

High Performance NIR Spectrometer

ATP8600

Description:

Mini fiber optic spectrometer, the size is small. It uses the InGaAs linear detector of 256 pixels, integrated design and reliable CCD installation and heat sink method, and improved measurement reliability of the ATP8600. Simultaneously, Optosky for the ATP8600 specially customized ultra-low noise CCD signal-related double sampling processing circuit, which is the best level in the industry.

ATP8600 accepts SMA905 fiber input or free-space light and outputs measured spectral data via a Type-c or UART port.

ATP8600 requires only a 5V DC power supply and can be powered directly from the USB, making it easy to integrate.

MODEL	SPECIFICATION
ATP8600	Universal spectrometer
ATP8600FBG-C	Signal Demodulation for Fiber Sensors (C Band)
ATP8600FBG-L	Signal Demodulation for Fiber Sensors (L-Band)
ATP8600FBG-CL	Signal demodulation for fiber optic sensors (C+L band)
ATP8600RM	Dedicated to Raman spectrometer

Feature:

- Maximum working spectral range : 900-1700nm (max.interval 750nm)
- Resolution: Connected with slit size;
- Integration: 100 us- 22s
- CCD : 256×1 pixel, 25×250 um
- Power supply : DC 5V;
- ADC : 16bits;
- Scanning rate: 1MHz;
- Interface: SM905 or free;
- USB: Type-c or UART;
- 10 pins port;

Application:

- FBGA fiber modem;
- Laser wavelength monitoring;
- Raman spectrometer
- Food sorting;
- Waste water detection;
- Detection of moisture, protein, fat and fiber in crops;
- Paper sorting;
- Online monitoring of Chinese medicine production;
- Solar panel inspection;



1. PARAMETER

DETECTOR	
Model	Linear InGaAs CCD
Range	900-1700 nm (max.interval 750nm)
Pixel	256
Size	25μm×250μm
Full Range	13.75 Me-
Dynamic	14667
Sensitivity	160 nV/ e-
PERFORMANCE	
Wavelength	900-1700nm, Customized (max.interval 750nm)
Resolution	4-20 nm (Depend on the slit, the actual spectral range)
Wavelength resolution	20pm-100pm
SNR	>2255:1
Working T	-10-50 °C
Working H	< 90%RH
OPTICAL	
Design	f/4 cross-symmetric C-T
Slit size	5、10、25、50、100、150、200、300μm (Customized)
Interface	SMA905 fiber optic interface, free
ELECTRICAL	
Integration	0.1ms-22s
Data Output	USB Type-c or UART
ADC	16 bits
Power Supply	5V DC±5%
Current	<0.8 A
Storage T	-20°C to +70°C
Operating T	-10°C to +50°C
Physical	
Size	102×57.5×29mm
Weight	280g

2. Electrical Pin-out

Parameter	Min	Typ	Max	Unit
Power Supply				
Operating voltage range	4.5	5	5.5	V
Operating current		170		mA
Logic Inputs(3.3V LVTTL,5Vcompatible)				
High level input voltage	1.7		3.6	V
Low level input voltage	-0.3		1.0	V
Logic Output(3.3V LVTTL)				
High level output voltage	2.4			V
Low level output voltage			0.4	V

The module is equipped with a 10-pin male angled box header(2x5, 2.00 mm pitch) and Type-c type interface. The 10-pin connector is a Samtec part # STMM-110-02-L-D-RA connector. The mate to this is a Samtec part # TCSD-10-D-XX.XX-01-N.



Figure 1: Spectrometer Side View

Table 2 Electrical Pin-Out

Pin#	Description	I/O	Function Description
1	VCC	/	Power Supply, 5V±0.5,
2	VCC	/	Ground
3	GND	/	Ground
4	GND	/	Ground
5	SPI_CLK	Output	LVTTL output
6	SPI_MOS	Output	LVTTL output
7	SPI_MISO	Input	LVTTL Input
8	SPI_CS	Output	LVTTL Output
9	UART_TX	Output	LVTTL Output
10	UART_RX	Input	LVTTL Input

