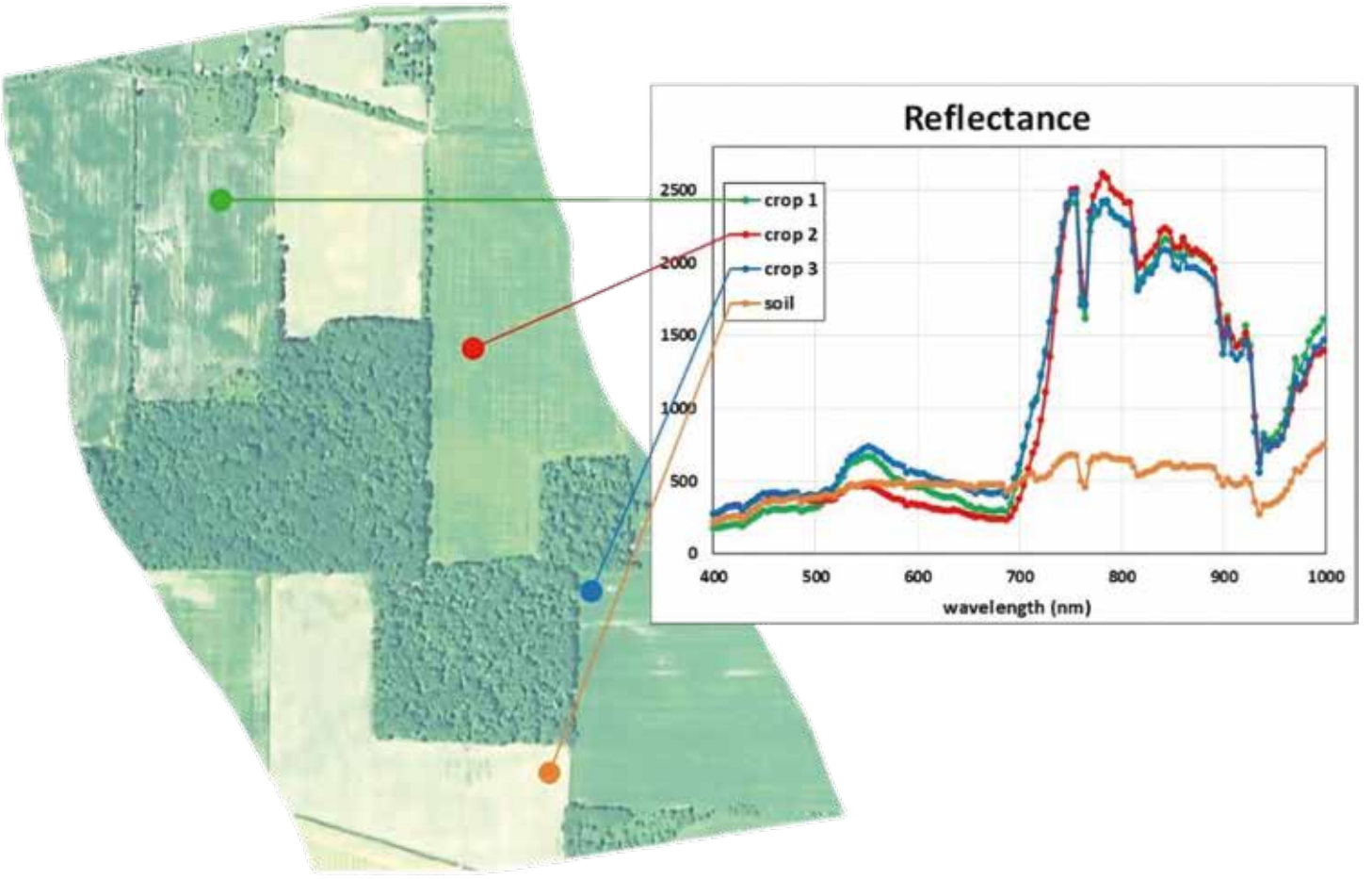
Application

Hyperspectral Imaging

Hyperspectral - A Cutting-Edge Technology

Hyperspectral imaging refers to the acquisition and analysis of spectra from a sample area with high spectral and spatial resolution. In contrast to conventional spectroscopy methods, which can only combine high spectral and spatial resolution in a very time-consuming manner, Hyperspectral Imaging delivers this data in shortest time.

Recent developments of hyperspectral cameras to smaller dimensions and higher cost-efficiency are opening up more and more applications in areas such as remote sensing, quality control, industrial sorting and biophotonics.



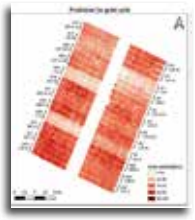
Measurement of plant status using airborne hyperspectral imaging

Remote Sensing

Agriculture

Hyperspectral Imaging provides precise information about water content and degree of ripeness of agricultural plants as well as possible pest infestations or plant diseases.

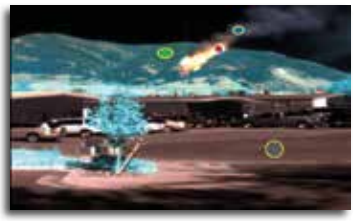
- Can easily be used on airborne systems
- Allows early state detection of plant diseases
- Enables prediction of the best time to harvest



Environmental monitoring

Integrated into airborne systems, Hyperspectral Imaging collects extensive information on air pollution, seawater quality or forest condition.

