

UV enhanced Miniature Spectrometer

ATP1010

Features:

- Spectral range: 180-1100 nm; Customized
- Optical Structure: Crossed C-T;
- Detector: 512 pixels CMOS;
- Integration Time: 1 ms ~ 10 min
- Power supply: DC 5V@<200mA;
- Power Interface: Type C USB or extendable
- ADC bits depth: 16bits;
- ADC Sampling rate: 10 MHz;
- Optical light input: SM905 or free space;
- Data output: USB2.0 (High speed) or UART;
- 10 Pins (2x5, 1.27mm pitch) Extendable pins;

Applications:

- Multi-parameters Water Quality Monitor
- LED sorting;
- Colour measurement
- Micro-volumn spectrometer
- UV gas measurement
- Spectrum analysis, radiometer
- Fluorescence;
- Reflection, transmission measurement;

Description:

ATP1010 employs UV-enhanced 512pixels linear CMOS, and UV response is improved 20 times, meanwhile 180-1100nm wavelength range measure, CMOS sensor exposure time controlled within 1ms enable customer controlling SNR accurately.

The ATP1010 is highly reliable, ultra-high-speed, low-cost, and cost-effective, and can be adapted to miniature spectrometers for various environmental applications such as on-line testing.

ATP1010 is ideal for UV, visible, and near-infrared spectroscopy applications. Different slits, gratings, mirrors, and filters are available. You can configure spectrometers for different applications depending on your requirements. Spectral ranges from 180 nm Up to 1100nm, the spectral resolution can be selected from 0.2 to 5.0nm, and OPT Spectrum can also provide OEM customers with customized options.

The ATP1010 can receive optical fiber input or free-space input light from the SMA905 interface, measure it according to the set integration time, and output the measurement result via USB2.0 (high speed) or UART.



2.1. Performance Spec

Sensor	
Type	Linear CMOS
Spectral Range	180-1100 nm Customize
Effective pixel	512
Pixel size	14 × 200 μm
Sensitivity	1300 V/(lx·s)
Dark Noise	13 RMS @ 13 °C
Optical Parameters	
Wavelength	200-1000nm, 350-810nm, 600-800nm, 800-1000 nm, optional
Resolution	0.2-5 nm (Slit size & spectral range)
SNR	> 450:1
Dynamic Range	10000: 1
Optical Path	
Optical Design	F/4 Crossed C-T
Focal Distance	28 mm for incidence / 28 mm for output
Slit size	5, 10, 25, 50, 100, 150, 200 μm , others customized
Input interface	SMA905 or free space
Electrical Parameters	
Integration Time	1 ms ~ 10 min
Data Port	USB 2.0 or UART
ADC bit depth	16 bit
Power Supply	DC 4.5 5.5 V (type @5V)
Working current	<200 mA
Storage Temp.	-20°C to +70°C
Operating Temp	-10°C to +50°C
Working Humidity	< 90%RH
Physical parameters	
Size	45×40×24 mm
Weight	60 g

