harsh environments
- Rapid deployment with minimal setup

Si-NIR StreamLine

Provides:

- Industrial FT-NIR performance
- 1-second scans
- Rugged design for field applications
- Ethernet &/or Wi-Fi connectivity
- Enterprise-wide integration ability

Explore Si-Ware Systems NIR Portfolio

A Portfolio That Shapes What's Next

Si-Ware Systems' spectral sensing products portfolio combines the most advanced NIR sensors and devices, covering every need from OEM integration to deployable solutions. All are engineered for precision, scalability, and accessibility; enabling instant material analysis anywhere inside or outside the lab.

Si-NIR Product Line

OEM Sensor

Si-NIR

Mini

The smallest FT-NIR sensor built for integration

The Si-NIR Mini is the world's smallest OEM FT-NIR sensor, engineered for seamless integration into compact products and portable instruments.

Designed for applications involving homogeneous materials, it delivers high-quality spectral performance in the smallest footprint available.

Its ultra-compact, low-power design makes it ideal for handheld, embedded, and connected devices where space and efficiency are critical.

Built on Si-Ware's proprietary MEMS-based FT-IR architecture, the Si-NIR Mini balances size with precision by offering consistent, high-quality spectra while enabling product designers to bring advanced material analysis capabilities directly into their systems.

Key Features & Advantages

- Wide spectral range
- Ultra compact design
- Low power consumption

Measurement mode

Discrete

Sampling method

Diffuse reflectance. Transflectance can be enabled with external accessory.

Sample Types

Solids — powders, ground solids, textiles, fibers, thin films, plastic, leaves

Liquids — opaque liquids or transparent liquids with reflective accessories

Key Specs	Unit
Spectral Range	1,350 - 2,500 nm
SNR	>2,000:1
Resolution	16 nm
Photodetector	Extended InGaAs
Connectivity	SPI
Dimensions	W 30 × L 30 × H 20 mm3
Weight	17 g
Software	APIs

Optical interface

Built-in light source and light collector for small sample coverage (3 mm diameter)

Integration Environments

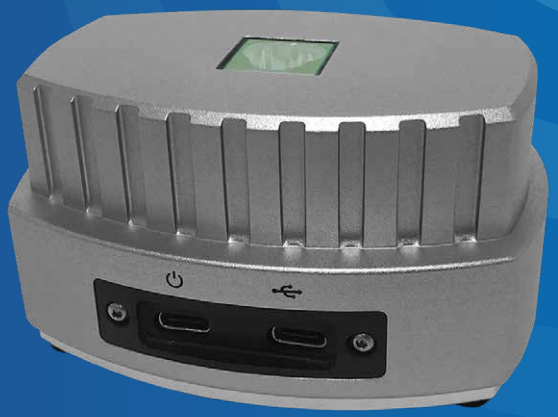
Handheld devices, robots, steady machines, moving vehicles

Si-NIR

Mini DVK

Development Kit

Easiest & fastest way to assess the world's smallest FT-NIR sensor



The Si-NIR Mini DVK is a plug-and-play evaluation kit designed to help engineers and developers quickly assess the performance of the world's smallest FT-NIR sensor.

It includes all the required hardware and software for straightforward setup, control, and data visualization.

Built for rapid feasibility testing, the Si-NIR Mini DVK allows users to collect reliable spectral data, evaluate the fit of the perfromance in target applications, and explore the potential of compact FT-NIR integration with minimal effort, making it the easiest and fastest way to experience the Si-NIR Mini.

Key Features & Advantages

- Wide spectral range
- PC operated
- Plug & play and easy to use

Measurement mode

Discrete

Sampling method

Diffuse reflectance. Transflectance can be enabled with external accessory.

Sample Types

Homogeneous Solids	powders, ground solids, textiles, fibers, thin films, plastic, leaves
Liquids	opaque liquids or transparent liquids with reflective accessories

Key Specs	Unit
Spectral Range	1,350 - 2,500 nm
SNR	>2,000:1
Resolution	16 nm
Photodetector	Extended InGaAs
Connectivity	USB-C
Dimensions	W 100 x L 80 x H 45 mm3
Weight	550 g
Software	Si-Spect

Optical interface

Built-in light source and light collector for small sample coverage (3 mm diameter)

Si-NIR

Matrix

OEM Sensor

Compact OEM sensor delivering consistent readings for inconsistent materials

The Si-NIR Matrix is the most preferred OEM FT-NIR sensor for most material analysis applications, delivering reliable and consistent performance across a wide range of materials, including non-homogeneous and complex samples thanks to its wide spectral range and compact size.

Its large-spot optical design ensures stable, repeatable spectra with minimal setup, making it ideal for real-world applications where material composition is variable or hard to control.

Key Features & Advantages

- Wide spectral range
- Compact design
- Large sample coverage

Measurement mode

Discrete

Sampling method

Diffuse reflectance.
Transflectance can be enabled with external accessory.

