

Ocean Optics Spectroscopy Resolution Guide

This guide explains how to swap the slit width on the Ocean Optics spectrometers sold by Edmund Optics and how this affects resolution and speed. Please see Table 1, which shows the allowable resolution each spectrometer can achieve with different slit sizes. You can also find the model number breakdown for Ocean Optics Spectrometers below.

Slit kit: #90-591	Note that all spectrometers come with a 25 μ m slit. To change the slit width, the slit kit needs to be purchased.
<u>How to Change the Slit on a Modular Spectrometer</u>	
<p>The interchangeable design of Ocean Optics spectrometers allows users to easily swap slit sizes, a feature that previously required sending them to the manufacturer. This makes it easier to find the most efficient configuration for your application. While decreasing the slit width has benefits, it also has drawbacks. The main benefit is that resolution increases as the slit size decreases. This can be essential when precise measurements are needed. On the contrary, as the slit size decreases, light throughput also decreases, leading to longer acquisition times. This would not be ideal for applications where speed is a factor. When changing the slit size from the given 25μm one, it is also important to note that this can slightly skew wavelength calibration, but the effects would be minimal.</p>	
<p>Overall, selecting the best slit size for an application is a balancing act of the required speed and resolution. It is recommended to purchase the slit kit if it is unclear which slit size would be best for an application.</p>	



Model Number	Stock #	λ Range (nm)	Resolution in nm @ Slit Size					
			5 μ m	10 μ m	25 μ m	50 μ m	100 μ m	200 μ m
SR-2N750-XX	#90-017	570 – 860	0.54	0.61	0.84	1.33	2.36	4.34
SR-2UVV300-XX	#90-018	195 – 850	0.86	1.01	1.33	2.06	3.8	7.61
SR-2VN500-XX	#90-019	350 – 1040	0.86	1.02	1.34	2.08	3.83	7.66
SR-4UVV300-XX	#90-020	190 – 910	1.17	1.25	1.65	2.55	4.62	9.24
SR-4VN500-XX	#90-021	350 – 1040	1.17	1.25	1.65	2.55	4.62	9.24
SR-6UVV300-XX	#90-022	180 – 900	1.17	1.25	1.64	2.54	4.68	9.36
SR-6VN500-XX	#90-023	350 – 1040	1.17	1.25	1.64	2.54	4.68	9.36
HR-2N750-XX	#90-024	750 – 900	0.16	0.2	0.24	0.46	0.88	1.68
HR-2UVV300-XX	#90-025	200 – 650	0.35	0.46	0.58	0.97	1.84	3.52
HR-2VIS500-XX	#90-026	400 – 850	0.41	0.53	0.57	0.99	1.73	3.34
HR-2XR500-XX	#91-559	190 – 1100	0.71	0.84	1.13	1.97	3.76	7.19
HR-4UVV300-XX	#90-027	200 – 660	0.26	0.48	0.57	0.96	1.82	3.48
HR-4VIS500-XX	#90-028	400 – 850	0.26	0.48	0.57	0.96	1.82	3.48
HR-4XR500-XX	#91-560	190 – 1100	0.54	0.80	1.00	2.00	3.78	7.24
HR-6VIS500-XX	#90-029	400 – 840	0.35	0.46	0.58	0.97	1.84	3.54
HR-6UVV300-XX	#90-030	200 – 650	0.35	0.46	0.58	0.97	1.84	3.54
HR-6XR500-XX	#91-561	190 – 1100	0.71	0.94	1.18	1.97	3.76	7.24
QEPRO-N750-XX	#90-732	640 – 810	0.40	0.44	0.52	0.66	0.94	1.78
QEPRO-UVV300-XX	#90-733	220 – 650	0.80	0.88	1.04	1.32	1.88	3.56
NR-512-1.7-XX	#90-951	900 – 1650	N/A	2.72	2.85	4.02	6.71	13.03
NR-512-2.2-XX	#90-952	900 – 2190	N/A	3.12	4.80	5.52	10.08	18.96
NR-512-2.5-XX	#90-953	900 – 2450	N/A	4.21	6.50	7.45	13.6	29.59

Table 1 shows the resolution, in nanometers, of each Ocean Optics spectrometer Edmund Optics carries for different slit sizes. The table also holds links to the product pages of each stock number.

Ocean Optics Model Number Breakdown:

AA... - BB... CC... DD... - EE...

Applies to all Ocean Optics spectrometers Edmund Optics carries except the ST and NR series

AA: Product series

- SR - Versatile
- HR - High Resolution
- QEPRO - High Sensitivity
- NR - Near Infrared

BB: Code for which feature is optimized (Does not apply to QEPROs)

- 2 - designed to prioritize speed
- 4 - designed to prioritize resolution
- 6 - designed to prioritize sensitivity

CC: Light Spectrum

- UVV - UV and Visible
- VIS - Visible
- VN - Visible and Near Infrared
- N - Near Infrared
- XR - Extended Range

DD: Grating Blaze Wavelength (in nm)

- This is the wavelength where the efficiency of the spectrometer is at its peak.

EE: Slit size

- The opening at the entrance of the spectrometer.
- Affects the speed and resolution of the system.

Example: HR-2UVV300-25 is a versatile spectrometer for UV-Vis spectra, with a grating blaze wavelength of 300nm and a 25 μm slit.