

General Specifications:

Power Input	5V DC @ < 0.4 Amps
Detector Type	Self-scanning photodiode linear array
Pixels	512 @ 25µm x 2500µm
Spectrograph F#	2.45
Spectrograph Optical Layout	Concave Holographic, aberration corrected, flat field
Dynamic Range	5 x 10 ⁴ typical
Digitizer Resolution	16-bit or 65,535:1
Readout Speed	250 kHz
Data Transfer Speed	Up to 180 spectra per second via USB 2.0
Integration Time	3 - 65,535ms
External Trigger	Aux Port
Operating Temperature	15°C - 35°C
Weight	~1.1 kg (2.42 lbs)
Dimensions	158mm x 102mm x 84mm (6.22in x 4.01in x 3.3in)
Computer Interface	USB 2.0
Operating Systems	Windows: XP, Vista (32-bit), 7 (32-bit)

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About the Cypher™ H

The Cypher™ H is a low-cost and high performance linear PDA spectrometer with high speed plug-and-play USB 2.0 interface, 512 element linear PDA array, optimized high throughput spectrograph, 16-bit built-in digitizer, and fiber coupled input capability.

The PDA offers high dynamic range, high signal-to-noise ratio and enhanced UV and NIR sensitivity; making it ideal for the detection of small changes in light intensity at high light levels. With its Concave Holographic grating, the Cypher™ H offers excellent efficiency, wavelength coverage from UV to NIR, and spectral resolution of 2.6nm or higher. Flexible custom configurations are also available.

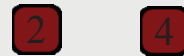
Spectrometer Cypher™ H

Fiber Coupled UV/NIR
Enhanced PDA Array
Spectrometer



Ordering Info

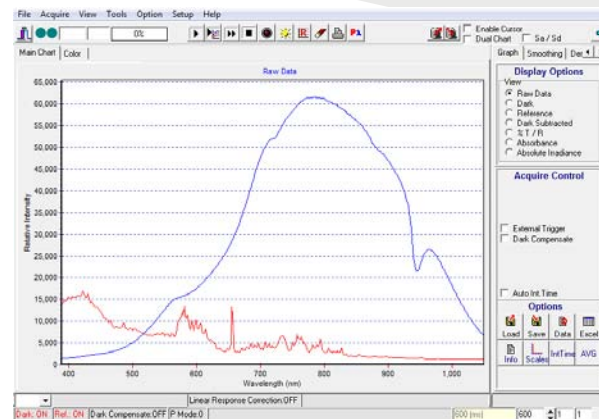
Ordering Code: Cypher™ H



To order your custom system, fill in the slit ordering code (2) and grating ordering code (4).

Software

BWSpec™ features a wide range of tools designed to allow complex measurements and calculations to be completed at the click of a button. BWSpec™ allows the user to choose between multiple data formats and offers optimization of scanning parameters such as integration time and laser power output. In addition to powerful data acquisition and data processing, other features include automatic dark removal, spectrum smoothing, and manual/auto baseline correction. The software also contains an OCX interface for users to collect spectrum in Thermo Scientific GRAMS/AI.



To find out more:

Distribution in the UK & Ireland

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The leading supplier of scientific and industrial lasers, optical systems and associated accessories, fibre optic components and instrumentation, and machine vision products.

Features:

- Enhanced QE in NIR
- High UV Response
- High Dynamic Range
- 512 element PDA array (other options available)

Applications

- UV and NIR applications
- LED and other display devices test
- Color measurement
- Small light difference detection

Accessories

- Light Sources
- Fiber Patch Cords
- Fiber Sampling Probes
- Fiber Sample Holders

Workings of a Spectrometer:

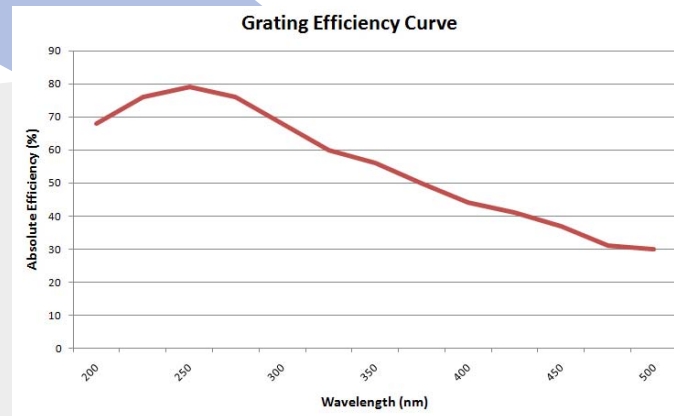
Configurable Concave Holographic Grating

4 Collects, Disperses and Refocuses Light

This one compact optical component collects, disperses, and refocuses light onto the detector, by combining two optical components, i.e. grating and focusing mirror in standard optical benches. The grating is a blazed holographic grating which delivers excellent efficiency and stray-light reduction and is able to provide a faster F#, therefore delivering higher throughput.

Type	Best Efficiency	Spectral Coverage (nm)	Resolution (nm) 25µm Slit	Ordering Code
Concave Holographic	UV - Vis	185-800	~2.6	CCH05
Concave Holographic	Vis - NIR	350-1050	~2.6	CCH06
Custom Configurations Available				

Record your Grating Ordering Code on the back.

