**B&W TEK**
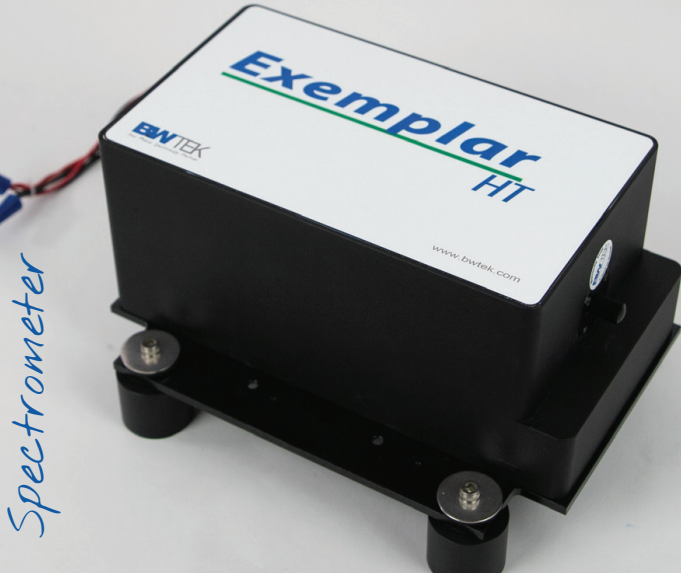*Your Spectroscopy Partner*

# Exemplar® *HT*

*Spectrometer*

## Deep cooled high throughput spectrometer

The **Exemplar® 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

### Standard Configuration*:

| 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.

### Smart:

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

### Speed:

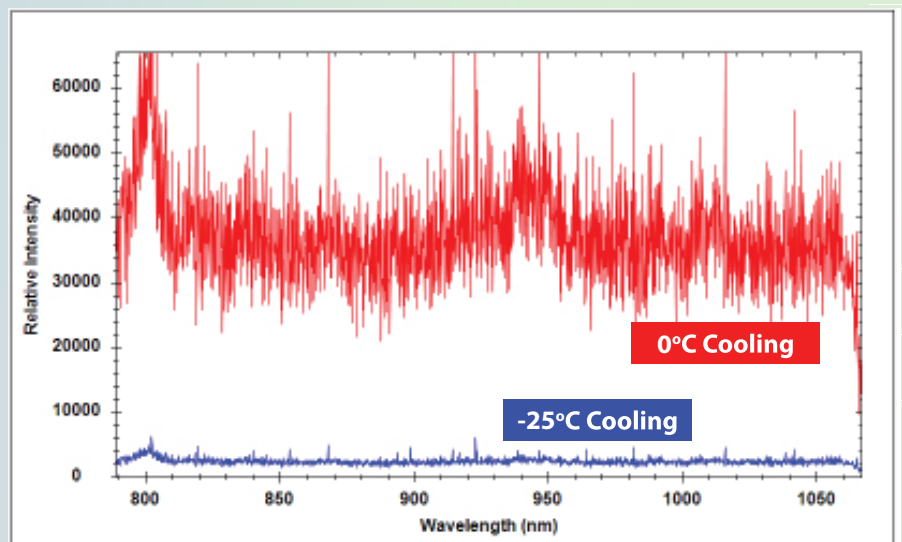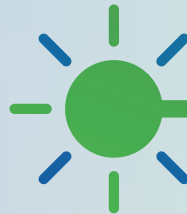Acquires and transfers more than 140 spectra per second at an integration time of 6.3 ms

### SIGNAL TO NOISE RATIO:

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



*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)<br>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<br>(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.



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