



Red Tide USB Series

The Red Tide is a low-cost, preconfigured, off-the-shelf spectrometer where all of the optical bench options, such as grating and entrance slit size, are already selected.

The Red Tide can be used with various Ocean Optics spectrometer accessories, light sources and sampling optics, to create application-specific systems for various absorbance, reflection and emission applications.

With its convenient USB interface, and integration times as fast as 3 milliseconds, the Red Tide is a great tool for basic lab measurements.

Applications

- » Beer's law of Potassium Permanganate
- » Absorbance of sun tan lotion
- » Determination of Rhydberg constant
- » Gas discharge emission measurements
- » Investigation of light sources (sun, LEDs, etc)

Features

- » Onboard, 2-MHz A/D converter
- » USB-to-PC interface
- » Linear CCD-array detector
- » RoHS and CE compliance

Advantages

- » Small footprint (89.1 mm x 63.3 mm),
- » Plug and play operation
- » User friendly
- » No external power supply
- » Multi purpose
- » User-configured wavelength range and resolution
- » Fibre coupled SMA 905
- » User-interface software compatibility

Specifications

USB650

USB650 UV-VIS

USB650 VIS-NIR

DETECTOR			
Type	Linear CCD array	Linear CCD array	Linear CCD array
Detector range	200 - 1100 nm	200 - 1100 nm	200 - 1100 nm
Active Pixels	650	650	650
Pixel size	14 µm x 200 µm	14 µm x 200 µm	14 µm x 200 µm
Pixel well depth	~ 62 500 electrons	~ 62 500 electrons	~ 62 500 electrons
Sensitivity	75 photons / count at 400 nm 41 photons / count at 600 nm	75 photons / count at 400 nm 41 photons / count at 600 nm	130 photons / count at 400 nm 60 photons / count at 600 nm
SPECTROSCOPIC			
Wavelength range	350 - 1000 nm	210 - 880 nm	370 - 985 nm
Optical resolution	2.0 nm (FWHM)	2.0 nm (FWHM)	2.0 nm (FWHM)
Signal-to-noise ratio	250 : 1	250 : 1	300 : 1
A/D resolution	12 bit	12 bit	12 bit
Dark noise	3.2 RMS counts	3.2 RMS counts	3.2 RMS counts
Dynamic range	1300 : 1	1300 : 1	1300 : 1
Integration time	3 ms to > 65 seconds	3 ms to > 65 seconds	3 ms to > 65 seconds
Stray light	< 0.05 % @ 600 nm; < 0.10 % @ 435 nm	< 0.05 % @ 600 nm; < 0.10 % @ 435 nm	< 0.05 % @ 600 nm; < 0.10 % @ 435 nm
Corrected linearity	> 99.8 %	> 99.8 %	> 99.8 %
PHYSICAL			
Dimensions spectrometer	89.1 x 63.3 x 34.4 mm	89.1 x 63.3 x 34.4 mm	89.1 x 63.3 x 34.4 mm
Weight spectrometer	190 grams	190 grams	190 grams
Dimensions light source	-	198 x 105.1 x 40.6 mm	47.4 x 88.8 x 34.1 mm
Weight light source	-	200 grams	130 grams
COMPUTER			
Operating systems	Windows, Mac, Linux	Windows, Mac, Linux	Windows, Mac, Linux
Computer interfaces	USB 2.0	USB 2.0	USB 2.0
Peripheral interfaces	SPI (3-wire); I ² C integrated circuit	SPI (3-wire); I ² C integrated circuit	SPI (3-wire); I ² C integrated circuit



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