

FS60C/62C UAV hyperspectral measurement system



- Dji M350/300RTK 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	Full band 128Hz, after ROI can achieve 3300Hz
probe	CMOS
Signal-to-noise ratio	600/1
Camera output	USB3.0 or Gigabit network
Camera interface	C-Mount
attachment	USB3.0 or Gigabit network
ROI	Multiple regions
Embedded data acquisition	Embaddad processor E12CEED storage
Processing storage unit	Embedded processor 512GSSD storage
dimension	20.5 cmx18.5 cmx12.9 cm
weight	1200g
Power dissipation	40W

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	Observation mode
Imaging speed	Full band 70Hz, maximum 1800Hz	Correction mode
probe	InGaAs	Data forma
Signal-to-noise ratio	600/1	Camera size
exportation	start	
Camera interface	C-Mount	
attachment	Lens, USB cable, power supply	
ROI	Multiple regions	Camera weigh
Built-in processing unit	Windows operating system, 8GB	
	of RAM 512GB SSD and camera	attachments
	integrated Design (optional 1TB)	Lens focal length
Heat dissipation mode	Internal air cooling heat dissipation	Camera scene
Mode of operation	Easy to operate, no need for prof- essional drone operation Hand co- ntrol, can achieve single operation	Application software



- 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



node	Real-time observation of aircraft sampling sites, hyperspectral images and spectral data by ground stations
node	Radiometric correction, reflectivity correction, and area correction support batch processing
rmat	Compatible with spe, hdr, and scp formats
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)
eight	≤ 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
ents	Reflectance calibration board
ngth	25mm
cene	>25°
ation	FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software,
ware	FIGSPEC Studion image analysis software



FS-60UC Series UAV hyperspectral measurement system



- Dji M350/300RTK 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

Product model	FS-60UC		FS-62UC		FS-64UC
Spectroscopic method		Transmis	ssion grating spectros	сору	
Spectral range	400-1000nm 900-1700nm				400-1700nm
Spectral band	1200	1024			250
Spectral resolution	2.5nm 6.5nm			18nm	
Slit width			25um		
Spectral efficiency			>60%		
Stray light			<0.5%		
Spatial pixel count	1920		1280		640
Pixel size	5.86um*5.86um			5um*5	um
Imaging speed	Full band 128Hz		Full band 70Hz		Full band 200Hz
Detector	CMOS			InGa/	As
SNR(Peak)			600/1		
Camera output interface		USB			USB or Gigabit Ethernet
Camera lens interface			C-Mount		
Built-in embedded data acquisition and processing unit	Embedded processor with 512G SSD storage				
Heat dissipation method	155*95*119mm(L*W*H)	Internal a	air cooling heat dissipa	ation	1
Camera size	≤840g	135	5*82*100mm(L*W*H)		1
Camera weight			≤740g		
Accessories		Reflec	ctance calibration pan	el	
Lens focal length			25mm		
Lens field of view			>25°		
Flying platform		DJI N	1350 RTK / M300 RTF	<	
Aircraft size	In unfolded state, without propellers.:L*W*H 810*670*430 mm				
Aircraft weight	In folded state, with propellers.:L*W*H 430*420*430 mm				
Maximum takeoff weight of aircraft	Empty weight without battery: about 3.77kg. Empty weight with battery: about 6.47kg				
Fastest ascent speed of aircraft	9.2kg				
Fastest horizontal flight speed of aircraft	6m/s				
Maximum flight time	23m/s				
Operation mode	55 minutes (measured by flying forward at a speed of about 8 meters per second until the remaining battery level is 0% in a windless environment and under no-load conditions. For reference only. The actual usage time may vary due to different flight modes, accessories and environments)				
Observation mode	It is easy to operate and does not require a professional drone operator. Single-person operation can be achieved				
Correction method	Real-time observation of the aircraft sampling location, hyperspectral image and spectral data through the ground station. Functions include radiance correction, reflectance correction and area correction, which support batch processing.				
Data format	Compatible with spe format, hdr format and scp format.				
Application software	FIGSPEC UAV, FIGSPEC Merage mosaic software, and FIGSPEC Studion application software and image analysis software.				