3. Dimensions and installation structure data

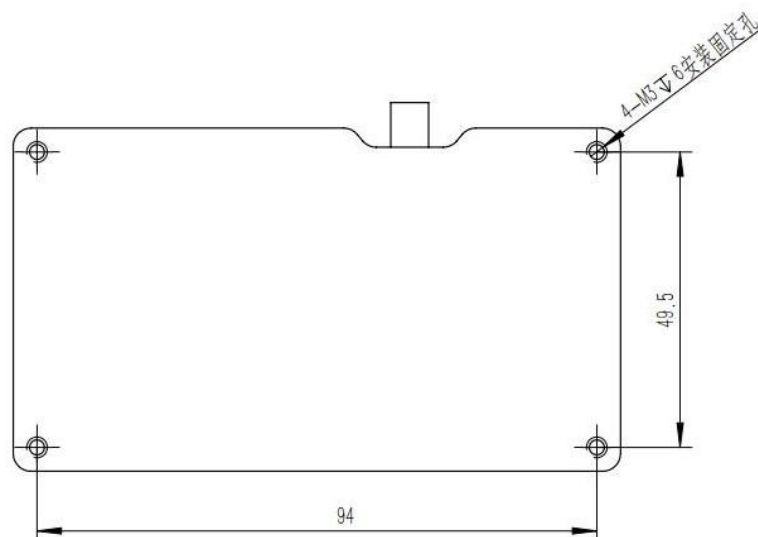


Figure 2: Mechanical Dimension Drawing (Top view)

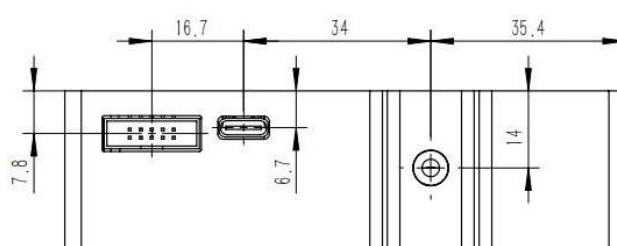


Figure 3: Mechanical Dimension Drawing (Horizontal view)

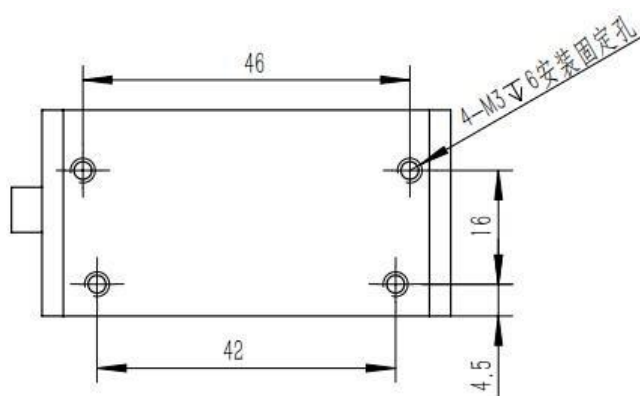


Figure 4 Mechanical Dimension Drawing (Side view)

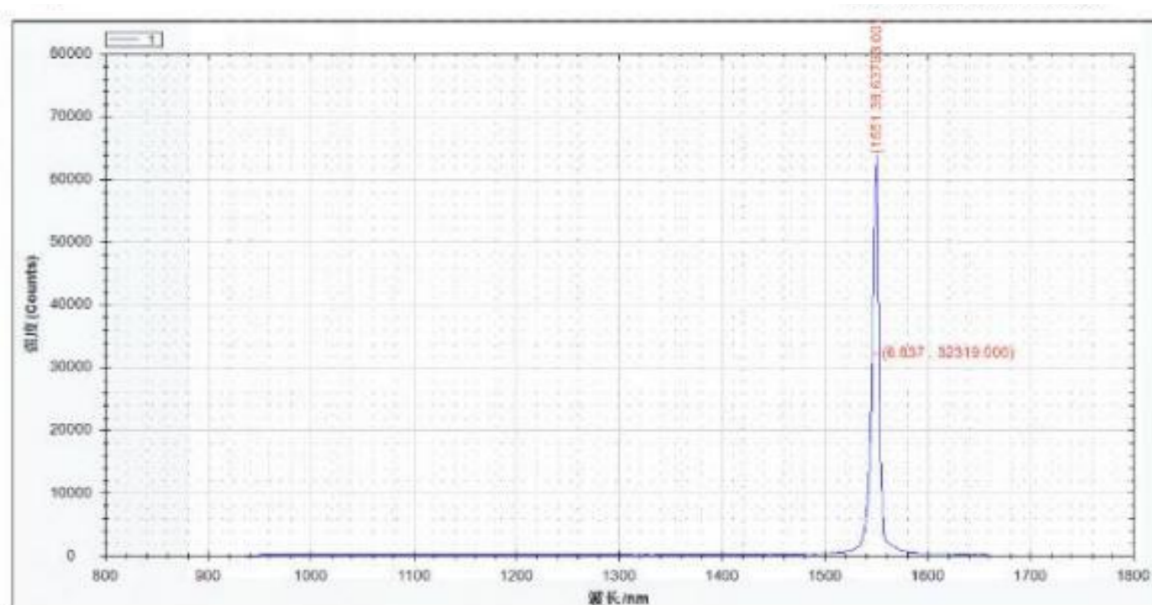
(4 holes are fixing holes for mounting and fixing.)

