

Exemplar® Plus

Spectrometer

High Performance Smart Spectrometer



The **Exemplar® Plus (BTC655N)** is a high-performance smart spectrometer utilizing a low-stray-light unfolded Czerny-Turner spectrograph. It features a highly sensitive TE-cooled back-thinned (BT) CCD detector which is linearly summed for high dynamic range. Its long focal length, coupled with a high quantum efficiency detector, provides superior data quality over the entire 190-1100 nm spectral range.

The **Exemplar® Plus** features a high signal-to-noise ratio, making it ideal for low light level applications. It also features a built-in shutter allowing for dark scan measurements even while illuminated. As a member of the **Exemplar®** product line, it features on-board data processing and USB 3.0 communication.

The **Exemplar®** product line is also optimized for multi-channel operation, featuring ultra-low trigger delay and gate jitter.

Applications:

- ★ Low light level UV to NIR spectroscopy
- ★ Raman and fluorescence spectroscopy
- ★ On-line process monitoring
- ★ LCD display measurement
- ★ Biomedical spectroscopy
- ★ Gas and water analysis
- ★ LED characterization

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

Synchronous:

Supports up to 32 devices with ultra-low trigger delay (95 ns) & gate jitter (+/- 20 ns)

Exemplar Plus Standard Configuration*:

Wavelength Range	190-1100 nm
Slit	25 µm
Filter	LVF
Grating	300 mm/280 nm
Resolution	1.8 nm

*Custom Configurations are available.



SIGNAL TO NOISE RATIO:

On-board averaging 1	~540
On-board averaging 10	~1900
On-board averaging 100	~4800

More about our Exemplar® Plus

Specifications:

Model No.	BTC655N
Power Input	5 V DC @ 6 A (maximum at startup) 5 V DC @ 2.5 A (typical at normal operation)
Detector Type	Back-thinned CCD Array
Wavelength Range	190 nm - 1100 nm
Detector Pixel Format	2048 effective detector elements
Effective Pixel Size	14 μm x ~ 0.9 mm
Spectrograph f/#	3.6
Spectrograph Optical Layout	Czerny-Turner
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	Default: 0° C at ambient of 25° C.
Weight	3.6 lbs
Dimensions	7.40 in x 5.05 in x 2.80 in (188 mm x 128 mm x 71 mm)
Computer Interface	USB 3.0 / 2.0
Operating Systems	Windows: 7, 8, 10, 11

Features:

- ★ UV - NIR ranges
- ★ <0.2 nm resolution
- ★ TE-cooled/regulated
- ★ 16-bit digitizer
- ★ 500 kHz readout speed
- ★ Plug-and-play USB 2.0
- ★ OEM version available

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.

Entrance Slit

Slit Option	Dimensions	Resolution for Wavelengths 350 - 1050nm
10 μm	10 μm wide x 1 mm high	~1.2 nm
25 μm	25 μm wide x 1 mm high	~1.5 nm
50 μm	50 μm wide x 1 mm high	~2.4 nm
100 μm	100 μm wide x 1 mm high	~4.8 nm
Custom slit widths available		

Diffraction Grating

Best Efficiency	Spectral Coverage (nm)	Grating (g/mm) / nm
Vis / NIR	350 - 1050	400 / 550
NIR	750 - 1050	830 / 900
UV - NIR	190 - 1100	300 / 280
UV - NIR	200 - 850	400 / 250
UV	190 - 380	1500 / 250
Custom configurations available		

Czerny-Turner Spectrograph:

