

## Miniature Spectrometer

## ATP8100

### Features

- spectral range: 900-1700 nm;
- Optical path structure: cross C-T optical path;
- Detector: 256-pixel InGaAs detector;
- Integration time: 1 ms ~ 10 min;
- Power supply: DC 5V@<200mA;
- Type C USB interface or expansion interface;
- ADC bit depth: 16 bits;
- SM905 optical fiber interface or free space input;
- Data output interface: USB2.0 or UART;
- 10-pin (2x5, 1.27mm pitch) connector;

### Application

- Laser wavelength monitoring;
- Raman spectrometer;
- Food Safety & Food sorting;
- Environmental Science: Wastewater testing;
- Agriculture: Crop testing
- Industry: Paper sorting
- QC : Online monitoring of chinese medicine production;
- Solar panel inspection;

### Description

ATP8100 uses a 256-pixel linear InGaAs detector. It uses a 256-pixel InGaAs linear array detector, integrated design, reliable CCD installation and heat dissipation methods, which improves the measurement reliability of ATP8100. At the same time, Optosky specially customized an ultra-low noise CCD signal-correlated double sampling processing circuit for ATP8100, which is the best level in the industry.

ATP8100 has the characteristics of high reliability, ultra-high speed, low cost, and high cost performance. It is a miniature spectrometer that can be used in various environments such as online testing.

ATP8100 can receive SMA905 fiber input light or free space light, and output the measured spectral data through Type-c or UART port.

ATP8100 only needs a 5V DC power supply and can be powered directly by USB, which is very easy to integrate.



## 1. Parameter

Sensor	
Type	High performance linear array InGaAs CCD
Spectral range	900-1700 nm
Effective pixels	256
Pixel size	25 $\mu$ m $\times$ 250 $\mu$ m
Optical parameters	
Wavelength range	200-400, 200-850nm, 200-1000nm, 350-810nm, 600-800nm, 800-1000 nm and other wavelength ranges are available, and different ranges can be customized
Resolution	4-20 nm (depending on slit, actual spectral range)
Wavelength resolution	20 pm -100 pm
SNR	>150:1
Optical path parameters	
Optical design	F/4 Cross Asymmetric C-T Optical Path
Focal length	28 mm for incidence / 28 mm for output
Entrance slit width	5, 10, 25, 50, 100, 150, 200 $\mu$ m available, other sizes can be customized
Incident light interface	SMA905 fiber optic interface, free space
Electrical parameters	
Integration time	0.1 - 100 ms
Data output interface	USB Type-c or UART
ADC bit depth	16 bits
Power supply	5VDC $\pm$ 5%
Working current	<0.8 A
Storage temperature	-20 $^{\circ}$ C to +70 $^{\circ}$ C
Working temperature	-10 $^{\circ}$ C to +50 $^{\circ}$ C
Physical parameters	
Dimensions	45 $\times$ 40 $\times$ 24 mm <sup>3</sup>
Weight	60 g

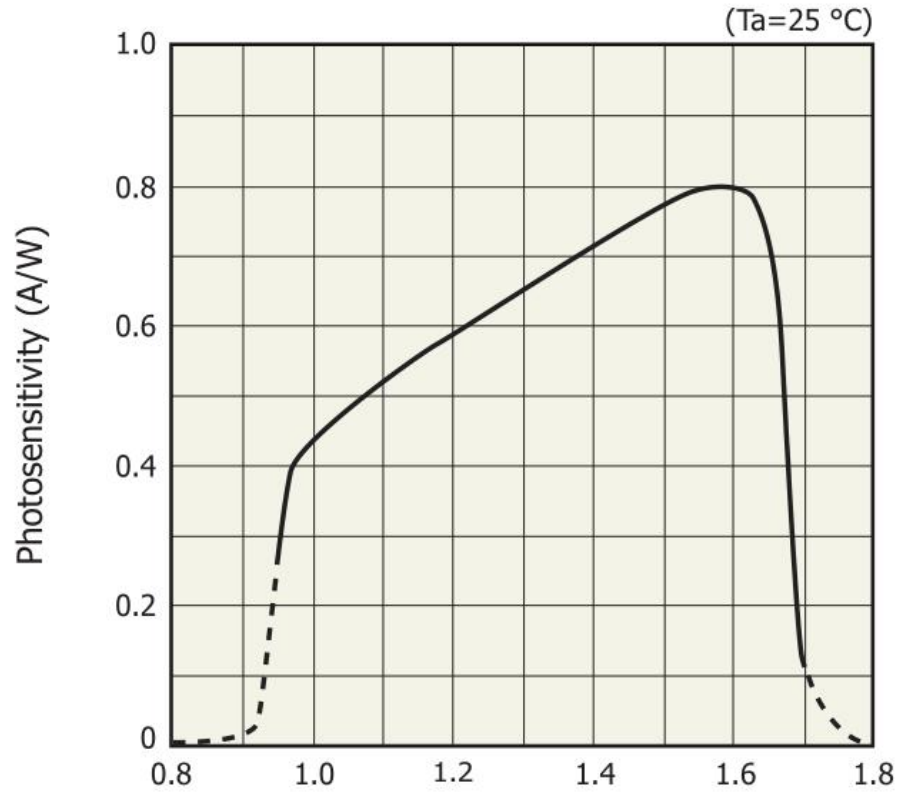
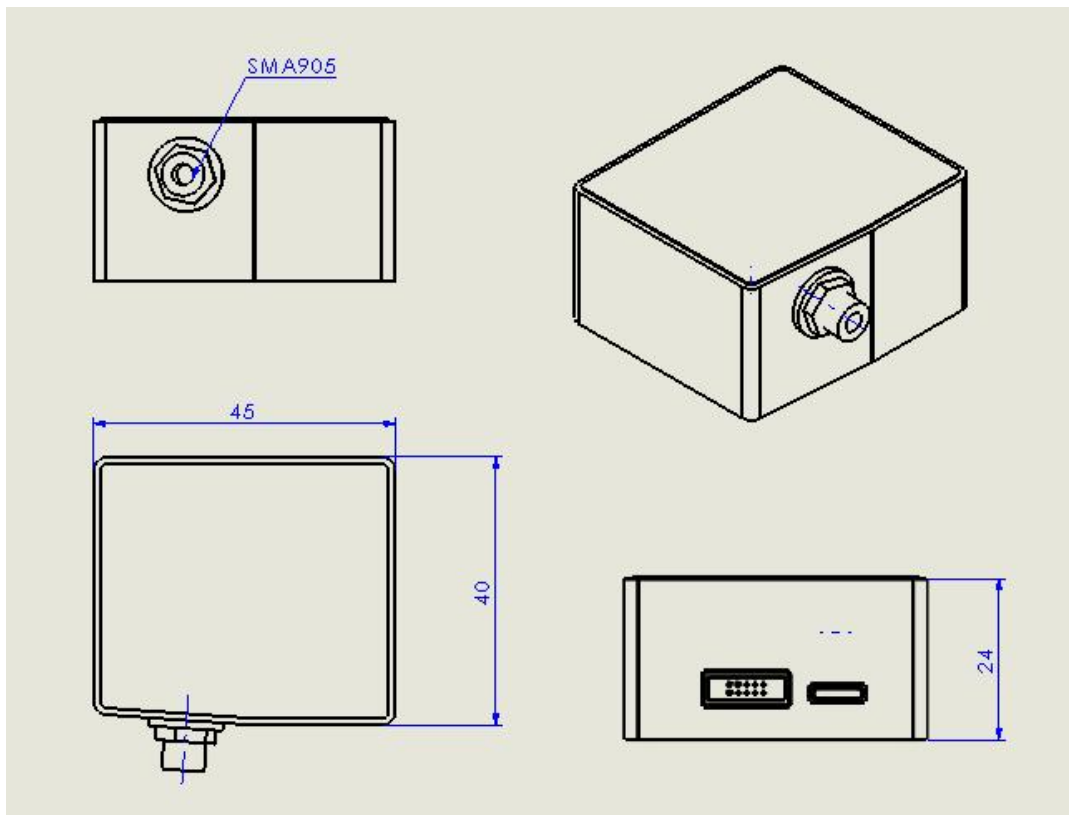


