

VISIBLE SPECTROGRAPHS 380 – 800 nm



The ImSpector Series offers several imaging spectrograph options designed for the visible (380 - 800nm) wavelength range. These spectrographs permit straightforward and cost-effective integration. Combining a visible spectrograph with a scientific grayscale CCD or CMOS camera produces a high performance line-scan hyperspectral imaging device. The use of an order blocking filter (OBF450) is optional for visible spectrographs, but will improve performance in some cases. Consult Middleton Research for details.

VIS Spectrograph Specifications

Optical Characteristics	V8H	V8	V8E
Spectral Range	380 - 800 nm	380 - 800 nm	380 - 800 nm
Spectral Dispersion	93.6 nm/mm	66 nm/mm	65 nm/mm
Spectral Resolution	8 nm (w/ 80 μ m slit)	6 nm (w/ 80 μ m slit)	2 nm (w/ 30 μ m slit)
Spatial Resolution	RMS spot radius < 30 μ m	RMS spot radius < 30 μ m	RMS spot radius < 9 μ m
Image Size (Spectral x Spatial)	4.8 x 6.6 mm	6.6 x 8.8 mm	6.15 x 14.2 mm
Numerical Aperture	F/2.8	F/2.8	F/2.4
Optical Input	Standard	Standard	Telecentric
Average Diffraction Efficiency	> 50%, independent of polarization	> 50%, independent of polarization	> 50%, independent of polarization
Stray Light	< 0.5% (halogen lamp, 633 nm long-pass filter)	< 0.5% (halogen lamp, 633 nm long-pass filter)	< 0.5% (halogen lamp, 633 nm long-pass filter)
Slit Width, default	50 μ m (25, 80 and 150 μ m available on request)	50 μ m (25, 80 and 150 μ m available on request)	30 μ m (18, 50, 80 and 150 μ m available on request)
Slit Length	9.8 mm	9.8 mm	14.3 mm
Magnification	1:1	1:1	1:1

Aberrations

Bending of Spectral Lines Across Spatial Axis	Smile < 30 μ m (0.70%)	Smile < 45 μ m (1.05%)	Smile < 1.5 μ m (0.035%)
Bending of Spatial Lines Across Spectral Axis	Keystone < 20 μ m (0.30%)	Keystone < 40 μ m (0.61%)	Keystone < 1 μ m (0.015%)
Astigmatism	Insignificant	Insignificant	None

Mechanical Characteristics

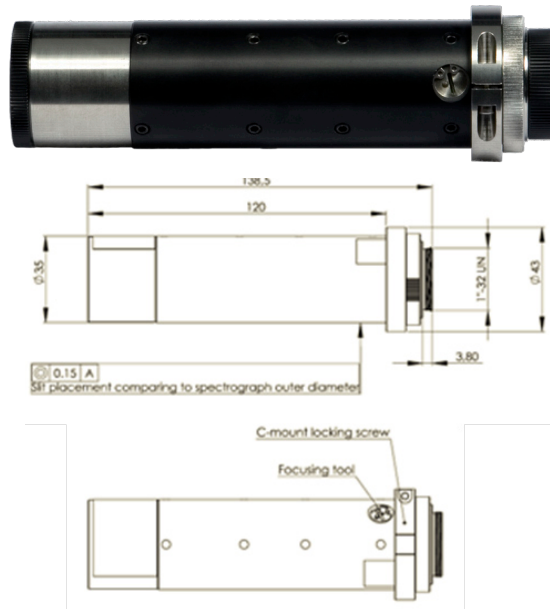
Body	Anodized Aluminum Tube	Anodized Aluminum Tube	Anodized Aluminum Tube
Size (W x H x L)	35 x 35 x 139 mm	35 x 35 x 139 mm	60 x 60 x 175 mm
Weight	300 g	300 g	1100 g
Lens Mount	Standard C-mount adapter	Standard C-mount adapter	Standard C-mount adapter
Camera Mount	Standard C-mount adapter	Standard C-mount adapter	Standard C-mount adapter
User Adjustments	Image axis rotation relative to detector rows, adjustable back focal length \pm 1 mm (for all)		

Environmental Characteristics

Storage Temperature, non-condensing	-20 $^{\circ}$ C ... + 85 $^{\circ}$ C	-20 $^{\circ}$ C ... + 85 $^{\circ}$ C	-20 $^{\circ}$ C ... + 85 $^{\circ}$ C
Operating Temperature, non-condensing	+ 5 $^{\circ}$ C ... + 40 $^{\circ}$ C	+ 5 $^{\circ}$ C ... + 40 $^{\circ}$ C	+ 5 $^{\circ}$ C ... + 40 $^{\circ}$ C

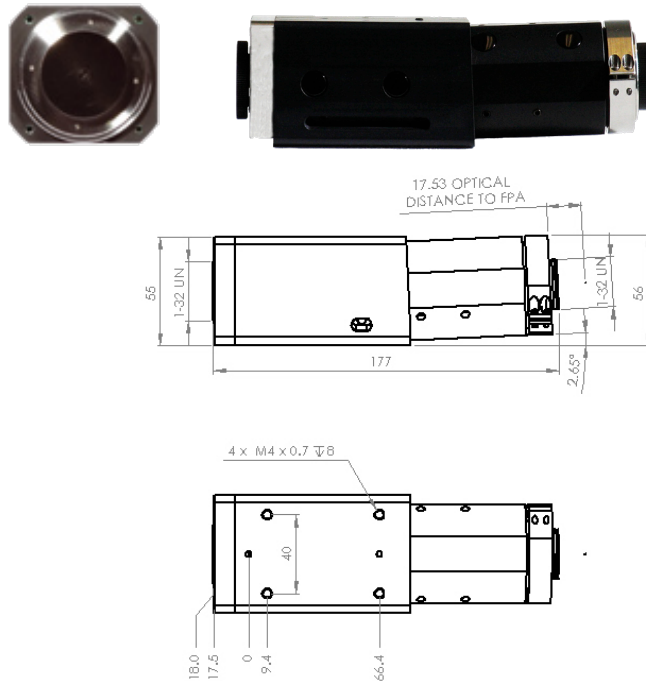
ImSpectors V8H and V8

There are two separate models for the standard VIS spectrograph, the V8 for 2/3" sensors and the V8H for 1/2" sensors. Both of these models share the same mechanical characteristics as shown in these drawings.



ImSpector V8E

The E-Series model is also available for VIS imaging applications that require higher spectral or spatial fidelity.



Visible Spectrographs Ordering Information		
Part Number	Description	Product Name
MRC-304-001-01	ImSpector - Standard VIS Spectrograph V8, 50 μm slit* (default)	ImSpector V8
MRC-304-001-02	ImSpector - Standard VIS Spectrograph V8H, 50 μm slit* (default)	ImSpector V8H
MRC-305-001-01	ImSpector - Enhanced VIS Spectrograph V8E, 30 μm slit* (default)	ImSpector V8E

* When ordering please specify if different slit width is needed.