

Laboratory flat-scan hyperspectral imaging analysis system

ATH8100

Product Features

- Maximum wavelength range: 400~2500nm
(multiple ranges selectable)
- High spectral resolution: ≤ 1.3 nm
- Field of view: $11.4^\circ@f=35\text{mm}$ (objective-dependent)
- Instantaneous field of view: 0.16 mrad@ $f=35\text{mm}$
(objective-dependent)

Product Applications

- Medical Institutions: Cancer Tissue Screening, Blood Cell Classification
- Research Institutions, Universities and Colleges
- Pharmaceutical Companies: Anti-counterfeiting of Traditional Chinese Medicine Materials
- Food Safety: Meat Source Identification
- Textiles: Pattern Copying, Image Reproduction
- Mineral Screening
- Forensic Science: Document Examination

Overview

The ATH8100 is a high-resolution, high-definition, and high-quality laboratory-grade pushbroom hyperspectral imager developed by Optoelectronics. It consists of a hyperspectral imager, a built-in pushbroom structure, a light source, an imaging camera, and a data processing workstation. The ATH8100 combines hyperspectral imaging technology with high-definition imaging technology, acquiring data with both high spectral and spatial resolution, fully exploring the unique spectral and spatial characteristics of substances. It can be applied to material sorting (tobacco, pharmaceuticals, food, ores, etc.), forensic document examination, and authentication. The laboratory hyperspectral system consists of a hyperspectral imager, a line light source, a high-definition camera, a sample stage, a focusing device, and a standard white board. The line light source is collinear with the hyperspectral imager's field of view, and data acquisition is achieved through the camera's built-in pushbroom. The standard white board is used for reflectivity correction on both spatial and temporal scales, improving data inversion accuracy. It is an essential piece of experimental research equipment for enterprises.

Model	Band Range
ATH8100	400 ~ 1000 nm
ATH8100-17	900 ~ 1700 nm
ATH8100-25	1000 ~ 2500 nm
ATH8100-4-17	400 ~ 1700 nm
ATH8100-4-25	400 ~ 2500 nm



Figure 1 Actual image of ATH8100

1. Ordering Guide

model	feature
ATH8100	400 ~ 1000 nm, 1920*1200 pixels
ATH8100SCM	400~1000nm, SCMOS high-sensitivity camera, 2048*2048 pixels
ATH8100-17	900 ~ 1700 nm, 640*512 pixels
ATH8100-25	1000 ~ 2500 nm, 640*512 pixels
ATH8100-4-17	400 ~ 1700 nm
ATH8100-4-25	400 ~ 2500 nm

2. Technical parameters

parameter	ATH8100	ATH8100SCM	ATH8100-17	ATH8100-25
Spectral range	400~1000nm	400~1000nm	900 ~ 1700 nm	1000 ~ 2500 nm
detector	CMOS	Cooled SCMOS	InGaAs detector	Deep-cooled mercury cadmium telluride
Number of band channels	1920	2048	640	640
Number of spatial channels	1200	2048	512	512
detector Original resolution	1920*1200	2048*2048	640*512	640*512
Original pixel size	5.86 x 5.86 μm	6.5x6.5 μm	15*15 μm	15*15 μm
Detector Interface	USB 3.0			
Pixel depth	12 bits	16 bits	14 bits	14 bits
detector Target size	11.3 mm × 7.03 mm	13.31 x 13.31 mm	9.6 x 7.68 mm	9.6 x 7.68 mm
Field of view (FOV)	11.4°@f=35 mm	21°@f=35 mm	15.2°@f=35mm Depends on the lens	15.2°@f=35mm Depends on the lens
Instantaneous field of view (IFOV)	0.167 mrad @ f = 35 mm	0.85mrad@f=35 mm	0.42mrad@f=35mm	0.42mrad@f=35mm
Maximum frame	156 fps	72fps	80fps	60 fps

rate				
size	Dimensions: 800*650*1410mm (excluding handle), 800*690*1410mm (including handle)			
weight	147kg ± 3 kg			
Current	A C/220V			

3. Effects demonstration



Figure 2 Actual image of the ATH8100 platform.

4. Parts list

Serial Number	thing	Specification	quantity	unit
1.	Hyperspectral Imager Main Unit	400~1000nm	1	tower
2.	power cord	220V	1	root
3.	USB flash drive	64G	1	root
4.	Data cable	USB 3.0	1	piece
5.	Product Warranty Card	/	1	open
6.	Product Certificate	/	1	open
7.	Product Factory Test Report	/	1	open
8.	User Manual	/	1	book
Optional	Diffuse whiteboard	300*50mm other reflectivity	1	piece
	Data acquisition computer	/	1	tower

Aopu Tiancheng Group Introduction

Founded in 2015, Optoelectronics is headquartered in the scenic coastal city of Xiamen. It is a **national-level specialized and innovative "key small giant" enterprise focusing on the R&D, manufacturing, and sales of high-end spectroscopic analysis instruments**. Established by **Dr. Liu Hongfei** (Academician of the Russian Academy of Natural Sciences, a leading talent of the National Ten Thousand Talents Program, a recipient of the Ministry of Science and Technology's Innovation Talent Promotion Program, a member of Xiamen's Double Hundred Talents Program (Category A), a PhD graduate from the Shanghai Institute of Technical Physics, Chinese Academy of Sciences, and a postdoctoral fellow at Xiamen University), the company is committed to developing internationally leading spectroscopic analysis instruments and aspires to become a world-class provider of spectroscopic instruments. It has now developed into a leading enterprise in the domestic spectroscopic instrument industry.

