

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-75-ULS (used in both StarLine and SensLine), AvaBench-75-ULSTEC (SensLine) and AvaBench-37.5-HS 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 200-1100 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.

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.

AvaBench-75-ULS



Technical Data

| | 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(TEC) | 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 gr. | 95 x 68 x 20 mm, 175 gr | 120 x 91 x 62 mm, 760 gr. | 95 x 152 x 42 mm, 722 gr | 120 x 125 x 109 mm, 1500 gr |

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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-U3 | <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-ULS2048x64TEC-U3 | <ul style="list-style-type: none"> • OEM ultra-low stray-light optical bench, 75 mm focal length, 2048x64 pixel back-thinned cooled 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. |

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.