Datasheet

Ultraminiature Spectrometer ATP1030

Features

- Ultra-thin, ultra-miniature, high resolution
- Spectral range: 200- 1100 nm (widest: 900 nm)
- Detector: 1024 pixel CMOS;
- Integration time: 1 ms ~65s
- Power supply: DC 5V@<200mA;
- Power interface: Type C USB interface or expansion interface
- ADC bit depth: 16 bits;
- ADC maximum sampling rate: 10 MHz;
- Optical input interface: SM905 optical fiber interface or free space input;
- Data output interface:Type-C,USB2.0 (high speed) or UART; 10-pin (2x5) expansion interface;

Application

- Online multi-parameter water quality analyzer;
- color detection;
- Elemental analysis instruments (LIBS);
- Micro-volume, fast spectrophotometer;
- UV smoke analyzer;
- Small spectrum analysis and spectrophotometric analysis instruments;
- Fluorescence Spectrometer;
- Reflection and transmission spectrum detection;

Description

Based on Optosky's more than 10 years of experience in developing spectrometers, ATP1030 combined with UV-enhanced 1024-pixel linear CMOS, which can adapt to testing in the wavelength range of 200-1100nm. The CMOS detector has the shortest exposure time and can be controlled Within 1ms, customers can precisely control the signal-to-noise ratio of the spectrometer.

ATP1030 has the characteristics of high reliability, ultra-high speed, low cost, high cost performance, etc. It is a miniature spectrometer that can be adapted to various environmental uses such as online testing.

ATP1030 is an ideal choice for UV, visible, and near-infrared spectroscopy applications. It has different slits, gratings, mirrors, and filters to choose from,Spectrometers suitable for different applications can be configured according to your needs. The spectral range starts from 200nm. to 1100nm, the spectral resolution can be between 0.5 and 5nm, and Optosky can provide customized options for OEM customers.

ATP1030 can receive the light to be measured from the SMA905 interface optical fiber input or free space input, measure according to the set integration time, and output the measurement results through Type-C, USB2.0 (high speed) or UART.

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1. Selection Guide

Model	Features
ATP1030	Ultra-thin, ultra-compact high-resolution fiber optic spectrometer
ATP1030-LVF	High-resolution miniature fiber optic spectrometer with built-in LVF for multi-order diffraction suppression

2. Parameter

Detector	
Detector type	Line array CMOS
Effective Pixels	1024
Pixel size	14 ×200 μm
Sensitivity	1300 V/(lx • s)
Dark noise	13 RMS @ 13°C
Optical parameters	
Wavelength range	200- 1100 nm can be customized (widest: 900 nm)
Optical resolution	0.5-5 nm (depending on slit, spectral range)
SNR	>450 : 1
Dynamic Range	3000: 1
Optical path parameters	
Optical design	M type optical path
Focal length	28 mm entrance / 28 mm output
Entrance slit width	5, 10, 25, 50, 100, 150, 200 μm optional, other sizes can be customized
Incident light interface	SMA905 optical fiber interface
Electrical parameters	
Integration time	1 ms ~ 65s
Frame Rate	300fps
Data interface	Type-C, USB 2.0 (high speed) or UART
ADC bit depth	16 bits
Power supply	DC 4.5 5.5 V (type @5V)
Working current	<200 mA
Physical parameters	
Operating temperature	-10 °C to +50 °C
Working humidity	< 90%RH(non-condensing)
Size	64 × 42 × 20mm^3
Weight	98-110g

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3. Main Performance Test Report

