



**DATASHEET  
EOC-SI-9101  
Miniature Fieldspec**

**Feature**

- Ultra-light, easy to carry
- USB, Bluetooth data interface, easy to connect with computer, mobile phone
- Waveband number: 512
- Wavelength range: 300~1100 nm
- Wavelength resolution: 1.5~4 nm@811nm
- Wavelength accuracy:  $\pm 0.5$  nm;
- Wavelength repeatability:  $\pm 0.3$  nm @  $\pm 10$  °C Temp. variation
- SNR: >300:1
- Weight: <325 g (Whole)
- Power supply: Built-in lithium battery, standby time >6h
- Water proof: IP65
- Field of view lens: 25°/15°/8°/1°
- Built-in laser indicator, used to indicate the probe detection direction

**Description:**

EOC-SI-9101 has high reliability, ultra-high speed, low cost, high cost performance and other characteristics, can adapt to online testing and other environmental applications of the micro field spectroradiometer.

The measurement spectrum is fast, accurate, nondestructive and non-contact. It is a real portable field spectroradiometer. Built-in battery, easy to carry, easy to connect with mobile phone or computer through Bluetooth, minimize the time of field data collection. At the same time, the quality of the measured spectrum is the best.

The flexible and durable EOC-SI-9101 delivers the same quality as laboratory results for remote sensing and analytical applications, whether in different azimuth measurements or in different environments.

**Application**

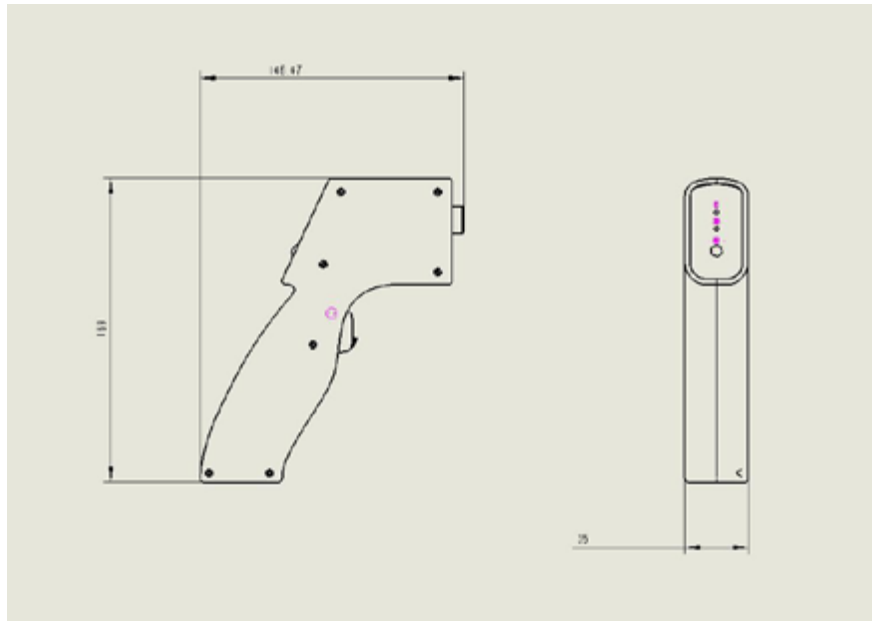
Remote sensing survey, crop monitoring, forest research, rivers and lakes, Marine research, aquaculture, scientific research and teaching.



# 1. Parameter

Detector	
Model	Linear array CMOS detector
Waveband Number	512 channel
Wavelength Accuracy	± 0.5 nm
Wavelength Resolution	< 1.5~4 nm@811nm
Optical Parameter	
Wavelength Range	300~1100 nm
FOV	Small field Angle lens, 1 ° /8 ° /15 ° /25 ° optional
Laser Wavelength	650 nm
Laser Power	5 mW
Electrical Parameter	
Integration Time	10ms ~ 10 s
Interface	USB 2.0, Bluetooth
ADC bit depth	16 bit
Power supply	DC 5V±10%
Battle Life	>6 h
Working Current	<350 mA
Storage temperature	-20°C ~ +65°C
Working Temp.	-10 ~ 45 °C
Water Proof	IP65
Working Humidity	< 90%RH
Physical Parameter	
Dimension	35×146.5×169 mm
Weight	323 kg

