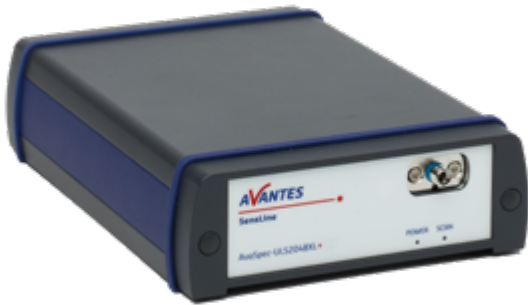


# AVASPEC-ULS2048XL+



## SENSLINE SPECTROMETERS



The AvaSpec-ULS2048XL+ spectrometer delivers exceptional performance by combining high quantum efficiency with advanced high-speed communication capabilities.

Unlike conventional back-thinned CCD spectrometers featuring two-dimensional arrays, this model incorporates large, monolithic pixels measuring 14×500 microns. This design ensures superior efficiency in both the UV and the NIR range.

## PRODUCT VARIATIONS

To provide our customers with the best possible service, the ULS2048XL+ spectrometer is available in two product variations.

### 1. ULS2048XL+

Available with 2048 pixel detector, high speed data transfer, and a replaceable slit to customize your throughput and resolution.

### 2. ULS2048XL+ OEM

Industrial OEM-version with a stainless steel electromagnetic compatible housing. Optimized for integration into your product or system.

## WHY THE ULS2048XL+

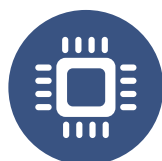
- Exceptional sensitivity in the UV & NIR range
- Large monolithic pixels
- Improved image lag up to 10 times (vs. ULS2048XL)
- Ultra-fast integration times (2 microseconds)
- High-speed communication
- Electronic shutter
- Detector collection lens to boost sensitivity
- Improved EMC shielding (vs. ULS2048XL)

## APPLICATIONS & INDUSTRIES

The ULS2048XL+ is optimized for a wide variety of applications. Including, but not limited to;



**Agriculture & Food**  
Quality Control  
Authenticity Testing



**Semiconductor**  
Defect Detection  
Coating Deposition



**BioMedical**  
Fluorescence Detection  
Tissue Characterization



**Environmental**  
Pollutants Detection  
Water Quality



**System Integration**  
Integrate into your  
product or system

## SPECIFICATIONS AVASPEC-ULS2048XL+

Technical Data	
Optical Bench	Symmetrical Czerny-Turner design, 75 mm focal length
Wavelength range	190 - 1160 nm
Stray light	<1%
Detector	HAM S11155 Back thinned CCD image sensor 2048 pixels
Signal/Noise	525:1
Dynamic Range	14.500
Dark noise	5 cnts
AD converter	16-bit, 857KHz
Integration time	2 $\mu$ s – 20 sec
Interface	USB 3.0, Gigabit Ethernet
Data transfer speed	2,5ms/scan (with shortest integration time of 2 $\mu$ s)
Analog I/O	2 in, 2 out
Digital I/O	HD-26 connector, 3 in, 12 out (including laser and strobe out), Trigger input
Dimensions, weight	175 x 127 x 44,5 mm, 1180 grams
Power supply	Default USB power, 5V, external power 5-12V
Temperature range	5-55 °C

## GRATINGS

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
UV/VIS/NIR	190-1160**	960**	300	300	UA
UV/VIS/NIR	190-1160**	900**	300	300/1000	UNA/DB
UV/VIS	190-850	520	600	300	UB
UV	190-750	250-220*	1200	250	UC
UV	190-650	165-145*	1800	UV	UD
UV	190-580	115-70*	2400	UV	UE
UV	190-400	70-45*	3600	UV	UF
UV/VIS	250-850	520	600	400	BB
VIS/NIR	300-1160**	860**	300	500	VA
VIS	360-1000	500	600	500	VB
VIS	300-800	250-200*	1200	500	VC
VIS	350-750	145-100*	1800	500	VD
VIS	350-640	75-50*	2400	VIS	VE
NIR	500-1050	500	600	750	NB
NIR	500-1050	220-150*	1200	750	NC
NIR	600-1160	350-300	830	800	SI
NIR	600-1160**	560**	300	1000	IA
NIR	600-1160	500	600	1000	IB

Note: a selection of starting wavelength is possible, contact us for available configurations.

