Si-Ware™ Systems

Empowering Instant, Non-Destructive Material Sensing Anywhere

NIR & MIR Spectral Sensing for Instruments, Robotics, Drones, Factory Lines, Fields, and Labs

For a World That Makes More Sense

Proven Leadership in Miniaturized Spectral Sensing Technology

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

Moving Beyond “Sight” to True Understanding

Cameras help machines “see,” but Physical AI requires more than vision. To act intelligently, robots, drones, and smart systems need to understand what materials they’re interacting with and what’s in the air around them, in real time, and in real environments.

At Si-Ware Systems, we build the core sensing layer that brings material awareness to machines, turning spectral data into actionable insight.

Material Sensing

Capability

Identify and quantify materials in solids, powders, liquids, and mixtures.

How

Miniaturized, lab-grade NIR spectral sensing.

Impact

Quality sorting, composition monitoring, anomaly detection, smarter automation.

Environmental Gas Sensing

Capability

Detect and interpret gas signatures in ambient and open-air environments.

How

Miniaturized MIR spectral sensing.

Impact

Smelling the environment for safety, monitoring, and intelligent response without consumables.

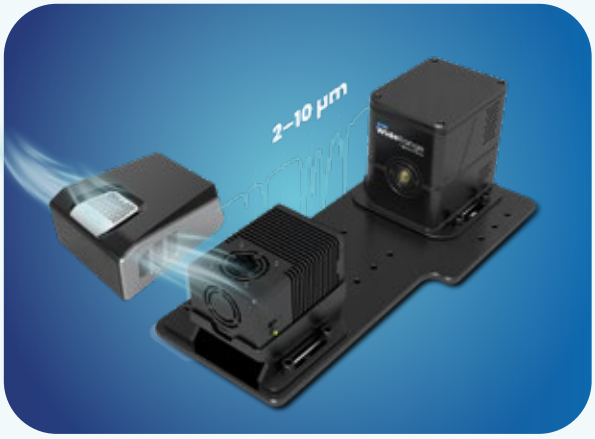
Real-Time Material & Gas Insight, Where It Matters

Traditional analysis often means taking a sample to the lab. Si-Ware miniaturizes that capability so sensing can happen inline, inside products, and in the field, enabling real-time decisions.

NIR SPECTRAL SENSING: INSTANT MATERIAL ANALYSIS

- **Non-destructive**: analyze materials without altering or wasting the sample
- **Fast feedback**: supports real-time decisions for sorting, QC, and automation
- **Compact by design**: enables embedded and portable systems with tight size/power limits
- **Multi-parameter capability**: measure multiple composition indicators in one measurement

MIR SPECTRAL SENSING: DETECTING MOLECULAR FINGERPRINTS



- **Fingerprint-region access**: higher specificity for gas identification
- **Open-air capable**: monitor aambient environments without controlled flow systems
- **Multi-gas detection**: observe multiple gases simultaneousl
- **Zero consumables**: no replaceable detection materials required

A Scalable Portfolio Built for Every Development Stage

From rapid prototyping to high-volume manufacturing and future-facing research, Si-Ware meets your team at the right entry point. Our ecosystem is designed to minimize risk and accelerate your path to market.

OEM SENSORS FOR PRODUCT SCALE

NIR OEM Engines Design smarter products using the world's most compact MEMS-based FT-IR sensors. These modules are engineered for seamless electrical and optical integration into instruments, handhelds, robotics, and drones.

The Advantage: Embed molecular intelligence directly into your hardware architecture with a high-volume, cost-effective sensing core.

DEVELOPMENT KITS (DVKS) FOR RAPID PROTOTYPING

Si-NIR Mini & Matrix DVKs Validate your application on day one with lab-grade precision. Our plug-and-play kits provide a complete hardware and software environment to assess sensor performance and collect real spectral data in minutes.

The Advantage: Save up to 2 years of instrumentation development by starting with a proven evaluation stack.

INDUSTRIAL SOLUTIONS FOR FIELD & FACTORY

Si-NIR StreamLine Move the lab to the line with a ruggedized, process-ready analyzer. StreamLine is built for continuous, autonomous material monitoring in harsh production environments, supporting real-time quality assurance.

The Advantage: Achieve "Set and Forget" operation with integrated self-calibration and reliable inline composition control.

INNOVATION KITS FOR DISCOVERY & FEASIBILITY

MIR Innovation Kits (Core, WideRange, AirLite) Define the next generation of sensing by exploring the Mid-Infrared (MIR) fingerprint region. These platforms allow teams to validate feasibility for complex gases and materials before committing to product development.

The Advantage: Access the 2–10 µm range for multi-gas detection and advanced material identification without consumables.

Start with evaluation, scale to integration, deploy with confidence, and explore the next frontier of sensing.

Powering the Next Generation of Smart Systems

INDUSTRIAL PROCESS MONITORING

Use case

inline composition tracking, blend optimization, early deviation detection

Si-Ware advantage

StreamLine for continuous real-time material monitoring

SMART INSTRUMENTS & EMBEDDED SENSING

Use case

portable analyzers, handheld tools, embedded QA

Si-Ware advantage

compact OEM spectral sensors for integration

ENVIRONMENTAL & GAS MONITORING

Use case

open-air gas detection, hazardous gas screening, remote monitoring

Si-Ware advantage

MIR platforms for multi-gas detection without consumables

ROBOTICS & AUTOMATION

Use case

material sorting, quality classification, anomaly detection

Si-Ware advantage

spectral sensing for “material awareness” beyond vision

Let’s build material-aware Physical AI systems together.

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

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