Ultra-wide range, ultra-high resolution Spectrometer	APTO 30-07

Feature:

- Detector: Linear CMOS
- Probe pixels: 4096 × 5 pixels (built-in 5 spectrometers)
- Ultra-low-noise CCD signal processing cir cuit
- Maximum spectral range: 200-1100 nm (depending on demand)
- Spectral resolution: 0.1-0.16 nm (depending on the spectral range, slit wid th)
- Optical path structure: Cross C-T
- Integration time: 1ms-130s
- Power supply: DC 12V ± 10%
- Digital bit depth: 16 bit
- Optical input interface: SMA905
- Data output interface: USB2.0.

Application:

- The LIBS, Plasma emits light
- Laser wavelength measurement
- Spectral analysis / radiative spectroscopic analysis / spectrophotometric analysis
- Controlled thermonuclear fusion
- Low-pressure plasma spectroscopy detection
- Dielectric blocking discharge plasma
- spectroscopy detection
- Plasma processing process analysis

Description:

Optomax launched a new generation of high-performance ultra-thin optical spectrometer APTO30-07 has 5 ultra-high-resolution optical spectrometers, each adopts a high sensitivity linear CMOS, of 4096 pixels and specially

customized ultra-low noise CMOS signal processing circuit , which greatly reduces sensor noise, obtains excellent signal-to-noise ratio (about 2 times higher than similar competitors), and improves APTO30-07 measurement reliability without the ambient temperature the best level in the industry.

The APTO30-07can receive the SMA905 fiber input light or free space light and output the measured spectral data via the USB2.0 or UART port.

AT L30007 only requires a 12V DC power or USB power, very easy to integrate

Model number	Probe pixels	Whether the detector is cooled
APTO 30-07	4096 × 5 pixels	No



1. PARAMETER

The detector	
Type	Line ray CMOS
Detection of the spectral range	200~ 1100nm
Effective pixels	4096 × 5
Like dimensional dimensions	7μm×200μm
Full-scale range	~200 ke⁻
Sensitivity	1300 V/(lx•s)
Dark noise	0.4 mV rms
Optical parameters	
Longth range	200~ 1100nm(depending on demand)
Optical resolution	0.1~0.16 nm (depends on the slit, spectral range)
SNR	>450 : 1
Dynamic range	3000: 1
Optical path parameters	
Optical design	F /4 cross-crossed asymmetric C-T-optical path
Injection slit width	5,10 μm optional, other sizes can be customized
Injection light interface	SMA905 optical fiber optic interface, free space
Electrical parameters.	
Integration time	0.1 ms ~130s
Data output interface	USB 2.0
ADC bit deep	16 bit
Power supply supply	DC 12 V (type @12V)
Operating current	3A@Typ
Storage temperature	-30°C to +70°C
Operating temperature	-25~50°C
Working humidity	<90%RH (No dew)
Physical parameters	
Dimensions	39.5 × 24.5 × 19 c m
Weight	2.5 kg

2. Electrical parameters

Table 1 Electrical characteristics.

Parameter	Min	Typ	Max	Unit
Operating voltage range	12			V
Operating current		3.0		A
Logic Inputs(3.3V LVTTL,)		3.3		V
High level input voltage	1.7	3.3	3.6	V
Low level input voltage	-0.3	0	1.0	V
Logic Output(3.3V LVTTL)				
High level output voltage	2.4	3.3	3.6	V
Low level output voltage		0	0.4	V

The module is equipped with 2 SMA connectors and one USB2.0 communication interface.

3.Example of the OPTO 30-07 measured spectrum diagram

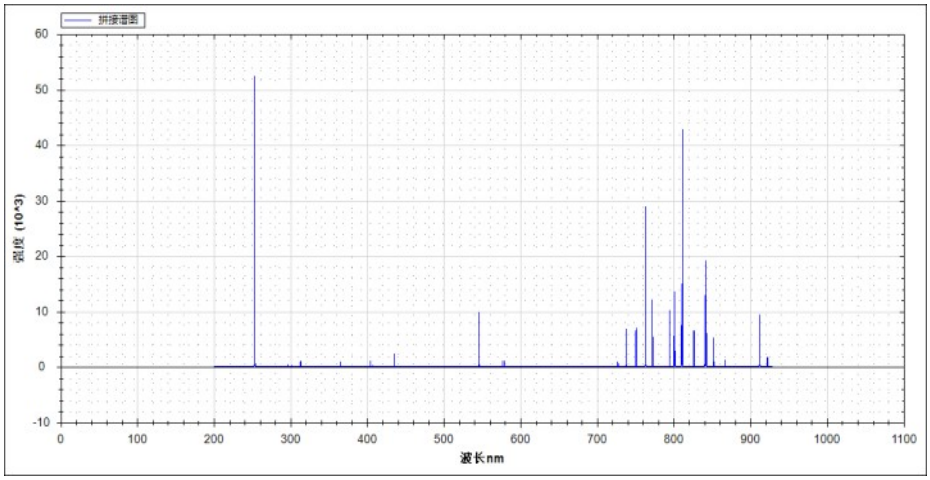


Figure 1 The resolution of the OPTO 30-07 test mercury lamp spectrum (wavelength range: 200-924nm) is 0.1nm.

