

Three-Dimensional Fluorescence Spectrophotometer

ATF4100

Product Features

- Adopt 150W Xenon lamp, Long lifespan and high brightness
- Excitation wavelength range: 190-900nm
- Emission Wavelength Range: 190-1100nm
- Ultrahigh Sensitivity Detector
- A clean and intuitive interface: makes it much easier for users to get started
- Three-dimensional fluorescence analysis function
- USB data output interface, can be connected online to process data
- Support for various accessories, meeting diverse needs

Product Application

- Pharmaceutical Engineering
- Material Science
- Bioscience
- Medical Analysis
- Agriculture and Food Inspection
- Environmental Science
- Water Quality Analysis
- Chemical Engineering
- Educational Research

Product Description

The ATF4100 high-speed scanning three-dimensional fluorescence spectrometer is a brand-new, optimally designed, high-sensitivity fluorescence spectrometer with breakthrough features, developed by Optosky, leveraging over 20 years of experience in spectrometer research and development. It uses a cooled high-sensitivity CCD, giving the instrument good environmental adaptability and suitability for long integration times. The excellent low stray light design allows the ATF4100 to be used in complex environments. The spectrometer has a wide range of applications, particularly in scientific research, food safety, and pharmaceutical engineering.

The ATF4100 has a built-in high-power xenon lamp with a very wide excitation wavelength output range. It uses a scanning monochromator to produce the high-power excitation wavelength light needed, which is directed onto the sample. The emission wavelength is analyzed using a broad-range high-speed spectrometer, allowing for quick analysis of the sample's fluorescence performance and enabling fast 3D spectral analysis. The emission wavelength spectrometer uses a deeply cooled CCD, which provides a higher signal-to-noise ratio and more accurate fluorescence signals.

This product comes with the unique, simple, and intuitive interface of Optosky. From the user's perspective, the smart integrated system allows users to get started quickly with just a little training. In terms of data processing, it can be connected online to process spectra for better data organization.



1. Selection Guide

Figure 1 ATF4100 Product Selection Table

Model	Description
ATF4100	Wavelength Range: 190-1100nm, High-Sensitivity Back-Illuminated Cooled CCD Detector

2. Performance Parameter

Figure 2 ATF4100Performance Parameter

Model	ATF4100
Excitation wavelength range	190-900nm
Emission wavelength range	190-1100nm(Widest 800nm)
Spectral Resolution	1.0nm
Wavelength Accuracy	±1.0nm
Wavelength Repeatability	±0.3nm
Signal-to-Noise Ratio	S/N>600:1
Light Source	150W Xenon lamp
Spectral bandwidth	Excitation: 1.0/2.5/5/10nmAdjustable
Detector	High-Sensitivity Back-Illuminated Cooled CCD Detector

Integration Time	1ms-65s
Cooling	Detector cooling (-10°C)
Effective Pixel	2048×64
Dynamic Range	>10000:1
Communication interface	USB2.0
Operating Humidity	45-80%
Operating Temperature	10-35°C
Dimension	Length, width, height 580*550*300mm
Weight	20kg

3. Product Appearance Diagram



Figure 1 ATF4100 3D Fluorescence Appearance Diagram

4. Accessories Selection

Figure 3 ATF4100 Standard and Optional

Standard Accessories	
1	Power cord
2	USB data cable
3	10mm Quartz Fluorescence Cuvette
4	U Driver (Includes dedicated PC software)
5	Attachment (Including packing list,user manual, certificate, etc.)
Optional Accessories	
1	Solid sample holder

2	Micro sample cell holder
3	Single-cell sample holder
4	Automatic Polarization Attachment
5	Manual polarization attachment
6	Water Bath Temperature Control Stand
7	Water bath constant temperature stirring rack
8	Low-temperature test accessories
9	Micro sample cell
10	Quartz Fluorescence Sample Cell
11	Quantum Yield Detection Unit
12	Integration Sphere Component
13	Membrane sample holder

