

900-2500nm NIR, Mini optic fiber spectrometer

ATP8000

Feature:

- 256/512/1024 pixels InGaAs Array;
- Spectral range: 900-2600nm (Available in custom spectral range)
- Ultra-low noise, dual-sampling PCB;
- Spectral resolution: decide on entrance slit width
- Integration time: 7.8ms - 256s
- CCD parameters: 256/512×1 pixel, 50/25×500 um
- Power supply: DC 5V@<3A;
- Power connector: entrance 2pins plug-in;
- ADC bits depth: 18bits;
- ADC sampling rate: 500 KHz;
- Light connector: SM905 connector or free space;
- Output data port: USB2.0/UART;
- 20pins extension interface;

Application:

- Food sorting;
- Waste water detection;
- Agricultural water content, protein, fat, fiber detection
- Paper sorting;
- Online monitoring Chinese herb production;
- Solar cell detection

Description:

Optosky ATP8000 is designed for 900-2600nm NIR, miniature optic fiber spectrometer. It employs 256/512 pixels cooled InGaAs Array, semiconductor cooling technology CCD, cooled down to -20°C under constant operating temperature, resulting in low noise, 2 times SNR higher than competitors, improved measuring reliability, measuring results do not change with ambient temperatures.

ATP8000 has exclusive designed ultra-low noise CCD signal dual-sampling processing circuit, noise<5 counts.

ATP8000 receives light via SMA905 connector or free space, and outputs spectral data measured via USB2.0/UART PORT.

ATP8000 requires only 5V DC power supply, and it's convenient to apply integration.



1. Performance parameters:

Sensor	
Type	Cooled InGaAs Array CCD, Cooled down to -20°C
Spectral range	900-1700nm, 900-2100nm, 900-2500 nm (Three sensors)
Effective pixels	256/512/1024 pixels (suggest 512 pixels)
Pixel size	25μm×250μm
Full range	~17.5 Me-
Dynamic range	12700
Sensitivity	160 nV/ e-
Peak value	2300 nm
Dark noise	400 μV rms
Optical parameters	
Wavelength range	900-2600nm, available in custom wavelength
Optical resolution	5-50 nm (decide on slit, spectral range)
SNR	>3000:1
Dynamic range	12700
Operating temperature	0-40 °C
Operating humidity	< 90%RH
Optical path	
Optical path	f/4 crossed C-T
Confocal distance	82.3 mm for incidence / 121.5 mm for output
Entrance slit width	5、10、25、50、100、150、200 μm (optional), available in custom width
Incident connector	SMA905connector, free space
Electrical parameters	
Integration time	7.8ms-256s
Output data port	USB 2.0
ADC bit depth	18 bit (output 16bit)
Power supply	5VDC±5%
Operating current	<3A
Storage temperature	-20°C to +70°C
Operating temperature	-10°C to +50°C
Physical parameters	
Dimension	215x130x53 mm ³
Weight	1.8kg

2. 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	200	500	2000	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 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.

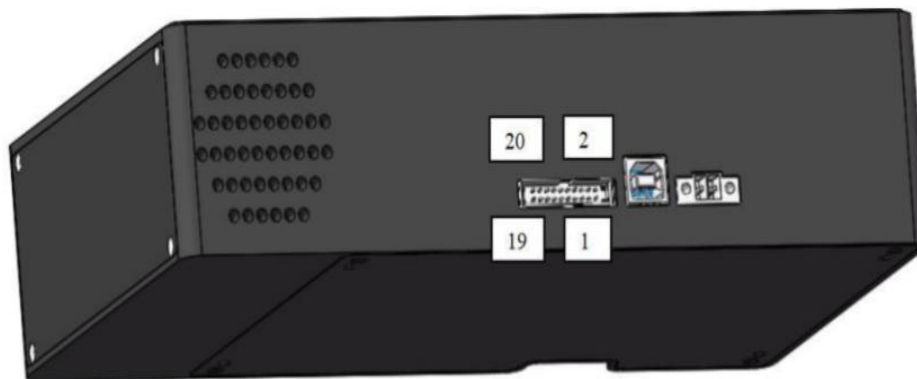


Table 2 Electrical Pin-Out

Pin#	Description	I/O	Function Description
1	VCC	/	Power Supply, 5V ± 0.5,
2	VCC	/	Power Supply, 5V ± 0.5,
3	GND	/	Ground
4	GND	/	Ground
5			
6			
7	Ext_trigger_in	Input	LVTTTL input the trigger signal.Falling edge trigger collection.
8	LD_EN	Output	LVTTTL output enable signal for LD.
9	NC	/	

10	NC	/	
11	GPIO0	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
12	GPIO1	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
13	GPIO2	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
14	GPIO3	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
15	GPIO4	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
16	GPIO5	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTL Logic.
17	VCC	/	3.3 V Power Output
18	GND	/	Ground
19	EXT_TX	Output	EXT UART Transmit signal LVTTL Logic
20	EXT_RX	Input	EXT UART Receive signal LVTTL Logic

3. Order guide

PN	ATP8000- 2-17	ATP8000- 2-21	ATP8000- 2-26	ATP8000- 2-A	ATP8000- 5-17	ATP8000- 5-21	ATP8000- 5-26	ATP8000- 5-A
Spectral range	900-1700nm	900-2100nm	900-2600nm	1510-1590nm	900-1700nm	900-2100nm	900-2600nm	1510-1590nm
Spectral resolution 25um slit	<3nm	<4nm	<6nm	<0.3nm	<3nm	<4nm	<6nm	<0.3nm
Effective pixels	256				512			
Pixel size	50×500μm				25×500μm			
Detector	High performance TE-cooled InGaAs							
Cooled	TE-cooled down to -20°C							
SNR	10000:1							
Dynamic range	13000:1							
A/D resolution	18 bit 150kHz							
Operating temperature	-20°C-45°C							
Connector	SMA905, free space							

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

Entrance aperture	5,15,25,50,100,200,300μm, available in custom length
PC interface	USB2.0 High speed/full speed
Integral time	1ms ~ 256s

The definition of ATP8000-A-B:

A: Pixel number:

- 2: 256 pixels
- 5: 512 pixels;
- 10: 1024 pixels;

B: Maximum wavelength range:

- 17: 900-1700nm;
- 21: 900-2100nm;
- 25: 900-2500nm.

4. Outline dimension

