

Built-in Pulsed Xenon Driver Spectrometer

ATP2002

Features

Built-in Pulsed Xenon Driver.
 Fiber input, Signal Output line at one side for better Integration.
 Detector: Linear CMOS.
 Pixel size: 2048pixels.
 Max spectral range: 190-1100 nm (Maximum span of 800nm).
 Spectral resolution: 0.1-3nm (Depending on spectral range and slit width).
 Optical Path: crossed CT.
 Integration times: 1ms-65s.
 Supply voltage: DC 5V or USB Power.
 16 bit, 2MHz A/D Converter.
 Interface: USB2.0 (High speed) or UART.
 30-pin dual-row programmable external expansion interface.

Application

- Spectrophotometer
- Environment Instrument (exhaust gas and water quality)
- Transmittance, reflectance detection
- Spectral analysis/radiation spectrophotometry analysis
- Laser wavelength measurement

Description

In order to adapt to the pulse xenon lamp, Optosky specially launched the ATP2002 miniature spectrometer, which has a built-in pulse xenon lamp driver and high-sensitivity linear CMOS. Optosky has specially customized an ultra-low noise CMOS signal processing circuit, which greatly reduces the noise of the sensor and achieves an excellent signal-to-noise ratio (about 2 times higher than similar competitors). Moreover, the measurement reliability of ATP2002 is improved, and the measurement results do not change with the ambient temperature, which is the best level in the industry.

ATP2002 can receive SMA905 optical fiber input light or free space light, and output the measured spectral data through USB2.0 or UART port.

Model	Description
ATP2002	Built-in pulse xenon lamp driver



1 Specifications

Detector	
Type	UV-enhanced linear array CMOS
Effective pixel	2048
Pixel dimension	14 μ m $\times$ 200 μ m
Sensitivity	1300 V/(lx $\cdot$ s)
Dark noise	0.4 mV rms
Optical Parameter	
Wavelength range	190-1100 nm, Customizable spectral range (up to 800 nm)
Optical resolution	0.1-3 nm (depends on the slit, spectral range)
Signal-to-noise	>450:1
Dynamic range	>3000: 1
Optical Design	F/4 crossed asymmetrical Czerny-Turner
Incidence slit	5, 10, 25, 50, 100, 150, 200 μ m optional, other sizes can be customized
Incident Interface	SMA905 connector, free space
Electrical Parameter	
Integration time	1 ms -65 s
Interfaces	USB 2.0(High-speed) or UART interface
A/D conversion resolution	16 bit
Supply voltage	USB powered, DC 5V $\pm$ 5%
Physical parameters	
Operating current	170mA@Typ.
Operating temperature	-25-50 $^{\circ}$ C
Working humidity	< 90%RH (Non-condensing)
Dimension	102 $\times$ 72 $\times$ 34 mm ³
weight	0.2 kg

