



# QE Pro

## High Performance Spectrometer

The sensitivity and large dynamic range of the QE Pro combine to make it the highest-performance miniature spectrometer in its class. Absorption, reflectance, fluorescence and Raman measurements all benefit from the superior performance of the QE Pro. For advanced measurements, a 15,000 spectra buffer ensures data integrity at high collection rates and an advanced optical design and thermoelectric cooler combine to provide thermal stability over long-term measurements. Whether for high speed or wide concentration range measurements, the QE Pro brings exceptional performance to your lab or process application.





## At a Glance

**Wavelength range:** Configurations support the range of 185–1100 nm

**Interchangeable slits:** Multiple widths from 5  $\mu\text{m}$ –200  $\mu\text{m}$ ; SMA/FC bulkhead with no slit also an option

**Optical resolution:** 0.14–7.7 nm FWHM (depends on grating and size of entrance aperture)

**System SNR:** 1000:1

**A/D resolution:** 18 bit

**Dynamic range:** 85,000 (typical)

**Stray light:** <0.08% at 600 nm; 0.4% at 435 nm

**Buffering:** 15,000 spectra

**TEC:** Cooling to  $-40\text{ }^{\circ}\text{C}$  below ambient  $-40\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$  temperature limits

**Internal shutter (optional):** Actuation time: 11 ms; signal attenuation 0 dB (100% attenuated)

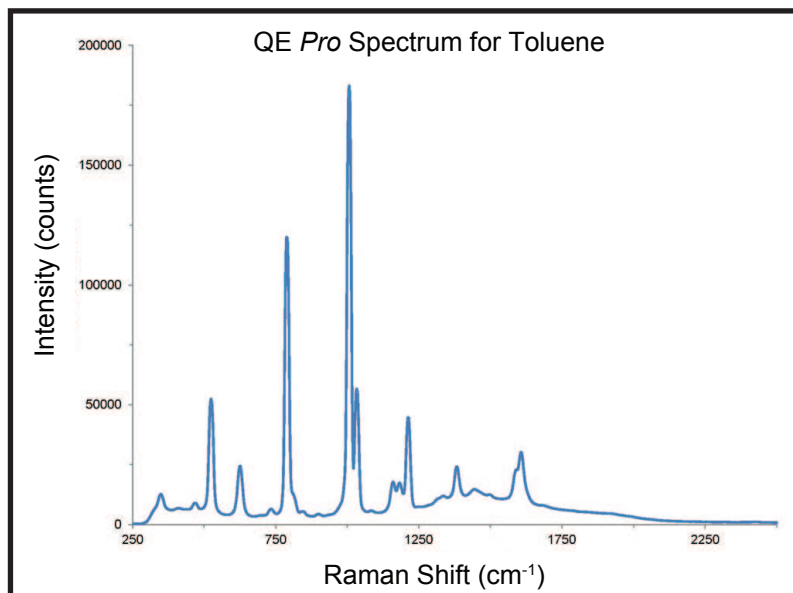


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Contact an Ocean Optics Application Scientist for details and pricing

## Wide Dynamic Range

Low-noise electronics and an 18 bit A/D converter double the QE Pro's dynamic range and increase its sensitivity by a factor of two compared with typical back-thinned CCD array miniature spectrometers. These enhancements drive applications benefits such as improved lower limit of detection for both absorption and fluorescence measurements, and enable measurements over a wider concentration range.



The high-sensitivity QE Pro is a good option for measuring the Raman shift of aromatic hydrocarbons such as toluene.

## Buffering for Fast Measurements

To support fast, full-spectrum data acquisition, the onboard buffer stores up to 15,000 spectra. This maintains data integrity by buffering time stamped spectra for USB communications. Buffering enables full-spectrum kinetics measurements to be performed every 8 milliseconds or 125 measurements per second.

## Reliable Performance

Thermoelectric cooling (TEC) precisely controls the temperature of the detector. Cooling the detector dramatically reduces the effect of thermal noise and improves overall the stability of the detector for lengthy measurements. The TEC in the QE Pro holds data stability to 4 dark counts over a  $60\text{ }^{\circ}\text{C}$  ambient temperature range, giving you the highest quality data. This stability performance makes the QE Pro ideal for demanding online and at-line quality control measurements susceptible to temperature changes.

Kinematic mounts are used to position the optical elements of the QE Pro to increase accuracy and reliability. New RS-232 communication protocols allow the QE Pro firmware to be updated in the field, ensuring you have the most up-to-date product.

Contact an application sales engineer today to find out more.



[www.oceanoptics.com](http://www.oceanoptics.com) | [info@oceanoptics.com](mailto:info@oceanoptics.com)

US +1 727-733-2447 EUROPE +31 26-3190500 ASIA +86 21-6295-6600

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