

Mini NIR Spectrometer

ATP8600

Features

- Maximum operating spectral range: 900-2500nm ((Maximum width: 1400 nm);)
- Ultra-low noise correlated double sampling circuit.
- Spectral resolution: related to the width of the incident slit.
- Integration time: 1ms- 65s (depends on detector).
- CCD pixels: 256, 512 pixels.
- Power supply: DC 5V.
- ADC bit depth: 16 bits.
- ADC sampling rate: 1MHz.
- Optical input interface: SM905, FC/PC optical fiber interface or auto input from space.
- Data output interface: Type-C and UART.
- 10-pin expansion interface.

Application

- FBGA fiber optic modem
- Laser wavelength monitoring
- Raman spectrometer
- Food sorting
- Wastewater testing
- Detection of moisture, protein, fat and fiber of crops
- Paper sorting
- Online monitoring of traditional Chinese medicine production
- Solar panel testing

Description

Micro spectrometer with small structure size. It uses a 256-pixel InGaAs linear array detector and integrates a reliable CCD installation and heat dissipation method to improve the measurement reliability of the ATP8600. At the same time, Optosky ATP8600 has specially customized an ultra-low noise CCD signal related double sampling processing circuit, which is the best in the industry.

ATP8600 can receive SMA905, FC/PC optical fiber input light or free space light, and output the measured spectral data through Type-C or UART port.

ATP8600 only requires a 5V DC power supply and can be directly powered by USB, which is very convenient for integration and use.

Model	Description
ATP8600	900-1700nm, SMA905 interface
ATP8600FBG	Signal demodulation for fiber optic sensors (C/L/C+L-wave segment), FC/PC interface
ATP8600-17TC	900-1700nm, detector cooling to - 15°C (Requires auxiliary cooling)
ATP8600-25TC	900-2500nm, detector cooling to - 15°C (Requires auxiliary cooling)



Figure 1: ATP8600

1. Performance parameters

Parameter		ATP8600	ATP8600-17TC	ATP8600-25TC
Detector	Detecor Type	High performance linear array InGaAs CCD	Cooled linear array InGaAs CCD	
	Cooling Temperature	Uncooled	-5°C without additional heat dissipation -15°C with additional heat dissipation	
	Integration Time	1ms-65s		
	Spectral Range	900-1700 nm	900-1700 nm	900-2500 nm
	Effective Pixels	256	512	512
	Pixel Size	25μm×250μm	12.5μm×500μm	12.5μm×500μm
Optical Parameters	Wavelength Range	900-1700nm (up to 700nm wide, e.g. 900-1600nm or 1000-1700nm)	900-1700nm	900-2500nm
	Optical Resolution	0.5-10 nm @Typ. (Actual resolution depends on slit and spectral range)		
	SNR	>800: 1		>1000: 1
	Dynamic Range	6000: 1		8000: 1
	Optical Design	F/4 Crossed C-T		
	Incident Slit Width	5/10/25/50/100/150/200 μm Options, Custom Sizes Available		
	Incident Light Interface	SMA905, FC/PC Fiber Optic Interface, Free Space		
Electrical Parameters	Data Output Interface	USB Type-C or UART		
	Adc Bit Depth	16 bits	18bits（Output16bits）	
	Power Supply	5V DC±5%		
	Operating Current	<0.8 A	<3.0A	<3.0A
Physical Parameters	Storage Temperature	-20°C to +70°C		
	Operating Temperature	-10°C to +50°C		
	Dimensions	102×57.5×29mm	152×67.5×42mm	
	Weight	280g	675 g	

