sales@pembrokeinstruments.com

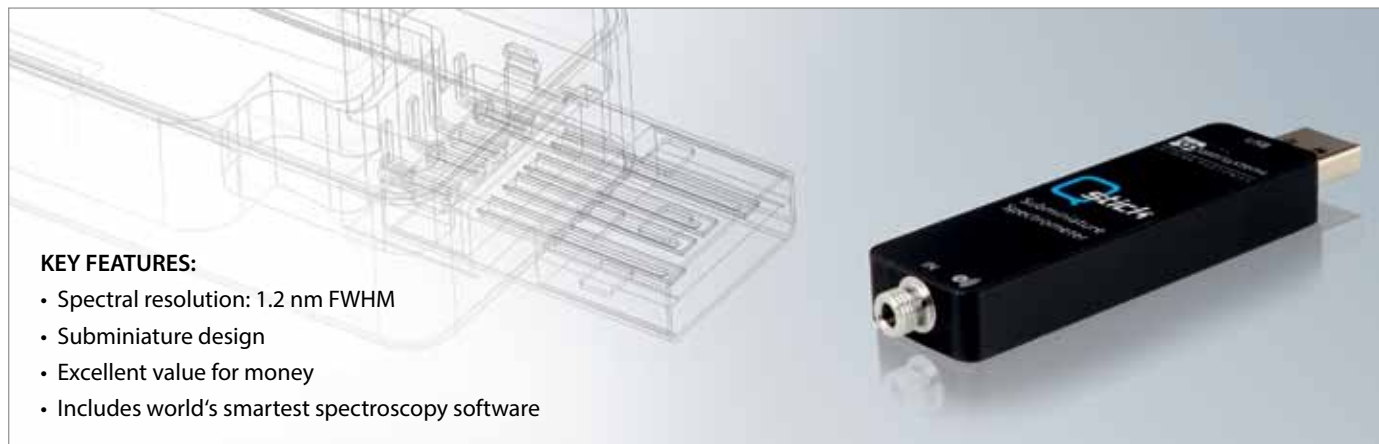## lasersystems

LEADING PHOTONICS

Qstick

THE WORLD'S FIRST USB STICK SPECTROMETER

KEY FEATURES:
- Spectral resolution: 1.2 nm FWHM
- Subminiature design
- Excellent value for money
- Includes world's smartest spectroscopy software

The Qstick is the world's first USB stick spectrometer. In an incredibly small housing, it includes a complete scientific-grade spectrometer. With a resolution of 1.2 nm across the full visible spectrum, it's the perfect companion to your laptop for portable spectroscopy.

You don't even need your own laptop: the Qstick includes a USB flash drive with device drivers and application software. So just plug it into any PC, install the software from the device and you're ready to go. Afterwards, you can store your measurements on the Qstick flash drive for later evaluation.
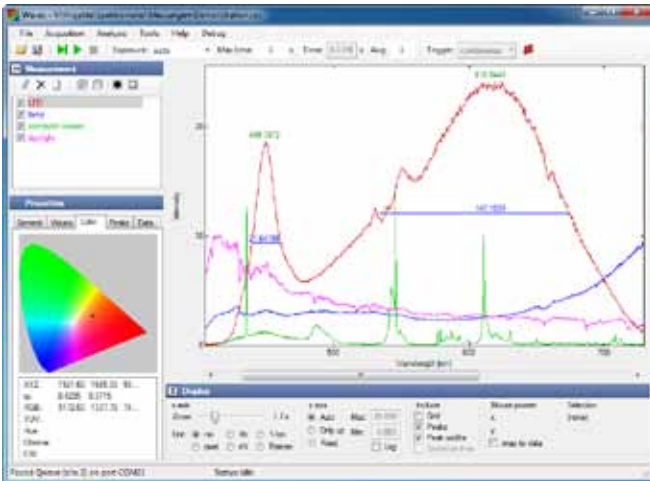
The Qstick is delivered in a water- and dustproof protection case that also includes a 1.2 m optical fiber with SMA 905 connectors and a printed user manual.

	Specifications
Wavelength range	360 - 740 nm
Entrance slit	30 µm
Spectral resolution	1.2 nm
Dynamic range	> 300 : 1 (full scale, t_{exp} = 1 s)
Stray light	0.5 %
Numerical aperture	0.07
Exposure time range	5 µs to 30 s
Detector	2500 pixel linear CCD detector
Calibration	Wavelength, sensitivity and multiple dark spectra stored within device
Transfer speed to PC	20 ms per spectrum
Optical interface	SMA connector
Digital Interface	USB 2.0
Dimensions	85.7 × 22.0 × 10.0 mm (technical drawing available on our website)
Weight	25.0 g
Operating temperature	-15 °C to 60 °C (non-condensing)
Storage temperature	-25 °C to 70 °C
Power consumption	5 V DC, 150 mA (supplied via USB, no power adapter required)
PC operating system	Windows 7, Vista, XP

Waves

Every Qwave spectrometer includes Waves, the smartest general-purpose spectroscopy software on the planet. Waves not only includes unique sophisticated algorithms for data aquisition and evaluation, it also provides these features through a clear and straightforward user interface that's designed to make things easy.

