



**Leading Hyperspectral Camera  
Manufacturer**

Portable hyperspectral camera  
Hyperspectral Camera FS1X Series  
Imaging Hyperspectral Camera FS2X Series  
Microscopic Hyperspectral Imaging System  
UAV hyperspectral measurement system

**Spectrum Link Everything**



Website

# Portable hyperspectral camera

400-1700nm hyperspectral camera  
Obtain hyperspectral image data and analyze it  
anytime and anywhere



## Main characteristics

- Internal sweep hyperspectral camera, wavelength range 400-1700nm
- The spectral resolution (FWHM) can reach 2.5nm
- The spatial resolution is up to 1920\*1920, and the number of spectral channels is up to 1200
- Display and operation through 5-inch touch screen, resolution 1280\*720

## Main function

<b>Working mode</b>	High precision imaging measurement mode PC control mode Line scan mode
<b>User adjustment</b>	Users can flexibly set and adjust the exposure time, merge method, ROI area
<b>Data format</b>	Data format compatible with multiple formats (including envi)
<b>Data export</b>	USB Type-C is available
<b>Working hours</b>	100 measurements can be made on a single charge

## Parameters

Model number	FS-1Q-VIS	FS-1Q-VISNIR	FS-1Q-SWIR
Spectroscopic method	Transmission grating spectroscopy	Transmission grating spectroscopy	Transmission grating spectroscopy
Image resolution	1920 * 1920	1920 * 1920	1280*1280
Dynamic range	12 bits	12 bits	12 bits
Imaging speed	5s	5s	5s
Spectral channel number	500	1200	1024
Spectral range	400-700nm	400-1000nm	900-1700nm
Optical harmonic resolution	2.5 nm	2.5 nm	6nm
Slit width	25 um	25 um	25 um
Transmission efficiency	≥60%	≥60%	≥60%
Stray light level	≤0.5%	≤0.5%	≤0.5%
Pixel size	5.86um* 5.86um	5.86um* 5.86um	5um* 5um
Detector type	CMOS	CMOS	InGaAs
Standard lens focal length	25 mm	25 mm	25 mm
Minimum working distance	100mm	100mm	100mm
Field Angle	25 °	25 °	17°
Minimum exposure time	21us	21us	1us
Maximum exposure time	10s	10s	10s
Signal-to-noise ratio	600/1	600/1	600/1
Data interface	USB3.0	USB3.0	USB3.0
Camera lens interface	C	C	C
attachment	USB3.0 transmission line	USB3.0 transmission line	USB3.0 transmission line
Auxiliary imaging function	The auxiliary view camera monitors the shooting area	The auxiliary view camera monitors the shooting area	The auxiliary view camera monitors the shooting area

## Hyperspectral Camera FS1X Series (Line Scan)



### Visible spectrum/NIR:

- Spectral range: 400-1000nm, wavelength resolution better than 2.5nm, up to 1200 spectral channels.
- Acquisition speed: up to 128FPS across the whole spectrum, up to 3300Hz after band selection (support multi-region band selection)
- Widely used in printing, textile and other industrial products surface color, texture detection. The repeatability of color measurement single pixel is up to  $dE^* AB < 0.1$

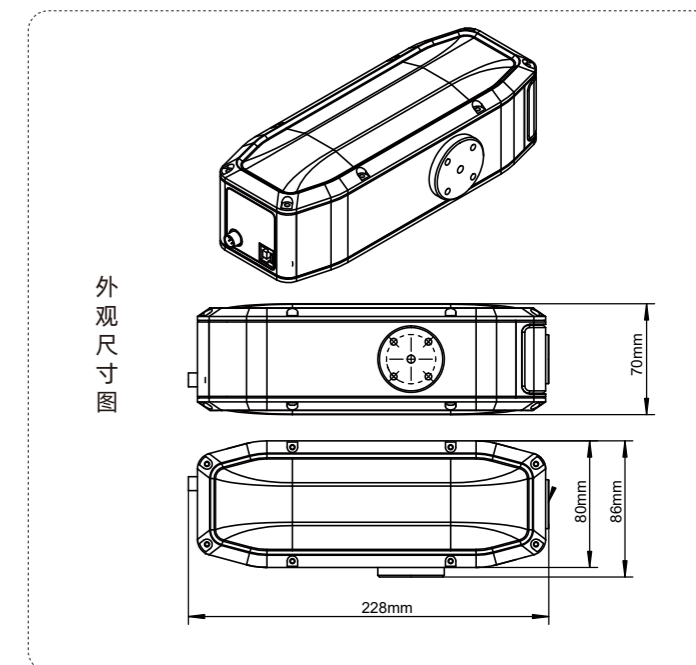
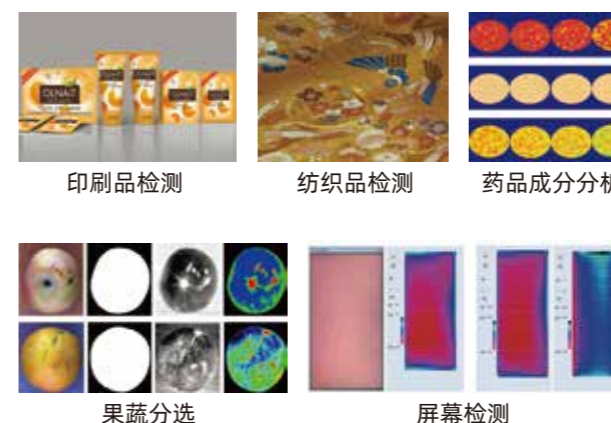
### SW-NIR:

- Spectral range: 900-1700nm, wavelength resolution better than 8nm, up to 254 spectral channels
- Acquisition speed: up to 200FPS across the whole spectrum
- Widely used in composition identification, material identification, machine vision, agricultural product quality and other fields

## Measurement principle



## Typical application



## Parameters

Model	FS-10	FS-12	FS-13	FS-15
Spectroscopic method	Grating	Grating	Grating	Grating
Spectral region	400-700nm	400-1000nm	400-1000nm	900-1700nm
Spectral band	600	1200	1200	254
Spectral FWHM	2.5nm	2.5nm	2.5nm	8nm
Slit width	25um	25um	25um	25um
Transmission efficiency	> 50%	> 60%	> 60%	> 60%
Stray light	< 0.5%	< 0.5%	< 0.5%	< 0.5%
Spatial pixel number	1920	1920	1920	320
Pixel size	5.86um	5.86um	5.86um	30um
Imaging speed	Full band 41Hz 390Hz can be achieved after ROI	Full band 41Hz 390Hz can be achieved after ROI	Full band 128Hz 3300Hz can be achieved after ROI	200Hz
Detector	CMOS	CMOS	CMOS	InGaAs
SNR(Peak)	500/1	600/1	600/1	600/1
Camera output	USB3.0	USB3.0	USB3.0	Gigabit network
Camera interface	C-Mount	C-Mount	C-Mount	C-Mount
Accessories	USB3.0 transmission line	USB3.0 transmission line	USB3.0 transmission line	Gigabit transmission network
ROI	Single area	Single area	Multiple area	Single area
Dimension	Length x width x height: 22.8 cmx7cmx8.6 cm	Length x width x height: 22.8 cmx7cmx8.6 cm	Length x width x height: 22.8 cmx7cmx8.6 cm	Length x width x height: 31.3cmx8.7cmx9.6cm
Weight	1250g	1250g	1250g	2630g
Power dissipation	5W	5W	5W	5W

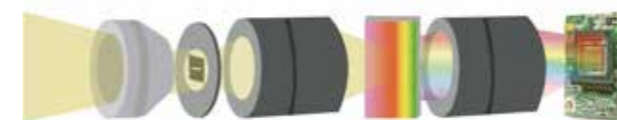
# Hyperspectral camera FS-17



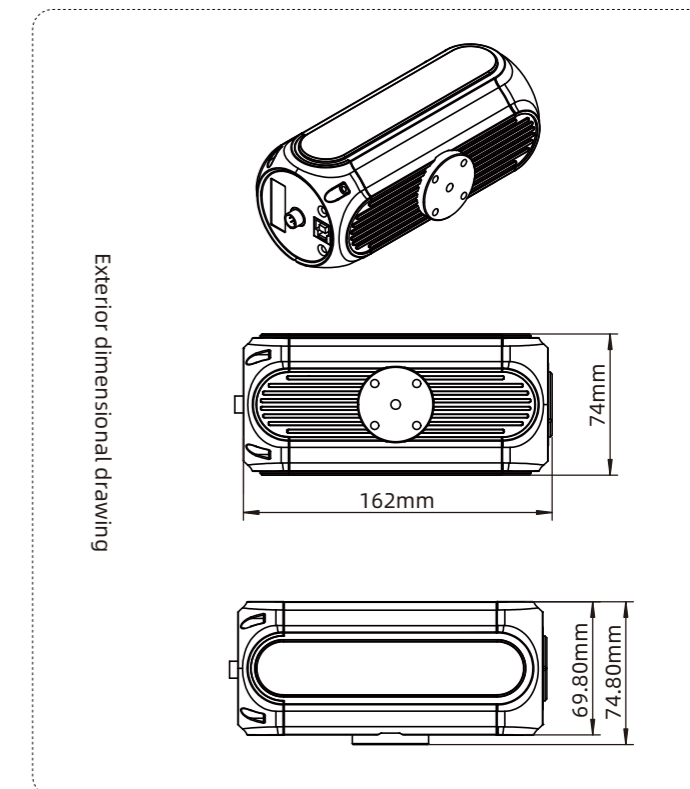
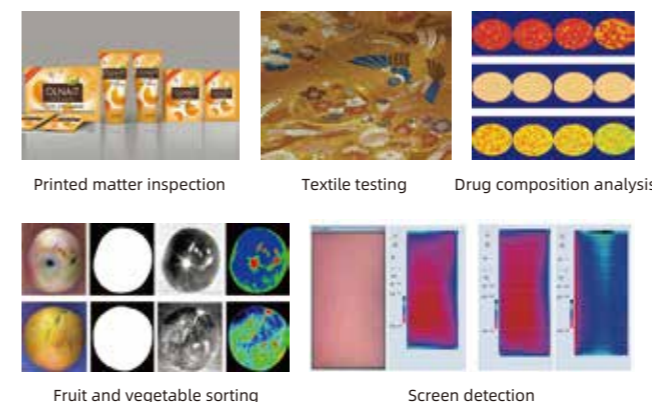
FS-17 is a 900-1700nm near-infrared hyperspectral camera launched by CHNSpec Technology, which is an advanced hyperspectral imaging equipment. InGaAs matrix image sensor with high sensitivity, with excellent spectral resolution and spatial resolution, can be widely used in agriculture, food, pharmaceutical, environment and other fields; Support for USB3.0 interface, compatible with standard C-Mount lenses, flexibility and ease of use, easy to integrate into the device for real-time hyperspectral imaging; Using a unique optimization algorithm to achieve high-speed acquisition and processing, with high efficiency and stability, it is a reliable hyperspectral imaging equipment.

