



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.

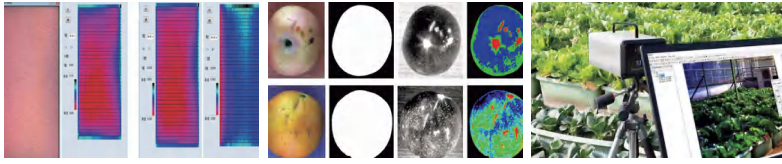
Visible spectrum/NIR:

- 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

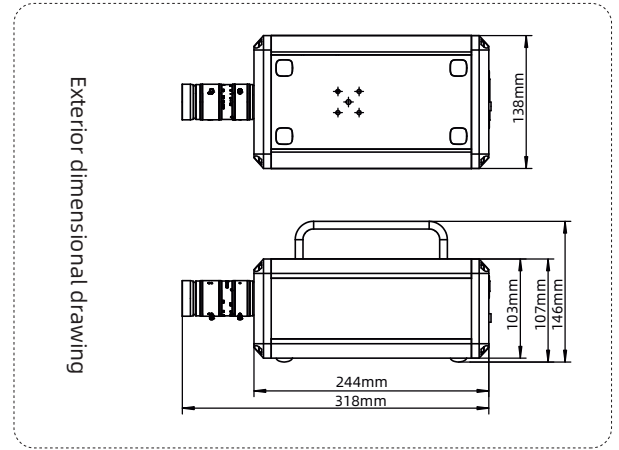
Application fields



Screen detection

Fruit and vegetable
sorting

Plant pests and
diseases detection



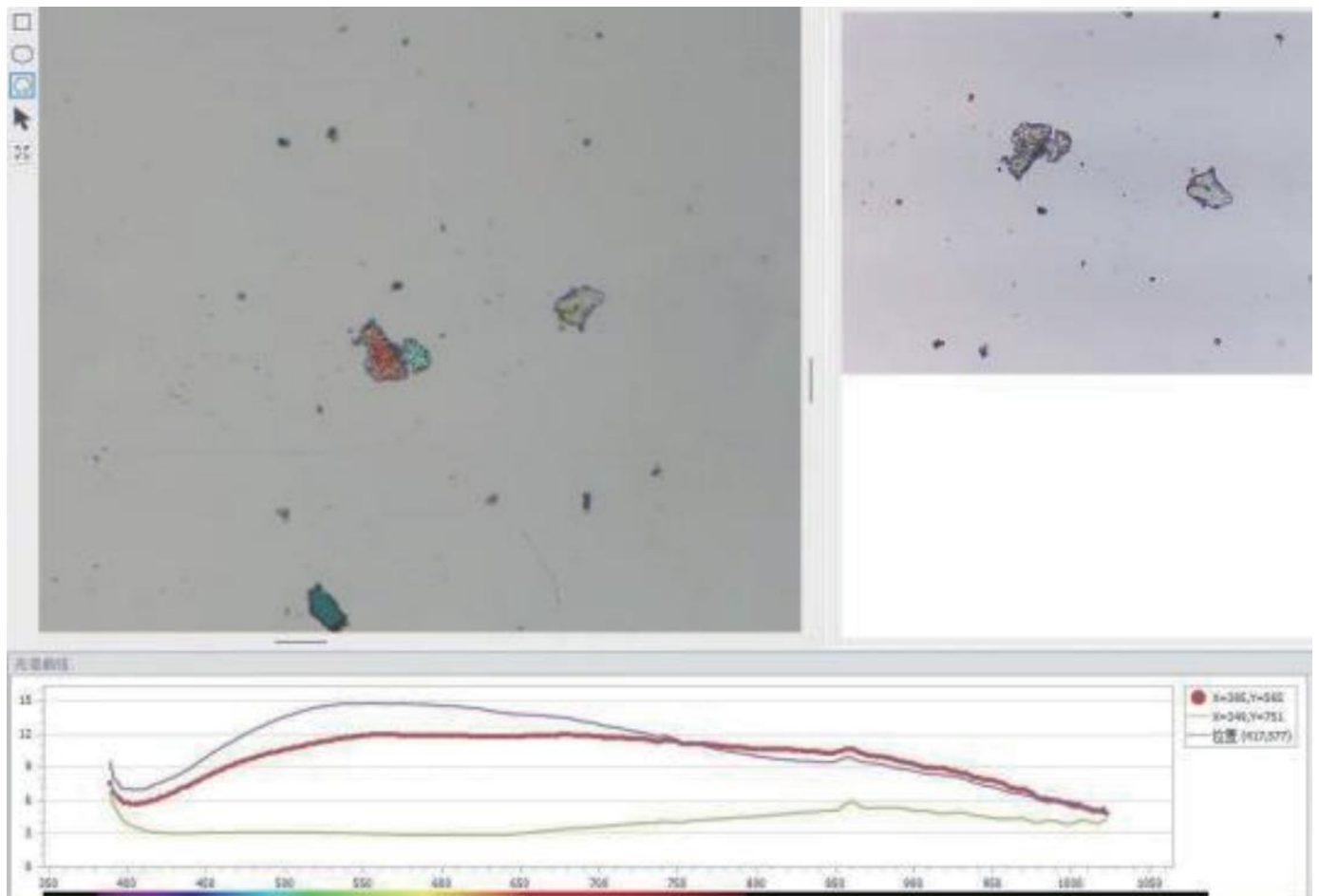
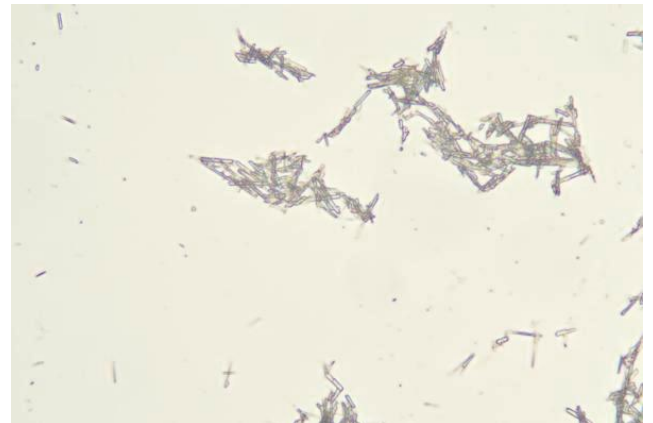
Parameters

