



HD30.1 – PORTABLE SPECTRORADIOMETER AND DATA LOGGER

HD30.1 is a portable spectroradiometric measurement system for the spectral analysis of visible and ultraviolet light. By connecting one of the two interchangeable probes, the system covers the spectral range from 220 to 780 nm and calculates a wide selection of photometric, colorimetric and radiometric quantities.

The large colour touchscreen makes it easy to configure measurements, display spectral data and calculated parameters, and save the acquired results.

Each probe stores its own calibration file, ensuring that the calibration data remain associated with the relevant optical sensor. The input optics use an opaline quartz diffuser designed to optimise the directional response according to the cosine law.

ONE INDICATOR, TWO SPECTRAL PROBES

HD30.S1 – Visible spectral range

HD30.S1 operates in the 380...780 nm visible spectral range and measures or calculates:

- spectral irradiance;
- irradiance;
- illuminance in lux;
- PAR photon flux;
- Correlated Colour Temperature, CCT;
- CIE 1931 chromaticity coordinates x, y ;
- CIE 1976 chromaticity coordinates u', v' ;
- Colour Rendering Index, CRI, including R1...R14 and Ra;
- spectral transmittance.

HD30.S2 – Ultraviolet spectral range

HD30.S2 operates in the 220...400 nm ultraviolet spectral range and measures:

- spectral irradiance;
- UVA irradiance;
- UVB irradiance;
- UVC irradiance;
- spectral transmittance..

CALIBRATED SPECTRAL MEASUREMENT

Both probes use a 2,048-element linear CCD detector and a spectrometer based on a transmissive diffraction grating.

The HD30.S1 visible probe is calibrated using a reference halogen lamp, while the HD30.S2 ultraviolet probe is calibrated using a reference deuterium lamp.

An opaline quartz diffuser provides cosine correction for measurements from extended light sources.

MEASURE, DISPLAY AND STORE

HD30.1 supports four acquisition modes:

- Single: one measurement with data storage;
- Continuous: continuous acquisition with data storage;
- Monitor: continuous acquisition without data storage;
- Logging: acquisition at selectable intervals from 3 to 60 minutes, with data storage.

Measurements can be stored in the 150 MB internal memory, on a microSD card or on a USB flash drive. Data can be transferred to a PC using the Ethernet or mini-USB connection and exported in formats compatible with common data-management and analysis software

MAIN APPLICATIONS

- Spectral and colorimetric analysis of light sources
- Quality control of lighting systems
- Verification of lighting in museums and exhibition spaces
- Monitoring of blue-violet emissions that may damage sensitive exhibits
- PAR measurements in agriculture, forestry and oceanography
- Verification of ultraviolet sterilisation and disinfection systems
- Dermatological phototherapy and UV medical treatments
- Verification of blue-light lamps used in neonatal therapies
- Non-destructive testing using ultraviolet radiation

KEY FEATURES

- Spectral coverage from 220 to 780 nm with interchangeable probes
- Visible and ultraviolet spectral analysis
- 2,048-element linear CCD detector
- Transmissive diffraction grating
- Calibration file stored in each probe
- Opaline quartz diffuser for cosine correction
- Automatic or manual integration time
- Four measurement and logging modes
- Large colour touchscreen
- Internal, microSD and USB data storage
- Ethernet and mini-USB PC connection

Characteristic	HD30.1 + HD30.S1	HD30.1 + HD30.S2
Sensor	Linear CCD (2048 elements)	Linear CCD (2048 elements)
Spectral Range	380 nm – 780 nm	220 nm – 400 nm
Type of Spectrometer	Based on transmission diffraction grating	
Numerical Aperture	0.16	
Input Slit	125 μ m	70 μ m
Pass band	4.5 nm	2.5 nm
Wavelength Accuracy	0.3 nm	
Wavelength reproducibility	0.1 nm	
Integration Time	1ms to 4 s	
Stray Light	<0.03%	<0.03%
Measuring Mode	Spectral Irradiance, Irradiance, Illuminance [lux], PAR, Proximal Color Temperature, CIE 1931 (x,y) & CIE 1976 (u',v') Trichromatic Coordinates, CRI, Spectral Transmittance	Spectral Irradiance, UV Irradiance, UVB Irradiance, UVC Irradiance, Spectral Transmittance
Measurement typology	Single - single acquisition with data storage Continuous - continuous acquisition with data storage Monitor - continuous acquisition without data storage Logging - acquisition at set time intervals (3min to 60min) with data storage	
Input Optics Dimensions (quartz diffuser)	Φ 11.8 mm	
Cosine Correction	Opaline quartz diffuser (3mm)	Opaline quartz diffuser (2mm)
Calibration	Halogen Lamp	Deuterium Lamp
Range of use	Illuminance 5-70.000 lux	
Incertitude	Spectral Irradiance $\pm$ 5% Illuminance $\pm$ 4% PAR $\pm$ 4% CCT $\pm$ 45K x,y $\pm$ 0.002 CRI $\pm$ 1.5	Spectral Irradiance $\pm$ 15% UV Irradiance $\pm$ 6% UVB Irradiance $\pm$ 8% UVC Irradiance $\pm$ 10%
Operating system	Linux	
Display	4.3" touch screen (480x272 pixel)	
Data Storage	Internal (150 MB), micro-SD card, USB device (option)	
PC Connection	Through Ethernet cable, through mini-USB connector.	
Power Supply	Rechargeable lithium battery or external power supply SWD05 + CP30 cable.	
Exported Data Format	Compatible with the more well-known data management/analysis software	
Dimensions / Weight of HD30.1	135x 156 x H 42 mm 440 g	
Probes Dimensions /Weight	75x150x H74, cable length 1.5m 370 g	

Working Temperature	0...40°C
Update	automatic via Internet

ORDERING CODES

A complete measuring system consists of the HD30.1 indicator and at least one interchangeable spectral probe. The microSD card and USB flash drive are not supplied.

Accessories	
HD30.1	Portable indicator and data logger with colour touchscreen, internal memory, rechargeable battery, Ethernet and mini-USB interfaces.
HD30.S1	Spectral probe for the 380...780 nm visible range. Measures spectral irradiance, irradiance, illuminance, PAR and spectral transmittance, and calculates CCT, chromaticity coordinates and CRI.
HD30.S2	Spectral probe for the 220...400 nm ultraviolet range. Measures spectral irradiance, UVA, UVB and UVC irradiance and spectral transmittance.
HD30.1	Complete kit comprising the HD30.1 data logger, HD30.S1 probe (380–780 nm), and HD30.S2 probe (220–400 nm).
SWD05	External power supply.
CP30	USB/DC power cable.