

Micro Fiber Spectrometer

ATP2400

Features

- Ultra-small, ultra-thin, ultra-light;
- Detector: Linear CMOS
- Detector pixels: 2048 pixels
- Ultra-low noise CCD signal processing circuit
- Maximum spectral range: 190-1180 nm(Maximum width: 900 nm)
- Spectral resolution: 0.1-2 nm(Depends on spectral range and slit width)
- Optical path structure: cross C-T
- Built-in pulsed xenon lamp driver
- Integration time: 1ms-65s
- Power supply: DC 5V±10% or USB power supply
- 16bit, 2MHz ADC
- Optical input interface: SMA905 or free space
- Data output interface: USB2.0 (High speed) or RJ-45 interface
- 20-pin double-row external expansion interface

Application

- Fast, micro-volume spectrophotometer;
- Environmental protection instruments (flue gas, water quality);
- Spectral Analysis/Radiation Spectroscopic Analysis/Spectrophotometric Analysis
- Transmittance and reflectance detection;

Description

With 20 years of experience in the development of fiber optic spectrometers, Optosky has launched a new generation of high-performance ultra-thin fiber optic spectrometers: ATP2400, which is very small in size and light in weight. It has built-in pulse.

The xenon lamp drive circuit adopts high-sensitivity linear CMOS, and a specially customized ultra-low noise CMOS signal processing circuit, which greatly reduces the noise of the sensor and obtains an excellent signal-to-noise ratio (about 2 times higher than that of similar competitors), Moreover, the measurement reliability of ATP2400 is improved, and the measurement results do not change with the ambient temperature, which is the best level in the industry.

ATP2400 can receive SMA905 fiber input light or free space light, and output the measured spectral data through USB2.0 or RJ-45(4Kfps).

ATP2400 only needs a 5V DC power supply or USB power supply, which is very convenient for integration.

Model	Detector pixels
ATP2400	2048 pixels
ATP2400-LVF	2048 pixels, built-in LVF to suppress multi-order diffraction
ATP240-4	4096 pixels



1. Parameters

Detector	
Type	Line Array CMOS
Detection Spectral Range	190-1100 nm
Effective Pixels	2048×1
Pixel size	14μm×200μm
Full scale range	~200 ke-
Sensitivity	1300 V/(lx•s)
Dark noise	0.4 mV rms
Optical Parameters	
Wavelength range	190-1100 nm (Maximum : 900 nm)
Optical resolution	0.1-2 nm(Depends on spectral range and slit width)
SNR	>450 : 1
Dynamic Range	3000: 1
Optical path parameters	
Optical design	f/4 Crossed Asymmetrical C-T Beam Path
Entrance slit width	5, 10, 25, 50, 100, 150, 200 μm optional, other sizes can be customized
Incident light interface	SMA905 fiber optic interface, free space
Physical Parameters	
Size	85 × 61 × 25.8 mm ³
Weight	0.15 kg
Electrical Parameters	
Integration time	1 ms - 65 second
Data output interface	USB 2.0 or RJ-45
frame rate	USB 2.0(2Kfps);RJ-45(4Kfps)
ADC bit depth	16 bit
Power supply	DC4.5 to 5.5 V (type @5V)
Working current	250mA@Typ.
Storage temperature	-30°C to +70°C
Operating temperature	-25-50°C
Working humidity	< 90%RH (no condensation)