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	1200	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

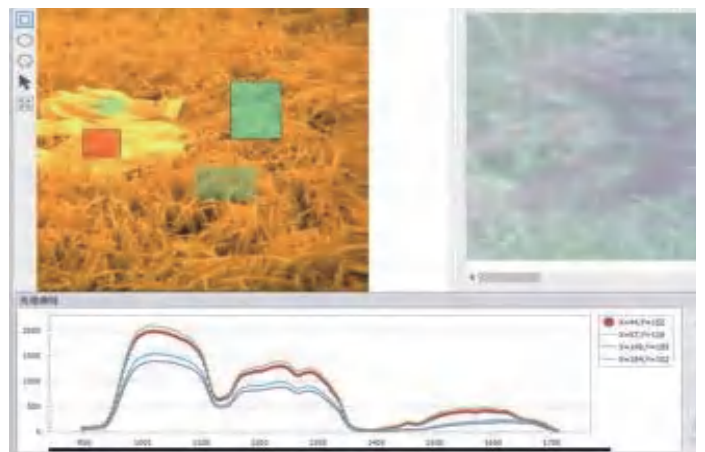
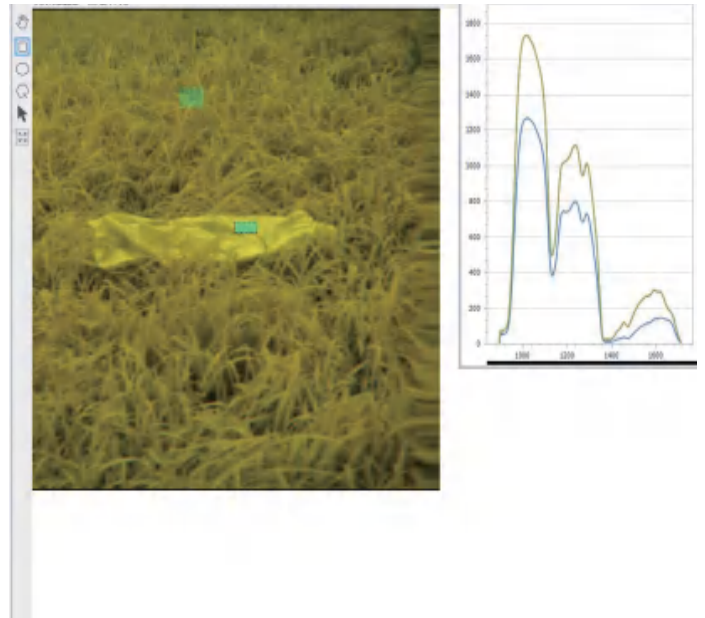
FS-25 microscope to measure MSU

Using the FS-25 and a microscope, we analyzed stained MSU crystals and identified their unique spectral characteristics. These distinct features enabled us to locate MSU crystals in unstained pathological sections.



FS-25 Anti-counterfeiting Identification

Using the FS-25, we analyzed the recognition of camouflage clothing against surrounding green environments for anti-counterfeiting. Results showed similarities and differences in spectral waveforms around 1600nm. Identification was performed through modeling based on distinct spectral features.

