

Spectral Camera PFD

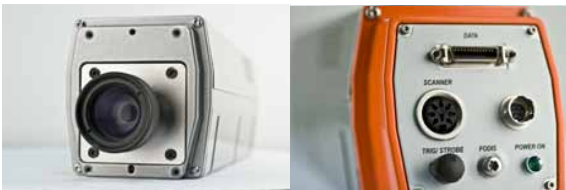
GILDEN photonics



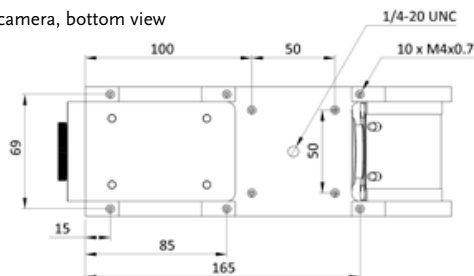
Cased Spectral Camera PFD



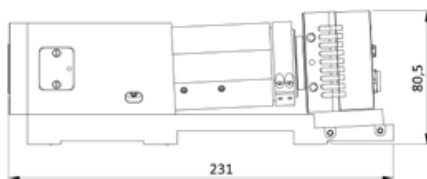
OEM Spectral Camera PFD



OEM camera, bottom view



OEM camera, side view



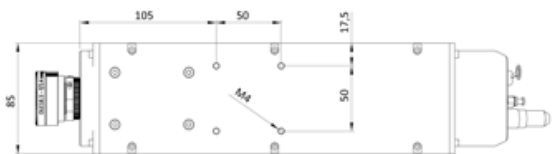
Hyperspectral camera operating in the VIS and VNIR ranges of 380-800 nm and 400-1000 nm. With its high resolution, high image rate, flexible wavelength selection, and rugged structure, Spectral Camera PFD is an excellent tool for industrial measurements.

Spectral Camera is an imaging spectrometer, an integrated combination of our ImSpector imaging spectrograph and an area monochrome camera. It works as a push- broom type line scan camera and provides full, contiguous spectral information for each pixel.

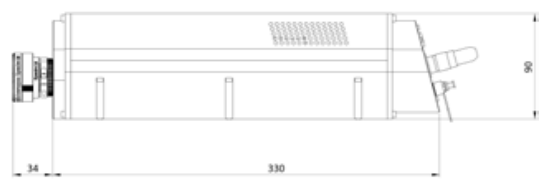
The Spectral Camera PFD consists of an ImSpector V8E or V10E for the wavelength range 380-800 nm or 400-1000 nm, respectively, and a high speed CMOS detector. The transmission diffraction grating and lens optics used in the spectrograph provide a high quality, low distortion image that is designed to fulfill the most demanding specifications.

This Spectral Camera provides the flexibility and high speed acquisition required in the industrial QC applications. Combination of multiple Region-Of-Interests and binning gives a possibility for the optimal system setup and control for the user. Full spectral range can be acquired with 180 fps at 1312 spatial locations. By selecting partial spectral ranges, speed up to 1000 fps can be achieved.

Cased camera, bottom view



Cased camera, side view



ACCESSORIES

Gilden photonics provides various accessories for the spectral cameras to broaden their applicability.

- Several fore objective lenses with different FOVs are available which have been designed to provide the optimal image and spectral quality across the full spectral range of the spectral camera
- The spectral camera can also be delivered with collection fiber optics to convert the camera into a multiple point spectrometer. All the points are measured simultaneously without a moving multiplexer
- The spectral camera can be delivered with a mirror scanner or rotating stage for scanning static targets and outdoor scenes, or with X-stage sample mover for desktop and microscope applications

SPECTROSENS SOFTWARE

The camera PFD is supported by SpectraSENS software, which allows:

- Data acquisition and saving data in the hard disk
- camera parameters settings
- Basic visualization in real time

Datacubes are saved in ENVI compatible format that allows further processing by several software packages for hyperspectral data processing

APPLICATIONS

- Quality control
- Food and vegetation research
- On-line sorting and quality monitoring
- Plant and vegetation research
- Environmental monitoring
- Counterfeit detection

Spectral Camera

PFD

SPECTRAL CAMERA PFD			
OPTICAL CHARACTERISTICS	V8E	V10E	UNIT
Spectral Range	380 – 800	400 – 1000	nm
Spectral Resolution (30 μm)	2.0	2.8	nm
Spectral Sampling	0.55 – 4.75	0.72 – 6.27	nm / pixel *
Spatial Resolution	RMS spot size < 9		μm
Aberrations	Insignificant astigmatism, keystone or smile		–
Numerical Aperture	F / 2.4		–
Slit Width Options	30 (18, 50, 80, 150)		μm
Effective Slit Length	10.50		mm
Total Efficiency (typical)	> 50% independent on polarization		–
Stray Light	< 0.5% / halogen lamp, 590 nm LPF		–
ELECTRICAL CHARACTERISTICS			
Sensor	CMOS		–
Pixels in Full Frame	1312 (spatial) \times 1024 (spectral)		–
Active Pixels	1312 (spatial) \times 768 (spectral)		–
Pixel Pitch	8.0		μm
Camera Output	Digital 12 bit		–
Interface	Base camera link		–
Camera Control	CameraLink		–
Frame Rate	65 fps (full frame) up to 180 fps (with binning)		–
Additional Features	Asymmetric binning up to \times 8 Multiple region-of-interest either in spatial or spectral direction		ms
Exposure Time Range	0.1 – 100		ms
Power Consumption	< 5		W
Input Voltage	12 (OEM), 24 (cased)		V
ENVIRONMENTAL CHARACTERISTICS	V8E	V10E	UNIT
Storage	– 20... + 50		$^{\circ}\text{C}$
Operating	+ 5...+ 40 non-condensing		$^{\circ}\text{C}$
MECHANICAL CHARACTERISTICS	OEM	CASED	UNIT
Size (L \times W \times H)	231 \times 80.5 \times 78	330 \times 85 \times 90	mm ³
Weight	1.8	2.7	kg
Body	Anodized aluminium with mounting screw holes		–
Lens Mount	Standard C-mount		–
User Adjustments	None		–
Shutter	Optional	Yes, with USB control	–

* Adjustable by spectral binning