Spectrometer & Optical Power Meter

Spectrometer

Miniature, UV-VIS, High Resolution, OEM/ODM

Optical Power Meter

Photodetector, Thermopile detector, Wireless, Multichannel

Light Source, Fiber, Probe, Integrating Sphere, Holder, Accessories

Optical Measurement Solution

Integrating sphere, Holder, Accessories, Solution

Brolight Technology

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Hangzhou Brolight Technology

Hangzhou Brolight Technology Co., Ltd. is current leading manufacturer of micro-spectrometer and spectrum analysis solutions provider in China. With a mature, professional and responsive spectrometer development team, Brolight is able to quickly and accurately understand customer needs and provide exact solution by means of so many years of product development and integration experience. Brolight has strong global marketing and service teams. The regional offices in the mainland (7 locations), Hong Kong, Taiwan, Singapore, Malaysia and so forth, as well as the partnerships all over the world offer fast and deep worldwide service to customers.

Brolight miniature spectrometer can be configured according to specific applications by using world-class quality of the core components, including grating, detector, high-order diffraction filter, column lens and slit, etc. Optical design, electrical characteristics and software would also be tailor-made for fulfilling customer requirements. Software development Kits and technical support are available. Meanwhile, Brolight's spectrometer can be easily integrated into a variety of spectral application systems due to its compact size, supporting external trigger synchronization and circuit board spearation.

Brolight miniature spectrometer has been successfully applied in environment monitoring, light source / LED / laser measurement, material optical properties measurement, material analysis, Raman analysis, biomedical testing and other industrial testing and scientific researches.

CATALOGUE

Spectrometer

Spectrometers are important measuring instruments used in spectroscopy. With the extensive application of spectroscopy, spectrometers now are used in more and more fields such as color measurement, chemical concentration measurement and radiation analysis, etc. For more detailed information and related accessories, please refer to the application section of this catalog.

The design and manufacture of spectrometers is a technology with a long history. Since Newton's triangular prism was used to separate monochromatic light from sunlight, the design and manufacture of spectrometers had been evolved. And since the nineties of the last century, the revolution in microelectronics and small-scale technology has brought new vitality to this long-history technology. Brolight spectrometers adopt new sensors and miniaturized technology to reduce the size of the spectrometer, improve the measurement speed and enhance the stability of the instrument. The optical path of the spectrometer was also simplified by using fiber. These advances make the spectrometer gradually applied to industrial analysis and other fields rather than scientific research field.

The spectrometer is typically composed of an entrance slit, a collimator, a dispersion element (grating or prism), a focusing optical system and a detector. Brolight spectrometer uses a crossed Czerny-turner optical structure. The system is simple and compact, see figure1. The light is incident from the slit S1 and collimated through the mirror M2, and the parallel light is incident on the grating G and is incident on the mirror M1 by the grating, and is focused on the CCD. The light signals will become electrical signals. And it will be shown on the BSV software after processed by the circuit system. Then you can observe the spectral information.

