VENUSLAB
OPTOELECTRONICS

Precision
Meets
Simplicity

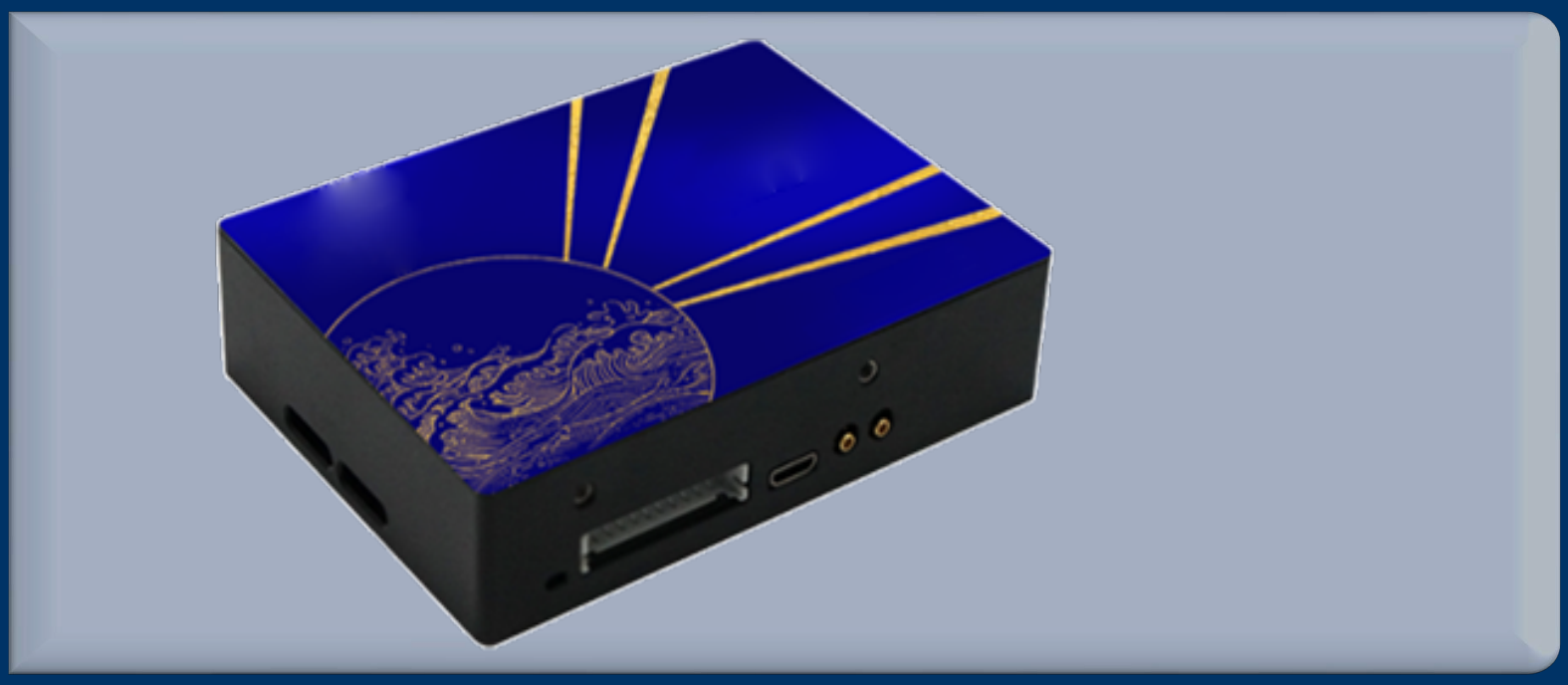
Fiber Spectrometers

SharpGrip Spectrometer

Industrial-grade micro-spectrometer

- High resolution
- Strong weak signal detection capability
- Diverse triggering modes
- Great potential for customization

Applications: Portable field analysis, on-site anti-counterfeit inspection, and rapid gem identification.