Lidar UAV hyperspectral system FS60-UCR



The FS60-UCR series Lidar UAV hyperspectral system is a multifunctional unmanned aerial vehicle detection device that integrates lidar and hyperspectral imaging to obtain lidar and hyperspectral image data.

The main functions include: hyperspectral imaging, with a spectral range of 400-1700nm; a multi-threaded lidar with a ranging distance of up to 300m; an ultra-clear preview camera; a built-in control system in the host; high-precision inertial navigation and solid-state storage. It is suitable for being carried by various drones.

- Spectral range: 400-1700nm
- Spectral resolution: better than 2.5nm
- Spatial pixel count: 1920
- High-precision multi-threaded lidar synchronous measurement

- Ranging distance: 300m.
- Mounted on DJI M350/300 to measure large-area data images.
- Equipped with acquisition and analysis software.

Parameters

Product model FishedUCR FishedUCR Spectral signing method Transmission grating spectral splitting 400-1700m 400-1700m Spectral shands 1200 1024 230 Spectral regime 400-1700m 400-1700m 400-1700m Spectral regime 400-1700m 1024 230 Spectral regime 400-1700m 1024 230 Spectral regime 500m 1024 230 Spectral regime 500m 500m 640 Preal aze 580m 580m 640 Preal aze 580m 500m 500m Spectral regime 500m 500m 500m Preal aze 580m 500m 500m 500m Camera lons interface USB 0001 500m 500m Camera lons interface USB 500m / 500m Gamera lons interface 250m / / 500m Gamera lons interface 250m / / 500m <						
Spectral range 400-1000mm 900-1700mm 400-1700mm Spectral resolution 2:00 1024 2:50 Spectral resolution 2:50m 6:50m 18mm Spectral resolution 12:20 6:40 6:50mm Spectral resolution 12:20 6:40 6:40 Plotal size 5:80m75.80m 5um*5um 6:001 Camera output interface USB 0:01 0:50m Camera output interface USB 0:01 / Camera output interface C-Mount 10:5785119mm(L*W*H) Internal all cooling / Spectral ength of accountral ength ength 155795119mm(L*W*H) 11:5785210mm / / Spectral ength ength 525° 50m / / / Spectral ength ength 525° 50mm 1:280.000 pointisseerol (couble ength)	Product model	FS-60UCR	FS-62UCR	FS-64UCR		
Spectral bands 1200 1024 260 Spectral resolution 2.5 mn 6.5 mn 18 mn Spectral resolution 2.5 mn 6.5 mn 18 mn Spectral resolution 2.5 mn 6.0 % 5.5 mn 18 mn Spectral reficiency - 0.5 % - 0.5 % - 0.5 % - 0.5 % Stray light - 0.5 % 5.0 mn - 0.6 % - 0.6 % Stray light - 0.5 % - 0.6 % - 0.6 % - 0.6 % Stray light - 0.0 mn - 0.6 % - 0.6 % - 0.6 Mn Delector CMOS - 0.0 Mn - 0.6 Mn - 0.6 Mn Camera output interface - C-Mount USB or Gigabit Ethernet - 0.6 Mn Builkin embedded dride acciding in a first - 0.6 Mn - 0.6 Mn - 0.6 Mn Spectral camera size - C-Mount - 0.6 Mn - 0.6 Mn Builkin embedded acciding of acciding in a first - 0.6 Mn - 0.6 Mn - 0.6 Mn Spectral camera size - 28 millon (250 SS1 storage - 0.6 Mn - 0.6 Mn - 0.6 Mn <td>Spectral splitting method</td> <td colspan="4">Transmission grating spectral splitting</td>	Spectral splitting method	Transmission grating spectral splitting				
Spectral resolution 2.5m 6.5m 10m Sit width 2.5m 3000 10000 10000 10000 10000 1		400-1000nm		400-1700nm		
Silt width 25um Spectral efficiency > 60% Spectral efficiency < 60%	Spectral bands	1200	1024	250		
Spectral efficiency > 60% Stray light < 6.5%	Spectral resolution	2.5nm	6.5nm	18nm		
Stray light 640 Spatial pixel court 1220 1280 640 Pixel size 5.86 um*5.86 um 5.00 Um*5.00 Um 5.00 Um*5.00 Um Detector CMOS InGaAs Objector CMOS 100 US USB or Gigabit Ethemet Camera output interface CMOS USB or Gigabit Ethemet Camera output interface CMOUS USB or Gigabit Ethemet Camera output interface CMOUS USB or Gigabit Ethemet Camera output interface CMOUS USB or Gigabit Ethemet Advancessing unit 155795*119mm(L*W*H) Internal air cooling / Piest dissipation mathod 155795*119mm(L*W*H) Internal air cooling / Advancessoring unit 155795*119mm(L*W*H) Internal air cooling / Piest dissipation mathod 155795*119mm(L*W*H) Internal air cooling / Advancessoring unit 155795*119mm(L*W*H) Internal air cooling / Spectral camera lang 15579*119mm(L*W*H) Internal air cooling / Gida range 500 500 / / Fleat langing d	Slit width		25um			