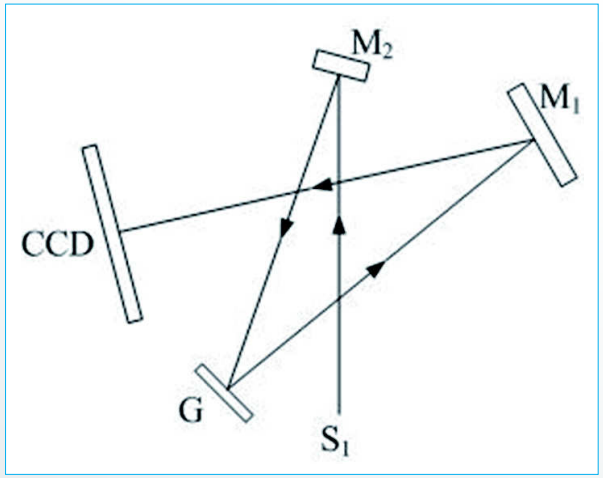


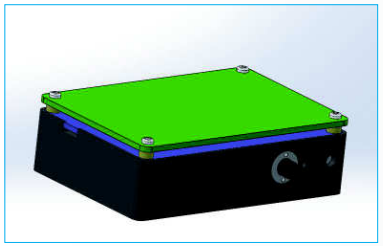
Figure 1. Optical Structure

OEM/ODM Spectrometer

The success of each project depends largely on the early planning. Brolight is a company with a mature, professional and responsive spectrometer development team. With years of product development and integration experience, we can help you accurately locate the product features, provide you good products with lower price, and find the best solution for you. After the project, we will continue to provide you with reliable after-sales guarantee and technical support, making that your system keeps advanced.

The Brolight spectrometer uses the best-in-class core components. The grating, detector, filter, column lens and slit, etc. can be configured according to the specific application.

Customized services include:



- Spectral range, optical resolution and detection sensitivity
- Photoelectric separation structure
- Optical and mechanical structure
- Circuit and communication(USB, RS232, RS485, analog serial port)
- Provide SDK and technical support to develop your own software
- Use your LOGO and information
- Customized Packages
- Application system: including light source, fiber and other accessories. We can help you find out the best solution.

If you need OEM/ODM Spectrometer, please let us know:

Application, Spectral range, Resolution, Dimension and fixing hole, Communication mode, The requirements of the software, Other requirements.

CUSTOM PROCESS

Confirm the solution
Confirm the solution according to your application and requirements.

Design and make a prototype
Make a prototype and do a series of tests to meet the requirements.

Small scale production
To solve the problem exposed in the prototype, to meet the design standards, and prepare for the mass production.

Mass production
Provide a stable performance product that can meet your requirements.

We will keep in following all the time and make sure that you are satisfied our products.

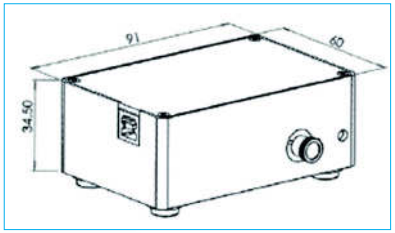
Universal Spectrometer, UV-NIR

BIM-6002 Series

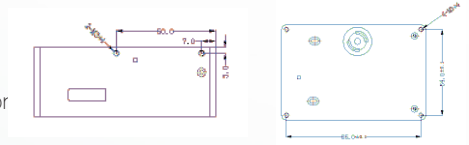
BIM-6002 series spectrometer adopts miniature optical machine platform. It is compact and portable. The resolution is up to 0.35nm-1nm. BIM-6002A series spectrometer has a great upgrade in circuit. The dynamic range is enhanced to 10000:1 and the minimum integration time is reduced to 0.5ms. Meanwhile the signal noise ratio is improved to 600:1. All improvements are more suitable for week signal spectrum measurement. The RS232/RS422 interface is supported, and enhances anti-jamming performance, which is more beneficial for industrial customers.

- Handy and compact, size is as small as a name card
- Crossed czerny-Turner optical design
- Interference filter to eliminate the secondary diffraction spectrum
- Standard SMA905 fiber connector
- Wavelength range and optical resolutions are selectable
- USB 2.0 for data transmission and power supply
- RS232/RS422 interface
- Multiple trigger mode
- Cylindrical lens is selectable
- Auto display peak wavelength and FWHM
- Fixed holes in the bottom and side are for integration

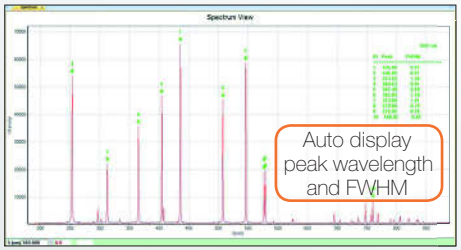
Dimension



Location of the fixing hole



Typical spectrum



Mercury Lamp Spectrum

Package

* Fiber is optional.

