4000-2500nm

Industrial-Grade Hyperspectral Camera

Description

The NWH3000 Series Industrial-Grade Hyperspectral Camera is built on an independently developed prism-grating dispersion hyperspectral imaging technology, delivering high spectral resolution, efficiency, and consistency with user-friendly operation.

Recognizing the demanding requirements of industrial applications, the NWH3000 series features high frame rates and a wide field of view to meet users' needs for higher efficiency. Its exceptional cost-performance ratio helps customers achieve greater return on investment.

The NWH3000 series hyperspectral cameras are equipped with flexible pixel binning and band selection capabilities, significantly reducing the difficulty of online data transmission and processing. This versatile instrument can be widely applied in industrial sorting, precision agriculture, food safety testing, medical pharmaceuticals, environmental monitoring, and other fields.

Highlights

More Accurate Spectral Data

NWS3000: Accurate, Stable, and Fast Hyperspectral Imaging for Online Industrial Applications. For real-time industrial monitoring, the NWS3000 utilizes dispersive line-scan imaging to deliver the most accurate and stable data possible. Unlike other technologies, this method ensures the spectral integrity of every spatial pixel, capturing complete spectral information across the entire target area in a single scan. This guarantees the reliability and accuracy required for critical online applications.

Faster and More Flexible

Thanks to powerful interest-area (ROI) selection capabilities, the NWH3000 series hyperspectral cameras can meet diverse application needs. They support high data acquisition speeds, with full-spectrum frame rates exceeding 1,400 fps and ROI frame rates reaching up to 8,800 fps, delivering rapid data collection to enhance operational efficiency.

Broader Field of View

The NWH3000 series employs a unique precise optical system to achieve a larger viewing angle, with a minimum focal length of just 8mm and a maximum viewing angle exceeding 75°. This feature better satisfies the requirements of industrial inspections, enabling wider scene coverage and higher detection efficiency.

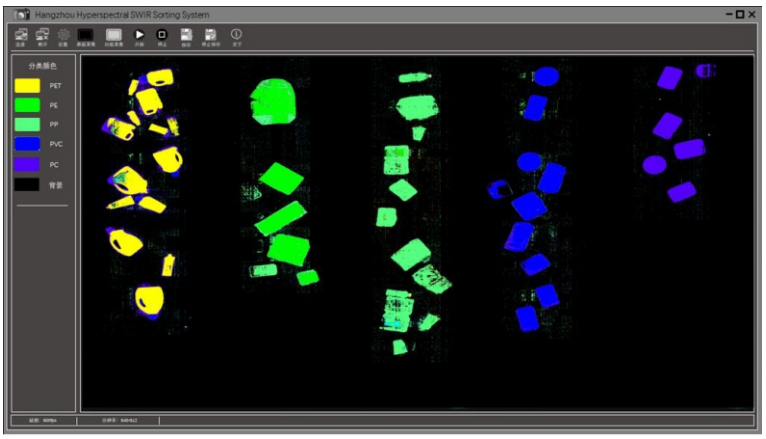
Higher Cost-Performance Ratio

Compared to similar foreign equipment, the NWH3000 series hyperspectral imagers utilize fully localized manufacturing and supply chain solutions, achieving extremely high cost efficiency. This helps clients improve investment returns through advanced technology and reliable quality.

Application

Plastic Waste Classification and Recycling

Using the NWH3000 series hyperspectral imager integrated with the Hyperspectral's automatic classification software and deep learning algorithms, this system enables precise and rapid sorting of different plastic waste types. It can classify plastic debris at speeds exceeding 5 meters per second, achieving accurate automatic recycling of various plastic materials. This capability not only enhances sorting efficiency but also contributes to creating greater economic value, supporting sustainable economic development and promoting circular economy initiatives.



