OEM spectrometer: AvaBench NIR Optical Bench

For OEM applications in the NIR range, Avantes offers our line of AvaBench NIR optical benches.

The AvaBench-50 optical bench is available in the 1000-1750 nm range for uncooled detectors.
The AvaBench-100TEC is developed for the NIR range from 1000-2500 nm with thermoelectric cooling. The AvaBench-100TEC supports two different TE-cooled detectors with 256 pixels and two TE-cooled detectors with 512 pixels. The 100 nm focal length optical bench provides the optimal balance between optical throughput and resolution. To keep the size as compact as possible, this bench features a unique folding mirror.
New in the NIR line of optical benches is the AvaBench-75-MN, offering a unique small form factor in the NIR range.

All AvaBench NIR optical benches have symmetrical Czerny-Turner designs with a fiber-optic entrance connector (standard SMA, other options available), collimating and a special designed focusing mirror and diffraction grating. A choice of different NIR gratings can be selected for all models.

Wavelength ranges, resolution tables, detector specifications and AvaBench options can be found on the pages 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 electronic 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 temparature sensor and power for the 2-stage Peltier cooling.

AvaBench-50

Technical Data

	AvaBench-50	AvaBench-75-MN	AvaBench-100TEC
Implemented in	AvaSpec-NIR256-1.7	AvaSpec-Mini-NIR	AvaSpec-NIR256-1.7TEC AvaSpec-NIR512-1.7TEC AvaSpec-NIR256-2.5-HSC-EVO AvaSpec-NIR512-2.5-HSC-EVO
Focal length	50 mm	75 mm	100 mm
Numerical aperture	0.24	0.07	0.14
Wavelength range	1000-1750 nm	900-1750 nm	1000-2500 nm
Resolution (FWHM)	2-50 nm	2-50 nm	1.5-90 nm
Stray-light	< 1%	< 1%	< 0.5%
Gratings	different	different	different
Slits	50, 100, 200, 500 µm	50, 100, 200, 500 µm	25, 50, 100, 250, 500 µm
Detector	HAM-NIR256-1.7	HAM-NIR256-1.7	SU-NIR256/512-1.7 HAM-NIR256-2.5 HAM-NIR512-2.5
TE Cooling	No	No	Yes
Order-sorting filter	OSF-850-3/OSF-1000-3	OSF-850-3/OSF-1000-3	OSF-1000-3 and OSC-NIR
Dimensions, weight	100 x 130 x 40 mm, 875 gr.	95 x 68 x 20 mm, 175 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-Mini-NIR256-1.7	• OEM optical bench, 75 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.