4. ORDERING GUIDE

Model	ATP8600	ATP8600FBG-C	ATP8600FBG-L	ATP8600FBG-C L	ATR8600R M
Description	Universal spectrometer	Signal Demodulation for Fiber Sensors (C Band)	Signal Demodulation for Fiber Sensors (L-Band)	Signal demodulation for fiber optic sensors (C+L band)	Dedicated to Raman spectrometer
Wavelength Range	900-1700 nm Customized (max. interval 750nm)	1520-1570 nm	1560nm-1630 nm	1510 - 1600 nm	200-2600 cm ⁻¹
Resolution	0.1-10nm	20 pm	20 pm	40 pm	15 cm ⁻¹
Detector Type	Linear InGaAs				
Slit Size	5、15、25、50、100、200、300μm, Customized				



Figure 1 ATP8600 picture



Spectra measured by ATP8600 ,940-1660nm,Optical resolution 6.84nm

Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

5. Company Profile

Optosky company is a first-class spectroscopy solution provider, with the headquarter locates in the 7th floor of the research institute of the Chinese Academic of Science at an area of 2500 square meter in Xiamen city where successfully held the international 9th BRICK summit in 2017. The subsidiary company locates in Wuhu city with an area of 2035 square meters.

The company founder Dr. Hongfei, Liu graduated Doctor degree from the Chinese Academic of Science and postdoctoral degree from Xiamen University, by integrating both of top Universities' spectroscopy technology background into Optosky company aiming at developing the leading spectroscopy equipment in the world.

The company bases on unique technologies of Optomechatronics, Spectroscopy Analysis, Process Weak Optical and Electrical Signals, Cloud Computing, and have been developed wide products line of the competitive Raman spectroscopy instruments, micro spectrometer, hyperspectral imager, field spectroradiometer, fluorescence spectroscopy, LIBS etc. Driven by advanced technologies and products, Optosky brand has been well-known to customers all over the world.

Optosky company base on technology innovation, market-driven direction, customer first, provides first-class products and services, and one-stop solutions to many fortune 500 companies in many industries. The company received praise from different industry companies, as well as many innovative intellectual properties, software copyright, qualification certification, and winner awards over hundred numbers.

Optosky receives top class A introduced the high-tech company to international Xiamen city, the national high-tech and new innovative technology company award. The founder Dr. Hongfei Liu receives the innovation talent award by the ministry of science and technology.

The company is currently conducting the exclusive project of major industrialization national oceanic administration with a total fund of five million us dollars. The company in charge of drafting national industry standard of VNIR and SWNIR Field Spectroradiometer, and six national standard drafters, including China National Standard Drafter for Hazmat detector based on Raman spectroscopy, China National Standard Drafter for Buoy-type Monitor eco-environment, China National Standard Drafter for water quality monitor in the unmanned boat, China National Standards drafter for online water quality monitor by spectroscopy, China National Standard Drafter for UV-absorbent measure fabrics.

The company has over 70 IPs and over 20 innovative patents.

The company received ISO9001:2015 certification, CE certification, Police Administration Certification, FDA approval compliant, IQOQPQ compliant.