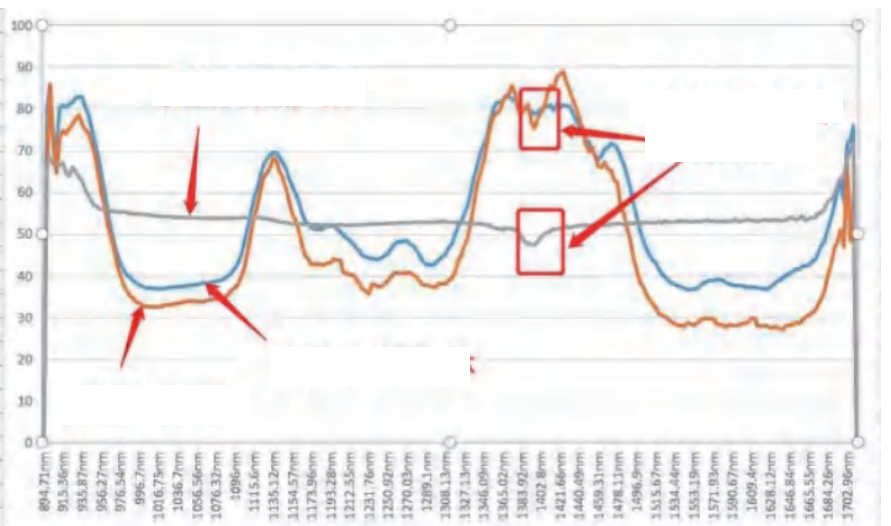


FS-25 DUI test

Using the FS-25, we tested for alcohol gas in a laboratory with beakers and conducted non-contact testing in vehicles. Results showed a distinct downward absorption peak at 1402nm for alcohol gas in both lab and outdoor settings. This method is suitable for non-contact online detection in parking lots and entry/exit points.

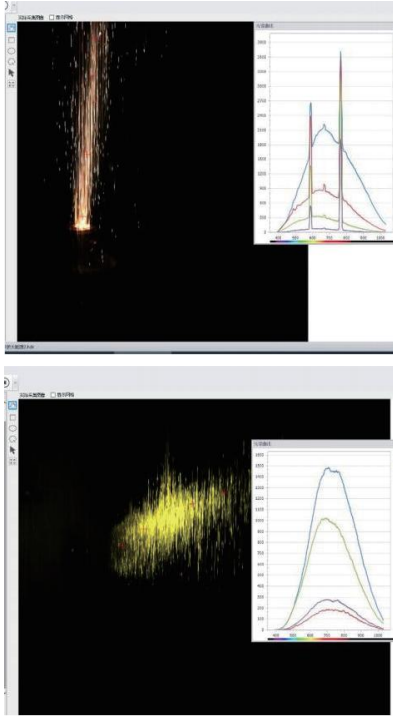


898.16nm	79.89597	64.43783	66.83085
901.61nm	85.92714	85.59924	68.24004
905.05nm	72.30564	72.1484	66.68219
908.49nm	70.99152	64.7252	66.83974
911.92nm	80.08365	73.10776	66.45406
915.36nm	80.84306	74.6137	66.96568
918.79nm	80.3968	73.98929	64.77164
922.21nm	81.00707	75.18903	63.93082
925.63nm	81.54842	76.19115	65.89531
929.05nm	82.5815	77.4463	64.80655
932.46nm	82.81125	78.45512	63.68013
935.87nm	82.78105	76.51124	62.76478
939.28nm	80.52905	75.02155	60.67864
942.68nm	78.75307	74.31917	59.18529
946.08nm	75.54907	71.90371	57.73392
949.48nm	72.10332	69.18157	56.79538
952.88nm	68.86514	64.87026	56.39115
956.27nm	64.67506	60.26255	55.85841
959.65nm	60.53733	56.92747	55.67524
963.04nm	56.11488	52.53335	55.508
966.42nm	51.45171	49.40225	55.51845
969.79nm	48.1852	46.5557	55.31601



FS23 Flame Analysis

Using the FS-23, we tested plasma flames to assess temperature variations. The results revealed distinct signal strengths corresponding to different temperature levels in the flames.



Accessories Introduction

Accessories Description	Quantity	Accessories Description	Quantity
Host	1	USB3.0 data cable	1
Standard lens	1	USB flash disk	1
Certificate of Conformity & Warranty Card	1	Packing List	1
Charger	1	Black aluminum alloy box	1
Outer packaging carton	1	Ziplock Bags	1
Reflectivity calibration plate 10*10cm	1	"This side is facing up, please do not turn it upside down;please do not drop this precision instrument."	1