2. Main Performance Test Report

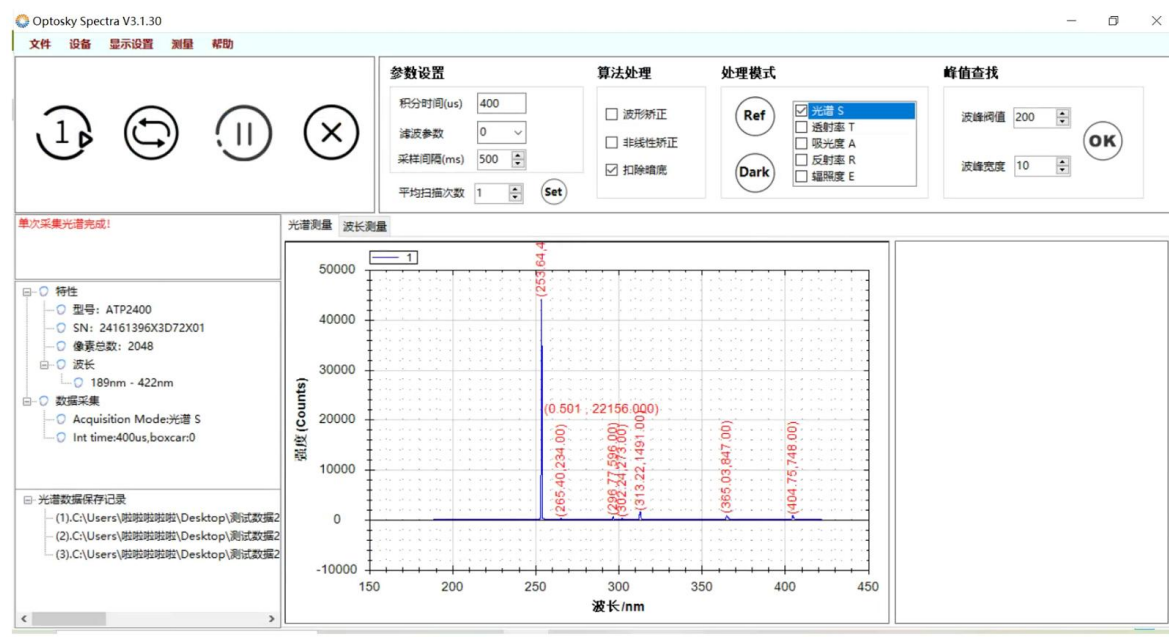


Figure 2: ATP2400 Resolution - 0.501nm @ 253.64nm

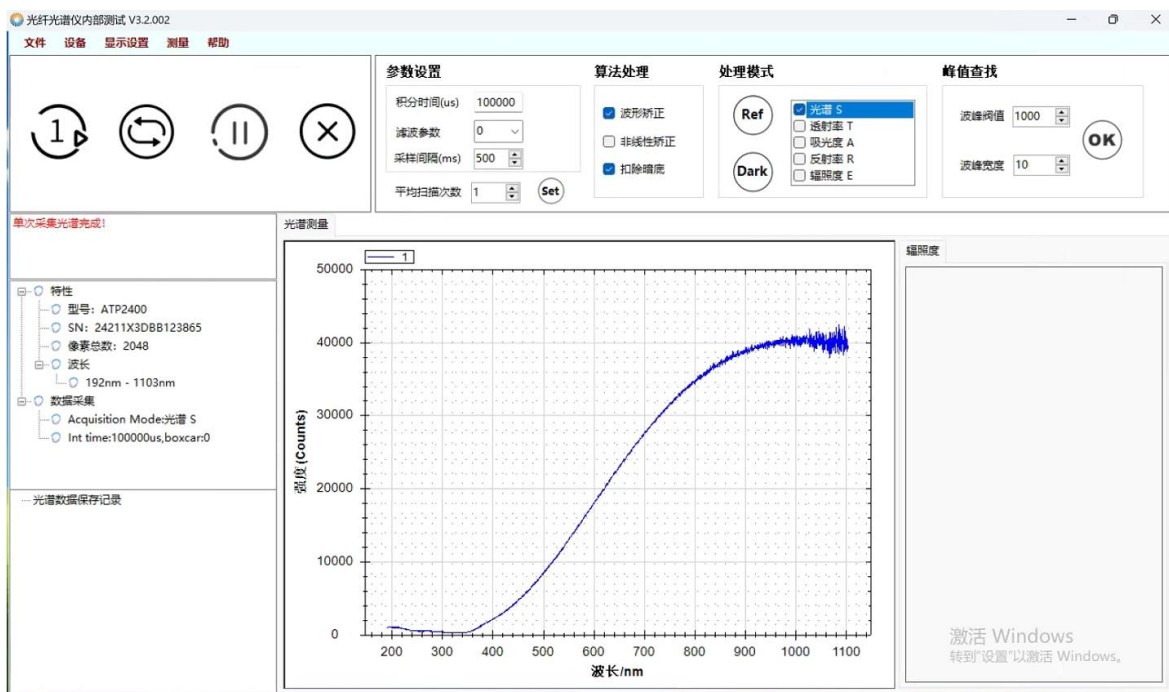


