Mini Wide Field Spectroradiometer ATP9101W

Features

- Maximum band range: 200~1700 nm
- Ultra-light, ultra-small size, easy to carry
- Number of bands: 1132
- Spectral resolution: 7 nm@811nm, 15nm@1530nm
- Android operating system
- Built-in 13 million pixel camera
- Built-in GPS, angle, altitude sensor, temperature and humidity sensor
- Weight: <450 g (whole machine)
- Power supply: built-in lithium battery, standby time >6h
- Waterproof: IP65
- Field of view lens: optional 25°/15°/8°/1°
- Built-in laser indicator
- WIFI, USB, Bluetooth data interface

Application

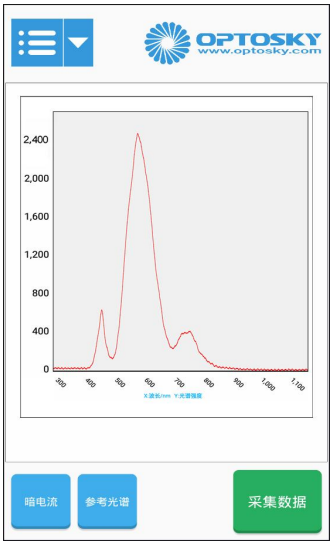
- Remote Sensor
- Agriculture and Food Safety：Crop Monitoring
- Forest Research
- Environmental Science：River, Lake And Ocean Research
- Scientific Research

Description

ATP9101W is a new generation Wide Field Spectroradiometer developed by Optosky. It has a wide band range, covering ultraviolet, visible, near infrared, and short-wave infrared bands. It has the characteristics of small size, reliability, low cost, and high cost performance, and can be adapted to various field testing and other application fields.

ATP9101W measures spectra quickly, accurately, non-destructively, and contactlessly, and is a truly portable ground spectrometer. It has a built-in battery, is easy to carry, and can be easily connected to a mobile phone or computer via Bluetooth, which minimizes the time for field data collection and optimizes the quality of the measured spectrum. Whether measuring in different orientations or in different environments, the flexible and durable ATP9101W can bring the same quality as laboratory experimental results in remote sensing and analysis applications.

Model	Features
ATP9101W	Band range：300~1700 nm
ATP9101W-UV	Band range：200~1700 nm



1. Parameter

	ATP9101W	ATP9101W-UV
Detector		
Type	Linear array CMOS sensor + InGaAs detector	
Band	1132 channels	
Wavelength accuracy	± 0.5 nm	
Resolution*1	6 nm@811nm 15nm@1530nm	7 nm@811nm 15nm@1530nm
Optical parameters		
Spectral range	300~1700 nm	200~1700 nm
FOV	Small field of view lens, 1°/8°/15°/25° optional	
Position	Built-in GPS + Beidou positioning module	
Laser wavelength	650 nm	
Laser power	5 mW	
Camera	13 million pixels	
Operating system	Android 8.0	
Touch screen	3 inches, resolution 800X480	
Sensor	Angle, altitude	
Electrical parameters		
Integration time	10ms ~ 65 s	
Interface	WIFI、USB 2.0、Bluetooth	
Power supply	DC 5V±10%	
Battery life	>6h	
Storage temperature	-20°C ~ +65°C	
Working temperature	-10 ~ 45 °C	
Protection level	IP65	
Working humidity	< 90%RH	
Physical parameters		
Dimension	180×176.5×89 mm	
Weight	450 g	

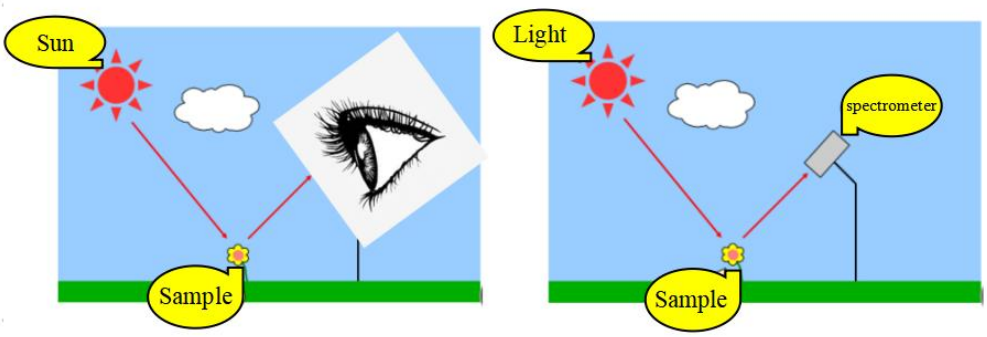
Note:
*1: Resolution can be customized within the parameter range;
The above table refers to the performance parameters of standard instruments, and other parameters can be customized.

