

# Exemplar<sup>®</sup> HT

Spectrometer

## Deep cooled high throughput spectrometer



The Exemplar HT (model BTC667N) is a high-performance and high throughput spectrometer which features a low noise deep-cooled (-25°C) back-thinned (BT) CCD detector array with high dynamic range. The unique transmission-optics based spectrograph equipped with the high quantum efficiency detector, provides a superior data quality when configured for use in the 532-1100nm spectral range. The BTC667N offers very high signal-to-noise ratio, making it ideal for ultra low light level applications.

### Applications:

- Raman and fluorescence spectroscopy
- On-line process monitoring
- Biomedical spectroscopy
- Gas and water analysis

### Standard Configurations\*

Wavelength Range	532-676nm	789-1067nm
Slit	10µm	20µm
Resolution (typical)	0.16nm	0.37nm

\*Custom configurations are available.

### SMART:

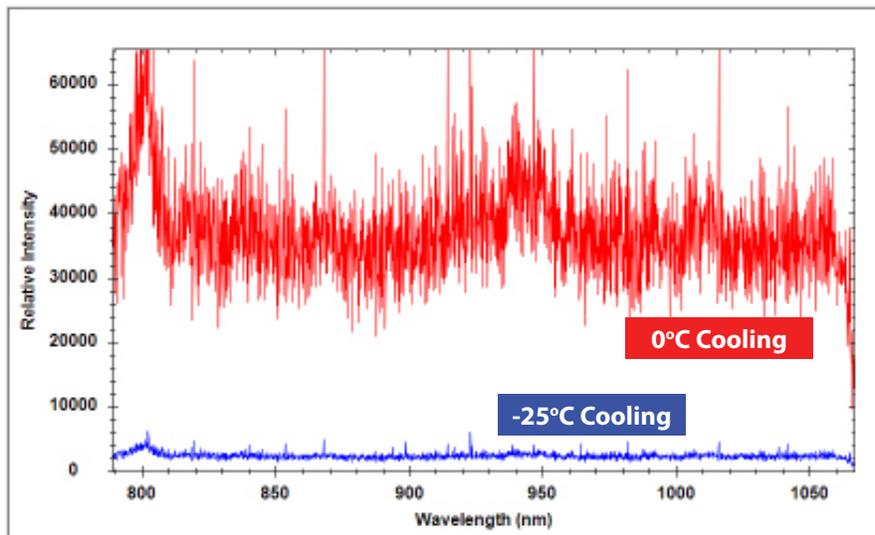
On-board processing including averaging, smoothing, and dark compensation

### SPEED:

Acquires and transfers more than 140 spectra per second at an integration time of 6.3ms

### SIGNAL TO NOISE RATIO:

Integration time of 30 minutes will give a SNR better than 540:1



Dark noise at 10 minute integration time

## Specifications:

Power Input	5V DC @ 9.0A (maximum at startup) 5V DC @ 4.0A (typical at normal operation)
Detector Type	Back-thinned CCD Array
Wavelength Range	532nm - 1100nm
Detector Pixel Format	2048 effective detector elements
Effective Pixel Size	14µm x ~ 0.9mm
Spectrograph f/#	2.2
Spectrograph Optical Layout	Dual-Pass transmission
Dynamic Range	50,000 (typical)
Digitizer Resolution	16-bit or 65,535:1
Data Transfer Speed	>140 spectra per second at integration time of 6.3ms in burst mode
Trigger Delay	95ns +/- 20ns (call for timing diagram)
Readout Speed	> 400kHz
Integration Time	6.3ms, adjustable in 1µs increments
Aux Port	External trigger, 4 digital outputs (2 with shutter control), 2 digital inputs, analog input, analog output and system reset
Operating Temperature	5°C - 35°C
Operational Relative Humidity	85% noncondensing
CCD Cooling	Default: -25°C at ambient of 25°C. (Δ 50°C minimum)
Weight	7.6 lbs
Dimensions	8.66in x 7.08in x 5.12in (220mm x 180mm x 130mm)
Computer Interface	USB 3.0 / 2.0
Operating Systems	Windows: 7, 8, 10 (32-bit & 64-bit)

## Entrance Slit

Slit Option	Dimensions	Approx. Resolution 789 - 1067nm (Standard)
25µm	25µm wide x 1mm high	~0.42nm
50µm	50µm wide x 1mm high	~0.6nm
Custom slit widths available		

## Diffraction Grating

Best Efficiency	Spectral Coverage (nm)	Grating
NIR	789-1067	1000/900
Vis	533-686	1800/500
Custom configurations available		

## Additional Features:

- High Vis and NIR Response
- 2048 detector elements
- Over 60% QE at 200nm (80% peak QE)
- Software-configurable cooling temperature (-25°C default)
- Ultra low noise

## Accessories:

- Fiber sampling probes
- Fiber sample holders
- Fiber patch cords
- Other light sources

## 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.

