

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 different types of UV/VIS optical benches, especially for OEM customers. The optical benches AvaBench-75-ULS (used in both StarLine and SensLine), AvaBench-75-MN (CompactLine), AvaBench-75-ULSTEC (SensLine), AvaBench-37.5-HS (SensLine) and AvaBench-100-HSC (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 200-1160 nm range.

Our new miniature bench is perfect for OEM integration in existing systems and handheld devices. The high numerical aperture AvaBench-37.5-HS has full mechanical compatibility for mounting holes with the AvaBench-75-ULS, which makes it easy for OEM customers 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 boards or may be interfaced to customer specific electronics. Video output is handled through a separate mini-coax cable.

	AvaBench-75-ULS	AvaBench-75-MN	AvaBench-75-ULSTEC	AvaBench-37.5-HS	AvaBench-100-HSC
Implemented in	AvaSpec-ULS2048/3648/2048L/2048CL/4096CL/2048XL/2048x64	AvaSpec-Mini2048CL/4096CL	AvaSpec-ULS2048LTEC	AvaSpec-HS1024x58/2048XL	AvaSpec-HERO
Focal length	75 mm	75 mm	75 mm	37.5 mm asym.	100 mm
Numerical aperture	0.07	0.07	0.07	0.22	0.13
Wavelength range	200-1160 nm	200-1100 nm	200-1100 nm	200-1160 nm	200-1160 nm
Resolution (FWHM)	0.05 – 20 nm	0.05 – 20 nm	0.05 – 20 nm	1.2 –20 nm	0.18 – 5.50 nm
Stray-light	0.04-0.1%	0.2-1%	0.04-0.1%	<1%	<1%
Gratings	Different	Different	Different	Different	Different
Slits	10, 25, 50, 100, 250, 500 μm	10, 25, 50, 100, 250, 500 μm	10, 25, 50, 100, 250, 500 μm	25, 50, 100, 200, 500 μm	25, 50, 100, 250, 500 μm
Detector	SONY 2048(L) / TOSHIBA 3648/HAM 2048CL/4096CL/2048XL/2048x64	HAM 2048CL/4096CL	SONY 2048L	HAM 2048XL	HAM 1024x58
Detector lens	UV/VIS	UV/VIS-200	UV/VIS-200	N.A.	N.A.
Order-sorting filter	See options	See options	See options	See options	See options
Dimensions, weight	120 x 91 x 21 mm, 350 g	95 x 68 x 20 mm, 175 g	120 x 91 x 62 mm, 760 g	95 x 152 x 42 mm, 722 g	120 x 125 x 109 mm, 1500 g

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Ordering Information

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/U3	<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-ULS2048CL-U2/U3	<ul style="list-style-type: none"> OEM ultra-low stray-light optical bench, 75 mm focal length, 2048 pixel CMOS detector. Specify grating, wavelength range and options.
AvaBench-75-ULS4096CL-U3	<ul style="list-style-type: none"> OEM ultra-low stray-light optical bench, 75 mm focal length, 4096 pixel CMOS detector. Specify grating, wavelength range and options.
AvaBench-75-ULS2048XL-U2/U3	<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-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-MN2048CL-U3	<ul style="list-style-type: none"> OEM miniature optical bench, 75 mm focal length, 2048 pixel CMOS detector. Specify grating, wavelength range* and options.
AvaBench-75-MN4096CL-U3	<ul style="list-style-type: none"> OEM miniature optical bench, 75 mm focal length, 4096 pixel CMOS 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-37.5-HS2048XL-U2/U3	<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-100-HSC 1024x58TEC-U3	<ul style="list-style-type: none"> OEM High-sensitivity optical bench, 100 mm focal length, 1024x58 pixel TE-cooled back-thinned CCD detector. Specify grating, wavelength range and options.

*A set of defined ranges applies, contact us for assistance



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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.

OEM spectrometer: AvaBench NIR Optical Bench

For OEM applications in the NIR region, Avantes offers our line of AvaBench NIR optical benches. The AvaBench-50 optical bench is available in the 1000 to 1750 nm range for uncooled detectors. New in this line is the AvaBench-100TEC: a 100 mm optical bench offering optimal balance between optical throughput and resolution. To keep the size compact, it has a unique folding mirror built into it.

All AvaBench NIR optical benches have a symmetrical Czerny-Turner designs with a fiber-optic entrance connector (standard is SMA, other options are possible), a specially designed collimating focusing mirror and a diffraction grating. A choice of different NIR gratings can be selected with the products.

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 key specifications of the NIR optical benches are listed.

