

HyperOCR

Hyperspectral Ocean Colour Radiometer

The Hyperspectral Ocean Colour Radiometer (HyperOCR) provides 136 channels of precision calibrated optical data from 350 to 800 nm. The HyperOCR can easily integrate into third-party equipment or connect directly to a computer for real-time measurements. Satlantic's proprietary RS-485 SatNet networking interface provides the capability to combine several Satlantic devices on a single telemetry interface for applications where serial inputs are limited on host data acquisition devices.

Features

- 350-800 nm calibrated range
- Irradiance and radiance radiometers for in-water and in-air
- Fully characterized cosine response
- Integrated shutters for accurate dark correction
- Networking capability
- Fast sampling rate (up to 3 Hz)
- Compatible with Bioshutter II
- Data logging and processing software available



Applications

- Bio-optical analysis of natural water bodies
- Aquatic photosynthesis studies
- Estimation of UV radiation levels
- Hyperspectral measurements for agriculture & forestry

Specifications

Characteristics	Irradiance Air	Irradiance Water	Radiance Air	Radiance Water
SPATIAL Field of View	Cosine RMS Error 3% 0 - 60° 10% 60 - 85° (350-800 nm)	Cosine RMS Error 3% 0 - 60° 10% 60 - 85° (350-800 nm)	11.5° Half-angle Half-radiance	8.5° Half angle Half-radiance
ELECTRICAL Typical NEI*	1.0×10^{-3} ($\mu\text{W cm}^{-2} \text{ nm}^{-1}$)	1.5×10^{-3} ($\mu\text{W cm}^{-2} \text{ nm}^{-1}$)	5.3×10^{-5} ($\mu\text{W cm}^{-2} \text{ nm}^{-1} \text{ sr}^{-1}$)	9.0×10^{-5} ($\mu\text{W cm}^{-2} \text{ nm}^{-1} \text{ sr}^{-1}$)
Saturation at 500nm with 1024 ms integration time	9.0 ($\mu\text{W cm}^{-2} \text{ nm}^{-1}$)	13.5 ($\mu\text{W cm}^{-2} \text{ nm}^{-1}$)	0.5 ($\mu\text{W cm}^{-2} \text{ nm}^{-1} \text{ sr}^{-1}$)	0.8 ($\mu\text{W cm}^{-2} \text{ nm}^{-1} \text{ sr}^{-1}$)
PHYSICAL Height: Diameter: Weight: Depth Rating: Operating Temperature:	39.9 cm 6.0 cm 1.0 kg 300 m -10 to +50 °C	39.9 cm 6.0 cm 1.0 kg 300m -10 to +50 °C	36.2 cm 6.0 cm 1.0 kg 300 m -10 to +50 °C	36.2 cm 6.0 cm 1.0 kg 300m -10 to +50°C

Optical Characteristics

Spectrograph range:	305 - 1100 nm
Factory calibration:	350 – 800 nm
Spectral sampling:	3.3 nm/pixel
Spectral accuracy:	0.3 nm
Spectral resolution:	10 nm
Stray light:	$<1 \times 10^{-3}$
Detectors:	256 channel silicon photodiode array
Entrance Slit:	70 x 2500 μm
Pixel Size:	25 x 2500 μm

Electrical Characteristics

Acquisition module:	16 bit ADC
Integration time:	4 - 2048 ms (adaptive gain feature), 1 ms resolution
Frame rate:	3 Hz (at 128 ms integration time)
Data rate:	9600 – 115200 bps (user selectable)
Telemetry interface:	RS-422 / RS-232 (isolated)
Network Interface:	Proprietary Satlantic RS-485 SatNet (isolated)
Power requirements:	9 – 18 or 18 – 72 VDC (2 Watts nominal)

