

AvaSpec-NIR256/512-1.7-EVO

NIRLine Near-Infrared Fiber-optic Spectrometer

AvaSpec-NIR256-1.7-EVO



For measurements in the near infrared range out to 1.7 μm , Avantes offers a new series of uncooled spectrometer configurations. The AvaSpec-NIR256-1.7-EVO and the AvaSpec-NIR512-1.7-EVO offer the same high sensitivity optical bench with the next generation of electronics. Both instruments deliver the same exceptional performance specifications such as a sample speed of only 0.53 ms/scan and integration times as fast as 20 μs , as the Avantes instruments you have come to trust.

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

The AvaSpec-NIR256/512-1.7-EVO spectrometers pair the same trusted InGaAs array detectors with our ultra low-noise electronics board featuring USB3 and Giga-Ethernet connection port. Digital and analog I/O ports enable external triggering and control over the shutter and pulsed lightsources and choose from two distinct software-controlled gain-setting modes, high-sensitivity mode (HS, default) and the low-noise (LN) mode.

These affordable uncooled instruments are USB powered and are available with a choice of four gratings and replaceable slits to match the bandwidth and requirements fitting your application.

Technical Data

Spectrometer	AvaSpec-NIR256-1.7-EVO	AvaSpec-NIR512-1.7-EVO
Optical Bench	Symmetrical Czerny-Turner, 50 mm focal length,	
Wavelength range	900-1750 nm	
Resolution (slit & grating dependent)	2 - 50 nm	
Stray-light	<1%	
Sensitivity HS in counts /μW per ms	8,200,000 (integral 1000-1750 nm)	3,880,000 (integral 1000-1750 nm)
Dynamic Range HS	6000:1	
Integration time HS	10 μs - 500 ms	
Signal/Noise HS	1900:1	
Sensitivity LN in counts /μW per ms	469,000 (integral 1000-1750 nm)	222,000 (integral 1000-1750 nm)
Dynamic Range LN	9000:1	
Integration time LN	10 μs - 10 seconds	
Signal/Noise LN	5000:1	
Detector	InGaAs linear array, 256 pixels, 50 μm x 500 μm	InGaAs linear array, 512 pixels, 25 μm x 500 μm
AD converter	16-bit, 500 kHz	16-bit, 500 kHz
Interface	USB3.0 high speed, 5 Gbps, Gigabit Ethernet 1 Gbps	
Sample speed with store to RAM	0.53 ms /scan	
Data transfer speed	0.53 ms /scan (USB3)	
Digital IO	HD-26 connector, 2 Analog in, 2 Analog out, 13 Digital IO bi-directional, trigger, synchronization, strobe, laser	
Power supply	Default USB power, 600 mA or external 12VDC, 320mA (4W)	
Dimensions, weight	185 x 100 x 184 mm, 2.7 kg	

Grating Selection Table for AvaSpec-NIR256/512-1.7-EVO

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
		256/512			
NIR	900-1750	850	200	1500	NIR200-1.5
NIR	1000-1700	340	400	1600	NIR400-1.6
NIR	900-1400	200	600	1200	NIR600-1.2
NIR	1300-1600	152	600	1600	NIR600-1.6

Resolution Table (FWHM in nm) for AvaSpec-NIR256/512-1.7-EVO

Grating (lines/mm)	Slit size (μm)				
	25*	50	100	200	500
200	6	8	12	22	50
400	2.5	3	6	12	25
600	n.a.	2	4	8	18

* only for AvaSpec-NIR512

Ordering Information

AvaSpec-NIR256-1.7-EVO

- Fiber-optic Spectrometer, 50 mm AvaBench, 256 pixel InGaAs detector, high-speed USB3 and ETH interface, with replaceable slit, incl. AvaSoft-Basic, USB interface cable, OSF-850/1000-3.
Specify grating, wavelength range and slit

AvaSpec-NIR512-1.7-EVO

- Fiber-optic Spectrometer, 50 mm AvaBench, 512 pixel InGaAs detector, high-speed USB3 and ETH interface, with replaceable slit, incl. AvaSoft-Basic, USB interface cable, OSF-850/1000-3.
Specify grating, wavelength range and slit

PS-12V/1.0A

- External power supply, needed for operation in ETH mode

Options

SLIT-XX-RS

- Replaceable slit with SMA connector, specify slit size XX=25*, 50, 100 or 200 μm

SLIT-XX-RS-FCPC

- as SLIT-XX-RS, but with FC/PC connector

* only for AvaSpec-NIR512

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For external triggering Avantes offers the AvaTrigger featuring optical triggering, external TTL or manually through the pushbutton.