

VARIUS SPECTROMETER

TECHNICAL DATA

SPECIFICATIONS

	Varius 2K	Varius 4K
Optical Bench	Symmetrical Czerny-Turner design, 75 mm focal length; VRS bench	
Wavelength range	190 - 1100 nm	
Stray light	0.1 - 1% (typical value 300l/mm, blaze 300 nm < 0.3%)	
Detector	HAM S11639, CMOS linear array, 2048 pixels (14x200 μm)	HAM S13496, CMOS linear array, 4096 pixels (7x200μm)
Signal/Noise	375:1	365:1
Dynamic Range	4500	
Dark noise	15 cnts	
AD converter	16-bit, 6 MHz	
Integration time	9 μs – 30 s	
Interface	USB3.0 high speed, 5 Gbps, Gigabit Ethernet (1 Gbps)	
Sample speed on-board averaging	0.38 ms/scan	0.70 ms/scan
Data transfer speed	0.38 ms/scan (USB3), 1.0 ms (ETH)	0.70 ms/scan (USB3), 1.31 ms (ETH)
Digital I/O	HD-26 connector, 2 Analog in, 2 Analog out, 13 Digital bidirectional, trigger, sync., strobe, laser	
Dimensions, weight	183 x 130 x 45,2 mm, 1068 grams	
Power supply	Default USB3 power, 500 mA or 12 VDC, 300 mA	
Temperature range	5-55 °C	

GRATINGS

Use	Useable range (nm)	Spectral range (nm)	Lines/mm	Blaze (nm)	Order code
UV/VIS/NIR	190-1100**	910**	300	300	MN0300-0.30
UV/VIS	190-780	544-540*	600	300	MN0600-0.30
UV	190-532	261-256*	1200	250	MN1200-0.25
UV	190-472	168-152*	1800	UV	MN1800-0.25
UV	190-423	121-103*	2400	UV	MN2400-0.25
UV	190-337	72-57*	3600	UV	MN3600-0.25
UV/VIS	280-852	536-532*	600	400	MN0600-0.40
VIS/NIR	300-1100**	800**	300	500	MN0300-0.50
VIS	350-959	529-519*	600	500	MN0600-0.50
VIS	320-776	247-216*	1200	500	MN1200-0.50
VIS	360-641	147-121*	1800	500	MN1800-0.50
VIS	350-640	96-89*	2400	VIS	MN2400-0.50
NIR	480-1066	515-506*	600	750	MN0600-0.75
NIR	600-844	210-204*	1200	750	MN1200-0.75
NIR	600-1100	339-300*	830	800	MN0830-0.80
NIR	600-1100**	500**	300	1000	MN0300-1.00
NIR	600-1100	500	600	1000	MN0600-1.00

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

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RESOLUTION VARIUS 2K

Slit size (µm)	10	25	50	100	200	500
300 lines/mm grating	1.0	1.4	2.25	4.8	9.2	21.3
600 lines/mm grating	0.40-0.53*	0.7	1.2	2.4	4.6	10.8
830 lines/mm grating	0.32	0.48	0.93	1.7	3.4	8.5
1200 lines/mm grating	0.20-0.28*	0.27-0.38*	0.52-0.66*	1.1	2.3	5.4
1800 lines/mm grating	0.10-0.18*	0.20-0.29*	0.34-0.42*	0.8	1.6	3.6
2400 lines/mm grating	0.09-0.13*	0.13-0.17*	0.26-0.34*	0.44-0.64*	1.1	2.7
3600 lines/mm grating	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 higher the resolution.

RESOLUTION VARIUS 4K

Slit size (µm)	10	25	50	100	200	500
300 lines/mm grating	0.50-0.70	1.4	2.25	4.8	9.2	21.3
600 lines/mm grating	0.30-0.36*	0.7	1.2	2.4	4.6	10.8
830 lines/mm grating	0.25	0.48	0.93	1.7	3.4	8.5
1200 lines/mm grating	0.14-0.18*	0.27-0.38*	0.52-0.66*	1.1	2.3	5.4
1800 lines/mm grating	0.09-0.11*	0.20-0.29*	0.34-0.42*	0.8	1.6	3.6
2400 lines/mm grating	0.07-0.09*	0.13-0.17*	0.26-0.34*	0.44-0.64*	1.1	2.7
3600 lines/mm grating	0.05-0.06*	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 higher the resolution.

ORDERING INFORMATION

Order code	Ordering information
AvaSpec-VRS2048CL-EVO	Varius fiber-optic spectrometer, 75 mm AvaBench, 2048 pixel CMOS detector 14 x 200 µm, USB powered, high-speed USB 2.0 and ETH interface, incl. AvaSoft-Basic, USB interface cable. Specify grating, wavelength range and options (A).
AvaSpec-VRS4096CL-EVO	Varius fiber-optic spectrometer, 75 mm AvaBench, 4096 pixel CMOS detector 7 x 200 µm, USB powered, high-speed USB 2.0 and ETH interface, incl. AvaSoft-Basic, USB interface cable. Specify grating, wavelength range and options (A).
AvaSpec-VRS-OEM	Contact one of our offices for ordering information regarding the Varius OEM

CONFIGURATION DEPENDANT PARAMETERS

Order code	Parameter information
SLIT-XX-PRS	Replaceable Slit for Varius spectrometer for non OSF configurations. Slit size, please specify XX = 10, 25, 50, 100, 200, 500 µm
SLIT-XX-PRSF	Replaceable Slit for Varius spectrometer for OSF configurations. Slit size, please specify XX = 10, 25, 50, 100, 200, 500 µm
*SLIT-XX-P	Fixed Slit for Varius spectrometer. Slit size, please specify XX = 10, 25, 50, 100, 200, 500 µm
OSC	Order sorting coating for grating MN 0600-0.50
OSC-UA	Order sorting coating for grating MN 0300-0.30 / MN 0300-0.50
OSC-UB	Order sorting coating for grating MN 0600-0.50
OSF-YYY-3	Order sorting filter for reduction of second-order effects, possible: YYY = 305, 395, 457, 515, 550, or 600 nm, depending on range
DCL	Detector Collection Lens. To be included

* Only for OEM customers

Avantes will select the optimal second order suppression based on desired configuration.

PRODUCT AVAILABILITY

The Varius spectrometer will be available for purchase in Q1, 2024.

Discover all our empowering spectroscopy solutions on our website www.avantes.com
We reserve the right to make changes without prior notice. While every effort has been made to ensure all information in this document is accurate, Avantes accepts no liability for any inaccuracies.

