

## Hyperspectral Underwater Radiometer

## ATW2310

### Features:

- Maximum spectral range: 365nm;
- spectral range:400-800nm
- Deep-cooling detector, stable working performance;
- Ultra-high sensitivity sensor;
- High spectral resolution;
- High-quality 316 stainless steel housing;
- Maximum working depth: 100 meters;
- Anti-pollution and anti-adhesion Polymer nano layer
- RS485 long-distance high-reliability transmission;
- GPS/Beidou dual positioning;
- Excellent reliability;
- Intelligent and intuitive operating software, easy to use by non-professionals
- IP-68 dustproof and waterproof Industrial protection

### Application :

- Water quality testing
- On-site measurement of ground features, oceans, rivers and lakes, etc.
- Water color measurement
- Satellite data verification
- Photosynthesis
- Marine biology
- Marine climatology
- Aquaculture

### Description:

ATW2310 is a small, highly integrated marine hyperspectral radiometer produced by Optosky, which can monitor water colors of ultraviolet, visible, and near-infrared wavelengths. Small size, light weight, and low power consumption make ATW2310 very suitable for handheld and remote online applications.

The ATW2310 family is specially designed to combine high-precision hyperspectral measurement with maximum flexibility. In addition, the modular measurement system reduces costs, provides numerous accessories and customized solutions.

The ATW2310 can be hoisted on a ship or column for remote online monitoring; it is especially suitable for testing in remote places, such as ocean, lake, river and other related water environment monitoring.



## 1. Performance parameters:

	ATW2310-1	ATW2310-2	ATW2310-3	ATW2310-4
<b>Optical parameters</b>				
Spectral range (nm)	190-380	280-500	190-1000	300-1100
Detector type	Cooled high sensitivity CCD			
Sensor pixel	2048 pixels			
Optical resolution	0.76	0.87	1.89	1.89
Spectral sampling interval	0.15	0.17	0.58	0.58
Spectral sampling accuracy	0.07	0.07	0.21	0.21
Available channels	1300	1300	1480	1470
SNR	>800:1	>800:1	>800:1	>800:1
Integration time	1ms ~128 Sec			
Measurement uncertainty	6%	6%	3.70%	3.70%
Typical saturation value	17 W/m <sup>2</sup> ●nm(@ 220nm) 14 W/m <sup>2</sup> ●nm(@ 300nm)	10 W/m <sup>2</sup> ●nm (@350nm) 8 W/m <sup>2</sup> ●nm (@450nm)	1 W/m <sup>2</sup> ●nm (@ 550nm) 0.77 W/m <sup>2</sup> ●nm (@700nm)	1 W/m <sup>2</sup> ●nm (@550nm) 0.82 W/m <sup>2</sup> ●nm (@800nm)
NEI	0.65μW/m <sup>2</sup> ●nm (@ 220nm) 0.56 μW/m <sup>2</sup> ●nm (@ 300nm)	0.35μW/m <sup>2</sup> ●nm (@220nm) 0.27 μW/m <sup>2</sup> ●nm (@300nm)	0.38μW/m <sup>2</sup> ●nm (@220nm) 0.29 μW/m <sup>2</sup> ●nm (@300nm)	0.38μW/m <sup>2</sup> ●nm (@220nm) 0.29 μW/m <sup>2</sup> ●nm (@300nm)
Light receiving method	Cosine corrector, FOV 7°, integrating sphere (choose one of three)			
Optical splitter	C-T splitter			
Spectral instability	<0.5%	<0.5%	< 0.75%	< 0.75%
<b>System level parameters</b>				
Data interface	RS232, RS485, USB interface			
operating system	High stability embedded operating system			
Volume	Cylindrical: Ø98mm x 450mm(L)			
weight	8.2 kg			
Maximum working depth	100 meters, customized models up to 300 meters			
Power supply	5 ~ 36V DC			
Power consumption	<8 W			
Operating temperature range	-30 – 50 °C			
Humidity range	Airtight and waterproof			
<b>Other parameters</b>				
Probe type	Dedicated optical probe for direct measurement of radiance from water; with extended interfaces for surface method and profile method at the same time, maintaining a constant attitude independently			
Measurement window protection method	Anti-corrosion and anti-fouling brush, anti-pollution and anti-adhesion polymer nano layer			

Maximum unattended working time	≥1 year
Software function	Equipped with visual supporting software, with the following functions: remote wireless control (remote wireless setting functions such as sensor switching, measurement frequency, measurement time, measurement mode, etc.); data processing (automatically reject abnormal data, posture calibration, statistical data processing functions); data Display (with visualization and real-time display of key parameters such as raw data, water radiance, remote sensing





Fig 1 ATW2310