

Mid-infrared fiber optic spectrometer

ATP8300

Features

- Mid-infrared band: 1.0-3.0μm or 1.0-5.0μm
- 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±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 Aopu Tiancheng. It adopts the sixth-generation newly designed optical platform and exquisitely crafted optical components of Aopu Tiancheng, 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	1.0-3.0μm
ATP8300-50	1.0-5.0μm



1. Performance

	ATP8300-30	ATP8300-50
Detector		
Type	Linear CCD	Linear CCD
Detector cooling temperature	-15℃	-15℃
Maximum Detection Spectral Range* ¹	1.0-3.0μm	1.0-5.5μm
Resolution* ²	20nm	40nm
SNR	3000:01:00	3000:01:00
Dynamic Range	10000:1	10000:1
Optical parameters		
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	
Electrical parameters		
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℃ to +70℃	
Operating temperature	-10℃ to +50℃	
physical parameters		
Size	208×120×47mm ³	
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

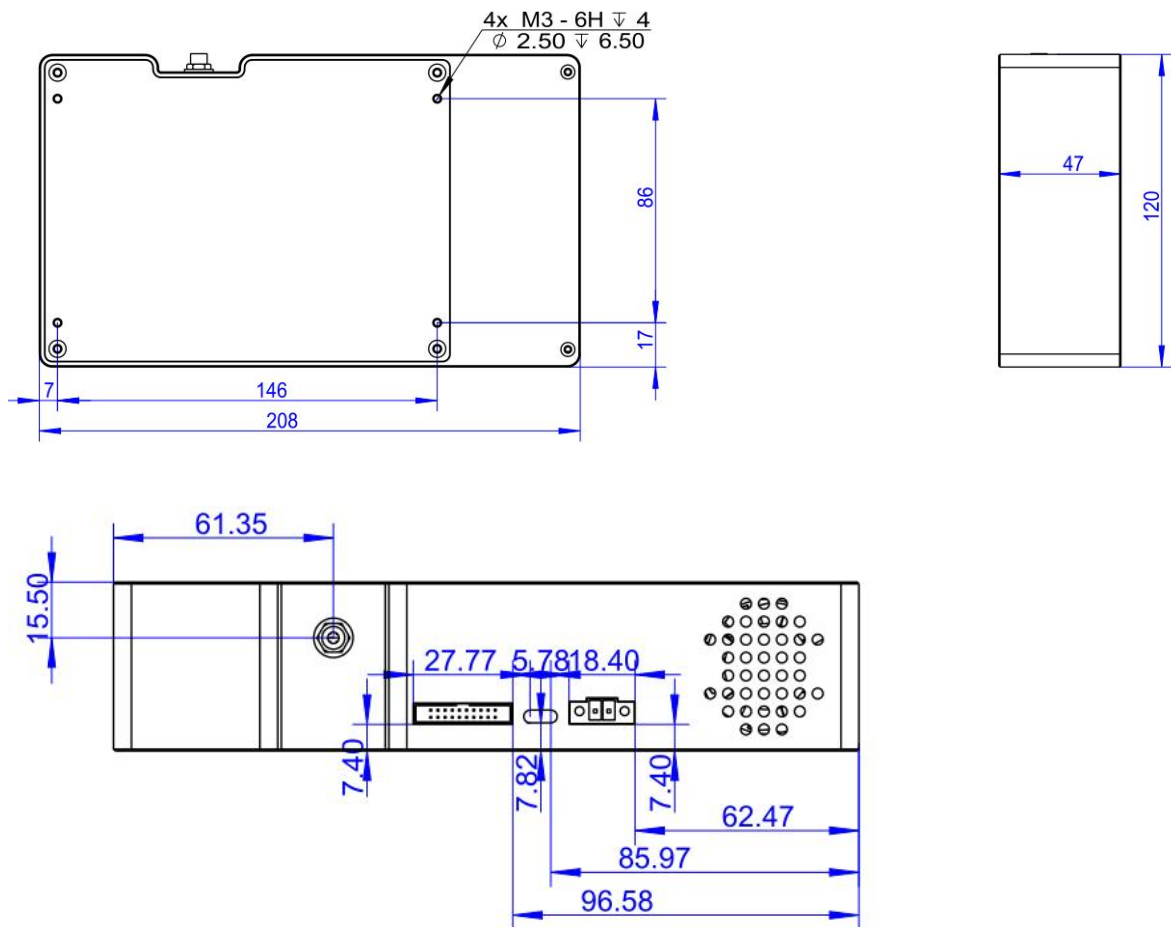


图 4 ATP8300 的外形尺寸图

3. Electrical Pin-out

Table 1 Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Power Supply				
Operating voltage range	4.5	5	5.5	V
Operating current	170	500	2000	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

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 μm , then the order no is:

ATP8300-200-850-050

Order No	Spectral region (nm)	Slit
ATP8300-200-400-###	200~400	10 μm
ATP8300-200-850-###	200~850	25 μm
ATP8300-200-1100-###	200~1000	50 μm
ATP8300-340-850-###	340~850	100 μm
ATP8300-600-1100-###	600~1100	200 μm
ATP8300-800-1000-###	800-1000	Other: _____ μm
ATP8300-300-1100-###	300-1100	
ATP8300-###-###-###	Other	