- Spectral method: transmission grating
- Spectral range: 900-1700nm
- Spectral channel: 1024
- Spectral resolution: 8nm
- Number of space pixels: 1280
- Imaging speed: up to 1800fps after ROI
- Slit width: 25um
- Camera interface: C-Mount

## Measurement principle



## Typical application



## Parameters

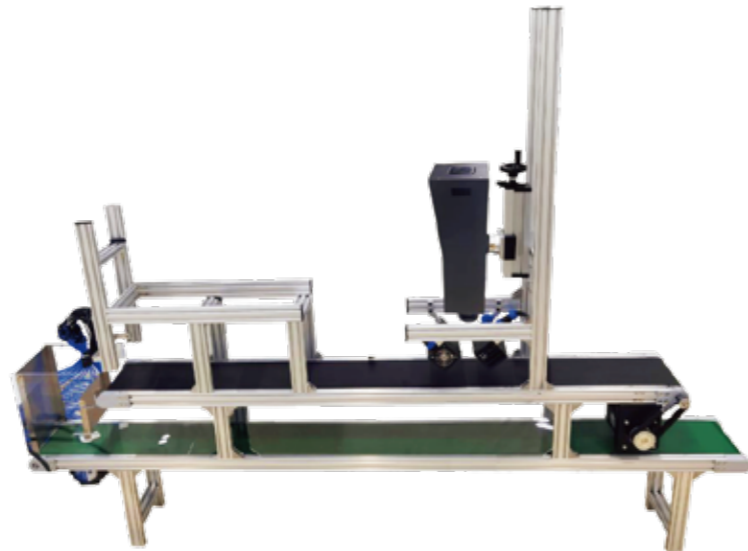
Model number	FS-17
Spectroscopic method	grating
Spectral range	900-1700nm
Spectral channel	1024
Spectral resolution (FWHM)	6nm
Slit width	25um
Transmission efficiency	> 60%
Stray light	< 0.5%
Number of spatial pixels	1280
Pixel size	5um
Imaging speed	8bit/1024 bands 132 frames/SEC, 12bit/1024 bands 70 frames/SEC, 8bit/512 bands 253fps, up to 1800fps after ROI
probe	InGaAs
SNR(Peak)	600/1
Camera output	start
Camera interface	C-Mount
attachment	Lens, USB cable, power supply
ROI	Multiple regions
dimension	Length x width x height :16.6cmx7.5cmx7.4cm
weight	625g
Power dissipation	5W

## High speed hyperspectral sorting system FS-18/19

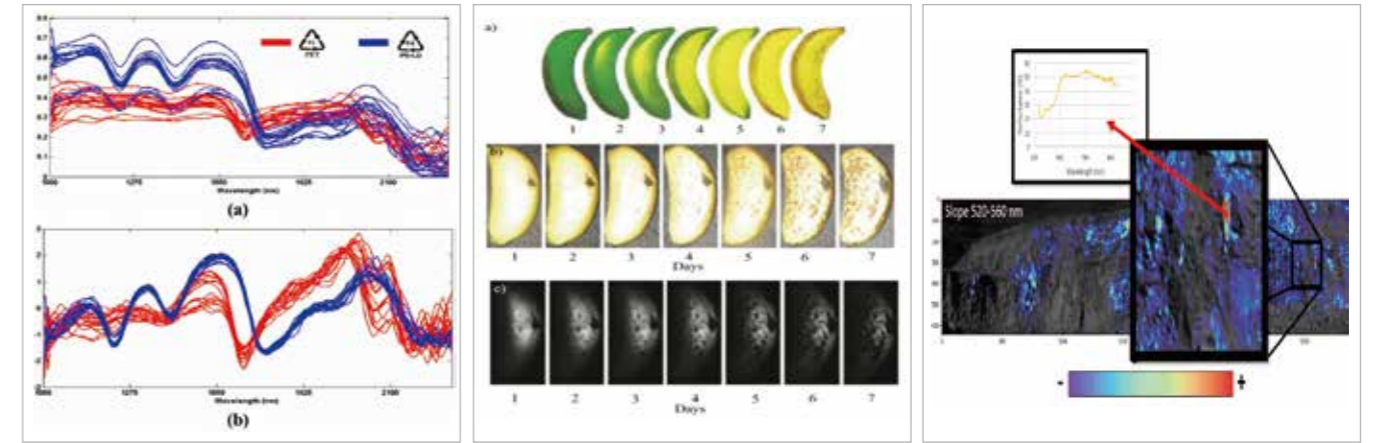


The FS-18/19 is a line scan hyperspectral camera from CHN Spec designed for industrial sorting applications. Its high frequency features meet the scanning speed requirements of industrial applications, and its robust construction and compact body also make it more flexible in installation scenarios.

