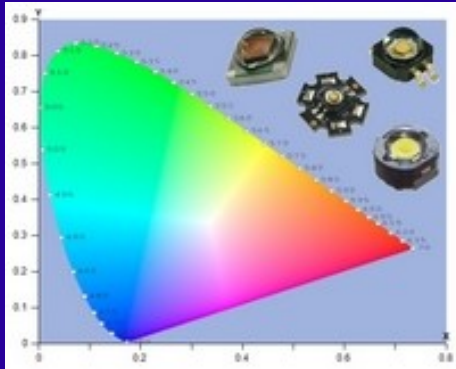# Probe4Light

Spectral Characterization of Light Sources

To help our customers face the challenges of new technology (mono or poly chromatic LED) , we provide a complete set of tools to optimize their utilization.

LED based light source is one of the most popular market in the world. Everywhere energy saving is driving the market to this kind of technology.

We want to give our customers the expanded capabilities that they need for colorimetric measurements. These systems increase productivity while ensuring a high level of quality.

Built on a modular set of technological blocks, PhotonLight enables us to create systems tailored entirely to the needs of our customers.

Our solutions should be integrated into production flows through innovative remote measurement technology. Routine inspection keeps manufacturing processes on track.

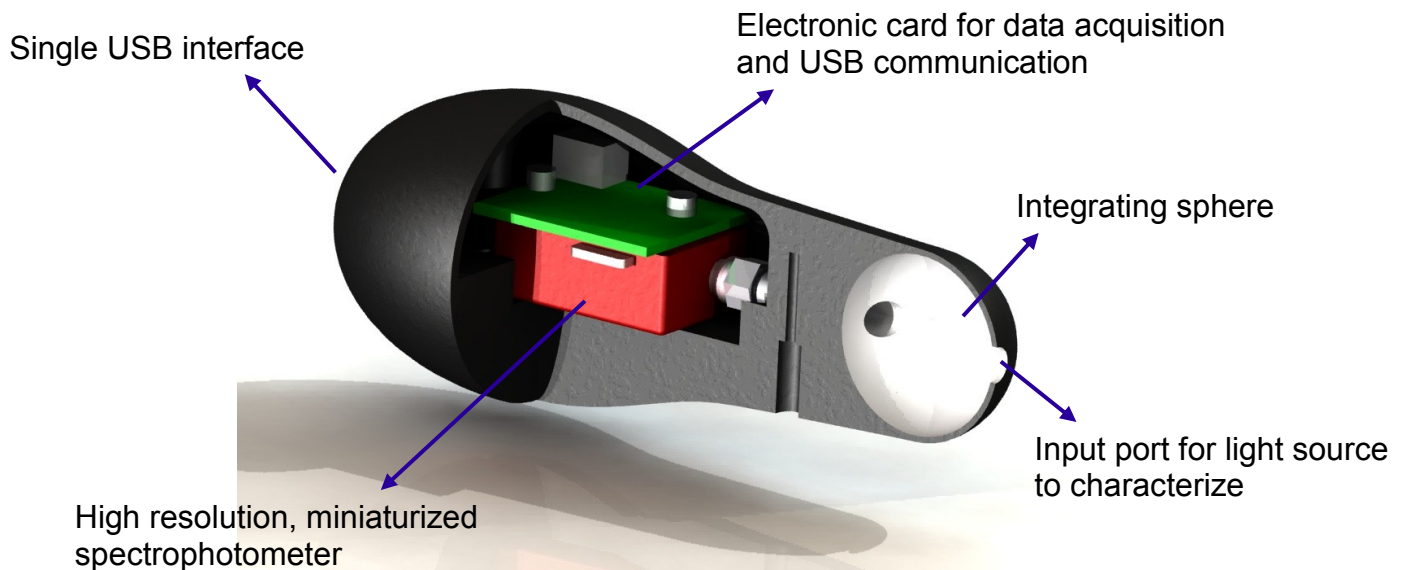| Contents	
Geometry	Integrating sphere Diffuser (cosine corrector) Normalized CIE 127:2007
Spectral Range	360—830 nm 1024 pixels
Measurement Time	1 ms to 1 sec. (adjustable)
Interface	USB 2.0 Ethernet or RS232 (contact us)
Options	Luminance and intensity calibration PC driven high stability current source
Applications	Light source benchmark analysis LED characterization Lighting components incoming inspection