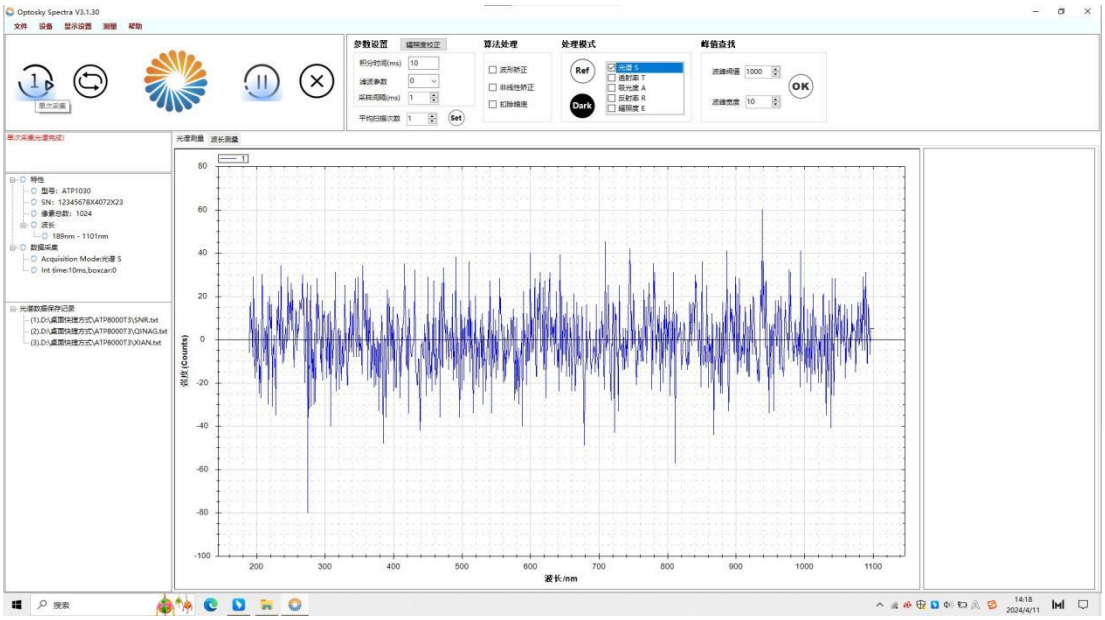

Figure 1 ATP1030 Dark Current Test (10 ms integration time)