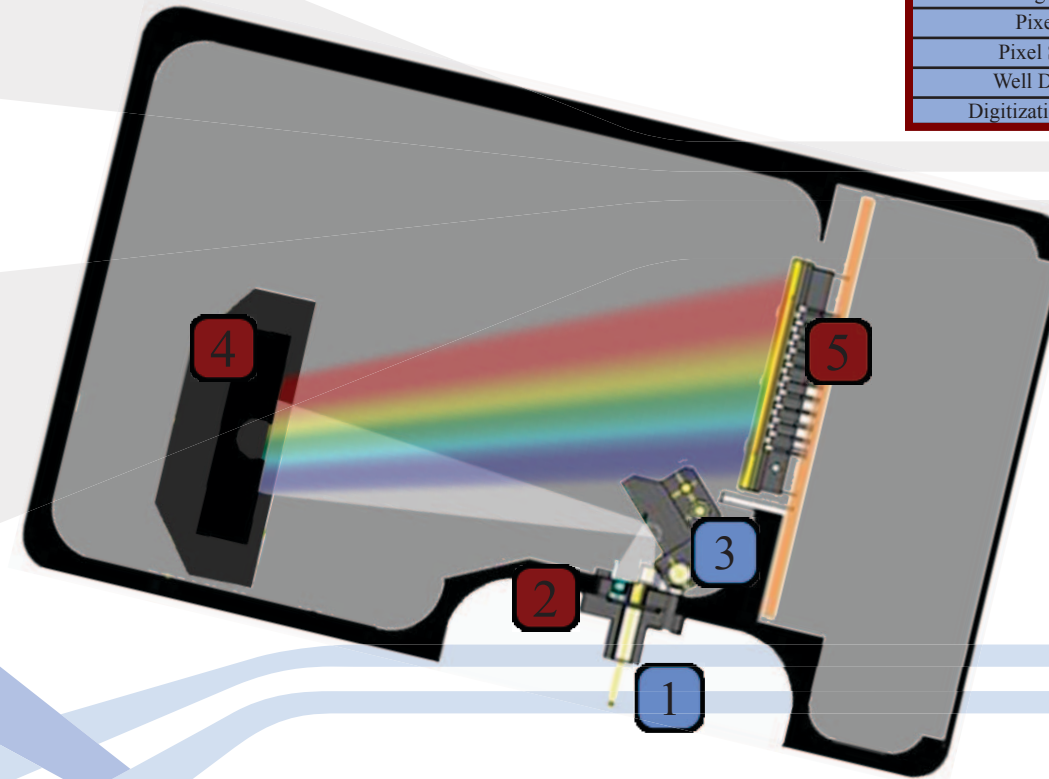
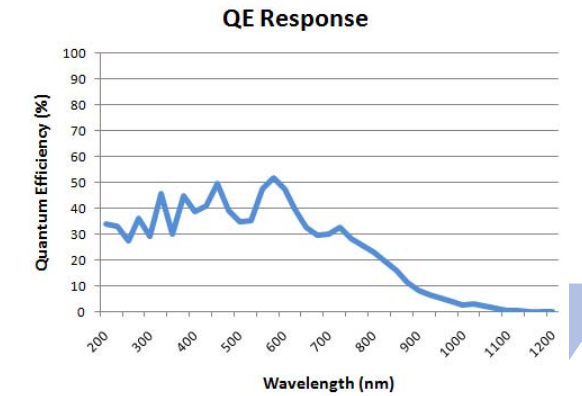


Configurable Detector

5 As the dispersed light strikes the detector's pixels, the electronics digitize the data to be displayed

As the dispersed light strikes individual pixels across the Photodiode Array (PDA), electronics translate and display intensity using our software. The advantage of a PDA over a CCD is its high dynamic range, which allows it to be used for high light level applications.

Specifications	
Wavelength Range	185nm - 1050nm
Pixels	512, Others Available
Pixel Size	25µm x 2500µm
Well Depth	~156,000,000 e
Digitization Rate	250 kHz



Standard Folding Mirror

3 Redirects the light beam towards the grating

Redirects the light from the slit towards the holographic grating to be dispersed and refocused. This mirror is coated with AlMg₂, which produces approximately 95% reflectance when working in the UV-Vis spectrum. Aluminum (Al) provides reflectance and Magnesium (Mg₂) protects the Aluminum from oxidation.

Configurable Slit

2 Determines the photon flux and optical resolution

Light entering into a spectrometer's optical bench is focused onto a pre-mounted and aligned slit, which ultimately determines the optical resolution and throughput of the spectrometer.

We offer a variety of slit widths and heights to match your specific application needs: from 5µm - 800µm wide and from 1mm - 2mm high (1mm being our standard height).

Slit Option	Dimensions	Resolution Multiplier	Ordering Code
25µm	25µm wide x 2mm high	~1.0	Slit-25
50µm	50µm wide x 2mm high	~2.0	Slit-50
100µm	100µm wide x 2mm high	~4.0	Slit-100
Custom Configurations Available			

Record your Slit Ordering Code on the back page.

Standard SMA 905

1 Precision fiber coupler

By coupling the SMA 905 adaptor with a fiber or lens, light will be guided to the slit and optically matched. This ensures reproducibility for light coupling from the fiber or lens into the optical bench.