

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

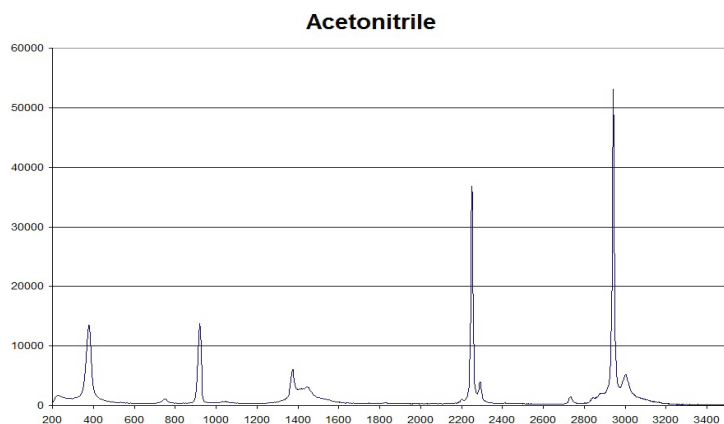
MINI-CCT+ Mini Raman Spectrometer



Available for OEM customers only

- 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)

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



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)

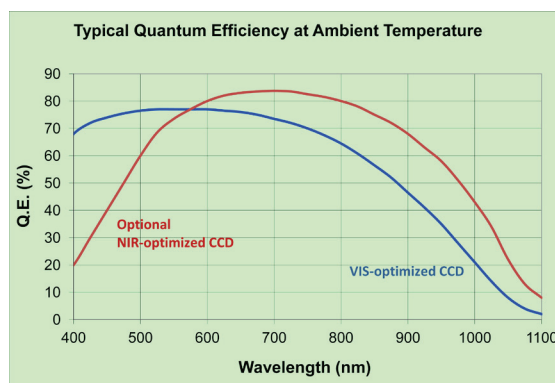
*Specifications, form factor, and spectrometer cover subject to change without notice.

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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