Product Specification: SilverBullet Spectrometer

Description

The SilverBullet (SB) Series spectrometer features a compact concave mirror optical design with a high-speed 1024-pixel CMOS sensor. Powered via USB and available with either 8-bit or 32-bit microcontrollers, it offers fast readout, low power consumption, and accurate triggering. The SB Series includes external I/O connectivity and is compatible with OtO's SpectraSmart software and SDK.

Models and Wavelength Ranges

- SB2134: 200–850 nm
- SB3134/SB3130: 200–850 nm
- SB4134/SB4130: 300–1100 nm
- FUVA: 180–850 nm
- DUV2B: 200–850 nm
- VNIR7B: 300–1100 nm

Main Features

- High speed 1024-pixel CMOS sensor
- Customizable modular components (grating, slit)
- Integration time: 6µs–65sec
- 16-bit, 15MHz A/D converter
- Micro USB, 8-pin external I/O port (6 digital I/O)
- Plug-n-play software, SDK available
- Flash ROM storage (wavelength, linearity, intensity calibration)
- Integration clock rate details:
    - 6 µs–65 s (10 MHz)
    - 21 µs–65 s (5 MHz)

- Trigger modes: single, software, multiple capture.
- GPIO functionality**:** six configurable 3.3 V pins for OEM applications.

Technical Details

- Optical resolution: 3 to 15 nm depending on slit/grating
- SNR: 350
- Dynamic range: 5200
- Dark noise: 12.5 (average)
- Optical design: Concave mirror Czerny–Turner, 2nd & 3rd harmonics removed
- Integration time: 6 µs–65 sec (10 MHz) / 21 µs–65 sec (5 MHz)
- Operating temperature: 0°C to +50°C; Storage: –30°C to +70°C
- Humidity: 0% – 90% non-condensing
- Data transfer: USB 2.0 (480 Mbit/s)
- External I/O: 8-pin rear port (6 GPIO, 1 trigger, 1 lamp control)
- Power: USB, 500 mA @ +5 VDC; Voltage: 4.75–5.25 V
- Fiber optic interface: SMA905

Dimensions

- SB2134/SB3134/4134: 40 (L) x 36.3 (W) x 25.1 (H) mm
- SB2130/SB3130/4130: 49 (L) x 48 (W) x 28.5 (H) mm

Power Requirements

- Power via USB: 500mA at +5 VDC
- Voltage range: 4.75–5.25V

Specifications

Model	Wavelength Range (nm)	Sensor Type	SNR (Single acquisition)	Dynamic Range	A/D	Stray Light (%)	Thermal Stability (nm/°C)
SB2134	200-850	1024-pixel CMOS	350	5200	16 bits	NA	<0.04

SB3134/SB3130	200–850	1024-pixel CMOS	350	5200	16 bits	NA	<0.04
SB4134/SB4130	300–1100	1024-pixel CMOS	350	5200	16 bits	0.2%	<0.04
FUVA	180–850	1024-pixel CMOS	350	5200	16 bits	NA	<0.04
DUV2B	200–850	1024-pixel CMOS	350	5200	16 bits	NA	<0.04
VNIR7B	300–1100 n	1024-pixel CMOS	350	5200	16 bits	NA	<0.04