

SPECTRAL ANALYSIS / DATA SHEET

SM-1001B

Mini Spectrometer

Compact flat-field spectrometer for portable spectral measurement and industrial integration.

Overview

- Flat-field concave grating design integrates optical and mechanical structure in a coin-sized package.
- The standard SM-1001B can be used directly and integrated into portable instruments.
- The SM-1001B-NC version omits the main control circuit for customer-developed electronics around the detector.



200–750 nm	~6 nm	256	USB 2.0
WAVELENGTH RANGE	OPTICAL RESOLUTION	DETECTOR PIXELS	COMMUNICATION

Key Advantages

- Matchbox-sized, extremely portable and easy to integrate.
- USB power supply and communication simplify use in portable equipment.
- Multiple triggering methods support flexible acquisition workflows.
- SDK is provided for secondary development.
- Two versions are available: with or without the main control circuit.

Application Scenarios

- Probe-type water quality measurement instrument integration.
- Handheld lighting instrument integration.
- Handheld material testing instrument integration.
- Handheld component testing instrument integration.
- Portable spectral measurement.

OUTPUT & COMMUNICATION

Output and System Integration

The standard SM-1001B supports USB power and communication, with USB 2.0 and RS232 interfaces. Triggering can be performed in normal mode or through software, hardware or synchronous trigger methods.

Interface / function	Source-supported specification
USB	USB 2.0 communication at 12 Mbps; USB power supply method
RS232	115200 bps serial communication
Triggering	Normal mode, software trigger, hardware trigger and synchronous trigger
Development	SDK provided for secondary development

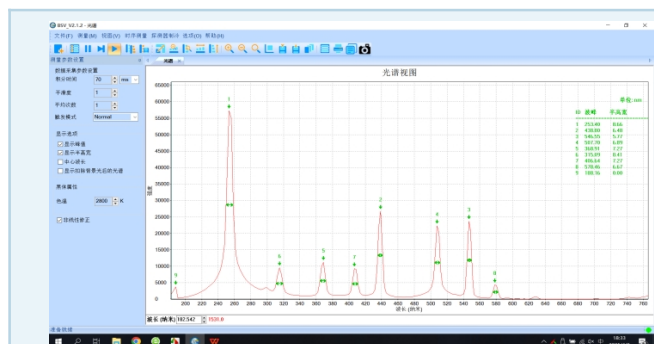
MEASUREMENT PRINCIPLE

Flat-Field Concave Grating

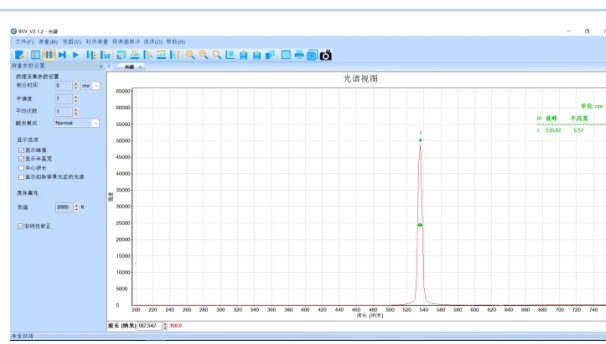
The SM-1001B series adopts a flat-field concave grating design for optical and mechanical integration. The compact assembly uses a Hamamatsu S8378-256 CMOS detector and a Samas05 fiber connector; the standard version includes the main control circuit, while the NC version is supplied without that board for customer-developed control electronics.

Typical test data

Representative mercury-lamp and 532 nm laser spectra are reproduced from the supplied source document.



Mercury lamp spectrum



532 nm laser spectrum

SYSTEM DATA

Technical Specifications

Specifications below are transcribed from the supplied SM-1001B English source document. Values listed as dependent on the customer's main control board apply to the SM-1001B-NC version.

