



DATASHEET
EOC-SI-3330 & 3334
EOC-SI-5330 & 5334
(Cooled) Ultra Thin & High Resolution M-Shape C-T Micro-Spectrometer

Description:

EOC-SI-3330 and EOC-SI-5330 are newly designed ultra thin, cooled, ultra high resolution miniature spectrometers. EOC-SI-3330 and EOC-SI-5330 are m-type optical path structures, which have extraordinary ultra-high resolution. Cooled 2048 or 4096 pixels at the same time, it uses the linear array detector, reaches the acme of the ultra high resolution. High resolution can reach <0.05 nm, suitable for all kinds of applications, high resolution and high reliability, ultra-high speed, low cost, high cost performance and other characteristics, can adapt to the online test uses a variety of environments such as micro spectrometer.

EOC-SI-3330 is uncooled, while EOC-SI-5330 uses TEC cooled at -5°C, which greatly reduces the dark current and noise, improves the dynamic range and signal-to-noise ratio, and improves the environmental adaptability of the spectrometer. EOC-SI-5330P adopts cooled back-illuminated CCD with better signal-to-noise ratio.

EOC-SI-3330 and EOC-SI-5330 can receive SMA905 fiber input light or free space light, and output the spectral data obtained through USB2.0 or UART port.

EOC-SI-3330 only needs a 5v DC power supply or directly from the USB interface, which is very easy to integrate and use. EOC-SI-5330 requires an additional 5V power supply.

Feature

- M-shape, high resolution;
- Wavelength range: 200-1100 nm;
- Resolution: 0.05~ 3 nm;
- Optical path: M-shape C-T;
- Detector: 2048/4096 pixel;
- Cooling Temperature: -5 °C
- Integration time: 0.1ms ~ 256s;
- Power supply: DC 5V power supply;
- ADC: 16 bit;
- Output: USB Type-C;
- 20-pin expansion interface;

Application

- LIBS, Plasma luminescence detection;
- Raman detection;
- Wavelength monitoring, laser, LED and other luminous bodies
- Water quality analyzer
- LED sorting machine, color detection;
- Spectral analysis, radiation spectroscopic analysis, spectrophotometric analysis;
- Reflection and transmission spectrum detection