Figure 1. Response rate of the detector used in ATP8100

## 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.

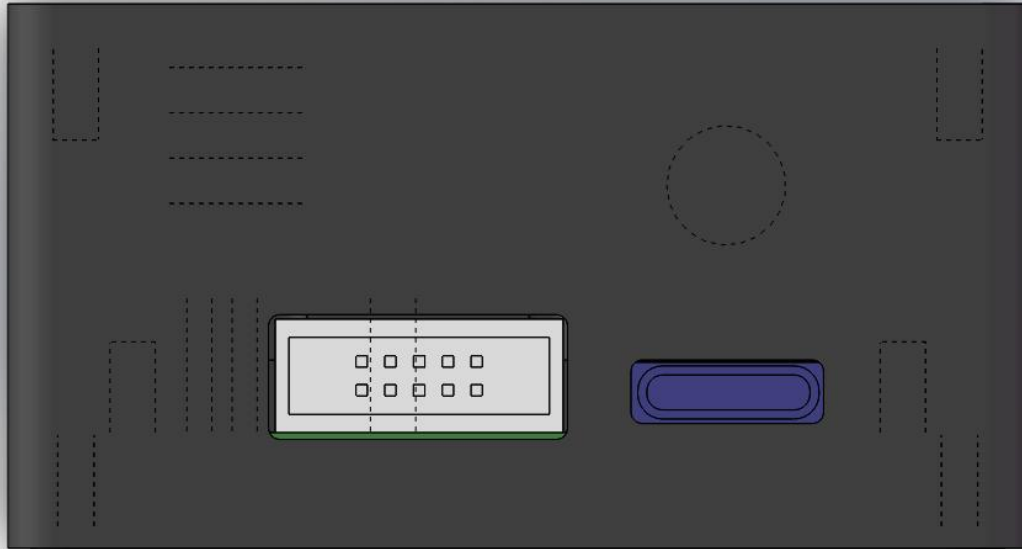


Table 2 Electrical Pin-Out

Pin#	Description	I/O	Function Description
1	NC	/	Not Connect
2	NC	/	Not Connect
3	Remained		Undefined
4	Remained		Undefined
5	Remained		Undefined
6	Remained		Undefined
7	RX	Input	UART Receive signal
8	TX	Output	UART Transmit signal
9	VCC	/	Power Supply, 5V±0.5,@500mA
10	GND	/	Ground

Order guide:

PN	Spectral range		Slit size
ATP8100	Start wavelength	End wavelength	Slit width

For example:

What to buy ATP8100, spectral region: 200-850nm, slit width is 50 um, then the order no is:

**ATP8100-950-1700-050**

Order No	Spectral region /nm	Slit
ATP8100-950-1700-###	950-1700	10 μm
ATP8100-1300-1330-###	1300-1330	25 μm
ATP8100-1510-1550-###	1510-1550	50 μm
ATP8100-1550-1590-###	1550-1590	100 μm

ATP8100-####-####-####	Other	200 $\mu\text{m}$ Other: _____ $\mu\text{m}$	
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