Figure 3: ATP2400 Wavelength Calibration

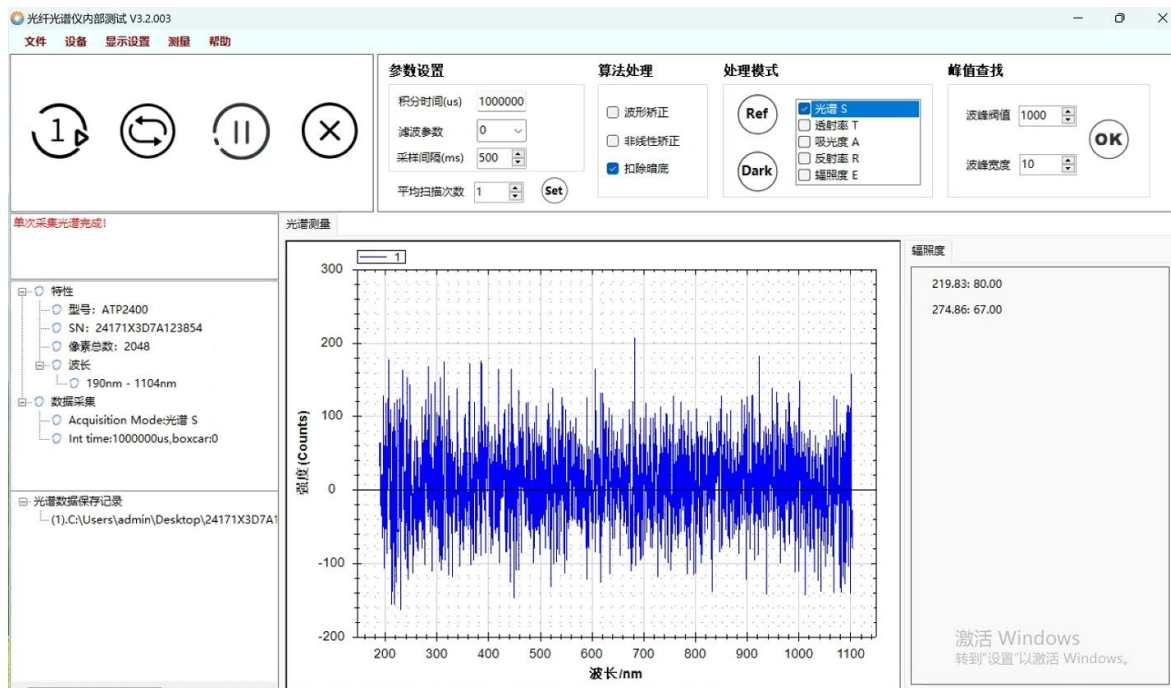


Figure 4: ATP2400 Dark Current Test (1000ms)