2 Performance

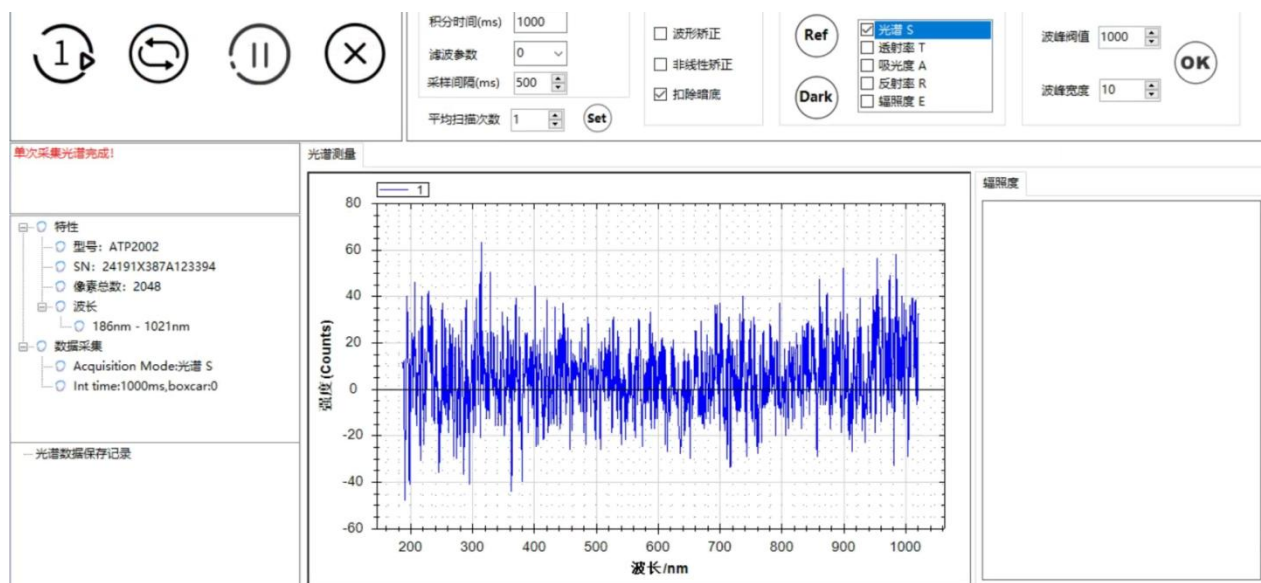


Figure 1: ATP2002 Dark Current Test (1000ms Integration Time)

