

SPECTRAL ANALYSIS / DATA SHEET

SM-5001B

Near-Infrared Spectrometer

Compact near-infrared spectrometer with an uncooled InGaAs detector, replaceable slit and selectable configuration for material and process analysis.

Overview

- 128-pixel uncooled InGaAs detector with extremely low power consumption.
- Compact optical path and structural design for easy system integration.
- Replaceable slit design supports different resolutions and sensitivities.
- 950-1700 nm spectral measurement range with stable intensity.



950-1700 nm SPECTRAL RANGE	~10 nm PRE-CONFIGURED RESOLUTION	128 px UNCOOLED InGaAs	USB / RS232 COMMUNICATION
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Key Advantages

- Low-power uncooled InGaAs detector architecture.
- 128-pixel and 256-pixel detector versions are identified in the source features.
- Interchangeable slit design for flexible resolution and sensitivity selection.
- Supports secondary development and OEM integration.
- Software supports automatic calculation of peak wavelength and bandwidth.

Application Scenarios

- Freshness and sugar-content testing for fruits and vegetables.
- Fat and protein content analysis for meat.
- Quality analysis of grains and seeds.
- Composition analysis of oil-bearing materials.
- Life science and pharmaceutical composition analysis.
- Process monitoring, plastic manufacturing and material quality control.

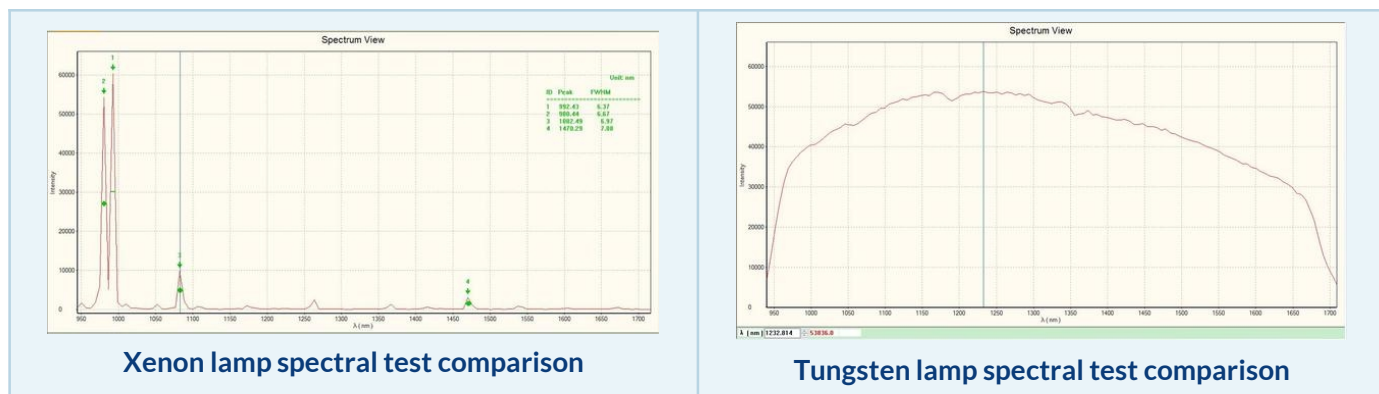
MEASUREMENT PRINCIPLE

Near-Infrared Measurement with Replaceable Slit

The SM-5001B uses a compact optical path and an uncooled InGaAs detector to measure near-infrared signals across 950-1700 nm. Its replaceable slit design allows configuration with different slit widths for different resolutions and sensitivities. The optical signal is coupled through an SMA905 fiber connector and digitized through the USB 2.0 or RS232 interface.

TYPICAL TEST DATA

Spectral Test Comparisons



SYSTEM DATA

Technical Specifications

Specifications are compiled from the supplied SM-5001B source document. The source specification table lists 165 × 110 × 38 mm; the drawing contains additional dimensional references.

