Datasheet

Scanning grating, ultra-high resolution imaging grating spectrometer series

ATP7380

Features

- Zero aberration design, high spatial resolution;
- Number of spatial channels, up to 506 channels;
- Ultra-high resolution, up to 0.01nm;
- Tower-type rotating grating, built-in 3 gratings, a variety of gratings are optional, 90, 150, 300, 400, 500, 600, 900, 1200, 1800, 2400, 3600 lines;
- Dual outlets can be equipped with two detectors at the same time, and various types of detectors are available
- External trigger synchronization signal;

Application

- Raman Spectroscopy, Fluorescence Spectroscopy
- Photoluminescence Spectroscopy

Description

The ATP7380 series is an ultra-high resolution imaging spectrometer launched by Optosky with 20 years of experience in spectrometer development. After 5 years of research and development, the ATP7380 series is similar to PI's isoplane SCT-320 and SCT-160, with built-in 2-4 reflective gratings , The grating tower wheel is controlled by software, which can precisely position different grating angles, wavelengths, and resolutions.

The ATP7380 system utilizes a simulation-optimized optical system to ensure high resolution, and the design also provides the possibility of multi-fiber simultaneous imaging by correcting aberrations and aberration correction technology. The ATP7380 series has a variety of input and output options, providing researchers with endless possibilities, scalability and diversity.

ATP7380 has four models with different focal lengths: 210, 350, 510 and 810mm. Different from prism-type spectral or transmission-type gratings, each ATP7380 can cover applications from ultraviolet to near-infrared and short-wave infrared bands. You only need to choose the appropriate grating to have more choices in wavelength and resolution. Multiple degrees of freedom.

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

1. Performance

Model	Feature
ATP7380LT	Deep cooling CCD, 2048X506 pixels, cooling temperature -40°C, the longest integration time can be as long as 1.2 hours
ATP7380DC	Ultra-low temperature cooling CCD, 2048X506 pixels, cooling temperature -70°C, the longest integration time can be as long as 1 hour

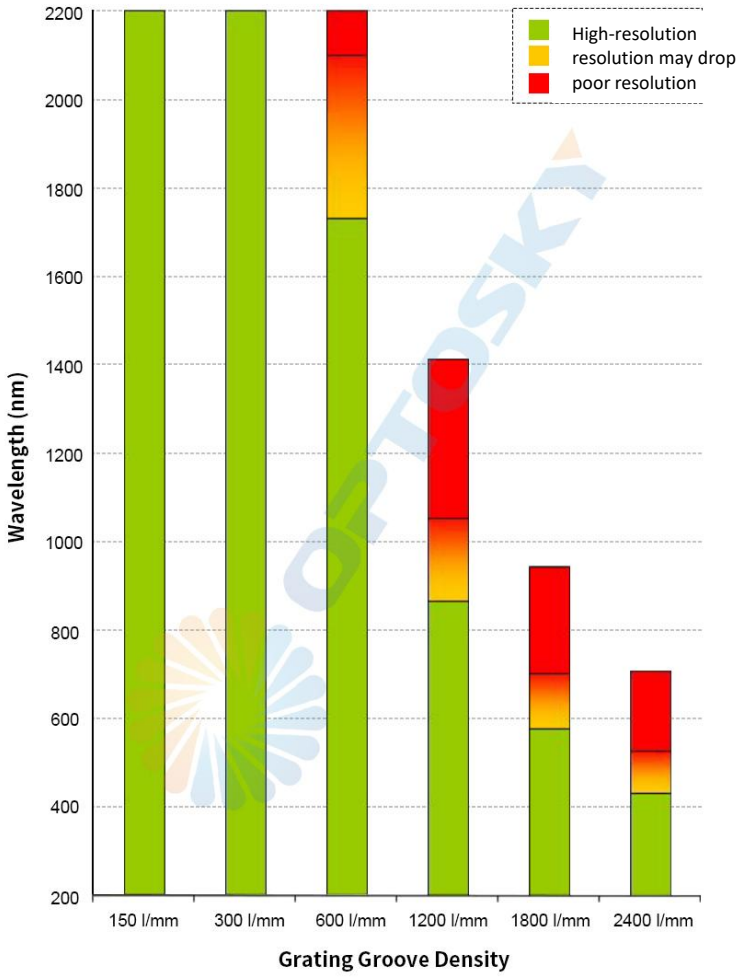
PN	Focal Length	Aperture Ratio	CCD Resolution**
ATP7380-FL210	210mm	F/3.5	0.25 nm
ATP7380-FL350	350mm	F/4.2	0.09 nm
ATP7380-FL510	510mm	F/6.5	0.05nm
ATP7380-FL810	810mm	F/9.7	0.03nm

Notes:

1) *: with 1200 g/mm grating @ 435.8 nm and 10μm slit width and 4 mm slit height

2) **: with 1200g/mm grating @ 435.8nm 14μm pixel, 20μm slit width

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588



Gratings with different line numbers and their applicable wavelength ranges

Detector	
Type	Refrigerated CCD, Refrigerated InGaAs CCD, the lowest cooling temperature can reach -70ºC
Detection Spectral Range	180-2500nm
Effective Pixels	CCD: 2048; SWIR InGaAs CCD: 512
Optical parameters	
Maximum wavelength range	180 nm ~2.5 μm, different ranges can be customized
Optical resolution	10 p.m.~0.8nm (Different focal lengths, slits, and spectral ranges vary greatly)
Maximum dynamic range	sCMOS & CCD:>1400;SWIR InGaAs: >10000
Optical path parameters	

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

optical design	Zero aberration asymmetric CT optical path
focal length	210, 350, 510 and 810mm
Grating	Tower-type rotating grating, built-in 3 gratings, a variety of gratings are optional, 150, 300, 400, 500, 600, 900, 1200, 1800, 2400, 3600 lines;
Grating rotation method	Electric control
Grating rotation angle	0.036μrad
Entrance slit width	5, 10, 25, 50, 100, 150, 200 μm, adjustable width, etc. optional, other sizes can be customized
Incident light interface	Support double entrance: SMA905 fiber optic interface, free space, double entrance products can be customized
Exit light interface	detector
Electrical parameters	
Integration time	8ms-1.2 hours
Data output interface	USB 2.0
ADC bit depth	18bit (output 16bit)
Power supply	12VDC±5%
Maximum working current	<5A
Operating temperature	-20°C~+45°C
Storage temperature	-30°C~+70°C
Maximum working humidity	< 90%RH (no condensation)
Physical parameters	
Size & Weight	ATP7380-FL210:15Kg ATP7380-FL350:23Kg ATP7380-FL510:45Kg ATP7380-FL810:85Kg

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

2. Numerous detectors are optional

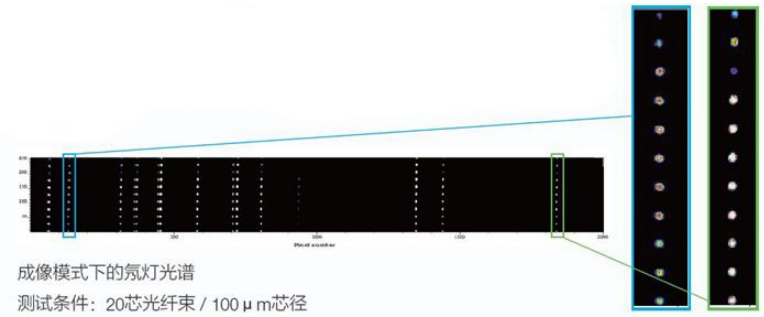
Band range	Serial number	Shape	Detector material	Response band range	Pixel values	Refrigeration temperature
<1100nm	ATP-S1	Cooled back-illuminated area arrayCCD	Si	150~1100nm	2048X64	-20°C
	ATP-S2	Deep cooled back-illuminated area array			2048X264	-70°C
	ATP-S3	deep cooling arrayEMCCD			1600 x 200 1600 x 400	-100°C
	ATP-S4	unitSidetector			1X1	-10°C
	ATP-S5	Ultra-low temperature refrigerationCCD			2048X264	-130°C
	ATP-S6	Liquid nitrogen refrigerationCCD			2048X264	-190°C
900~2500nm	ATP-S7	Cooled Line ArrayInGaAs CCD	InGaAs J11	900~1700nm	512X1	-20°C
	ATP-S8	Cooled Line ArrayInGaAs CCD	InGaAs J13	900~2500nm	512X1	-20°C
	ATP-S9	unitInGaAsdetector	InGaAs J11	900~1700nm	1	-20°C
	ATP-S10	unitInGaAsdetector	InGaAs J13	900~2500nm	1	-20°C
>2.5μm	ATP-S11	unitPbSdetector	PbS	1~3μm	1	-20°C
	ATP-S12	Cooling Line ArrayPbSdetector	PbS	1~3μm	256X1	-20°C
	ATP-S13	Refrigerated unitMCTdetector	MCT	1~5.6μm	1	-30°C
	ATP-S14	Refrigerated unitMCTdetector	MCT	1~10.6μm	1	-30°C
	ATP-S15	Cooled Unit Pyroelectric Detectors	Pyroelectric	1~25μm	1	-20°C
	ATP-S16	Cooled Linear Array Pyroelectric Detector	Pyroelectric	1~25μm	256X1	-20°C

3. A variety of accessories are optional

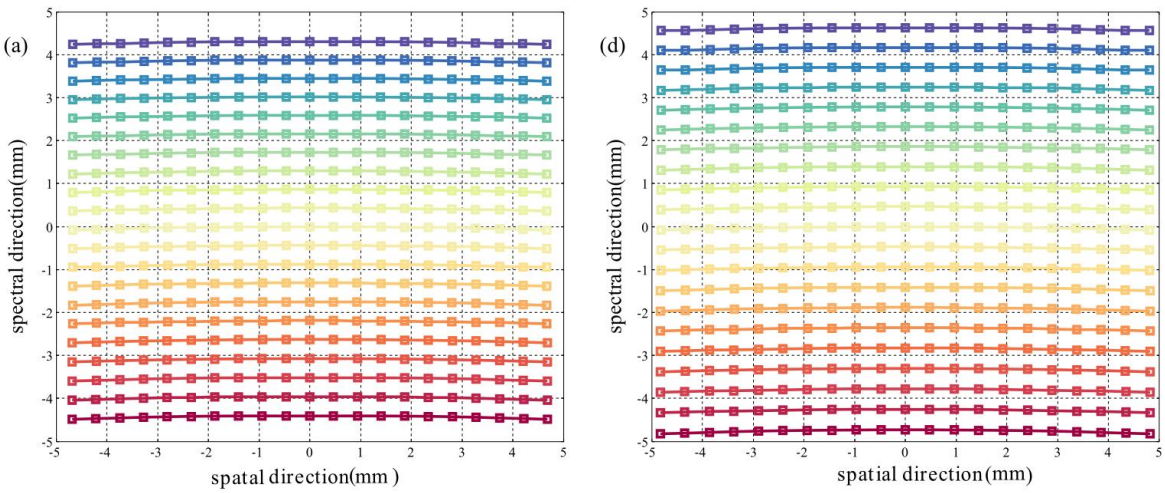
- Various fiber optic bundles;
- filter wheel;
- light source;
- 17 kinds of gratings are optional;
- Wavelength calibration and intensity calibration system;

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

4. Measured data



Spectral image of laser and mercury lamp



Schematic diagram of spectral resolution and spatial resolution

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588