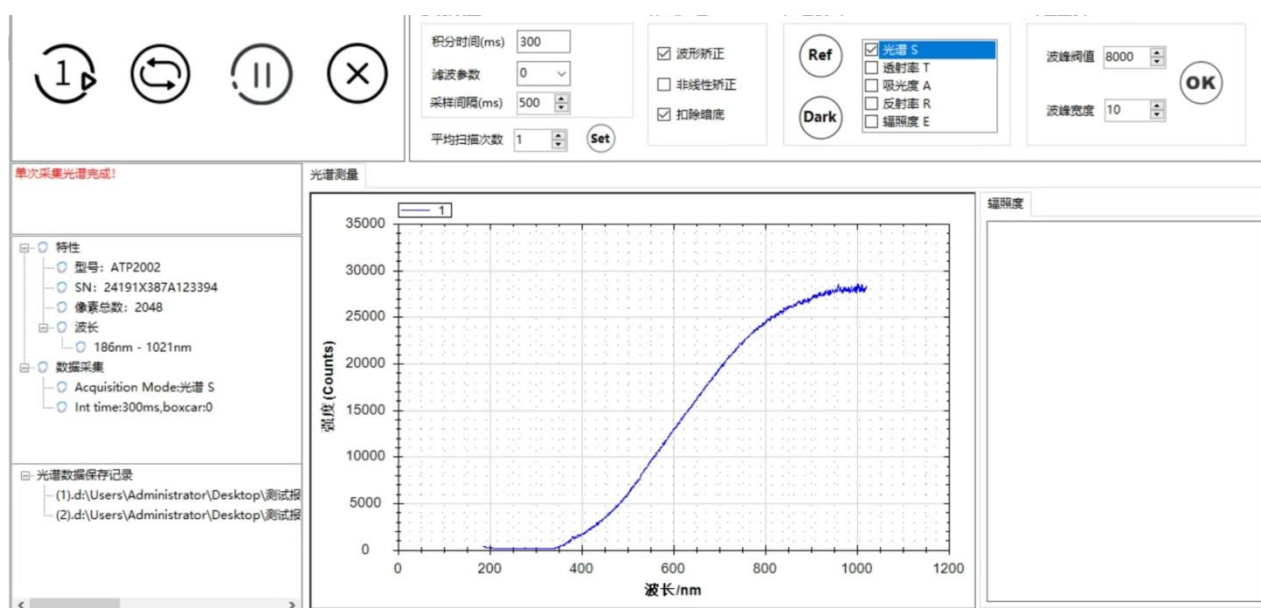
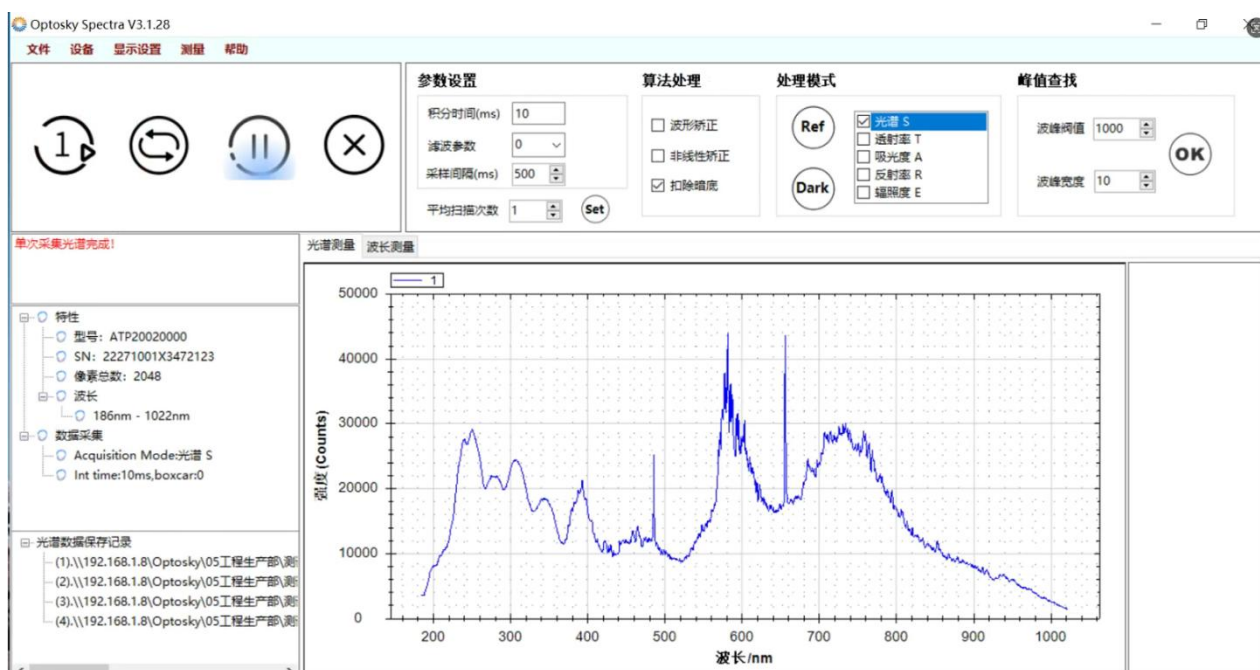
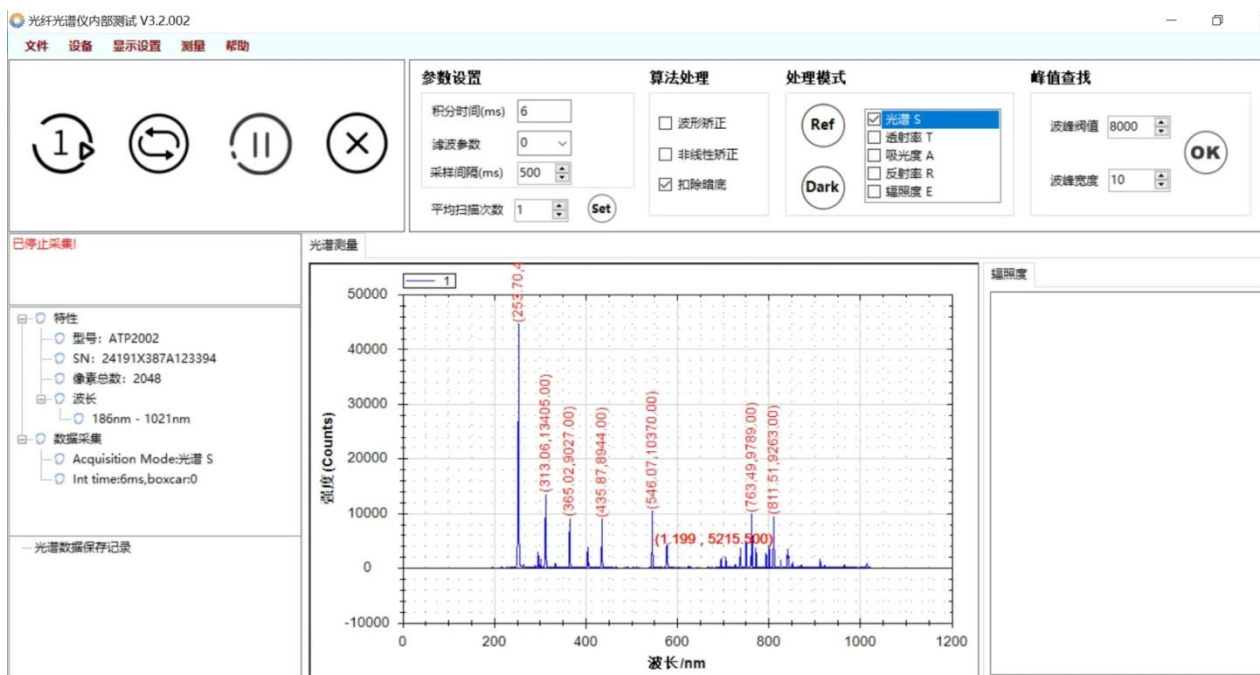


