



## HIGH-RESOLUTION OPTICAL SPECTROMETERS

### PRELIMINARY

#### Features:

- Handheld and rugged design
- Wide spectral range with high spectral resolution
- Transmission grating provides exceptional signal throughput and high signal to noise ratio (SNR)
- Built-in filter to suppress grating second-order noise
- Low cost with flexible operating options

#### Applications:

- Full spectrum analysis
- Quality control for food industry
- Chemical identification
- Recent applications ranging from smart farming to pharmaceutical tests



#### Product Description:

OZ Optics presents a cost-effective and high-end optical spectrometer. A special transmission grating is designed to realize exceptional sensitivity while reaching high signal-to-noise ratio (SNR), with an excellent spectral resolution over the entire operating wavelength range. A sensitive and high pixel density CCD chip is customized to suppress grating high-order noise. The spectrometer is integrable in well-established systems and can be remotely controlled via a USB port through an intuitive GUI.

Spectrometers are also offered as stand alone units that include a built-in touchscreen. Customized optical inputs including a set of fiber focusers or collimators along with wave division multiplexors are optionally offered to enable both fiber delivery applications and free-space scanning.

#### Specifications:

Parameter	Typical Value
<b>Wavelength Range</b>	190 nm to 850 nm
<b>Optical Resolution</b>	1 nm FWHM
<b>Integration Time</b>	4 milliseconds to 10 seconds
<b>Dark Noise</b>	< 25 counts at 4 milliseconds exposure
<b>Input Fiber Connector [1]</b>	SMA-905
<b>Signal to Noise Ratio</b>	>300:1
<b>Detector(CCD)</b>	Toshiba TCD1304DG
<b>Grating</b>	1250 lp/mm Fused Silica transmission grating
<b>Pixels</b>	3648
<b>Entrance slit</b>	20 $\mu$ m
<b>Numerical aperture</b>	0.25
<b>Enhanced sensitivity lens</b>	D-Lens on CCD

<b>Stray Light</b>	< 1%
<b>Operating temperature range [2] (Non-condensing)</b>	10 °C - 45 °C
<b>Dimensions</b>	90 x 60 x 18.8 mm body
<b>Weight</b>	145 g
<b>Vertical range</b>	50,000 counts
<b>Electrical Connector</b>	16 pin 1 mm pitch FFC
<b>Inputs/Outputs</b>	SPI with 2 chip selects, accumulator reset, device reset and external trigger
<b>Trigger Modes</b>	internal or external source, single, multiple accumulate, multiple average
<b>Power Consumption</b>	3.3 V 60 mA

Note:

<sup>1</sup> Receptacle is optional, other connector available upon request.

<sup>2</sup> Temperature Drift compensation is attached along with the CoC.

**Part Number:**

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

***HROS-V-W-S-X***

**V**= Instrument version  
100 = For handheld instrument  
controlled by external computer  
1000= For standalone instrument with  
touchscreen control

**W**= UV/VIS: 190–800 nm  
VIS/NIR: 400–1050 nm  
UV/VIS/NIR: 200–1050 nm

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

**S**= Slit Width ( $\mu\text{m}$ ): 12.5 (default)  
25  
50