OPTOSKY Spectroscopy Solutions

Datasheet

Miniature SNIR Spectrometer ATP8130

Features

- SW-IR : 900-1700nm;
- Compact design, high resolution;
- Integration time: 100 us- 100ms;
- CCD parameters: 256×1 pixel, 25×250 um;
- Power supply: DC 5v;
- ADC bit depth: 16 bits;
- ADC sampling rate: 1mhz;
- Optical input interface: SMA 905;
- Data output interface: USB Type-C and UART;
- 10-pin expansion 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

ATP8130 Low Cost Spectrometer adopts 256-pixel InGaAs linear array detector, integrated design, reliable CCD installation and heat dissipation, which improves the measurement reliability of ATP8130. At the same time, Optotech has specially customized an ultra-low noise CCD signal-correlated double sampling processing circuit for ATP8130, which is the best level in the industry.

The ATP8130 Spectrometer can receive SMA905, FC/PC or free space light and output the measured spectral data through the USB-C or UART port.

The ATP8130 measurement tool provides the most advanced spectral analysis and only requires a 5V DC power supply. It can be powered directly by USB, making it very easy to integrate. It is suitable for biochemical analyzer, Raman spectrometer and food sorting, etc.

Model	Describe
ATP8130	Universal spectrometer, SMA905 interface
ATP8130-FC	Universal spectrometer, FC/PC interface
ATP8130-FC-FBG-C	Dedicated to fiber optic sensing, C band
ATP8130-FC-FBG-L	Dedicated to fiber optic sensing, L band
ATP8130-FC-FBG-O	Dedicated to fiber optic sensing, O band

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

1. Parameter

ATP8130	
Detector	
Type	High performance linear array InGaAs CCD
Detector cooling temperature	Non-refrigerated
Spectral range	900 ~ 1700 nm，Can be customized within the range
Effective pixels	256
Optical parameters	
Wavelength range	900 ~ 1700 nm，Different ranges can be customized
Resolution	1.0~10 nm (depends on slit, actual spectral range)
Wavelength resolution	50 pm ~200 pm
Dynamic range	>14000:1
Optical path parameters	
Optical design	F/4 asymmetric C-T optical path, numerical aperture is about 0.11
Entrance slit	5, 10, 25, 50, 100, 150, 200, 300μm optional, other sizes can be customized
Incident light interface	SMA905, FC/PC fiber interface, free space
Electrical parameters	
Integration time	0.1 ~ 100 ms
Data output interface	USB Type-c 或 UART
Adc bit depth	18 bits (output 16 bits)
Power supply	5VDC±5%
Working current	<0.8 A
Storage temperature	-20°C to +70°C
Working temperature	-10°C to +50°C
Physical parameters	
Dimensions	55 × 40 × 19.5 mm
Weight	80 g

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, 5V compatible)				
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

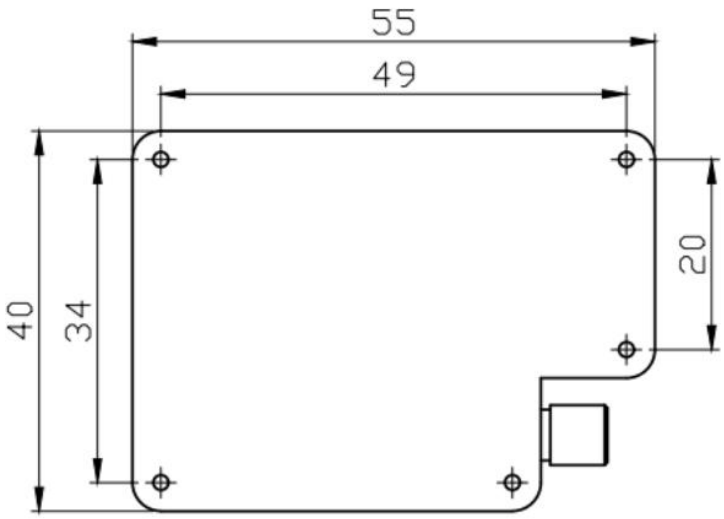
1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

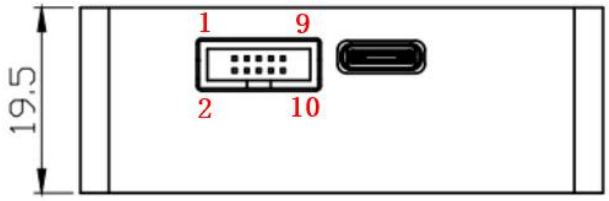
The module is equipped with a 10-pin male angled box header(2x5, 2.00 mm pitch) and Type-c type interface. The 10-pin connector is a Samtec part # STMM-110-02-L-D-RA connector. The mate to this is a Samtec part # TCSD-10-D-XX.XX-01-N.

Table 2 Electrical Pin-Out

Pin#	Description	I/O	Function Description
1	VCC	/	Power Supply, 5V±0.5,
2	GND	/	Ground
3	SPI_CLK	Output	LVTTL 3.3V output
4	SPI_MOSI	Output	LVTTL 3.3V output
5	SPI_CS	Output	LVTTL 3.3V Output
6	SPI_MISO	Input	LVTTL 3.3V Input
7	Ext_trigger_in	Input	LVTTL 3.3V Input
8	NC	/	/
9	UART_RX	Input	LVTTL 3.3V Output
10	UART_TX	Output	LVTTL 3.3V Input