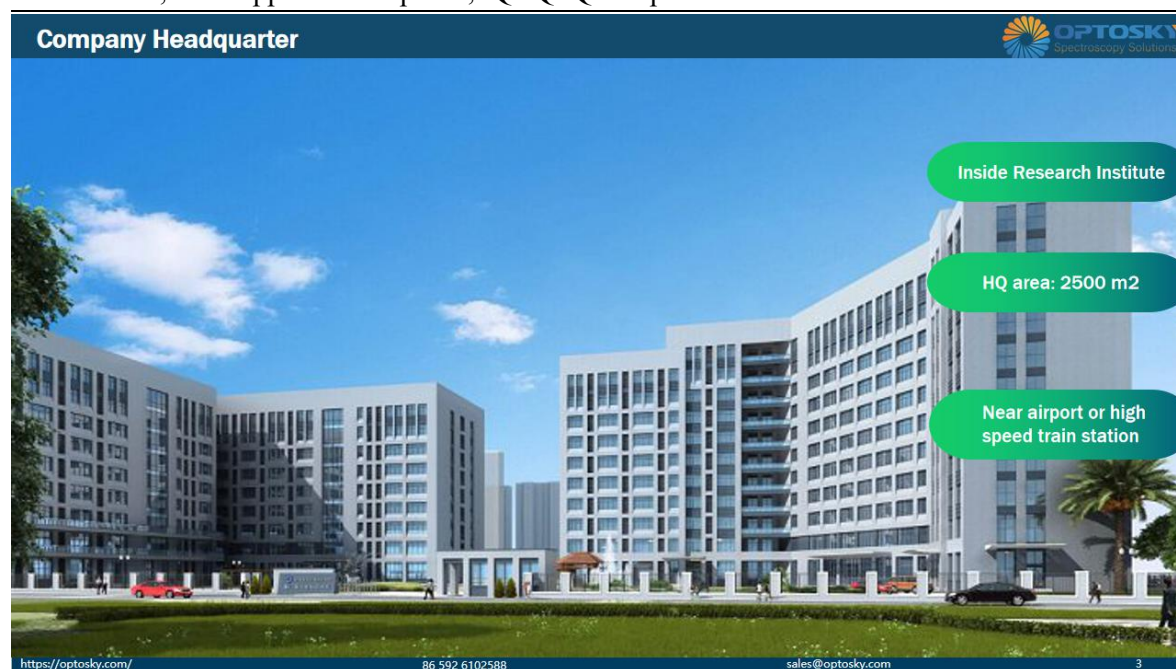


Figure 1 Optosky (Xiamen) Photonics Inc. Company Headquarter

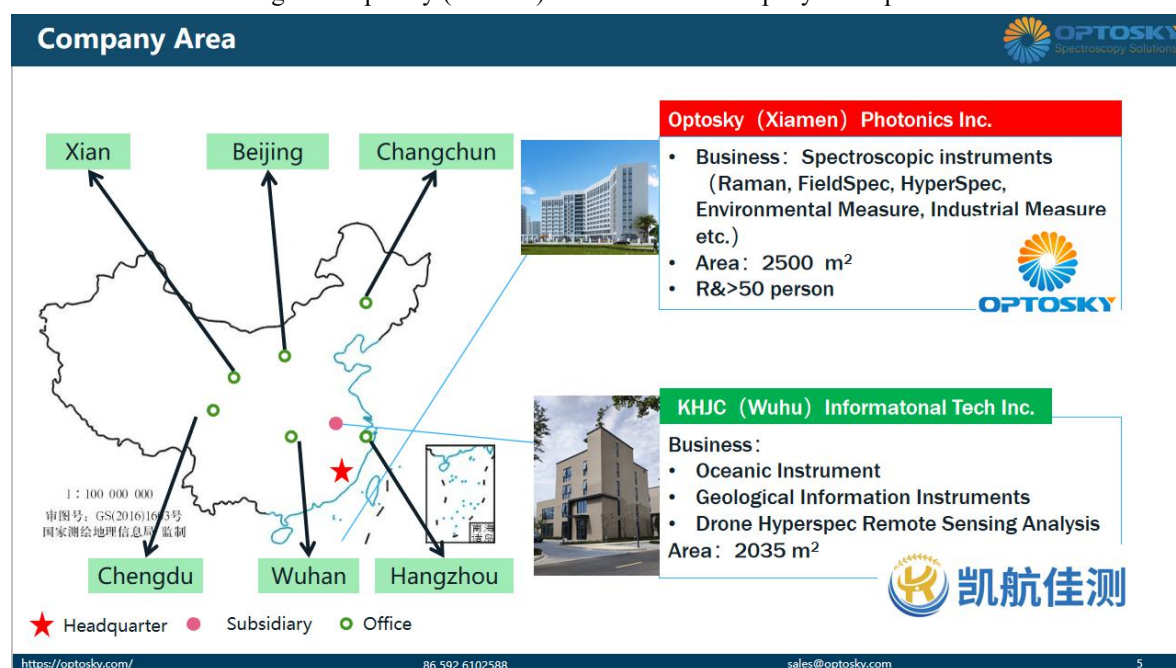


