



#### KEY FEATURES:

- Spectral resolution from 0.2 nm
- High sensitivity
- Exceptional thermal stability
- Includes world's smartest spectroscopy software

With its focal length of 75 mm, the Qwave offers technical specifications that you would normally expect to find in much larger spectrometers. Combined with our unique spectroscopy software "Waves" (see next page), it's the ideal spectroscopic instrument for all scientific applications that require a resolution of 0.2 to 0.5 nm and a numerical aperture of up to 0.10.

#### Applications

- Light analysis
- Chemical research
- Raman spectroscopy
- Forensic analysis
- System integration
- Process control and monitoring

#### Configurations

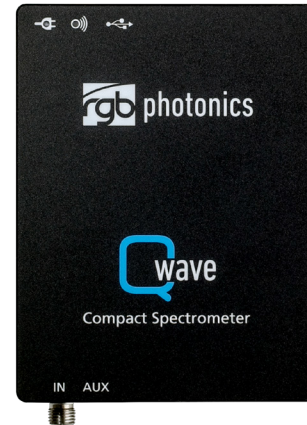
The Qwave is available in 3 standard configurations:

- UV: 220 - 400 nm
- VIS: 350 - 880 nm
- NIR: 700 - 1040 nm

#### Options

- Custom wavelength ranges and gratings
- Custom entrance slits
- RS-232 serial interface
- Custom optical connectors
- I/O port adapter
- Detector collection lens
- Custom optical filters

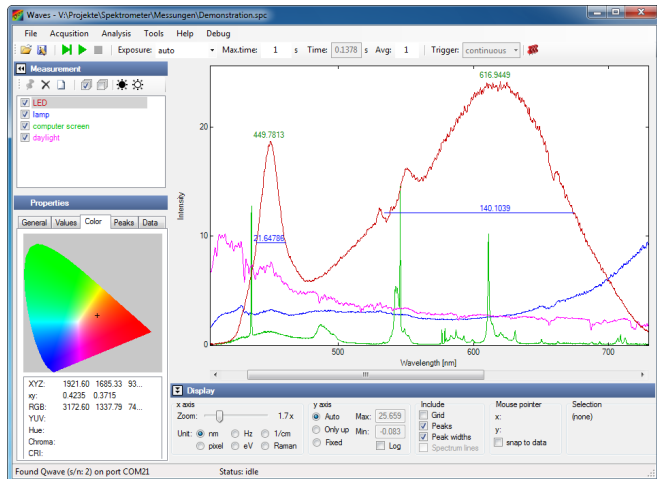
COMPACT USB SPECTROMETER  
COMBINING EXCELLENT TECHNICAL SPECIFICATIONS  
WITH OUTSTANDING SPECTROSCOPY SOFTWARE



	Specifications
Focal length	75 mm
Grating	600, 830 or 1800 lines/mm
Entrance slit	20 $\mu$ m (default)
Spectral resolution (FWHM)	UV: 0.2 nm VIS: 0.5 nm NIR: 0.4 nm
Dynamic range	1500 : 1
Numerical aperture	0.10
Stray light	< 0.1 %
Exposure time range	100 $\mu$ s to 600 s
Detector	3648 pixel linear CCD detector
A/D converter	16 bit 15 MHz
Calibration	Wavelength, sensitivity, nonlinearity and multiple dark spectra stored within device
Transfer speed to PC	40 ms per spectrum
Optical interface	SMA connector
Digital Interface	USB 2.0
Dimensions	89.5 $\times$ 68.0 $\times$ 19.5 mm (technical drawing available on our website)
Weight	155 g
Operating temperature	-15 $^{\circ}$ C to 60 $^{\circ}$ C (non-condensing)
Storage temperature	-25 $^{\circ}$ C to 70 $^{\circ}$ C
Power consumption	5 V DC, 200 mA (supplied via USB)
PC operating system	Windows 10, 8, 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 acquisition 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 language that can use .NET DLLs, including C#, Visual Basic .NET, C++/CLI, Delphi, LabVIEW, Matlab and Mathematica.

Please contact us if your requirements are not matched by these specifications. Custom modifications are available for any quantities. All specifications are subject to change without notice. The latest versions can be found on our website.

## I/O Port and Trigger



The Qwave includes 4 I/O channels that can be configured as trigger input, shutter and light source control or general purpose I/O pins. The optional I/O adapter provides easy access via a screw terminal block.

The Qwave supports three trigger modes: software trigger, interval trigger and external trigger. It can be set to trigger on the start or the end of the exposure period. For synchronizing the Qwave precisely to external events, a special low-jitter mode is available.

## Optional accessories

### Cosine Correcting Probe

The cosine corrector COCOS-SMA-F collects light over an angle of 180 degrees and can be used to measure irradiance or illuminance as optical power per area. It can be attached to an optical fiber or directly to the spectrometer.



### SMA Collimator

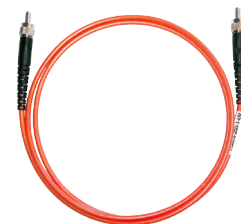
The collimator can be used to couple collimated light into a multi-mode optical fiber or to collimate the divergent light emitted from a fiber.



### Optical Fiber with SMA Connectors

Optical fiber patch cables are fabricated to customer's requirements regarding:

- Length
- Core diameter
- Tubing (PVC or stainless steel)
- Spectral range (UV/VIS or VIS/NIR)
- Optical connectors



More specialized accessories are available on request.