High-performance fiber-optic spectrometer for OEM volumes

- 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.

**Feature** | **Spectroscopy Benefits for OEMs**
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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

High Speed

Available for OEM customers only

Explore the future
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
- 0.01% (0.02%) for UV-VIS configuration with 300 µm tall CCD, measured at 700 nm
- (measured with broad bandpass 510 nm filter, 75 µm slit-width)
- >2.4 AU linear range (5% variation) with caffeine 273 nm absorption peak in 10 mm cuvette and D2 lamp

### CCD detector
- Back-illuminated CCD with low etaloning in NIR

### Detector height
- 300 µm CCD height standard (1000 µm optional)

### Fiber-optic option
- 600 µm dia., 1.5 m long fiber-optic (for 1 mm tall CCD, prefer 800–1000 µm 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
- UV-VIS: 75 µm slit, 2048 pixels, 2.7 nm resolution; 0.33 nm/pixel
- (configuration with 300 µm tall CCD)

### Pixel resolution
- Available slits: 12-25-37-50-62-75-100-125-150-200 µm (contact us for other gratings)

### Improved CCD full well
- >200 ke–

### Raw non-linearity
- <1.5%

### Factory-corrected non-linearity
- <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 µm (1000 µm) 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)

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

### Typical Quantum Efficiency at Ambient Temperature

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**Gratings and OEM Spectrometers Division**

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