

High-performance fiber-optic spectrometer for OEM volumes

VS7000-CCD-HS Miniature CCD Spectrometer

High Speed

- UV-VIS (200–860 nm), VIS (380–750 nm), and UV-NIR (200–1050 nm)
- High-speed electronics (770 spectra/s)
- High throughput ($f/2.8$)
- Ultra-low stray light
- Ideal for industrial low-light applications such as fluorescence, emission, absorbance, and reflectance.

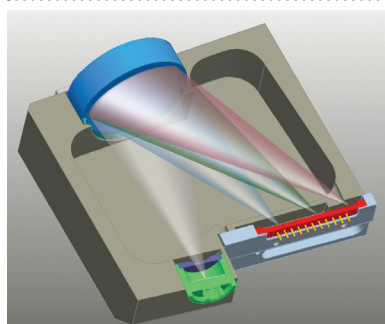


Available for OEM customers only

Feature

Spectroscopy Benefits for OEMs

Most popular UV-VIS range	Excellent peak symmetry in a miniature grating spectrometer
High readout speed	1.3 ms maximum readout speed (770 spectra/s)
Advanced electronics	Low noise; high linearity (raw) and linearity-correction
Back-illuminated linear CCD	QE = 63% at 250 nm; 76% at 650 nm; 55% at 850 nm
High signal-to-noise ratio	Highest full well/signal-to-noise ratio of any uncooled CCD mini-spectrometer
USB 2.0 high and full-speed	Standard connection interfaces to PCs with 100% data integrity
Order-sorting filter	Eliminates second-order interference
Windows® acquisition software and LabVIEW™ VIs and DLLs available	Software to integrate VS7000 as an OEM component
Sturdy single-optic design	Excellent light purity, with concave grating design
No moving parts or shutter	Excellent reliability for OEM integration



Concave-grating mini-spectrometer for
UV-VIS
VIS
UV-NIR



Specifications*

This VS7000-CCD-HS system for industrial applications uses a modified VS70 optical engine optimized for UV-VIS.

Spectral coverage	UV-VIS (200–860 nm), 250 nm optimized grating, built-in order-sorting filter VIS (380–750 nm), VIS-blazed grating, built-in long-pass filter UV-NIR (200–1050 nm), dual-blaze grating, built-in order-sorting filter
Numerical aperture	f/2.8
Stray-light rejection Typical (Maximum)	0.01% (0.02%) for UV-VIS configuration with 300 μ m tall CCD, measured at 700 nm (measured with broad bandpass 510 nm filter, 75 μ m slit-width) >2.4 AU linear range (5% variation) with caffeine 273 nm absorption peak in 10 mm cuvette and D ₂ lamp
CCD detector Typical QE	Back-illuminated CCD with low etaloning in NIR 65% peak QE in UV
Detector height Fiber-optic option	300 μ m CCD height standard (1000 μ m optional) 600 μ m dia., 1.5 m long fiber-optic (for 1 mm tall CCD, prefer 800–1000 μ m dia.)
Thermoelectric stabilization	None. Dark current and CCD-pattern noise must be subtracted. User must switch off light source or install manual shutter in optical path.
Spectral resolution Pixel resolution Slit (factory configuration)	UV-VIS: 75 μ m slit, 2048 pixels, 2.7 nm resolution; 0.33 nm/pixel (configuration with 300 μ m tall CCD) Available slits: 12-25-37-50-62-75-100-125-150-200 μ m (contact us for other gratings)
Improved CCD full well Raw non-linearity Factory-corrected non-linearity	>200 ke ⁻ <1.5% <0.4%
Typical dynamic range	6000:1
A/D converter	16 bit, 2 MHz (pixel rate)
Typical dark current	1.3 counts/ms at 20°C (room temp.); typical offset = 1000 counts
Typical readout noise	35 e ⁻ (maximum = 45 e ⁻) RMS
Readout speed max	1.1 (1.3) ms; 890 (760) spectra/s with 0 ms exposure time with respectively 300 μ m (1000 μ m) CCD height
Typical signal-to-noise ratio	450:1 (shot-noise-limited conditions)
Gain selection	3 e ⁻ /count
Dimensions (H × W × D)	2.9" × 4.1" × 4.3" (73.0 mm × 103.2 mm × 109.4 mm)
Weight	1.8 lb (0.82 kg)

*Specifications, form factor, and spectrometer cover subject to change without notice.

- Acquisition software included (LabVIEW™ 2011 only)
- VIs and top-level code are provided for customization
 - Handles acquisition and signal-processing (smoothing, absorbance, transmittance, etc.)
 - Save data to Excel® or text file
 - On-board spectral calibration
 - Option to gain access to corrected linearity (done at factory for each chip)
 - On-board or software averaging and pixel-binning

No LabVIEW™ license is needed to run our acquisition software. LabVIEW™ license ver. 2011 required to edit our code. No code customization supported in price.

Gratings and OEM Spectrometers Division
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