



I2R LABS

IDEAS INTO REALITY

"Know Your Health. Own Your Life."



I2R Labs Compact Spectrophotometer
Core Spectral Engine for Embedded and Portable Optical Systems



The I2R Labs Compact Spectrophotometer Module is a high-performance spectral sensing core developed for seamless integration into diagnostic, analytical, and portable devices. Offering broad spectral coverage, SMA905 optical input, and multiple interface options (USB, Serial, Wi-Fi), this module provides the flexibility and performance required for building next-generation optical systems.



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Key Features:

Spectral Range: 850–340 nm:

- Covers UV, visible, and near-infrared regions for diverse sensing needs

SMA905 Optical Input:

- Accepts external illumination via standard fiber optics
- Compatible with reflection, transmission, and fluorescence geometries

Communication Interfaces:

- USB – for PC-based acquisition and prototyping
- Serial/UART – for embedded systems and microcontroller integration
- Wi-Fi – for wireless operation, remote diagnostics, or IoT devices

Designed for Integration:

- Compact form factor suitable for embedded and modular systems

- No built-in light source — designed to pair with external illumination systems:

- Replaceable fiber mount and window structure

Applications:

1-Medical & Diagnostic Devices – colorimetric or spectrally-resolved analysis

2-Environmental Monitoring – UV-absorbent compound detection

3-Food & Agriculture – optical profiling of liquids and solids

4-OEM Integration – embedded into portable or benchtop instruments

5-Research & Education – accessible, programmable spectral sensor core

Technical Highlights

Model I2RX02-2000

- Signal-to-noise ratio: 300:1
- Optical dynamic range: 1,500,000–5 lux
- Relative irradiance accuracy: %3
- Total irradiance accuracy: %5
- Fiber interface: Not available
- Integration time: 0.1 to 5000 milliseconds
- Frame rate: 12 fps (frames per second)
- Housing material: Aluminum
- Interface type: TTL4
- Protection rating: IPX38 (waterproof and dustproof)
- Operating temperature and humidity: -10°C to 60°C, humidity < %80
- Power supply: None / battery / TTL
- Bundled software: PC upper computer client
- Dimensions: 20.25 × 25.2 × 26.2 mm
- Amplitude linearity: Same as other models in the series (406@ 0.9960nm, 663@ 0.9958nm, 780@ 0.9993nm)

Advantages:

- Full control over light source, geometry, and application setup
- Compact and modular for custom instrument designs
- Supports lab, field, and OEM applications
- Wireless and wired interface options for maximum flexibility
- Fully developed and supported by i2r Labs — no vendor lock-in



Package Includes

- I2R Spectrophotometer Module (SMA905 input)
- USB/Serial interface cable
- Wi-Fi configuration utility
- Software SDK + GUI for data acquisition
- Integration and calibration documentation

Your Spectral Core, Built for Innovation

Empowering next-generation optical systems with precision, flexibility, and connectivity.





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Technical Highlights

Model I2RX03-2000

- Signal-to-noise ratio: 200:1
- Optical dynamic range: Not available
- Relative irradiance accuracy: %3
- Total irradiance accuracy: Not available
- Fiber interface: Yes (SMA905 type)
- Integration time: 0.1 to 5000 milliseconds
- Frame rate: 12 fps (frames per second)
- Shell material: Aluminum
- Interface form: TTL4
- Protection rating: IPX38 (waterproof and dustproof)
- Operating temperature and humidity: -10°C to 60°C, humidity < %80
- Power supply: None / battery / TTL
- Bundled software: PC upper computer client
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