3. Dimensions And Installation Structure Data





4. Ordering Guide

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

型号	ATP8130	ATP8130FBG-C	ATP8130FBG-L	ATP8130FBG-CL
illustrate	General purpose spectrometer	Signal demodulation for fiber optic sensing (C-band)	Signal demodulation for fiber optic sensing (L-band)	Signal demodulation for fiber optic sensing (C+L band)
Wavelength range	Maximum range: 900-1700 nm, range can be customized	1520-1570 nm	1560nm-1630 nm	1510 - 1600 nm
Resolution	0.1-10 nm	20 pm	20 pm	40 pm
Detector Type	High performance linear array InGaAs			
Slit	5, 15, 25, 50, 100, 200, 300 μm optional, other sizes can be customized			

5. ATP8130 measured spectrum

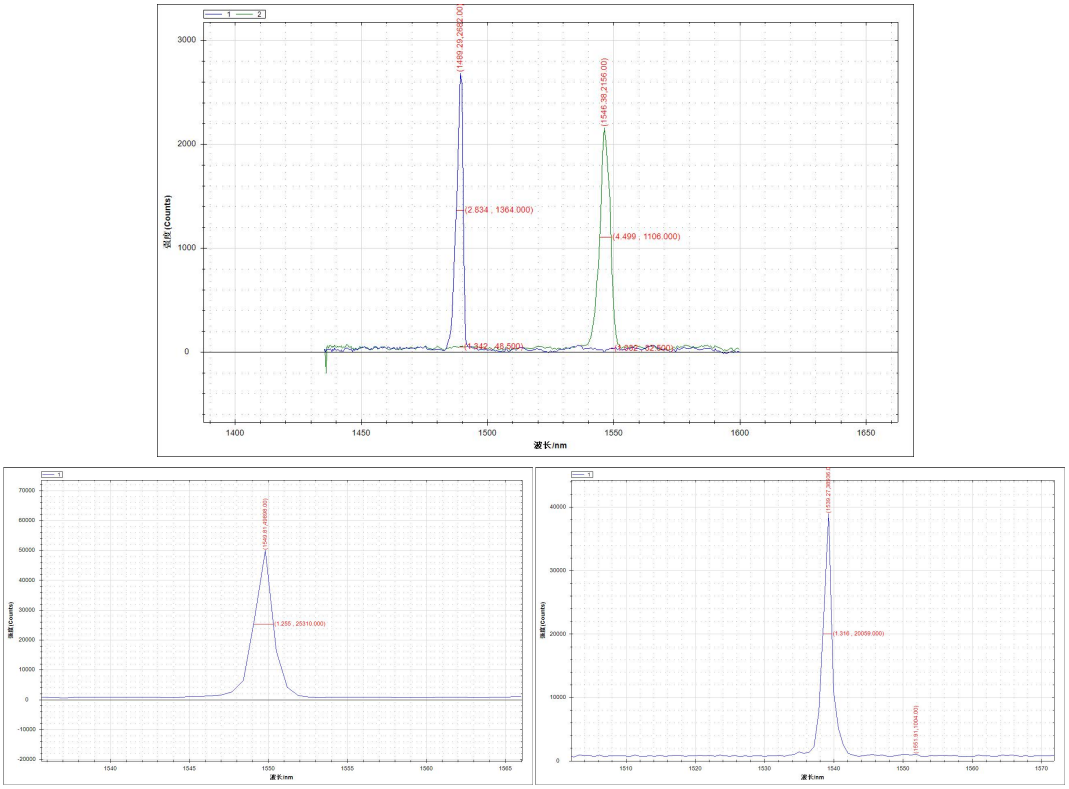


Figure 1 Spectrum measured by ATP8130, 1435.496-1599.7nm, optical resolution is about 1.3nm

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

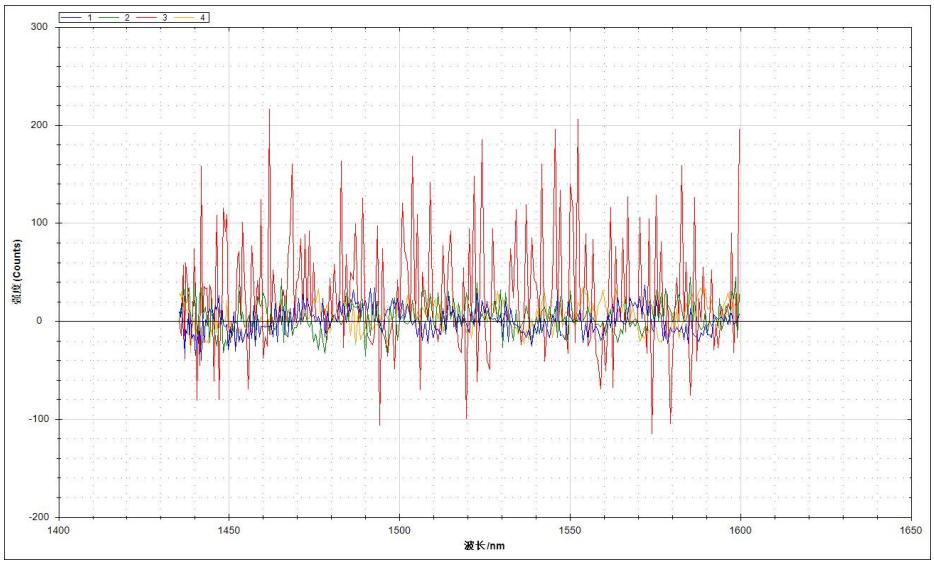


Figure 2 Dark current and noise test of ATP8130. When the integration time is 0.1ms, the dark current is about 466counts, and the peak-to-peak value of the noise is about ±30counts. When the integration time is 10ms, the dark current is 5617counts, and the peak-to-peak value of the noise is about ±60counts.

1503 Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588