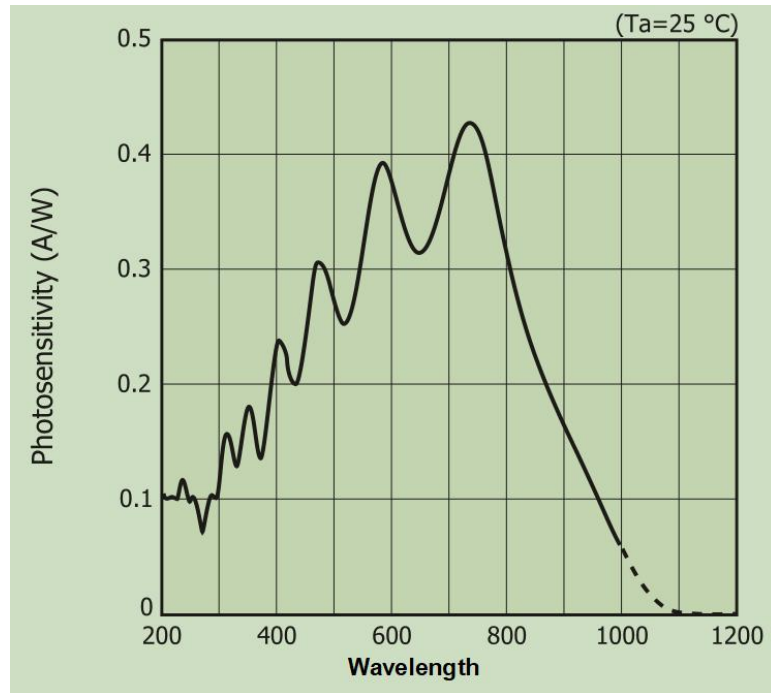


Fig. 1 Spectral response of the detector used in ATP1010

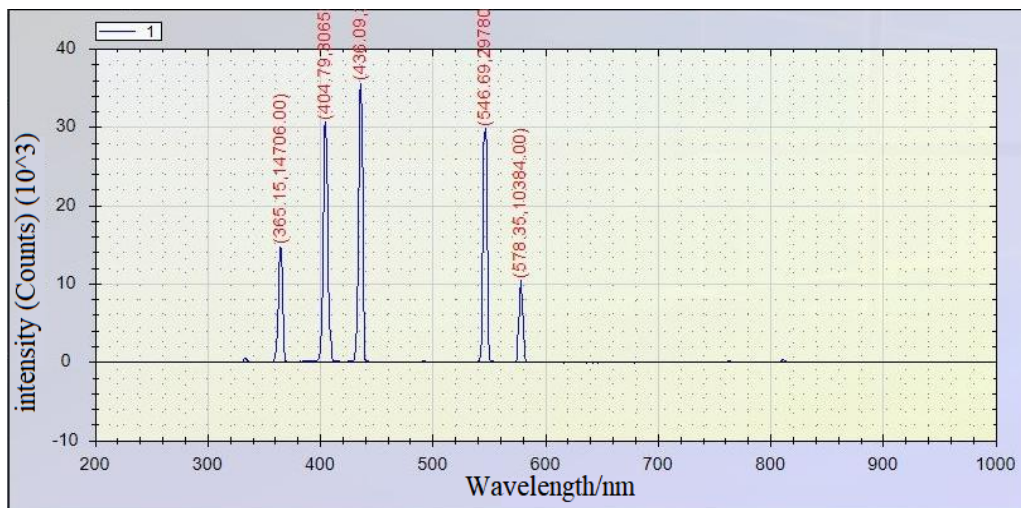


Fig. 2 Ar lamp spectral via ATP1010

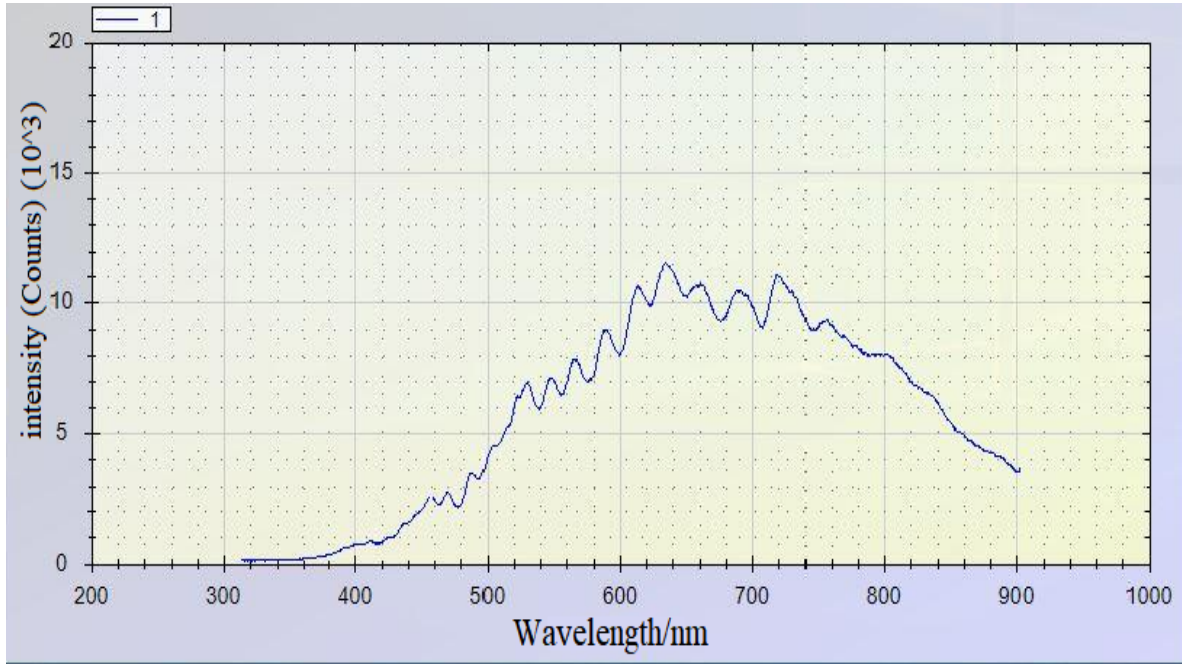
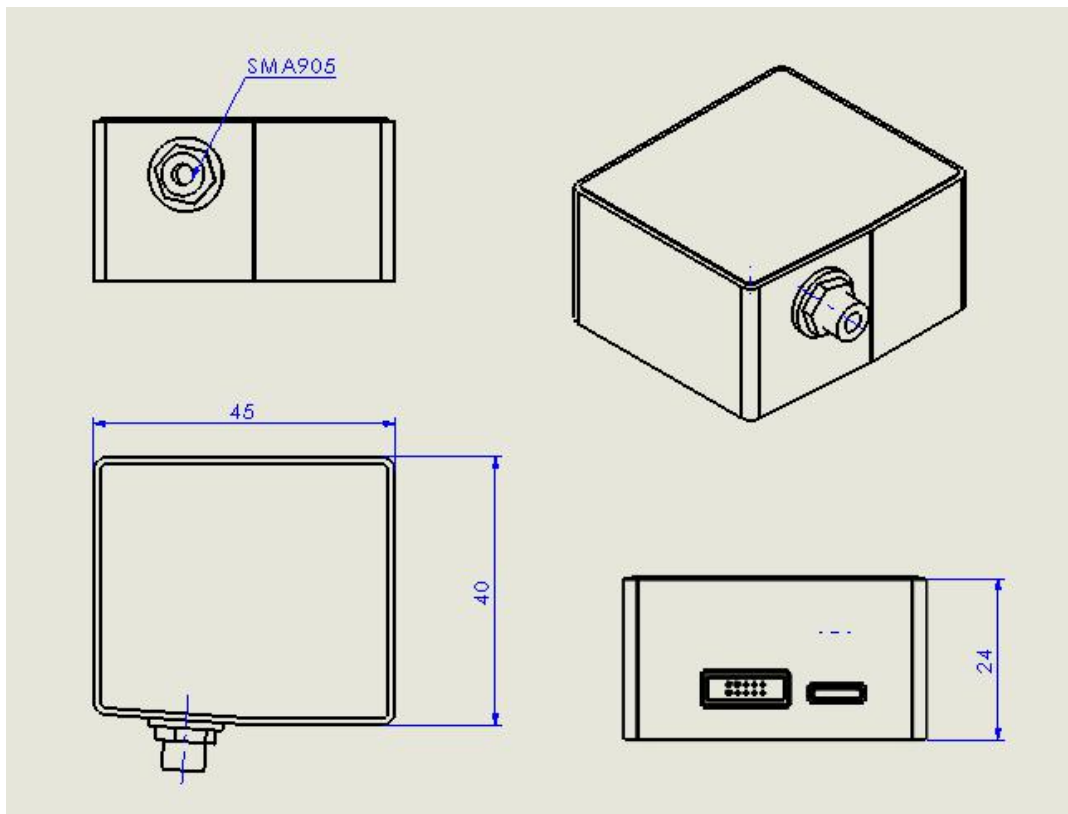


图 2 The spectral output by ATP1010 before calibrating

2. Mechanical Diagrams



3. Electrical Pin-out

Table 1 Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Power Supply				
Operating voltage range	4.5	5	5.5	V
Operating current		170		mA
Logic Inputs(3.3V LVTTTL, Five-volt tolerant)				
High level input voltage	1.7		3.6	V
Low level input voltage	-0.3		1.0	V
Logic Output(3.3V LVTTTL)				
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, 1.27mm pitch) and micro USB type interface.

