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DHR Dual Beam Spectrometer

- Real time reference for light source fluctuation compensation.
- Patented Xiang Optical configuration
- Patented passive athermal opto-mechanical design
- Flexible in wavelength selection
- High spectral and spatial resolution
- Original holographic grating, low stray light

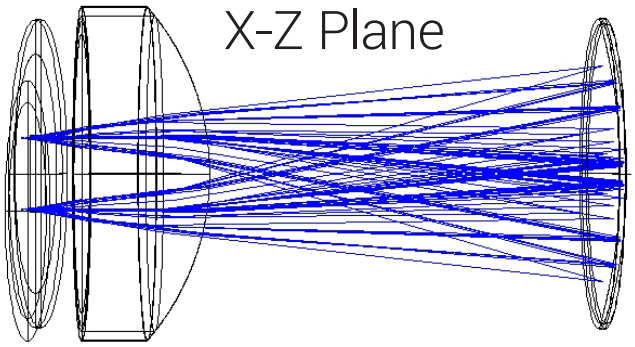
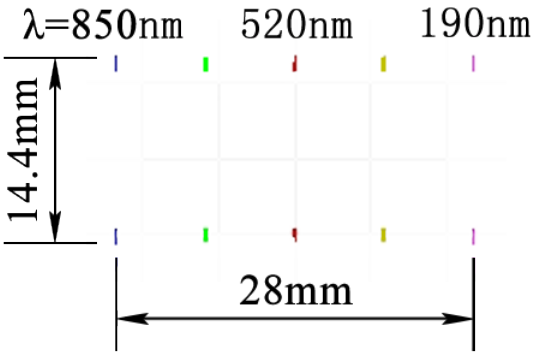
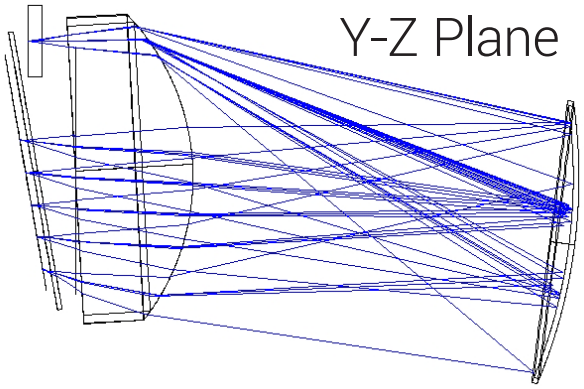


Image Diagram from Dual Slits of 25x1000 um F#3





Product	Range(nm)	NA	FWHM-25 µm Slit	FWHM-50 µm Slit
DHR01	200-850	0.16	0.75 nm	1.1 nm

Optical		
Optical Bench	Concave grating with aberration corrector. Xiang Design	
Grating Selection	Support Customization	
Entrance Slit	10,25,50,100 μm	
Optical Fiber	SMA905	
CCD		
Detector	Toshiba TCD1304	Hamamatsu S11155/6
Pixels	3648 pixels; 8x200 μm	2048; 14x500/1000 μm
Full Well Depth	~86K photon(1)(2)	200 Ke-
Characteristic		
SNR	420(no avg); 2073(avg 10)[4]	730(no avg); 3400(avg 10)
Readout Noise	<30 rms(no avg); <6.5 rms(avg 10)[4]	<4 rms(no avg); <1.5 rms(avg 10)
Dynamic Range	>2000(no avg); >10000(avg 10)[4]	>16000(no avg); >43000(avg 10)
Integration Time	10 μs-65 s	2 μs-65 s
Linearity	Before Correction 99.97%; After Correction 99.98%[4]	Before Correction 99.97%; After Correction 99.99%
Spectrum Range	184-1100 nm	
System Stray Light	0.05% with Tungsten[4]	
Thermal Spectrum Drift	Wavelength Drift<0.5 pixel(10-50 ℃)[5]	
Electronics		
Current Consumption	140 mA@5 VDC	250 mA@5 VDC
Single Spectrum Conversion Time	3.7 ms	2.1 ms
Max Spectrum Rate	250 /s	
AD Converter	16 bit 1 MS/s Low Noise Design	
Data Transfer Speed	USB2.0 3.7ms/scan; RS232 750 ms/scan	
GPIO	6 GPIOs	
LAMP Control	PWM, pulse, or custom output	
Trigger	Software & External	
Averaging	On-Board Averaging	
Software		
Supported Platform	Windows XP-7-8	
Interface	USB2.0HS@480 Mbps; RS232@115.2 Kbaud[3]	

Product	Dimension	Weight
HR01	142x81x60.5 mm	735 g
HR02	140x76.3x64.5 mm	705 g
HR03	147.5x88.5x61.5 mm	780 g
HR04	103x68x57.5 mm	565 g

1.http://www.gratingworks.com/products/tcd1304dg.pdf
*2.From Nakamura p.317(ISBN-13:978-0849335457) daylight of around 5000 K color temperature produces about 13366 photons per um^2-lx-s. 13366*0.004(sat lx-s)*200*8(pixel area)=85542*
3.RS232 only supported in special OEM version
4.http://www.gratingworks.com/products/noise.pdf
5.http://www.gratingworks.com/products/temp.pdf