

Broadband Field Spectrometer (300-2500nm)

ATP9110

Description

ATP9110 series broadband field spectroradiometer is a new portable hyperspectral fieldSpec from Optosky. Wavelength range of 300-2500 nm, suitable for geological research, mineral exploration, remote sensing, crop monitoring, forest research, oceanography and other fields of application.

ATP9110 field spectroradiometer employs high performance, fast and accurate measurement, easy to operate and held etc. It's configured powerful software package, and applied to measurement of reflectance, radiometry, photometry and colorimetry.

Model	Description
ATP9110-25	Fair resolution 300-2500nm FieldSpec
ATP9110H-25	High resolution 300-2500nm FieldSpec
ATP9110-17	High resolution 300-1700nm FieldSpec
ATP9110-50	300-5000nm Ultra wide band FieldSpec
ATP9110-110	300-11μm Ultra wide band FieldSpec (Without 5-5.5μm)

Features

- Broad spectral range: 300-11μm;
- High sensitivity, detector quantum efficiency reach up to 60%, NIR sensitivity is 40% higher than traditional PDA detector;
- Fast measure speed, one sampling time< 10ms;
- Light weight and flexible optic fiber probe;
- Built-in secondary diffraction coating and filter, high accuracy;
- Dynamic dark current correction, reduce noise;
- Display probe inclined angles, laser indicator indicates probe direction, easy to adjust;
- Portable, special carrying case, easy to carry;
- PC software control mode;

Applications

- Geological research, prospecting
- Remote sensing measurement
- Crop monitoring
- Forest research, oceanographic research



Technical Specification:

Detector					
Type	Linear CMOS detector / InGaAs detector				
Detector	300-1100nm: CMOS 2048 pixels 1100-1700nm: InGaAs TE 2 nd class cooling 1100-2500nm: InGaAs TE 2 nd class cooling 2.5-11μm:				
Optical Config					
Models	ATP9110-25	ATP9110H-25	ATP9110-17	ATP9110-50	ATP9110-110
Spectral Range	300-2500 nm		300-1700 nm		
Spectral Resolution	0.8-1.4nm@756nm 8-12nm@1400&2100nm	0.8-1.4nm@756nm 3-5nm@1400nm 5-8nm@2100 nm	0.8-1.4nm@756nm 3-5nm@1400nm	0.8-1.4nm @ 756nm 7-12nm @ 1400&2100nm 30nm @ 2.5-5um 50um @ 5.5-11um (Only use in ATP9110-110)	
Wavelength repeatability	± 0.1nm@ VIS ± 0.5nm @ SWIR ±3nm @ MWIR				
Wavelength Accuracy	± 0.5nm @ VIS; ±1.1nm @SWIR; ± 5nm @ MWIR				
Input	1.5m fiber beam (25°FOV) , optional front camera change FOV, optional fiber lengths.				
FOV	Small FOV , optional 1°/8°/15°/25°				
Indicate laser wavelength	650 nm				
Indicate laser power	5 mW				
Max radiation	VNIR 2 times sun light/SWIR 10 times sun light				
SNR	300-1000nm: >800, 1000-2500nm: >16000				
Spectral sampling interval	Visible light: 0.4nm, SWIR: 2.9 nm	Visible light: 0.4nm, SWIR: 1.4 nm	Visible light: 0.4nm, SWIR: 1.4 nm	Visible light: 0.4nm, SWIR: 1.0 nm MWIR: 25nm	
Hardware spectral average	Max. up to 100, 000 times				
Electrical Config					
Integration time	1 – 10 s/ auto optimized integration time				

Data output interface and communication	USB 2.0、Bluetooth、WIFI available				
Location	Built-in GPS positioning				
Angle data	MC3430 optical gyroscope angles range 0°-180°				
Power Supply	Built-in Li battery 10000maH, optional external 12V power supply/ car loaded power supply				
Charging port	12V/3A Charging (also power supply)				
Battery span	>3H（outdoor），Battery replaceable				
Maximum working current	ATP9110-17: 2.5 A ATP9110-25: 3.5 A ATP9110H-17: 5.0 A ATP9110-50: 4.0 A ATP9110-110: 5.0 A				
Storage Temp.	-20℃ ~ +65℃				
Operating Temp.	-20 ~ 50℃				
Working humidity	< 90%RH				
Physical Config					
IP grade	IP54				
Size	290×260×141mm	410×260×280mm	290×260×141mm	290x260x141mm	410x260x280mm
Weight	4.5Kg	6.5Kg	4.5Kg	5.2Kg	5.8Kg

Standard Accessories:

Standard Accessories	
1	USB wires
2	Outdoor fiber
3	Exclusive PC software
4	Charging adaptor 12V/5A
5	Cosine angle lens
6	External battery pack 14.4V
7	External battery pack charger
8	Field Angle lens 25°
9	Standard white plate 10 x 10cm; 95% reflectivity
10	Suitcase
Optional Accessories	
1	FOV angles, optional 1°/5°/8°/10°/15°/25°