- Spectral range: 900-1700nm
- Imaging speed: up to 1480fps
- Spectral resolution: 6nm
- Suitable for all environments
- Multiple regional ROIs can be achieved
- Hyperspectral image processing software is provided



## Application fields



Plastic sorting

Fruit and vegetable sorting

Ore sorting

## Parameters

Model number	FS-18(Short-wave Infrared SWIR)	FS-19(Short-wave Infrared SWIR)
Lighting mode	Passive lighting (without light source)	Passive lighting (without light source)
Spectroscopic method	grating	grating
Spectral range	900-1700nm	900-1700nm
Spectral band	512	256
Spectral resolution (FWHM)	6nm	6nm
Slit width	25um	25um
Transmission efficiency	> 60%	> 60%
Stray light	< 0.5%	< 0.5%
Number of spatial pixels	640	640
Pixel size	5um	15um
Imaging speed	740fps	1480fps
probe	InGaAs	InGaAs
SNR(Peak)	600/1	600/1
Camera output	Cameralink	Cameralink
Camera interface	C-Mount	C-Mount
attachment	Lens, USB cable, power supply	Lens, USB cable, power supply
ROI	Individual region	Individual region

# FIGSPEC FS2X Series Imaging Hyperspectral Cameras



FigSpec® series of imaging hyperspectral cameras adopt transmission grating splitter module with high diffraction efficiency and high sensitivity surface array camera, combined with built-in scanning imaging and auxiliary camera technology, which solves the difficult problems of traditional hyperspectral cameras, such as external push scan imaging mechanism and complex focus. It can be directly integrated with standard C interface imaging lens or microscope to achieve rapid spectral image acquisition.

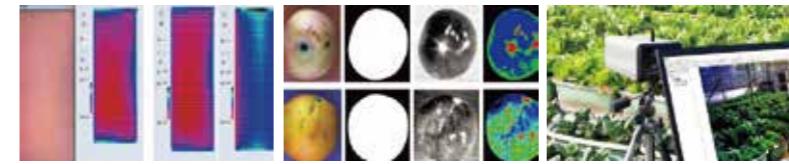
### Visible spectrum/NIR:

- Spectral range: 400-1000nm, wavelength resolution better than 2.5nm, up to 1200 spectral channels.
- Image resolution up to 1920\*1920

### SW-NIR:

- Spectral range: 900-1700nm, wavelength resolution better than 8nm, up to 254 spectral channels
- Image resolution up to 320\*320

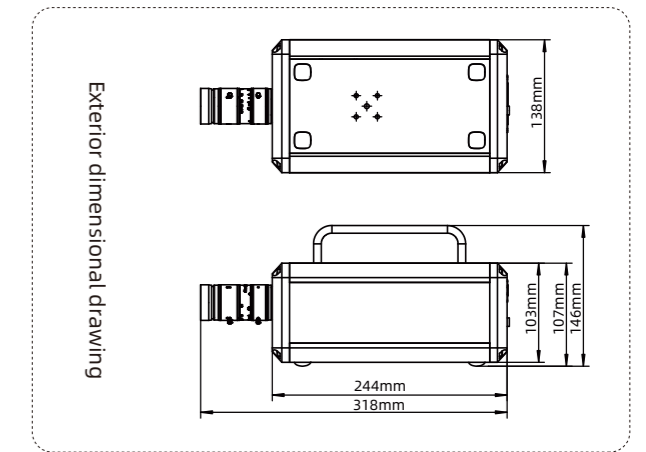
## Application fields



Screen detection

Fruit and vegetable sorting

Plant pests and diseases detection



## Parameters

Model	FS-20	FS-22	FS-23	FS-25
Spectroscopic method	Grating	Grating	Grating	Grating
Image resolution	1920*1920	1920*1920	1920*1920	320*320
Dynamic range	12 bits	12 bits	12 bits	14 bits
Imaging speed	≤15 seconds	≤15 seconds	≤5 seconds	≤5 seconds
Spectral channels number	600	300	1200	254
Spectral region	400-700nm	400-1000nm	400-1000nm	900-1700nm
Spectral FWHM	2.5nm	5nm	2.5nm	8nm
Slit width	25um	25um	25um	25um
Transmission efficiency	60%	60%	60%	60%
Stray light level	0.5%	0.5%	0.5%	0.5%
Pixel size	5.86um*5.86um	5.86um*5.86um	5.86um*5.86um	30um*30um
Detector type	CMOS	CMOS	CMOS	InGaAs
Sensor imaging surface size	11.3*7.1mm	11.3*7.1mm	11.3*7.1mm	9.6mm x 7.68mm
Standard lens focal length	25mm	25mm	25mm	25mm
Minimum working distance	100mm-∞	150mm-∞	100mm-∞	100mm-∞
Field angle	25°	25°	25°	17°
Minimum exposure time	34us	21us	21us	1us
Maximum exposure time	10 seconds	10 seconds	10 seconds	1 seconds
SNR	600/1	600/1	600/1	600/1
Data interface	USB3.0	USB3.0	USB3.0	Gigabit network
Camera lens interface	C-Mount	C-Mount	C-Mount	C-Mount
Accessories	USB3.0 transmission line	USB3.0 transmission line	USB3.0 transmission line	Gigabit network transmission line
Imaging features	With ROI function	With ROI function	With ROI function	With ROI function
	Single area ROI can be achieved	Single area ROI can be achieved	Multi area ROI can be achieved	Single area ROI can be achieved
Auxiliary imaging features	Auxiliary framing camera to monitor the shooting area	Auxiliary framing camera to monitor the shooting area	Auxiliary framing camera to monitor the shooting area	Auxiliary framing camera to monitor the shooting area
Power supply mode	Built-in battery	Built-in battery	Built-in battery	Built-in battery
Host engine size *	25.5cm*13.8cm*10.7cm	25.5cm*13.8cm*10.7cm	25.5cm*13.8cm*10.7cm	33.5cm*18.2cm*14.3cm
Weight**	Less than 2.8KG	Less than 2.8KG	Less than 2.8KG	Less than 5.3KG
Power dissipation	50W	50W	50W	50W