Spatial pixel count 1920 1280 640 Pixel size 5.88um/5.80um 5.00m/5.00m 50m/5.00m Imaging speed Full band 128Hz Full band 70Hz Full band 200Hz Detector CMOS 16GaAs SNR (Feek) 0.88 or Gigabit Ethemet 600/1 Camera output interface USB 0.88 or Gigabit Ethemet Camera output interface 0.000 1.55°95°119mm(L*W*H) Internal air cooling / Heat dissipation method 155°95°119mm(L*W*H) Internal air cooling / Accessories Reflectance calibration plate / Focal length of spectral camera size 25mm / Pectral or amera size 25mm / / Spectral camera size 300m / / Feed of view of spectral camera lens 300m / / Utfar ranging distance 300m / / / Utfar ranging distance 300m / / / Utfar point frequency 1.280.000 points/second (ring accond) y coluble accho) / / Lidar scaling field 0.0000 points/second (ring accond) y coluble accho) / / Lidar scaling field of view of anorant Folded state, without bates: length "width" heig	Spectral efficiency		> 60%			
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SNR (Peak) Gondo Gondo Camera output interface USB USB or Gigabit Ethemet Camera lens interface C-Mount Built-in enhedded data acquisition and processing unit Internal air cooling / File 155°95'119mm(L'W'H) Internal air cooling / Peat dissipation method 155°95'119mm(L'W'H) Internal air cooling / Spectral camera size Ta5*82'100mm(L'W'H) Internal air cooling / Spectral camera lens 25mm Secondo Secondo Spectral camera lens 25mm Secondo Secondo Spectral camera lens 25m Secondo Secondo Glidar rayster Secondo 300m Secondo Secondo Lidar ranging distance 300m Secondo Secondo Secondo Lidar second length 10mm Secondo Secondo Secondo Secondo Lidar ranging distance 26 million (8252'4168) Secondo Secondo Secondo Lidar second length Secondo Secondo Secondo S	Imaging speed	Full band 128Hz	Full band 70Hz	Full band 200Hz		
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Data format Compatible with spe format, hdr format, and scp format	Observation mode	Real-time observation of the aircraft sampling location, hyperspectral image, and spectral data through the ground station. Function				
· · · · ·	Correction mode	Radiance correction, reflectance correction, and area correction support batch processing				
Application software FIGSPEC UAV, FIGSPEC Merage mosaic software, FIGSPEC Studion application software, image analysis software	Data format	Compatible with spe format, hdr format, and scp format				
	Application software	FIGSPEC UAV, FIGSPEC Merage mosaic software, FIGSPEC Studion application software, 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.

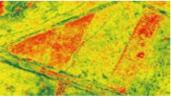
- Ultra-high spectral channels: 30-180 spectral channels (different models)
- 2K spatial resolution
- Global shutter, 12bit high precision sampling data
- Ground station real-time preview data acquisition
- DJI X-Port control and power supply, 512GSSD mass storage
- Dji M350/M300 RTK UAV customization, plug and play
- FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software, FIGSPEC Studion 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
	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength	Output a wavelength
Spectral resolution/half wave width	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 tra	ansmittance optical glass w	ndow		
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 so	ftware such as envi)		
Data storage space			512SSD			
Application software	FIGSPEC UAV real-time flight control software, FIGSPEC Merge puzzle software, FIGSPEC Studion image analysis software					
Shooting method			Real-time acquisition			

Typical application



Crop growth assessment 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.