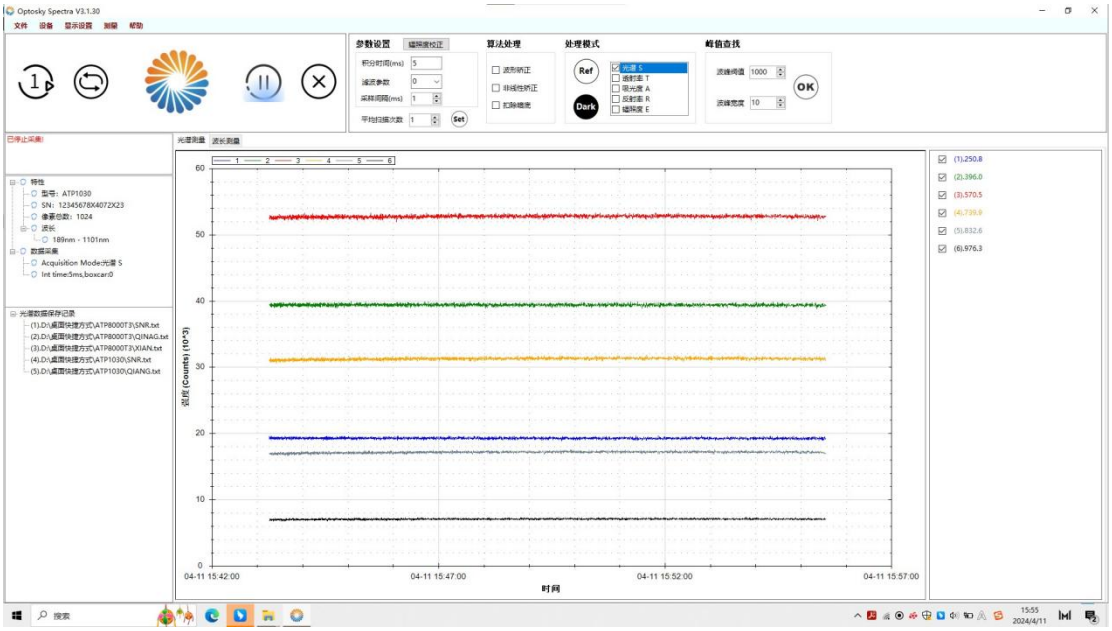

Figure 2 ATP1030 Intensity Repeatability Test – 0.68%

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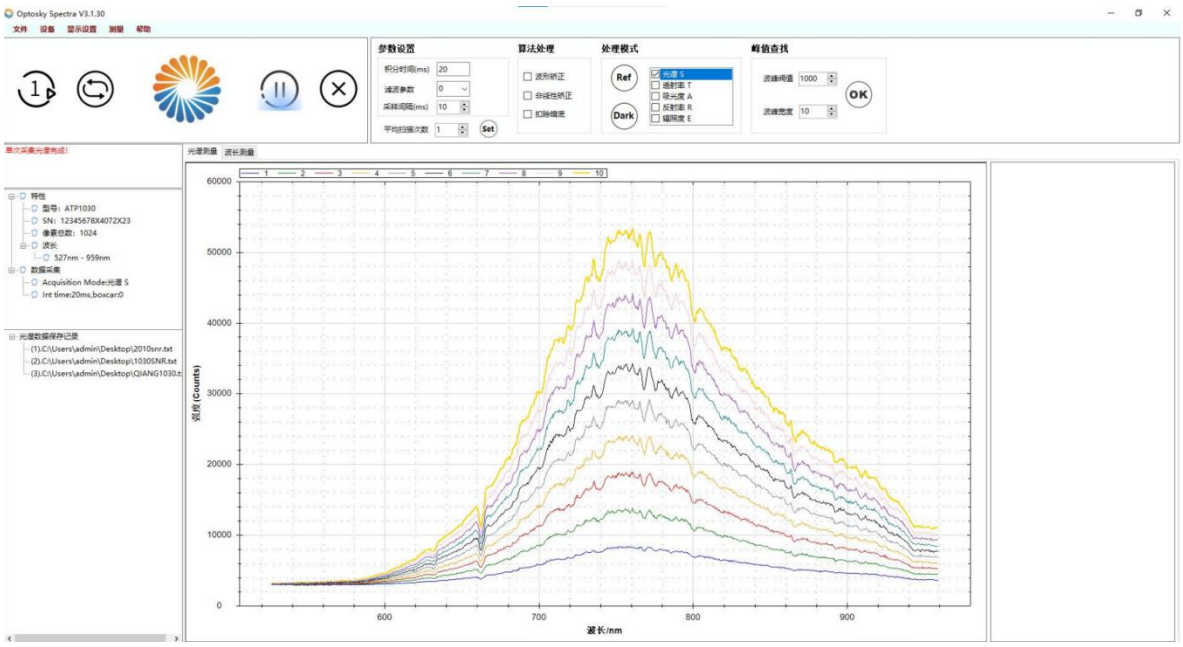