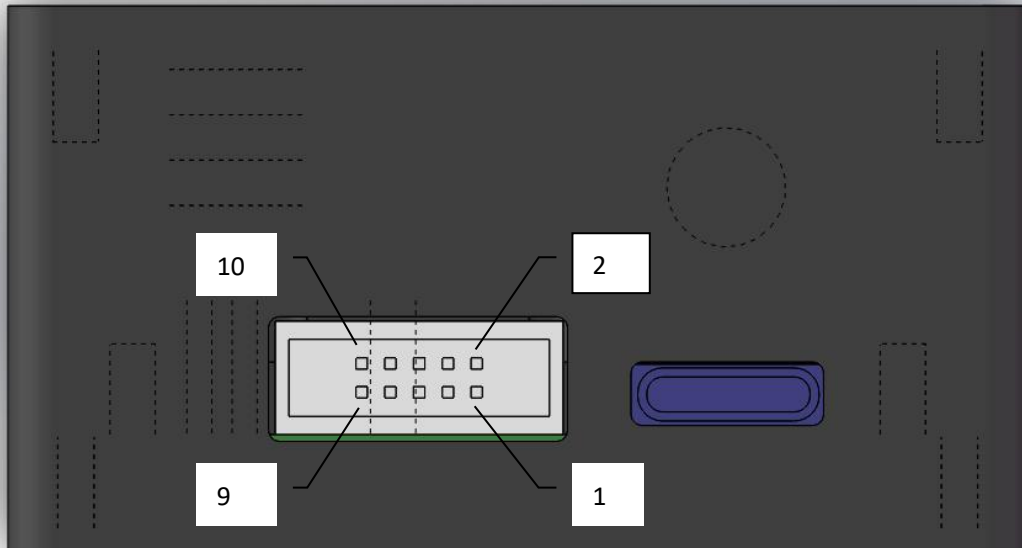


Table 2 Electrical Pin-Out

Pin	Description	I/O	Function Description
1	5V	/	Power Supply, 5V±0.5,
2	GND	/	Ground
3	NC	/	/
4	NC	/	/
5	NC	/	/
6	NC	/	/
7	EXT_TRIG	Input	External trigger pin
8	LIGHT	Output	Xenon lamp control pin
9	MCU_RX	Input /	LVTTL Transmit signal
10	MCU_TX	/ Output	LVTTL Transmit signal

Order guide:

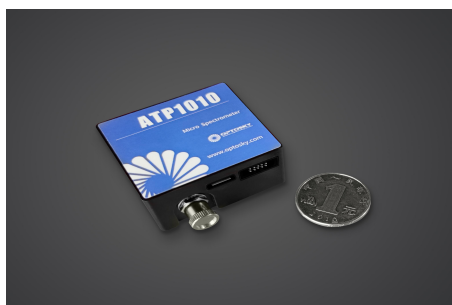
PN	Spectral range		Slit size
ATP1010	Start wavelength	End wavelength	Slit width

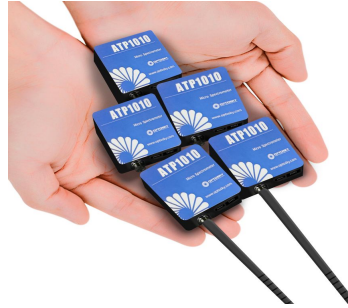
For example:

What to buy ATP1010, spectral region: 200-850nm, slit width is 50 μ m, then the order no is:

ATP1010-200-850-050

Order No	Spectral region	Slit
ATP1010-200-400-###	200~400	10 μ m
ATP1010-200-850-###	200~850	25 μ m
ATP1010-200-1100-###	200~1000	50 μ m
ATP1010-340-850-###	340~850	100 μ m
ATP1010-600-1100-###	600~1100	200 μ m
ATP1010-###-###-###	Other	Other: _____ μ m