2. . Key Performance Test Reports

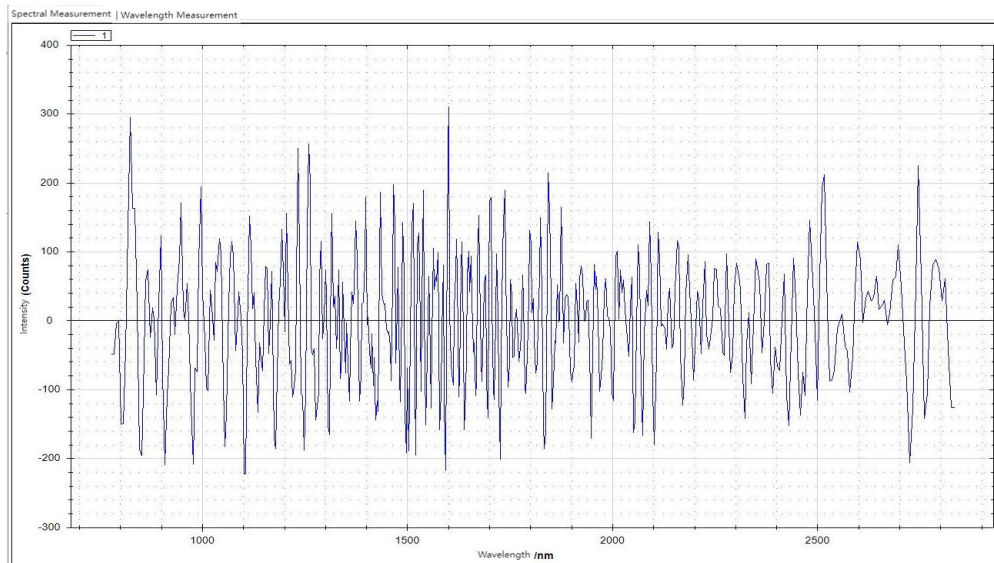


Figure 2: ATP8600 Dark Noise Test (10 ms integration time)