## 2 EOC-SI-9101 Drawing



## 3. FieldSpec Application

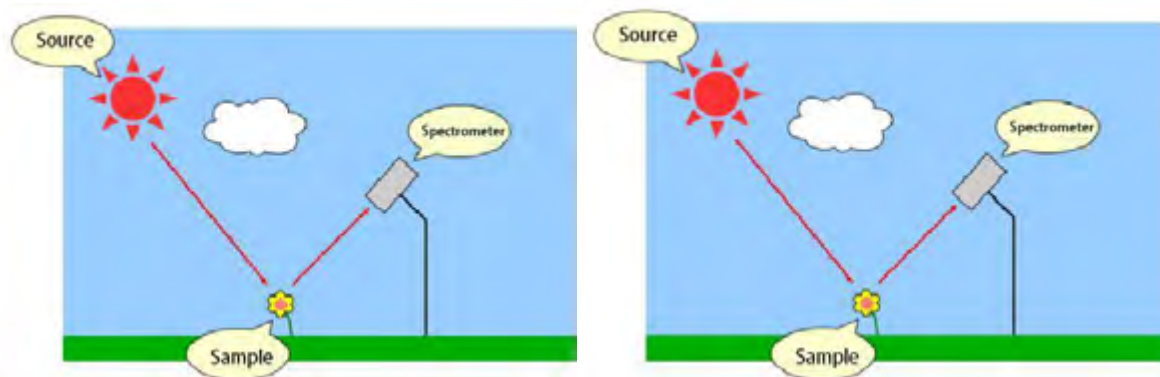


Figure 3 Field spectroradiometer working principle

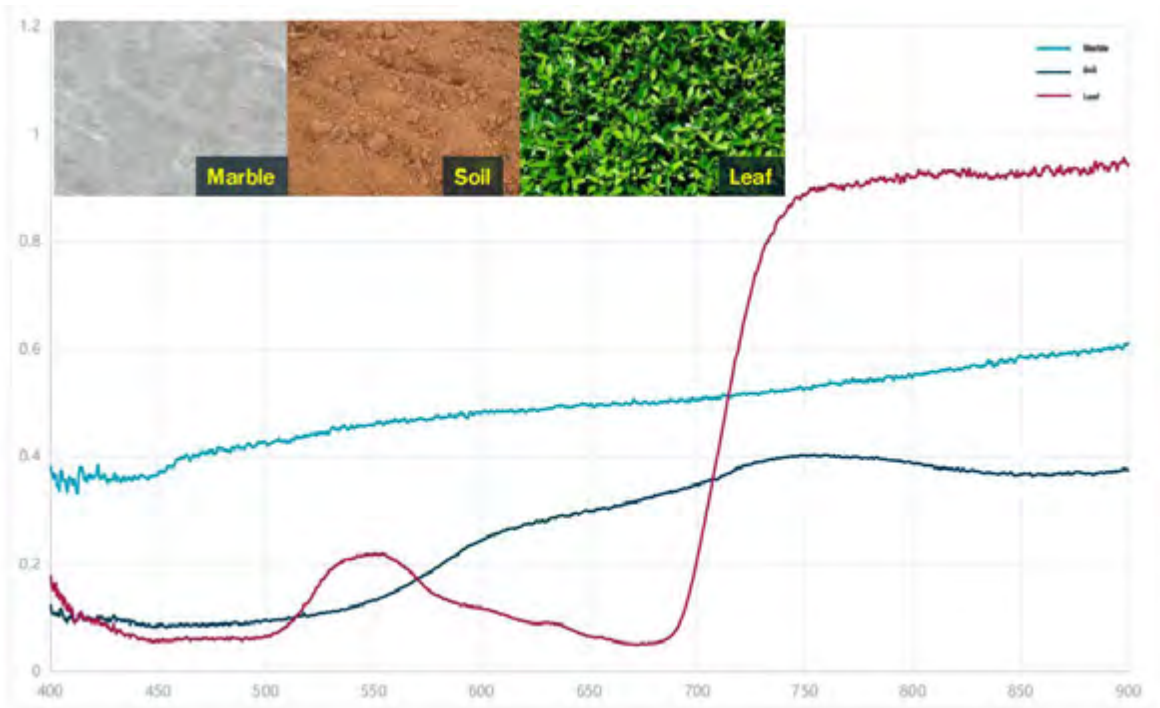


Figure 4 Spectra of marble, soil and green leaf tested by field spectroradiometer

