Grating Spectrograph

SGM100

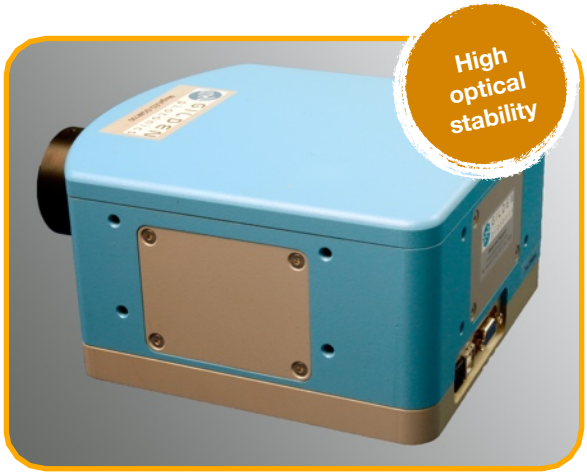
Equipped With Different Accessories For A Variety Of

SGM100 grating spectrograph adopts cross level light path. The compound light from the entrance slit becomes the parallel beams after the collimating mirror reflection. Then the parallel beams illuminate the plane diffraction grating. The grating dispersion light is focused on the linear array CCD by the focus mirror, and at the same time forming the focus plane on the CCD. Built-in stray light absorption well, the stray light can be suppressed effectively.

SGM100 grating spectrograph is finished by a block aluminum, which effectively prevents the temperature deformation, or spectral shift caused by vibration.Electromagnetic interference (EMI) of SGM100 has been optimized, which can effectively prevent outside interference for the measurement accuracy.

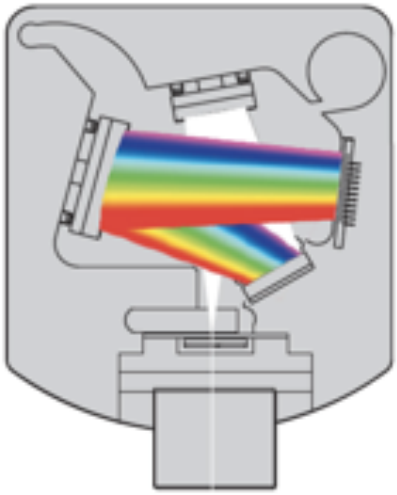
SGM100 grating spectrograph can change different gratings and slit width according to the spectral range and resolution to meet your needs. When purchasing it, please take time to select the appropriate configuration depending on the application, please refer to grating parameters table.

By using the measurement beam straight into the SGM100 grating spectrograph, the unit avoids light loss caused by using the spectroscope or optical fiber. And the light loss can result in longer CCD integration time, which leads to the overall measurement speed being reduced.



SGM100 grating spectrograph uses large capacity memory chips used to store various parameters used to calculate chroma , such as correction index and so on. High performance CPU, calculating of various parameters in short time.

USB power supply and external power supply (power adapter). In the power section, the Buck – Boost chip is used to avoid the USB power supply output voltage becoming unstable which can not meet the normal work of CCD, amplifier and A/D chips, etc. With the buck-boost chip in the power section, the system power supply is stable and the signal output level is stable too.

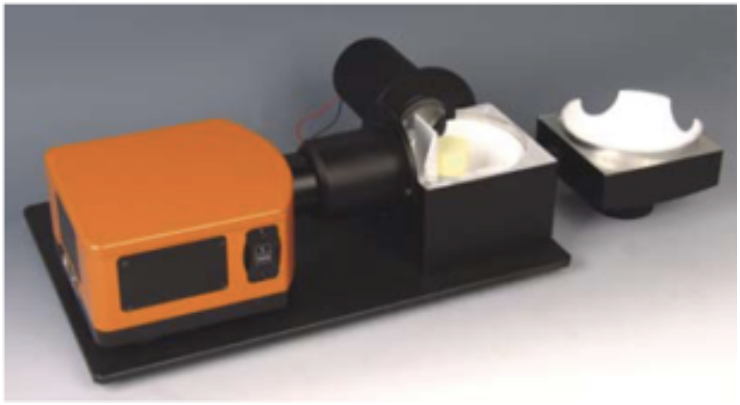


Features

- Adopts cross level light path. Built-in stray light absorption well, the stray light can be suppressed effectively.
- Finished by a block aluminum, effectively prevents the temperature deformation, or spectral shift caused by vibration.
- Built-in neutral density filter (replaceable), expanding measurement range.
- EMI has been optimized, effectively preventing outside interference.
- 3648 pixels linear array CCD, Hyper-spectral resolution.
- High performance CPU, calculates various parameters quickly.

