



# OZ Optics

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## HANDHELD OPTICAL SPECTROMETERS

### PRELIMINARY

#### Features

- Compact design with no moving parts
- Cellphone interface through Bluetooth
- Detachable Transmittance or Reflectance module
- Spectrum: UV/VIS, VIS or UV/VIS/NIR
- High signal to noise ratio: 10000:1 (40 dB)

#### Applications

- Full spectrum analysis
- Quality control for food industry
- Chemical identification

#### Product Description

OZ Optics' handheld optical spectrometers provide customers with compact, cellphone based, easily networkable (receiving and transmitting, emailing) high standard instruments to cover wavelengths from 200–1050 nm.

There are three different wavelength ranges. 200–1050 nm, 400–800 nm, and 400–1050 nm. The required wavelength range will depend on the application.

There are apps available for all three spectrometers.



Handheld Spectrometer with Reflectance Module



OSM-R: Reflectance Module



Handheld Spectrometer OSM-VIS/NIR-12.5-5



OSM-T: Transmittance Module

## Specifications

### A. Spectrometers

|                                 | OSM-UV/VIS/NIR-12.5-5                      | OSM-VIS-12.5-5 | OSM-VIS/NIR-12.5-5 |
|---------------------------------|--|----------------|--------------------|
| Wavelength (nm)                 | 200–1050                                   | 400–800        | 400–1050           |
| Center Spectral Resolution (nm) | ~1   | ~0.7           | ~1                 |
| Edge Spectral Resolution (nm)   | 3–5  | 2–4            | 3–5                |
| Wavelength Accuracy (nm)        | ±0.3                                       |                |                    |
| Wavelength Repeatability (nm)   | ±0.1                                       |                |                    |
| Measurement Speed (ms)          | 20+Bluetooth transmission                  |                |                    |
| Integration                     | 10, default 20 ms, user adjustable (10 up) |                |                    |
| Wavelength Increment (nm)       | 0.4  | 0.3            | 0.4                |
| S/N Ratio                       | 10,000:1                                   |                |                    |
| Dynamic Range                   | > 2000:1                                   |                |                    |
| Magnifications                  | 1.13X                                      |                |                    |
| Input NA                        | 0.14                                       |                |                    |

| Detector                    |                         |
|-----------------------------|-------------------------|
| Sony ILX526A CCD            | 3000                    |
| Pixel Width (um)            | 7                       |
| Pixel Height (um)           | 200                     |
| Detector Length (mm)        | 21                      |
| Dimensions (mm) (D x W x H) | 48 x 57.4 x 29          |
| Input Connector             | SMA905                  |
| Slit Width (um)             | 12.5 (25, 50 available) |

| Electronics and Communications |                         |
|--------------------------------|-------------------------|
| AD                             | 16 bit A/D              |
| Communication                  | Low-energy Bluetooth    |
| Power Port                     | Micro USB               |
| Cell Phone App                 | Compatible with Android |

| Environmental and Compliance |                  |
|------------------------------|------------------|
| Storage Temperature          | -30 °C to +70 °C |
| Operating Temperature        | 0 °C to +50 °C   |
| Material                     | RoHS             |
| Electrical                   | USB 5 V          |

### B. Detachable Reflectance And Transmission Modules<sup>1</sup>

|   | Reflectance Module                                   | Transmittance Module                                |
|---|--|---|
| Configuration                             | 50/0 Illumination/Detection                          | U shaped  |
| Relation with Spectrometer                | Detachable and exchangeable with transmission module | Detachable and exchangeable with reflectance module |
| Light Source (Gas filled with front lens) | 0.2W bulbs/LED                                       | 1x0.2W bulbs with pinhole                           |
| Sampling Window                           | Sapphire   |   |
| Sampling Size (mm)                        | ~1   |   |
| Sampling Distance                         | Near window  |   |
| Pinhole Size (mm)                         |  | 1 mm diameter                                       |
| Collimating Beam Diameter (mm)            |  | 7 mm diameter                                       |
| Cuvette Holder (mm)                       |  | 12.5 x 12.5 x 45                                    |
| Filter Slot                               |  | Neutral density or other special filters (optional) |
| Dimensions (mm) (D x W x H)               | 21.3 x 57.3 x 21                                     | 67.8 x 53 x 29.5                                    |
| Product Part Number                       | <b>OSM-R</b>   | <b>OSM-T</b>  |

<sup>1</sup> Not available for 200/1050.

### Ordering Information For Custom Parts: (Spectrometers)

Part Number

**OSM-W-S-X**

**W** = VIS: 400–800 nm  
VIS/NIR: 400–1050 nm  
UV/VIS/NIR: 200–1050 nm

**X** = Optical Receptacle:  
5 = SMA-905 (default)  
3 = FC

**S** = Slit Width (um): 12.5 (default)  
25.0  
50.0

For detachable modules, order OSM-R: Reflectance Module  
OSM-T: Transmittance Module