Specification

NWH3000-VNIR			
Specification	**NWH3000-VNIR-C**	**NWH3000-VNIR-U**	**NWH3000-VNIR-S**
Spectral Dispersion Method	Linear-type transmission grating dispersion	Linear-type transmission grating dispersion	Folded-type transmission grating dispersion
Spectral Range	400-780 nm	400-1000 nm	380-1000 nm
Spectral Resolution	Better than 2.5 nm	Better than 2 nm	Better than 5 nm
F-number	F/2.6	F/2.4	F/1.7
Detector	CMOS	CMOS	CMOS
Detector Interface	CameraLink	CameraLink	CameraLink
Detector Power Supply	12V DC, <10 W	12V DC ,<10 W	12V DC ,<10 W
Detector Pixel Size	9 μm × 9 μm	9 μm × 9 μm	9 μm × 9 μm
Effective Pixel Bit Depth	12 bits	12 bits	12 bits
Effective Spatial Pixel Count	1200	≥1568	≥1150
Number of Spectral Bands	360 (2x)	228 (4x)	224 (2x)
Field of View (FOV)	≥65° @ f=8mm	≥80° @ f=8mm	≥80° @ f=8mm
Instantaneous Field of View (IFOV)	3.125 mrad @ f=8mm	3.125 mrad @ f=8mm	3.91 mrad @ f=8mm
Full Spectrum Frame Rate	≥750 fps (4x)	≥500 fps (4x)	≥1000 fps (4x)
Lens Interface	C-Mount	C-Mount	C-Mount
Dimensions	220 x 80 x 80 mm (excluding lens)	250 x 80 x 80 mm (excluding lens)	200 x 160 x 80 mm (excluding lens)
Weight	<2.5 kg	<2.5 kg	<3 kg
Operating Temperature	0-40°C	0-40°C	0-40°C
Storage Temperature	0-50°C	0-50°C	0-50°C
Software	Acquisition software + SDK	Acquisition software + SDK	Acquisition software + SDK

Specification

NWH3000-NIR			
Specification	NWH3000-NIR-U	NWH3000-NIR-S	NWH3000-NIR-X
Spectral Dispersion Method	Linear-type transmission grating dispersion	Folded-type transmission grating dispersion	Folded-type transmission grating dispersion
Spectral Range	900-1700 nm	900-1700 nm	900-1700 nm
Spectral Resolution	Better than 6 nm	Better than 8 nm	Better than 8 nm
F-number	F/2.0	F/2.0	F/2.0
Detector	InGaAs (TE Cooled)	InGaAs (TE Cooled)	InGaAs (TE Cooled)
Detector Interface	CameraLink	CameraLink	CameraLink
Detector Power Supply	12V DC, 8.4W (TEC OFF) / 16W (TEC ON)	12V DC, 8.4W (TEC OFF) / 16W	12V DC, 8.4W (TEC OFF) / 16W (TEC ON)
Detector Pixel Size	15 μm × 15 μm	15 μm × 15 μm	15 μm × 15 μm
Effective Pixel Bit Depth	12 bits	12 bits	12 bits
Effective Spatial Pixel Count	640	640	640
Number of Spectral Bands	512	>224	>224
Field of View (FOV)	≥60° @ f=8mm	≥75° @ f=8mm	≥75° @ f=8mm
Instantaneous Field of View (IFOV)	1.875 mrad @ f=8mm	2.5 mrad @ f=8mm	2.5 mrad @ f=8mm
Full Spectrum Frame Rate	700 fps	1400 fps	2500 fps
Lens Interface	C-Mount	C-Mount	C-Mount
Dimensions	326 x 105 x 85 mm (excluding lens)	244 x 205 x 98 mm (excluding lens)	244 x 205 x 98 mm (excluding lens)
Weight	<3 kg	<4 kg	<4 kg
Operating Temperature	0-40°C	0-40°C	0-40°C
Storage Temperature	0-50°C	0-50°C	0-50°C
Software	Acquisition software + SDK	Acquisition software + SDK	Acquisition software + SDK