

# Exemplar<sup>®</sup> HT

Spectrometer



## Deep cooled high throughput spectrometer

The Exemplar<sup>®</sup> HT (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 - 1100 nm 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
- ★ LCD display measurement
- ★ Gas and water analysis

### 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 6.3 ms

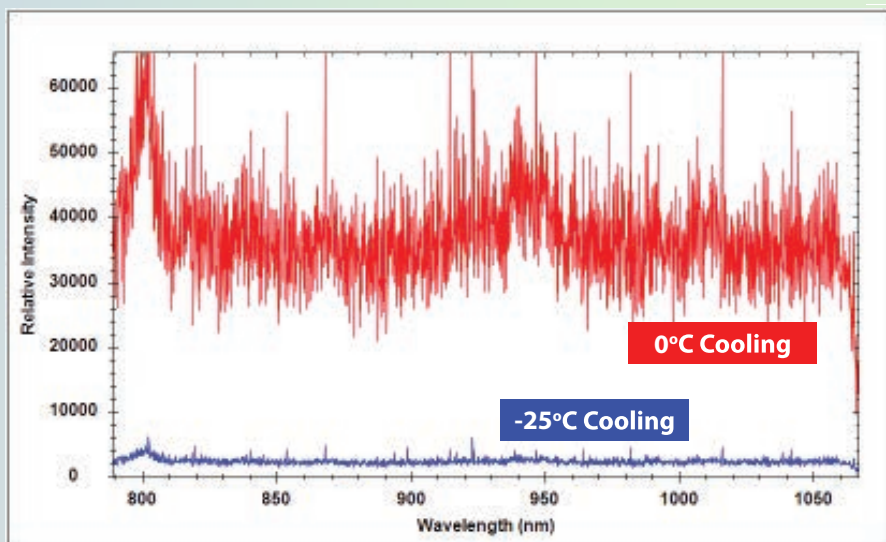
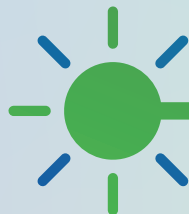
### SIGNAL TO NOISE RATIO:

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

### Standard Configuration\*:

Wavelength Range	532 - 687 nm	788 - 1067 nm
Slit	10 μm	20 μm
Resolution	0.16 nm	0.37 nm

\*Custom Configurations are also available.



Dark noise at 10 minute integration time

# More about our Exemplar® HT

## Specifications:

Model No.	BTC667N
Power Input	5V DC @ 9.0 A (maximum at startup) 5V DC @ 4.0 A (typical at normal operation)
Detector Type	Back-thinned CCD Array
Wavelength Range	532 nm - 1100 nm
Detector Pixel Format	2048 effective detector elements
Effective Pixel Size	14 µm x ~ 0.9 mm
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 6.3 ms in burst mode
Trigger Delay	95 ns +/- 20 ns (call for timing diagram)
Readout Speed	> 400 kHz
Integration Time	6.3 ms, adjustable in 1 µs 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	-25°C at ambient of 25°C
Weight	7.6 lbs (3.4 kg)
Dimensions	8.7 in x 7.1 in x 5.1 in (220 mm x 180 mm x 130 mm)
Computer Interface	USB 3.0 / 2.0
Operating Systems	Windows: 7, 8, 10, 11

## Entrance Slit

Slit Option	Dimensions	Wavelength Range	Approx. Resolution FWHM (Standard)
10 µm	10 µm wide x 1 mm high	532 – 687 nm	~0.16 nm
20 µm	20 µm wide x 1 mm high	788 – 1067 nm	~0.37 nm

Custom slit widths available

## Diffraction Grating

Best Efficiency	Spectral Coverage (nm)	Grating
NIR	789 - 1067	1000 / 900
Vis	532 - 687	1800 / 500

Custom configurations available

## Features:

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

## Accessories:

- ★ Fiber sampling probes
- ★ Fiber sample holders
- ★ Fiber patch cords
- ★ 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. SDK with demo code is available as additional option.