Sample Types

Homogeneous Solids	powders, ground solids, textiles, fibers, thin films, plastic, leaves
Non Homogeneous Solids	granular solids, resins, blends, pellets
Liquids	opaque liquids or transparent liquids that contain particulates

Key Specs	Unit
Spectral Range	1,350 - 2,500 nm
SNR	>2,000:1
Resolution	16 nm
Photodetector	Extended InGaAs
Connectivity	SPI
Dimensions	W 65 × L 46 × H 58.7 mm3
Weight	145 g
Software	APIs

Name	PN	Bulb Life Time
Si-NIR Matrix - LT1	SNS10002-01	≥ 10,000 hrs
Si-NIR Matrix - LT2	SNS10002-02	≥ 60,000 hrs

Optical interface

Built-in light source and light collector for large sample coverage (10 mm diameter)

Integration Environments

Handheld devices, robots, steady machines, moving vehicles

Development Kit

Si-NIR

Matrix | DVK

Plug-and-play toolkit for quick evaluation and prototyping of heterogeneous material analysis

The Si-NIR Matrix DVK is a complete development platform that enables both evaluation and prototyping of new solutions with advanced material analysis capabilities using the Si-NIR Matrix sensor.

Designed for engineers and researchers working with real-world, heterogeneous materials, it provides a practical environment for quick experimentation, testing, and model development.

Featuring dual interface options, the kit supports a smooth transition from feasibility testing to functional prototypes and can be integrated into host systems for early-stage trials. It includes all necessary hardware, accessories, software, and integration tools to make evaluation and development efficient and straightforward.

Key Features & Advantages

- Wide spectral range
- Large sample coverage
- Dual mode for electrical interfaces to enable connection with PC or embedded systems

Measurement mode

Discrete

Sampling method

Diffuse reflectance.
Transflectance can be enabled with external accessory.

Sample Types

Homogeneous Solids	powders, ground solids, textiles, fibers, thin films, plastic, leaves
Non Homogeneous Solids	granular solids, resins, blends, pellets
Liquids	opaque liquids or transparent liquids that contain particulates

Key Specs	Unit
Spectral Range	1,350 - 2,500 nm
SNR	>2,000:1
Resolution	16 nm
Photodetector	Extended InGaAs
Connectivity	USB-C, Ethernet
Dimensions	W 75 × L 60 × H 80.5 mm3
Weight	310 g
Software	Si-Spect, SDK

Name	PN	Bulb Life Time
Si-NIR Matrix DVK - LT1	DVC10002-01	≥ 10,000 hrs
Si-NIR Matrix DVK - LT2	DVC10002-01	≥ 60,000 hrs

Optical interface

Built-in light source and light collector for large sample coverage (10 mm diameter)

Integration Environments

Handheld devices, robots, steady machines, moving vehicles

Si-NIR

StreamLine

Adaptable Process-deployable FT-NIR for in-line, on-line use in factories and fieldsAd

Deployable Device

The Si-NIR StreamLine is a field-deployable FT-NIR sensor designed for continuous determination of material composition in-line, on-line, or in the field.

Featuring built-in self-calibration, it delivers reliable real-time data with minimal human intervention, even in demanding environments where consistency and uptime are critical.

Compact, adaptable, and field-ready, the Si-NIR StreamLine offers the most flexible NIR continuous monitoring solution that can be easily integrated into the most unconventional environments both indoors and outdoors.

Key Features & Advantages

- Continuous operation
- Speedy response
- Built-in self-reference for unmanned calibration
- Adaptability and flexibility integration

Measurement mode

Continuous

Sampling method

Diffuse reflectance

Sample Types

Homogeneous Solids	powders, ground solids, textiles, fibers, thin films, plastic, leaves
Non Homogeneous Solids	granular solids, resins, blends, pellets
Liquids	opaque liquids

Key Specs	Unit
Spectral Range	1,350 - 2,500 nm
SNR	>2,500:1
Resolution	16 nm
Photodetector	Extended InGaAs
Connectivity	Ethernet, Wi-Fi
Dimensions	W 110 × L 110 × H 125 mm3
Weight	1.5 kg
Software	Si-Spect, PLC

Optical interface

Built-in light source and light collector for large sample coverage (10 mm diameter)

Integration Environments

Production line, robots, steady machines, moving vehicles

Accelerate Evaluation and Model Development with Si-Spect Software

The unified desktop software for all Si-Ware products

- Control sensors and analyzers
- Manage datasets and compare measurements
- Collect and visualize spectra
- Use spectral data to build & train models

Application Specific Model Building

Si-Spect can now help you build, train and update your own models from the software itself without the need to build them outside and integrate them back.

ENGINEERING SUPPORT THROUGHOUT YOUR DEVELOPMENT CYCLE

We partner with your team throughout the development cycle of material analysis solutions, from initial evaluation to full deployment.

We can help you:

- Choose from & Evaluate our NIR solutions for you specific application
- Customize & Integrate NIR material analysis into your products, instruments, and automation systems
- Get guidance on electrical, optical, and mechanical integration
- Optimize performance for your specific application and cost targets
- Scale your material analysis capabilities for mass production

Let's Build What's Next Together

Power your next breakthrough with Si-Ware Systems' Spectral Sensing.

Si-Ware™ Systems

For a World That Makes More Sense

Visit our website

to learn more about our technology stack & explore what's possible

Request a FREE consultation

about feasibility of your solution with our experts

USA

101 jefferson Drive, 1st Floor
Menlo Park, CA 94025

+1 650 257 9680

France

16 Rue Portalis,
Paris 75008

+33 757 905 138

EGYPT

3, Khaled Ibn Al-Waleed
St.Sheraton, Heliopolis, Cairo 11361

+20 222 68 47 04

www.si-ware.com
hello@si-ware.com

FOLLOW US

CA-012-1225-EN-V1.1