2	Leave clip, vegetation reflectance measure tool
3	Indoor lighting
4	Halogen lamp accessories/ATG1021 INT:12V
5	Measure test stand + integration sphere measure transmittance tool
6	Standard white plate 10 x 10cm; 99% reflectivity (Customized)
7	Standard white plate 10 x 10cm; 60% reflectivity (Customized)

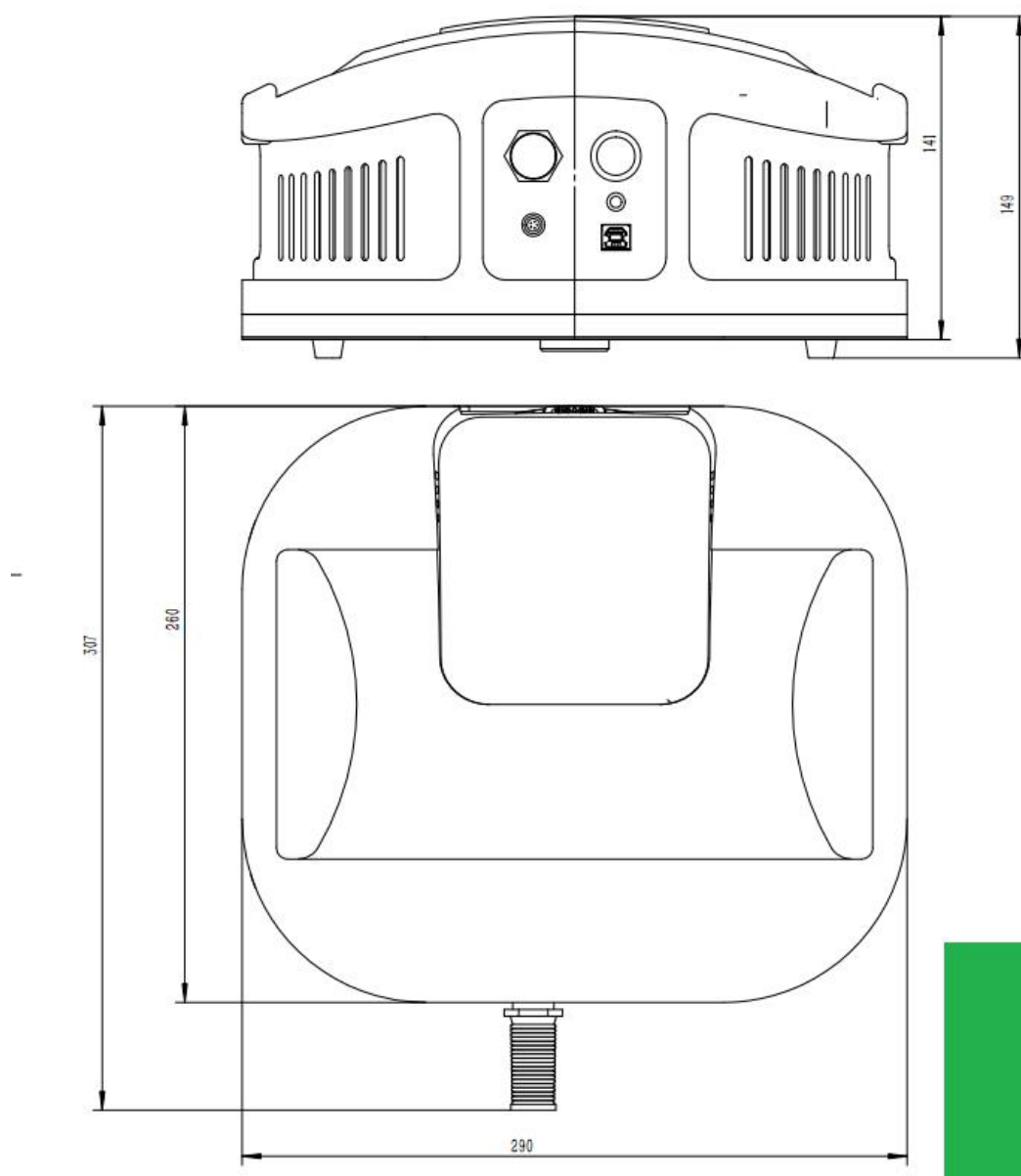


FIG. 1 External dimensions of ATP9110

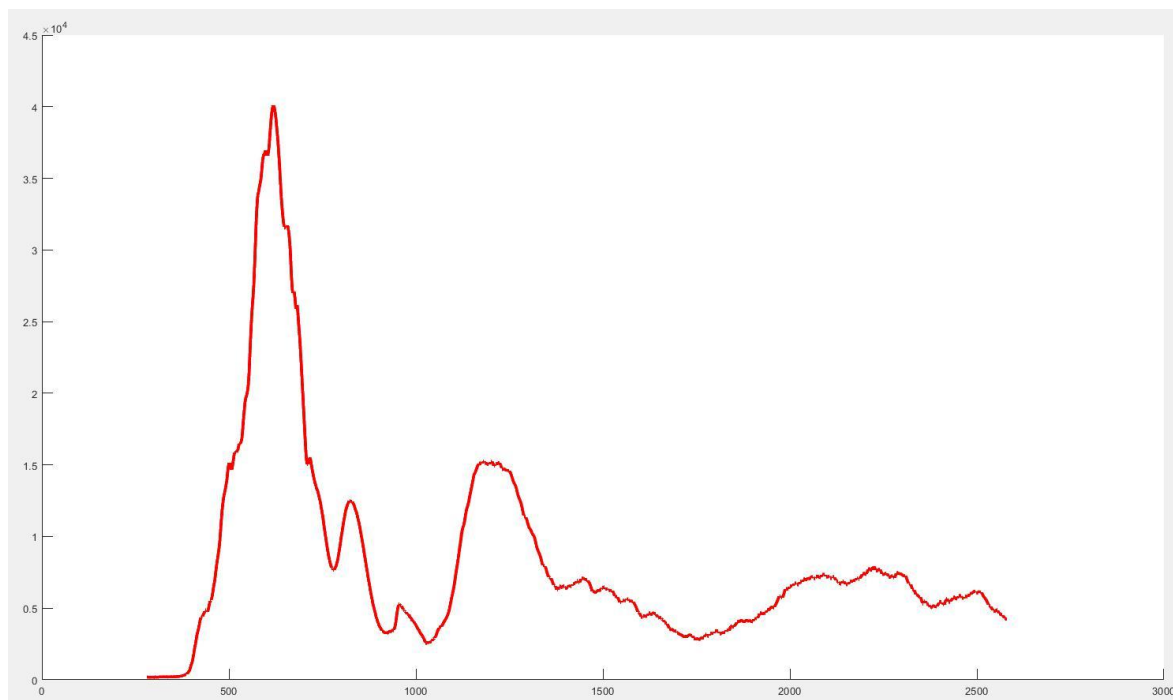


FIG. 2 Halogen light spectrum measured by ATP9110-25 (simulated solar spectrum)

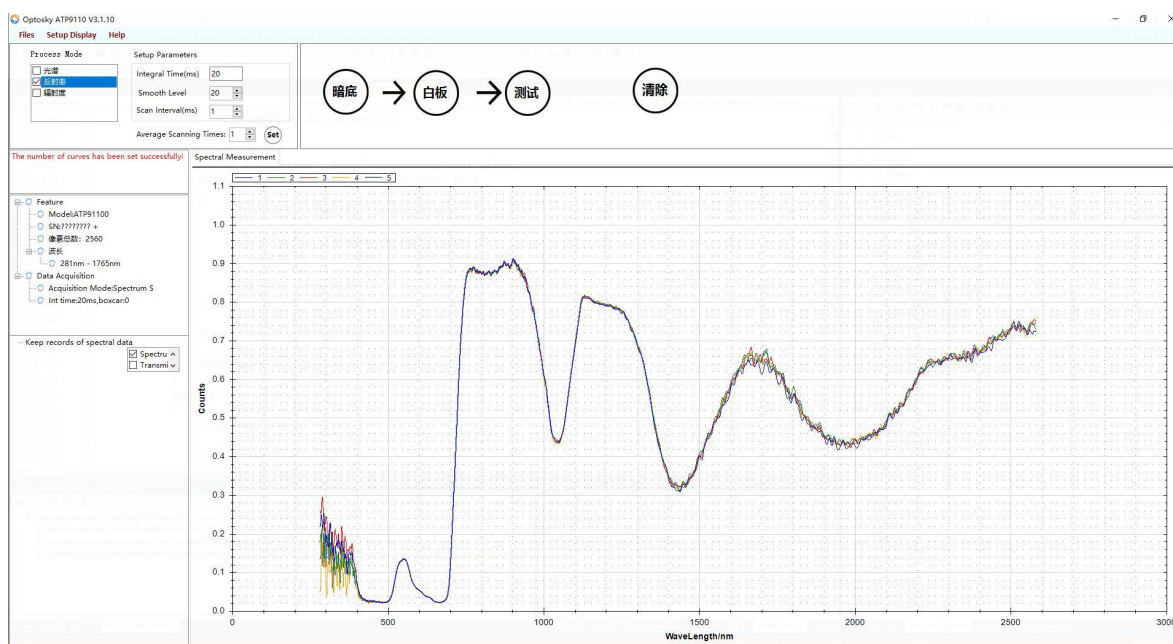


Fig. 3 Reflection spectrum of green leaves measured by ATP9110-25 (5 repeated measurements)