Specifications:

Model No.	BIM-6002	BIM-6002A
Dimensions	91mm x 60mm x 34.5mm	
Weight	0.3 Kg	
Detector spectral response	180nm-1100nm	
Optical system spectral range	700nm, 350nm, 233nm optional	
Optical resolution	0.35nm -1nm	
Fiber connector	SMA905	
Detector	2048 Linear CCD	
Pixel	2048 pixels, size 14μm × 200 μm	
Signal to noise ratio	300:1 at full signal	600:1 at full signal
Linearity	>99%	
Stray light	<0.1% (600nm, 435nm)	
AD resolution	12 bit	16 bit
Integration time	4ms -10s	0.5ms -10s
Dynamic range	5000 :1	10000 :1
Trigger mode	Software, hardware, synchronization	
Power consumption	250 mA, 5 VDC	
Operating temperature	5℃ -35℃ (25℃)	
Computer interface	USB2.0, 12Mbps	USB2.0,12Mbps RS232/RS422, 115200bps
Operating system	Win XP, Win7 , Win8, Win10	
Slit	10μm 25μm 50μm (option)	
Fixing hole	4 of M3 fixing hole in the bottom, 2 of M3 fixing hole on side	
Power supply	USB	USB or 5VDC(RS232/RS422)

Order information:

Order No.	Wavelength coverage (nm)	Resolution (nm)	Slit (μ m)	Grating (lp/mm)	A/D (bit)	cylindrical lens
BIM-6002A-11	200-1000	~1.5	25	500	16	No
BIM-6002A-01	200-900	~1	25	600	16	No
BIM-6002A-05	350-1050	~1	25	600	16	No
BIM-6002A-13	400-1100	~1	25	600	16	No
BIM-6002A-02	200-550	~0.5	25	1200	16	No
BIM-6002A-14	300-650	~0.5	25	1200	16	No
BIM-6002A-07	500-850	~0.5	25	1200	16	No
BIM-6002A-04	750-1100	~1	50	1200	16	YES
BIM-6002A-08	180-413	~0.35	25	1800	16	No
BIM-6002A-06	260-493	~0.35	25	1800	16	No

Note:

1. Above are our standard models. We can also OEM/ODM according to your requirement. More information about OEM/ODM, please turn to Page 2.
2. *The slit of our standard spectrometer is optional of 25 μ m, 10 μ m, 50 μ m
3. Each spectrometer can be added cylindrical lens(Model No: BC-113005) to detect week signal spectrum.
4. We recommend 16 bits model, if you need 12 bits model, pls contact with us to get it.

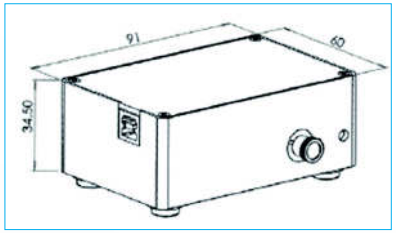
Universal Spectrometer, VIS-NIR

BIM-6001 Series

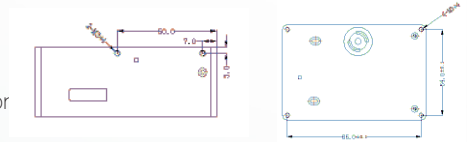
BIM-6001 series spectrometer adopts miniature optical machine platform. It is compact and portable. The resolution is up to 0.35nm-1nm. BIM-6001A series spectrometer has a great upgrade in circuit. The dynamic range is enhanced to 60000:1. All improvements are more suitable for week signal spectrum measurement. The RS232 interface is supported, and enhances anti-jamming performance, which is more beneficial for industrial customers.

