OPTOSKY
Spectroscopy Solutions

Datasheet

Handheld Hyperspectral Imager (400-2500nm)	ATH2100

Features

- Maximum Spectral Range: 400 ~ 2500 nm
- Maximum Spatial Channels: 1200
- Imaging Mode: Transmission Grating
- Android Operating System
- High-Definition Capacitive Touchscreen
- 5 Megapixel Visible Light
- Viewfinder Camera
- Red Targeting Laser
- ENVI-Compatible Data Format

Applications

- Geological and Mineral Resource Exploration
- Precision Agriculture, Crop Growth Monitoring and Yield Assessment
- Forest Pest Monitoring and Fire Prevention Surveillance
- Coastline and Marine Environment Monitoring
- Pasture Productivity and Grassland Monitoring
- Lake and Watershed Environment Monitoring
- Remote Sensing Education and Scientific Research
- Ecological Environment Protection and Mine Environment Monitoring
- Water Quality Testing, Soil Monitoring
- Agricultural and Livestock Product Quality Inspection
- Military, National Defense and Homeland Security
- Disaster Prevention and Mitigation

Description

The ATH2100 is an innovative, optimized handheld visible-near-infrared hyperspectral imaging system with breakthrough features, offering the widest operational wavelength range of 400–1700 nm. With a sleek, compact design and lightweight construction, it is easy to carry and operate in various complex environments.

Equipped with an Android operating system, a high-definition touchscreen, and ample built-in storage, the ATH2100 delivers an intuitive and user-friendly interface. Beyond its small size and light weight, it boasts high spatial resolution, high spectral resolution, and a broad imaging range. The system consists of two main components: a hyperspectral imaging camera and a control unit.

Featuring a high-performance CCD imaging sensor with either 1920×1200 or 640×512 pixels, the ATH2100 captures clear, low-noise images with excellent linearity, meeting diverse application needs. Its thermally stabilized optical system ensures outstanding stability and sensitivity, making it ideal for visible-near-infrared applications.

The ATH2100 is well-suited for precision spectral imaging in fields such as agricultural vegetation health monitoring, forestry resource surveys, environmental pollution assessment, mineral composition analysis, and remote geological exploration.

1. Parameter

Specifications	ATH2100	ATH2100-4-17	ATH2100-4-25
Spectral Range	400 ~ 1000 nm	400 ~ 1700 nm	400~2500 nm
Spectral Resolution	1.6nm	VIS-NIR：1.6nm SWIR：3.5nm	VIS-NIR：1.6nm SWIR：8nm
Spectral Channels	1920	VIS-NIR：1920 SWIR：640	VIS-NIR：1920 SWIR：640
Spatial Resolution	1200	VIS-NIR：1200 SWIR：512	VIS-NIR：1200 SWIR：512
Detector	High-Sensitivity Visible-NIR Detector	High-Sensitivity Visible-NIR Detector/ InGaAs Detector	High-Sensitivity Visible-NIR Detector/ InGaAs Detector
Native Resolution	1920×1200	VIS-NIR：1920×1200 SWIR：640×512	VIS-NIR1920×1200 SWIR：640×512
Pixel Bit Depth	12bit	VIS-NIR：12bit SWIR：14bit	VIS-NIR：12bit SWIR：14bit
Maximum Frame Rate	156 fps	VIS-NIR：156 fps SWIR：80 fps	VIS-NIR：156 fps SWIR：60 fps
Visible Light Viewfinder Camera	5-Megapixel CMOS Detector		
Targeting Laser	650nm Red Laser，5mW（Class IIIB）		
OS	Windows10		
Touchscreen	6 inch 1920×1080 Capacitive Touchscreen	7 inch 1280×800 Capacitive Touchscreen	7 inch 1280×800 Capacitive Touchscreen
External Interfaces	USB3.0、WIFI、Bluetooth		

IP Rating	IP54		
FOV	11.46°@f=35mm ，Lens-Dependent	VIS-NIR：11.46°@f=35mm SWIR：15.2°@f=35mm Lens-Dependent	VIS-NIR：11.46°@f=35mm SWIR：15.2°@f=35mm Lens-Dependent
IFOV	0.7mrad@f=35mm ，Lens-Dependent	VIS-NIR：0.7mrad@f=35mm，Lens-Dependent SWIR： 0.42mrad@f=35mm，Lens-Dependent	VIS-NIR：0.7mrad@f=35mm，Lens-Dependent SWIR：0.42mrad@f=35mm，Lens-Dependent
Dimensions (Lens Excluded)	250×240×200mm	430*240*145 mm	430*290*195 mm
Weight	1.6 Kg	6.7Kg	7.1kg
Operating Temperature	-20 ~ 50°C	-20 ~ 50°C	-20 ~ 50°C
Storage Temperature	-30 ~ 70°C	-30 ~ 70°C	-30 ~ 70°C