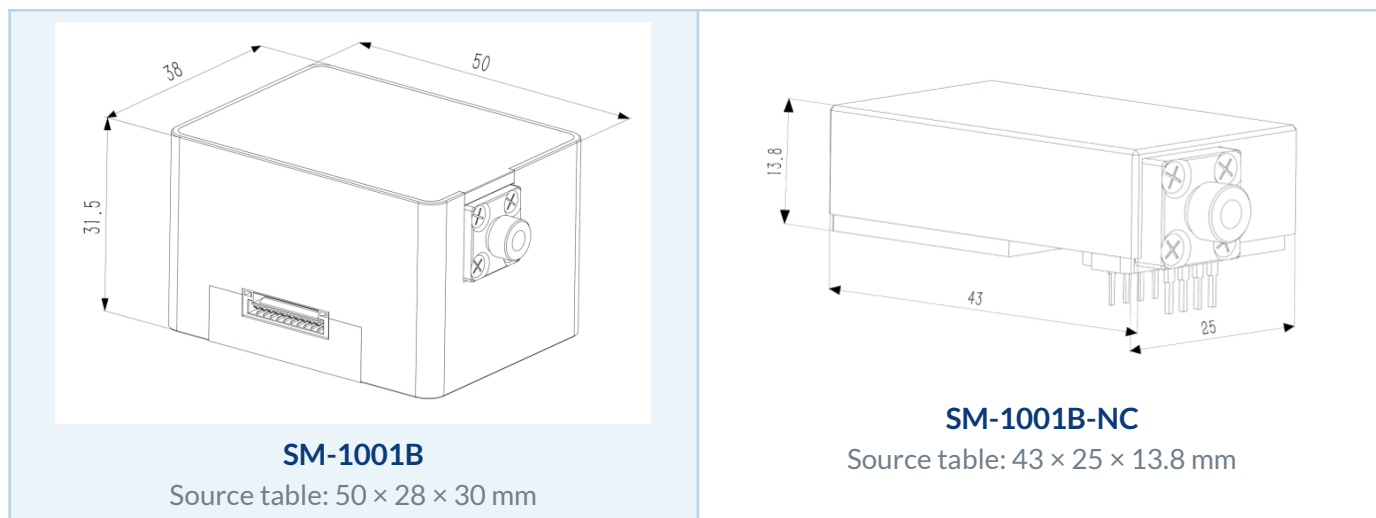
Item	SM-1001B	SM-1001B-NC
Wavelength range	200–750 nm	200–750 nm
Optical resolution	~6 nm	~6 nm
Slit size	25 μ m	25 μ m
Fiber connector	Samas05	Samas05
Detector	Hamamatsu S8378-256, CMOS	Hamamatsu S8378-256, CMOS
Detector pixels	256 pixels	256 pixels
Signal-to-noise ratio	400:1	Depends on the customer's main control board
A/D resolution	16 bit	Depends on the customer's main control board
Integration time (points time)	5 ms–60 s	Depends on the customer's main control board
Dynamic range	1000:1	Depends on the customer's main control board
Trigger method	Normal mode; software, hardware and synchronous trigger	Depends on the customer's main control board

Item	SM-1001B	SM-1001B-NC
Power consumption	250 mA at 5 V DC	Depends on the customer's main control board
Ambient temperature	5–35°C (recommended temperature 25°C)	Depends on the customer's main control board
Communication interface	USB 2.0 (12 Mbps); RS232 (115200 bps)	Depends on the customer's main control board
Operating system	Win XP, Win 7, Win 8, Win 10	Depends on the customer's main control board
Power supply method	USB	Depends on the customer's main control board
Dimensions	50 × 28 × 30 mm	43 × 25 × 13.8 mm
Weight	100 g	30 g

MECHANICAL DATA

Mechanical Dimensions

The supplied dimension drawings are reproduced for mechanical reference. The source table lists 50 × 28 × 30 mm for SM-1001B and 43 × 25 × 13.8 mm for SM-1001B-NC; the dimension drawing annotations are retained as shown in the source.



Configuration List

No.	Component	Qty.
1	Spectrometer	1
2	USB data cable	1
3	Calibration report, including software and user-manual download QR code	1

The supplied configuration list includes the spectrometer, USB data cable and calibration report with software and user-manual download QR code.

Product Details

Convenient Integration
Top-mounted interface for easy system integration.

Metal Optical Interface
High-precision metal optical interface for stable and reliable performance.

Compact Housing
Rugged and compact design for flexible installation in various applications.



SM-1001B Mini Spectrometer

Integration Summary

- Portable, matchbox-sized spectrometer for spectral measurement.
- Standard model provides USB 2.0 / RS232 communication and USB power.
- NC model is supplied without the main control circuit for customer integration.
- Calibration report, software and user-manual download information are included.

ORDERING INFORMATION

Product Selection

Model	Description
SM-1001B	Standard version with main control circuit; can be used directly and integrated.
SM-1001B-NC	Version without the main control circuit; supports customer development based on the detector.

The SM-1001B-NC configuration requires the customer's main control board; interface, power and operating characteristics therefore depend on that board.

CONTACT / SUPPORT

SpeSense Technologies Inc.

Add: No. 9 Yuhe Road, Guitang Subdistrict, Yuhua District, Changsha City

Tel: +86-15386478166

Email: info@spesense.com

Web: www.spesense.com



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