- Handy and compact, size is as small as a name card
- Crossed czerny-Turner optical design
- Interference filter to eliminate the secondary diffraction spectrum
- Standard SMA905 fiber connector
- Wavelength range and optical resolutions are selectable
- USB 2.0 for data transmission and power supply
- RS232 interface
- Multiple trigger mode
- Cylindrical lens is selectable
- Auto display peak wavelength and FWHM
- Fixed holes in the bottom and side are for integration

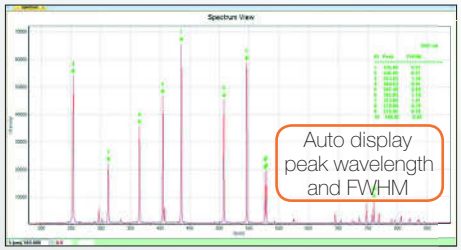
Dimension



Location of the fixing hole



Typical spectrum



Mercury Lamp Spectrum

Package

* Fiber is optional.

Specifications:

Model No.	BIM-6001	BIM-6001A
Dimensions	91mm x 60mm x 34.5mm	
Weight	0.3Kg	
Detector spectral response	300nm-1100nm	
Optical system spectral range	700nm 350nm 233nm	
Optical resolution	0.35nm-1nm	
Fiber connector	SMA905	
Detector	TOSHIBA TCD1304 Linear CCD	
Pixel	3648 pixels, size 8 μm × 200 μm	
Signal to noise ratio	300:1 at full signal	
Linearity	>99% (<90% Saturation)	
Stray light	<0.1% at 600 nm, <0.1% at 435 nm	
AD resolution	12bit	16bit
Integration time	4ms-10s	
Dynamic range	Single collection: 300:1	Single collection: 900:1, System: 60000:1
Trigger mode	Software, hardware, synchronization	
Power consumption	250 mA, 5 VDC	
Operating temperature	5℃ -35℃ (25℃)	
Computer interface	USB2.0(12Mbps), RS232(115200bps)	
Operating system	Win XP, Win7 , Win8, Win10	
Slit	10μm 25μm 50μm optional	
Fixing hole	4 of M3 fixing hole in the bottom, 2 of M3 fixing hole on side	
Power supply	USB	

Order information:

Order No.	Wavelength coverage (nm)	Resolution (nm)	Slit (μ m)	Grating (lp/mm)	A/D (bit)	cylindrical lens
BIM-6001A-07	300-1000	~1	25	600	16	NO
BIM-6001A-06	350-1050	~1	25	600	16	NO
BIM-6001A-02	400-1100	~1	25	600	16	NO
BIM-6001A-03	350-700	~0.5	25	1200	16	NO
BIM-6001A-05	750-1100	~0.5	25	1200	16	NO
BIM-6001A-04	350-588	~0.35	25	1800	16	NO

Note:

1. Above are our standard models. We can also OEM/ODM according to your requirement. More information about OEM/ODM, please turn to Page 2.
2. *The slit of our standard spectrometer is optional of 25 μ m, 10 μ m, 50 μ m
3. Each spectrometer can be added cylindrical lens(Model No: BC-113005) to detect week signal spectrum.
4. We recommend 16 bits model, if you need 12 bits model, pls contact with us to get it.

High Resolution Spectrometer

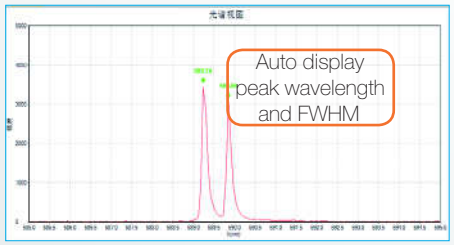
BIM-66 Series

BIM-66 Series

- Crossed Czerny-turner optical design
- Interference filter to eliminate the secondary diffraction spectrum
- Standard SMA905 fiber connector
- Wavelength range and optical resolutions are selectable
- USB 2.0 for data transmission and power supply.
- Support RS232/RS422
- Support multiple-trigger model
- Cylindrical lens is selectable
- Auto display peek wavelength and FWHM