- Allows high spatial resolution on the ground
- Large areas can be measured and classified
- Provides acurate chemical composition analysis

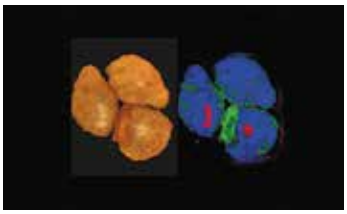


Quality Control

Food industry

Hyperspectral Imaging can monitor the quality of food in terms of damage, ingredients, degree of ripeness and appearance throughout the manufacturing process.

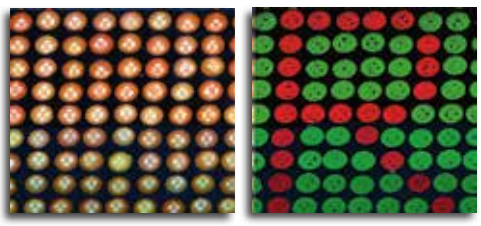
- Allows fast automated analysis
- Enables online process optimization
- Assures best product quality



Finished goods

By using Hyperspectral Imaging, textiles, color prints or colored surfaces can be measured and analyzed with high spatial resolution and high spectral accuracy.

- Allows fast and non-destructive measurement
- Smallest color differences can be measured
- Proves authenticity by “fingerprint” analysis



Industrial Sorting

Plastics

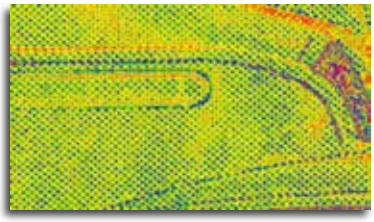
High spectral and spatial resolution Hyperspectral Imaging systems can distinguish different types of plastics based on their unique spectral properties even at small sizes.

- Leads to a high-purity sorting
- Allows contactless real-time analysis
- Enables cost-effective recycling

Textiles

Hyperspectral Imaging can identify various types of natural or synthetic textiles and even different fiber types in blended fabrics.

- Classification is color-independent
- Enables rapid industrial sorting
- Provides advanced chemical recycling

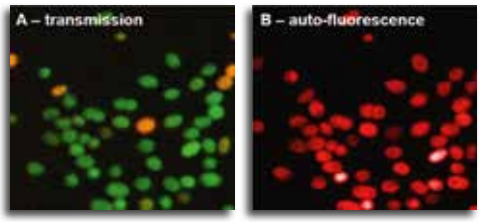


Biophotonics

Research

Hyperspectral Imaging provides detailed spectral information of biological samples with high spatial resolution at either macroscopic or microscopic level.

- Allows non-invasive measurements
- Enables large area fluorophore detection
- Assures fast spectral data acquisition



Forensics

At a crime scene, Hyperspectral Imaging enables the detection and analysis of bloodstains or gunshot residue without compromising the evidence.

- Allows non-contact, non-destructive analysis
- Enables quick on-site results
- Leads to cost-efficient evidence gathering

Special Products for Demanding Applications

Remote Sensing

PIKA L

- VIS/ NIR range (400 – 1000 nm)
- Lightweight: 700 gr. incl. lens
- 281 x 900 channels (spectral x spatial)
- Fast acquisition with 249 fps
- Compact footprint (10.0 x 12.5 x 5.3 cm)

Quality Control

PIKA XC2

- VIS/ NIR range (400 – 1000 nm)
- Best spectral resolution: 1.9 nm FWHM
- High spatial resolution: 1600 channels
- Excellent image quality
- For use in lab, field and production

Industrial Sorting

PIKA NIR 320

- TEC cooled NIR imager 900-1700 nm
- High speed: 520 fps full-frame
- 164 spectral channels (8.8 nm FWHM)
- 320 spatial channels
- Cost effective for industrial integration

Biophotonics

PIKA NUV2

- 1st commercially available UV-VIS imager
- True UV/VIS range (330 – 800 nm)
- High spatial resolution: 1500 pixels
- 255 spectral channels (2.8 nm FWHM)
- For academic and industrial applications

Our All-Round Service (Solutions)

The comprehensive consulting for your project

Photonics is considered one of the most important technologies of the future. Products from that field of are finding their way into a steadily growing number of applications and are opening up new, innovative and efficient approaches to solutions. At the same time, however, photonics also confronts manufacturers, plant engineers and system integrators with new, major challenges.

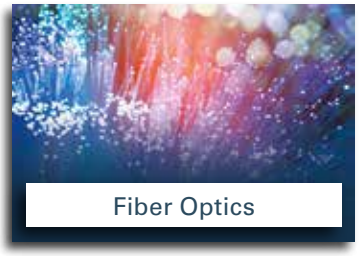
As a photonics expert, Laser 2000 supports you in your project. Our specialists with many years of experience advise you, show approaches to solutions, provide special concepts and accompany you with know-how from prototype development to series production.

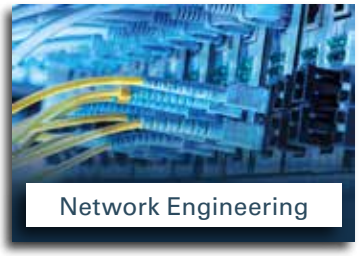
Our broad product and solution portfolio as well as our extensive expert knowledge enables our customers to face and successfully master new challenges in photonics.

All Photonics Products from a Single Source

Experts in Photonics

Since 1986, we have supported well over 100 international photonics manufacturers as a leading partner in covering the European market. In doing so, we are an important link between users, integrators and suppliers. Our success is based on our solution-oriented consulting, the close exchange with our partners as well as our profound product and application understanding.





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