The NIR AvaBenches are fully compatible with Avantes' electronics boards or may be interfaced to customer specific electronics. The NIR optical benches have a separate video output through a mini-coax cable. The TEC NIR benches have a heatsink and additional electrical connections for both temperature sensor and power for the Peltier cooling.

AvaBench-50



Technical Data

	AvaBench-50	AvaBench-100TEC
Implemented in	AvaSpec-NIR256-1.7	AvaSpec-NIR256-1.7TEC AvaSpec-NIR512-1.7TEC AvaSpec-NIR256-2.5-HSC-EVO AvaSpec-NIR512-2.5-HSC-EVO
Focal length	50 mm	100 mm
Numerical aperture	0.24	0.14
Wavelength range	1000-1750 nm	1000-2500 nm
Resolution (FWHM)	2-50 nm	1.5-90 nm
Stray-light	< 1%	< 0.5%
Gratings	different	different
Slits	50, 100, 200, 500 µm	25, 50, 100, 250, 500 µm
Detector	HAM-NIR256-1.7	SU-NIR256/512-1.7 HAM-NIR256-2.5 HAM-NIR512-2.5
TE Cooling	No	Yes
Order-sorting filter	OSF-850-3/OSF-1000-3	OSF-1000-3 and OSC-NIR
Dimensions, weight	100 x 130 x 40 mm, 875 gr.	185 x 145 x 185 mm, 3.5 kg.

Ordering Information

AvaBench-50-NIR256-1.7	• OEM optical bench, 50 mm focal length, 256 pixel InGaAs detector. Specify grating, wavelength range and slit, OSF-850-3 or OSF-1000-3.
AvaBench-100-NIR256-1.7TEC	• OEM optical bench, 100 mm focal length, 256 pixel TE-cooled InGaAs detector. Specify grating, wavelength range and slit, OSF-850-3 or OSF-1000-3.
AvaBench-100-NIR512-1.7TEC	• OEM optical bench, 100 mm focal length, 512 pixel TE-cooled InGaAs detector. Specify grating, wavelength range and slit, OSF-850-3 or OSF-1000-3.
AvaBench-100-NIR256-2.5TEC	• OEM optical bench, 100 mm focal length, 256 pixel TE-cooled InGaAs detector 2.5 µm. Specify grating, wavelength range and slit, OSF-1000-3, OSC-NIR.
AvaBench-100-NIR512-2.5TEC	• OEM optical bench, 100 mm focal length, 512 pixel TE-cooled InGaAs detector 2.5 µm. Specify grating, wavelength range and slit, OSF-1000-3, OSC-NIR.

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AVANTES
enlightening spectroscopy

AvaBench-75-MN2048CL/4096CL

Small and Powerful OEM Spectrometer Bench

New: the AvaBench-75-MN optical bench!
This miniature bench is used in the CompactLine (AvaSpec-Mini2048CL/4096CL) and is ideal for OEM integration in existing systems and handheld devices with the use of your own electronics.

In the tables below, the detailed key specifications can be found.
The AvaBench optical bench is fully compatible with Avantes' AS-7010 electronics board or may be interfaced to customer specific electronics. Video output is handled through a separate mini-coax cable.

AvaBench-75-MN



	AvaBench-75-MN2048CL-U3	AvaBench-75-MN4096CL-U3
Optical Bench	Symmetrical Czerny-Turner, 75 mm focal length, MK II	
Wavelength range	200-1100 nm	
Stray-light	0.2 - 1%	
Detector	HAM S11639 , CMOS linear array, 2048 pixels (14 x 200 µm)	HAM S13496 , CMOS linear array, 4096 pixels (7 x 200 µm)
Signal/Noise	330:1 (i.c.w. AS7010 electronics)	300:1 (i.c.w. AS7010 electronics)
Dynamic Range	3300 (i.c.w. AS7010 electronics)	
Dark Noise	16 cnts (i.c.w. AS7010 electronics)	
Interface	Coax, ZIF-8	
Dimensions, weight	94 x 67 x 19 mm, 164 grams	
Temperature range	0-55°C	

Ordering Information

AvaBench-75-MN2048CL-U3

- OEM miniature optical bench, 75 mm focal length, 2048 pixel CMOS detector. Specify grating, wavelength range* and options

AvaBench-75-MN4096CL-U3

- OEM miniature optical bench, 75 mm focal length, 4096 pixel CMOS detector. Specify grating, wavelength range* and options

*A set of defined ranges applies, contact us for assistance

More Information

Grating options and resolution specifications are equal to the AvaSpec-Mini2048CL/4096CL. More details can be found in the AvaSpec-Mini-MKII OEM manual.



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