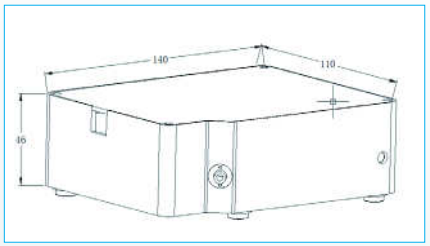
BIM-66 series spectrometer adopts high resolution optical-mechanical structure. It is compact and portable. The resolution is up to 0.05nm. Customers can choose different gratings to acquire different resolution and wavelength range. In order to meet different needs, we provide two different detectors with 300nm-1100nm and 200nm-1050nm for option. The BIM-6602A series spectrometer has a great upgrade in circuit. The dynamic range is enhanced to 10000:1 and the minimum integration time is reduced to 0.5ms. Meanwhile the signal noise ratio is improved to 600:1. All improvements are more suitable for weak-signal measurement. The RS232 interface is supported and enhances anti-jamming performance which is more beneficial for industrial use.

Typical spectrum



Sodium lamp spectrum

Dimension



Specifications:

Model	BIM-6601	BIM-6602	BIM-6602A
Dimension	140mm x 110mm x4 6mm		
Weight	0.7Kg		
Detector spectral response	300nm -1100nm	180nm -1100nm	
Optical system spectral range	Depend on gratings		
Optical resolution	0.05nm-0.3nm		
Fiber optic connector	SMA905		
Detector	TOSHIBA TCD1304 Linear CCD	2048 Linear CCD	
Pixel	3648 pixels, size 8 μm x 200 μm	2048 pixels, Size 14 μm x 200 μm	
Signal to noise ratio	300:1 at full signal	300:1 at full signal	600:1 at full signal
Linearity	>99%		
Stray light	<0.1% (600nm, 435nm)		
A/D resolution	12bits		16bit
Integration time	4ms-10s		0.5ms-10s
Dynamic range	300:1	5000:1	10000:1
Trigger mode	Software, hardware, synchronization		
Power consumption	250 mA, 5 VDC		
Operating temperature	5℃ -35℃ (25℃)		
Computer interface	USB2.0, 12Mbps		USB2.0,12Mbps RS232/RS422, 115200bps
Operating system	Win XP, Win7 , Win8, Win10		
Slit	10,25,50μm optional		
Power supply mode	USB		USB or 5VDC(RS232/ RS422)

Order information:

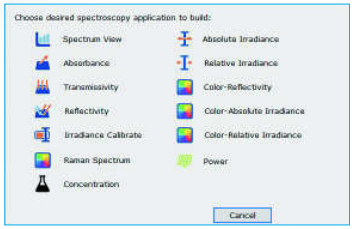
Order No.	Wavelength coverage (nm)	Resolution (nm)	Slit (μ m)*	Grating (lp/mm)	A/D (bit)	cylindrical lens
BIM-6602A-02	200-1000	~0.6	10	300	16	No
BIM-6602A-03	380-900	~0.4	10	500	16	No
BIM-6602A-01	200-420	~0.3	10	1200	16	No
BIM-6601-01	400-620	~0.3	10	1200	16	No
BIM-6601-05	900-1050	~0.2	10	1800	12	No
BIM-6601-06	355-495	~0.1	10	1800	12	No
BIM-6601-07	510-650	~0.1	10	1800	12	No
BIM-6601-04	750-870	~0.1	10	1800	12	No
BIM-6601-02	890-990	~0.1	10	1800	12	No
BIM-6601-03	1005-1080	~0.1	10	1800	12	No

Note:

1. Above are our standard items. We can also OEM/ODM for you according to your requirement. More information about OEM/ODM, please turn to Page 2.
2. Cylindrical lens is optional(Model No.:BC113005).