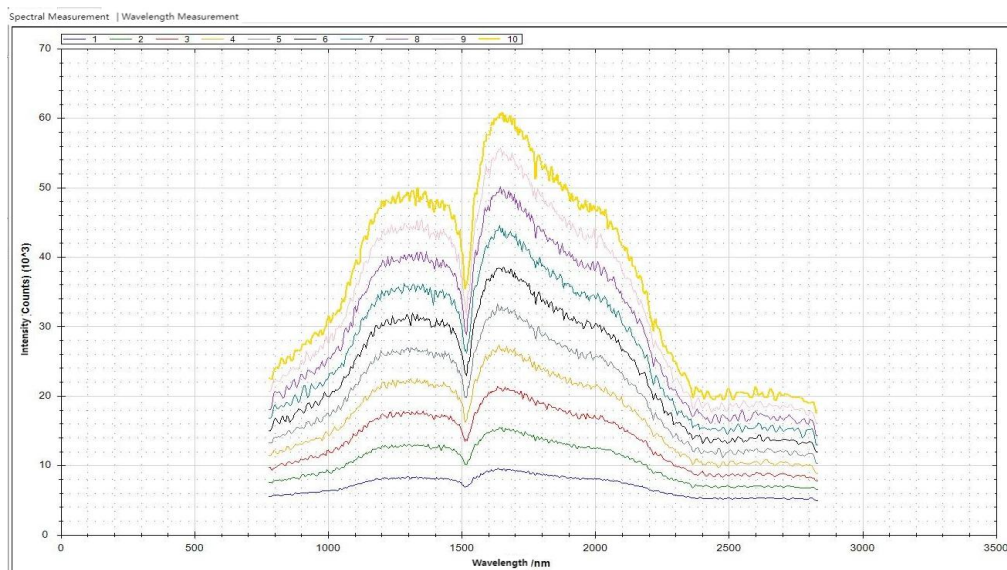


Figure 3: ATP8600 Linearity Test — $R^2 = 0.997$

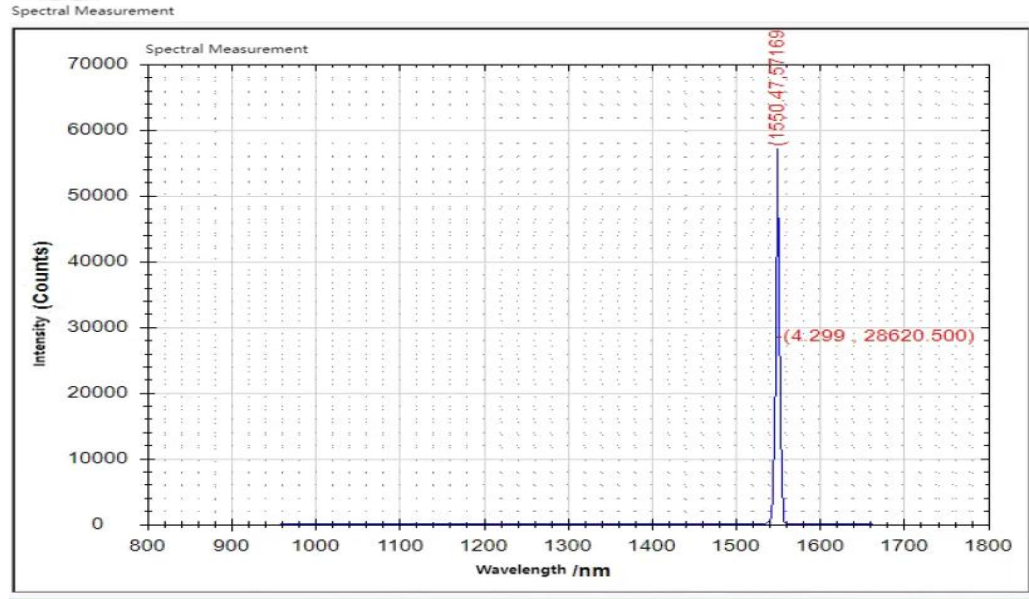


Figure 4: ATP8600 Resolution — 4.3 nm @ 1550 nm

3. Product Images



Figure 5: ATP8600 & ATP8600TC Product Images

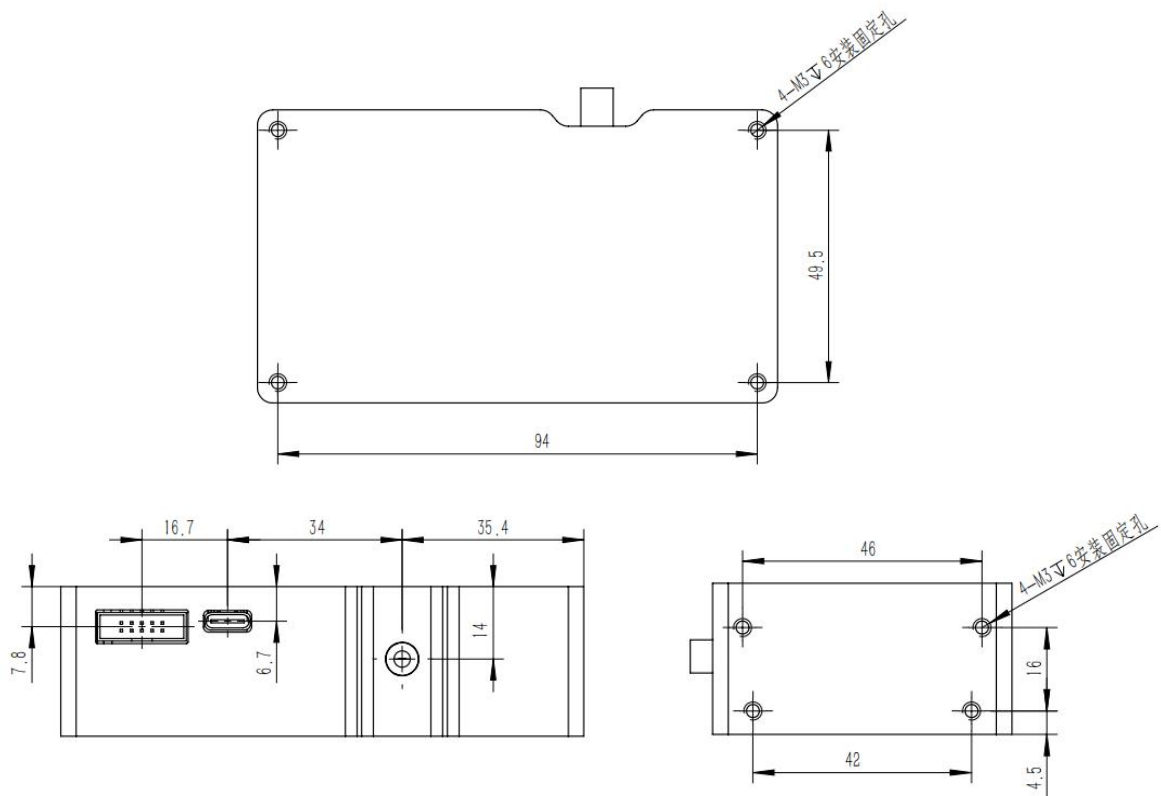


Figure 6: ATP8600 Mechanical Dimensions

4. Optional Accessories

Standard Accessories	
1	Type-C USB Data Cable
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
5	Cosine Corrector
6	Fiber Collimator

