

# ImSpector VIS and VNIR imaging spectrograph

SPECIM ImSpectors are designed for the VIS (380 - 800nm) and VNIR (400 - 1000nm) wavelength ranges. These spectrographs provide a straightforward, high performance, yet cost-effective method of integration. When combined with scientific grayscale CCD or CMOS cameras the combination provides a line-scan Spectral Imaging device.

## Visible wavelength range

IMSPECTOR	V8 1/2" DETECTOR	V8 2/3" DETECTOR	V8E
<b>Optical characteristics</b>			
Spectral range	380 - 800 nm *1	380 - 800 nm *1	380 - 800 nm *1
Dispersion	93.6 nm/mm	66 nm/mm	75 nm/mm
Spectral resolution	8nm (with 80µm slit) *2	6nm (with 80µm slit) *2	2nm (with 30µm slit) *2
Image size	4.3 (spectral) x 6.6 (spatial) mm corresponding to standard 1/2" image sensor	6.6 (spectral) x 8.8 (spatial) mm corresponding to standard 2/3" image sensor	5.64 (spectral) x 14.2 (spatial) mm
Spatial resolution	rms spot radius < 30µm	rms spot radius < 30µm	rms spot radius < 9µm *2
Aberrations	Insignificant astigmatism		No astigmatism
Bending of spectral lines across spatial axis	Smile < 30µm	Smile < 45µm	Smile < 1.5µm
Bending of spatial lines across spectral axis	Keystone < 20µm	Keystone < 40µm	Keystone < 1µm
Numerical aperture	F/2.8		F/2.4
Slit width, default	50µm (30, 80 and 150µm on request)		30µm (18, 50, 80 and 150µm )
Slit length	9.6mm		14.2mm
Efficiency	> 50%, independent of polarization		
Stray light	< 0.5% (halogen lamp, 590 nm long-pass filter)		
<b>Mechanical characteristics</b>			
Size	(D) 35 x (L) 139mm		(W) 60 x (H) x 60 x (L) 175mm
Weight	300g		1100g
Body	Anonized aluminium tube		
Lens and camera mount	Standard C-mount adapter		
User adjustments	Image axis relative to detector rows, adjustable back focal length ±1mm		
<b>Environmental characteristics</b>			
Storage	-20 ... +85 °C		
Operating	+5 ... +40 °C, non-condensing		

\*1 Order blocking filter is available for mounting in front of the detector window.

\*2 System spectral and spatial resolutions also depend on the discrete imaging nature of detector and objective lens quality.



ImSpector V8/V10 spectrograph, side view



ImSpector V8/V10 spectrograph, front view



ImSpector V8E/V10E spectrograph, side view



ImSpector V8E/V10E spectrograph, front view

NOTE: product information and images are subject to changes without prior notice.

# ImSpector VIS and VNIR imaging spectrograph

## Visible near infrared wavelength range

IMSPECTOR	V10 1/2" DETECTOR	V10 2/3" DETECTOR	V10E
<b>Optical characteristics</b>			
Spectral range	400 - 1000 nm *1	400 - 1000 nm *1	400 - 1000 nm *1
Dispersion	139 nm/mm	93.9 nm/mm	97.5 nm/mm
Spectral resolution	11.2 nm (with 80µm slit) *2	9nm (with 80µm slit) *2	2.8nm (with 30µm slit) *2
Image size	4.3 (spectral) x 6.6 (spatial) mm, corresponding to standard 1/2" image sensor	6.6 (spectral) x 8.8 (spatial) mm, corresponding to standard 2/3" image sensor	max 6.15 (spectral) x 14.2 (spatial) mm
Spatial resolution	rms spot radius < 40 µm	rms spot radius < 40 µm	rms spot radius < 9 µm
Aberrations	Insignificant astigmatism		No astigmatism
Bending of spectral lines across spatial axis	Smile < 30µm	Smile < 45µm	Smile < 1.5µm
Bending of spatial lines across spectral axis	Keystone < 20µm	Keystone < 40µm	Keystone < 1µm
Numerical aperture	F/2.8		F/2.4
Slit width, default	50µm (30, 80 and 150µm)		30µm (13, 18, 50, 80 and 150µm)
Slit length	9.8mm		14.2
Optical input	N/A		Telecentric
Efficiency	> 50%, independent of polarization		
Stray light	< 0.5% (halogen lamp, 590 nm long pass-filter)		
<b>Mechanical characteristics</b>			
Size, OEM	(D) 35 x (L) 139mm		(W) 60 x (H) x 60 x 175mm
Weight	300g		1100g
Body, OEM	Anonized aluminium tube		
Lens and camera mount	Standard C-mount adapter		
User adjustments	Image axis relative to detector rows, back focal length adjustable ±1mm		
<b>Environmental characteristics</b>			
Storage	-20 ... +85 °C		
Operating	+5 ... +40 °C, non-condensing		

## Options, fore optics

- Fore optics, Standard series: OL8, OL12, OL17, OL23 and OL35 for 2/3" or smaller detector
- Fore optics, Enhanced series: OLE9, OLE18.5, OLE23 and OLE140 for 2/3" or larger detector. Optimized for Enhanced series.

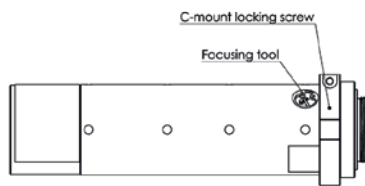
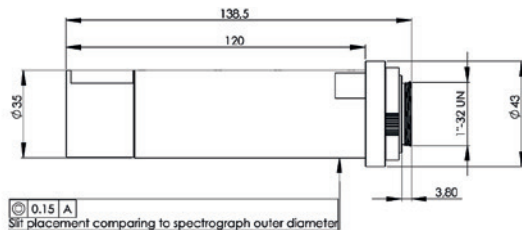
More information about fore optics can be found from the Hyperspectral fore lenses -data sheet.

## Options, accessories

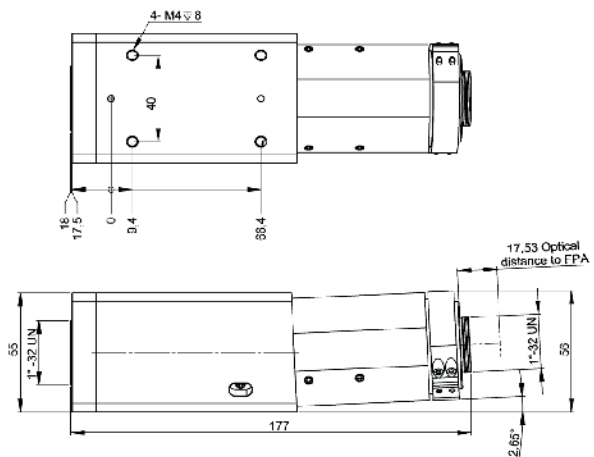
- Mechanical shutter (Enhanced series)
- Collection fiber optics
- Order blocking filters; OBF 570 (rectangular 14 x 12mm or circular 20mm Ø and 17mm Ø) for V10 and V10E
- Fiber optic diffuse irradiance sensor (FODIS) for light source monitoring (Enhanced series)

\*1 Order blocking filter is available for mounting in front of the detector window.

\*2 System spectral and spatial resolutions also depend on the discrete imaging nature of detector and objective lens quality.



ImSpector V8/V10 mechanical dimensions



ImSpector V8E/V10E mechanical dimensions

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