OPTOSKY Spectroscopy Solutions

GWU-Lasertechnik

GWU

| Ultraminiature fiber optic spectrometer | ATP1030 |

Features

Ultra-thin, ultra-miniature, high resolution

Spectral range: 190-1100 nm (can be customized)

Detector: 1024 pixel CMOS;

Integration time: 1 ms ~10min

Power supply: DC 5V@<200mA;

Power interface: Type C USB interface or expansion interface

ADC bit depth: 16 bits;

ADC maximum sampling rate: 10 MHz;

Optical input interface: SM905 optical fiber interface or free space input;

Data output interface: USB2.0 (high speed) or UART;

10-pin (2x5) expansion interface;

Application

Online multi-parameter water quality analyzer;

color detection;

Elemental analysis instruments (LIBS);

Micro-volume, fast spectrophotometer;

UV smoke analyzer;

Small spectrum analysis and spectrophotometric analysis instruments;

Fluorescence Spectrometer;

Reflection and transmission spectrum detection;

Description

Based on Optosky's more than 10 years of experience in developing spectrometers, ATP1030 combined with UV-enhanced 1024-pixel linear CMOS, which can adapt to testing in the wavelength range of 190-1100nm. The CMOS detector has the shortest exposure time and can be controlled Within 1ms, customers can precisely control the signal-to-noise ratio of the spectrometer.

ATP1030 has the characteristics of high reliability, ultra-high speed, low cost, high cost performance, etc. It is a miniature spectrometer that can be adapted to various environmental uses such as online testing.

ATP1030 is an ideal choice for UV, visible, and near-infrared spectroscopy applications. It has different slits, gratings, mirrors, and filters to choose from,Spectrometers suitable for different applications can be configured according to your needs. The spectral range starts from 190nm. to 1100nm, the spectral resolution can be between 0.5 and 2.5nm, and Optosky can provide customized options for OEM customers.

ATP1030 can receive the light to be measured from the SMA905 interface optical fiber input or free space input, measure according to the set integration time, and output the measurement results through USB2.0 (high speed) or UART.

1. parameter

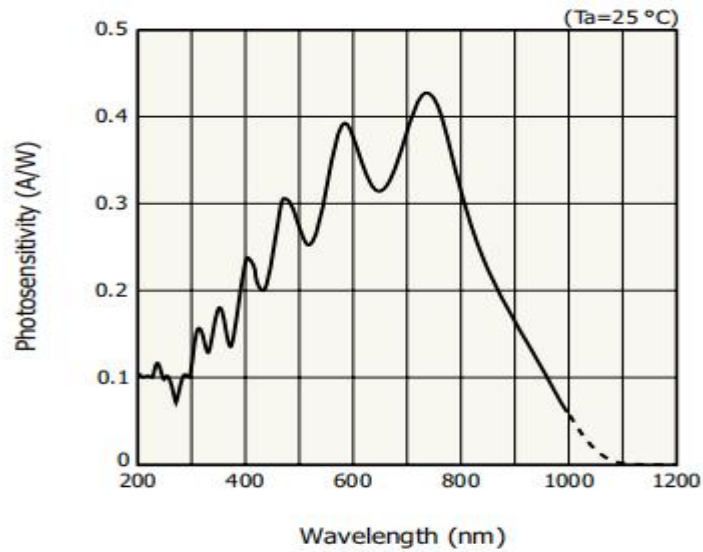| Detector	
Detector type	Line array CMOS
Maximum Spectral Range	190-1100 nm can be customized
Effective Pixels	1024
Pixel size	14 $\times$ 200 μm
Sensitivity	1300 V/(lx・s)
Dark noise	13 RMS @ 13 °C
Optical parameters	
Wavelength range	200-400, 200-800nm, 200-1100nm, 370-810nm and other wavelength ranges are optional, and different ranges can be customized
Optical resolution	0.5-2.5 nm (depending on slit, spectral range)
Dynamic Range	1300：1
Stray light	≤1%
Optical path parameters	
Optical design	M type optical path
Focal length	28 mm entrance / 28 mm output
Entrance slit width	5, 10, 25, 50, 100, 150, 200 μm optional, other sizes can be customized
Incident light interface	SMA905 optical fiber interface, free space
Electrical parameters	
Integration time	1 ms ~ 10min
Data interface	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 temperature	-25°C to +70°C
Operating temperature	-10°C to +50°C
Working humidity	< 90%RH
Physical parameters	
Size	64 X 42 X 20mm
Weight	98-110g

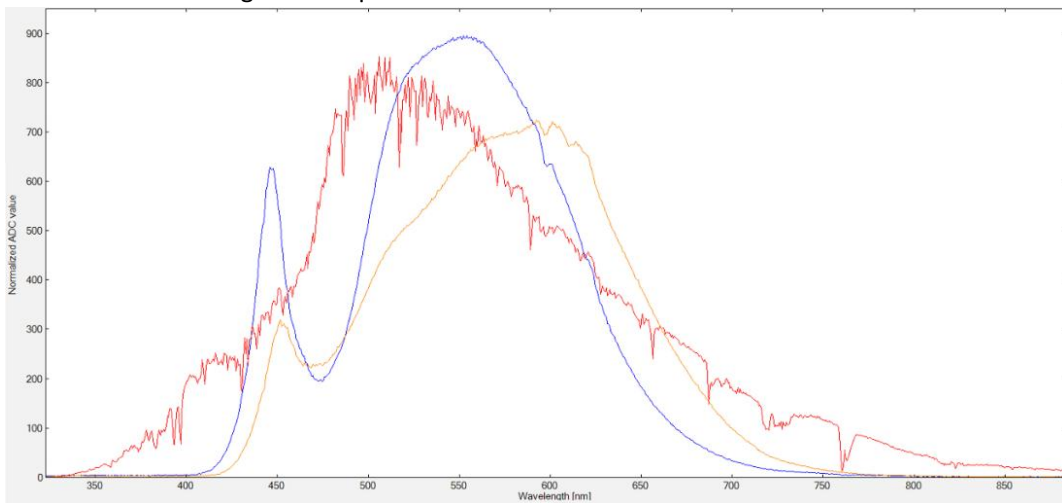Figure 1 Response rate of the detector used in ATP1030

Figure 2 Spectrum measured with ATP1030
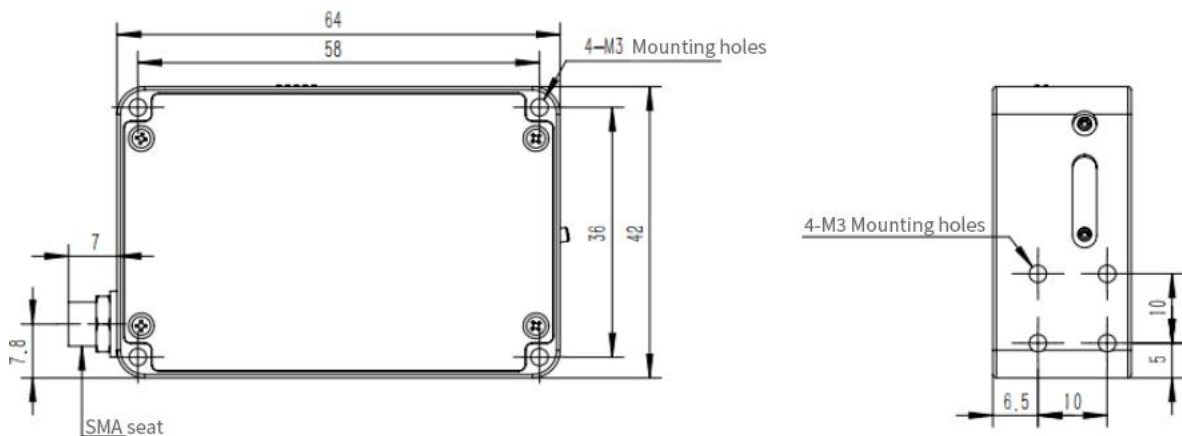
2. Product Dimensions
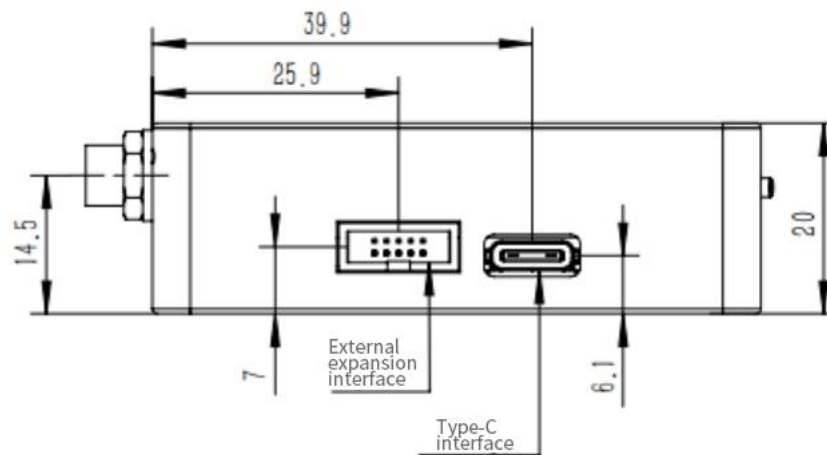

Figure 4 Outline Dimensions of ATP1030 (Front)

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Figure 5 Overall dimensions of ATP1030 (side view)

3. Electronic 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 LVTTL, Five-volt tolerant)				
High level input voltage	1.7		3.6	V
Low level input voltage	-0.3		1	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, 1.27mm pitch) and micro USB type interface.
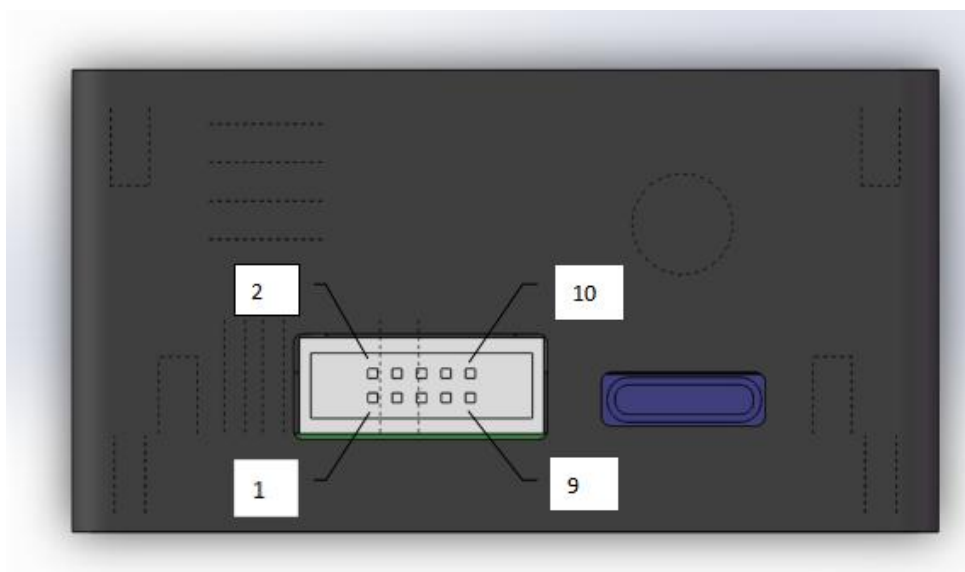
Table 2 Electronic Pinout

Pin#	Description	I/O	Function Description
1	VCC	/	Power Supply, 5V±0.5,
2	GND	/	Ground
3	SPI_SCK	Output	The SPI Clock signal for communications to other SPI peripherals
4	SPI_MOSI	Output	The SPI Master Out Slave In (MOSI) signal for communications to other SPI peripherals
5	SPI_CS	Output	The SPI Chip/Device Select signal for communications to other SPI peripherals
6	SPI_MISO	Input	The SPI Master In Slave Out (MISO) signal for communications to other SPI peripherals
7	Ext_trigger_in	Input	LVTTL input the trigger signal.
8	Lamp_En	Output	LVTTL output the lamp enable signal.
9	UART_RX	Input	UART Receive signal
10	UART_TX	Output	UART Transmit signal

4. Product name

ATP1030-A-B-C

A: Starting wavelength

B: Stop wavelength

C: slit width

For example:

Version	Model	Band Range	Slit	Resolution
UV version	ATP1030-200-400-25	200~400nm	25um	0.5nm
Broadband	ATP1030-200-1100-25	200~1100nm	25um	2.3nm
visible band	ATP1030-370-810-25	370-810nm	25um	0.9nm
UV visible	ATP1030-200-800-25	200-800nm	25um	1.6nm

| Custom Edition | ATP1030-xxx-xxx-xx | 190-1100nm(within range) | optional | 0.5-2.5nm |

5. ATP1030 physical picture

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