4. 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

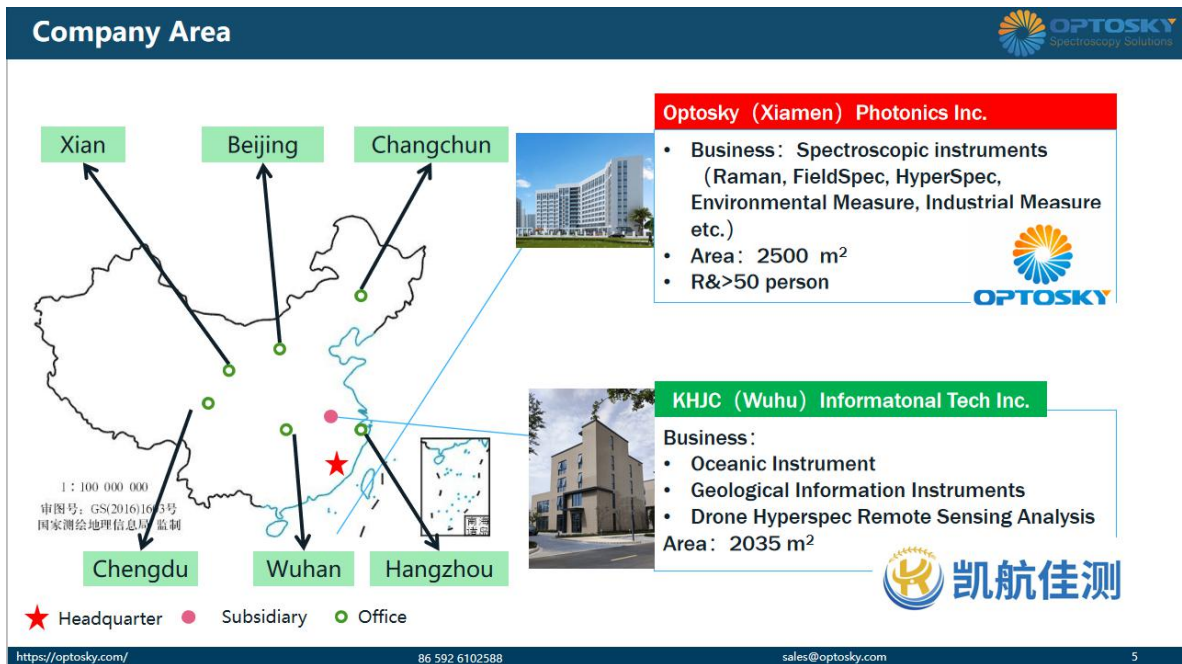


Figure 2 Optosky Company Area

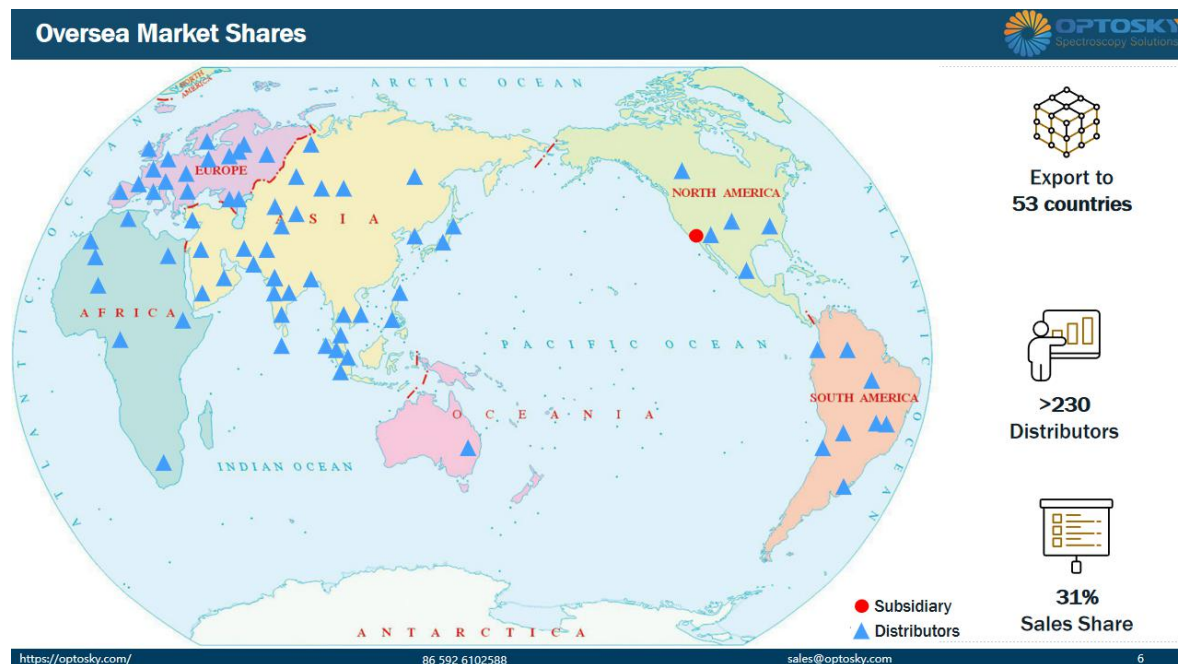


Figure 3 Oversea Market Shares



Figure 4 Optosky Chair and Draft National Standards Lists.

