

(150nm-25 μ m) Grating Spectrometer

ATP7340

Features

- Built-in grating automatic calibration system;
- ultra-high resolution;
- Focal lengths available: 350, 510 and 810mm
- Maximum spectral range: 150nm-25 μ m (closely related to grating selection, customized according to requirements)
- Tower type rotating grating, built-in 2-4 gratings, multiple gratings available, 90, 150, 300, 400, 500, 600, 900, 1200, 1800, 2400, 3600 lines;
- Multiple optical input interfaces;
- Dual outlets can be configured with two detectors at the same time
- Various types of detectors to choose from
- The control of the instrument is controlled by computer
- A variety of accessories are available;

Application

- Raman spectroscopy
- Fluorescence Spectroscopy
- Photoluminescence spectrum
- Absorption, reflection and transmission spectra
- Various other spectroscopic applications

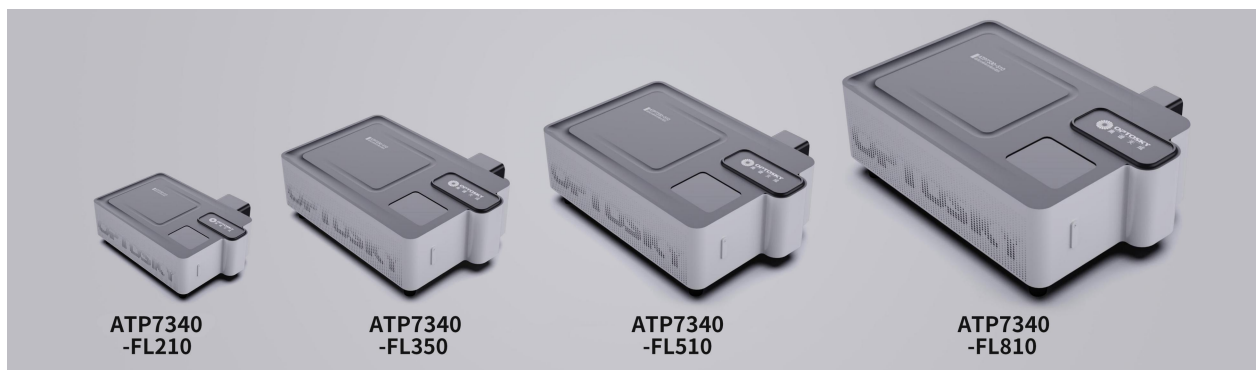
Description

ATP7340 is a new generation of ultra-high-resolution spectrometer launched by Optosky after 20 years of experience in spectrometer development. After 5 years of research and development, ATP7340 adopts a multi-piece tower rotating reflective grating array, which is convenient and quick to replace. The grating tower wheel is controlled by software. , can accurately position the grating and test wavelength; compared with ordinary grating spectrometers, ATP7340 adds an automatic grating calibration system to ensure that each grating and each band range can achieve the best resolution.

ATP7340 is available in four models with different focal lengths: 350, 510 and 810mm. Different from prism-type spectrum or transmission-type gratings, each ATP7340 can cover applications from ultraviolet to near-infrared and short-wave infrared bands. Just choose the appropriate grating to have more choices in wavelength and resolution. Multiple degrees of freedom.

ATP7340 can receive SMA905 optical fiber input light or free space light, and can be configured with an adjustable width slit to output the measured spectral data through the USB2.0 or UART port.

ATP7340 only requires a +12V/24V DC power supply, which is very easy to use. All controls can be controlled electronically by software through the computer's USB.



