Datasheet

Compact NIR Spectrometers | ATP8200

Features

- Proprietary Optical Path Design, with approximately 25% higher resolution compared to similar products
- Cooled InGaAs detector;
- wavelength range across 900-2500 nm （ Customizable within Range Upon Request）;
- Ultra-low noise correlated double sampling circuit;
- Spectral resolution: related to the width of the Entrance slit;
- Integration time: 1.0ms - 65s (different instruments);
- CCD pixels: 256, 512, 1024 and 2048 optional;
- Power supply: DC 5V@<3A;
- Power interface: imported 2-pin industrial connector with lock;
- ADC parameters: 16 bits, 500 KHz;
- Input Fiber Connector: SM905 optical fiber interface or free space input;
- Data output interface: USB2.0 and UART;
- 20-pin expansion interface;

Application

- food sorting;
- Wastewater testing;

Description

ATP8200 family is a new generation of NIR spectrometer，newly developed by Optosky on the basis of the ATP8000.It has higher signal sensitivity and spectral resolution, and the maximum wavelength range can reach 900-2500nm (the actual range can be customized). Using cooling type InGaAs linear array detector, CCD adopts semiconductor refrigeration technology, CCD can work in a set constant temperature environment (minimum -30ºC), thus greatly reducing the noise of the sensor, and obtaining an excellent Signal to Noise Ratio (approximately 2 times higher than similar competitors), and the measurement reliability of ATP8200 is improved , the measurement results would not affected by environmental temperature.

ATP8200 has specially customized an ultra-low noise CCD signal Correlated Double Sampling processing circuit. Its quantization noise is less than 5 counts.

ATP8200 only requires a +5V DC power supply, which is very convenient for integration and use.

Models	Features
ATP8200	Wavelength Range:900–2500 nm, up to 1600 nm maximum span
ATP8200-T3	Deep Cooling, cooling temperature: -30°C

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1. Slection Guide

Model	Features
ATP8200-17	Standard Cooling, cooling temperature: -15°C; Wavelength range: 900–1700 nm (maximum span: 800 nm)
ATP8200-25	Standard Cooling, cooling temperature: -15°C; Wavelength range: 900–2500 nm (maximum span: 1600 nm)
ATP8200-T3-17	Deep Cooling, cooling temperature: -30°C; Wavelength range: 900–1700 nm (maximum span: 800 nm)
ATP8200-T3-25	Deep Cooling, cooling temperature: -30°C; Wavelength range: 900–2500 nm (maximum span: 1600 nm)

2. Parameter

	Parameter	ATP8200	ATP8200-T3
Detector	Type	Cooled Linear Array InGaAs CCD Detector	
	Detector cooling temperature	-15℃	-30℃
	Effective pixels	512 （Configurable with 256, 1024, or 2048 pixels）	
	Pixel Size	25×250μm	
	Sensitivity	1.0 A/W	
	Dark Noise	300μV RMS @Typ.	
	Dynamic Range	14000	
Optical Parameters	Wavelength Range	900–1700 nm (up to 800 nm range), 900–2500 nm (up to 1600 nm range)	
	Optical Resolution	0.5-10 nm @Typ.(Actual range depends on slit and spectral range)	
	Signal-to-Noise Ratio	>2000:1	
	Dynamic Range	> 15000:1	
	Optical Design	F/4 Crossed Asymmetric Czerny-Turner Optical Path	
	Entrance Slit Width	Optional Slit Widths: 5 / 10 / 25 / 50 / 100 / 150 / 200 μm (custom sizes available)	
	Input Optical Interface	SMA905 Fiber Interface or Free-space Input	
Electrical Parameters	Integration Time	1 ms ~ 65s	
	Frame Rate	100fps，Typical （300 fps .MAX.）	
	Data Output Interface	USB 2.0 (High-Speed)	
	ADC Bit Depth	18-bit ADC (16-bit output)	
	Power Supply	USB Powered, DC 5V ± 5%	
	Operating Current	<3A (<5A for deep cooling models)	
Physical	Operating Temperature	-20°C to +50°C	

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Parameters	Operating Humidity	<90% RH (Non-condensing)
	Dimensions	208×120×50 mm^3
	Weight	1.75kg