Figure 2 Optosky Company Area

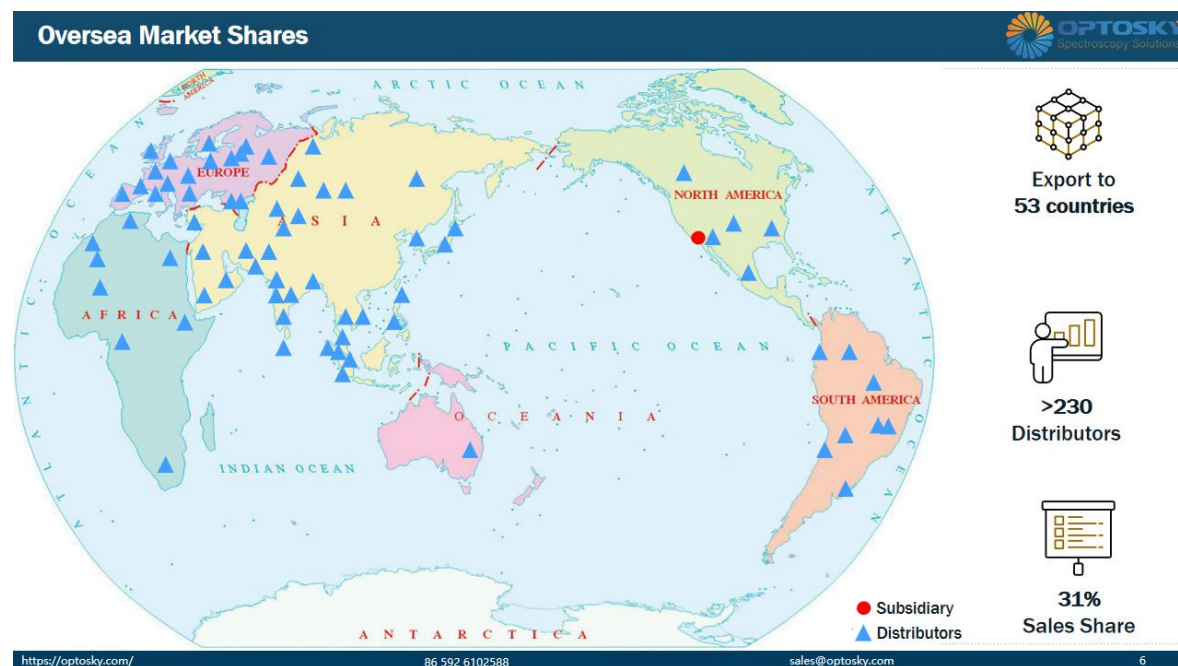


Figure 3 Oversea Market Shares



Figure 4 Optosky Chair and Draft National Standards Lists.

