

EVO Series: StarLine AvaSpec-ULS2048L-EVO Spectrometer

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Unique is the second communication port which offers Gigabit Ethernet for integration in your company network and possibility for long distance communication..

This unique, first to the market combination enables you to create high speed multichannels systems, perfectly suited for most industrial applications.

Options include a deep-UV detector coating, for better performance in the deep-

UV-range, a detector collection lens to enhance sensitivity in the 200-1100 nm range and order-sorting filter to reduce 2nd order effects. Furthermore, the AvaSpec-2048L is available with a wide range of slit sizes, gratings and fiber-optic entrance connectors.

It comes complete with AvaSoft-Basic software, USB cable and an extensive manual.

Technical Data

Optical Bench	ULS Symmetrical Czerny-Turner, 75 mm focal length
Wavelength range	200-1100 nm
Resolution	0.06 -20 nm, depending on configuration (see table)
Stray-light	0.04-0.1%, depending on the grating
Sensitivity	470,000 counts/μW per ms integration time
Detector	CCD linear array, 2048 pixels
Signal/Noise	300:1
AD converter	16-bit, 2 MHz
Integration time	1.11 ms - 10 minutes
Interface	USB 3.0 high-speed, 5 Gbps Gigabit Ethernet 1 Gbps
Digital IO	HD-26 connector, 2 Analog in, 2 Analog out, 13 Digital bidirectional, trigger, sync., strobe, laser
Power supply	Default USB3 power, 500 mA Or 12VDC, 300 mA
Dimensions, weight	177 x 127 x 44,5 mm (1 channel), 1135 grams

Timing and triggering

Sample speed with on-board averaging	1.1 ms /scan
Data transfer speed	1.1 ms/scan (USB3), 3.8 ms (ETH))
Min. Delay / Jitter	3.28 / 0.02 μs
Sample speed Store to Ram	1,05 ms

Detector specifications

Sensitivity Photons/ count @600 nm	Sensitivity in cts/μW per ms int. time	QE (%) @peak	Signal/ Noise	Dark Noise (counts RMS)	Dynamic Range
4	470,000	40%	300:1	20	3300

Grating selection table for AvaSpec-ULS2048L-EVO

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
UV/VIS/NIR	200-1100**	900**	300	300	UA
UV/VIS/NIR	200-1100**	900**	300	300/1000	UNA-DB
UV/VIS	200-850	520	600	300	UB
UV	200-750	250-220*	1200	250	UC
UV	200-650	165-145*	1800	UV	UD
UV	200-580	115-70*	2400	UV	UE
UV	200-400	70-45*	3600	UV	UF
UV/VIS	250-850	520	600	400	BB
VIS/NIR	300-1100**	800**	300	500	VA
VIS	360-1000	500	600	500	VB
VIS	300-800	250-200*	1200	500	VC
VIS	350-750	145-90*	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	600-1100**	500**	300	1000	IA
NIR	600-1100	500	600	1000	IB

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

** please note that not all 2048 pixels will be used for the useable range

Resolution table (FWHM in nm) for AvaSpec-ULS2048L-EVO

Grating (lines/mm)	Slit size (μm)					
	10	25	50	100	200	500
300	1.0	1.4	2.5	4.8	9.2	21.3
600	0.40-0.53*	0.7	1.2	2.4	4.6	10.8
830	0.32	0.48	0.93	1.7	3.4	8.5
1200	0.20-0.28*	0.27-0.38*	0.52-0.66*	1.1	2.3	5.4
1800	0.10-0.18*	0.20-0.29*	0.34-0.42*	0.8	1.6	3.6
2400	0.09-0.13*	0.13-0.17*	0.26-0.34*	0.44-0.64*	1.1	2.7
3600	0.06-0.08*	0.10	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 better the resolution

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