5. Application Scenarios and Measured Data

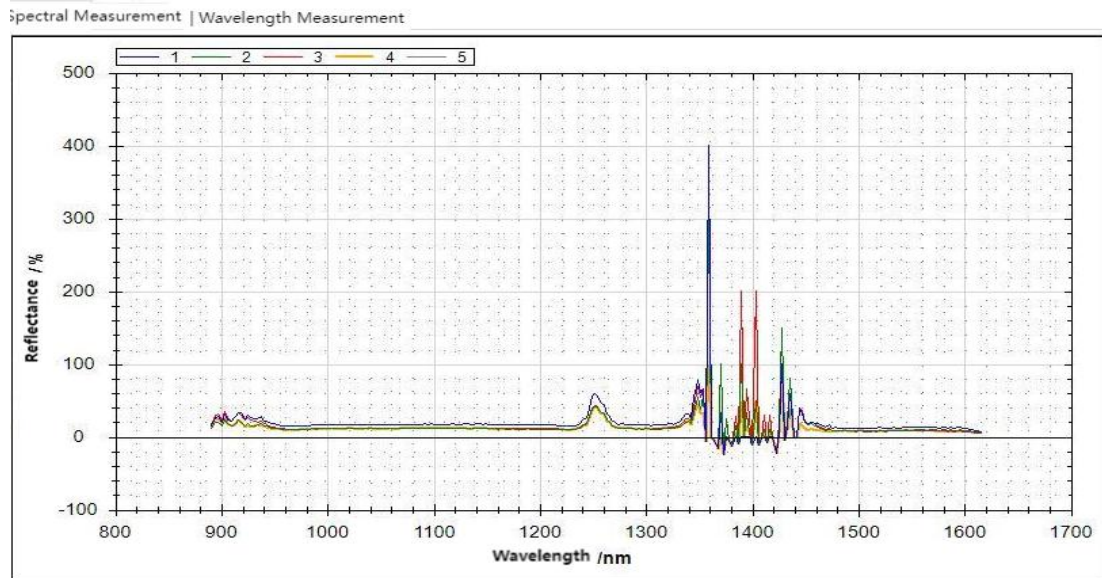


Figure 7: ATP8600 Feed Reflectance Spectrum

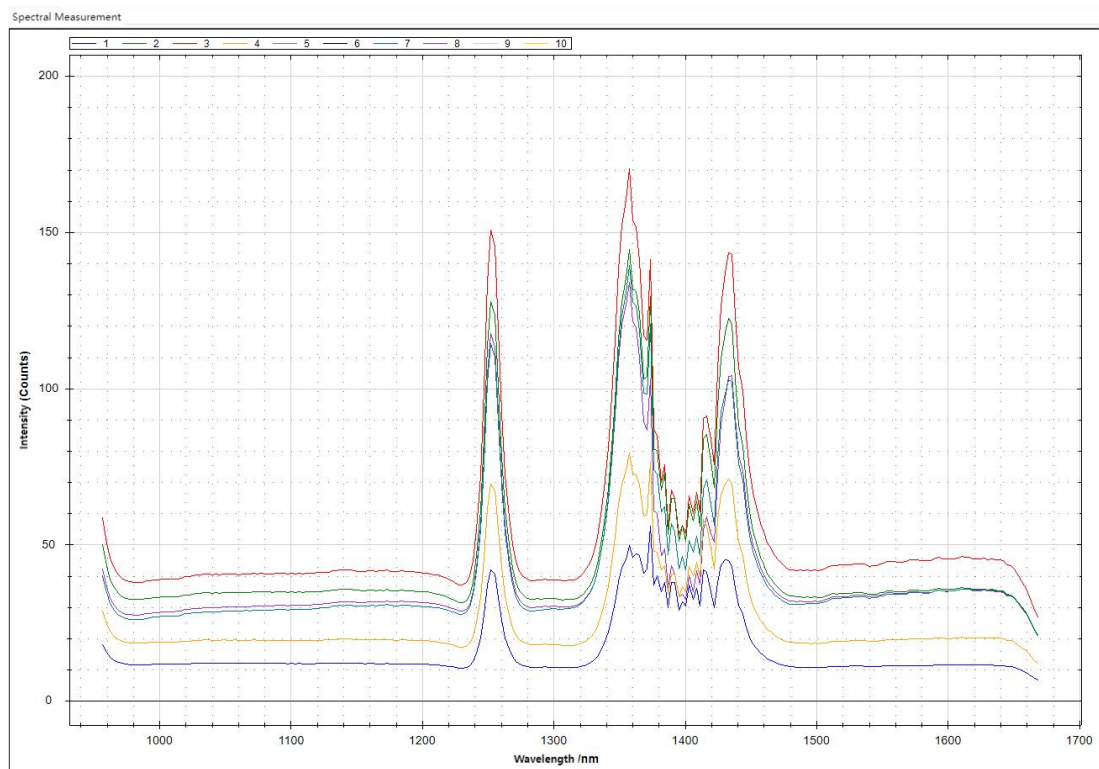


