

# AvaSpec-NIR256/512-1.7-EVO

## NIRLine Near-Infrared Fiber-optic Spectrometer

For measurements in the near infrared range out to 1.7  $\mu\text{m}$ , 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  $\mu\text{s}$ , 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.

### AvaSpec-NIR256-1.7-EVO



### Technical Data

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

<b>AvaSpec-NIR256-1.7-EVO</b>	<ul style="list-style-type: none"> <li>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</li> </ul>
<b>AvaSpec-NIR512-1.7-EVO</b>	<ul style="list-style-type: none"> <li>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</li> </ul>
<b>PS-12V/1.0A</b>	<ul style="list-style-type: none"> <li>External power supply, needed for operation in ETH mode</li> </ul>

## Options

<b>SLIT-XX-RS</b>	<ul style="list-style-type: none"> <li>Replaceable slit with SMA connector, specify slit size XX=25*, 50, 100 or 200 μm</li> </ul>
<b>SLIT-XX-RS-FCPC</b>	<ul style="list-style-type: none"> <li>as SLIT-XX-RS, but with FC/PC connector</li> </ul>

\* only for AvaSpec-NIR512

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Did you know the AvaSpec-NIR256-1.7-EVO has a little brother? Our new AvaSpec-Mini-NIR uses the same detector as the AvaSpec-NIR256-1.7-EVO, but in a much smaller package! This makes the AvaSpec-Mini-NIR perfect for OEM use and integration into handheld devices. Check it out on page 31!