Item	Specification
Model number	SM-5001B
Detector	InGaAs 128-pixel uncooled detector
Pixel size	50 μm × 250 μm
Wavelength range	950-1700 nm
Optical resolution	~10 nm (pre-configured)
A/D resolution	16 bit
Integration time	0.1 ms-65 s
Trigger modes	Normal mode, software trigger, hardware trigger and synchronous trigger
Power consumption	5 V DC, 300 mA
Fiber connector	SMA905
Operating temperature	5-35°C (25°C recommended)
Communication interface	USB 2.0; RS232
Operating system	Win XP, Win 7, Win 8, Win 10
Power supply	USB or 5 V DC
Dimension	165 × 110 × 38 mm

OUTPUT & COMMUNICATION

Output and System Integration

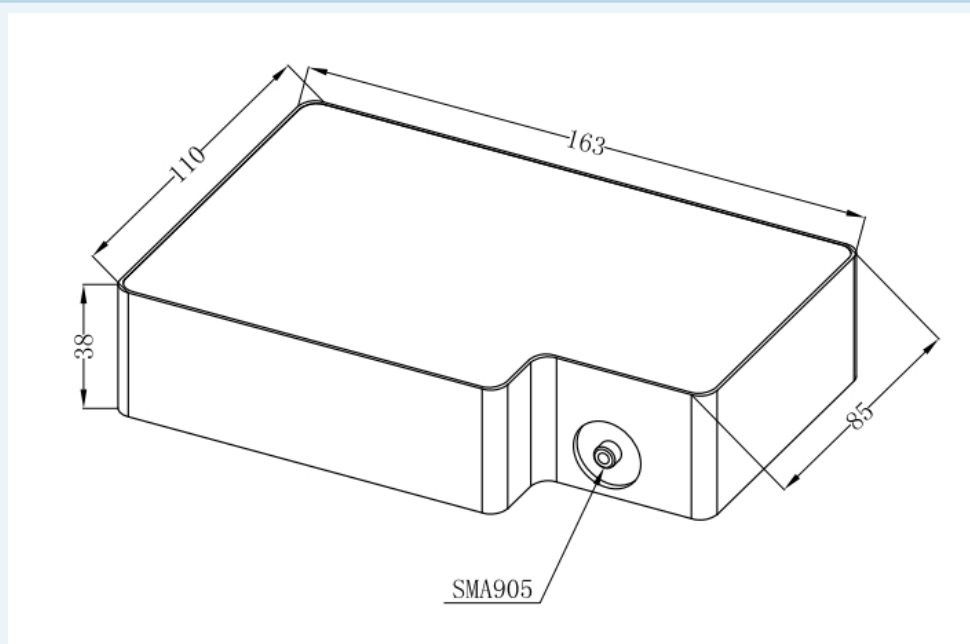
USB 2.0 and RS232 support data communication and system integration. The source also identifies USB or 5 V DC power and normal, software, hardware and synchronous trigger modes.

Interface / function	Source-supported specification
USB 2.0	Data communication and USB power option
RS232	Serial communication interface
Power input	USB or 5 V DC
Triggering	Normal mode, software trigger, hardware trigger and synchronous trigger
Software	Automatic calculation of peak wavelength and bandwidth
Integration	Supports secondary development and OEM integration

MECHANICAL DATA

Mechanical Dimensions & Mounting

The supplied outline drawing is reproduced for mechanical reference. The specification-table envelope is 165 × 110 × 38 mm; the drawing also shows 163 mm and 85 mm reference dimensions.



Outline dimensions

The specification table lists 165 × 110 × 38 mm; the supplied drawing also shows 163 mm and 85 mm reference dimensions.

Configuration List

No.	Component	Qty.
1	Spectrometer	1
2	USB data cable	1
3	Carrying case	1
4	Calibration report, software and user manual access	1

Optional Accessories

- High-power tungsten light source.
- Through-type quartz double-cladding fiber, 400-2200 nm.
- Spectrum analysis software.

ORDERING INFORMATION

Product Selection

The following full model code is transcribed from the supplied source document and uses the SpeSense SM-5001B family name.

Model code	Wavelength range	Resolution
SM-5001B-01-S03L00F00G32	950-1700 nm	~10 nm

CONTACT / SUPPORT

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