



Small & Powerful

Spectro-Engine is a palm-sized and lightweight mini-spectrometer. It's easy to operate and the measuring time is in a second. It can provide a vast continuous spectral range and high-resolution spectrum. It's applicable to measure the absorbance or fluorescent of the chemical material. The cost is relatively much less than a traditional spectral instrument, but the performance is still the same.

➤ **Features**

- Highly sensitive
- Spectral range: 300-1000 nm
- Easy operation with mobile phone App
- Rapid quantitative result in 10-15 mins
- Portable for any test site applications

➤ **Applications**

- Laboratory chemical tests
- Component analysis in food, agriculture, etc.
- Process control for chemical products
- Water content measurement
- Fluorescent reader

➤ **Spectral**

Item	Specification	Unit
Spectral dispersion principle	Flat-field ^{*1} micro concave grating chip	-
Spectral range	300 ~ 1100	nm
Spectral resolution (FWHM)	Typ.	5
	Max.	7
Wavelength reproducibility	±0.375	nm
Stray light^{*2}	0.04	%

*1: Flat-field focusing is achieved by aberration-corrected concave grating design.
 *2: Stray light is measured using an image sensor with 12-bit A/D conversion.

➤ Electrical

Item	Specification	Unit
Power Interface	Micro USB (5V/2.4A)	-
Data Interface	USB Micro / Bluetooth	-
Power Supply	≥ 12-Watt USB Power Adaptor ^{*3}	-

*3: Or an USB power bank with the power to power up an iPad.

➤ Biological

Item	Specification	Unit
Platform	600 μL , 300 μL solution	-
Turn-around Time	4 seconds	-
Sensitivity: LOD	OD accuracy: <1% at 2.0 OD OD repeatability:<0.5% at 2.0 OD	-

*4: LFIA: Lateral Flow Immunoassay.

*5: For the antibody test, specimen could be finger-tip blood, plasma or serum. Different test item requires different specimen.

*6: Typical volume is about 10 μL. It may vary for other test items.

➤ Mechanical / Optical

Item	Specification	Unit
Dimensions (W × D × H)	11 x 10 x 7	cm
Weight	430	g
Image sensor type	OV9281	-
Number of spectral pixels	1,280	pixel
Input optical solid angle	24	degree

➤ Temperature

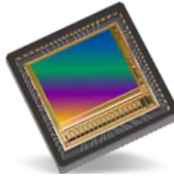
Item	Specification	Unit
Operating temperature ^{*7}	+5 ~ +35	°C
Storage temperature	-20 ~ +70	°C

*7: No dew condensation. When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

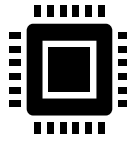
➤ Optical Component Layout

Spectro - Engine uses a micro concave grating chip, making it possible to deliver high throughput and highly accurate optical characteristics.

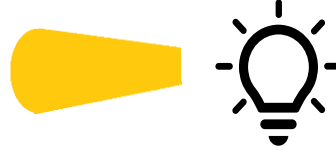
Image Sensor



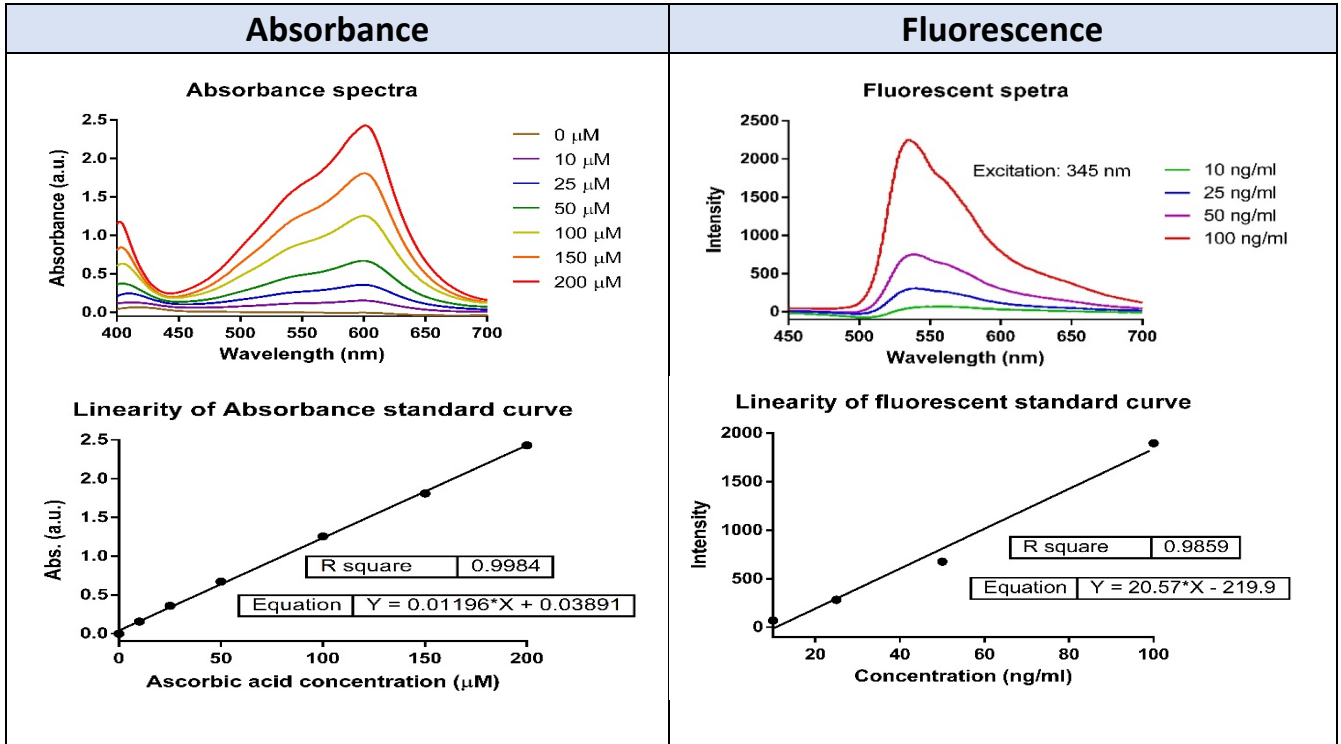
Spectrochip



Input light source



➤ Spectral Performance



Information described in this material is current as of December 2022.

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