Figure 8: ATP8600 Dry Tea Leaf Reflectance Test

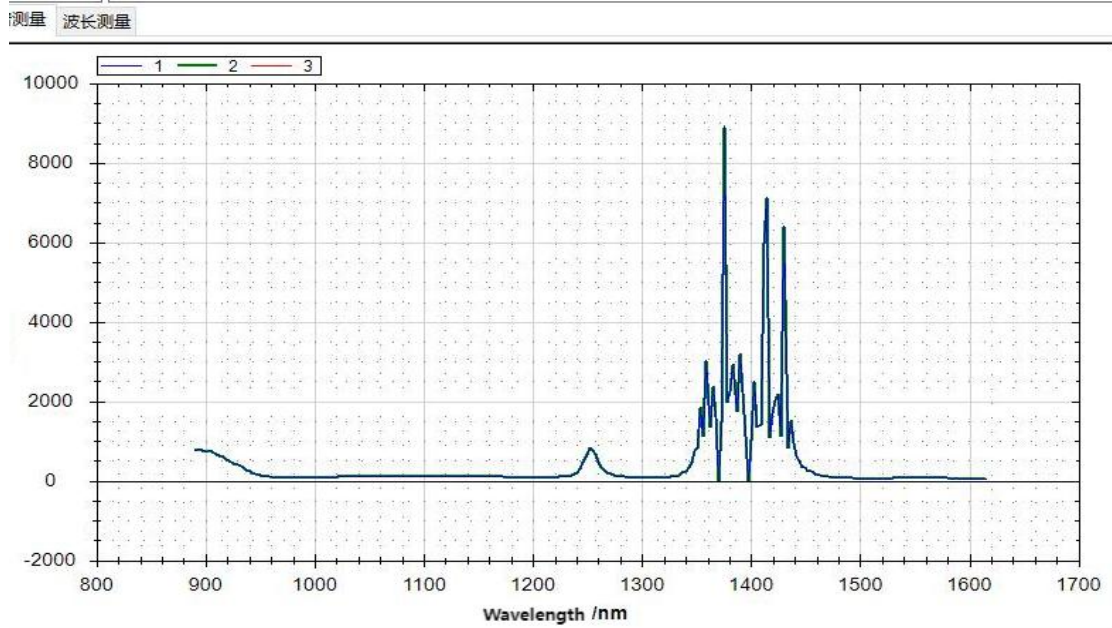


Figure 9: ATP8600 Wet Tea Leaf Reflectance Spectrum Test