Probe4Light

Probe4Light is an innovative **spectrophotometer for spectral and color characterization of light sources**. Designed for the **LED applications**, the solution ensures flexibility and cost effectiveness.

The solution is suited for diagnostic, incoming inspection and **quality control in laboratory** as well as industrial and **in-situ environments**.

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Spectral Characterization of Light Sources

The lighting industry undergoes a major change with the introduction of the LED technology. This spectrophotometer offers many advantages - ultra compact, low power consumption, optimized visual comfort - but requires a careful management of its optical, electrical and thermal parameters.

Probe4Light delivers lab class spectra and colors measurements of LEDs. The spectrometer sensor - not RGB - enables to control accurately various types of LEDs like high power LEDs, monochromatic LEDs and polychromatic chips.

As a flexible hand held, standalone unit, Probe4Light also features the strength of a software interface to display all the device parameters and the color results at a glance.

Spectral and color calibrated device

Industrial-oriented and lab class design

USB 2 Plug & Play and powered interface

Device description

- Stiff aluminum body with embedded technological blocks: spectrophotometer, electronic card and integrating sphere.

- 30 mm integrating sphere and 20 mm diffuser measurement heads. Other dimensions available on request. Inner sphere surface coated with barium sulphate.

- Lab class, high resolution spectrophotometer - 128 to 1024 pixels - optimized for spectral and colorimetric analysis. Match CIE Publ. No.15.2, Colorimetry, Second Edition (1986).

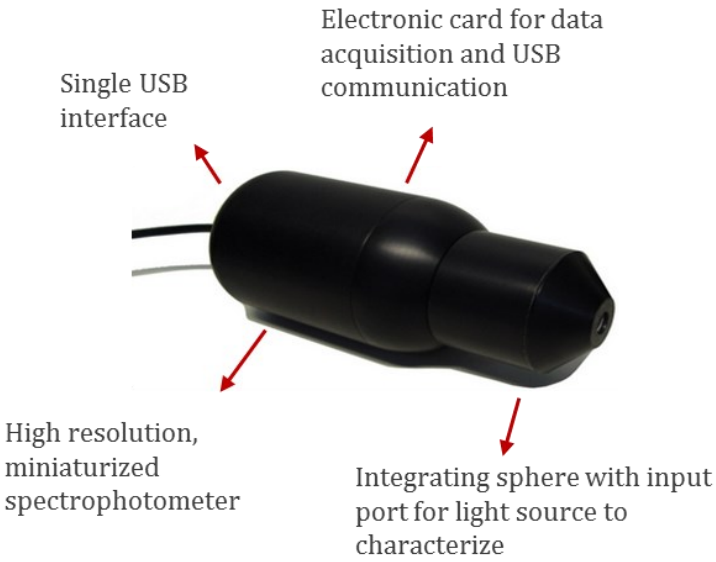
- Integration of time of the sensor is adjustable, manually or automatically - to fit better the measured light intensity. Also compatible with measurements of flashed or dimmed lamps.

- USB interface for driving the spectrophotometer and for reading the spectral data. No need for external power supply.

- PhotonProbe Software under Windows graphical interface. The user controls all the spectrophotometer parameters and manages to display the results in various numerical and diagram forms for a first analysis.

  - Spectrum 380 - 780 nm
  - CIE 1931 x,y and UCS 1976 u'v'
  - Tolerance ellipse and alarm
  - CCT and IRC
  - Dominant and peak wavelengths

- Data are exported or saved in Excel or text formats.



Exchangeable measurement heads

Probe4Light is the world first PC-based spectrophotometer to feature both a miniature design and the performances of a lab class device.

For a maximum flexibility, Probe4Light may be configured with various measurement heads. The user may switch easily between them thanks to the screw-type binding. Other measurement heads may be manufactured upon the customer requests.

Core unit with the spectrophotometer

Measurement head, here with the integrated sphere

Integrating sphere option

The integrating sphere has a 30 mm inner diameter and is coated with BaSO4. The sphere design enables to trap all the emitted light source and delivers a good light homogeneity.

The input port is 7 mm diameter and hence may accommodate most of the LED chips (Lumileds, Cree, Nichia, Osram, Seoul Semiconductors...)

The sphere should be in contact with the light source to collect all the emitted light.

Diffuser option

The diffuser is an opal material with a 20 mm diameter. The large photosensitive area delivers a good signal homogeneity.

The diffuser configuration is recommended for working on the light sources with a large emissive area, e.g. the backlights, the LEDs with collimated lenses and the CFL tubes.