\* size without lens and handle \*\* weight without lens

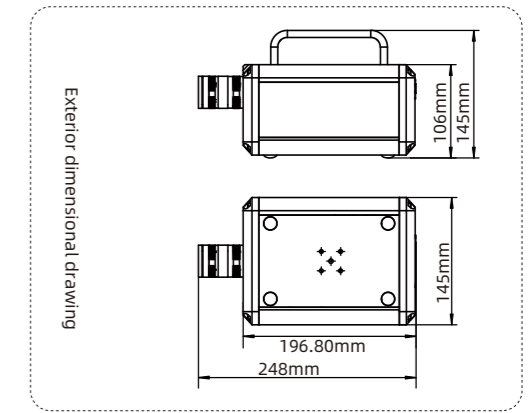
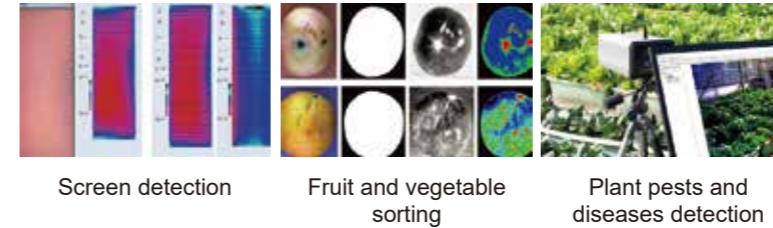
# Imaging hyperspectral camera FS-27



FS-27 imaging hyperspectral camera adopts transmission grating spectral module with high diffraction efficiency and high sensitivity surface array camera, combined with built-in scanning imaging and auxiliary camera technology, to solve the traditional hyperspectral camera needs external push-scan imaging mechanism and difficult to operate such as complex focusing. It can be directly integrated with the standard C interface imaging lens or microscope to achieve fast acquisition of spectral images.

- Spectral method: transmission grating
- Spectral range: 900-1700nm
- Spectral channel: 1024
- Spectral resolution: Better than 6.5nm
- Image resolution: 1280\*1280
- Imaging speed: ≤5 seconds
- Slit width: 25um
- Camera interface: C-Mount