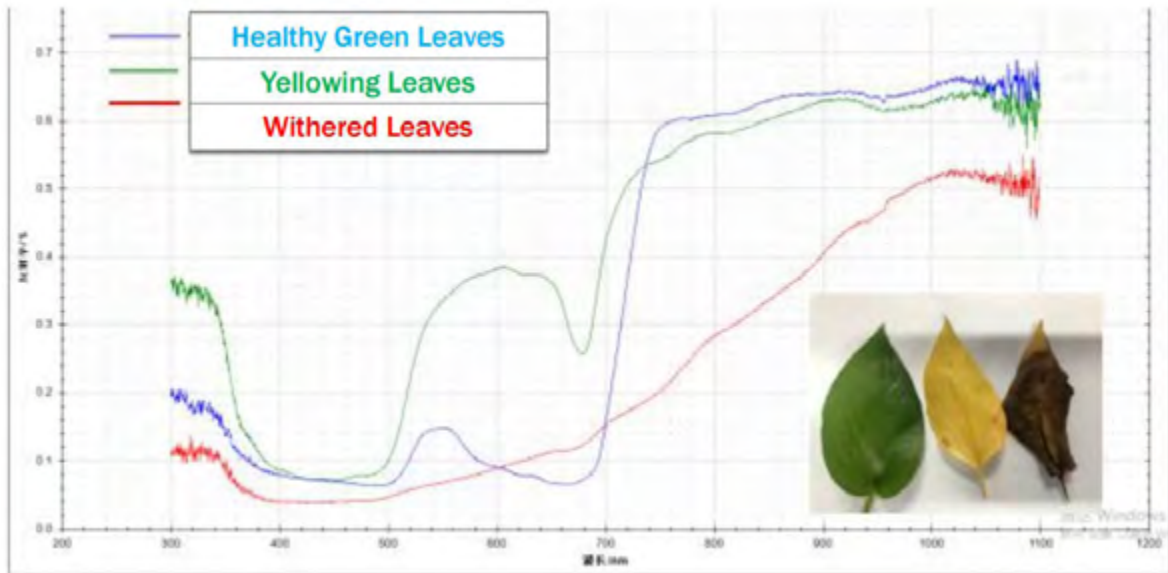


Figure 5 Spectra of different leaves tested by field spectroradiometer



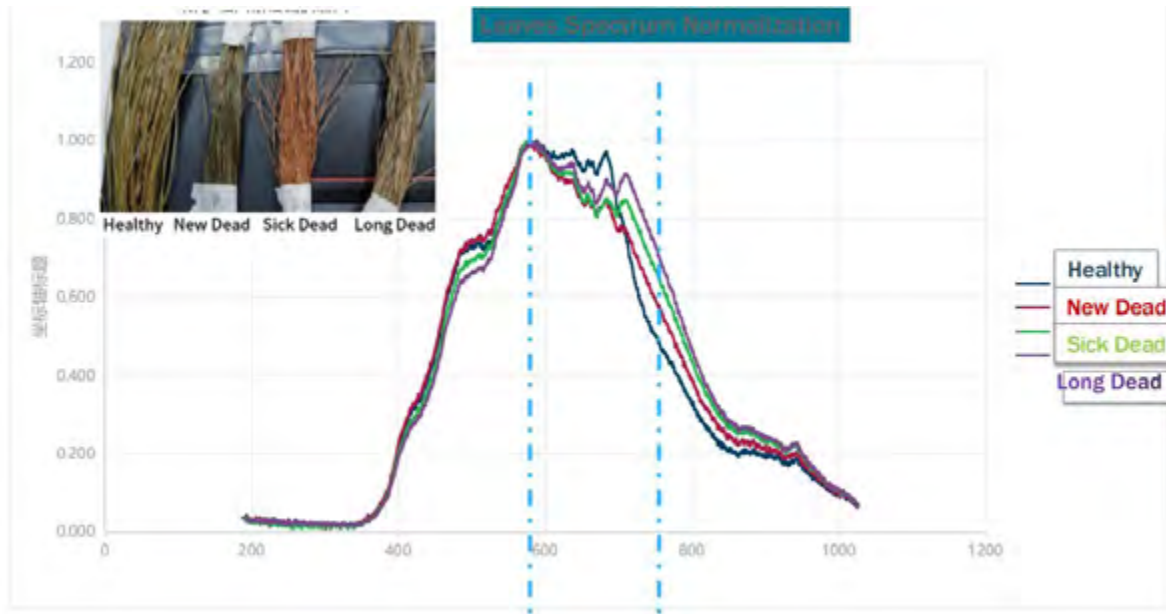


Figure 6 spectrogram of ground object spectrometer test of *Castanopsis kawakamii* infusion