Aopu Tiancheng Group owns **five national high-tech enterprises** and has multiple R&D and manufacturing bases in Xiamen, Changsha, Wuhan, Chengdu, Xuzhou, and Wuhu across China. Its global office space **exceeds 30,000 square meters**, and it currently employs over **450 people, including more than 220** experienced R&D engineers. The company has applied for and been granted **over 500 intellectual property rights, including over 100** invention patents (including two US invention patents). Currently, the company is also undertaking **more than 20 national, provincial, and municipal-level scientific research projects**, such as the State Oceanic Administration's Major Industrialization Special Project (total funding: 30 million RMB). Meanwhile, the company **has led and participated in the formulation of more than 20 national, industry, and group standards** (leading the formulation of: Near-infrared ground object spectrometer, rapid water quality tester based on spectrometry, technical specifications for multispectral imaging in smart agriculture, handheld fruit quality tester, technical requirements for medical near-infrared spectrometer, and portable rapid water quality tester based on spectrometry, etc.; and participating in the formulation of: Technical specifications for Raman spectrometer, hazardous chemical tester based on Raman spectroscopy, online rapid water quality detection system based on spectrometry, technical specifications for ecological environment monitoring system based on mobile or fixed buoys, determination of benzophenone ultraviolet absorbers in textiles, determination of antifungal properties in textiles - Part 1: fluorescence method, plant phenotypic chlorophyll fluorescence imaging analysis equipment, and technical requirements for plant monitoring based on UAV hyperspectral remote sensing, etc.), continuously leading the standardization of spectroscopic technology and industrial upgrading.

Figure 3 Optoelectronics National R&D Center/Intelligent Manufacturing Base

主持和参与制定的多个国家标准

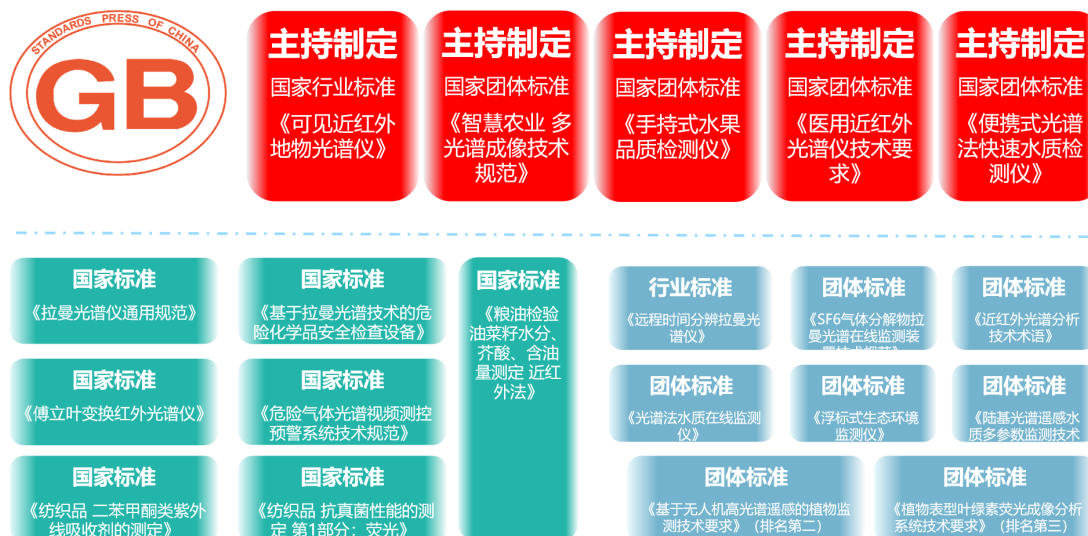


Figure 4 Leading and participating in multiple national standards.

Optoelectronics, leveraging its unique technologies in opto-mechatronics, spectral analysis, weak photoelectric signal processing, and cloud computing, has developed a **comprehensive product matrix**, with Raman spectroscopy as its flagship product, encompassing fiber optic spectroscopy, hyperspectral imagers, ground object spectroscopy, infrared spectroscopy, fluorescence spectroscopy, spectrophotometers, and LIBS. These products are widely used in **scientific research, semiconductors, new energy, biomedicine, chemical pharmaceuticals, public safety, smart agriculture, and military industries**. From product quality to brand recognition, Optoelectronics ranks among the world's leading companies. Its products are exported to over 70 countries and regions worldwide, making it the number one Chinese brand of optical instruments in the Russian market, one of the top three high-end optical instrument brands in the Middle East, and one of the fastest-growing Chinese brands in the European and American markets. The company has achieved breakthroughs in both domestic substitution and export of high-end spectroscopic instruments.