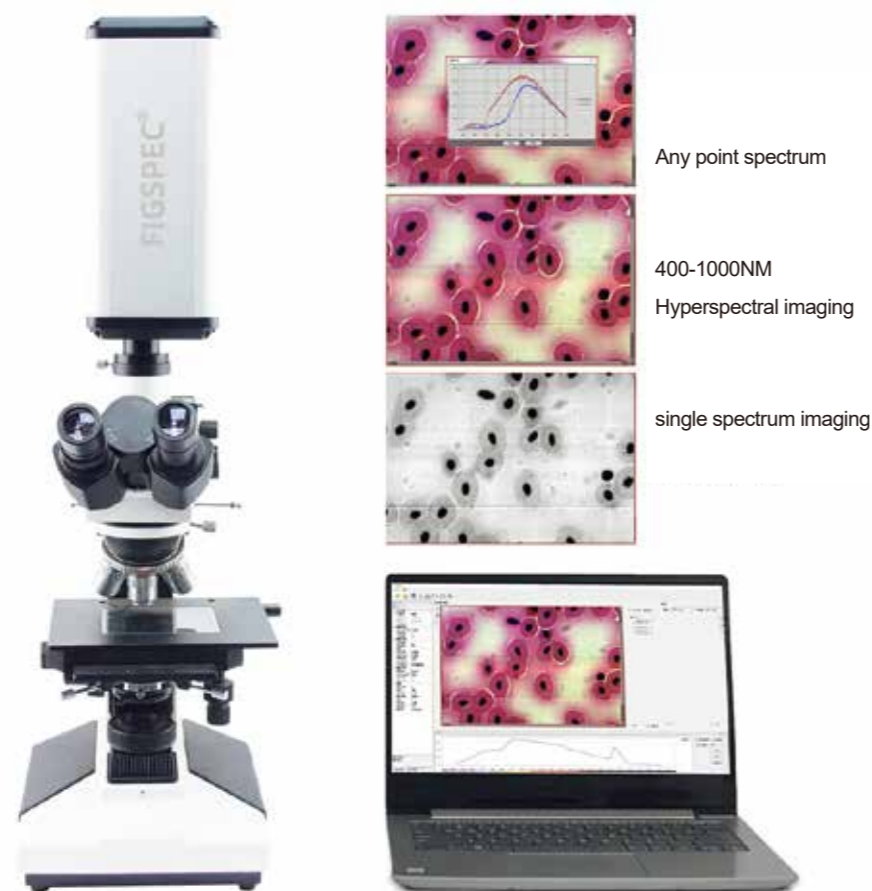
## Application fields



## Parameters

Model number	FS-27
Spectroscopic method	Transmission grating
Image resolution	1280 * 1280
Dynamic range	12 bits
Imaging speed	≤ 5s
Spectral channel	1024
Spectral range	900-1700nm
Spectral resolution (FWHM)	6nm
Slit width	25um
Transmission efficiency	> 60%
Stray light level	< 0.5%
Pixel size	5um*5um
Detector type	InGaAs
Sensor imaging surface dimensions	9.6mm x 7.68mm
Standard lens focal length	25mm
Minimum working distance	150mm
Field Angle	14.5 °
Minimum exposure time	1us
Maximum exposure time	Ten seconds
Signal-to-noise ratio	600/1
Data interface	start
Camera interface	C-Mount
attachment	USB3.0 transmission line
Imaging function	Have ROI capability Multiple regional ROIs can be achieved
Auxiliary imaging function	Auxiliary view camera to realize the monitoring of the shooting area
Power supply mode	Built-in battery power
dimension	Length x width x height :24.8cm*14.5cm*14.5cm
weight	2535g
Power dissipation	50W

## Microscopic hyperspectral imaging system



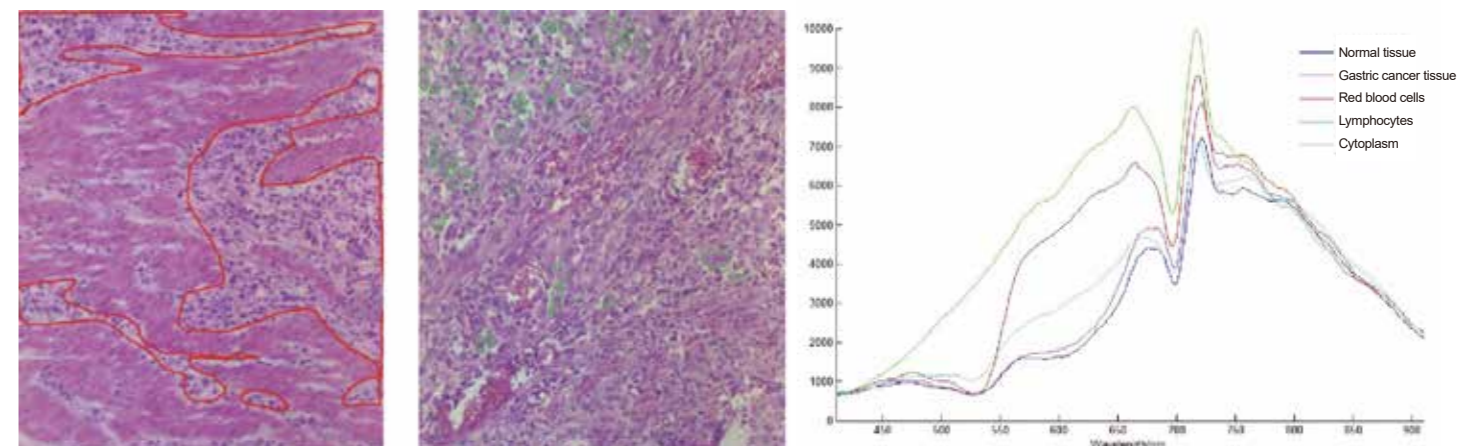
- Combining the advantages of microscope and imaging spectrometer, hyperspectral data acquisition of microscopic images can be performed at any time.
- It can transform existing biological microscopes, fluorescence microscopes, stereo microscopes, metallographic microscopes, etc., and easily transform ordinary microscopes into hyperspectral microscopes.
- Customers can customize microscope models according to their needs.
- The FigSpec® series of imaging spectrometers integrate a visual camera and a hyperspectral camera internally. The visual camera can be used to quickly preview the sampled images, and the hyperspectral image data collection can be performed after confirming that the images meet the requirements.

## System composition

Hyperspectral imaging spectroscopic camera (optional FS-20/FS-22/FS-23)\*1, Lens\*1, Microscope (any manufacturer's model can be specified)\*1, PC application software\*1

## Applications

### Example 1: Hyperspectral detection of gastric cancer tissue



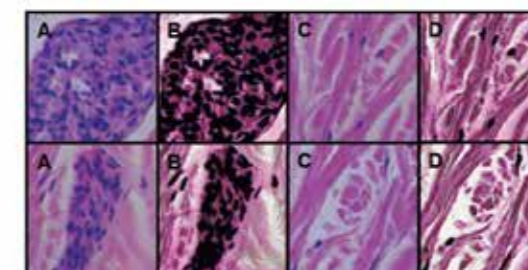
△ Gastric cancer tissue markers and gastric cancer cell markers

△ Comparison of spectral derivatives between gastric cancer tissue and normal tissue

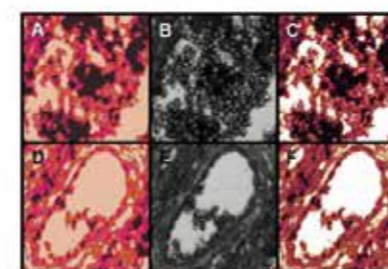
### Example 2: Virtual staining of pathological sections based on hyperspectral technology



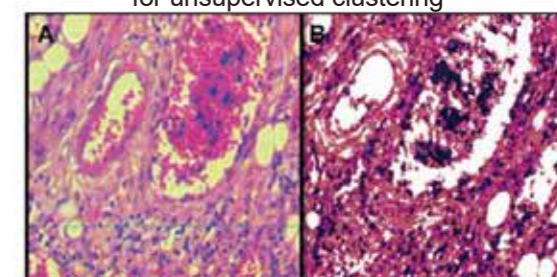
Hyperspectral pseudocolor images of unstained sections



Hyperspectral virtual staining results for unsupervised clustering



Hyperspectral virtual staining results of unsupervised clustering combined but spectral images



Comparison of hyperspectral virtual staining results and H-E staining



## PTZ hyperspectral measurement system



FS series PTZ hyperspectral measurement system is a measurement system combining hyperspectral camera and PTZ equipment, which can realize real-time monitoring of the shooting area, support automatic scanning and network connection. It can be applied to the analysis and monitoring field based on hyperspectral technology such as river, lake, forestry, agriculture and base.