1. Parameter

Sensor	
type	Cooling type CCD, cooling type InGaAs CCD, the cooling temperature can reach as low as -40°C
Spectral Range	150-2500 nm (below 185nm, need to be customized separately)
Effective Pixels	<ul style="list-style-type: none"> ● UV visible: 2048X256 pixels, multiple detectors optional; ● Short-wave infrared InGaAs CCD: 512X1 or 1024X1, multiple detectors available ● Medium wave infrared: Deep cooling MCT, PbS and other detectors are optional ● Far infrared: Deep cooling MCT, pyroelectric and other detectors are optional;
Optical parameters	
Wavelength range	150 nm ~ 25 μm, different ranges can be customized
Optical resolution	10 pm ~ 5 nm (different focal lengths, slits, and spectral ranges vary greatly)
Dynamic range	SCMOS & CCD: >1400; Shortwave Infrared InGaAs: >10000
Optical path parameters	
Optical Design	Asymmetric C-T optical path
Focal Length	350, 510 and 810mm
Grating	Tower type rotating grating, built-in 3 gratings, multiple gratings available, 150, 300, 400, 500, 600, 900, 1200, 1800, 2400, 3600 lines;
Grating Rotation Method	Electronic control
Grating Rotation Angle	0.36 μrad
Incident Slit Width	<ul style="list-style-type: none"> ● 5, 10, 25, 50, 100, 150, 200 μm, adjustable width, etc. available, other sizes can be customized ● Manually adjustable slit optional; ● Electrically adjustable slit optional;
Incident Light Interface	Support dual entrance: SMA905 optical fiber interface, free space
Outgoing Light Interface	Support dual export
Electrical parameters	
Integration time	10 μs - 1.3hours
Data output interface	USB 2.0
ADC bit depth	18bit (output 16bit)
Power supply	12V DC±5%
Working current	<4A

operating temperature	-20° C ~ +45° C
storage temperature	-30° C ~ +70° C
Working humidity	< 90%RH (no condensation)
Physical parameters	
Dimensions and weight	ATP7340-FL350: 33Kg ATP7340-FL510: 45Kg ATP7340-FL810: 65Kg

2. Selection Table

PN	Focal Length	Aperture Ratio	PMT Resolution*	CCD Resolution**	Linear Dispersion
ATP7340-FL350	350mm	F/4.2	0.1nm	0.14 nm	2.38 nm/mm
ATP7340-FL510	510mm	F/6.5	0.07	0.09	1.65nm/mm
ATP7340-FL810	810mm	F/9.7	0.04	0.05	1.03nm/mm

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



Figure 1 Different lines grating with corresponding wavelength range

3. Customized Accessories

- Various fibers.
- Filter runner;
- Light source;
- 17 kinds of gratings optional;
- Wavelength calibration and intensity calibration system;

4. Measured spectrum

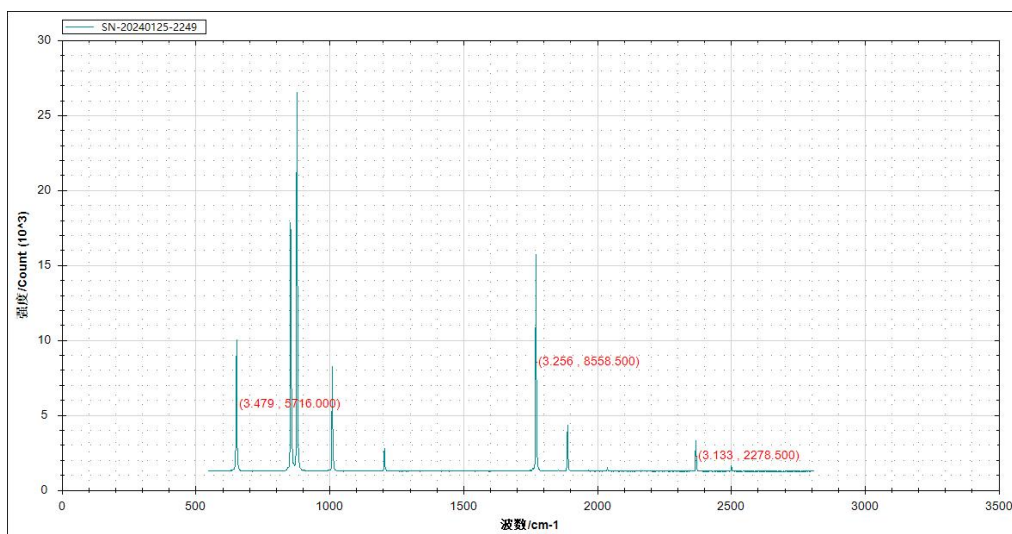


Figure 2 Spectrum of ATP7340-FL510 (used in Raman spectroscopy test, 300-line grating)