MAJANTYS

17 Allée du Lac d'Aiguebelette
10 Bât. Arche
73372 Le Bourget du Lac
France
Tel: +33 (0)4 79 62 48 66
Fax: +33 (0)4 79 62 55 87
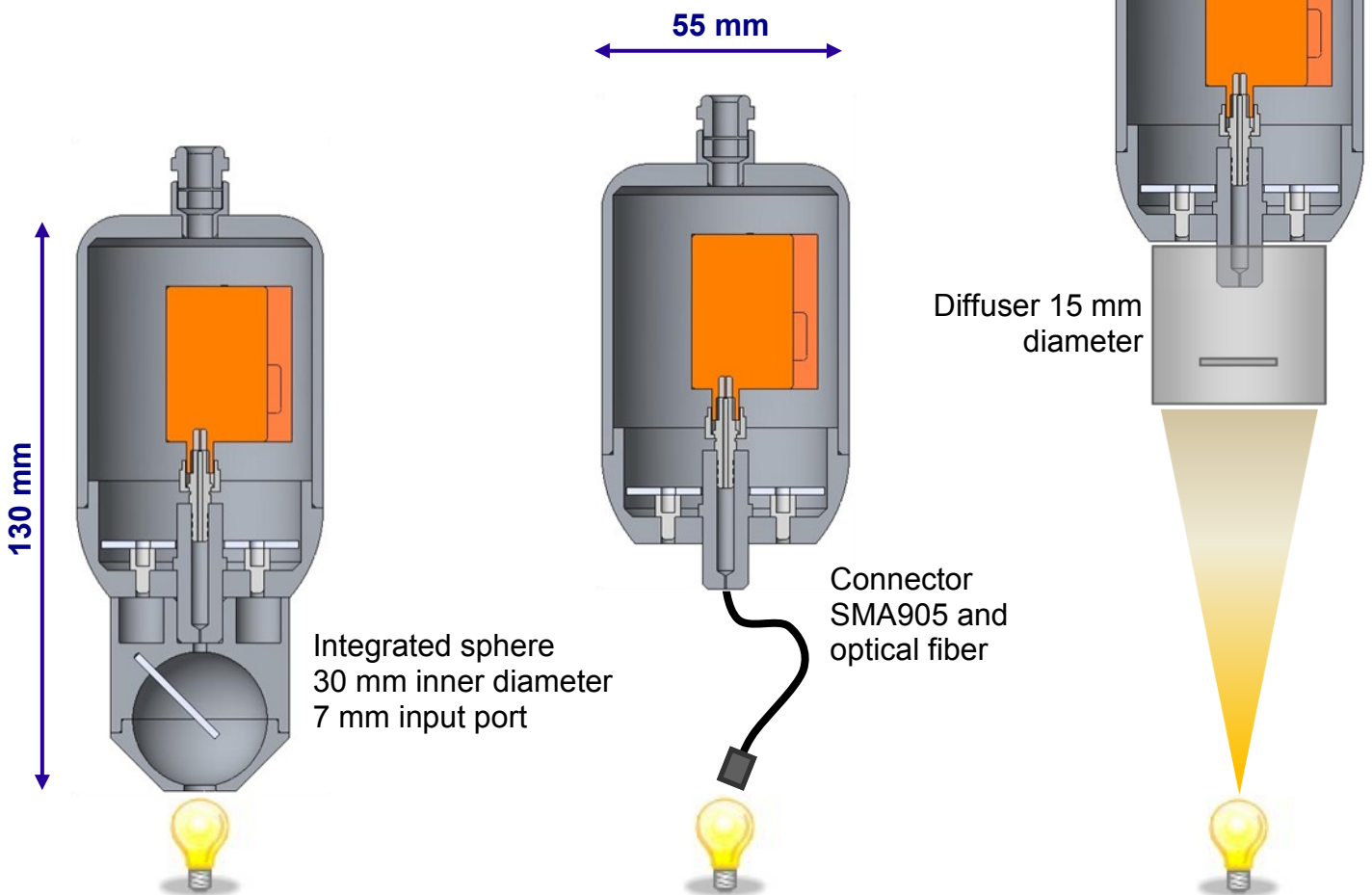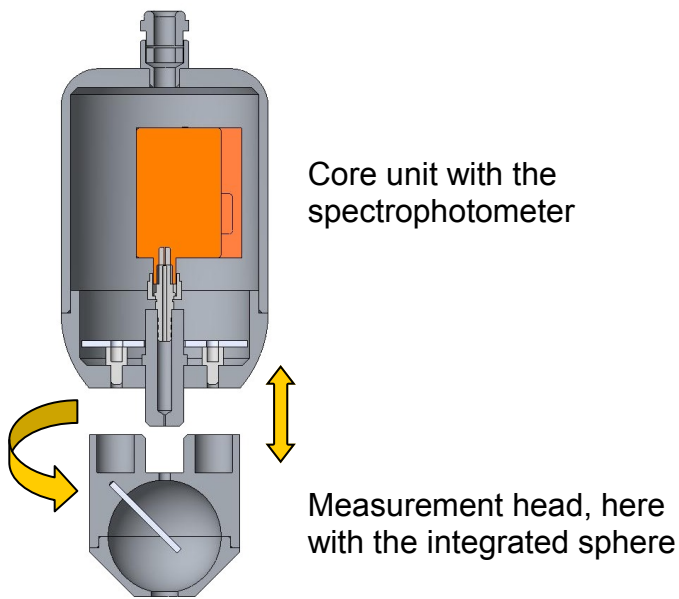Email: contact@majantys.com
Website: www.majantys.com