5. Application Scenarios

Application Fields	Typical Uses	Common sample types
Environmental Monitoring and Water Quality Analysis	1. Analysis of Dissolved Organic Matter (DOM) Components; 2. Traceability of Water Pollution; 3. Water Quality Warning (Algal Toxins, Complexed Heavy Metal Ion Detection); 4. Screening of Drinking Water Disinfection By-Product Precursors (DBPs)	Surface water, groundwater, drinking water, industrial wastewater, seawater, soil extract
Biopharmaceuticals and Life Sciences	1. Study of Protein/Nucleic Acid Conformational Changes; 2. Drug - Biomacromolecule (Protein, DNA) Interaction Analysis; 3. Intracellular reactive oxygen species (ROS) and fluorescent probe imaging localization; 4. Biomarker Screening	Serum, plasma, cell lysates, protein solutions, DNA/RNA samples, fluorescent probe-labeled cells, tissue extracts
Food Science and Quality Control	1. Qualitative and quantitative analysis of fluorescent brighteners in food; 2. Mycotoxin testing (such as aflatoxin B1, ochratoxin A); 3. Assessment of Oil Oxidation Level;	Flour, paper, beverages, dairy products, edible oil, honey, cereal crops

Application Fields	Typical Uses	Common sample types
Materials Science and Nanotechnology	4. Monitoring of Dairy Protein Denaturation; 5. Authenticity identification of natural products such as honey and fruit juice 1. Fluorescent Probe / Quantum Dot Performance Characterization; 2. Dispersion Testing of Fluorescent Additives in Polymer Materials; 3. Evaluation of the uniformity of fluorescence in films/coatings; 4. Study on the Fluorescence Quenching/Enhancement Effects of Photocatalytic Materials	Quantum dots (CdTe, ZnS), fluorescent probes, polymer films, coatings, nanocomposites, fluorescent dye solutions
Petrochemicals and Energy	1. Crude Oil / Fuel Oil Component Analysis; 2. Assessment of Lubricating Oil Aging; 3. Oil and gas exploration	Crude oil, gasoline, diesel, lubricating oil, drilling fluid, petrochemical wastewater
Agriculture and Soil Science	1. Monitoring of Soil Organic Matter (SOM) Transformation Process; 2. Rapid screening of pesticide residues (such as organophosphates, triazine fluorescent pesticides); 3. Plant Stress Physiology Research	Soil, plant leaf/root extracts, pesticide formulations, farmland irrigation water
Chemistry and Chemical Engineering Analysis	1. Structural identification of organic compounds; 2. Study of complexation reactions; 3. Chemical reaction kinetics monitoring	Organic fluorescent reagents, metal ion solutions, coordination compounds, real-time sampling solutions of the reaction system
Biomedicine and drug development	1. Drug purity testing; 2. Encapsulation Efficiency and Release Kinetics Monitoring of Nanodrug Carriers; 3. Qualitative and Quantitative Analysis of Active Ingredients in Chinese Medicine	Pharmaceutical raw materials, preparations (tablets, injections), nanomedicine, traditional Chinese medicine extracts, traditional Chinese medicine compounds

6. Products of the same type produced by Optosky



Figure 2 Fluorescent product series produced by Optosky

7. Optosky·Company Profile

Optosky was founded in 2015 with group headquarters in Xiamen, a picturesque coastal city. It is a **national-level key "Little Giant"** enterprise featuring specialization, refinement, differentiation and innovation, dedicated to the R&D, production and sales of high-end spectral analysis instruments. The enterprise was initiated by **Dr. Liu Hongfei, an international specialist in spectral instruments**, who is an academician of the Russian Academy of Natural Sciences, leading talent of the National Ten-Thousand Talents Program, beneficiary of the Ministry of Science and Technology Innovation Talent Promotion Program, Class A talent under Xiamen Double Hundred Talent Program, PhD holder from Shanghai Institute of Technical Physics, Chinese Academy of Sciences and postdoctoral fellow of Xiamen University. The company devotes itself to developing globally advanced spectral analysis instruments and aims to be a top-tier international supplier of spectral instruments, evolving into a domestic pacesetter in the spectral instrument sector.