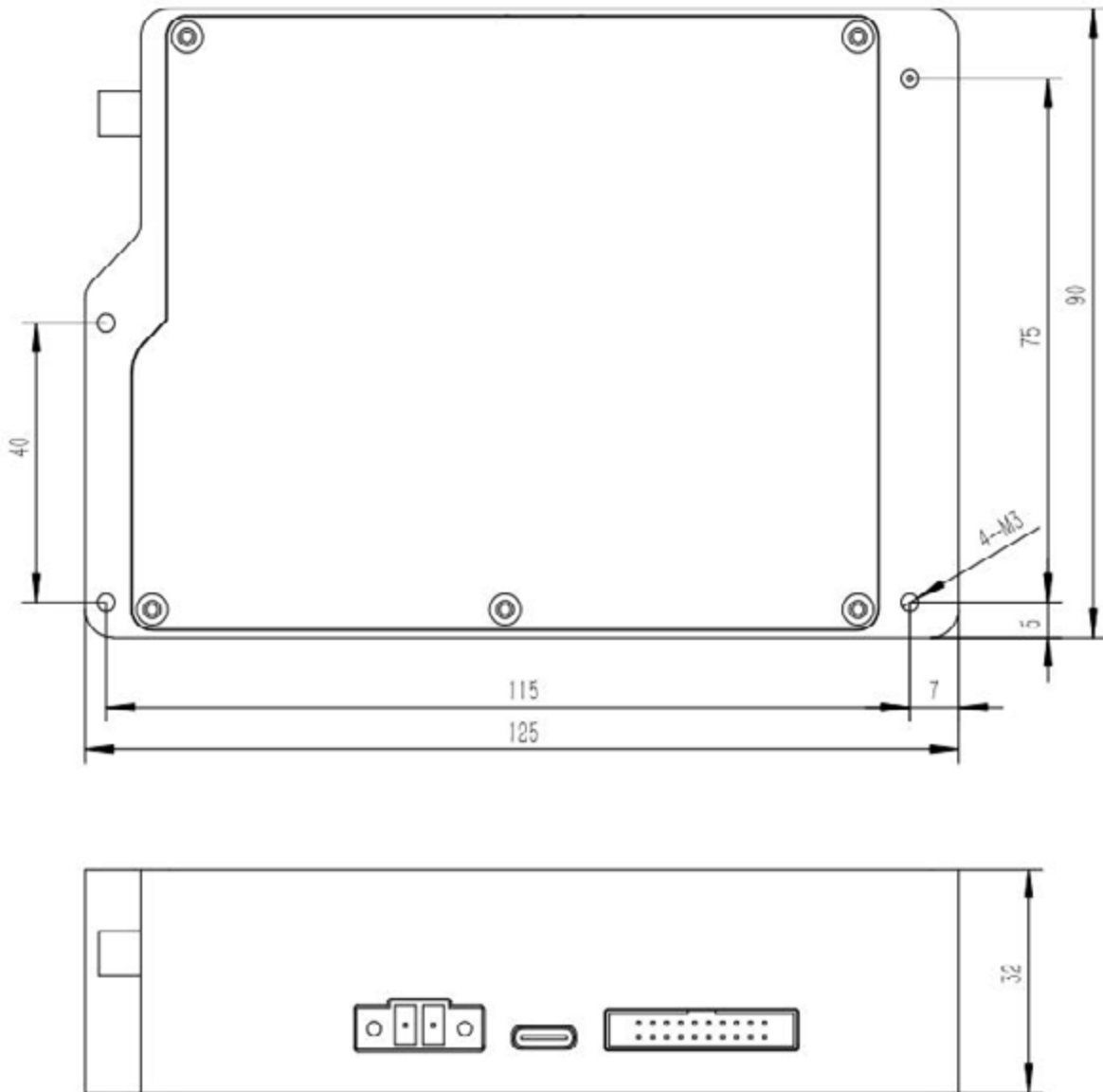
	Cooled	Pixels
EOC-SI-3330	NO	2048
EOC-SI-3334	NO	4096
EOC-SI-5330	YES, -5°C	2048
EOC-SI-5334	YES, -5°C	4096
EOC-SI-5330P	YES, -10°C, BI CMOS	2048

Specifications

Detector	
Type	Linear array detector
Detectable range	200-1100 nm
Effective pixel	2048 or 4096 pixels
Sensor Cooled	EOC-SI-3XXX NO cooled; EOC-SI-5XXX TEC cooled, -5 °C
Pixel dimension	14µm × 200µm
Sensitivity	1300 V/(lx-s)
Dark noise	13 RMS @ 13 °C
Optical Parameter	
Wavelength range	200-1100 nm (optimal design for >500 nm)
Optical resolution	0.05-3 nm
Signal-to-noise	>600:1
Dynamic range	8.5 x 10 ⁷ (system); 2000:1 for a single acquisition
Stray light	<0.05% at 600 nm; <0.09% at 435 nm
Optical Configuration	
Optical Design	Traditional M-shape C - T light path
Focal Distance	75mm
Incidence slit	50 µm (10, 25, 100, 200 µm are optional)
Incident Interface	SMA905 connector
Electrical Parameter	
Integration time	0.1 ms - 256 second
Interfaces	USB Type-C
A/D conversion resolution	16 bit
Supply voltage	DC 4.5 to 5.5 V (type @5V)
Operating current	EOC-SI-3330 200mA, EOC-SI-5330 1.5 A@Typ. 3A Max
Storage temperature	-30 °C to +70 °C
Operating temperature	-25 ~ 50 °C

Working humidity	< 90%RH
Physics Parameter	
Dimension	125 × 90 × 32 mm
weight	500 g (EOC-SI-3330), 670 g (EOC-SI-5330)

2 Mechanical Diagrams



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		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 30-pin male angled box header(2x15, 2.00 mm pitch) and Type-C interface.