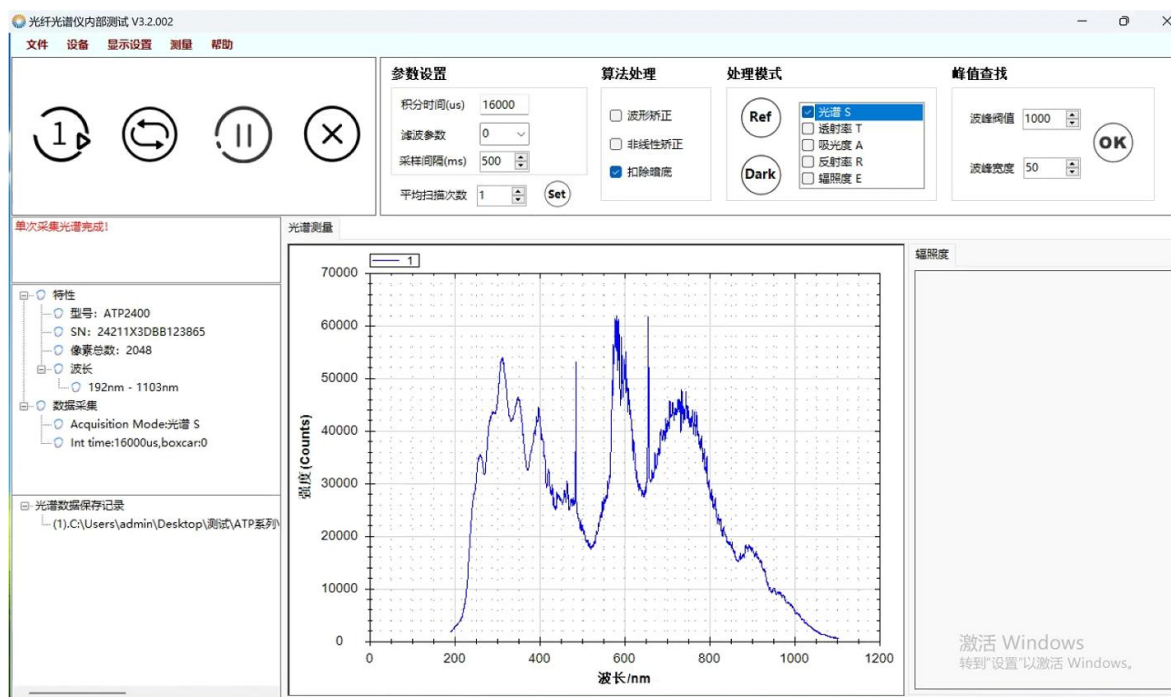


Figure 5: ATP2400 Deuterium-Halogen Lamp Test Spectrum

3 Product Images



Figure 6: ATP2400 Physical Product Image

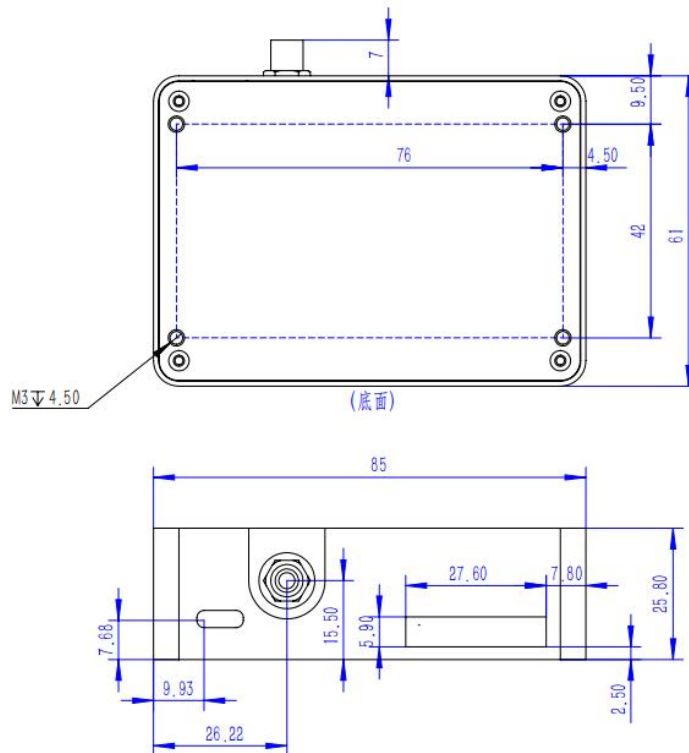


Figure 7: ATP2400 Dimensional Drawing

4 Accessories

Standard Accessories	
1	USB2.0 to USB Data Cable
Optional Accessories	
1	UV-Visible Optical Fiber
2	Spectral Analysis Sample Cell (Disc-shaped)
3	Standard Diffuse Reflectance White Reference Plate
4	Integrating Sphere Bracket for Transmittance/Reflectance Measurement