SGM 100 Key Specifications

SGM 100 SPECTROGRAPH SPECIFICATIONS		
PARAMETER	VALUE	UNIT
Focal Length	f / 3	mm
Optical Design	Cross level light path	-
Spectral Range	200 - 1100	-
Sensitivity	20000	count / μW / ms
Resolution	0.05 - 18.8 (depends on gratings)	nm
Stray Light	< 0.1 %	-
Detector	Liner array CCD, 3648 pixels	-
Signal - to - Noise	300 : 1	-
AD Converter	16	bits
Integration Time	7 - 65535	ms
Interface	USB 2.0, 8Mbps	-
I / O	DB - 15, 4 - input, 4 - output	-
Power Supply	USB DC 5V	V



SGM 100 Application

SGM100 spectrograph is widely used in many fields, such as research and teaching, color measurement, environmental monitoring, field measurements of forest and agriculture, food detection, LED optical properties measurements

Grating Spectrograph

SGM100

SGM 100 GRATING SELECTION TABLE					
USE	USEABLE (NM)	SPECTRAL RANGE (NM)	LINES / MM	BLAZE WAVELENGTH (NM)	ORDER NO.
UV	200 – 500	133	1800	250	6-180-H
UV	200 – 500	100	2400	250	6-240-H
UV	250 – 600	400	600	300	6-060-300
UV	250 – 600	200	1200	300	6-120-300
VIS / NIR	300 – 1100	800	300	500	6-030-500
VIS	360 – 1000	400	600	500	6-060-500
VIS	300 – 800	200 – 500	1200	500	6-120-500
VIS	300 – 700	133	1800	500	6-180-500
NIR	500 – 1100	800	300	750	6-030-750
NIR	500 – 1100	400	600	750	6-060-750
NIR	500 – 1100	200 – 500	1200	750	6-120-750
NIR	600 – 1100	800	300	1000	6-030-1000
NIR	600 – 1100	400	600	1000	6-060-1000
NIR	600 – 1100	200	1200	1000	6-120-1000

Depends on the grating starting wavelength, the longer the wavelength, the greater the dispersion, the narrower the spectral range covered.
Note: In the available wavelength range, not all 3648 pixels will be used

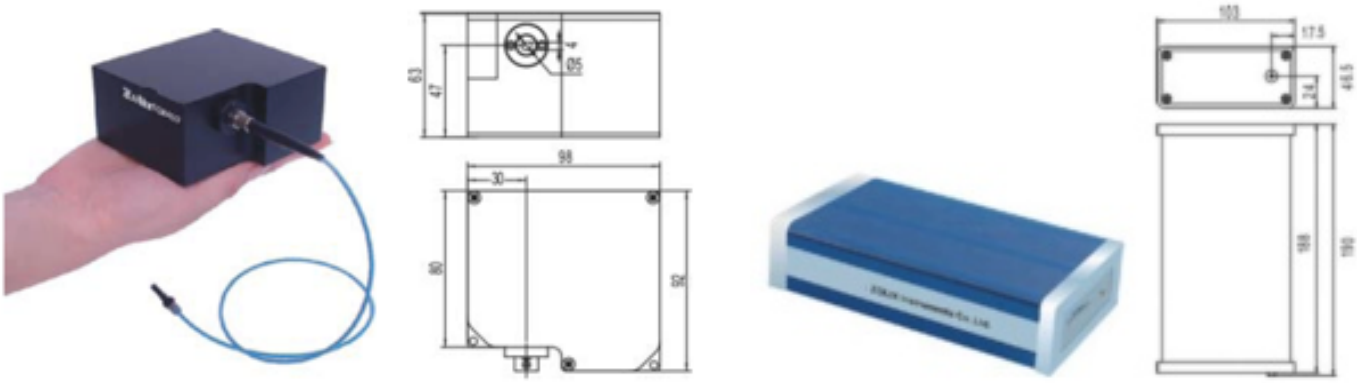
SGM 100 RESOLUTION TABLE (FWHM) UNIT: NM						
	SLIT SIZE (μm)					
GRATING (G/ MM)	10	25	50	100	200	500
300	0.144	0.252	0.504	1.008	2.016	5.040
600	0.072	0.126	0.252	0.504	1.008	2.520
1200	0.036	0.063	0.126	0.252	0.504	1.260
1800	0.024	0.042	0.084	0.168	0.336	0.840
2400	0.018	0.032	0.063	0.126	0.252	0.630
3600	0.012	0.021	0.042	0.084	0.168	0.420

Depends on the grating starting wavelength, the longer the wavelength, the greater the dispersion, the narrower the spectral range covered.

SGM series of other products.

Gilden Photonics provides spectrograph optical mechanical structure. It is convenient for the customer to choose flexibility, install CCD, PDA and other array detectors, the main models and specifications are as follows:

SGM 60-M



SGM 100 SERIES OF OTHER PRODUCTS				
SPECIFICATION	SGM 60-M	SGM 75-M	SGM 200-M	UNIT
Focal Length	60	75	200	mm
Relative Aperture	f / 3	f / 6.6	f / 4	-
Optical Configuration	Ebert	C - T	C - T	-
Spectral Range	380 - 780 (@600 g/mm grating)	260 - 810 (@ 300 g/mm grating)	380 - 760 (@300 g/mm grating)	nm
Resolution	3 (@ 600g/mm grating)	2.1 (@ 300 g/mm grating)	1.2 (@ 300 g/mm grating)	nm / mm
Reciprocal Dispersion	27(@ 600g/mm grating)	16 (@ 300 g/mm grating)	16 (@ 300 g/mm grating)	mm
Focal Plane Size (W × H)	15 × 10	24 × 10	24 × 10	-
Slit	Width: 100 μm Heigh: 1 mm	Width: 100 μm Height: 1 mm	Width: 10 μm - 3 mm (can be adjusted continually) Heigh: 10 mm	-
Grating Turret	Single, fixed			-
Light Entrance	SMA 905 fiber interface		Slit	-