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	LVTTTL output the lamp enable signal.
6	Continuous_strobe	Output	LVTTTL output the continues strobe signal.
7	Ext_trigger_in	Input	LVTTTL input the trigger signal.
8	Single_strobe	Output	LVTTTL 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	GPI00	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
14	GPI01	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
15	GPI02	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
16	GPI03	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
17	GPI04	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
18	GPI05	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
19	GPI06	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.
20	GPI07	Input /Output	General Purpose Software Programmable Digital Inputs/Outputs, LVTTTL Logic.

4 Order Guide

Order number Rules:

Model	Spectral region		Slit width
EOC-SI-5330	Short wavelength	Long wavelength	Slit width

For example:

Want to buy EOC-SI-5330, spectral region: 200-1000nm, slit width is 50 μ m, then the order no is:

EOC-SI-5030-200-1000-050

Order No	Spectral region	Slit
EOC-SI-5330-200-400-###	200~400	10 μ m
EOC-SI-5330-200-850-###	200~850	25 μ m
EOC-SI-5330-200-1000-###	200~1000	50 μ m
EOC-SI-5330-340-850-###	340~850	100 μ m

EOC-SI-5330-600-1100-###	600~1100	200 μ m	
EOC-SI-5330-###-###-###...	Other	Other: _____ μ m	

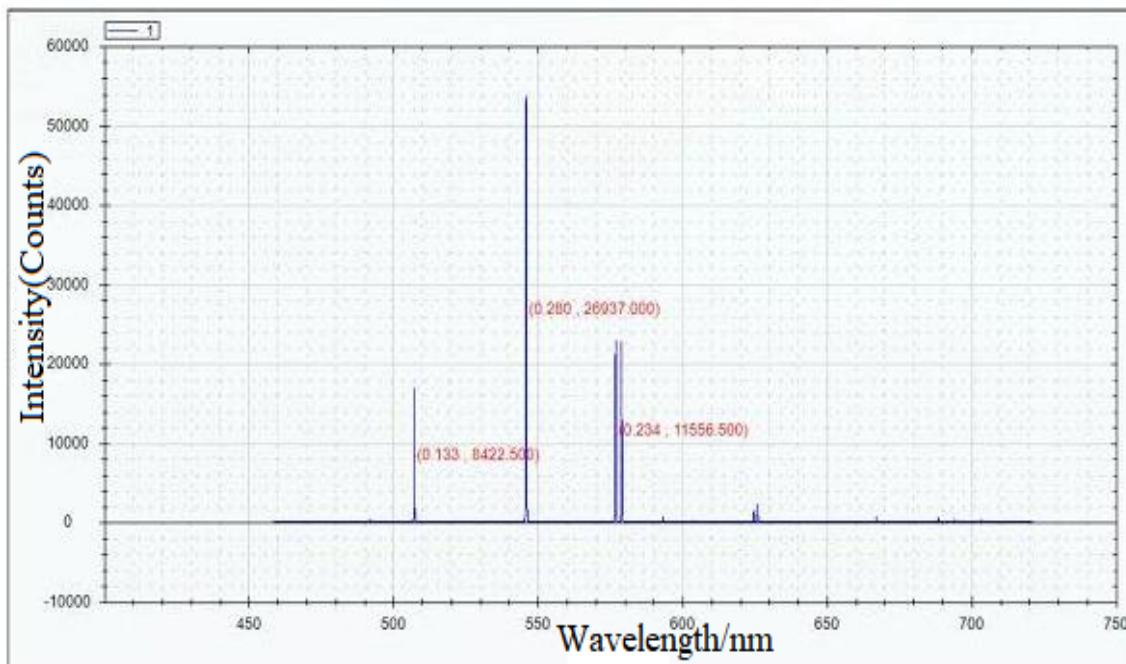


Fig 1 The spectrogram of EOC-SI-3334, 460-720nm, Optical resolution 0.133nm