

Mid-infrared fiber optic spectrometer

ATP8300

Features

- Mid-infrared band: 1.0-3.0 μm or 1.0-5.0 μm
- 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 μm |
| ATP8300-50 | 1.0-5.0 μm |



1. Performance

| | ATP8300-30 | ATP8300-50 |
|--|---|------------|
| Detector | | |
| Type | Linear CCD | Linear CCD |
| Detector cooling temperature | -15°C | -15°C |
| Maximum Detection Spectral Range* ¹ | 1.0-3.0μm | 1.0-5.5μm |
| Resolution* ² | 20nm | 40nm |
| SNR | 3000: 1 | 3000:1 |
| 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°C to +70°C | |
| Operating temperature | -10°C to +50°C | |
| 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

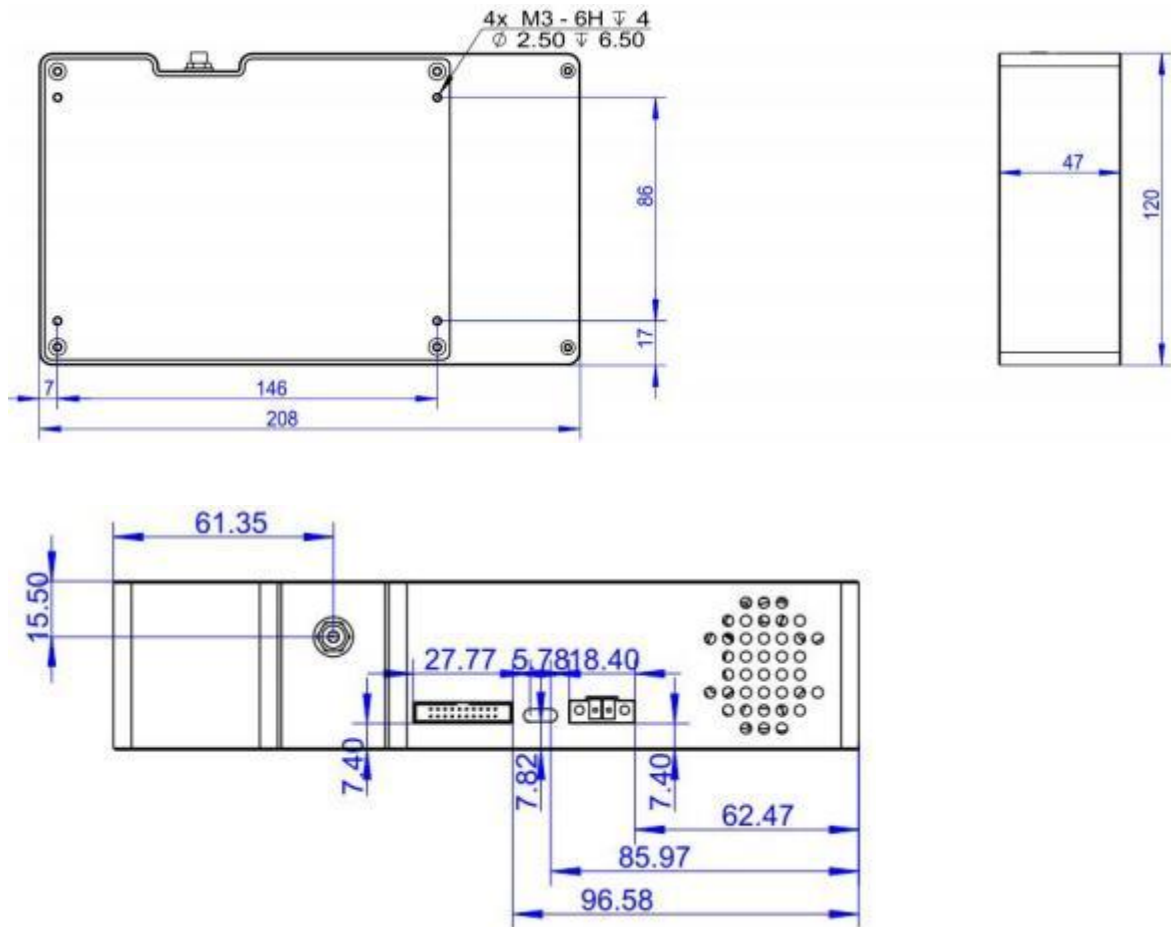


图 4 ATP8300 的外形尺寸图

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 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

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 μ m, then the order no is:

ATP8300-200-850-050

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