2. Test Report

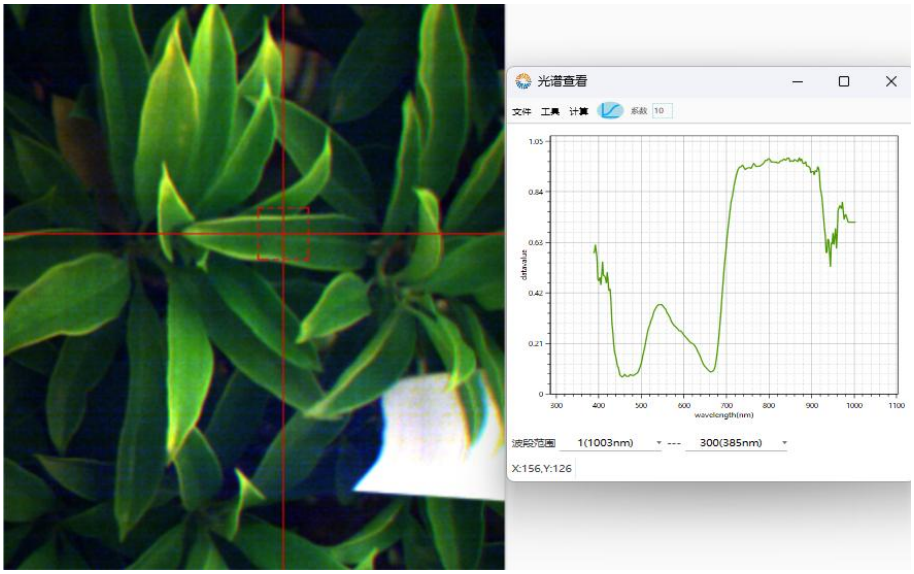

Figure 2.1 Spectral Curve of Green Leaf 1 Captured by Handheld High-Resolution Hyperspectral Imager

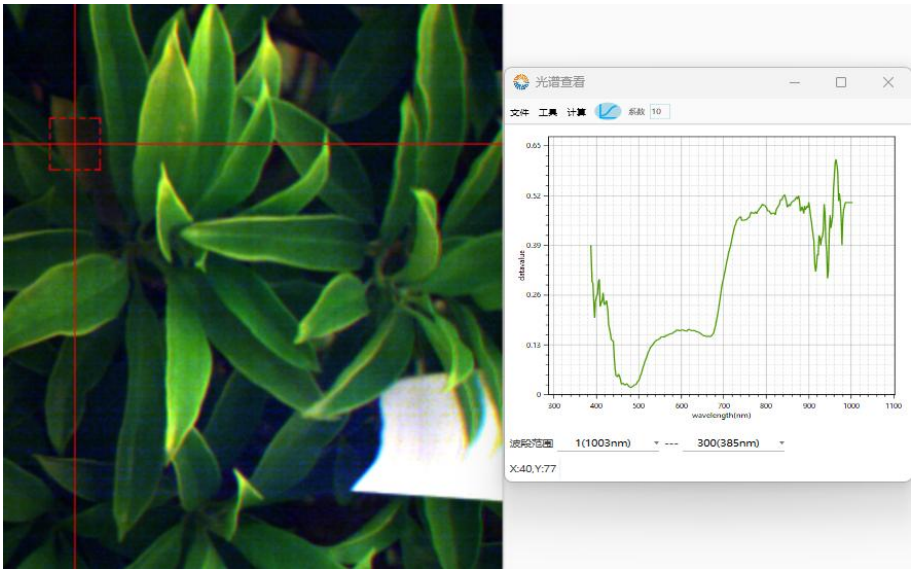

Figure 2.2 Spectral Curve of Green Leaf 2 Captured by Handheld High-Resolution Hyperspectral Imager

Figure 2.3 Physical Image of Green Leaf Captured by Handheld High-Resolution Hyperspectral Imager

3. Effect Diagram

4. Goods List & Accessories

No.	name	specifications	quantity
1	Handheld High-Resolution Hyperspectral Imaging Device	on-demand	1
2	Hyperspectral camera connection cable	USB3.0，1.5m	1
3	Standard diffuse reflection standard whiteboard	10*10cm, 95% reflectivity	1
4	charger	/	1
5	Portable portable instrument box	/	1
Options			
1	halogen lamp	100W	1
2	Hyperspectral acquisition platform	/	1
3	Diffuse reflection standard whiteboard	/	1
4	tripod	/	1
5	Hyperspectral imaging objective lens	/	1