Qualification



 ISO9001:2005	 GB/T 23001 Informationization & Innovation	 CE, RoHS, LVD 17 models	 Police Approval 11 models
 GB/T 29490 IP implementation	 5 Innovative patents	 35 patents new utility design	 32 Software copyright

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Figure 5 Qualification

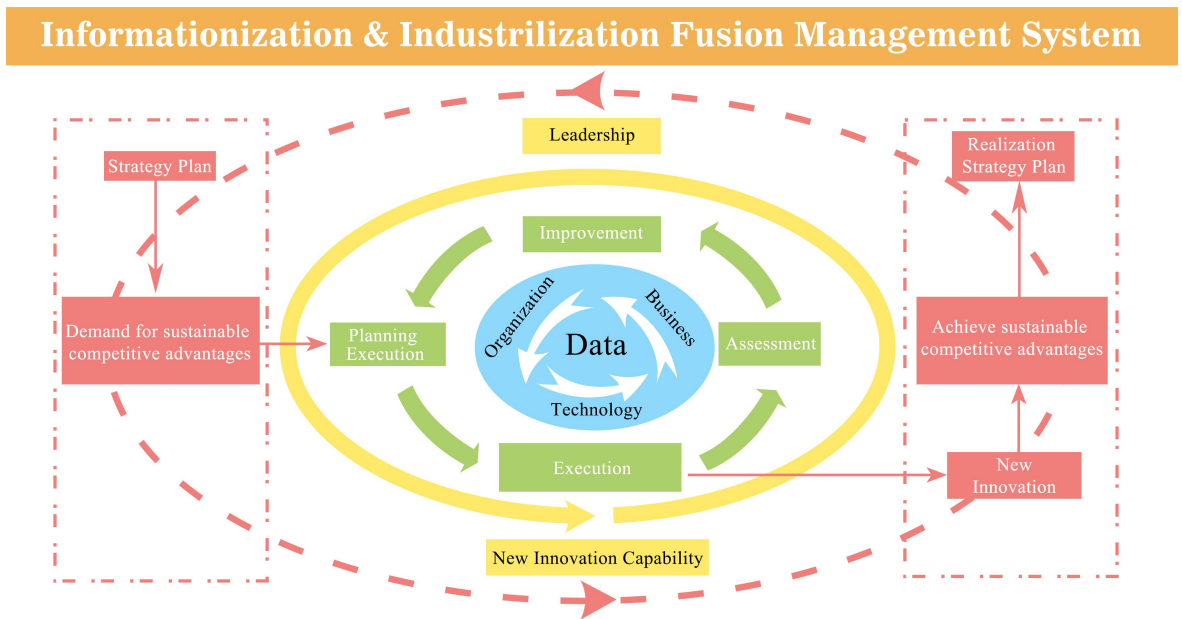


Figure 6 GB/T 23001_Informationization & Industrilization Fusion Management System

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

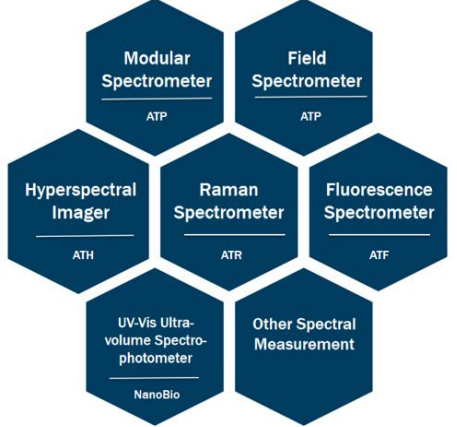
Founder & Tutors

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9

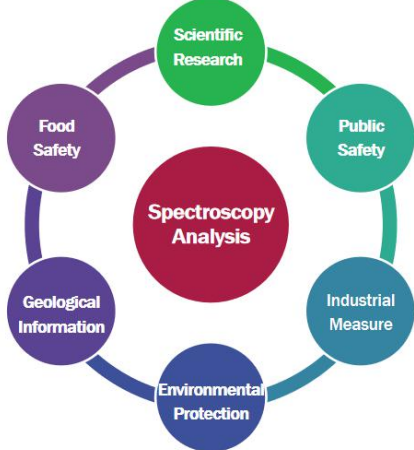
Figure 7 Optosky's Co-founder_Dr. Hongfei Liu

Category & Application

Category




Application



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Figure 8 Category & Application

Model Name Rule


Model Name Rule:

- Prefix
- Category
- Model
- Suffix

Prefix

↓

Abbreviation
OPTOSKY

AT R

↑

Category

3000

↑

Model

- 1064

↑

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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16

Figure 9 Model Name Rule