Figure 2: ATP2002 Wavelength Calibration



3 Physical Device Photos



Figure 5: ATP2002 Physical Device Photo

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

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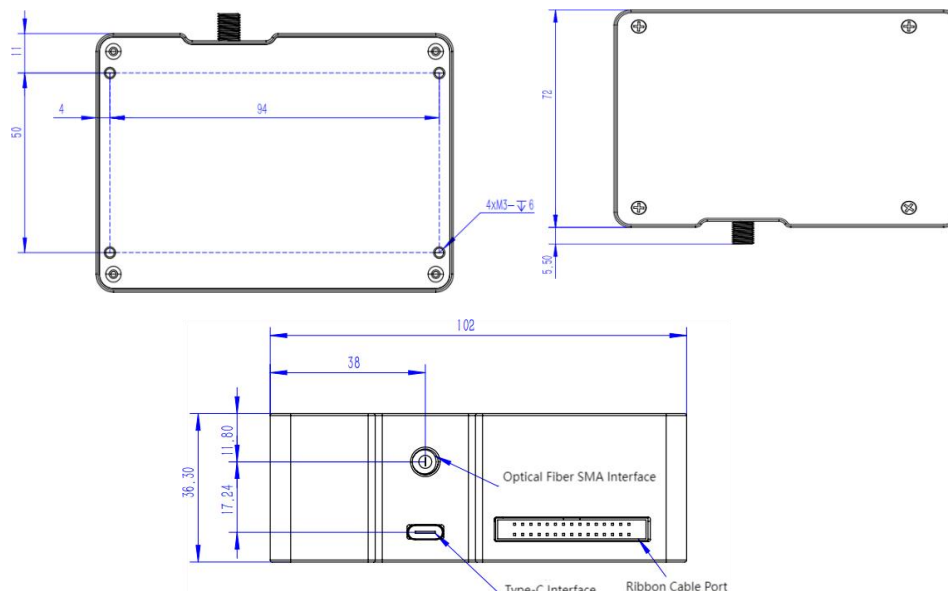


Figure 6: ATP2002 Dimension Diagram

4 Accessories

Standard Accessories	
1	USB 2.0 Data Cable
Optional Accessories	
1	UV-Visible Resistant Optical Fiber
2	Adjustable Optical Attenuator
3	Standard Diffuse Reflectance White Board
4	Integrating Sphere Bracket for Transmittance/Reflectance Measurement