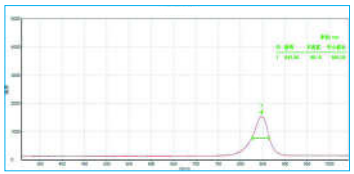
BSV Spectrometer Software

BSV software is an application program developed by Brolight for controlling Brolight spectrometer. It supports Win XP, Win 7, Win 8 and Win10 operating systems, including spectral display, absorbance measurement, transmittance measurement, reflectance measurement, absolute (relative) intensity calibration, color measurement, Raman spectroscopy, Spectral energy measurement, concentration measurement and other functions. This is being kept upgrading and improvement annually in order to fulfill the requirements of different spectral applications and data analysis.



1. Spectrum View

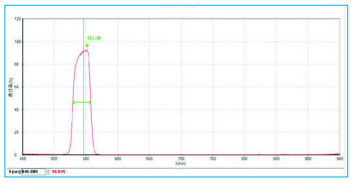
Real-time display spectral information. Peak wavelength, FWHM (full-width-half-maximum), center wavelength would real-time display as they are selected in 'display options'.



2. Transmittance measurement

Quick measurement on the transmittance of solid, liquid and gas samples and real-time display full-band transmittance. The transmittance value can be read out with its wavelength.

By clicking the option 'peak wavelength', it will real-time display the peak wavelength of the maximum transmittance value.

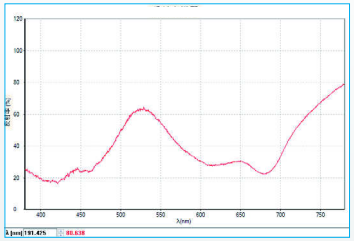


3. Absorbance measurement

Absorbance measurement is mainly applied on liquid and gas composition and concentration analysis. The absorbance value would be measured according to the real-time changes in samples. This is widely used in quick detection.

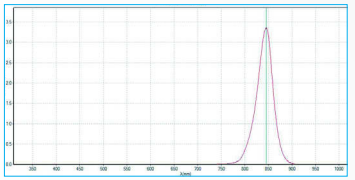
4. Reflectivity measurement

Quick measurement on the reflectivity of solid, powder and viscous liquid samples, real-time display full-band reflectivity, able to read out the corresponding reflectance of each wavelength.



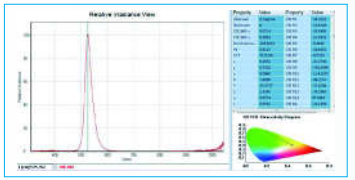
5. Intensity measurement

Intensity measurement includes absolute intensity measurement and relative Intensity measurement. Before obtaining absolute intensity measurement, the intensity calibration should be completed, and the calibration files would be well established.



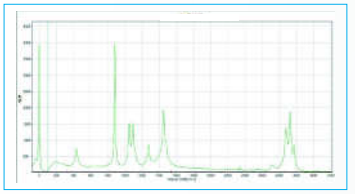
6. Color measurement

Color measurement can be used in application of reflection, absolute intensityand relative intensity measurement. The color coordinates, color temperature, color rendering index and other indicators would be shown and displayed in the chromaticity diagram.



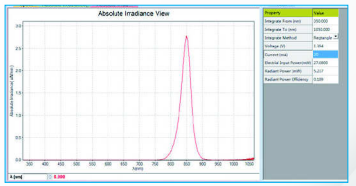
7. Raman spectroscopy

Quick analysis on Raman spectrum, set the wavelength of the incident light, and measure the Raman frequency shift.



8. Energy measurement

The energy measurement is to measure the optical power and optical power efficiency of the light. The software can set the starting and stopping wavelengths of the interval, and provide three integral methods, rectangular, trapezoidal and Simpson. The energy calibration should be completed before the energy measurement.



9. Concentration measurement

Concentration measurement is an extension of the absorbance measurement. Various well-known concentrations of absorbance data can be saved or imported to the operations for facilitating the measurement of unknown concentrations. Meanwhile, it can real-time show the concentration value changes.