

AvaSpec-NIR256/512-2.5-HSC-EVO

NIRLine Near-infrared Spectrometer

AvaSpec-NIR256-2.5-HSC-EVO



The NIR spectrometers in our EVO series offer more sensitivity, low weight and small size. They are based on a 100 mm optical bench with an NA of 0.13, offering optimal balance between resolution and sensitivity.

The 2.5-HSC series feature 256 or 512 pixel InGaAs detectors and are available in multiple configurations. These instruments are perfect for analyzing grain, corn, wheat, soya, polymers, but also for medical uses, process monitoring and other analyses.

The 256 pixel detectors offer the best sensitivity for most applications.

For applications where resolution is key or more datapoints for modelling are required, the 512 pixel detector will be the best choice.

Also available on the –HSC is the user selectable gain-setting mode: LN (lownoise, standard setting), which gives you a longer integration time and higher signal to noise ratio, and HS mode (high-sensitivity) for measuring in low light conditions. Analog and digital IO ports enable external triggering and control of shuttered and pulsed light sources from the AvaLight series.

Technical Data

	AvaSpec-NIR256-2.5-HSC-EVO	AvaSpec-NIR512-2.5-HSC-EVO
Optical bench	TE-cooled symmetrical Czerny Turner, 100 mm focal length	
Wavelength range	1000 - 2500 nm	
Resolution	4.4 - 85.0 nm	2.6 - 85.0 nm
Pixel dispersion (with NIR 075-1.7 grating)	6.2 nm	3.1 nm
Stray light	<1.0%	
Sensitivity HS in counts / μW per ms (1000 - 2500 nm)	990,000	480,000
Signal/noise HS	1800:1	1900:1
Integration time HS	10 μ s - 5 ms	
Sensitivity LN in counts / μW per ms (1000 - 2500 nm)	55,000	26,600
Signal/noise LN	4000:1	3700:1
Integration time LN	10 μ s - 100 ms	
Detector	InGaAs linear array with 2-stage TE-cooling, 256 pixel	InGaAs linear array with 2-stage TE-cooling, 512 pixel
Pixel size (WxH)	50 x 250 μ m	25 x 250 μ m
AD converter	16 bit, 500 kHz	
Interface	USB 3.0 high speed, 5 Gbps Gigabit Ethernet 1 Gbps	
Sample speed with on-board averaging	0.54 ms/scan (USB3)	
Data transfer speed	1.11 ms/scan (USB3)	
Digital IO	HD-26 connector, 2 Analog in, 2 Analog out, 13 Digital bi-directional, trigger, sync, strobe, laser	
Power supply	12 V, 40W	
Operating temperature range	0 - 40 $^{\circ}$ C	
Cooling	45 $^{\circ}$ C versus ambient	
Dimensions, weight	185 x 145 x 185 mm, 3.5 kg	

Grating Selection Table

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
NIR	1000 - 2500	1500	75	1700	NIR075-1.7
NIR	1000 - 2500	1173 - 1150*	100	2500	NIR100-2.5
NIR	1000 - 2500	800 - 660*	150	2000	NIR150-2.0
NIR	1000 - 2500	815 - 700*	150	2600	NIR150-2.6
NIR	1000 - 2500	574 - 530*	200	1500	NIR200-1.5

*Depends on the starting wavelength of the grating; the higher the wavelength, the bigger the dispersion and the smaller the range to select.

Resolution Table (FWHM in nm)

Grating (lines/mm)	Slit size (μm)				
	25*	50	100	200	500
75	8.9	12.9	16.0	33.9	84.5
100	7.2	9.5	12.0	20.0	50.0
150	4.0	5.7	7.0	12.8	32.0
200	2.6	4.4	5.2	9.3	23.3

Options

SLIT-XX-RS • Slit size, please specify XX = 25, 50, 100, 200 or 500 μm

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This instrument is perfect for grain, corn, wheat, soya and other analyses.

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