

OEM spectrometer: AvaBench Optical Bench

AvaSpec optical benches are available with or without one of our electronics boards for integration into customer's systems. Avantes has developed four types of UV/VIS optical benches, especially for OEM customers. The optical benches AvaBench-45 (StarLine), AvaBench-75-ULS (used in both StarLine and SensLine), AvaBench-75-ULSTEC (SensLine) and AvaBench-37.5-HS (SensLine) are Czerny-Turner designs with fiber-optic entrance connectors (Standard SMA, others possible), collimating and focusing mirrors and a diffraction grating. A choice of different gratings with different dispersions and blaze angles enable applications in the 200-1100 nm range. The newly designed high numerical aperture AvaBench-37.5-HS has full mechanical compatibility for mounting holes with the AvaBench-75-ULS, so for OEM customers it is easy to upgrade to a higher-throughput optical bench.

AvaBench-75-ULS



Wavelength ranges, resolution tables, detector specifications and AvaBench options can be found in the instrument page corresponding to each spectrometer type. In the table below the detailed key specifications can be found. All AvaBench optical benches are fully compatible with Avantes electronics board or may be interfaced to customer specific electronics. Video output is handled through a separate mini-coax cable.

Technical Data

	AvaBench-45	AvaBench-75-ULS	AvaBench-75-ULSTEC	AvaBench-37.5-HS
Implemented in	AvaSpec-128	AvaSpec-ULS2048/3648/2048L/2048XL/2048x16/64	AvaSpec-ULS2048LTEC/ULS3648TEC	AvaSpec-HS1024x58/122TEC/2048XL
Focal length	45 mm	75 mm	75 mm	37.5 mm asym.
Numerical aperture	0.11	0.07	0.07	0.22
Wavelength range	350-1100 nm	200-1160 nm	200-1100 nm	200-1160 nm
Resolution (FWHM)	1.5 -64 nm	0.05 - 20 nm	0.05 - 20 nm	1.2 -20 nm
Stray-light	< 0.3%	0.04-0.1%	0.04-0.1%	<1%
Gratings	different	different	different	different
Slits	25, 50, 100, 200, 500 µm	10, 25, 50, 100, 250, 500 µm	10, 25, 50, 100, 250, 500 µm	25, 50, 100, 200, 500 µm
Detector	TAOS 128	SONY 2048(L) / TOSHIBA 3648 /HAM 2048XL/2048x16/64	SONY 2048L / TOSHIBA 3648	HAM 1024x58/122/2048XL
Detector lens	VIS, for TAOS only	UV/VIS	UV/VIS-200	n.a.
Order-sorting filter	See options	See options	See options	See options
Dimensions, weight	82 x 72 x 20 mm, 130 gr.	120 x 91 x 21 mm, 350 gr.	120 x 91 x 62 mm, 760 gr.	95 x 152 x 42 mm, 722 gr

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Ordering Information

AvaBench-45-128-U2	<ul style="list-style-type: none"> • OEM optical bench, 45 mm focal length, 128 pixel PDA detector. Specify grating, wavelength range and options.
AvaBench-75-ULS2048-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048 pixel CCD detector. Specify grating, wavelength range and options.
AvaBench-75-ULS3648-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 3648 pixel CCD detector. Specify grating, wavelength range and options.
AvaBench-75-ULS2048L-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048 pixel CCD detector. Specify grating, wavelength range and options.
AvaBench-75-ULS2048XL-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048XL pixel back-thinned CCD detector. Specify grating, wavelength range and options.
AvaBench-75-ULS2048x16-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048x16 pixel back-thinned CCD detector, specify grating, wavelength range and options
AvaBench-75-ULS2048x64-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048x64 pixel back-thinned CCD detector, specify grating, wavelength range and options
AvaBench-75-ULS2048LTEC-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, TE-cooled 2048 large pixel detector. Specify grating, wavelength range and options.
AvaBench-75-ULS3648TEC-U2	<ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, TE-cooled 3648 large pixel detector. Specify grating, wavelength range and options.
AvaBench-37.5-HS2048XL-U2	<ul style="list-style-type: none"> • OEM High-sensitivity optical bench, 37.5 mm focal length, 2048XL pixel back-thinned CCD detector, specify grating, wavelength range and options
AvaBench-37.5-HS1024x58TEC-U2	<ul style="list-style-type: none"> • OEM High-sensitivity optical bench, 37.5 mm focal length, 1024x58 pixel TE-cooled back-thinned CCD detector. Specify grating, wavelength range and options.
AvaBench-37.5-HS1024x122TEC-U2	<ul style="list-style-type: none"> • OEM High-sensitivity optical bench, 37.5 mm focal length, 1024x122 pixel TE-cooled back-thinned CCD detector. Specify grating, wavelength range and options.

The grating can only be changed by Avantes.
Therefore, choose your grating wisely.
Our application specialists are available to support you with your choice.
In general, a higher resolution means a lower bandwidth.
By combining multiple spectrometers
in our AvaSpec-Dual or rack-mountable versions,
you can create one virtual spectrometer with high-resolution
and high bandwidth.