Figure3 ATP1030 Response Linearity Test – $R^2 = 0.9999$

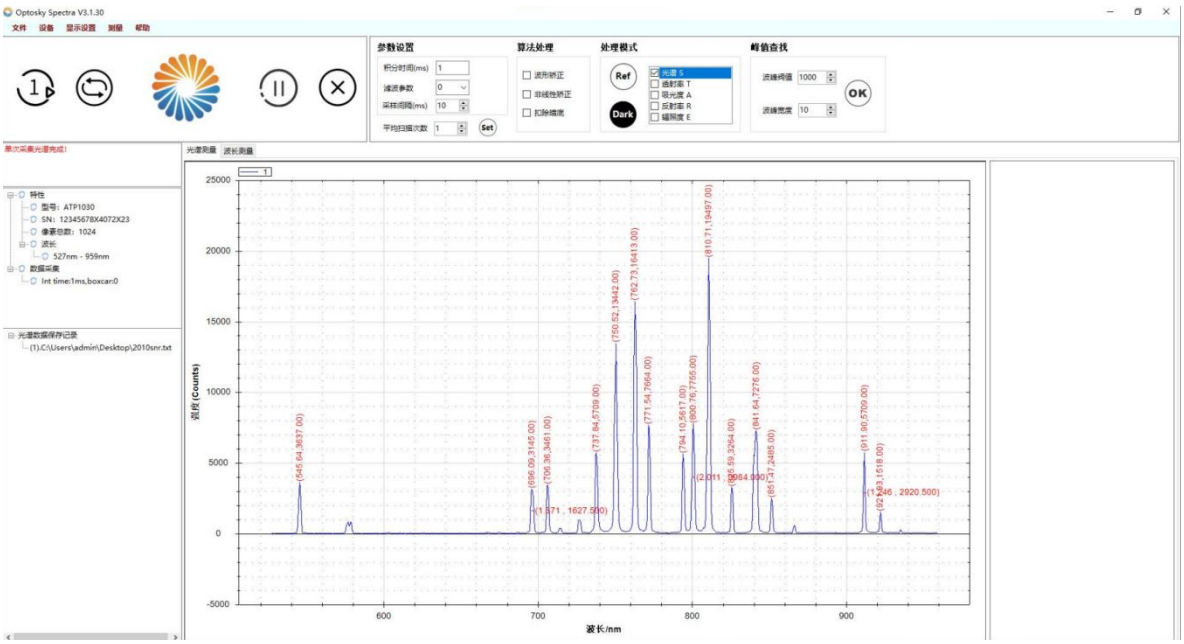

Figure 4 ATP1030 Resolution Test (1.871 nm @ 696.54 nm)

