FilterReader Spectrophotometer

Ever wondered what's in your filter cube? FilterReader spectrophotometer will give you the answer in a few seconds.

Identifying and confirming transmission characteristics of filters and beam splitters used in fluores-cence microscopy is often critical especially when troubleshooting a system or an experiment. To ad-dress this need Mightex has developed the FilterReader, a unique mini spectrophotometer specifically designed for measuring spectral transmission of excitation filters, dichroic beam splitters, and emission filters. A high-resolution CCD spectrograph coupled with a solid-state light source provides high dy-namic range measurements in a compact package. A sample cart holds excitation filters and emission filters at vertical position, and beam splitters at a 45-degree angle.

FilterReader is a fully integrated spectrophotometer with a footprint of a book. All one needs is a PC to run the control software, which communicates with the FilterReader via a USB interface. FilterReader software guides users through an intuitive work flow which leads to the measurement results after a few clicks. Results can be displayed in spectral transmission or optical density. Measurements of filters and beam splitters can be overlaid on a single chart. Various data saving and chart printing functions are supported.

Unlike traditional spectrophotometers, FilterReader spectrophotometers are small enough to be easily stored when not in use. The solid-state light source in the FilterReader also ensures a trouble-free use for years without the need to change the light source.

PERFORMANCE SPECIFICATIONS

Parameters	Specifications		Unit
Model	**FRD-350-AU**	**FRD-385-AU**	
Wavelength Range	350 ~ 720	385 ~ 720	nm
Dynamic Range	>1000:1 (OD3)	>1000:1 (OD3)	
Filter Size	f25.4 or smaller	f25.4 or smaller	mm
Beam splitter Size	up to 27 x 36	up to 27 x 36	mm
PC Interface	USB2.0	USB2.0	
DC Power Supply	12V/1A (included)	12V/1A (included)	
Dimensions	41.5 x 108 x 48.5	41.5 x 108 x 48.5	mm
Weight	1,275	1,275	g

Cameras & Lenses

LED Controllers

Light Sources

Microscope Tools

Spectrometers

High-Resolution High-Stability CCD Spectrometers

Compact CCD spectrometers are widely used in process control, environment monitoring, and scientific research applications. Mightex HRS series compact CCD spectrometers features a high-resolution 100mm Czerny-Turner optical platform coupled with a Toshiba 3648-element CCD array. The optimized optical path yields both high spectral resolution and high light collection efficiency.

Wavelength and amplitude stability is often a critical requirement for many spectrometer applications. All optical components in the HRS series spectrometers are mounted directly on a single-piece base without using screws. A box enclosure structure further increases stiffness of the base. The proprietary mounting method ensures high stability over time and temperature.

A 16-bit DAC is used to convert the analog signal from the CCD array into a digital stream. The electronics hardware also includes trigger input and four programmable digital I/Os for interfacing with other equipment such as a light source. The spectrometer is controlled through a USB2.0 interface which also supplies all the electric power needed to operate the spectrometer.

Standard software package includes a full-featured PC software as well as a software development kit (SDK) for further software development.

PERFORMANCE SPECIFICATIONS

Parameters	Specifications				Unit
Model	HRS-UV1-025	HRS-VIS-025	HRS-NIR-025	HRS-BD1-025	-
Optical Platform	f/4, Czerny-Turner				-
Focal Length	100				mm
Wavelength Range	200~400	390~780	600~1000	300~1050	nm
Resolution[*]	0.25	0.4	0.5	0.9	nm
Order Sorting Filter	Long pass	Long pass	Long pass	Spatially Variable Filter	-
Entrance Slit	5, 10, 25, 50, 100, 200 or no slit				μm
Input Fiber Connector	SMA 905				-
Input Fiber NA	0.22				-
Detector	Toshiba TCD1304AP Linear CCD Array				-
Pixel Number	3648				-
Pixel Size	8 x 200				μm
Pixel Well Depth	100,000				electron
Signal-to-noise Ratio	1000:1 (at full scale)				-
A/D Resolution	16				bit
Integration Time	0.1 to 6,500				ms
Frame Rate	up to 138				fps
GPIO	4 programmable digital I/Os				-
Trigger Input	Yes				-
PC Interface	USB 2.0				-
Trigger/GPIO Interface	DIN8				-
PC Operating System	Windows 2000/XP/Vista/7				-
Power Consumption	300 (at 5V)				mA
Dimensions	138 x 108 x 37				mm
Weight	510				g