

# Mid IR Spectrometers 2.5 – 5 $\mu\text{m}$

(low cost, Deep Cooling high sensitivity, high resolution, USB)



Patent pending

DATASHEET

BUY NOW



## Features

- High Sensitivity
- Low Cost
- USB/GUI
- Deep-Cooling Option
- MEMS Chopper Option

## Applications

- Sensor
- Testing
- Instrumentation

The MIRS Series Spectrometer, based on TE-cooled PbSe detectors, is optimized for MIRS spectroscopic measurements requiring an exceptional signal-to-noise ratio and high dynamic range across the 2.5 - 3  $\mu\text{m}$  spectral range. This system leverages innovative, patent-pending scanning technology, offering significant advantages: 1) Unmatched low cost; 2) Industry-leading sensitivity with deep cooling to -40  $^{\circ}\text{C}$ ; 3) Extended spectral coverage beyond traditional spectrometers; 4) Low power consumption; 5) Integrated MEMS chopper; 6) High resolution performance. Additional features include photon integration for low-noise detection and connectivity via USB or RS232 with an intuitive GUI. The MIRS series is available in both OEM modules and turn-key units with integrated power supplies.

The MIRS Series spectrometers deliver high performance with ultra-low noise levels, making them suitable for a range of demanding applications. The detectors' excellent sensitivity supports broad-band applications, such as analyzing the optical properties of solids, liquids, and gases in the NIR range, chemical component analysis, moisture detection, and narrow-bandwidth tasks like NIR laser characterization. The MIRS series comes standard with a USB interface, and software support includes SDK examples, DLLs for custom application development, and Windows-based spectral acquisition and analysis tools.

## Specifications

Parameter	Min	Typical	Max	Unit
Center Wavelength	0.9		2.5	$\mu\text{m}$
Spectral Resolution	10	30	100	nm
Wavelength Accuracy		10	100	nm
Wavelength Repeatability	-		$\pm 10$	nm
PDL	-	0.5	3	dB
Signal to Noise Ratio <sup>[1]</sup>			2500:1	
Dark Readout Noise <sup>[2]</sup>		$\pm 10$	-	RMS
Power Accuracy		$\pm 5$	-	dB
Scan Time	10		10000	s
Input Optical Power	Standard version	-	0.3	W
	High power version		5	W
Electronic Interface			Mini USB	
Operating Temperature	-10	20	60	$^{\circ}\text{C}$
Storage Temperature	-14	-	70	$^{\circ}\text{C}$

### Notes:

[1]. The lowest level requires -40 cooling, the high level is room temperature. These are also related to the integration time setting. Low spectral resolution increase sensitivity.

[2]. An integrated shutter is available to calibrate the dark readout

**Note:** The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link](#):

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Rev 11/13/24

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### Dimensions (mm)

\*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

### Electrical/Computer Connection

Module comes with a 12V DC power wall pluggable power supply

Turn-key unit has a 110-220 ACV input and a USB input at the back and optical input at the front.

### Ordering Information

Prefix	Type	Wavelength	Input Optical Power	Cooling	Resolution *	Shutter	Chopper	Connector
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>MIRS-</b>	Module = 1 Turn-Key = 2	2.5- 5 $\mu\text{m}$ = 1 Special = 0	Standard = 1 High Power = 2	Non = 1 -10°C = 2 -20°C = 3 -40°C = 5	10nm = 1 20nm = 2 50nm = 3 100nm = 4	Non = 1 Yes=2	Non = 1 Yes = 2	SMA905 = 1 FC/PC = 2 SC/PC = 4 ST/PC = 6 Special = 0

\* Low resolution high sensitivity.