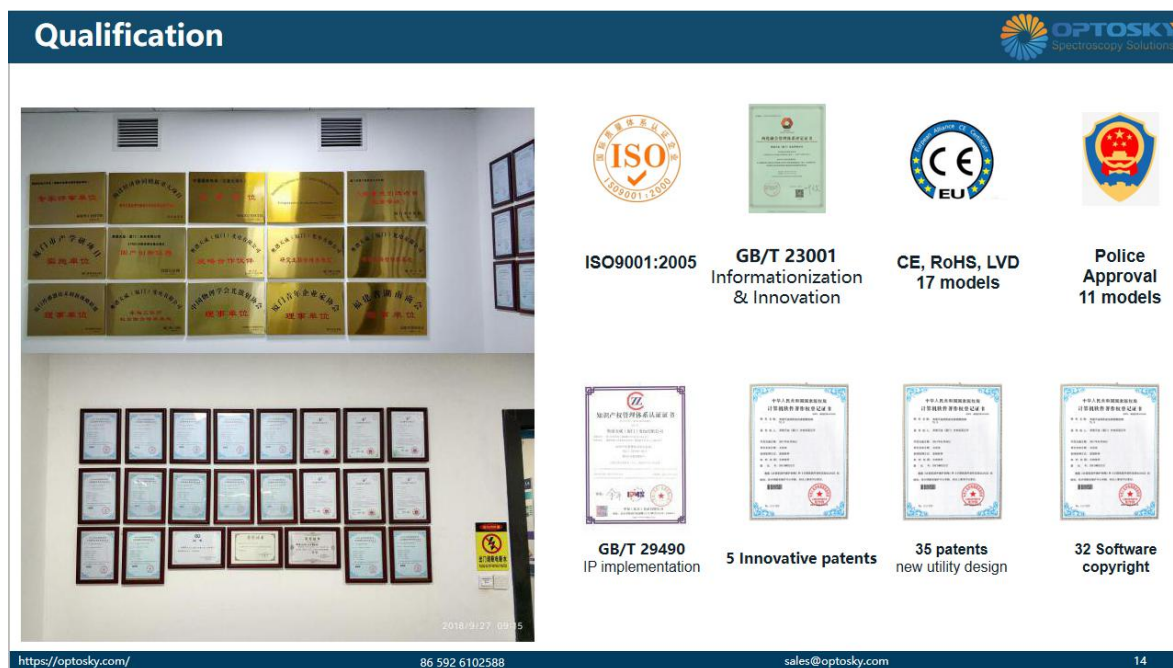


Figure 5 Qualification

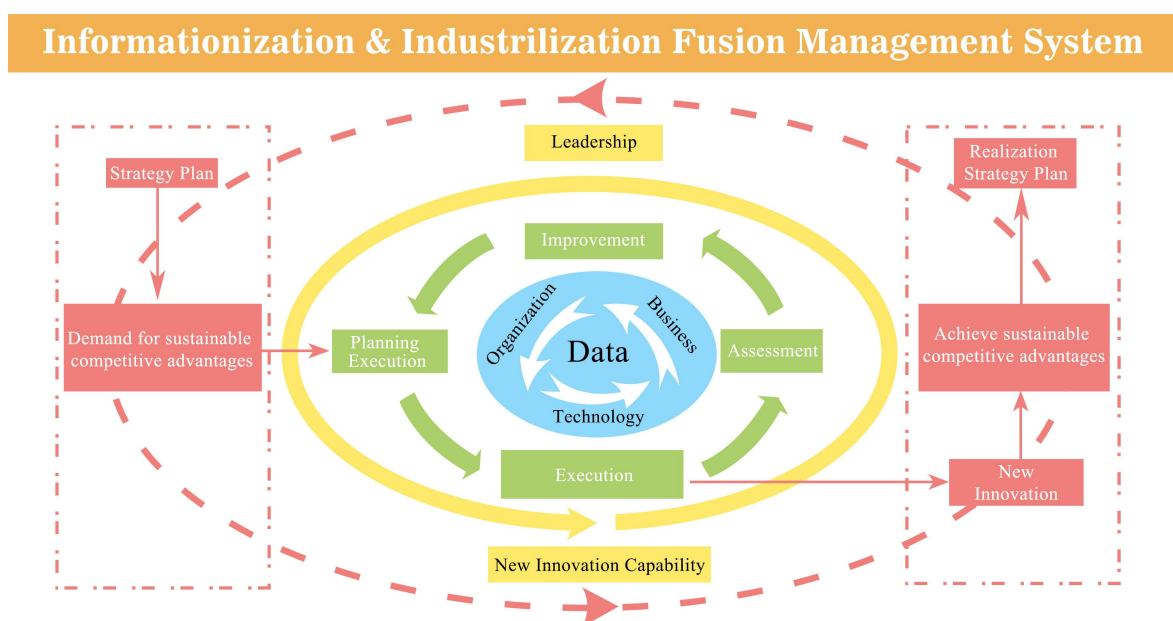


Figure 6 GB/T 23001_Informationization & Industrialization Fusion Management System