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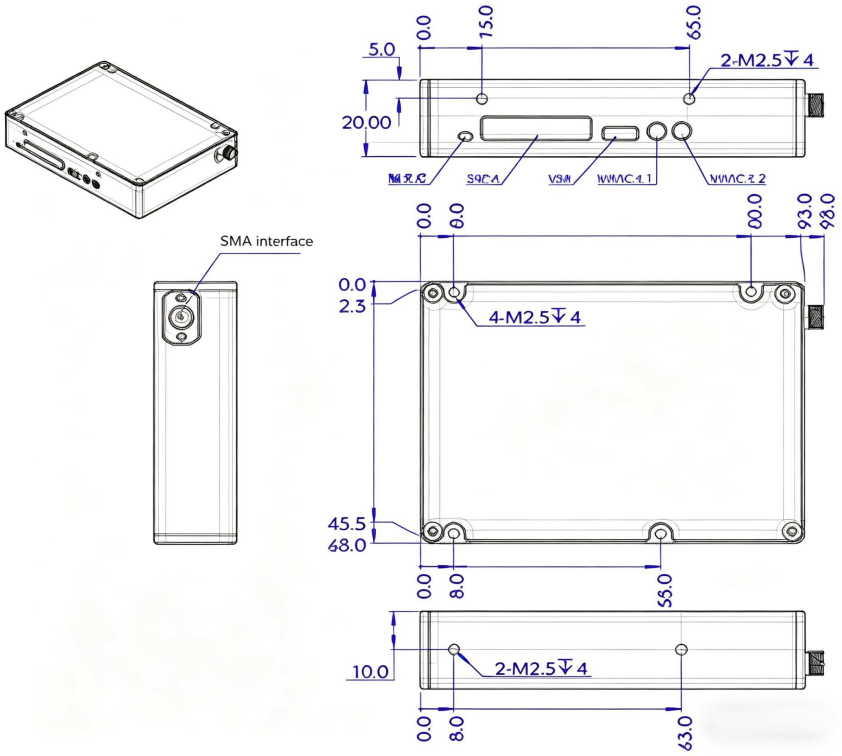
SharpGrip Spectrometer

Overview

Introduction to the SharpGrip Spectrometer:

It adopts a compact and portable design, with an outer shell size of only 93×68×22mm and a weight of 175g, making it convenient to integrate into handheld devices. In terms of performance, it utilizes a high-resolution optical design, with stray light as low as ≤0.1% and the best resolution up to 0.07nm. It also has an analog adjustable gain function (maximum 11X), supports multiple trigger modes, and can collect spectra as fast as 40ns with asynchronous reset triggering. The number of pixel channels is 2048 pixels, which can meet diverse detection needs.
In terms of applications, the SharpGrip Spectrometer can be used for material analysis, quickly detecting the elemental composition of materials such as alloys and ores; in environmental monitoring, it can detect heavy metal elements in soil and water; in industrial production, it performs elemental analysis on raw materials and finished products on the production line to control quality; in the field of cultural relics protection and archaeology, it non-destructively identifies the material and age of cultural relics; in food safety testing, it analyzes the content of harmful metals and nutrient elements in food and packaging materials.

Dimension drawing



Specifications

Product specifications

Parameter	Value
Product Model	**SharpGrip Spectrometer**
Optical Parameters	
Optical platform	Czerny-Turner optical path
Waveband range	190-1100nm
Optical interface	Key-SMA905
Pixel channels	2048 pixels
External trigger delay accuracy	10 ns
Stray light	≤0.1%
Wavelength temperature drift	≤0.1pixel/°C
Fibre Optic Plugging Consistency	≤ 7%

Functional Parameters	
AD Sampling	16 bit
Data interface	USB 2.0、RS232
Extended Function Interface	24 PIN
Acquisition Mode	Single, Continuous, Software Trigger, Synchronous External Trigger, Asynchronous Reset External Trigger
Detector integration time	60 μs-65s
CCD read-out noise	≤ 30
CCD dynamic range	3000: 1
Signal-to-noise ratio	380: 1
Response linearity	≥99.8%
Weights	175 g
Operating temperature	0-40°C
Operating humidity	20-85%

Purchasing Guide

Specification (Model)	Starting Wavelength (nm)	Cut off Wavelength (nm)	Spectral Resolution (nm) *(at 10 μm slit)*
VLSG-190-270	190	270	0.10
VLSG-260-385	260	385	0.12
VLSG-380-545	380	545	0.15
VLSG-540-795	540	795	0.25
VLSG-190-270	190	270	0.10
VLSG-320-440	320	440	0.12
VLSG-430-535	430	535	0.13
VLSG-520-600	520	600	0.15
VLSG-590-725	590	725	0.17
VLSG-715-820	715	820	0.17
VLSG-810-1030	810	1030	0.25