5 Application Scenarios and Measured Data

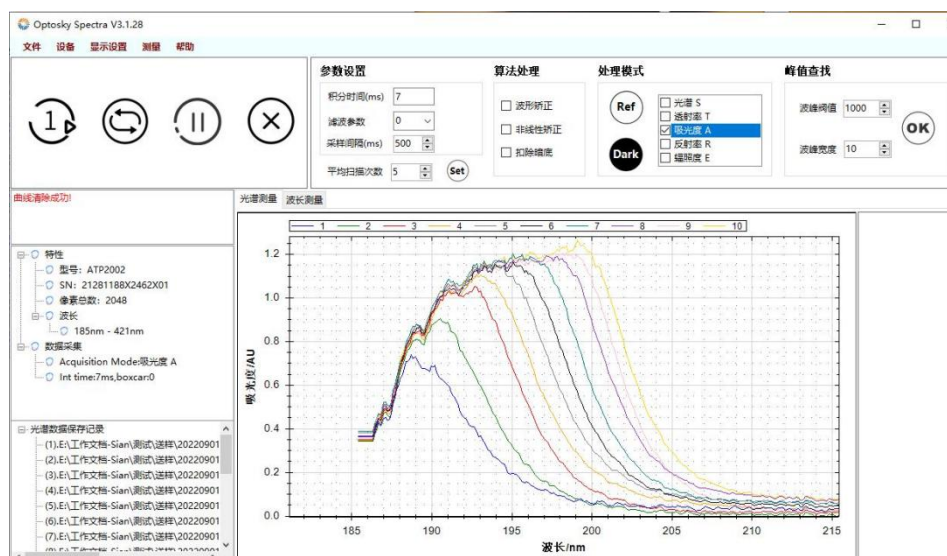


Figure 7: ATP2002 Absorbance Comparison Test for Potassium Chloride Solution (100–10,000 ppm)

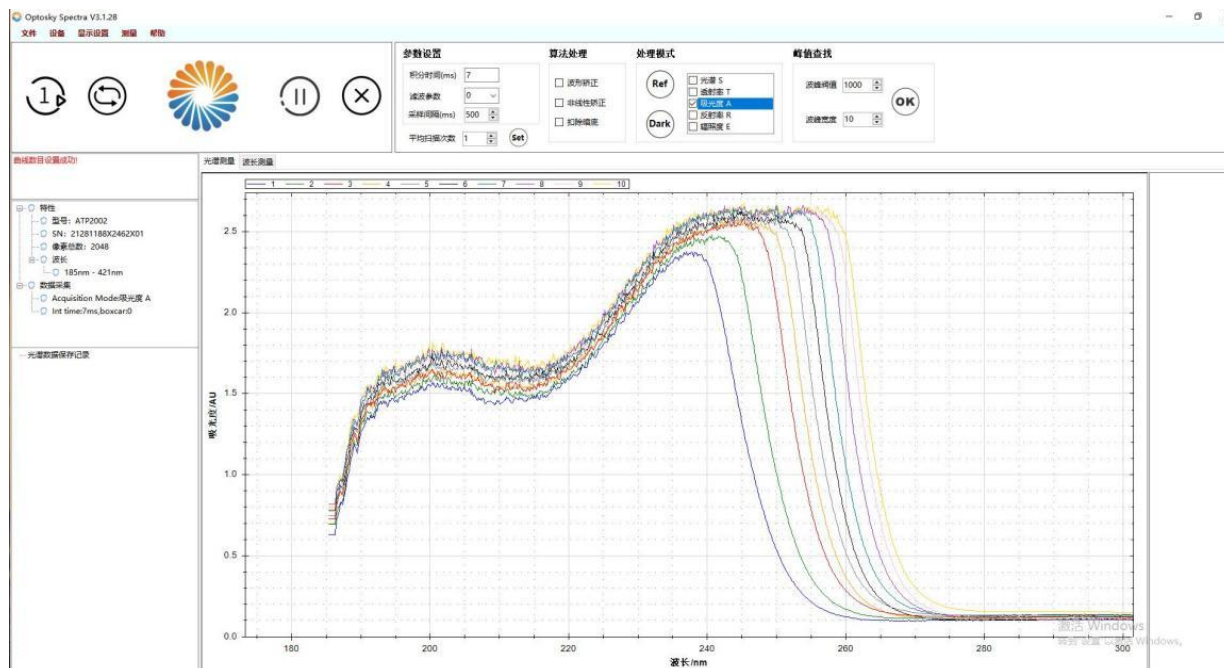


Figure 8: ATP2002 Absorbance Comparison Test for Sodium Iodide Solution (100–10,000 ppm)