2. Product Picture

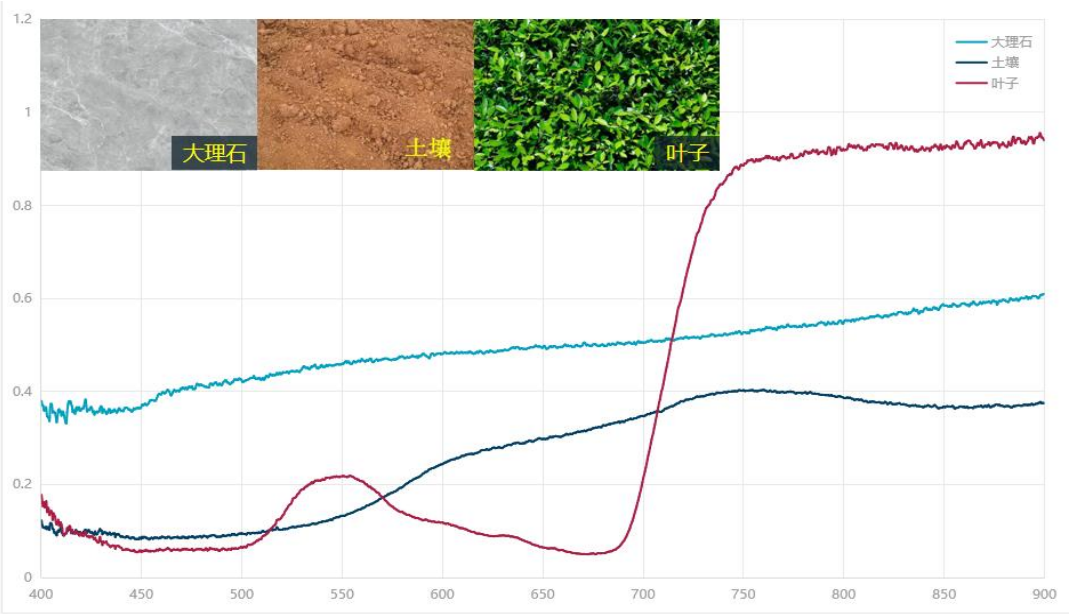




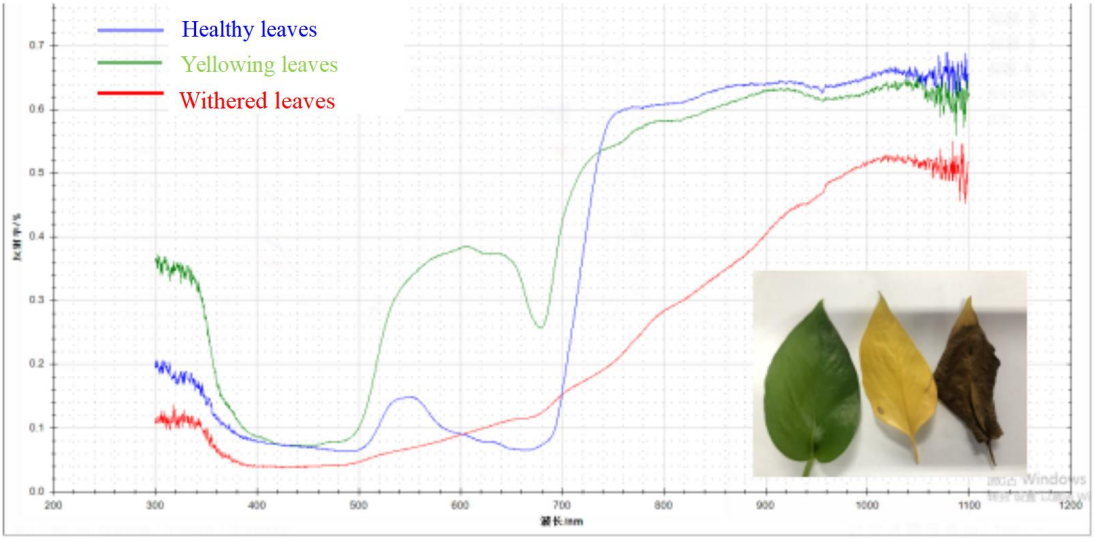
3. Application



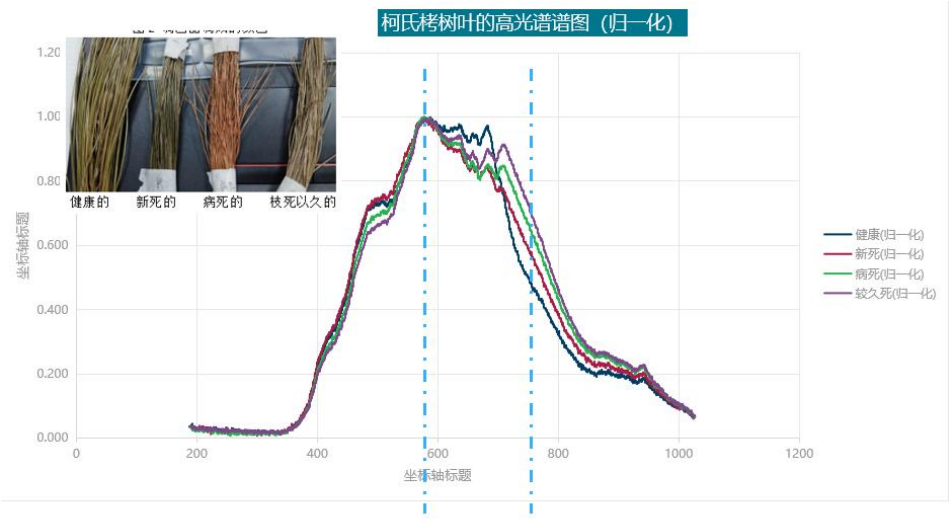
Working Principle



Testing the spectrum of marble, soil, and green leaves



Spectral graphs of different leaves tested

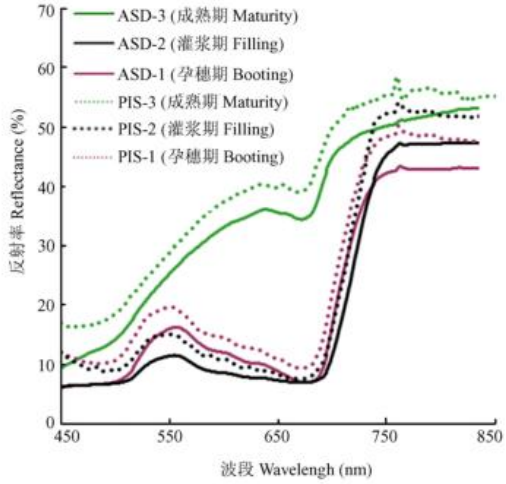


Spectrum of Castanopsis kohlii infusion

Application in water quality monitoring

The spectral resolution of hyperspectral images can be accurate to the nanometer level, which gives it a unique advantage in detecting plant life information and analyzing vegetation growth conditions. Therefore, using hyperspectral images to penetrate into the crop ecosystem will be more helpful for quantitative research on the vertical gradient nutrient status of crops. Domestic and foreign scholars have used ground object spectrometers to conduct in-depth research on the composition, structure, quality, nutrients, pest and disease stress, etc. of crops such as wheat, rice, soybeans, and corn. For example, Zhao Chunjiang et al. used a ground object spectrometer to collect multi-angle spectral information of the winter wheat canopy and studied the nutrient status of wheat at different levels; Wang Xiuzhen et al. studied the spectral information of the rice canopy and leaves, and constructed a pigment inversion

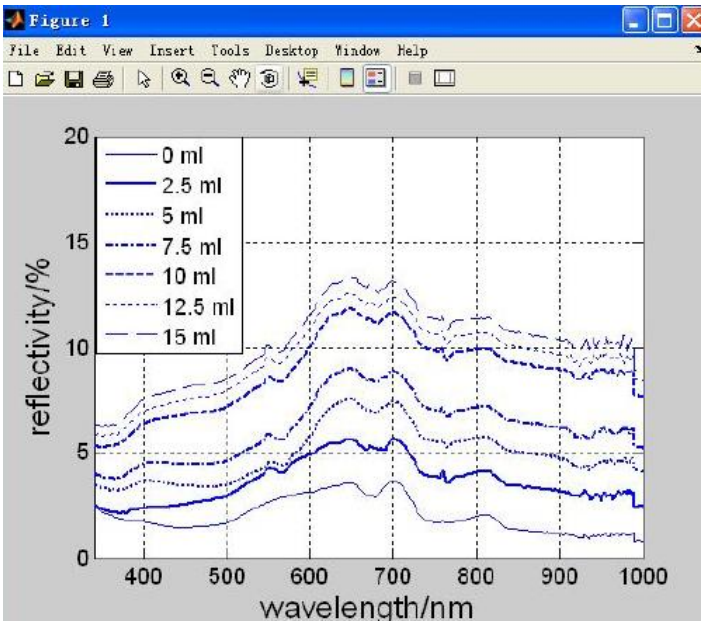
model with high accuracy.



Leaf reflectance at different growth stages

The types and quantities of petroleum compounds entering the natural water environment under abnormal conditions are also increasing rapidly. Increasing the research investment in surface oil spill monitoring methods, establishing a monitoring system related to surface oil spill disasters, strengthening the timely treatment of surface oil spill pollution, and minimizing the impact of oil spill disasters on freshwater resources are of far-reaching significance for the sustainable use of freshwater resources.

Use ground feature spectroscopy technology to effectively analyze oil spills.



Application in marine oil spill testing

When the water surface is covered with an oil film, the reflectivity of the oil film is significantly higher than that of the water surface without oil film. Near the central wavelength of the green light band, the reflectivity curve shows a small reflectivity peak. Generally speaking, the reflectivity data reaches its peak value for the second time at around 650 nm. The reflectivity value measured after the first addition of lubricating oil is about 1.5 times that of water. It can be seen that as the amount of added oil increases,

the reflectivity curve gradually increases. The spectral characteristics are mainly concentrated in the green light band and the red light band. There is no obvious reflection peak curve in the ultraviolet band and the blue light band. As for the overall trend of the curve, in the blue to green light band, the reflectivity value shows an increasing trend with the increase of wavelength.