- Spectral range: 390-1010nm
- Spectral channel number: 1200
- Spectral resolution: 2.5nm
- Head level range: 360°
- Vertical range of PTZ: Positive 90° to negative 90°
- Network connection: Supported



## Parameters

### Hyperspectral camera

Spectroscopic method	grating
Image resolution	1920 * 1920
Dynamic range	12 bits
Spectral channel number	1200
Spectral range	390-1010nm
Spectral resolution	2.5 nm
Slit width	25um
Transmission efficiency	60% or higher
Stray light level	0.5% or less
Pixel size	5.86 * 5.86 um um
Detector type	CMOS
Standard lens focal length	12mm, 16mm, 25mm, 35mm, 50mm optional
Minimum working distance	100mm
Field Angle	25 °
Minimum exposure time	21us
Maximum exposure time	Ten seconds
Signal-to-noise ratio	600/1
Camera lens interface	C/EF port
Imaging function	There are ROI capabilities that can achieve ROI for a single region
Auxiliary imaging function	The auxiliary view camera monitors the shooting area
Sensor imaging surface dimensions	11.3 * 7.1 mm

### Holder

Horizontal range	Horizontal 360°
Vertical range	Positive 90° to negative 90°
Cruise scan mode	Preset point, auto scan, Frame scan, panoramic scan

### Network

client	Support wins10 and later systems
Support protocol	IPv4/IPv6, HTTP, HTTPS
Interface protocol	FIGSPEC SDK

### Port

port	USB3.0/1000M Network interface
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### General norm

Operating temperature and humidity	-20 ℃~40℃; Humidity less than 80%
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## FS60/62UAV hyperspectral measurement system



- DJI M350RTK is used as the flight bearing platform.
- Ultra-high speed spectral scanning imaging device with high signal-to-noise ratio provides high stability spectral image acquisition.
- The self-developed image processing algorithm with high efficiency and low power consumption can greatly prolong the flight time and reduce the power consumption of the system.
- Through real-time measurement of spectral image information of plants, water bodies, soil and other ground objects, application and precision agriculture, crop growth and yield assessment, forest pest monitoring and fire prevention monitoring, coastline and Marine environment monitoring, lake and watershed environmental monitoring and other applications.
- Compact system design, imaging spectrometer host spectral resolution up to 2.5nm.
- The whole machine consists of: high stability head, hyperspectral imager, embedded data acquisition, processing and storage unit, wireless image transmission system, GPS-RTK navigation system, ground receiving workstation, ground control system, reflectivity calibration board.

## Parameters

### Hyperspectral camera FS-60C

Lighting mode	Passive lighting (without light source)
Spectroscopic method	Transmission grating
Spectral range	400-1000nm
Spectral band	1200
Spectral resolution (FWHM)	2.5 nm
Slit width	25um
Transmission efficiency	> 60%
Stray light	< 0.5%
Number of spatial pixels	Max. 1920 (software configurable)
Pixel size	5.86 um
Imaging speed probe	Full band 128Hz, after ROI can achieve 3300Hz
Signal-to-noise ratio	CMOS
Camera output	600/1
Camera interface attachment	USB3.0 or Gigabit network
ROI	C-Mount
Embedded data acquisition	USB3.0 or Gigabit network
Processing storage unit	Multiple regions
dimension	Embedded processor 512GSSD storage
weight	20.5 cmx18.5 cmx12.9 cm
Power dissipation	1200g
	40W



- Easy to operate, no need for professional drone operator, can achieve single operation
- The ground station can observe the sampling site of the aircraft in real time and set the preview and correction functions of the route data collected point by point by using the ground station: radiometric correction, reflectivity correction, and area correction support batch processing
- Real-time common vegetation index calculation function
- Support custom real-time analysis model input function
- ENVI is perfectly compatible with multiple data formats

### Hyperspectral camera FS-62C

Spectroscopic method	Transmission grating
Spectral range	900-1700nm
Spectral channel number	1024
Spectral resolution (FWHM)	6.5nm
Slit width	25um
Transmission efficiency	> 60%
Stray light	< 0.5%
Number of spatial pixels	1280
Pixel size	5um
Imaging speed probe	Full band 70Hz, maximum 1800Hz
Signal-to-noise ratio	InGaAs
exportation	600/1
Camera interface attachment	start
ROI	C-Mount
Built-in processing unit	Lens, USB cable, power supply
Heat dissipation mode	Multiple regions
Mode of operation	Windows operating system, 8GB of RAM 512GB SSD and camera integrated Design (optional 1TB)
	Internal air cooling heat dissipation
	Easy to operate, no need for professional drone operation Hand control, can achieve single operation