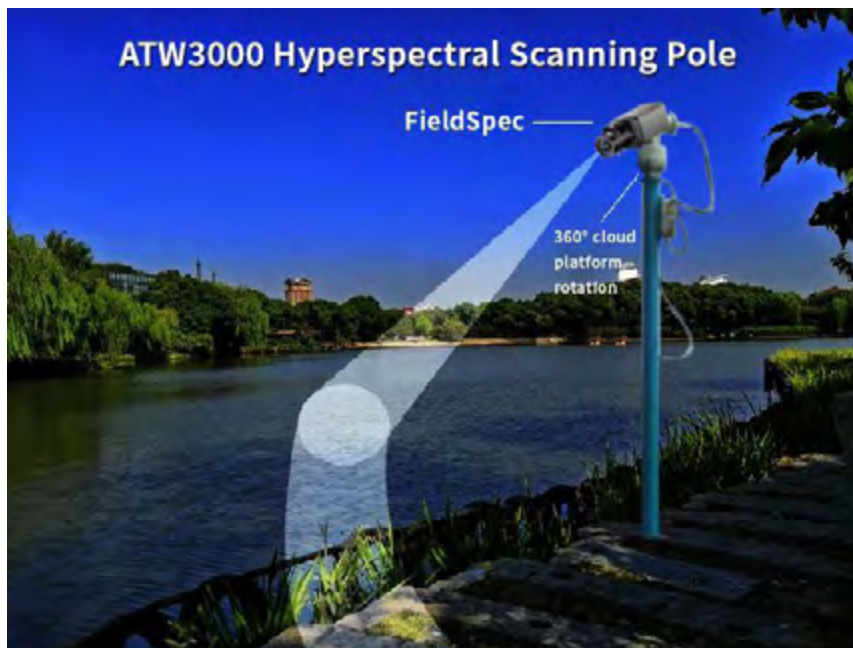


Figure 7 Application of field spectroradiometer in water quality monitoring

The spectral resolution of hyperspectral can be accurate to nanometer level, which makes it have unique advantages in detecting plant life information and analyzing vegetation growth status. Therefore, it will be more helpful to quantitatively study the vertical gradient nutrient status of crops by using hyperspectrum to penetrate into the interior of the crop ecosystem. The composition, structure, quality, nutrients and insect and disease stress of wheat, rice, soybean and maize were studied by using ground object spectrometer. For example, Zhao Chunjiang et al. collected the multi-angle spectral information of winter wheat canopy by ground object spectrometer, and studied the nutrient status at different levels of wheat. Wang Xiuzhen et al. studied the spectral information of rice canopy and leaves and established the

pigment inversion model with high accuracy.

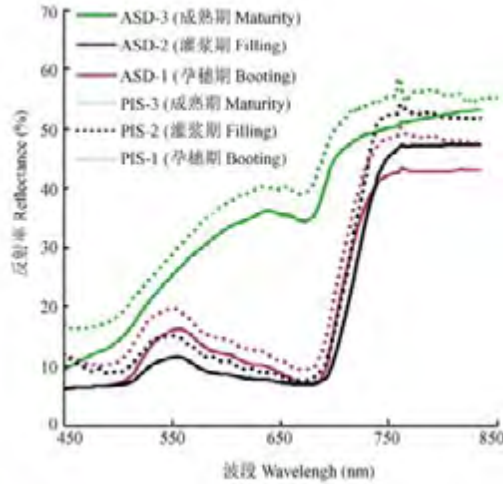


Figure 8 Leaf reflectance at different growth stages measured by field spectroradiometer

The types and quantities of petroleum compounds entering the natural water environment under abnormal conditions are also increasing rapidly. It is of far-reaching significance for the sustainable use of fresh water resources to increase the investment in the research on monitoring methods of oil spill on water surface, establish monitoring system related to oil spill disaster on water surface, strengthen the timely control of oil spill pollution on water surface, and minimize the impact of oil spill disaster on fresh water resources.