The diffuser enables to work at various distances (irradiance set-up)

Optic Fiber option

The SMA-905 adapter is a female terminal adapter for connecting an optical fiber. The device may thus be connected to any optical accessories such as a large integrating sphere or a cosine corrector probe.

Majantys proposes various accessories to configure Probe4Light for your applications. Please contact us.

SMA-905 connector with an optical fiber and a cosine corrector (example)

ColorLight software

Probe4Light is delivered with the dedicated, labView-based software ColorLight

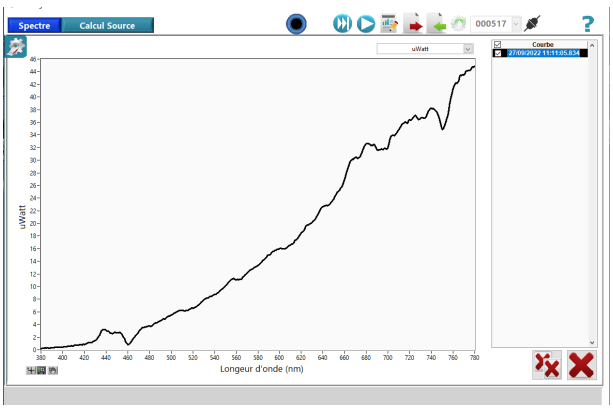
The software offers a friendly and intuitive interface to the user and includes the underneath functions:

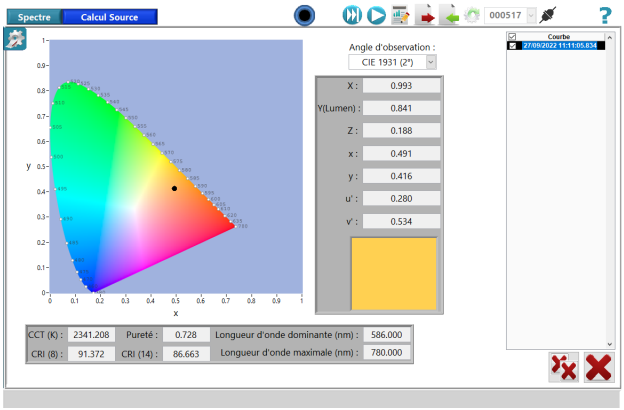
· Set-up the spectrometer parameters,

· Run the measurements,

· Display the results in tables and normalized graphics,

· Comparison and validation of the measured colors.





Configuration summary

Mechanical Properties	
Dimensions	130 mm length 55 mm outer diameter
Weight	320 gr.
Material	Anodized, stiff aluminium
Optical Properties	
Focal Length	20 mm
Aperture	f/2.7
Diffraction Grating	Aberration corrected type IV concave holographic grating
Entrance Aperture	50 µm width – 500 µm height
Resolution	5 nm FWHM (50 µm slit)
Stray Light	<0.1% at 415nm with RG630
Dispersion	100 nm/mm
Fiber Optic Connector	SMA905 – 0.22 numerical aperture optical fiber
Sensor specifications	
Detector	CMOS linear sensor
Detector Range	200 — 1100 nm
Pixels Resolution	Selectable 128,256,512,1024
Dynamic Range	71 dB
Absolute QE at peak	60% at 675 nm
A/D Resolution	12-Bit conversion
Integration Time	1 ms to 1 sec. (adjustable)

System Performances	
Geometry	Integrating sphere Diffuser (opal)
Spectral Range	380 — 780 nm
Integration Time	1 ms to 3 sec.
Chromaticity accuracy x,y (*)	0.005 RMS
Chromaticity repeatability x,y (*)	+/- 0.0005
Wavelength Accuracy (*)	+/- 0.5 nm
Wavelength Repeatability (*)	+/- 0.5 nm
Computer	
Operating System	Windows 7, 10 and 11
Interface (standard)	USB 2.0, one port
Interface (option)	Asynchronous Serial RS232/RS485 Modbus - Ethernet - SDIO Other (please contact us)
Software	Windows graphical user interface software
Electronics	
Power Consumption	Max. 100 mA @ 5V Via USB interface
Input/Ouput	3 hardware ports available
Trigger	Yes

Probe4Light is delivered with its accessories and its software in a rugged case. Various accessories are available. Please contact us if a requested item is not listed underneath.

By Default:

Spectrophotometer body

SMA-905 adapter
(for optical fiber)

Options:

Integrating sphere
30 mm diameter

Clamping
flange

Diffuser (opal)
20 mm diameter

Integrating
sphere 30 mm
diameter with
beak

Diffuser (opal)
6 mm diameter