奥谱天成·集团简介

OPTOSKY 奥谱天成

公司的名字起源:
Opto sky: 光电世界的意思, 英译中, 即为 奥谱 天成

- Logo为Optosky的首字母“O”;
- 旋转代表着活力、洒脱、前进、光芒四射;
- **上半部分:** 橙色, 代表着激情、创新;
- **下半部分:** 蓝色, 代表了稳重、可靠, 寓意在保证产品可靠性的基础上, 大力创新

愿景与目标

- 做世界性的伟大仪器公司
- 做中国自己的Thermo

宗旨与使命

- 让中国人用自己的高端光谱仪器
- 让全世界用中国的高端光谱仪器

价值观

- 己立立人, 己达人
- 诚信、勤奋、感恩、利他

企业格言

- 探物之本末·用心至本真

总规模: >1.3万平方米
超净室: 685平方米

员工总数: >330人
研发工程师>180人
研发投入占比: >30%

5个 国家级高新技术企业子公司

产品出口至70多个国家
出口占比: >30%

国家专精特新小巨人

厦门市重点上市后备企业

福建省科技进步奖二等奖

福建省科技小巨人

国家科技型中小企业

福建省火炬瞪羚企业

国家高新技术企业

福建省专精特新中小企业

福建省产业领军团队项目

厦门市双百计划A类重点引进项目

厦门市工业技术中心

Figure 1: Group Profile

联合创始人——刘鸿飞博士 (全职)



刘鸿飞 博士、教授

- 俄罗斯自然科学院 院士
- 国家“万人计划”领军人才
- 科技部“创新人才推进计划”
- 教育部“长江学者”评审专家
- 福建省高层次人才A类
- 厦门市双百计划 A类人才 (最高等级)
- 荣获福建省科技进步二等奖

科研

- 主持科技部重点研发计划, 600万元
- 主持工信部专精特新重点小巨人项目, 600万元
- 主持江苏省前沿技术研发计划, 1000万元
- 主持湖南省揭榜挂帅重大项目, 300万元
- 主持福建省高层次人才团队项目, 300万元
- 主持厦门市海洋经济产业化重大项目, 4576万元
- 主持厦门市未来产业重大项目, 100万元
- 参与国家级项目6项、省部级项目10余项

20+项
国家、省市级
科研攻关项目

荣誉

- 长沙市天心区人大代表
- 中国仪器仪表协会分析仪器分会, 副总干事
- 中国光学工程学会, 理事
- 湖南仪器仪表协会, 副理事长
- 长沙天心经开区商会, 会长 (首届)
- 厦门大学湖南校友会企业分会, 会长 (首届)
- 厦门大学电子校友会, 副理事长

22 项
国家和行业、团体
标准

学历

- 本科 • 厦门大学 | 电子工程
- 博士 • 中科院上海技术物理所 | 航天遥感
师从陈桂林院士、孙胜利院士
- 博士后 • 厦门大学 | 光谱分析

500+件
知识产权

历练

- 从工程师 → 研发经理 → 事业部总经理
- Agilent, 仪器行业领头羊, 世界500强, 工程师
- 美国II-VI (NASDAQ上市企业, 全球光电龙头业),
任职: 仪器与自动化事业部总经理

100+件
发明专利

Figure 2 Dr. Liu Hongfei, co-founder of Aopu Tiancheng

OptoSky Group owns **five national high-tech enterprises**. It has established multiple R&D and manufacturing bases across China in Xiamen, Changsha, Wuhan, Chengdu, Xuzhou, Wuhu and other cities. The total global office space exceeds **30,000 square meters**, and the company employs more than 450 staff members, including **over 220** seasoned R&D engineers. The company has filed and obtained **more than 500** intellectual property rights, among which **over 100** are invention patents including two US invention patents. Currently, it undertakes more than **20 national, provincial and municipal research projects** such as a major industrialization special project sponsored by the State Oceanic Administration with total funding of 30 million RMB. Meanwhile, OptoSky presides over and participates in formulating **over 20 national, industrial and association standards**. Standards led by the company: Near-infrared Terrestrial Object Spectrometer, Rapid Water Quality Detector Using Spectroscopy, Technical Specification for Multispectral Imaging in Smart Agriculture, Handheld Fruit Quality Detector, Technical Requirements for Medical Near-infrared Spectrometer, Portable Rapid Water Quality Detector Using Spectroscopy, etc. Standards participated in formulation: Technical Specification for Raman Spectrometer, Hazardous Chemical Detector Based on Raman Spectroscopy, Online Rapid Water Quality Detection System Using Spectroscopy, Technical Specification for Ecological Environment Monitoring System Based on Mobile or Fixed Buoys, Determination of

Benzophenone Ultraviolet Absorbers in Textiles, Determination of Antifungal Performance of Textiles
Part 1: Fluorescence Method, Plant Phenotype Chlorophyll Fluorescence Imaging Analysis Equipment,
Technical Requirements for Plant Monitoring Using UAV Hyperspectral Remote Sensing, etc. OptoSky
keeps guiding the formulation of spectral technical standards and industrial upgrading.