Aopu Tiancheng, grounded in technology, market-oriented, and customer-first, provides outstanding solutions and high-quality products and services to numerous fields. The company enjoys high recognition from governments at all levels and the industry, and has accumulated **over 300 innovative patents, software copyrights, certifications, and domestic and international honors**.

The company has obtained a series of **honors and qualifications, including National Key Small Giant Enterprise with Specialized, Refined and Innovative Technologies, Key Listed Reserve Enterprise of Xiamen City, Leading Talent Team of Fujian Province, Industrial Technology Center of Xiamen City, Gazelle Enterprise of Fujian Province, Class A Key Introduction Project Unit of "Xiamen Double Hundred Talents Program", National High-tech Enterprise, and has been rated as "Xiamen Specialized, Refined and Innovative Enterprise", "Xiamen Key Development Enterprise of High-tech, High-growth and High-value-added Industries", and "Xiamen High-tech Enterprise".**

Honors received by Aopu Tiancheng (partial list):

- In August 2025, I won first place in the finals of the 14th China Innovation and Entrepreneurship Competition, Sichuan Division, in the New Generation Information Technology Industry Group.
- In July 2025, it was approved as a postdoctoral innovation and entrepreneurship practice base.
- In July 2025, it was selected as a national-level key small giant enterprise specializing in specialized and innovative technologies.
- In March 2025, it was approved as a Changsha Municipal Expert Workstation.
- In September 2024, it was selected as a National Specialized, Refined, and Innovative Small Giant Enterprise.
- In June 2023, it was selected as a key reserve enterprise for listing in Xiamen.
- In May 2023, selected for the Fujian Provincial Leading Talent Team Project in Industry.
- In 2023, it was selected as a Xiamen Municipal Industrial Technology Center.
- In 2022, Dr. Liu Hongfei was elected an academician of the Russian Academy of Natural Sciences.
- In 2022, it was selected as a Torch Gazelle Enterprise in Fujian Province.
- In 2022, it was selected as a science and technology-based small and medium-sized enterprise in Fujian Province.
- In December 2021, the Raman spectrometer won the second prize of Fujian Provincial Science and Technology Progress Award.
- In 2021, Dr. Liu Hongfei was selected for the "Ten Thousand Talents Program" by the Organization Department of the Central Committee of the Communist Party of China.
- In 2021, Aopu Tiancheng was recognized as a "Science and Technology Little Giant" in Fujian Province.
- In 2020, Dr. Liu Hongfei was selected for the Ministry of Science and Technology's "Innovative Talent Promotion Program".
- In 2019, it was recognized as a National High-tech Enterprise.
- In 2020, I led the development of the national industry standard for "Visible and Near-Infrared Ground Object Spectrometer".
- In 2018, we participated in the 7th China Entrepreneurship Competition finals and won the Outstanding Enterprise Award.
- In 2020, Dr. Liu Hongfei was recognized as a Category B high-level talent in Fujian Province.
- In 2016, Xiamen City's eighth batch of "Double Hundred Talents Program" Category A key introduction projects (highest level)

- Second Prize, Xiamen Division, 4th China Entrepreneurship Competition, 2018
- In 2019, it was recognized as a "Specialized, Refined, Unique and Innovative" micro and small enterprise in Xiamen.
- Listed on the Straits Equity Exchange Market, stock code: 865147
- Certified by ISO 9001:2015 Quality Management System
- 5th World New Materials Innovation and Entrepreneurship Competition
- Bronze Award , 5th World New Materials Innovation and Entrepreneurship Competition Finals
- Participated in the formulation of Chinese national standards "Raman Spectrometer" and "Hazardous Chemical Detector Based on Raman Spectroscopy Technology".
- In 2019, it received the "Gold Award for Independent Innovation" from the China Instrument and Control Society.
- State Oceanic Administration, Major Collaborative Innovation Project for Marine Economy: "Research and Industrialization of Marine Three-Dimensional Detection Sensors and Systems ", Total Funding: 30 million yuan
- Since 2017, a strategic partnership agreement has been signed with the School of Electronic Science and Technology of Xiamen University.
- Since 2016, it has been selected as an undergraduate internship base and a joint postgraduate training unit of Xiamen University of Technology.
- Since 2017, it has been selected as an undergraduate internship base and a joint postgraduate training unit of Jimei University.
- Member unit of Fujian Provincial Young Entrepreneurs Association, Director unit of Xiamen Young Entrepreneurs Association
- Xiamen Industry-University-Research Project Implementation Units
- Member unit of Xiamen Emergency Association

5. Contact Us

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