

## Exemplar®

### Smart CCD Spectrometer



The Exemplar® was the first smart spectrometer to feature on-board data processing, USB 3.0 communication, and temperature compensation. The Exemplar is also optimized for multi-channel operation featuring ultra-low trigger delay and gate jitter. Additionally, the Exemplar features a 2048 element detector and built-in 16-bit digitizer with greater than 2.0 MHz readout speed.

The Exemplar is ideal for most visible and near-infrared applications and is available in the following standard configuration: wavelength range of 350-1050nm, 25µm slit, an LVF filter, a ruled grating (600mm/400nm), and a spectral resolution of 1.5nm. Custom configurations are also available.

### Applications:

- UV, Vis, and NIR: Spectroscopy / Spectroradiometry / Spectrophotometry
- Absorbance / Reflectance / Transmittance
- Kinetic reaction monitoring
- Transient spectral analysis
- Wavelength identification
- OEM systems integration
- Multi-point sampling

### SMART:

On-board processing including averaging, smoothing, and dark compensation

### SPEED:

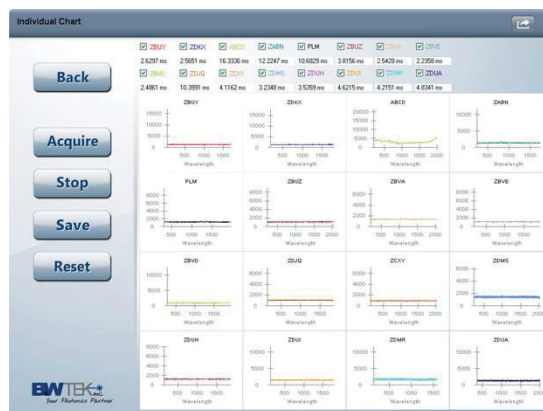
Acquires and transfers more than 900 spectra per second at an integration time of 1050µs

### SYNCHRONOUS:

Supports up to 32 devices with ultra-low trigger delay (35ns) & gate jitter (+/- 5ns)

### SIGNAL TO NOISE RATIO:

On-board averaging 1	~295
On-board averaging 10	~929
On-board averaging 100	~2450

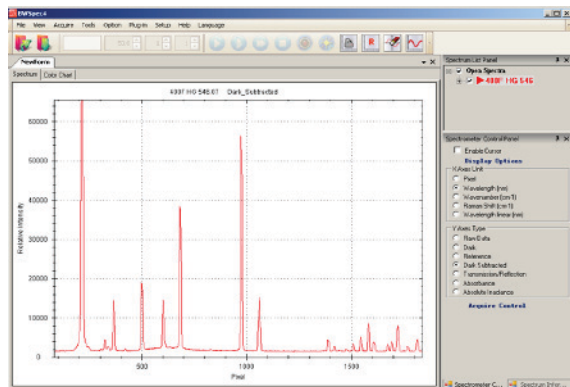


## Specifications:

Power Input	USB @ < 0.5 amps
Detector Type	Response enhanced linear CCD array
Wavelength Range	200nm - 1050nm
Detector Pixel Format	2048 x 1 elements @ 14µm x 200µm per element
Spectrograph f/#	3.6
Spectrograph Optical Layout	Crossed Czerny-Turner
Dynamic Range	1300:1 single acquisition
Digitizer Resolution	16-bit or 65,535:1
Data Transfer Speed	> 900 spectra per second in burst mode
Trigger Delay	35ns +/- 5ns
Readout Speed	>2.0 MHz
Integration Time	1ms, adjustable in 1µs increments
Thermal Drift	29 Counts/°C (Max)
Aux Port	External trigger, digital IOs
Operating Temperature	5°C - 35°C
Operational Relative Humidity	85% noncondensing
Weight	~ 0.75 lbs (0.34 kg)
Dimensions	4.02in x 2.64in x 1.34in (102mm x 67mm x 34mm)
Computer Interface	USB 3.0 / 2.0
Operating Systems	Windows: 7, 8 (32-bit & 64-bit)

## Software:

BWSpec® is a spectral data acquisition software with a wide range of tools that are designed to perform complex measurements and calculations at the click of a button. It allows the user to choose between multiple data formats and offers optimization of scanning parameters, such as integration time. In addition to powerful data acquisition and data processing, other features include automatic dark removal, spectrum smoothing, and manual/auto baseline correction.



## Additional Features:

- Temperature compensation for ultra-low thermal drift
- 1ms minimum integration time
- < 0.5nm spectral resolution
- UV - NIR (200nm - 1050nm)
- >2.0 MHz readout speed

## Entrance Slit

Slit Option	Dimensions	Approx. Resolution 350-1050nm
10µm	10µm wide x 1mm high	~1.0nm
25µm	25µm wide x 1mm high	~1.5nm
50µm	50µm wide x 1mm high	~2.2nm
100µm	100µm wide x 1mm high	~4.0nm
Custom Slit Widths Available		

## Diffraction Grating

Best Efficiency	Spectral Coverage (nm)	Grating
UV / NIR	350 - 1050	600/400
Vis	380 - 750	900/500
NIR	750 - 1000	1200/750
Custom Configurations Available		

## Spectrograph

