New RGB multi-line camera enables synchronised visual and hyperspectral workflows

Hyperspectral imaging provides detailed spectral information about materials, enabling precise identification and classification. However, in many industrial inspection and sorting applications, spectral data alone is not sufficient. Visual information in the form of high resolution 4K RGB images can be useful for interpretation, validation and process control.

HAIP Solutions has introduced its new BlackIndustry RGB camera, developed to integrate high-resolution colour imaging directly into hyperspectral workflows. Designed as a smart multi-line RGB system with a line rate of up to 30720 lines per second, the camera enables the synchronised acquisition of visual and spectral data in combination with the BlackIndustry SWIR 1.7 camera series.

Sensor fusion for industrial inspection workflows

A central aspect of the system is the seamless combination of RGB and hyperspectral imaging. Both sensors can be digitally mapped to the same scan line, ensuring that visual and spectral information is captured simultaneously and aligned within a unified data stream.

This approach simplifies data interpretation and enables more robust inspection processes, particularly in conveyor-based environments where precise synchronisation is essential.

The calibration and configuration of the combined system are managed through HAIP Solutions' software tools, enabling precise alignment of both sensors in a very easy and efficient way without the need for complex hardware mechanics. This sensor fusion approach allows users to quickly set up and operate the system within a consistent workflow.

Real-time processing for integrated applications

The BlackIndustry RGB camera features an integrated GPU, enabling on-camera pre-processing and real-time debayering of RGB data. This reduces the need for external processing and allows direct preparation of data for downstream analysis and classification.

By combining spectral and visual information within a single workflow, the system supports applications that require both material identification and visual verification.

Supporting automated inspection and classification

The integration of RGB and hyperspectral data creates a foundation for advanced data-driven applications. In industries such as recycling and food processing, this enables more reliable quality control and supports automated classification and sorting processes.

The ability to combine visual and spectral features within a single system contributes to improved process transparency and decision-making in real time.

The BlackIndustry RGB camera is designed for integration into industrial environments and can be used in combination with HAIP Solutions' hyperspectral systems.

More infirmation here: https://www.haip-solutions.com/hyperspectral-cameras/blackindustry-rgb/

About HAIP Solutions GmbH

HAIP Solutions GmbH, based in Hannover, Germany, develops integrated hyperspectral imaging solutions for industrial and research applications. The company's portfolio includes hyperspectral cameras covering VNIR to SWIR ranges, application-specific illumination systems and software for data acquisition and classification. HAIP focuses on delivering reliable, application-ready systems that simplify the use of hyperspectral technology in real-world environments.