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

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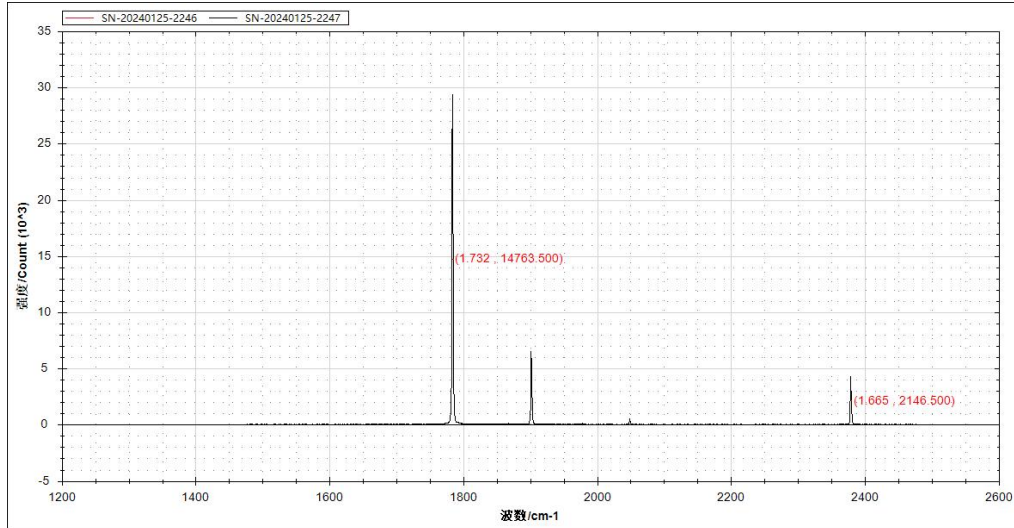


Figure 5 Spectrum of ATP7340-FL510 (used in Raman spectroscopy test, 600-line grating)

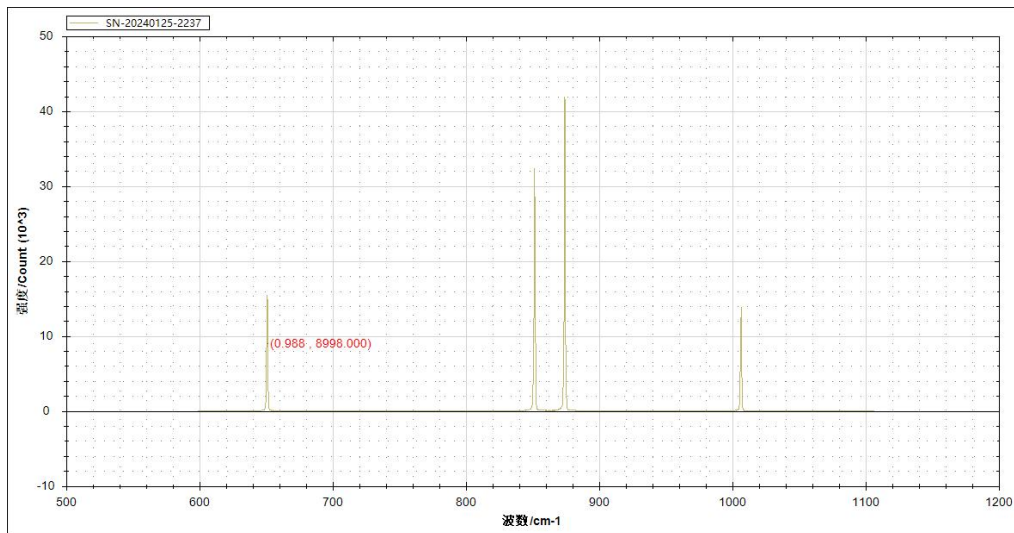


Figure 3 Spectrum of ATP7340-FL510 (used in Raman spectroscopy test, 1200 line grating)

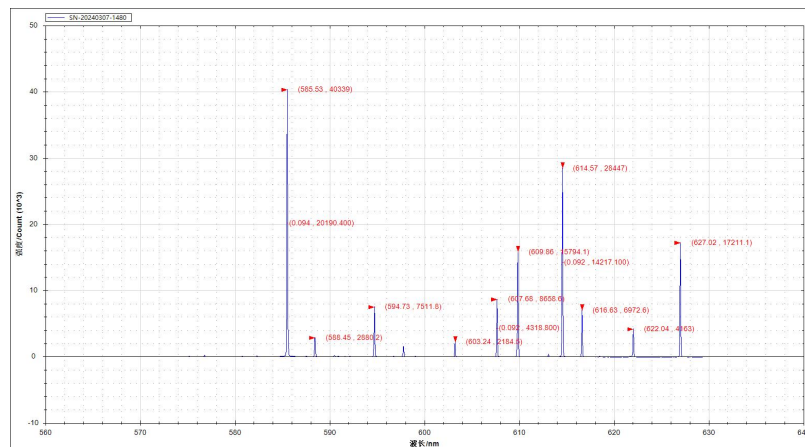


Figure 11 Spectral chart of ATP7340-FL350 (test of neon lamp, 25um slit, 1200 line grating)