3. Key Performance Test Reports

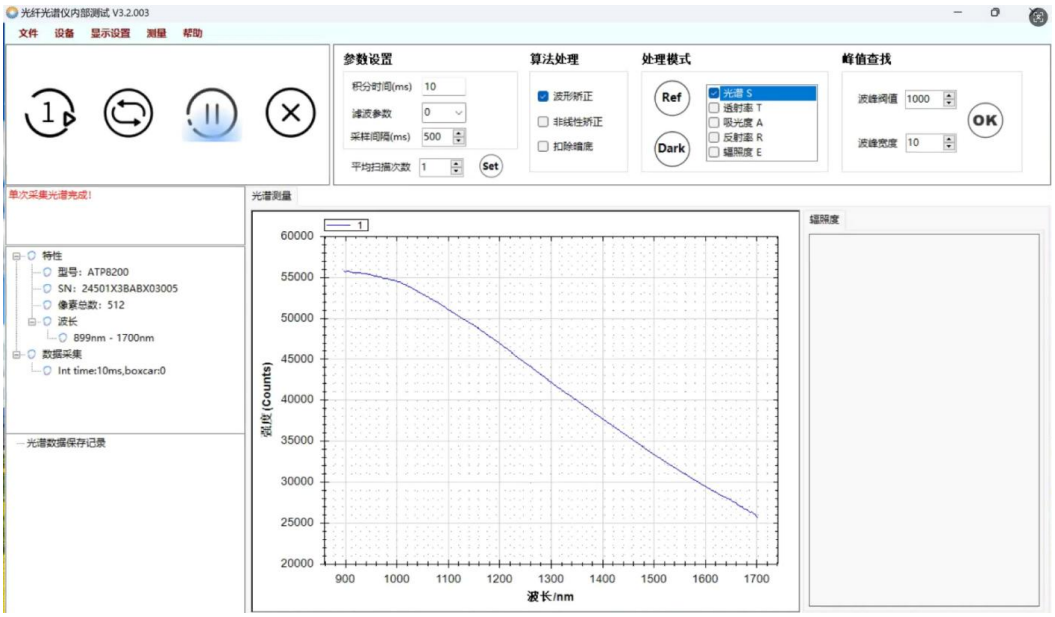

Figure 2: ATP8200 Waveform Correction

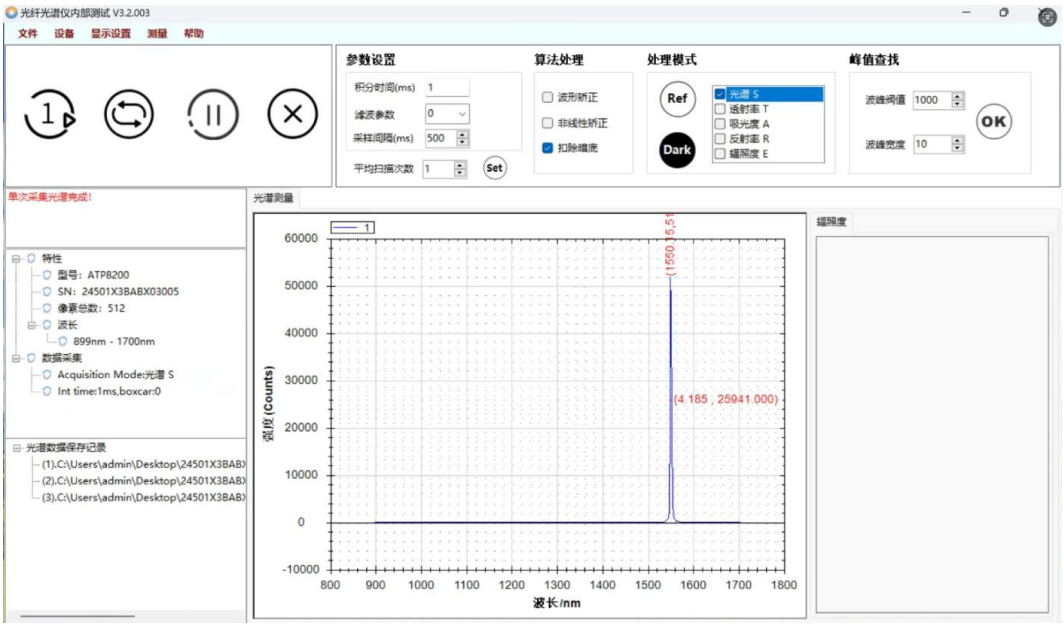

Figure 3: ATP8200 Resolution — 4.185 nm @ 1550 nm

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4. Overall dimensions and installation structure data