Interface Definition

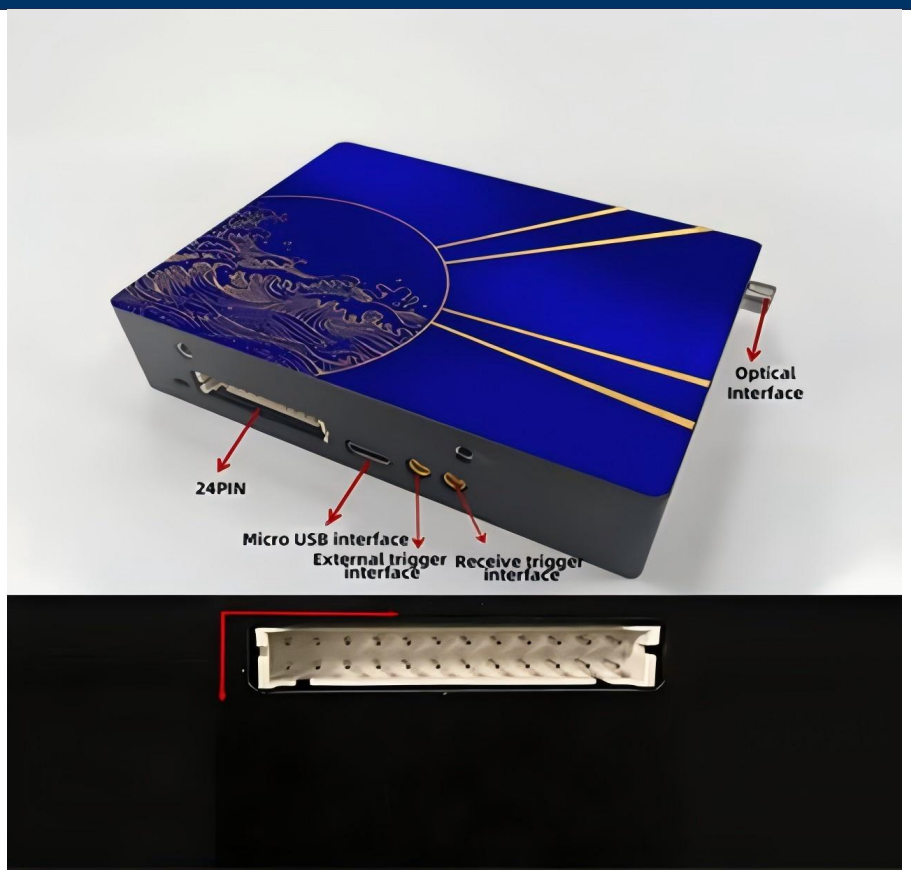
Interface Description

The following figure shows the interfaces of the SharpGrip Spectrometer. The fibre optic interface is the SMA905 interface; the Micro USB interface is used to connect to a computer via a data cable; and the 2.0MM-24P interface (24pin port) is used for secondary development of the spectrometer.

Wiring Pin Definitions

The 24pin connector uses a 2.0MM-24P socket.

SharpGrip Spectrometer



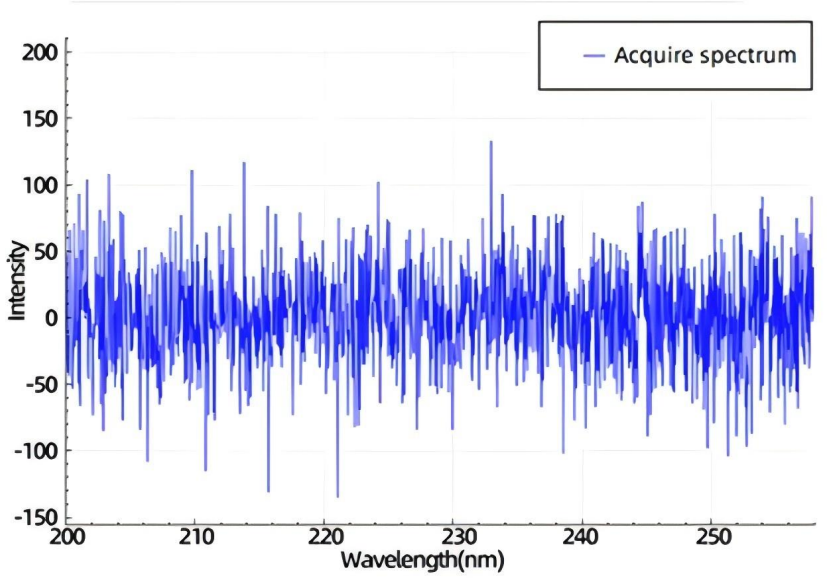
24	22	20	18	16	14	12	10	8	6	4	2
23	21	19	17	15	13	11	9	7	5	3	1

