

STALWART

Miniature Spectrometer SMS-100



SMS-100

Description

SMS-100 employs UV-enhanced 512pixels linear CMOS, and UV response is improved 20 times, meanwhile 180-1100nm wavelength range measure, CMOS sensor exposure time controlled within 1ms enable customer controlling SNR accurately.

The SMS-100 is highly reliable, ultra-high-speed, low-cost, and cost-effective, and can be adapted to miniature spectrometers for various environmental applications such as on-line testing.

SMS-100 is ideal for UV, visible, and near-infrared spectroscopy applications. Different slits, gratings, mirrors, and filters are available. You can configure spectrometers for different applications depending on your requirements. Spectral ranges from 180 nm Up to 1100nm, the spectral resolution can be selected from 0.2 to 5.0nm, and OPT Spectrum can also provide OEM customers with customized options.

The SMS-100 can receive optical fiber input or free-space input light from the SMA905 interface, measure it according to the set integration time, and output the measurement result via USB2.0 (high speed) or UART.

Features

- Spectral range: 180-1100 nm: Customized
- Optical Structure: Crossed C-T ;
- Detector : 512 pixels CMOS ;
- Integration Time : 1 ms ~ 10 min
- Power supply: DC 5V@<200mA ;
- Power Interface: Type C USB or extendable
- ADC bits depth : 16bits ;
- ADC Sampling rate : 10 MHz ;
- Optical light input : SM905 or free space ;
- Data output : USB2.0 (High speed) or UART ;
- 10 Pins (2x5, 1.27mm pitch) Extendable pins ;

Specification

Sensor	
Type	Hamamtsu S13014 Linear CMOS
Spectral Range	180-1100 nm Customize
Effective pixel	512
Pixel size	14 × 200 μm
Sensitivity	1300 V/(lx·s)
Dark Noise	13 RMS @ 13 °C
Optical Parameters	
Wavelength	200-400nm, 350-800nm, 300-1100nm, 800-1000 nm, optional
Resolution	1-7 nm (Slit size & spectral range)
SNR	> 450:1
Dynamic Range	10000: 1

Specification

Optical Path	
Optical Design	F/4 Crossed C-T
Focal Distance	28 mm for incidence / 28 mm for output
Slit size	5, 10, 25, 50, 100, 150, 200 μm , others customized
Input interface	SMA905 or free space
Electrical Parameters	
Integration Time	1 ms ~ 10 min
Data Port	USB 2.0 or UART
ADC bit depth	16 bit
Power Supply	DC 4.5 5.5 V (type @5V)
Working current	<200 mA
Storage Temp.	-20°C to +70°C
Operating Temp	-10°C to +50°C
Working Humidity	< 90%RH
Physical parameters	
Size	45×42×23 mm ³
Weight	60 g

Application

- Multi-parameters Water Quality Monitor
- LED sorting ;
- Colour measurement
- Micro-volumn spectrometer
- UV gas measurement
- Spectrum analysis, radiometer
- Fluorescence;
- Reflection, transmission measurement;

Electrical Pin-out

Specification	Min	Typ	Max	Unit
Power Supply				
Operating voltage range	4.5	5	5.5	V
Operating current		170		mA
Logic Inputs (3.3V LVTTL, Five-volt tolerant)				
High level input voltage	1.7		3.6	$\underline{V}$
Low level input voltage	-0.3		1.0	$\underline{V}$
Logic Output (3.3V LVTTL)				
High level output voltage	2.4			V
Low level output voltage			0.4	V

Electrical Pin-out

Pin	Description	I/O	Function Description
1	5V	/	Power Supply, 5V±0.5,
2	GND	/	Ground
3	NC	/	/
4	NC	/	/
5	NC	/	/
6	NC	/	/
7	EXT_TRIG	Input	External trigger pin
8	LIGHT	Output	Xenon lamp control pin
9	MCU_PX	Input /	LVTTL Transmit Signal
10	MCU_TX	/ Output	LVTTL Transmit Signal

Order Guide

PN	Spectral Range		Slit Size
SMS-100	Start Wavelength	End wavelength	Slit width