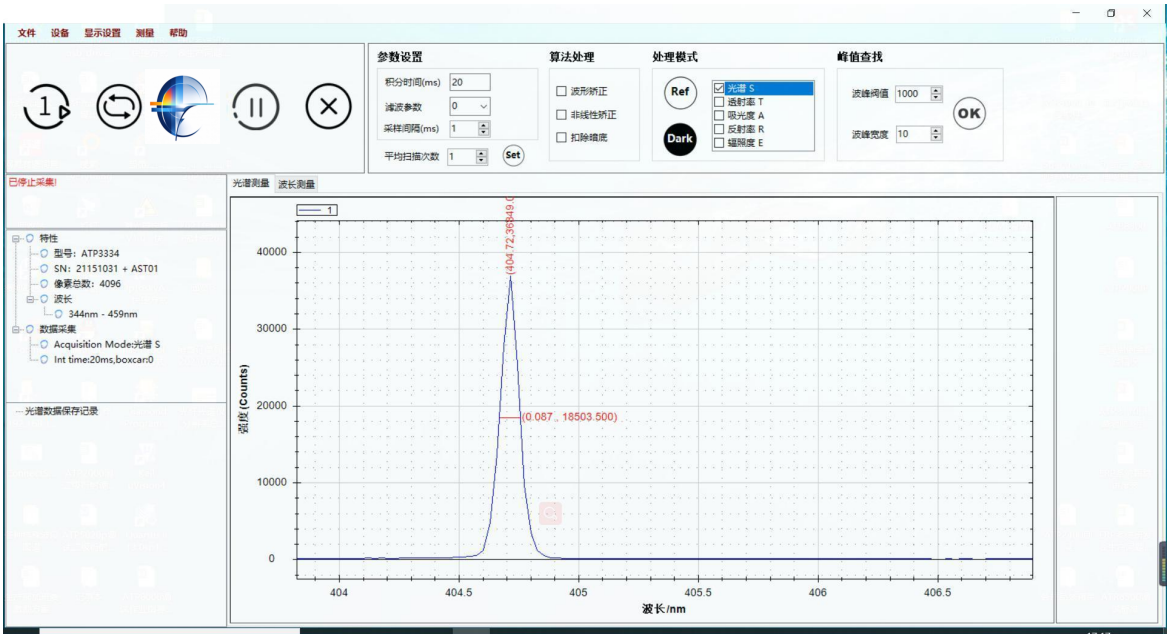


Figure 2 Resolution test OPTO 30-07, FWHM is 0.087nm@404.7nm

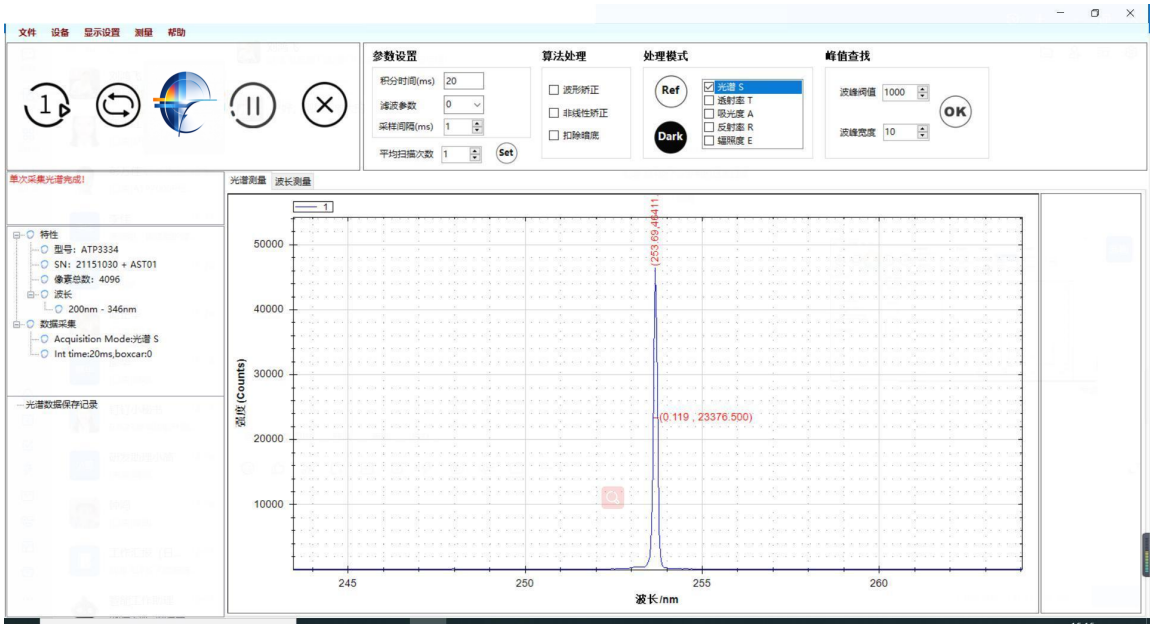


Figure 3 Resolution test of OPTO 30-07, FWHM is 0.119nm@253.7nm

4.OPTO 30-07 physical diagram.



Figure 4 Physical diagram of the OPTO 30-07 type stir-fried high-resolution spectrometer.