

Glacier[®] X

Compact, High-Performance, TE-Cooled CCD Spectrometer

Spectrometer



The **Glacier[®] X (BTC112E)** is a TE-Cooled linear CCD array spectrometer. It features a 2048 element detector, built-in 16-bit digitizer, and USB 2.0 interface. Compared to non-cooled CCD spectrometers, the **Glacier[®] X** offers higher dynamic range, significantly reduced dark counts, and superior long-term operation stability, making it ideal for low light level detection and long-term monitoring applications.

The **Glacier[®] X** is ideal for most UV, Vis, and NIR applications with spectral configurations from 200 nm to 1050 nm and resolutions between 0.2 nm and 4.5 nm. Custom configurations are available for OEM applications.

This spectrometer is an essential building block for total solutions. System development and application support are available for OEM applications.

Applications:

- ★ UV, Vis, and NIR: Spectroscopy/ Spectroradiometry/Spectrophotometry
- ★ Wavelength identification
- ★ Absorbance
- ★ Reflectance
- ★ OEM optical instrumentation component

Accessories:

- ★ Fiber patch cords
- ★ Light sources
- ★ Cuvette holders
- ★ Inline filter holders
- ★ Fiber optic probes

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

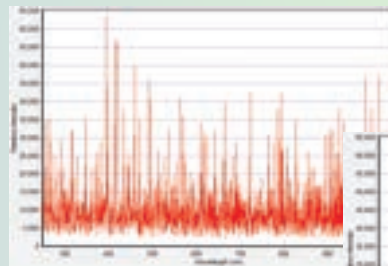
Thermoelectric Cooler

Cooling an array detector with a built-in thermoelectric cooler (TEC) is an effective way to reduce dark current and noise, as well as to enhance the dynamic range and detection limit.

When the CCD detector array is cooled from a room temperature of 25°C down to 14°C by the TEC, the dark current is reduced by a factor of 4 and the dark noise is reduced by a factor of 2. This allows the spectrometer to operate at longer exposure times and to detect weaker optical signals.



Dark Current: Uncooled vs. Cooled CCD Detectors at 30 Seconds



Room Temperature



Cooled to 14°C

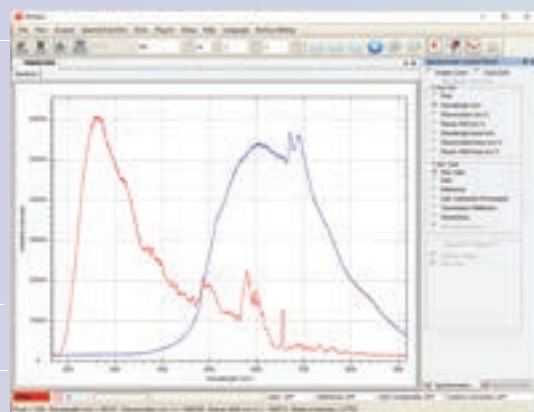
More about our Glacier® X

Specifications:

Model No.	BTC112E
DC Power Input	5V DC @ < 1.5 amps
AC Adapter Input	100 - 240 VAC 50/60 Hz, 0.5A @ 120 VAC
Detector Type	Response Enhanced Linear CCD Array
Pixels	2048 x 1 elements @ 14 µm x 200 µm per element
Spectrograph f/#	3.2
Spectrograph Optical Layout	Crossed Czerny-Turner
Dynamic Range	300:1
Digitizer Resolution	16-bit or 65,535:1
Readout Speed	500 kHz
Data Transfer Speed	Up to 180 spectra per second via USB 2.0
Integration Time	5 ~ 65,535 ms x multiplier
External Trigger	Aux port
Operating Temperature	15° C - 35° C
Operational Relative Humidity	85% noncondensing
TE Cooling	14° C
Dimensions	5 in x 1.5 in x 3.6 in (127.0 mm x 39.0 mm x 90.7 mm)
Weight	~ 1.32 lbs (0.60 kg)
Computer Interface	USB 2.0 / 1.1
Operating Systems	Windows: 7, 8, 10, 11

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	Approximate Resolution 900 -1700 nm
10 µm	10 µm wide x 1 mm high	~1.1 nm
25 µm	25 µm wide x 1 mm high	~1.4 nm
50 µm	50 µm wide x 1 mm high	~2.2 nm
100 µm	100 µm wide x 1 mm high	~4.3 nm
Custom slit widths available		

Diffraction Grating

Best Efficiency	Spectral Coverage (nm)	Grating
UV / Vis	200 - 400	1800 / 250
UV / NIR	200 - 800	716 / 222
UV / Vis	250 - 600	1200 / 250
UV	280 - 370	3600 / 240
UV / NIR	300 - 900	600 / 400
UV / NIR	350 - 1050	700 / 530
Vis	380 - 750	900 / 500
Vis / NIR	400 - 800	1200 / 500
Vis / NIR	450 - 1050	830 / 800
Vis	530 - 700	1800 / 500
Vis / NIR	600 - 800	1714 / 650
Vis / NIR	750 - 1050	1200 / 750
Custom configurations available		

Crossed Czerny-Turner Spectrograph:

