

## Mid-infrared fiber optic spectrometer

## ATP8300

### Features

- Mid-infrared band: 1.0-3.0 $\mu$ m or 1.0-5.0 $\mu$ m
- Optional within the maximum band range
- Resolution: 20nm or 40nm, depending on wavelength range and slit
- Ultra-low noise CCD signal processing circuit
- Optical path structure: cross C-T
- Detector TEC refrigeration, higher stability and reliability
- Power supply: DC 12V $\pm$ 10% @ <2.3A
- 18 bit, 570KHz ADC (actual output 16bit)
- Optical input interface: SMA905 or free space
- Data output interface: USB2.0 (High speed) or UART
- 20-pin double-row programmable external expansion interface

### Application

- Mid-infrared spectral analysis
- Material analysis
- Gas composition analysis
- Plastic Sorting
- Reflectance, transmittance detection
- Fruit sorting

### Description

ATP8300 is the third-generation high-performance mid-infrared fiber optic spectrometer newly developed by Optosky. It adopts the sixth-generation newly designed optical platform and exquisitely crafted optical components of Optosky, and has achieved excellent optical sensitivity and spectral resolution. At the same time, it uses a variety of high-performance detectors, including high-sensitivity back-illuminated linear CCD. CCD uses semiconductor refrigeration technology. CCD can work in a set constant temperature environment (minimum -10°C), thus greatly reducing the noise of the sensor, has achieved an excellent signal-to-noise ratio (about 2 times higher than that of similar competitors), and has improved the measurement reliability of the ATP8300, and the measurement results do not change with the ambient temperature.

Model	Feature
ATP8300-30	1.0-3.0 $\mu$ m
ATP8300-50	1.0-5.0 $\mu$ m



## 1. Performance

	ATP8300-30	ATP8300-50
<b>Detector</b>		
Type	Linear CCD	Linear CCD
Detector cooling temperature	-15°C	-15°C
Maximum Detection Spectral Range* <sup>1</sup>	1.0-3.0μm	1.0-5.5μm
Resolution* <sup>2</sup>	20nm	40nm
SNR	3000: 1	3000:1
Dynamic Range	10000:1	10000:1
<b>Optical parameters</b>		
Optical design	F/4 crossed asymmetrical CT light path	
Focal length	98mm for incidence / 107mm for output	
Entrance slit width	5, 10, 25, 50, 100, 150, 200 μm optional, other sizes can be customized	
Incident light interface	SMA905 fiber optic interface or free space	
<b>Electrical parameters</b>		
Integration time	400μs~10s	400μs~10s
Data output interface	USB 2.0	
ADC bit depth	18 bit, input 16 bit	
Power supply	DC 12V±10%	
Working current	<2.3A	
Storage temperature	-20°C to +70°C	
Operating temperature	-10°C to +50°C	
<b>physical parameters</b>		
Size	208×120×47mm <sup>3</sup>	
Weight	1.5-1.7kg	

Note:

\* 1: Can be customized within the maximum range, please contact our sales engineer for details

\*2: Values in the table represent standard products only, depending on band range and slit width

## 2. Mechanical Diagrams

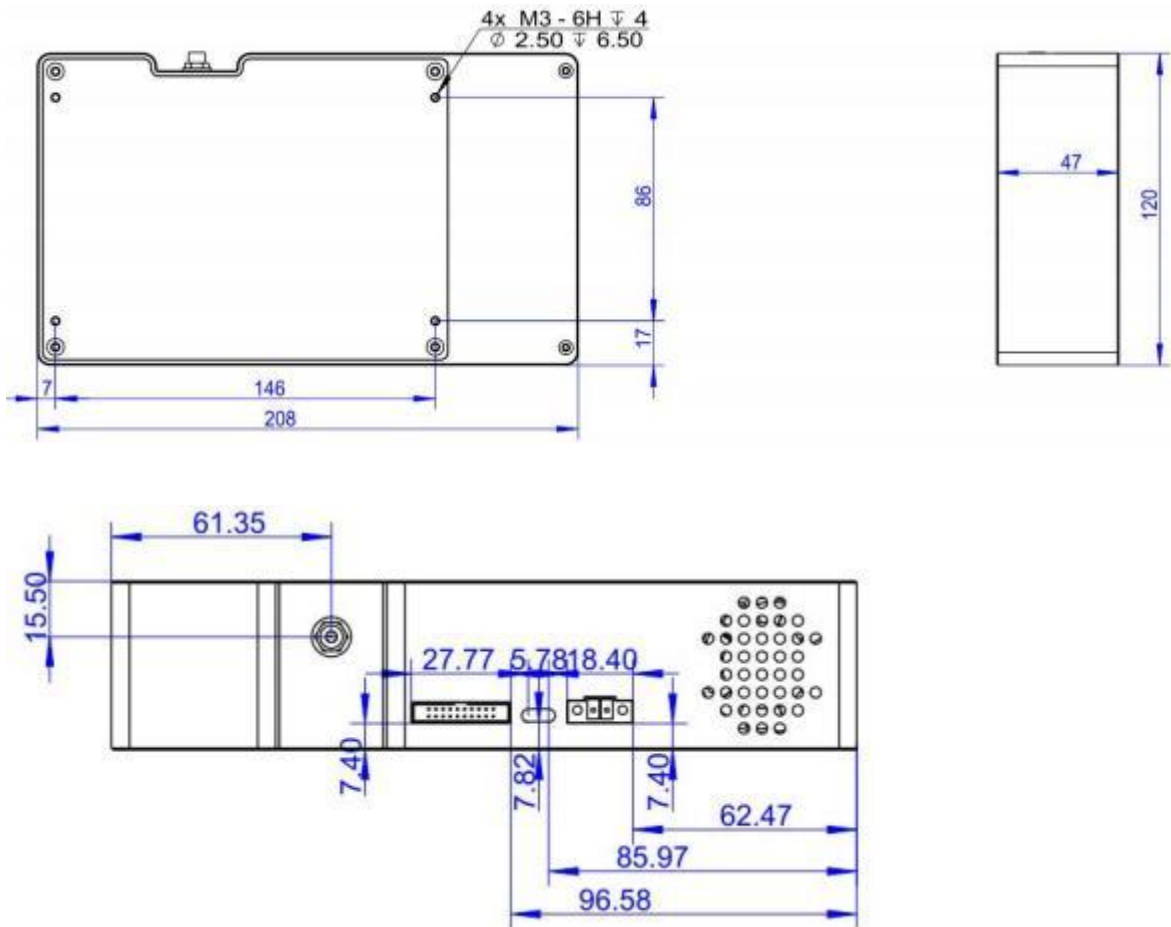


图 4 ATP8300 的外形尺寸图

## 3. Electrical Pin-out

Table 1 Electrical Characteristics

Parameter	Min	Typ	Max	Unit
<b>Power Supply</b>				
Operating voltage range	4.5	5	5.5	V
Operating current	170	500	2000	mA
<b>Logic Inputs(3.3V LVTTTL, Five-volt tolerant)</b>				
High level input voltage	1.7		3.6	V
Low level input voltage	-0.3		1.0	V
<b>Logic Output(3.3V LVTTTL)</b>				
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

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

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	UART_TX	Output	UART Transmit signal
4	UART_RX	Input	UART Receive signal
5	Lamp_En	Output	LVTTL output the lamp enable signal.
6	Continuous_s trobe	Output	LVTTL output the continues strobe signal.
7	Ext_trigger_i n	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.

## 4. Order Guide

Order number Rules:

Model	Spectral region		Slit width
ATP8300	Short wavelength	Long wavelength	Slit width

For example:

What to buy ATP8300, spectral region: 200-850nm, slit width is 50  $\mu\text{m}$ , then the order no is:

**ATP8300-200-850-050**

Order No	Spectral region (nm)	Slit
ATP8300-200-400-###	200~400	10 $\mu\text{m}$
ATP8300-200-850-###	200~850	25 $\mu\text{m}$
ATP8300-200-1100-###	200~1000	50 $\mu\text{m}$
ATP8300-340-850-###	340~850	100 $\mu\text{m}$
ATP8300-600-1100-###	600~1100	200 $\mu\text{m}$
ATP8300-800-1000-###	800-1000	Other: _____ $\mu\text{m}$
ATP8300-300-1100-###	300-1100	
ATP8300-###-###-###	Other	