

AvaSpec-NIR256/512-1.7-EVO

NIRLine Near-Infrared Fiber-optic Spectrometer

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.

AvaSpec-NIR256-1.7-EVO



Distributor

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where technologies meet solutions

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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 s | |
| 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 | |
| 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> External power supply, needed for operation in ETH mode |

Options

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

* 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!