An effective analysis of oil spills is carried out by using ground object spectroscopy.

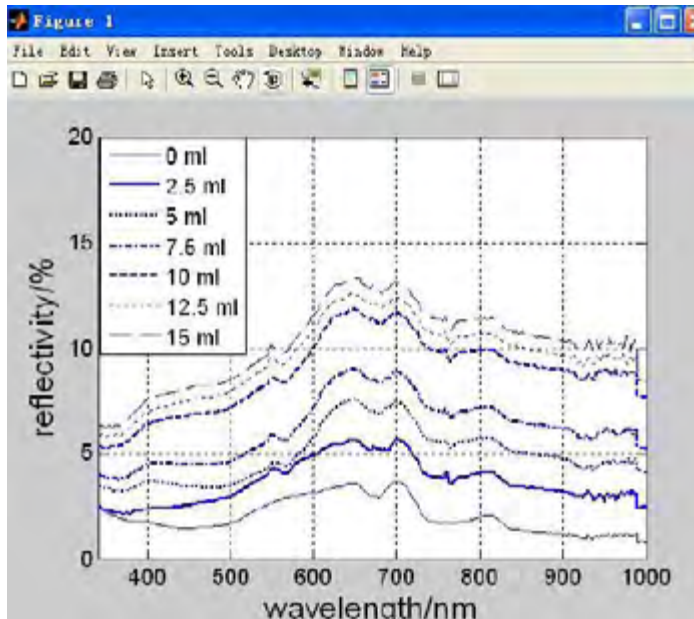
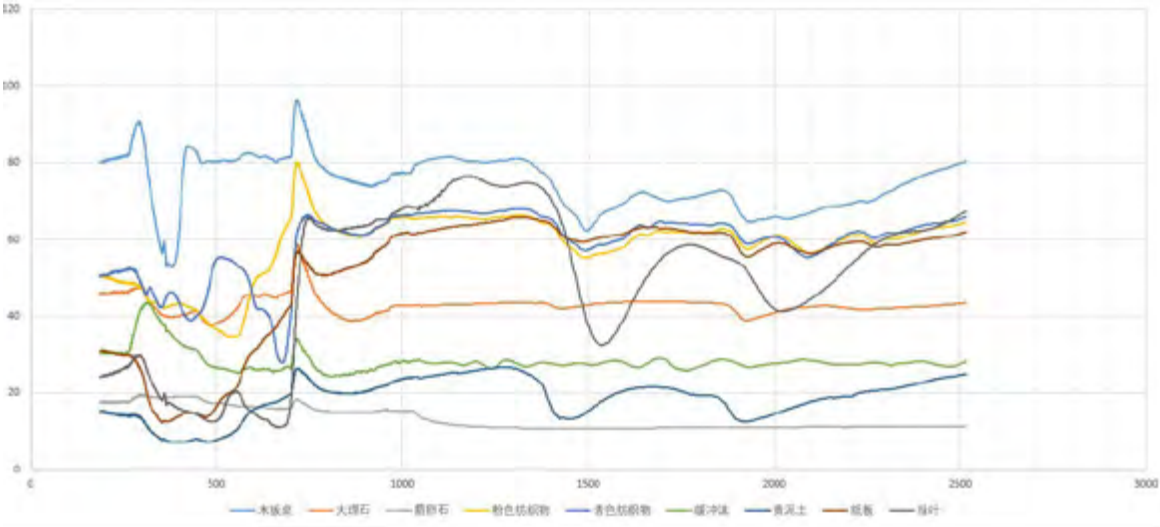


Figure 9 Application of field spectroradiometer in marine oil spill test

Surface covered with oil film, the reflectivity of the whole of the oil film was obviously higher than that of no oil film of the water, near the center wavelength of green light band, reflectivity curves present a tiny peak reflectivity,

overall in the 650 - nm around the second peak reflectivity data, add lubricating oil for the first time after the measured reflectivity value is about 1.5 times of water around. And can see that with the increase of dispersant, reflectance curve as well as increases gradually, the spectral characteristics of the main focus on green light wave band and red band, no obvious in the ultraviolet band and blue band reflection peak curve, in terms of curve of the overall trend, in blue and green wavelengths, reflectivity value with the increase of wavelength, shows the tendency of increasing.



Spectra of various samples tested by the field spectroradiometer (measured by the EOC-SI-9110-25 wide-spectrum field spectroradiometer)