GWU-Lasertechnik

Datasheet

Low Noise Micro Spectrometer

ATP2000P

FEATURES

- Spectral region: 200-1100 nm.
- Spectral resolution: 0.01-4 nm.
- Linear low noise CMOS detector with 2048 pixel.
- Optical configuration: crossed C-T.
- Integration times: 2ms-130s.
- Supply voltage: DC 5V (USB Power).
- 18 bit (output 16 bit), 2MHz A/D Converter.
- Interface: USB2.0 or UART.
- 20-pin connector for interfacing to external products.

APPLICATIONS

- LED sorting machine
- Multi-parameter online water quality analyzer
- Micro-volume, fast spectrophotometer
- Fluorescence spectrometer
- Biochemical analyzer
- Transmittance and Reflectance detection
- LIBS

GENERAL DESCRIPTION

ATP2000P is the foundation of Optosky in ATP2000, a high-performance multi-purpose spectrometer using a number of breakthrough technologies was launched.
The CMOS detector exposure time can be controlled within 1ms, and customers can precisely control the signal-to-noise ratio of the spectrometer.
ATP2000P is an ideal choice for UV, visible, and near-infrared spectroscopy applications. It has different slits, gratings, mirrors, and filters to choose from. Spectrometer can be configured to suit different applications according to your needs. The spectral range starts from 200nm to 1100nm, spectral resolution can be selected from 0.5 to 4.0nm, Optosky can also provide customized options for OEM customers.
ATP2000P 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.

GWU-Lasertechnik Vertriebsges. mbH

Bonner Ring 9
50374 Erftstadt
Germany

Fon +49.(0) 22 35.9 55 22-0
Fax +49.(0) 22 35.9 55 22-99

info@gwu-lasertechnik.de

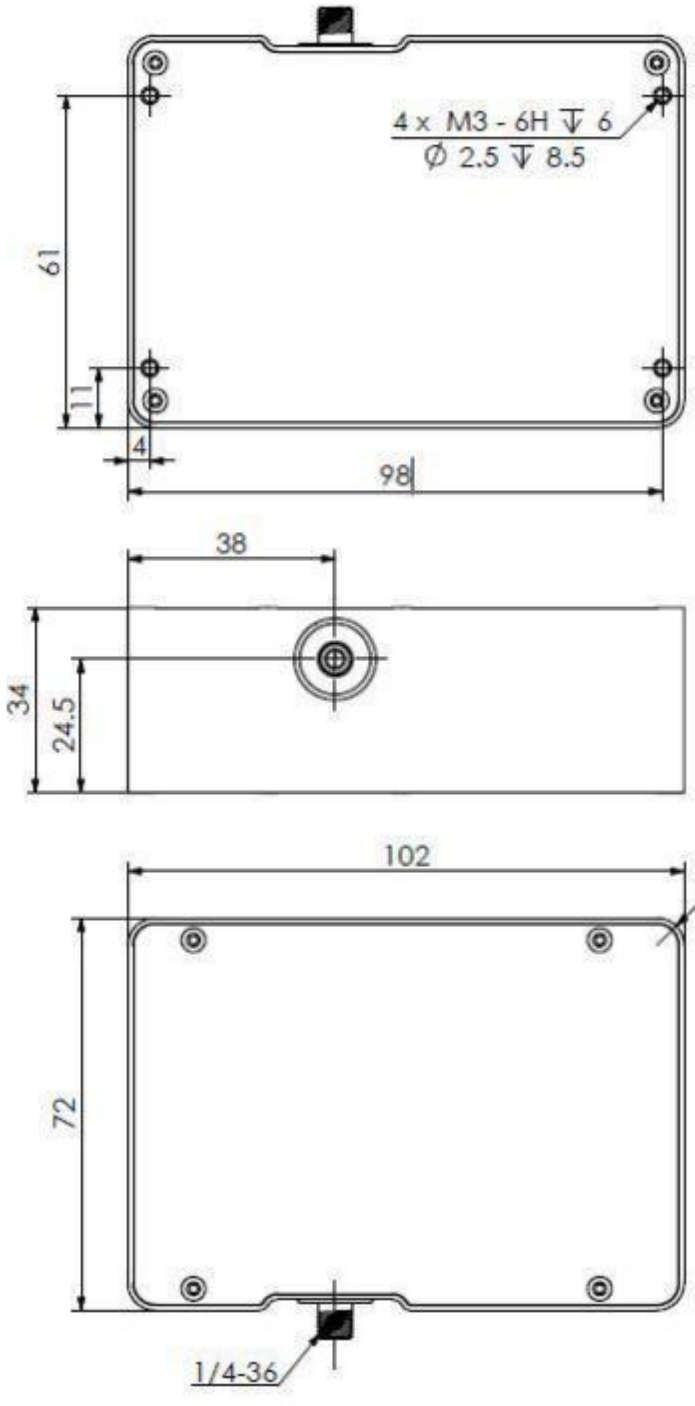
www.gwu-lasertechnik.de

1 Specifications

Detector	
Type	Linear array detector
Detectable range	200-1100 nm
Effective pixel	2048
Pixel dimension	14μm×200μm
Sensitivity	1300 V/(lx · s)
Dark noise	0.4V/RMS
Optical Parameter	
Wavelength range	200-400nm, 200-850nm, 200-1000 nm, etc. Different ranges can be customized
Optical resolution	0.1-4 nm (depends on the slit, spectral range)
Signal-to-noise	>2000:1
Dynamic range	10000:1
Optical Configuration	
Optical Design	F/4 crossed asymmetrical C-T
Focal Distance	40 mm for incidence / 60 mm for output
Incidence slit	5, 10, 25, 50, 100, 150, 200 μm optional, other sizes can be customized
Incident Interface	SMA905 connector, free space
Electrical Parameter	
Integration time	0.1 ms - 130s
Interfaces	USB 2.0 or UART
A/ D conversion resolution	18 bit (output 16 bit)
Supply voltage	DC4.5 to 5.5 V (type @5V)
Operating current	170mA@Typ.
Working temperature	0°C to +40°C
Working humidity	< 90%RH
Physics Parameter	
Dimension	102×72×34 mm
weight	0.2 kg

Floor 22th, Creative Bld., 1300 JimeiAve, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

2 Mechanical Diagrams



Mounting holes (M3×4)

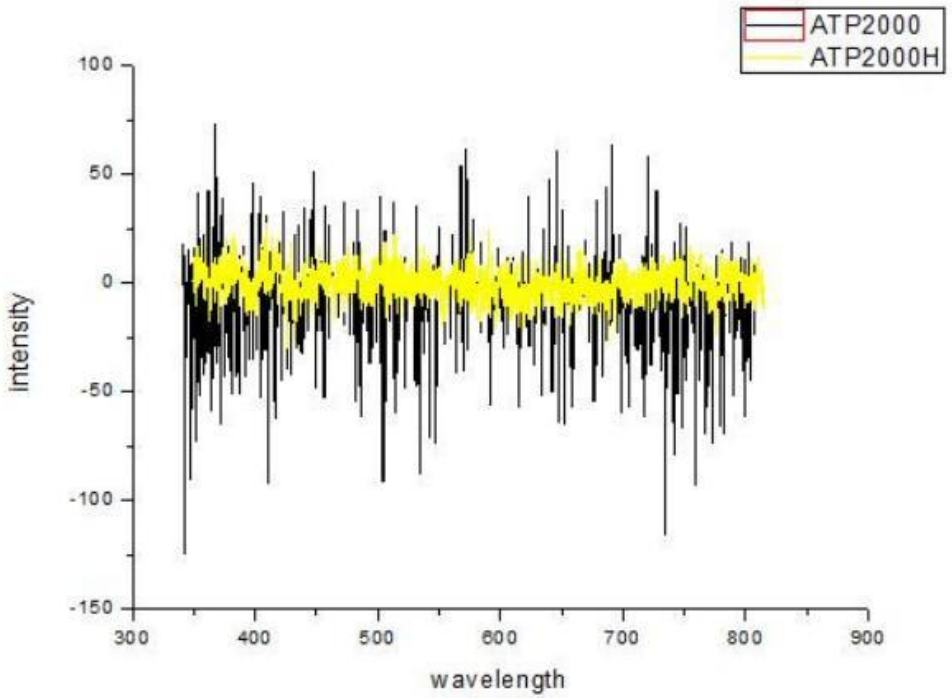
SMA905 Female Fiber interface

The size of ATP2000 micro spectrometer

Floor 22th, Creative Bld., 1300 JimeiAve, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

3 Measured spectrum

There is also the ATP2000H ultra-high-speed fiber spectrometer, whose spectral output frame rate can reach 1000fps. In addition, multiple functions are flexible and can be set up.



ATP2000P and ATP2000H test comparison chart.

Floor 22th, Creative Bld., 1300 JimeiAve, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

4 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 LVTTL, 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 LVTTL)				
High level output voltage	2.4			V
Low level output voltage			0.4	V

The module is equipped with a 20-pin male angled box header(2x10, 2.00 mm pitch) and USB2.0 B type interface. The 20-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.

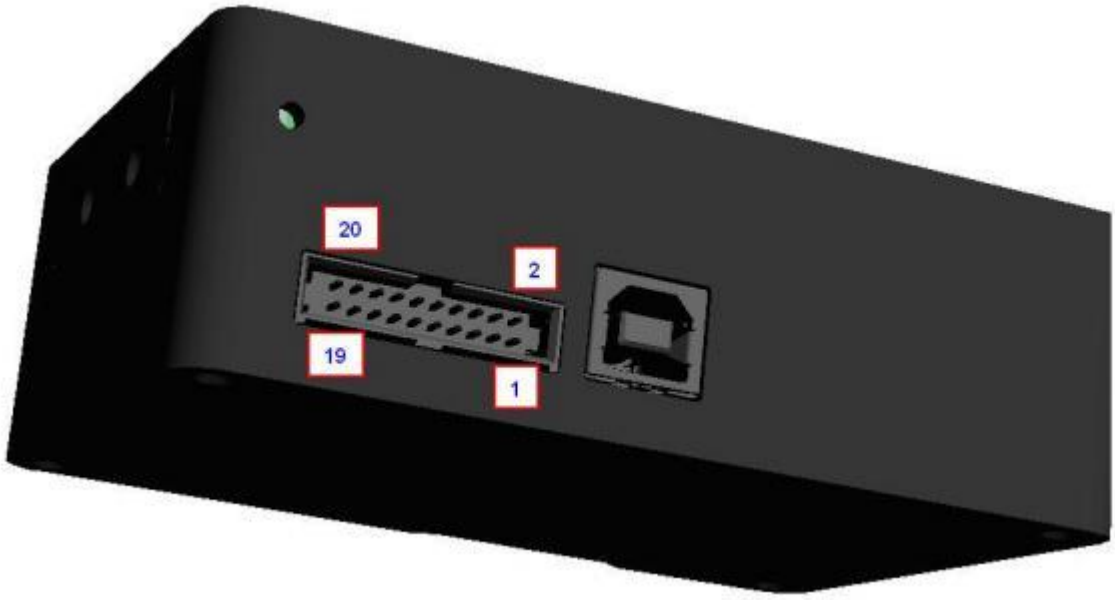


Table 2 Electrical Pin-Out

Pin#	Description	I/O	Function Description
1	VCC	/	Power Supply, 5V±0.5,
2	GND	/	Ground
3	RS232_TX	Output	RS232 Transmit signal
4	RS232_RX	Input	RS232 Receive signal
5	Lamp_En	Output	LVTTL output the lamp enable signal.

Floor 22th, Creative Bld., 1300 JimeiAve, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

6	Continuous_strobe	Output	LVTTL output the continues strobe signal.
7	Ext_trigger_in	Input	LVTTL input the trigger signal.
8	Single_strobe	Output	LVTTL output the single strobe signal.
9	SPI_SCK	Output	The SPI Clock signal for communications to other SPI peripherals
10	SPI_MOSI	Output	The SPI Master Out Slave In (MOSI) signal for communications to other SPI peripherals
11	SPI_MISO	Input	The SPI Master In Slave Out (MISO) signal for communications to other SPI peripherals
12	SPI_CS	Output	The SPI Chip/Device Select signal for communications to other SPI peripherals
13	GPIO0	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
14	GPIO1	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
15	GPIO2	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
16	GPIO3	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
17	GPIO4	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
18	GPIO5	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
19	GPIO6	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
20	GPIO7	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.

5 Order Guide

Order number Rules:

Model	Spectral region		Slit width	
ATP2000P	Short wavelength	Long wavelength	Slit width	

For example:

What to buy ATP2000P, spectral region: 200-850nm, slit width is 50 um, then the order no is:

ATP2000P-200-850-050

Order No	Spectral region	Slit	
ATP2000P-200-400-###	200~400	10 μm	
ATP2000P-200-850-###	200~850	25 μm	
ATP2000P-200-1100-###	200~1000	50 μm	

Floor 22th, Creative Bld., 1300 JimeiAve, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

ATP2000P-340-850-###	340~850	100 μm	
ATP2000P-600-1100-###	600~1100	200 μm	
ATP2000P-###-###-###	Other	Other:_____μm	

6 Derivation

PN	Description
ATP2000	Basic type
ATP2000P	The high performance version
ATP2000H	High speed to 1Kpfs