For current pricing, please see our website.

Specs Updated
8-26-14 - LF

Compact CCD Spectrometers (Page 1 of 2)

CCS200

Features

- Three Models for the UV, VIS, and NIR Spectral Ranges
- Rugged Czerny-Turner Design with No Moving Parts
- Minimum Integration Time of 10 µs
- Auto Compensation for Dark Current Noise
- High-Speed USB 2.0 Connection Offers up to 200 Scans per Second
- Trigger Input for External Synchronization (TTL)
- 16-Bit A/D Converter
- 3,648 Pixel Linear CCD Array

Thorlabs' series of fiber-based, compact, Czerny-Turner spectrometers includes three models that provide detection with sub-nanometer accuracy in either the 350 - 700 nm or 500 - 1000 nm range or better than 2 nanometer accuracy over the full 200 - 1000 nm range. With a footprint that measures roughly the size of a pocket calculator or portable hard drive, these spectrometers provide good performance that is ideal for general fiber-based systems.

Although small, the unit shares features with larger, more expensive spectrometers such as the ability to be synchronized via a TTL trigger input up to 100 Hz and to automatically compensate for noise created by dark current. The three models share the same design with the CCD chips, gratings, and mirrors being optimized for the specified wavelength range.

Each spectrometer ships with a manual, software CD-ROM, SMB-to-BNC adapter cable for external trigger input, high-speed USB cable (1.5 m), and a fiber optic patch cable (SMA connectors, 1 m long). All units are factory calibrated by Thorlabs prior to shipment. Recalibration can be easily done by the user at any point.

The SPLICCO Software Package

The spectrometer comes with a software package, called SPLICCO, that has a graphical user interface and an extensive set of drivers (C/C++, C#, LabWindows/CVI, Dot NET, NI LabVIEW, and Visual Basic) and samples. The GUI can display the spectra, background, and peaks in a single window if desired. Additionally, diverse algorithms can be applied for smoothing, averaging, or calculating absorption and transmission. Measurement results can be compared with other stored profiles. The included drivers allow for complete functional control of the Czerny-Turner Spectrometers featured here, allowing the user to design his or her own interface software or to integrate the unit with a test and measurement setup for automated testing.

Screen shots from the graphical user interface (GUI) included with the CCS series of spectrometers are shown below.
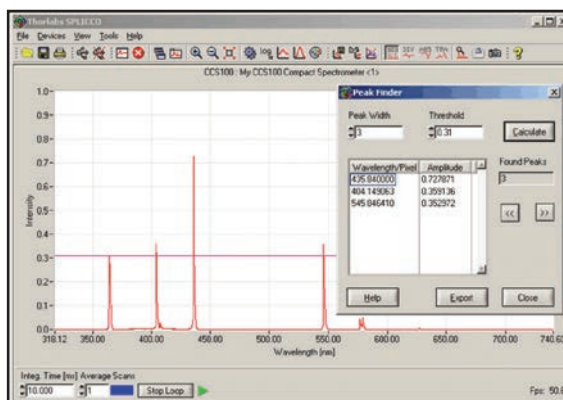
Figure 1: The intensity as a function of wavelength plot highlights the peak finder function as well as the threshold line feature.
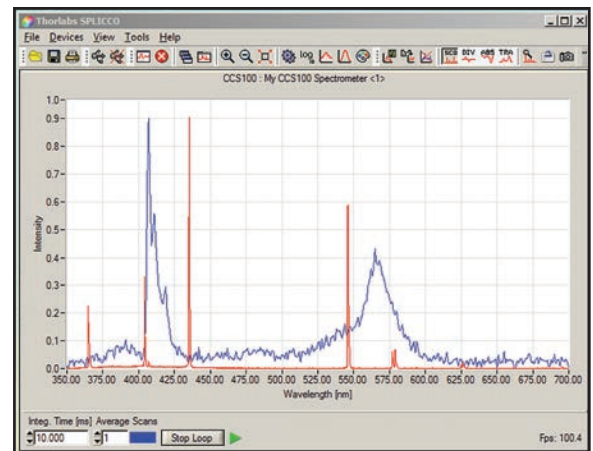
Figure 2: Two spectra are shown; one was loaded to the software for comparison, while the other is the spectrum that the spectrometer is currently recording. The GUI is very simple to use yet has a range of features and tools necessary to analyze spectra.

