

# AvaSpec-Mini2048CL

## Small and Powerful OEM Spectrometer

Looking for a very small spectrometer with a resolution of up to 0.1 nm? Then the AvaSpec-Mini is an ideal choice. It's only the size of a deck of cards, yet delivers a dynamic range better than 3000:1, stray-light levels lower than 0.2% and weighs only 175 grams. Easy to take anywhere you like.

The AvaSpec-Mini2048CL is produced with the latest automated production technology, providing excellent unit-to-unit reproducibility and temperature stability.

These are key parameters for OEM customers for reliable integration into their products. Many areas of research can be covered with this device, such as light analysis, chemical research and Raman spectroscopy. The possibilities are endless.

Of course, the AvaSpec-Mini works seamlessly with Avantes spectroscopy software and the Windows and Linux libraries.



### Technical Data

<b>Optical bench</b>	Symmetrical Czerny-Turner, 75 mm focal length, MK II
<b>Wavelength range</b>	200 - 1100 nm
<b>Stray light</b>	0.2 - 1%
<b>Sensitivity</b>	337.500
<b>Detector</b>	HAM S11639 , CMOS linear array, 2048 pixels (14x200 µm)
<b>Signal/noise</b>	330:1
<b>Dynamic range</b>	3300
<b>Dark noise</b>	16 cnts
<b>AD converter</b>	16-bit, 6 MHz
<b>Integration time</b>	30 µs - 40 s
<b>Interface</b>	USB 2.0 (480 Mbps) / pigtailed (40 cm) USB-A
<b>Sample speed with on-board averaging</b>	3.0 ms/scan
<b>Data transfer speed</b>	4.6 ms/scan
<b>I/O</b>	5 bidirectional programmable I/O; 1 analog out; 1 analog in, 1x5V
<b>Dimensions, weight</b>	95 x 68 x 20 mm, 175 grams
<b>Power supply</b>	Default USB power, 500 mA
<b>Temperature range</b>	0-55°C

### Grating selection table for AvaSpec-Mini\*

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
<b>2048CL</b>					
UV	200-400	167	1800	250	MN 1800-0.25
VIS	330-900	530	600	500	MN 600-0.50
NIR	550-1100	520	600	1000	MN 600-1.00
UV/VIS/NIR	200-1100	900	300	300	MN 300-0.30
VIS/NIR	360-1100	720	300	500	MN 300-0.50

\* Other gratings are available on request.

### Resolution table (FWHM in nm) for AvaSpec-Mini\*

Grating (lines/mm)	Slit size (μm)					
	10	25	50	100	200	500
	<b>2048 CL</b>					
<b>300</b>	1.00	1.30	2.40	4.80	9.20	22.00
<b>600</b>	0.40-0.53	0.70	1.20	2.40	4.60	11.00
<b>1800</b>	0.10-0.18	0.22	0.34-0.42	0.80	1.60	3.60

\* Typical values. Small deviations are possible.

### Ordering information

#### AvaSpec-Mini2048CL

- Mini Fiber-optic Spectrometer, 75 mm focal length, 2048 pixel CMOS detector, USB 2 powered interface, including DCL

Specify grating, wavelength range and options. Other gratings are available on request.

### Options

- SLIT-XX** • Slit size, please specify XX = 10, 25, 50, 100, 200 or 500 μm (5 μm possible on request)
- OSC** • Order sorting coating for grating MN 600-0.50, recommended with OSF-305
- OSC-UA** • Order sorting coating for grating MN 300-0.30
- OSC-VA** • Order sorting coating for grating MN 300-0.50, recommended with OSF-305
- OSF-YYY** • Order-sorting filter for reduction of 2<sup>nd</sup> order effects, please specify YYY= 305, 395, 457, 515, 550 or 600 nm, depends on range

**For non-OEM users a set of preconfigured models are available**

# AvaSpec-Mini4096CL

## Small and powerful OEM spectrometer

This first-to-the-market, 4096 pixel CMOS array miniature spectrometer is the perfect combination of small size and high resolution (up to 0.09 nm)!

It's only the size of a deck of cards, yet delivers a dynamic range better than 3000:1, stray-light levels lower than 0.2% and weighs only 175 grams. Easy to take anywhere you like.

The AvaSpec-Mini4096CL is produced with the latest automated production technology, providing excellent unit-

to-unit reproducibility and temperature stability. These are key parameters for OEM customers for reliable integration into their products.

Many areas of research can be covered with this device, such as light analysis, chemical research and Raman spectroscopy. The possibilities are endless.

Of course, the AvaSpec-Mini works seamlessly with Avantes spectroscopy software and the Windows and Linux libraries.



### Technical Data

<b>Optical bench</b>	Symmetrical Czerny-Turner, 75 mm focal length, MK II
<b>Wavelength range</b>	200 - 1100 nm
<b>Stray light</b>	0.2 - 1%
<b>Sensitivity</b>	261.000
<b>Detector</b>	HAM S13496 , CMOS linear array, 4096 pixels (7x200µm)
<b>Signal/noise</b>	300:1
<b>Dynamic range</b>	3300
<b>Dark noise</b>	16 cnts
<b>AD converter</b>	16-bit, 6 MHz
<b>Integration time</b>	30 µs - 50 s
<b>Interface</b>	USB 2.0 (480 Mbps) / pigtailed (40 cm) USB-A
<b>Sample speed with on-board averaging</b>	6.5 ms/scan
<b>Data transfer speed</b>	8.9 ms/scan
<b>I/O</b>	5 bidirectional programmable I/O; 1 analog out; 1 analog in, 1x5V
<b>Dimensions, weight</b>	95 x 68 x 20 mm, 175 grams
<b>Power supply</b>	Default USB power, 500 mA
<b>Temperature range</b>	0-55°C

### Grating selection table for AvaSpec-Mini

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
<b>4096CL</b>					
UV	200-400	170	1800	250	MN 1800-0.25
VIS	330-900	535	600	500	MN 600-0.50
NIR	550-1100	525	600	1000	MN 600-1.00
UV/VIS/NIR	200-1100	900	300	300	MN 300-0.30
VIS/NIR	360-1100	720	300	500	MN 300-0.50

\* Other gratings are available on request.

### Resolution table (FWHM in nm) for AvaSpec-Mini\*

Grating (lines/mm)	Slit size (μm)					
	10	25	50	100	200	500
	<b>4096CL</b>					
<b>300</b>	0.50-0.70	1.20-1.30	2.17	4.60	9.00	20.00
<b>600</b>	0.30-0.36	0.58-0.68	1.17	2.20	4.50	10.00
<b>1800</b>	0.09-0.11	0.18	0.36-0.40	0.78	1.50	3.70

\* Typical values. Small deviations are possible.

### Ordering Information

#### AvaSpec-Mini4096CL

- Mini Fiber-optic Spectrometer, 75 mm focal length, 4096 pixel CMOS detector, USB 2 powered interface, including DCL

Specify grating, wavelength range and options. Other gratings are available on request.

### Options

- SLIT-XX** • Slit size, please specify XX = 10, 25, 50, 100, 200 or 500 μm (5 μm possible on request)
- OSC** • Order sorting coating for grating MN 600-0.50, recommended with OSF-305
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