Datasheet

High Sensitivity & Transmission Gratings Micro Spectrometer

ATP2700

Features

- High sensitivity, high transmittance
- >0.22 super large numerical aperture, can completely receive the photons of the fiber
- Maximum signal acquisition frame rate: ≥4000 fps
- Detector: Linear low-noise CMOS or area array CCD
- Detector pixels: 2048 pixels
- Spectral resolution: 0.1-3 nm (depending on spectral range and slit width)
- Integration time: 0.2ms-60s
- Power supply: DC 5V (USB power supply)
- ADC: 16bit, 10MSPS
- Fiber input interface: SMA905
- Data output interface: USB2.0 (High speed) or UART
- 20-pin double-row programmable external expansion interface

Application

- Raman spectrometer
- Industrial Measurement Sensor LED Spectrophotometer
- Fluorescence photometer
- Transmittance detection
- Reflectivity detection
- UV gas analyzer
- Multi-parameter water quality analyzer

Description

ATP2700 high-sensitivity micro-spectrometer is a high-sensitivity, high-transmittance micro-fiber spectrometer. It adopts a high-efficiency optical system design, which makes its sensitivity 3-4 times stronger than conventional fiber optic spectrometers. It adopts a large numerical aperture optical design, which can All photons in the optical fiber (numerical aperture 0.22) are accepted. This makes it especially suitable for the analysis of low-light signals, such as gas analysis Raman spectrometers, fluorescence spectrometers, etc.

ATP2700 adopts high-sensitivity linear CMOS. Optosky specially customized ultra-low noise CMOS signal processing circuit, which greatly reduces the noise of the sensor and obtains an excellent signal-to-noise ratio (about 2 times higher than that of similar competitors). Its sensor is a 2048-pixel CCD, and the frame rate of CCD signal acquisition can reach up to 4Kfps.

It outputs spectral data to PC via USB 2.0 or RS232 interface. ATP2700 works with +5VDC power supply provided by USB.

ATP2700 can also be equipped with other types of detectors, such as cooled detectors (ATP5700), cooled area array back-illuminated detectors (ATP5700P, ATP5700R), deep-cooled -70°C detectors (ATP5700DC), to obtain better performance.

Model	Features
ATP2700	Standard type
ATP2700SH	Ultra-high frame rate, the frame rate can reach 4Kfps
ATP2700D	Ultra-low noise, the noise is only 1/6 of ATP2700

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1. parameter

Detector	
Type	Linear image sensor CMOS
Maximum Spectral Response Range	185nm-1100nm
Effective Pixels	2048
Pixel size	14×200 μm
SNR	>450:1
Dynamic Range	8.5 x 10^7 , 2000:1 (single collection)
Optical parameters	
Wavelength range	185nm-1100nm (depending on needs)
Optical resolution	0.1-3 nm (Depends on slit, spectral range)
Optical path parameters	
Optical design	F/2 cross asymmetrical C-T optical path
Focal length	40mm input/60mm output
Entrance slit width	50μm input , Other sizes can be customized
Incident light interface	SMA905 fiber optic interface
Electrical parameters	
Integration time	0.2 ms - 60 s
Data output interface	USB 2.0（high speed）
ADC bit depth	16 bits
Power supply	DC4.5 to 5.5 V (type @5V)
Working current	370 mA
Storage temperature	-30 ~ +70°C
Operating temperature	-25 ~ 50 ℃
Physical parameters	
Size	171.5×70×48 mm3
Weight	0.27 kg

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2. Selection Guide

Model	CCDtype	CCD refrigeration?	Feature
ATP2700	2048X1	non-refrigerated	Standard type
ATP2700SH	2048X1		Ultra-high frame rate, the frame rate can reach 4Kfps
ATP2700D	512X1		Ultra-low noise, the noise is only 1/6 of ATP2700
ATP5700	2048X1	TEC refrigeration, to -10℃	Refrigerated CCD
ATP5700P	Area array back-illuminated 2048X64		UV optimization, back-illuminated area array CCD, high signal-to-noise ratio, high sensitivity
ATP5700R	Area array back-illuminated 2048X64		Infrared optimization, back-illuminated area array CCD, high signal-to-noise ratio, high sensitivity
ATP6700	Area array back-illuminated 1024X64	TEC refrigeration, to -20℃	Signal-to-noise ratio up to 1000:1, integration time up to 1 hour
ATP5700DC	Area array back-illuminated 2048X64	TEC refrigeration, to -70℃	High signal-to-noise ratio and integration time up to 1 hour

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