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4. ATP1030 physical picture

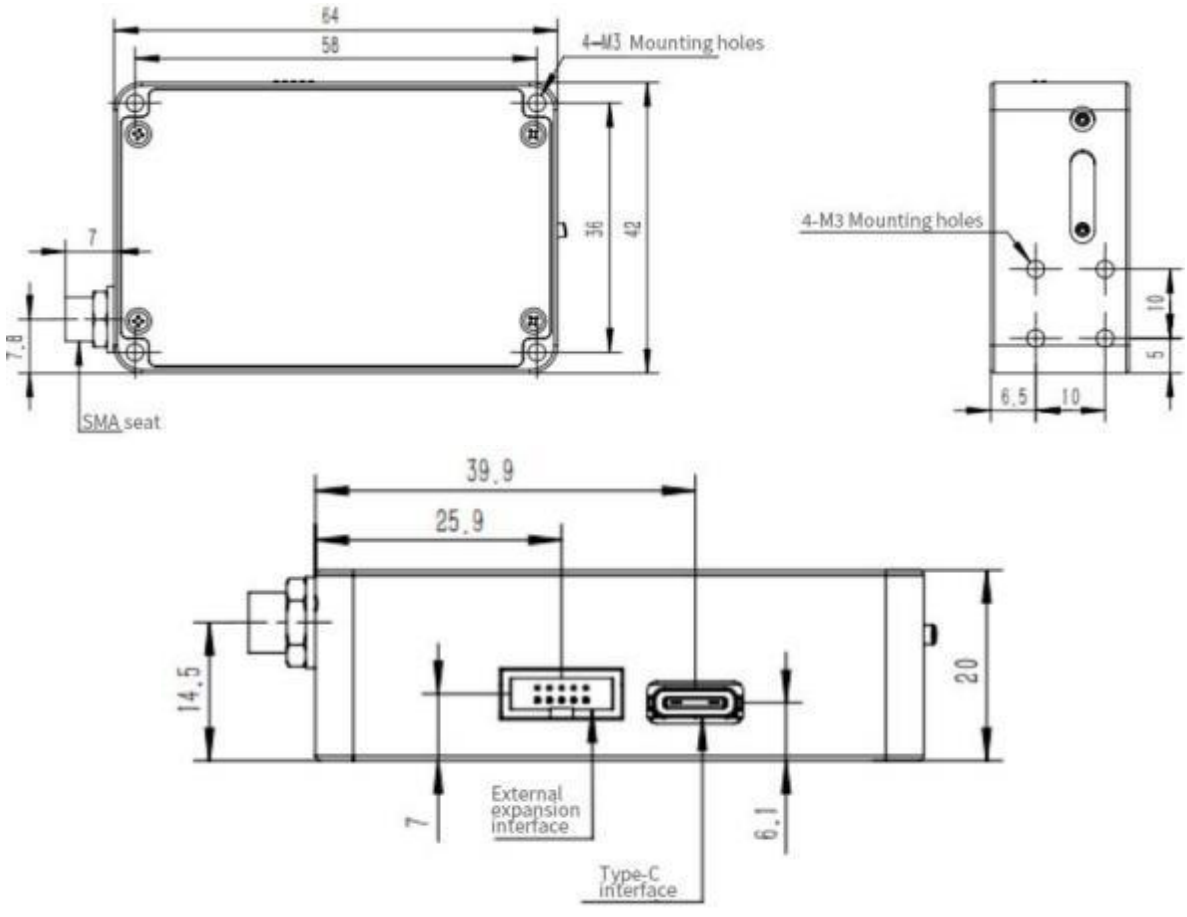

Figure 5 Physical Object and Outline Dimensions of ATP1030

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5. Accessories

Standard Accessories	
1	Type-C to USB Data Cable
Optional Accessories	
1	UV-Visible Optical Fiber
2	Adjustable Optical Attenuator
3	Standard Diffuse Reflectance White Board
4	Cosine Corrector
5	Fiber Collimator
6	Integrating Sphere Holder for Transmittance/Reflectance Measurement

6. Application Scenarios and Measured Data

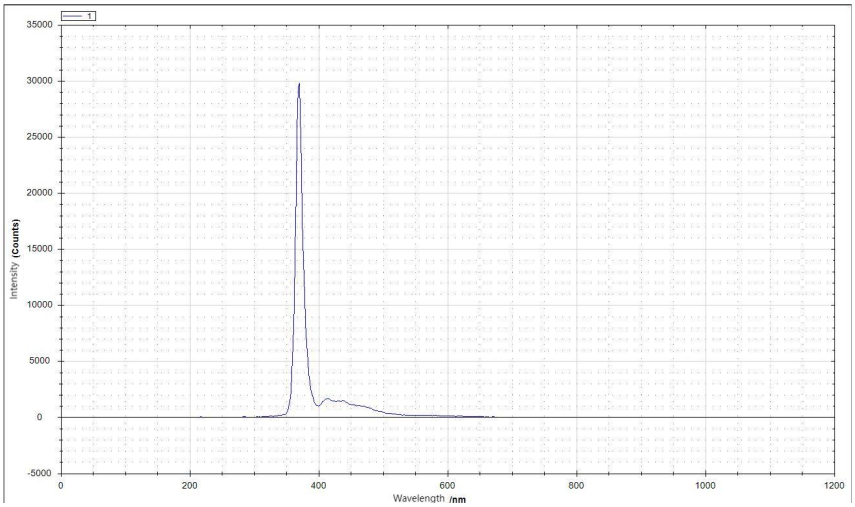

Figure 6: ATP1030 Fluorescence Emission Spectrum Test (Excitation Source: 365nm)

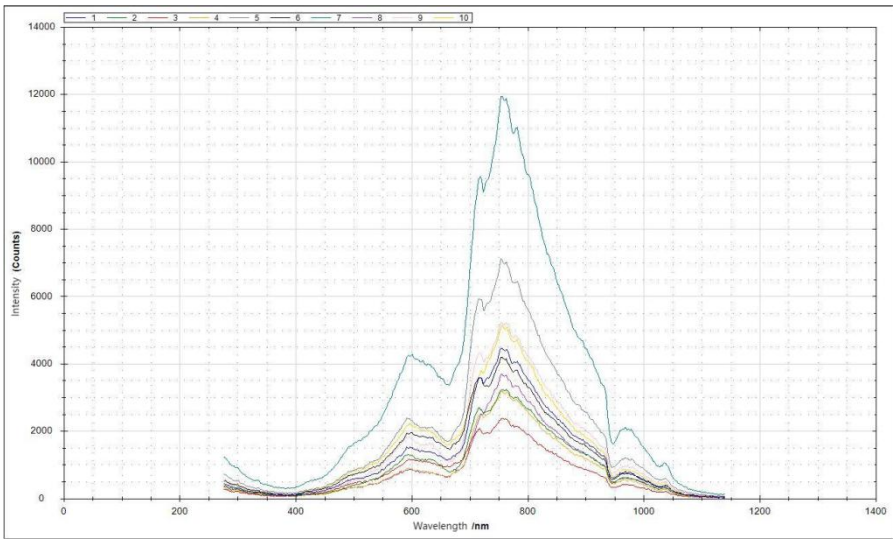

Figure 7: ATP1030 Transmission Spectrum Test for Different Chips

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