Software features include:
• Take and display series of spectra
• Automatic exposure control with dark spectrum interpolation
• Import most ASCII-based file formats
• Export as ASCII table to almost any numerical analysis software
• Comprehensive tools for displaying and analyzing spectra
• "Strip charts" for comparing characteristic values between multiple spectra including peak follower in real time
• Graph printing and export to PDF
• Dynamic peak finder (no need to set a threshold level)
• Automated wavelength calibration
• Dark spectrum interpolation
• Transmission, absorption and reflection measurements
• Colorimetry

All spectrum evaluation options are available with as little mouse clicks as possible. To zoom in, just move the zoom slider. To move around, just move the scrollbar. To change the x axis unit, just click the corresponding button. There is no step two. For some features, there is not even a step one: values such as peaks or colorimetry are instantly calculated as soon as you take a spectrum.

There is just one version of Waves that includes all features, and it's free. No license fees, no need to buy additional packages, no hassle with copy protection. Waves is available for download from our website.

A software development kit (SDK) is also included to control the spectrometer and take spectra from your own software. It consists of a Windows DLL library for the .NET framework, documentation and sample code. The SDK can be used with any programming languange that can connect to .NET DLLs, including C#, Visual Basic .NET, C++/CLI, Delphi, LabVIEW, Matlab and Mathematica.

Need more performance? Check out the Qwave and Qmini spectrometers. All data sheets are available for download from our website.

Applications

• Field measurements
• Chemical analysis
• Solar measurements
• Environmental analysis
• Colorimetry
• Education

laser systems

LEADING PHOTONICS

Waves

OUTSTANDING
SPECTROSCOPY
SOFTWARE

Waves was designed from the ground up to provide a clean and straightforward user interface that does not stand in your way, without compromising advanced features or precision. Waves not only includes unique sophisticated algorithms for data aquisition and evaluation. It provides these features through a clear and straightforward user interface that's designed to make things easy.
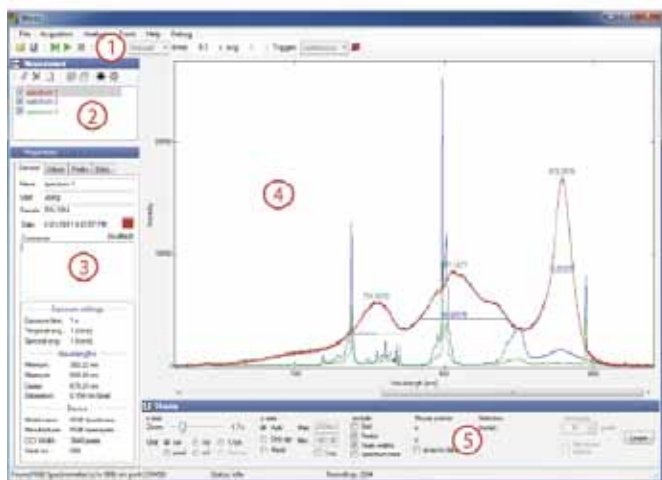
The main window consists of several panels:

1. The Exposure Toolbar, where you can start and stop taking spectra and set the acquisition parameters.

2. The Spectrum List shows all spectra that are currently in memory.

3. The Properties Panel consists of four tab pages and displays many parameters and values of the spectrum currently selected in the Spectrum List.

4. The Main Diagram Panel shows all spectra marked with a check mark in the list.

5. The Display Parameters Panel determines how the spectra are displayed.

Pre Calibrated

The calibration for wavelengths, dark spectra and spectral sensitivity has been done during the production of the spectrometer and is stored on the device. It will be loaded automatically during device initialization. So in contrast to almost any other spectroscopy software, you don't need to worry about taking dark spectra and other calibration parameters, it's all done automatically. Nevertheless you can recalibrate all those values on purpose.

Intelligent Workflow

All spectrum evaluation options are available with as little mouse clicks as possible. To zoom in, just move the zoom slider. To move around, just move the scrollbar. To change the x axis unit, just click the corresponding button. There is no step two. For some features, there is not even a step one: values such as peaks or colorimetry are instantly calculated as soon as you take a spectrum.

Ease of use

Taking Spectra is an easy process. You can use automatic or manual modes, with or without sensitivity, dark spectra or background noise correction. You can capture and/or display multiple spectra at once with automatic peak determination or display single wavelengths for statistical data. Display parameters can be changed to turn the focus to important areas of the spectrum, without changing any spectrum value.

Before measuring absorption, reflection or transmission spectra, you can take all kinds of reference spectra (light, background, refection) and use them to improve your measurement.

Import/Export

Spectrum data will be exported in a simple ASCII table file format. This allows the spectrum files saved by Waves to be read by almost any numerical analysis software like Origin, Excel or Matlab. In Waves, you can also open spectrum data files written by other applications, if they are saved as ASCII tables or .csv files. Waves tries its best to automatically determine the file structure and is able to open many different file formats.

Specification

Software features include:
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- Export as ASCII table to almost any numerical analysis software
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