Figure 3: Aopu Tiancheng National R&D Center/Smart Manufacturing Base

▶ 奥谱天成集团简介（总部与子公司）



▶ 主持和参与制定的多个国家标准



	主持制定 国家行业标准 《可见近红外地物光谱仪》		主持制定 国家团体标准 《智慧农业 多光谱成像技术规范》		主持制定 国家团体标准 《手持式水果品质检测仪》		主持制定 国家团体标准 《医用近红外光谱仪技术要求》		主持制定 国家团体标准 《便携式光谱法快速水质检测仪》			
	国家标准 《拉曼光谱仪通用规范》		国家标准 《基于拉曼光谱技术的危险化学品安全检查设备》		国家标准 《粮油检验 油菜籽水分、芥酸、含油量测定 近红外法》		行业标准 《远程时间分辨拉曼光谱仪》		团体标准 《SF6气体分解物拉曼光谱在线监测装置技术规范》		团体标准 《近红外光谱分析技术术语》	
	国家标准 《傅立叶变换红外光谱仪》		国家标准 《危险气体光谱视频检测预警系统技术规范》				团体标准 《光谱法水质在线监测仪》		团体标准 《浮标式生态环境监测仪》		团体标准 《陆基光谱遥感水质多参数监测技术》	
国家标准 《纺织品 二苯甲酮类紫外线吸收剂的测定》		国家标准 《纺织品 抗菌性能的测定 第1部分：荧光》						团体标准 《基于无人机高光谱遥感的植物监测技术要求》（排名第二）		团体标准 《植物表型叶绿素荧光成像分析系统技术要求》（排名第三）		

Figure 4: Leading and participating in multiple national standards

Relying on its exclusive technologies including opto-mechatronics integration, spectral analysis, weak photoelectric signal processing and cloud computing, OptoSky has built a full-spectrum product portfolio **with Raman spectrometers as flagship products, covering fiber spectrometers, hyperspectral imagers, field spectroradiometers, infrared spectrometers, fluorescence spectrometers, spectrophotometers and LIBS instruments.** These products are widely adopted in **scientific research, semiconductor, new energy, biomedicine, chemical pharmacy, public security, smart agriculture, military industry and other fields,** ranking among the world's top tier in both product performance and brand influence. Its products are sold to more than 70 countries and regions worldwide. OptoSky is the top Chinese optical instrument brand in Russia, among the top three high-end optical instrument brands in the Middle East, and one of the fastest-growing Chinese brands in Europe and America. The company has realized domestic substitution and export breakthroughs for high-end spectral instruments.

主要产品及应用



Figure 5: Main Product Series and Application Areas

OptoSky bases its development on technology, follows market demands and prioritizes customers, delivering outstanding solutions and high-quality products and services for numerous industries. Widely recognized by governments at all levels and the industry, the company has acquired **more than 300** innovation patents, software copyrights, qualification certifications and domestic and international honors in total.

The enterprise holds multiple accreditations and honors including National Key Specialized, Sophisticated, Unique and **Innovative Little Giant Enterprise**, Key Pre-listing Enterprise of Xiamen, Leading Industrial Talent Team of Fujian Province, Xiamen Industrial Technology Center, Fujian Gazelle Enterprise, Class A key introduction project of Xiamen Double Hundred Talent Program and National High-tech Enterprise. It has also been awarded Xiamen Specialized, Sophisticated, Unique and Innovative Enterprise, Xiamen High-tech, High-growth and High-value Key Enterprise and Xiamen High-tech Enterprise.