Probe4Light

Spectral Characterization of Light Sources

Single USB interface

Electronic card for data acquisition and USB communication

Integrating sphere

Input port for light source to characterize

High resolution, miniaturized spectrophotometer

- Stiff aluminium body with embedded technological blocks : spectrophotometer, electronic card and integrated sphere.

- Integrating sphere with 3 cm diameter and 7 mm input port diameter. Other dimensions available on request. Inner 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.

- PhotonLight SW 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 360—830 nm
  - Yxy, Yu'v', Lab, Lch
  - Eab, E94, MacAdam ellipse
  - CCT and IRC
  - Dominant and peak wavelengths

- Data are exported or saved in Excel or text formats. The user manages to develop his own software application using the DLL controls library. Development is possible under various environment such as C++, Excel and LabView.

- Option available : high stability current source for powering the LEDs. Support from 1mA up to 2A with small resolution steps (1mA).

MAJANTYS
Knowledge by color science

DSE-P4L-Rev1.4-10/09

Probe4Light

Spectral Characterization of Light Sources

Core unit with the spectrophotometer

Measurement head, here with the integrated sphere

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. See the pictures below for illustration.
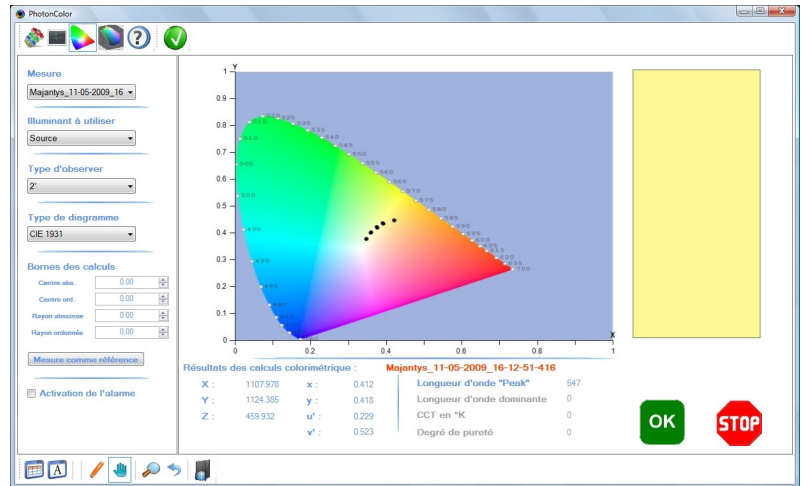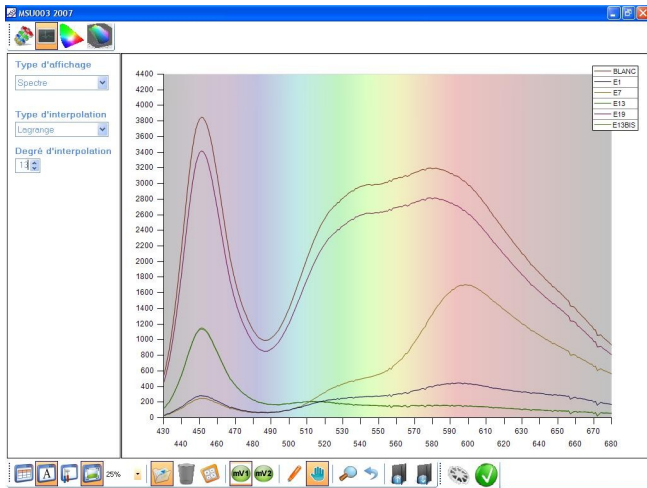
55 mm

