HORIBA Scientific

ELEMENTAL ANALYSIS
FLUORESCENCE
GRATINGS & OEM SPECTROMETERS
OPTICAL COMPONENTS
PARTICLE CHARACTERIZATION
RAMAN
SPECTROSCOPIC ELLIPSOMETRY
SPR IMAGING

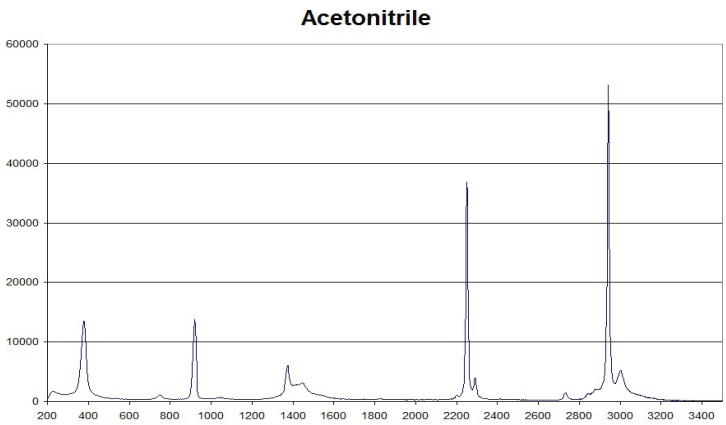
Raman CCD spectrometer with high sensitivity and dynamic range for OEM Raman hand-held applications

MINI-CCT+ Mini Raman Spectrometer

- High throughput (f/3.1)
- Three Raman laser ranges: 532 nm, 660 nm, and 785 nm
- Ultra-miniaturization with CCD USB 2.0 electronics
- 7000:1 dynamic range
- SMA or permanent fiber-optic connection
- VIS- or NIR-optimized back-illuminated CCD
- CCT optical layout (Crossed-Czerny-Turner)

Available for OEM customers only

Feature	Spectroscopy Benefits for OEMs
Raman range with 785 nm	210 to 2700 cm^{-1} coverage
High dynamic range	7000:1 with low readout-noise of 35 e^-
Back-illuminated linear CCD	QE = 77% at 600 nm; 55% at 850 nm with VIS-optimized (NIR-optimized option: yields 75% QE at 850 nm)
USB 2.0 high and full-speed	Standard connection interfaces to PCs with 100% data integrity
Windows® acquisition software and LabVIEW™ VIs and DLLs available	Software to integrate MINI-CCT+ as an OEM component
No moving parts or shutter	Excellent reliability for OEM integration



Visit www.OEMRaman.com to select Raman laser sources and miniature probes to build a Modular OEM Raman System

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MINI-CCT+
OEM Mini-Raman Spectrometer

Specifications*

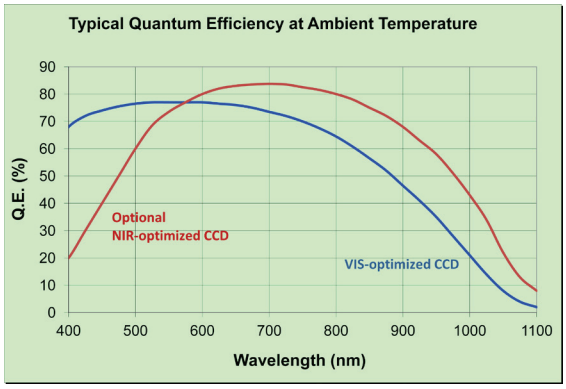
Patented!

Spectral coverage	With 532 nm laser: 210 to 3500 cm^{-1} With 660 nm laser: 400 to 3150 cm^{-1} With 785 nm laser: 210 to 2700 cm^{-1}
Numerical aperture	*f*/3.1
Stray-light rejection *Typical (Maximum)*	0.1% (0.2%) (measured with bandpass filter 780BP10)
CCD detector Typical QE	Back-illuminated CCD with low etaloning in NIR 55% peak QE at 850 nm (VIS optimized)
Detector height Fiber-optic option	300 µm CCD height standard (1000 µm optional) 200 or 300 µm dia., 1 m long fiber optic (for 1 mm tall CCD, RTS bundle is offered)
Thermoelectric stabilization	None. Dark current and CCD-pattern noise must be subtracted. User must switch off laser or install manual shutter in optical path. QE shifts slightly with temperature.
Spectral resolution Pixel resolution Slit (factory configuration)	785 nm configuration; 25 µm slit; 2048 pixels; 8–12 cm^{-1} resolution; 0.19 nm/pixel (configuration with 300 µm tall CCD) Available slits: 12-25-37-50-62-75-100-125-150-200 µm (contact us for other gratings)
Improved CCD full well Raw non-linearity Factory-corrected non-linearity	>250 ke^- (sensitivity mode) <1% (sensitivity mode) <0.4% (sensitivity mode)
Typical dynamic range	7000:1 in sensitivity mode
A/D converter	16 bit, 500 kHz (pixel rate); optional 2 MHz VIS-CCD
Typical dark current	1 count/ms at 20°C (room temp.); typical offset = 1000 counts
Typical readout noise	35 e^- (max = 45 e^-) in sensitivity mode (4 e^-/count)
Readout speed	8.6 ms (500 kHz mode); 116 spectra/s with 0 exposure time (Multi-Acq mode) Max: 4.5 ms (Ultra mode); 223 spectra/s with 0 exposure time (Multi-Acq mode)
Gain selection	4 e^-/count and 6 e^-/count
Dimensions (H × W × D)	4" × 2.71" × 1.49" (101.6 mm × 68.8 mm × 37.8 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 customer customizations
- Access to data with raw CCD linearity and corrected linearity done at factory for each CCD chip
- CCD settings and dark-subtract
- On-board or software averaging
- Scale selection between pixel, wavelength, and wavenumber
- On-board spectral calibration
- Linearity correction on/off
- Save function to Excel® or text file

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.



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