5 Application Scenarios and Test Data

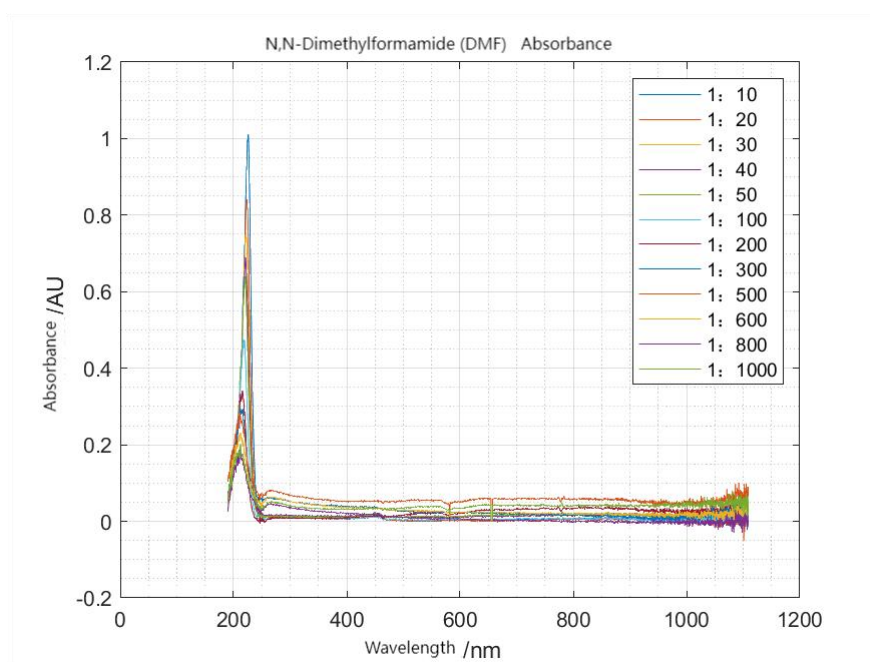


Figure 8: ATP2400 Absorbance Test of Dimethylformamide Sample

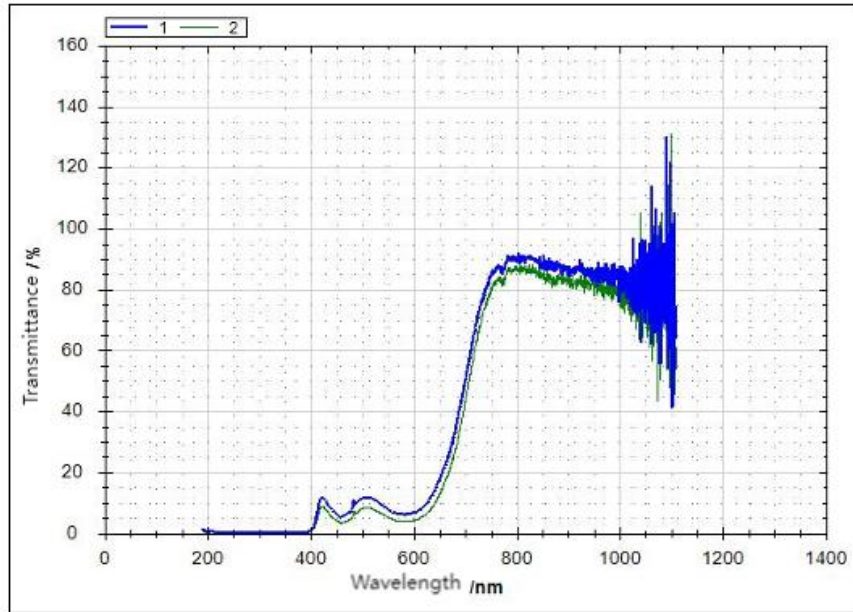


Figure 9: ATP2400 Transmittance Test of Eyeglass Lens Resin Material