

BTC111/112 Series

BTC111E/112E Series Fiber Coupled TE Cooled USB CCD Spectrometer



BTC111/112 Series products are low cost and high performance TE cooled linear CCD spectrometers. They are equipped with 2048 elements thermoelectric cooled (TEC) linear CCD arrays, built-in 16 bit digitizers with high speed USB 2.0/1.1 interfaces on BTC111 Series (USB 2.0 on BTC112 Series) and optimized high throughput spectrographs. Compared with non-cooled CCD spectrometers the BTC111/112 Series products offer much higher dynamic range, greatly reduced dark counts and superior long term operation stability, thus are ideal for low light level detections and long term monitoring applications. They are also equipped with a unique integration time multiplier function which supports for 17 minutes or longer integration period to take the advantage of low dark counts in light starving applications. The series come in standard wavelength ranges of UV, Vis, NIR or custom specified. Resolution of 0.3 - 20 nm may be supplied depending on system configurations. Flexible custom configurations and custom application support are provided.

Highlights

- OEM and end-user versions available
- UV, Visible and NIR versions and custom configured ranges
- TEC cooled high stability and low dark counts
- Built-in 16 bit digitizer and PC interface
- High performance to cost ratio
- 0.3 to 20 nm resolution versions available
- Plug-and-play high speed USB 1.1/2.0 (USB 2.0 for **BTC112 Series**) interface
- Up to over 100 complete spectra/s transferring speed
- **BTC111 Series** with 9 - >65,535 ms integration time range
- **BTC112 Series** with 5 - >65,535 ms integration time range
- Integration time and time multiplier (extended integration time) support
- Custom configurations and application support

Applications

- UV, Vis and NIR spectroscopy
- Raman and fluorescence spectroscopy
- OEM building blocks
- Color measurement and monitoring
- On-line optical inspection and monitoring

Available Accessories:

Light source:	Deuterium for UV and tungsten for Vis and NIR
Fiber patch cord:	50, 100, 200, 400, 600, 1000 μ m and custom diameters
Fiber sampling probes:	Reflectance, absorbance, Raman and other probes
Fiber sample holders:	2 port transmission and 4 port fluorescence cuvette holders

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Typical Specifications

Power Input	5V DC @ < 1.2A for TE cooled option through external power supply
Operating Temperature	15°C to 35°C
Detector	TE cooled 2048-element liner silicon CCD array
CCE Elements	2048 elements @ 14 µm x 200 µm per element
Effective Range	UV 200-400 nm, Vis 390-760 nm, NIR 750-1050 nm, UV/Vis 200-720 nm, UV/Vis/ NIR 300-850 nm, Vis/NIR 350-1050 nm, or custom configurations
Cooling Temperature	10°C - 15°C factory default
Spectrograph f#	3.0
Spectrograph Optical Layout	Crossed Czerny-Turner
Spectrograph Optics	Aspherical optics with sensitivity enhancement option
Grating	600-1800 lines/mm available with different blaze wavelengths
Slit	10-800 µm width depends on resolution requirements (slit height 1000 µm)
Optical Resolution	0.3 to > 10 nm FWHM
Stray Light	0.1% at 632nm for Vis
Digitizer Resolution	16 bit for 65,535 to 1
Digitizer Speed	500 kHz
External Trigger	Aux external triggering port
Integration Time	BTC111 Series: 9 to 65,535 ms without multiplier, multiplier of 1, 2, to 16 available BTC112 Series: 5 to 65,535 ms without multiplier, multiplier of 1, 2, to 16 available
Data Transfer Speed	50 to > 100 spectra per second
Computer Interface	USB 1.1/2.0 for BTC111 Series , USB 2.0 for BTC112 Series
Operating Software	Windows ME, 2000, and XP compatible
Weight	1.2 lb [0.6 kg]

BTC112 OEM Module