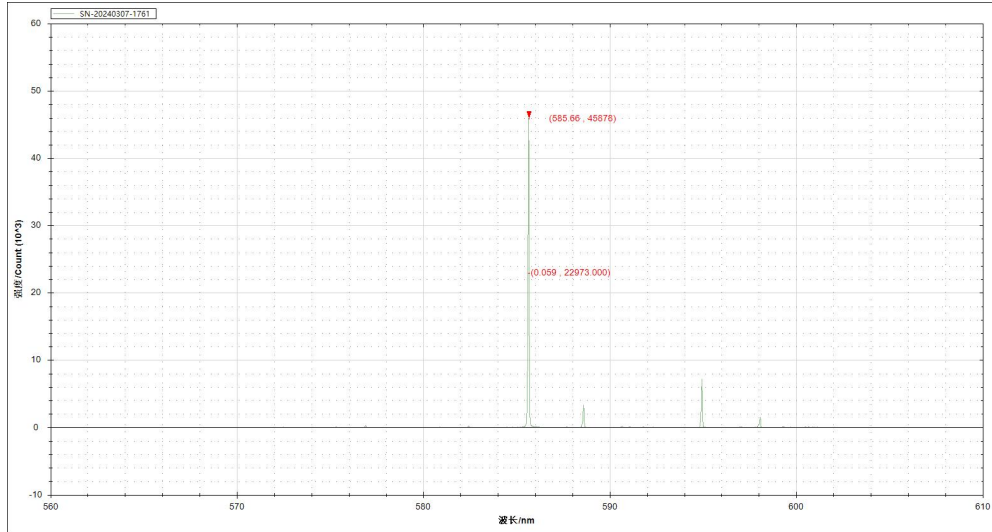


Figure 12 Spectrum of ATP7340-FL350 (test of neon lamp, 25um slit, 1800 line grating)

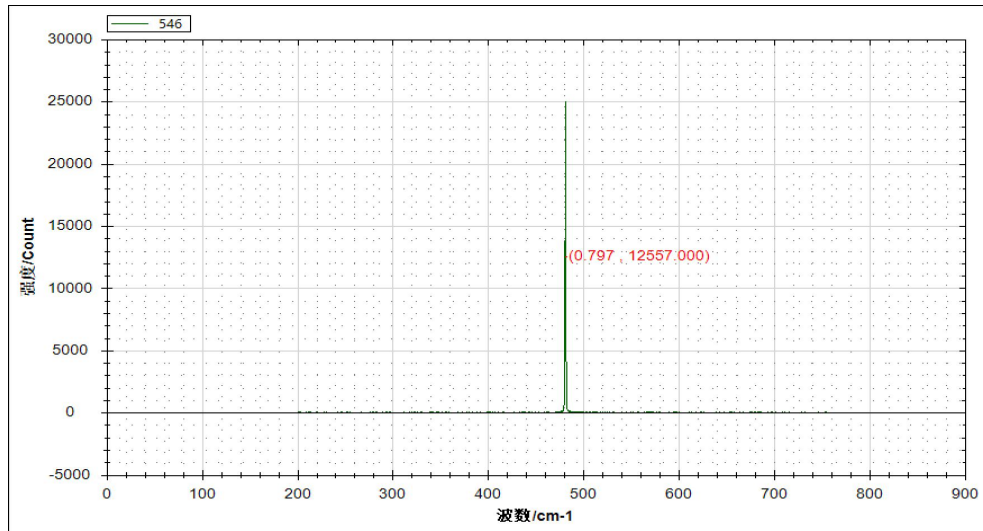


Figure 12 Spectrum of ATP7340-FL810 (used in Raman spectroscopy test, 1800 line grating)