


## ▼ Specifications

Detector	Firefly	Aurora4000	Sunshine
Detector	Toshiba TCD1304DG linear CCD array	Toshiba TCD1304DG linear CCD array	Hamamatsu S11510
Detector range	200-1100 nm	200-1100 nm	200-1100 nm
Pixels	3648 pixels	3648 pixels	2048 pixels
Pixel size	8 × 200 μm <sup>2</sup>	8 × 200 μm <sup>2</sup>	14 × 14 μm <sup>2</sup>
<b>Spectrometer</b>			
Dimensions (mm)	89×63.9×36.2	149×105×46	149×109×50
Weight (g)	170	840	1000
Column Sensitivity	130 photons /count@400nm 60 photons /count@600nm	130 photons /count@400nm 60 photons /count@600nm	~0.32 counts/e-
Signal-to-noise ratio	300:1( at full signal )	300:1( at full signal )	450:1( at full signal )
Integration time	4ms-10s	4ms-10s	4ms-10s
Dynamic Range	1300: 1	1300: 1	10000:1
<b>Optical Bench</b>			
Entrance aperture (μm)	10,25,50,100 or 200		
Grating	Optional gratings (from UV to NIR)		
Fiber optic connector	SMA 905 to 0.22 numerical aperture / Single-strand optical fiber		
Trigger modes	4 modes		

Model	Wavelength 	Optical resolution				
		Entrance aperture (μm)				
		10	25	50	100	200
<b>Firefly4000</b>	200-850 nm	1.01nm	1.33nm	2.07nm	3.74nm	7.48nm
	230-530nm	0.47nm	0.62nm	0.95nm	1.73nm	3.45nm
	350-1100 nm	1.01nm	1.33nm	2.07nm	3.74nm	7.48nm
<b>Auraro4000</b>	200-1100 nm	0.75nm	1.09nm	1.83nm	3.45nm	6.61nm
	350-1100 nm	0.75nm	1.09nm	1.83nm	3.45nm	6.61nm
	300-515 nm	0.15nm	0.26nm	0.44nm	0.83nm	1.58nm
	400-837 nm	0.44nm	0.53nm	0.89nm	1.68nm	3.21nm
	785-1100 nm	0.35nm	0.38nm	0.64nm	1.21nm	2.31nm
<b>Sunshine</b>	200-1100 nm	0.87nm	1.09nm	1.84nm	3.51nm	6.72nm
	350-1100 nm	0.87nm	1.09nm	1.84nm	3.51nm	6.72nm
	300-515nm	0.20nm	0.26nm	0.44nm	0.83nm	1.60nm
	400-837 nm	0.42nm	0.53nm	0.89nm	1.70nm	3.26nm
	785-1100 nm	0.30nm	0.38nm	0.64nm	1.23nm	2.35nm

## Fiber Optic Spectrometer

Changchun New Industries Optoelectronics Tech. co., Ltd launched fiber optic spectrometer. It includes Aurora4000 series, Sunshine series and Firefly4000 miniature series. The system of spectrometer consists of incident slit, collimating mirror, dispersion (grating), focusing optical system and detector. Light is collected through optical fiber into spectrometer slit, spectral information can be read by software. It fits for high-speed reaction monitoring, wide dynamic range and high signal to noise ratio. Fiber optic spectrometer features with compact structure, high resolution and high sensitivity.



Aurora4000



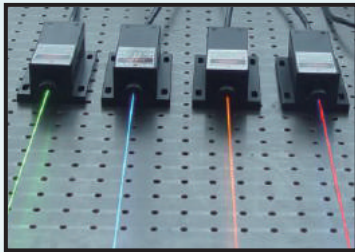
Sunshine



Firefly 4000

### Application area

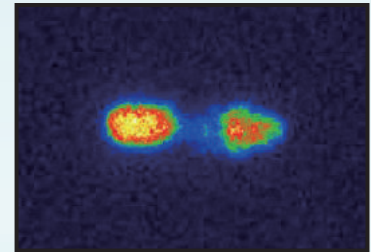
- ◆ LED analysis
- ◆ Environmental sciences
- ◆ Reflectivity/transmittance measurement
- ◆ Chemical analysis
- ◆ Food and agriculture research
- ◆ Medical diagnosis and detector



Laser spectral analysis



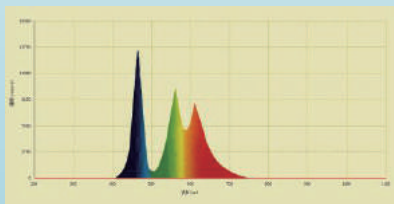
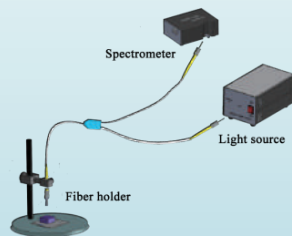
Fluorescence spectral analysis



Plasma spectral analysis

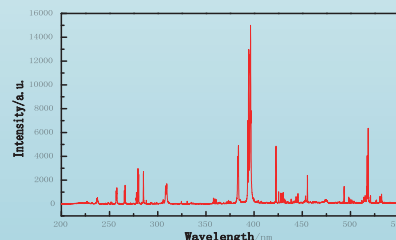
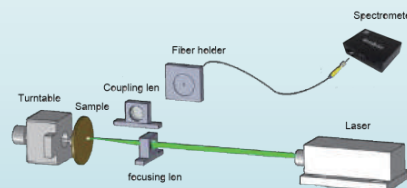
### Application Device

#### Reflectivity measurement experiment device



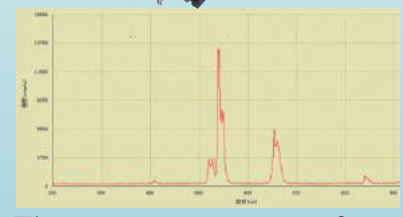
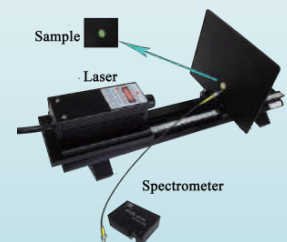
Reflection chroma test

#### LIBS experiment device



Al target LIBS spectrum

#### Fluorescence spectrum of rare earth elements experiment device



Fluorescence spectrum of rare earth elements