B&W TEK INC.

*Your Spectroscopy Partner*

SPECTROMETERS | LASERS | TOTAL SOLUTIONS

*Spectrometer*

# Exemplar®

## Smart CCD Spectrometer


The Exemplar® is the next step in the evolution of miniature CCD spectrometers. It is the first smart spectrometer featuring 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 UV, Vis, and NIR applications with spectral configurations from 200nm to 1050nm and resolution between 0.5nm and 4.0nm. Custom configurations are available for OEM applications.

## 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

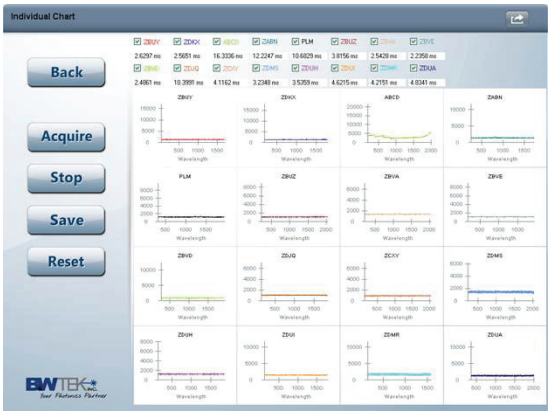
## SPEED:

"SuperSpeed" USB 3.0 transferring up to 900 spectra per second

## SYNCHRONOUS:

Supports up to 32 devices with ultra-low trigger delay (14ns) & gate jitter (+/- 1ns)

| SIGNAL TO NOISE RATIO: | |
|---|---|
| On-board Averaging 1 | ~295 |
| On-board Averaging 10 | ~929 |
| On-board Averaging 100 | ~2450 |

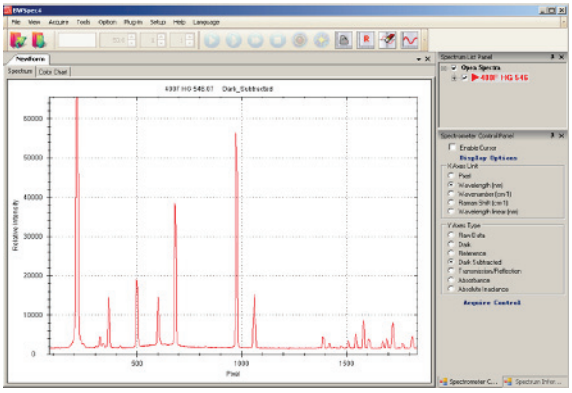


## Specifications:

| | |
|---|---|
| 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 | > 930 Spectra per Second in Burst Mode |
| Trigger Delay | 14ns +/- 1ns |
| Readout Speed | >2.0 MHz |
| Minimum Integration Time | 1ms, Adjustable in 1µs Increments |
| Thermal Drift | 29 Counts/°C (Max) |
| Aux Port | External Trigger, Digital IOs & Analog IOs |
| Operating Temperature | 5°C - 35°C |
| Operational Relative Humidity | 85% Noncondensing |
| Weight | ~ 0.75 lbs (0.34 kg) |
| Dimensions | 3.98in x 2.48in x 1.61in (101mm x 63mm x 41mm) |
| Computer Interface | USB 3.0 / 2.0 / 1.1 |
| Operating Systems | Windows: XP, Vista, 7 (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

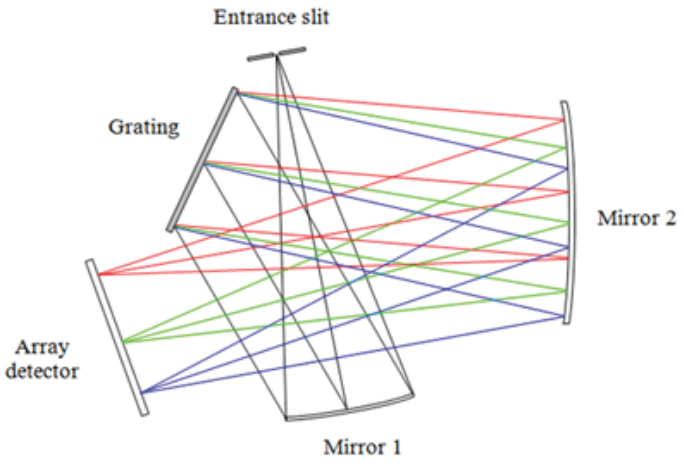
## Entrance Slit

| 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 |
| 200µm | 200µm wide x 1mm high | Call |
| Custom Slit Widths Available | | |

## Diffraction Grating

| Best Efficiency | Spectral Coverage (nm) | Grating |
|---|---|---|
| UV / NIR | 350 - 1050 | 600/400 |
| Vis | 380 - 750 | 900/500 |
| Vis / NIR | 550 - 1050 | 830/800 |
| NIR | 750 - 1050 | 1200/750 |
| Custom Configurations Available | | |

## Spectrograph

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