Spectrometer 24pin interface physical diagram (note the interface direction)

Pin Number	Definition	Functionality
1	EX_SET	Analog power output to control laser power (input voltage 0~2.5V)
2	Monitor_RT	Laser Temperature Feedback
3	TEMP_SET	Reserve
4	Monitor_ILD	Laser Power Feedback
5	GPIO_PC6	TEC_SB mode
6	GPIO_PC10	Bluetooth device status pin
7	GPIO_PC7	Configurable GPIO output states
8	GPIO_PC11	Configurable GPIO output states
9	GPIO_PC8	Laser Enable Control
10	GPIO_PB8	Reserve
11	GPIO_PC9	Bluetooth control mode pin
12	GPIO_PB9	Reserve
13	UART5_TX	Serial data sending (TTL serial port)
14	I2C2_SCL	Reserve
15	UART5_RX	Serial data reception (TTL serial port)
16	I2C_SDA	Reserve
17	SYNC_OUT	External Trigger Output Signal
18	Laser_CLK	External Laser CLK Output Signal
19	InterLock_N	Laser InterLock control (controls the switching of the laser)
20	SYNC_IN	External Trigger Input Signal
21	DC5V	Power positive (of an electrical device etc)
22	GND	POWER GROUND
23	DC5V	Power positive (of an electrical device etc)
24	GND	Signal ground

Typical Spectrum

Dark noise: Integration time 100 ms.



Serivce & Support

We are dedicated to delivering exceptional optoelectronic solutions to every client. From precision manufacturing and secure delivery to full-lifecycle technical support, we are here to ensure a seamless and reliable experience at every step.

1. Warranty Policy

Quality First, Worry-Free Operation

Warranty Period: We offer a **two-year** warranty service for all of our core optoelectronic products, effective from the date of shipment.

Coverage: We provide free repair or replacement services for malfunctions caused by material defects or workmanship errors under normal operating conditions.

Rapid Response: Upon receiving a warranty claim, we guarantee to initiate the assessment process within **24 hours** to minimize your equipment downtime.

2. Technical Support

Expert Team, Full-Process Guidance

Technical Consultation: Our team of senior optical engineers provides **24/7 online support** to assist with installation, commissioning, optical path alignment, and parameter optimization.

Scheduled Maintenance: We offer full-lifecycle maintenance recommendations, including firmware upgrades, optical component cleaning guidelines, and precision calibration services.

Training Services: We provide customized remote or on-site operational and safety training to ensure your team can operate the equipment efficiently and safely.

3. Logistics & Delivery

Precision Packaging, Global Reach

Professional Packaging: Given the fragile nature of optical instruments, we utilize industrial-grade shockproof, anti-static, and moisture-proof vacuum packaging to ensure zero damage during transit.

Logistics Partners: We partner with top-tier global logistics providers **(DHL / FedEx / UPS / SF Express)** to offer reliable shipping with real-time tracking.

Shipping Insurance: All shipments are fully insured to eliminate logistics risks.

4. Compliance & Certification

Strict Standards, Total Compliance

Quality Certification: Our manufacturing process is **ISO 9001 certified**, and our products comply with international standards such as **CE** and **RoHS.**

Export Compliance: "Committed to environmental responsibility, all our products comply with **RoHS 2.0** and **REACH** standards, ensuring safety and global compliance."

Explore Series

ModelSpectral	Region(nm)	Spectral Resolution(10μm)
VLSG-190-270	190-270	0.10
VLSG-260-330	260-330	0.10
VLSG-320-440	320-440	0.12
VLSG-430-535	430-535	0.13
VLSG-520-600	520-600	0.15
VLSG-590-725	590-725	0.17
VLSG-715-820	715-820	0.17
VLSG-810-1030	810-1030	0.25

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