Observation mode	Real-time observation of aircraft sampling sites, hyperspectral images and spectral data by ground stations
Correction mode	Radiometric correction, reflectivity correction, and area correction support batch processing
Data format	Compatible with spe, hdr, and scp formats
Camera size	Less than 135*82*100 mm (L * W * H) (Including lens and built-in embedded data acquisition and processing unit, excluding head) Less than 190*129*100 mm (L * W * H) (Including lens and built-in embedded data acquisition and processing unit, including head)
Camera weight	≤ 740g (including lens and built-in embedded data acquisition and processing unit, excluding PTZ) ≤ 1085g (including lens and built-in embedded data acquisition and processing unit, including head)
attachments	Reflectance calibration board
Lens focal length	25mm
Camera scene	> 25°
Application software	FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software, FIGSPEC Studio image analysis software

# Multispectral camera FS-50 series



The FigSpec® FS-50 series is a new generation of unmanned multispectral cameras from Color Spectrum Technology Company, adapted to the DJI M350/M300RTK flight platform, with 30-180 spectral channels and 2K resolution. It can meet the application needs of precision agriculture, military defense and homeland security, disaster prevention and forestry monitoring, river and lake ecology, target identification and other industries.

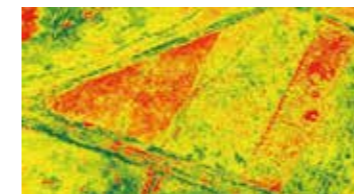
- Ultra-high spectral channels: 30-180 spectral channels (different models)
- 2K spatial resolution
- Global shutter, 12bit high precision sampling data
- Ground station real-time preview data acquisition
- DJI X-Port control and power supply, 512GSSD mass storage
- Dji M350/M300 RTK UAV customization, plug and play
- FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software, FIGSPEC Studio image analysis software



## Parameters

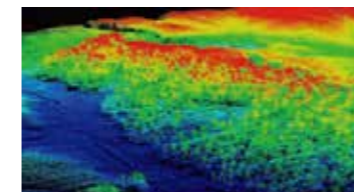
Model number	FS-50/30	FS-50/60	FS-50/90	FS-50/120	FS-50/150	FS-50/180
Number of spectral channels	30	60	90	120	150	180
Spectral channel wavelength	400-1000nm	400-1000nm	400-1000nm	400-1000nm	400-1000nm	400-1000nm
	Per 20nm	Per 10nm	Per 6.6nm	Per 5nm	Per 4nm	Per 3.3nm
Spectral resolution/half wave width	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength
	3.5nm	3.5nm	3.5nm	2.5nm	2.5nm	2.5nm
Spatial resolution	1920					
Sampling rate	128 line/S					
Image sensor	1/1.1 inch CMOS					
Effective pixel	1920					
Shutter type	Global shutter					
Quantization number	12bit					
Visual field	25.36 °					
Ground resolution	2.8 cm @ h120m					
Covering width	54m@h120m					
Optical window	High transmittance optical glass window					
Main engine size	≤155*95*119mm					
Main engine weight	≤840g					
Installation/power supply port	X-Port					
Work loss	45w					
Picture format	12bit.SPE (compatible with third party analysis software such as envi)					
Data storage space	512SSD					
Application software	FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software, FIGSPEC Studio image analysis software					
Shooting method	Real-time acquisition					

## Typical application



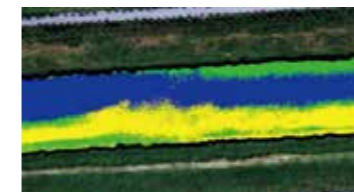
### Crop growth assessment

FigSpec Studio software is built with NDVI and other vegetation factors to accurately quantify the state of vegetation canopy at different spatial scales, quantitatively assess the health, stress and growth of crops and vegetation, and provide data support for crop growth assessment, yield prediction, disease and pest detection, etc.



### Coverage evaluation

Based on the spectral fingerprint information of plants, accurate classification of plants in the region and crop area statistics are carried out to provide quantitative vegetation canopy data to provide data support for scientific research and production of agriculture and forestry ecological industry.



### Water quality analysis and monitoring





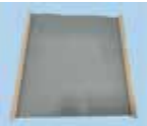
Using the spectral data and chemical analysis results, the analysis model is constructed to realize the inversion of the classification and water quality parameters of black and odorous water bodies. Combined with spatial information to monitor the impact of domestic sewage and industrial wastewater on surrounding water bodies, help pollution source investigation and water environment assessment.



### Water eutrophication monitoring

Spectral data are used to form a classification index to monitor water eutrophication and conduct spatial information statistics. Following the evaluation standards of water eutrophication status, it assists in analyzing water pollution sources such as farmland, aquaculture and fishery, and provides data and powerful data collection tools for pollution source investigation and water environment assessment.

## Optional Accessories

Parts Material Code	Name	Applicable instrument type	Picture
3.06.10.1007-0	Hyperspectral camera standwith whiteboard	FS-1X/2X series	
5.19.01.0021-0	Hyperspectral camera bench (translation table with light source)	FS-1X/2X series	
5.20.01.0015-0	Hyperspectral camera technology service fee	Full range of hyperspectral products	
3.01.18.1020-0	Hyperspectral tripod with crossbar	FS-2X series	
3.05.12.0090-0	Reflectance calibration cloth 18%	FS-60C,60,62,62C	
3.05.12.0068-0	Reflectance calibration cloth 80%	FS-60C,60,62,62C	