Partial Honors Obtained by OptoSky:

- August 2025: Won the first prize in the final of the New Generation Information Technology Industry Group, Sichuan Division, the 14th China Innovation and Entrepreneurship Competition 2025
- July 2025: Approved as a Postdoctoral Innovation and Entrepreneurship Practice Base
- July 2025: Listed as a national-level key Specialized, Sophisticated, Unique and Innovative Little Giant enterprise
- March 2025: Approved for the Changsha Expert Workstation
- September 2024: Selected as a national-level Specialized, Sophisticated, Unique and Innovative Little Giant enterprise
- June 2023: Named a key pre-listing enterprise of Xiamen
- May 2023: Included in the Leading Industrial Talent Team Program of Fujian Province
- 2023: Accredited as Xiamen Industrial Technology Center
- 2022: Dr. Liu Hongfei elected an academician of the Russian Academy of Natural Sciences
- 2022: Recognized as a Fujian Torch Gazelle Enterprise
- 2022: Certified as a Fujian technology-based small and medium-sized enterprise
- December 2021: Its Raman spectrometer won the Second Prize of Fujian Provincial Science and Technology Progress Award
- 2021: Dr. Liu Hongfei selected for the National Ten-Thousand Talents Program organized by the Central Organization Department 2021: OptoSky awarded Fujian Provincial Science and Technology Little Giant Enterprise
- 2020: Dr. Liu Hongfei included in the Innovation Talent Promotion Program of the Ministry of Science and Technology
- 2020: Led the formulation of the national industrial standard Visible and Near-Infrared Field

Spectroradiometer

- 2020: Dr. Liu Hongfei certified as Class B high-level talent of Fujian Province 2019: Certified as a national high-tech enterprise
- 2019: Honored the Independent Innovation Gold Medal issued by China Instrument and Control Society
- 2019: Recognized as a Specialized, Sophisticated, Unique and Innovative micro and small enterprise in Xiamen
- 2018: Won Excellent Enterprise Award in the National Final of the 7th China Innovation and Entrepreneurship Competition
- 2018: Received the second prize in Xiamen Division, the 4th China Innovation and Entrepreneurship Competition
- 2018: Won Silver Award in Fujian Division and Bronze Award in National Final of the 5th World New Materials Innovation and Entrepreneurship Competition
- 2016: Included in Class A key high-level talent introduction project (highest tier), the 8th Xiamen Double Hundred Talent Program
- Listed on Strait Equity Exchange Market, Stock Code: 865147
- Certified compliant with ISO9001:2015 Quality Management System
- Participated in formulating national standards Raman Spectrometer and Hazardous Chemical Detector Based on Raman Spectroscopy Technology
- Undertaken the major marine economic collaborative innovation project Research, Development and Industrialization of Marine Three-Dimensional Monitoring Sensors and Systems sponsored by State Oceanic Administration with total funding of RMB 30 million
- Established strategic partnership with School of Electronic Science and Engineering, Xiamen University since 2017
- Served as undergraduate internship base and joint postgraduate training institution of Xiamen University of Technology since 2016
- Served as undergraduate internship base and joint postgraduate training institution of Jimei University since 2017
- Member unit of Fujian Young Entrepreneurs Association; director unit of Xiamen Young Entrepreneurs Association
- Implementation entity for industry-university-research cooperation projects of Xiamen
- Member unit of Xiamen Emergency Association

Contact Us

Company Name: Optosky (Xiamen) Optoelectronics Co., Ltd.

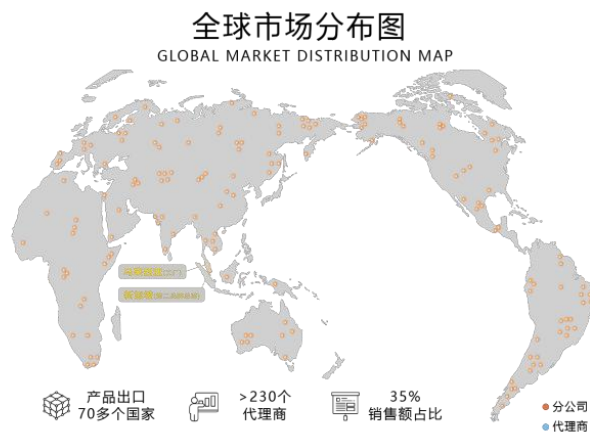
Address: 5th Floor, Building F02, Phase III of Xiamen Software Park, Jimei District, Xiamen

Phone Phone: 4008-508-928, 0592-6102588

Web site: www.optosky.com

mail:sales@optosky.com

公司与销售网点分布



=====The Essence of Exploration • Dedication to

Authenticity=====

===== End of Article

=====