Compact CCD Spectrometers (Page 2 of 2)

Typical Spectrometer Responsivity
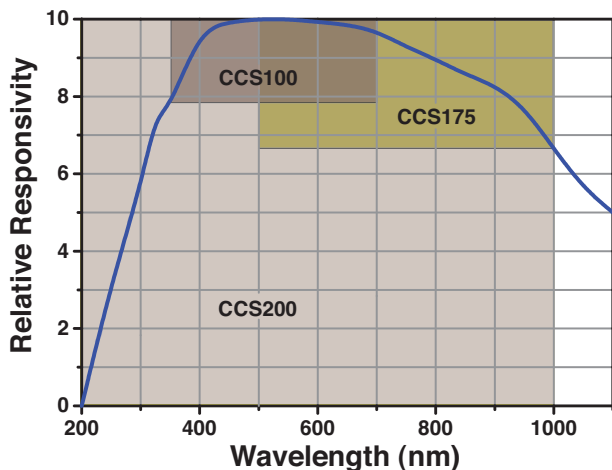
What's Included
- CCS Series Spectrometer
- User Manual
- CD ROM with SPLICCO Software and Drivers: C/C++, C#, LabWindows/CVI, Dot NET, NI LabVIEW, and Visual Basic
- USB Cable Type A to Mini B, 1.5 m
- MM Fiber: SMA to SMA, 1 m Long
  - CCS100, CCS175: Ø50 µm Core
  - CCS200: Ø200 µm Core
- Trigger Input Cable, SMB to BNC

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fs Pulse Characterization
Temporal Magnifier

ITEM #	CCS100	CCS175	CCS200
Wavelength Range	350 – 700 nm	500 – 1000 nm	200 – 1000 nm
Spectral Accuracy	<0.5 nm FHWM @ 435 nm	<0.6 nm FHWM @ 633 nm	<2.0 nm FHWM @ 633 nm
Slit (W x H)	20 µm x 2 mm		
Grating	1200 Lines/mm, 500 nm Blaze	830 Lines/mm, 800 nm Blaze	600 Lines/mm, 800 nm Blaze
Detector Range	350 – 1100 nm		200 – 1100 nm
CCD Pixel Size	8 µm x 200 µm (8 µm Pitch)		
CCD Sensitivity	160 V / (lx • s)		
CCD Dynamic Range[b]	300		
CCD Pixel Number	3648		
Resolution	10 px/nm	6 px/nm	4 px/nm
Integration Time	10 µs – 60 s		
Scan Rate, Internal Trigger (Max)	200 Scans/s[a]		
S/N Ratio[c]	≤2000:1		
Fiber Connector	SMA 905		
Trigger Input	SMB		
Trigger Signal	TTL		
Trigger Frequency (Max)	100 Hz		
Scan Rate	100 Scans/s		
Trigger Pulse Length (Min)	0.5 µs		
Trigger Delay	8.125 µs ± 125 ns		
Interface	Hi-Speed USB2.0 (480 Mbit/s)		
Dimensions (L x W x H)	122 mm x 79 mm x 29.5 mm (4.80" x 3.15" x 1.18")		
Weight	<0.4 kg		

[a]Scan rates up to 200 Hz (for 5 ms integration time) are possible with the internal (free run) trigger only. In external trigger mode, the maximum scan rate that leads to the same integration time is 100 Hz
[b]Ratio of saturation voltage to dark current voltage
[c]With 10X averaging, depending on integration time; for single shot use CCD dynamic range

ITEM #	$	£	€	RMB	DESCRIPTION
CCS100	$ 1,950.00	£ 1,404.00	€ 1.696,50	¥ 15,541.50	Compact Spectrometer, 350 – 700 nm
CCS175	$ 1,950.00	£ 1,404.00	€ 1.696,50	¥ 15,541.50	Compact Spectrometer, 500 – 1000 nm
CCS200	$ 2,750.00	£ 1,980.00	€ 2.392,50	¥ 21,917.50	Compact Spectrometer, 200 – 1000 nm