

# AvaSpec-HERO SensLine

The AvaSpec-HERO is the top of the line spectrometer!  
Based on our High Sensitivity Compact (HSC) optical bench (f=100mm; NA=0.13) and a 1024x58 backthinned CCD detector, it offers the best of both worlds: high sensitivity and resolution!

The instrument is equipped with thermo-electric cooling, enabling long integration times in low light applications. In conjunction with our AS7010 electronics, including a high-end AD converter, noise is kept to a minimum, which offers you an excellent Signal to Noise and Dynamic Range performance.

A selection of gratings and slits offers you the flexibility of configuring the instrument for a wide range of applications in the 200-1160 nm range.

From low light fluorescence applications to demanding Raman applications, the AvaSpec-HERO is your ideal companion.

With the high-speed USB3.0 and Gigabit Ethernet communication interface, the connection to your computer is fast and simple.

Of course the digital IO ports enabling external triggering, control of shutters, and pulsed light sources from the Avantes line of instruments are available as well.

The Avaspec-HERO is standard equipped for use with replaceable slits, offering optimal flexibility for a variety of applications. The combination of all the above makes the AvaSpec-HERO your ideal companion for all your spectroscopic measurements.

## AvaSpec-HERO



### Technical Data

<b>Optical Bench</b>	HSC Symmetrical Czerny-Turner, 100 mm focal length, NA: 0,13
<b>Wavelength range</b>	200-1160 nm
<b>Resolution</b>	0,2-7 nm, depending on configuration (see table)
<b>Stray-light</b>	0,5%, depending on the grating
<b>Sensitivity</b>	445,000 counts/μW per ms integration time
<b>Detector</b>	CCD array image sensor with one stage TE Cooled, 1024 pixels
<b>Temperature cooled CCD</b>	Max. ΔT = 30 °C versus ambient
<b>Signal/Noise</b>	1200:1
<b>Dynamic Range</b>	40.000
<b>AD converter</b>	16-bit, 250 kHz
<b>Integration time</b>	5,2 ms- 60 sec
<b>Interface</b>	USB 3,0 high-speed, 5 Gbps Gigabit Ethernet 1 Gbps
<b>Digital IO</b>	HD-26 connector, 2 Analog in, 2 Analog out, 3 Digital bidirectional, trigger, sync., strobe, laser.
<b>Sample speed with on-board averaging</b>	5,2 ms/scan
<b>Data transfer speed</b>	5,2 ms/scan (USB3 and ETH)
<b>Power supply</b>	12VDC, 1,5A
<b>Dimensions, weight</b>	185 x 161 x 185mm, 3500 grams

The new AvaSpec-HERO is the answer for those who are in need of high resolution and high

## Grating Selection Table for AvaSpec-HSC1024x58TEC-EVO

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
UV/VIS/NIR	200-1160	770-760*	300	300	HSC0300-0.30
UV/VIS/NIR	250-1160	770-760*	300	420	HSC0300-0.42
VIS/NIR	250-1160	577-553	400	550	HSC0400-0.55
UV/VIS	250-850	373-340*	600	400	HSC0600-0.40
VIS/NIR	250-1160	373-340*	600	650	HSC0600-0.65
VIS/NIR	500-1160	268-220*	830	900	HSC0830-0.90
UV/VIS	200-1160	182-130*	1200	400	HSC1200-0.40
VIS/NIR	500-1050	182-130*	1200	750	HSC1200-0.75
UV/VIS	200-580	84-61*	2400	270	HSC2400-0.27

\* 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) for AvaSpec-HSC1024x58TEC-EVO

Grating (lines/mm)	Slit size (μm)					
	10	25	50	100	200	500
300	1.70	1.80	2.30	3.40	6.50	14.0
400	1.30	1.45	1.60	2.60	5.10	12.0
600	0.75	0.85	1.10	1.70	3.40	7.50
830	0.50	0.60	0.70	1.25	2.30	5.00
1200	0.32	0.40	0.48	0.80	1.45	3.50
2400	0.17	0.30	0.36	0.50	0.80	1.75

\* Above values are average values. Due to optical properties resolution will be better in the lower wavelengths than in the higher wavelength range.

## Ordering Information

### AvaSpec-HSC1024x58TEC-EVO

- AvaSpec-HERO; High sensitivity fiber optic spectrometer, HSC 100mm bench design, 1024x58 pixel back illum TE cooled CCD detector, high-speed USB 3.0 and ETH interface, including AvaSoft-Basic, USB interface cable, specify grating, wavelength range and options

## Options

<b>SLIT-XX-RS</b>	• Replaceable slit with SMA connector, specify slit size XX=10, 25, 50, 100, 200 or 500 μm.
<b>SLIT-XX-RS-FCPC</b>	• As SLIT-XX-RS, but with FC/PC connector
<b>SLITKIT-SMA</b>	• Slit kit containing 25, 50, 100, 200 or 500 μm slits, and the tools to replace the slit, SMA-connectors
<b>SLITKIT-FCPC</b>	• As SLITKIT-SMA, but with FC/PC connectors
<b>OSF-YYY-3</b>	• Order sorting filter for reduction of 2nd order effects, 3 mm thick, please specify YYY= 305, 395, 475, 515, 550, 600 nm
<b>OSC-HSC300</b>	• Order sorting coating for use with grating HSC0300-xx
<b>OSC-HSC600</b>	• Order sorting coating for use with grating HSC0600-xx and HSC0400-xx