\* Depends on the starting wavelength of the grating; the higher the wavelength, the bigger the dispersion and smaller the range to select

\*\* Please note that not all pixels will be used for the useable range

**MORE DATA ON THE NEXT PAGE >**

## RESOLUTION (FWHM in nm)

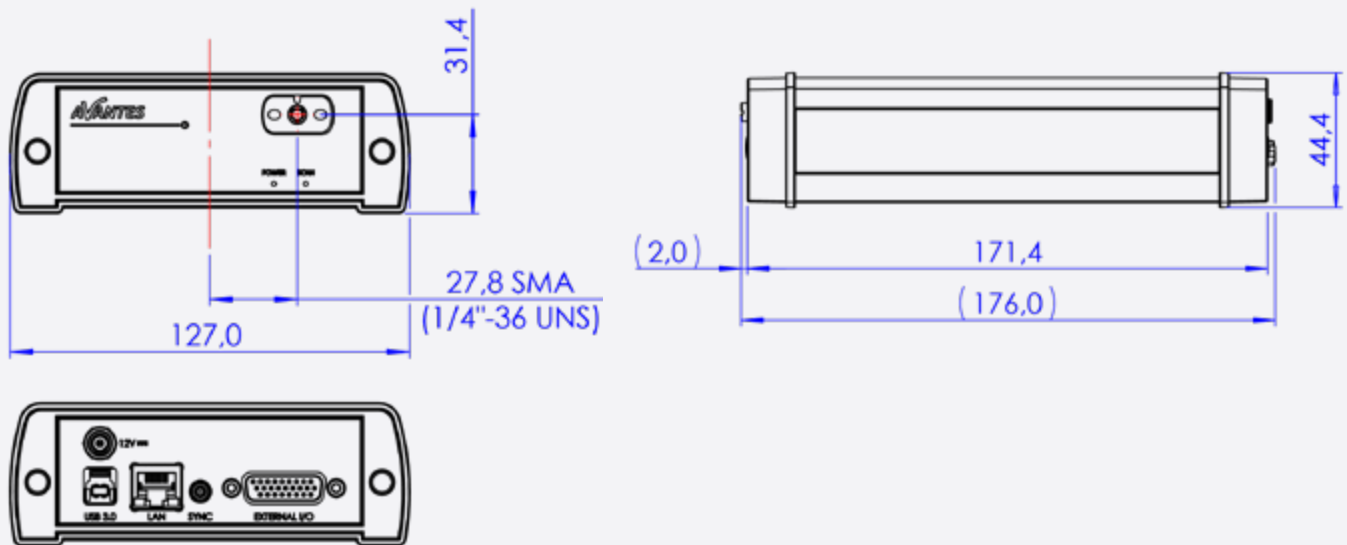
Slit size (μm)	10	25	50	100	200	500
300 lines/mm grating	1.4	1.5	2.5	4.8	9.2	21.3
600 lines/mm grating	0.75-0.80*	0.75-0.85*	1.2	2.4	4.6	10.8
830 lines/mm grating	0.42-0.48*	0.50-0.58*	0.93	1.7	3.4	8.5
1200 lines/mm grating	0.25-0.31*	0.37-0.43*	0.52-0.66*	1.1	2.3	5.4
1800 lines/mm grating	0.17-0.21*	0.26-0.32*	0.34-0.42*	0.8	1.5	3.6
2400 lines/mm grating	0.12-0.18*	0.18-0.24*	0.26-0.34*	0.44-0.64*	1.1	2.7
3600 lines/mm grating	0.09-0.12*	0.11-0.15*	0.19	0.4	0.8	1.8

\*Depends on the starting wavelength of the grating; the higher the wavelength, the bigger the dispersion and the higher the resolution.

## ORDERING INFORMATION

Order code	Ordering information
AvaSpec-ULS2048XL+	Ultra-low stray-light fiber-optic spectrometer, 75 mm AvaBench, 2048 large 500 μm pixel black-thinned CCD detector, USB powered, high-speed USB3.0 and ETH interface, incl. AvaSoft-Basic, USB interface cable. Specify grating, wavelength range and (OEM) options.

## DIMENSIONS



Dimensions in mm

**PHOTO  
TECHNICA**

[www.phototechnica.co.jp](http://www.phototechnica.co.jp)

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