Datasheet

High Sensitivity Micro Spectrometer

ATP2700

Features

- High sensitivity, high transmittance
- Maximum frame rate: ≥4000 fps
- Hamamatsu Detector: low noise CMOS
- Detector pixels: 2048 pixels
- Spectral resolution: 0.1-3nm (depending on spectral range and slit width)
- Integration time: 0.2ms-60s
- Power supply: DC 5V (USB power supply)
- ADC: 16bit, 10MSPS
- Fiber output: SMA905
- Data output: USB2.0 (High speed) or UART
- 20-pin dual UART

Application

- Raman spectrometer
- Industrial measurement sensors
- LED Spectrophotometer
- Fluorophotometer
- Transmittance detection
- Reflectance detection
- Ultraviolet gas analyzer
- MI-parameter Meter

Description

ATP2700 is a micro spectrometer with high sensitivity and high transmittance. It adopts more efficient optical bench design, which makes its sensitivity 3-4 times higher than routine micro spectrometers. It uses a large numerical aperture optical design, which can accept all photons in the optical fiber (numerical aperture 0.22). This makes it especially suitable for the analysis of low signals, such as gas analysis Raman spectrometers, fluorescence spectrometers, etc.

ATP2700 uses high-sensitive linear CMOS from Hamamatsu in Japan. Optosky specially customized 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 models). 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.

In order to obtain better performance, ATP2700 can also be equipped with other types of detectors, such as cooled detector (ATP5700), TE-cooled back-illuminated CCD (ATP5700P, ATP5700R), deep-cooling -70°C detectors (ATP5700DC)

Model	Features
ATP2700	Standard
ATP2700SH	Ultra high frame rate, up to 4Kfps
ATP2700D	Ultra-low noise, noise is only 1/6 of ATP2700

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1. Performance

Detector	
Type	Linear array image sensor CMOS
Max spectral response range	185-1100nm
Effective pixel	2048
Pixel dimension	14μm×200μm
SNR	>450:1
Dynamic range	8.5 x 107 , 2000:1 for a single acquisition
Optical Parameter	
Wavelength range	185-1100nm
Optical resolution	0.1-3nm
Optical Configuration	
Optical Design	f/2 crossed asymmetrical Czerny-Turner
Focal Distance	40 mm for incidence / 60 mm for output
Incidence slit	50μm (Other sizes can be customized)
Incident Interface	SMA905 connector
Electrical Parameter	
Integration time	0.2 ms - 60s
Interfaces	USB 2.0（High speed）
A/D conversion resolution	16 bit
Supply voltage	DC4.5 to 5.5 V (type @5V)
Operating current	370mA
Storage temperature	-30°C to +70°C
Operating temperature	-25-50 °C
Physics Parameter	
Dimension	103×60×35 mm3
Weight	0.2 kg

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2. Order guide

Model	Detector Type	Cooled	Features
ATP2700	2048×1	Uncooled	Standard
ATP2700SH	2048×1		High frame rate up to 4Kfps
ATP2700D	512×1		Reduce to 1/6 low noise of ATP2700
ATP5700	2048×1	TE-cooled down to -10℃	Cooling CCD
ATP5700P	Back thinned Illuminated Area Array 2048×64		**UV**-enhanced, back-illuminated area array CCD, high SNR, high sensitivity
ATP5700R	Back thinned Illuminated Area Array 2048×64		Infrared-enhanced, back-illuminated area array CCD, high SNR, high sensitivity
ATP6700	Back thinned Illuminated Area Array 1024×64	TE-cooled down to -20℃	SNR up to 1000:1, integration time up to 1 hour
ATP5700DC	Back thinned Illuminated Area Array 2048×64	TE-cooled down -70℃	High signal-to-noise ratio and integration time up to 1 hour

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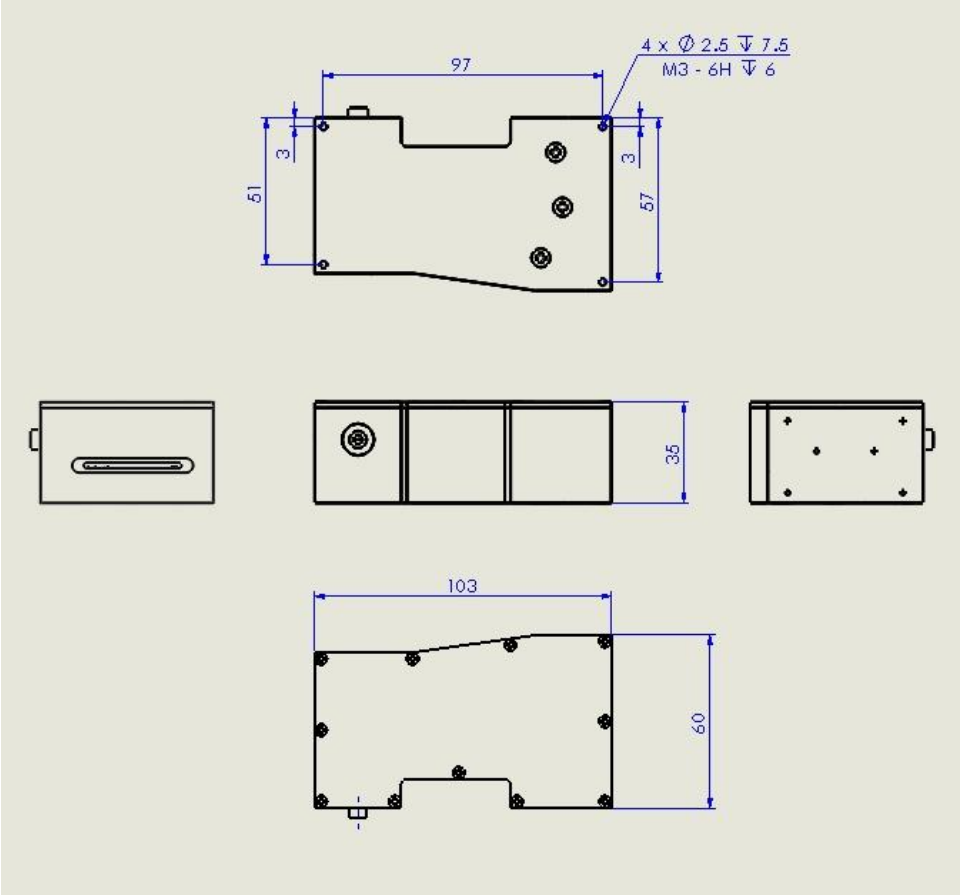
3. Machine dimension



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