Diffuser 15 mm diameter

130 mm

Integrated sphere
30 mm inner diameter
7 mm input port

Connector SMA905 and optical fiber

Probe4Light

Spectral Characterization of Light Sources

	Probe4Light + integrated sphere	Probe4Light + SMA905 connector and optical fiber	Probe4Light + diffuser	Probe4Light + other (please contact us)
Spectrum	✓	✓	✓	✓
Color, CCT, IRC	✓	✓	✓	✓
Illuminance (lux)		✓	✓	
Luminous flux (lm)	✓			
Luminous intensity (cd)				✓
Luminance (cd/m²)		✓		

Software Management	
Tools	Fully documented DLL provinding spectral and colorimetric coordinates data
Possibilities	Customized software interface
	Customer can develop is own dedicated Software
	Automatic synchonization with the production process
	Support database storage (long term)
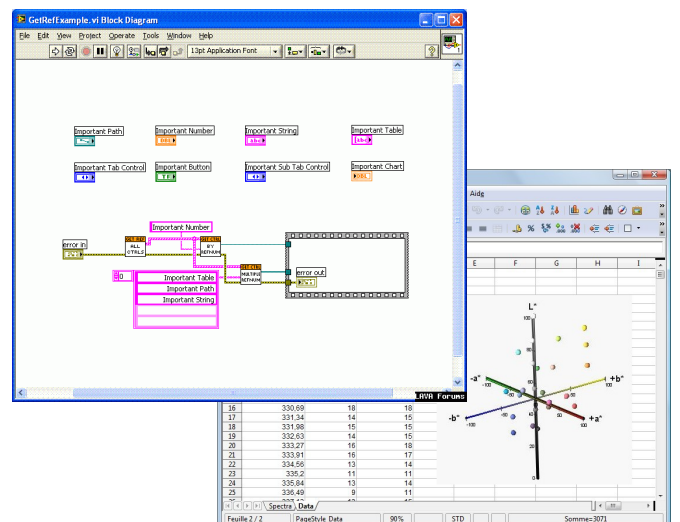
DSE-P4L-Rev1.4-10/09

Probe4Light

Spectral Characterization of Light Sources

Mechanical Properties

Dimensions	130 mm length 55 mm outer diameter
Weight	320 gr.
Material	Stiff aluminium

Optical Properties

Focal Length	20 mm
Aperture	f/2.7
Diffraction Grating	Aberration corrected type IV concave holographic grating
Entrance Aperture	100µm width – 500µm height
Resolution	< 10 nm FWHM with 50 µm width slit (5 nm availaable on request)
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)
Features	Non Destructive Read Capable High sensitivity

System Performances

Geometry	Integrated sphere Lambertian diffuseur (option)
Spectral Range	360—830 nm
Integration Time	1 ms to 3 sec.
Chromaticity accuracy x,y (*1)	0.005 RMS
Chromaticity repeatability x,y (*1)	+/- 0.0005
Dominant Wavelength Accuracy (*1)	+/- 0.5 nm
Dominant Wavelength Repeatability (*1)	+/- 0.5 nm
Luminous Flux Range (lumens)	TBD
Luminous Flux (lumens) accuracy (*1)	+/- 5 %
Luminous Flux (lumens) repeatability (*1)	+/- 1.5 %

Computer

Operating System	Windows XP and Vista NI LabView 8.2 driver
Interface (standard)	USB 2.0, one port
Interface (option)	Asynchronous Serial RS232/RS485 Modbus — Ethernet — SDIO Other (please contact us)
Software	Windows software graphical user interface .NET controls available

Electronics

Power Consumption	Max. 100 mA @ 5V Self powered, no external power supply
Input/Ouput	3 hardware ports available
Trigger	Yes

*1 For steady environmental conditions and after calibration.

MAJANTYS
17 Allée du Lac d'Aiguebelette, 10 Bât. Arche
73372 Le Bourget du Lac — France
Tel: +33 (0)4 79 62 48 66 — Fax: +33 (0)4 79 62 55 87
Email: contact@majantys.com — Website: www.majantys.com

Knowledge by color science