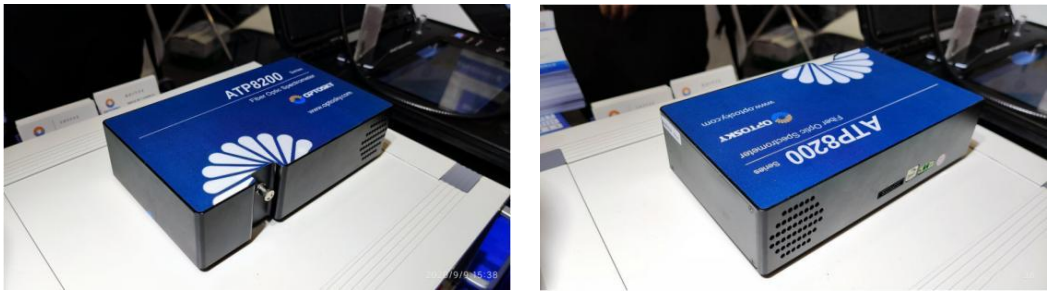

Figure 4: ATP8200 Product Image

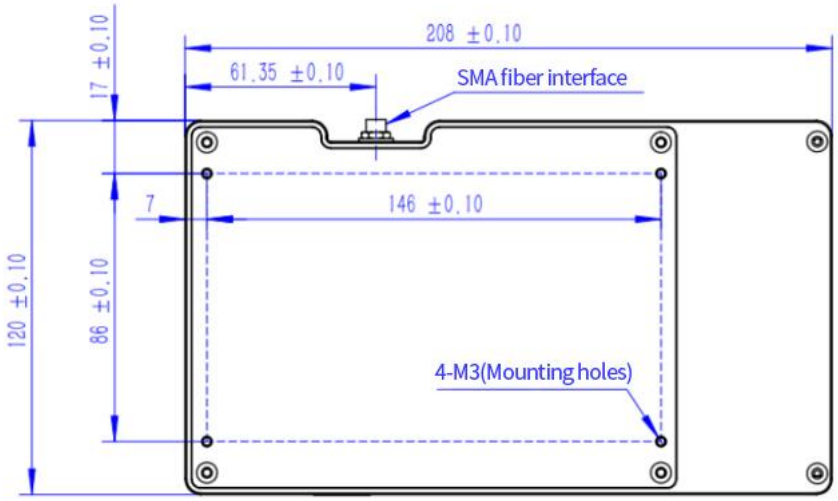

Figure 5 Mechanical dimension drawing (top view)

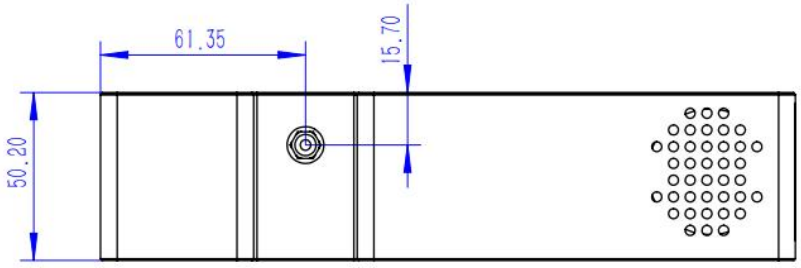

Figure 6 Mechanical Dimensional Drawing (Horizontal View)

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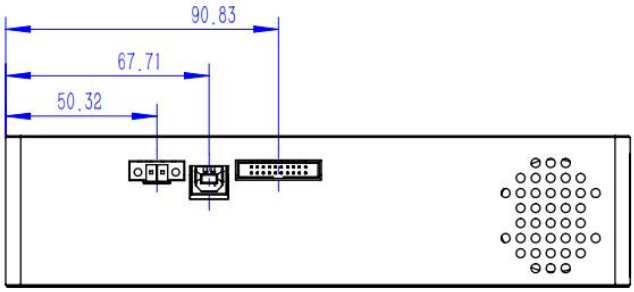

Figure 7 Mechanical dimension drawing (side view), 4 holes are fixing holes for installation and fixing

5. Optional Accessories

Standard Accessories	
1	USB 2.0 Data Cable
2	5V Standard Adapter with Matching Power Cord
Optional Accessories	
1	Near-Infrared Fiber Patch Cord
2	Adjustable Optical Attenuator
3	Standard Diffuse Reflectance White Board
4	Integrating Sphere Holder for Transmission/Reflectance Measurement

6. Application Scenarios and Measured Data

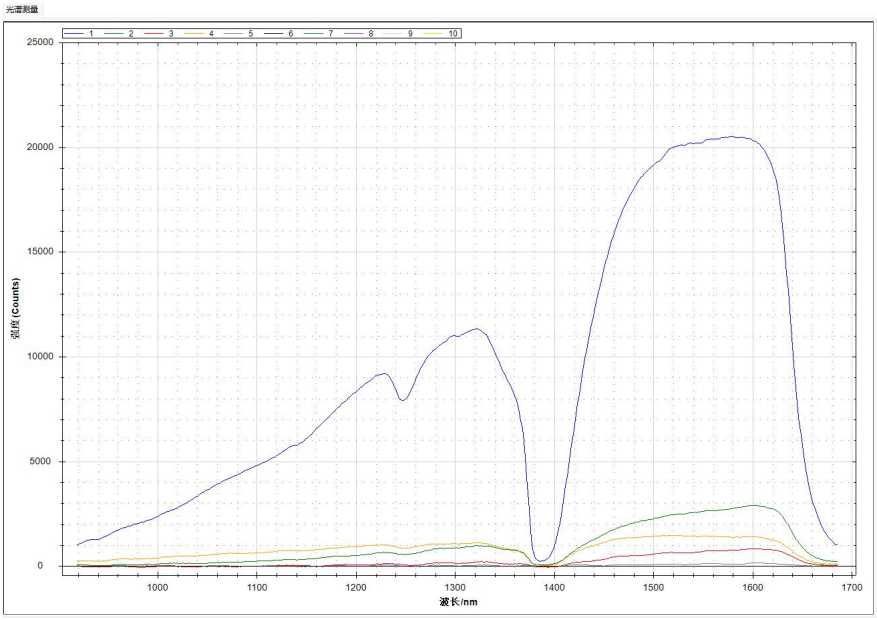

Figure 6: Emission Spectrum Test of Aluminum Powder Combustion Process

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