



SCIENTIFIC GRADE SPECTROMETER (QEPRO) SPECTROMETERS



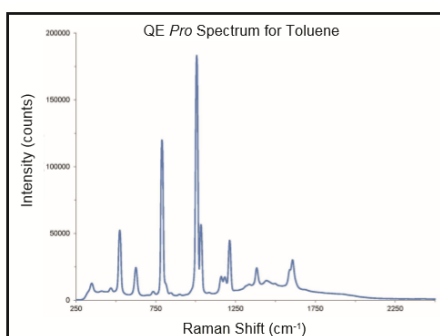
The scientific grade spectrometer

The QEPRO is the most sensitive spectrometer ocean optics has ever developed. This scientific grade spectrometer is especially well suited for low light level and advanced measurements, such as absorption, reflectance, Raman spectroscopy and fluorescence.

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. Buffering enables full-Spectrum kinetics measurements to be performed every 8 milliseconds or 125 measurements per second.

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.

Applications

- Medical diagnosis
- Material identification
- Polymerisation monitoring
- Thin-film reflectivity
- Corrosion studies
- Bio analysis
- Astronomy research

Features

- Wavelength range: 185-1100 nm
- Buffering : 15,000 spectra
- TEC: Cooling to -40°C below ambient
- -40°C to +50°C temperature limits
- Back-thinned 2d fT-ccd detector
- Thermoelectric cooling
- High-speed electronics
- Onboard programmable micro-controller
- 10 user-programmable digital inputs/outputs

Specifications

DETECTOR	
Type	Back-thinned 2d ccd detector
Detector range	185 – 1100 nm
Active pixels	1024 x 58
Pixel size	24.6 μm^2
Pixel well depth	1000 Ke-
Peak QE	90%
QE @ 250 nm	65%
Sensitivity	~ 0.065 counts / e-
SPECTROSCOPIC	
Wavelength range	max. 825 nm
Optical resolution	~ 0.14 - 7.7 nm (fWhm)
Signal-to-noise ratio	1000 : 1
Dark noise	3 rms counts
Dynamic range	25000 : 1
Integration time	8 ms - 15 minutes
OPTICAL BENCH	
Design	f/4, symmetrical crossed czerny-Turner
Focal length	101.6 mm input and output
Entrance aperture	5, 10, 25, 50, 100 or 200 μm
Grating options	14 different grating options, UV through shortwave nir
Fibre optic connector	SMA 905 to 0.22 numerical aperture single-strand optical fibre
PHYSICAL	
Dimensions	182 x 110 x 47 mm
Weight	1.18 kg (without power supply)
ELECTRONICS	
Power consumption	500 mA @ 5 VDC no TE cool; 3.5 A @ 5 VDC with TE cool
Data transfer speed	Full spectrum every 7 ms with USB2.0
Inputs/Outputs	10 onboard digital user-programmable GPIOs
Temperature & Thermoelectric (TE) COOLING	
Temperature limits	0°C to 50°C for spectrometer, no condensation
Temperature range	13°C maximum range between the high and low
Lowest set point	40°C below ambient, to -15°C
Stability	± 0.1 °C of set temperature in ≤ 2 minutes
COMPUTER	
Operating systems	Windows, mac os, Linux
Computer interfaces	USB 2.0 @ 480 mbps; rs-232 (2-wire) @ 115.2 K baud
Peripheral interfaces	SPI (3-wire); i2c integrated circuit



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