Co-Founder—Dr. Hongfei Liu



Postdoctoral Hongfei Liu

- Selected "Innovative Talent" by Science and Technology ministry
- Top Class A Talent by Xiamen City
- CCTV Science & Technology Interview
- Fortune 500 experience in Agilent, II-VI

Honors

- Selected by science & technology ministry as "Innovation Talent"
- CCTV Science & Technology Interview
- Top Class A Talent credited by Xiamen City
- **Innovation Hero**

Education

- PhD • Chinese Science of Academic • Prof. Gui-Lin Chen, Originator in spectroscopy
- Postdoctoral • Xiamen University • Prof. Zhong-Qun Tian guided by the SERS founder M.Fleischmann

Career

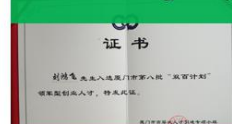
- Engineer → R&D Manager → GM
- **Agilent**, Leader of instrument, Fortune 500 company, Job: engineer
- II-VI Incorporated (Nasdaq: IIVI) leader in optical & electrical industries, Job: GM of Instrumentation and Automation

Academic

- University graduate tutor
- obtain more than 60 IPs, more than 10 Innovation patents;
- Publish more than 20 papers, 2 recorded SCI, 8 recorded EI



Selected "Innovative Talent" by Science and Technology ministry



Top Class A Talent by Xiamen City



Founder & Tutors

<https://optosky.com/>

86 592 6102588

sales@optosky.com

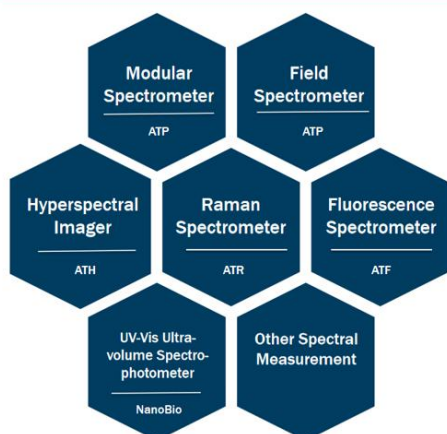
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Figure 7 Optosky's Co-founder_Dr. Hongfei Liu

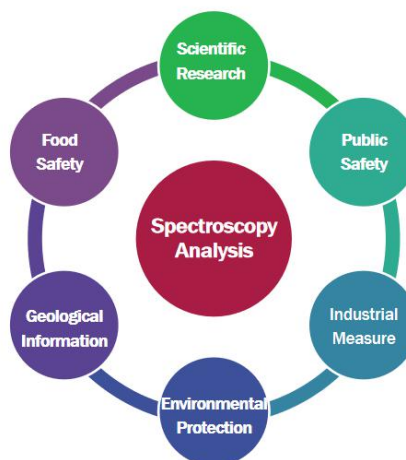
Category & Application



Category



Application




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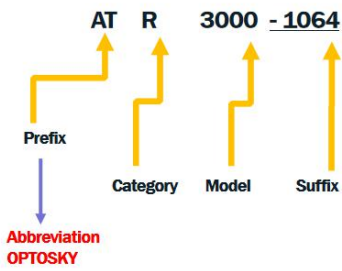
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Figure 8 Category & Application


Model Name Rule

Model Name Rule:

- Prefix
- Category
- Model
- Suffix



- ATR – Raman Spectrometer
- ATP – Micro Spectrometer
- ATH – Hyperspectral Imager
- ATF – Micro Fluorescence Spectrometer
- ATL – LIBS
- ATW – Water
- ATE – Environment Protect
- ATFD – Food Safety
- GA – Public Safety (Gong An)
- GF – Gas Monitor (Gas Finder)
- GY – Industrial Monitor (Gong Ye)

eg:

- Raman Microscope: ATR8300MP-1064
- Hyperspectral Imager: ATH9500

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86 592 6102588
sales@optosky.com
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Figure 9 Model Name Rule