

Combined photo-radiometric probe LP 471 P-A

The combined photo-radiometric probe LP 471 P-A measures the two parameters of principal interest in the field of lighting, namely the ILLUMINATION (lux) and UVA IRRADIANCE (W/m^2). The probe is composed by a luxmeter and an UVA radiometer. The signals of the two sensors are read and processed at the same time to visualize the relation between the two quantities expressed in $\mu W/lumen$. The two sensors are equipped with a diffuser for the correct measure according to the cosine law.

The probe provides the following data:

- Measure of Illumination (lux) between $0,3 \text{ lux} \dots 200 \cdot 10^3 \text{ lux}$
- Measure of UVA-Irradiation between $0,1 \text{ mW}/m^2 \dots 2000 \text{ W}/m^2$
- Calculation of the relation between UVA and Illumination $\mu W/lumen$

The spectral response curve of the two probes is reported in figure 1 (luxmeter) ad figure 2 (UVA radiometer):

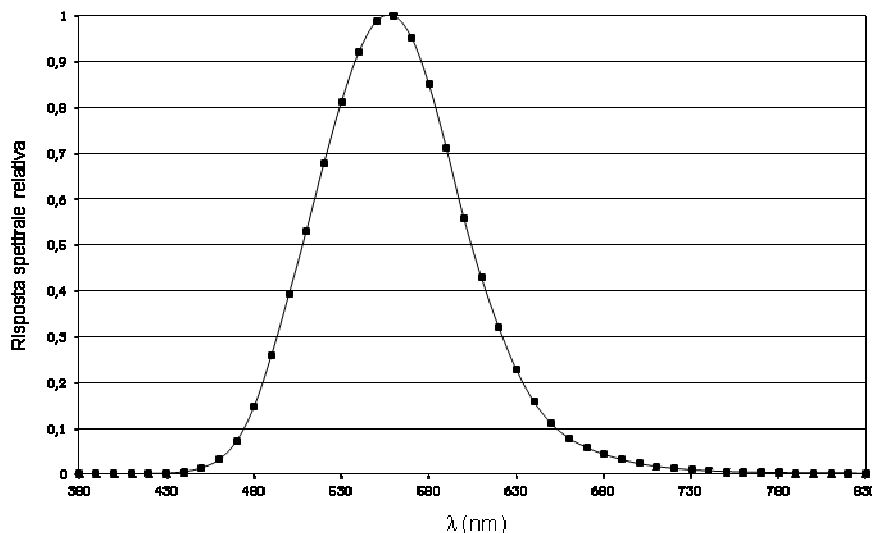


Figure 1 : Spectral response curve of the luxmeter that equips the probe LP 471P-A

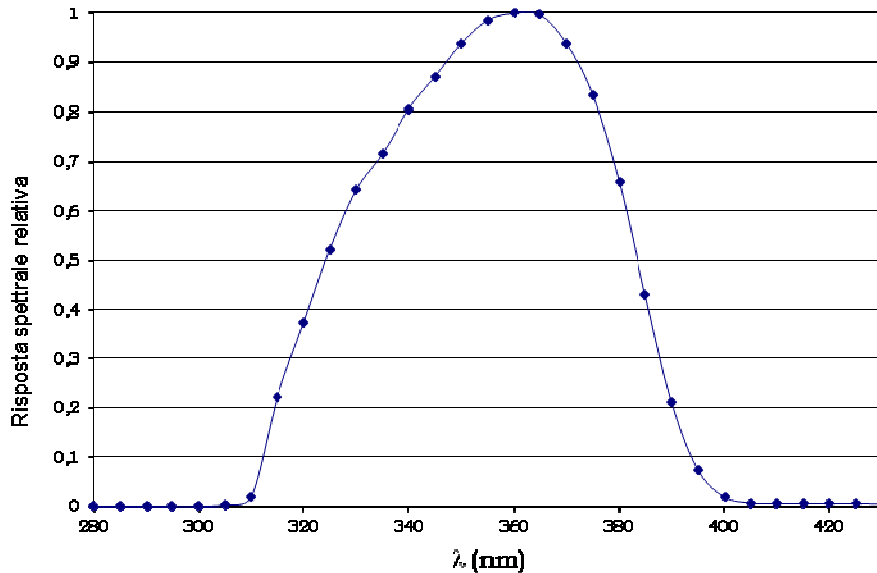


Figure 2 : Spectral response curve UVA sensors that equips the probe LP 471P-A

The probe has to be connected by means of its 2m long cable (fitted with the smart SICRAM module) to one of the following instruments:

- DO9847 (If the instrument has software prior to version 3.2. its software must be updated by connecting to the website www.deltaohm.com)
- HD2302.01 (The previous version HD2302.0 of the instrument needs to be updated to use this probe. To update the instruments, contact your local Delta Ohm reseller. The instrument must be sent to the factory.)
- HD2102.11 (The previous version HD2102.1 needs to be updated to use this probe. The software update can be done by connecting to the website www.deltaohm.com)
- HD 2102.21 (The previous version HD2102.2 needs to be updated to use this probe. The software update can be done by connecting to the website www.deltaohm.com)

The probe LP 471 P-A is particularly useful when the simultaneous measurement of illuminance and UVA irradiance is required. For example, in museum environment when it is necessary to evaluate the UVA radiation level in the lamps in order to avoid damage to paintings or wood or any other historical art objects. (CIE 157: "*Control of damage to museum objects by optical radiation*")

Another area of interest is that of Non Destructive Testing (NDT) that employ penetrating liquids, used primarily in the fields of mechanics and aerospace, where it is necessary to measure the Wood's lamp radiation and illumination used to excite the fluorescence of the liquid used.

(ISO 3059:2001 "*Non-destructive testing - Penetrant testing and magnetic particle testing - Viewing conditions*", BS EN 571-1:1997, EN 571, ASTM E 1417; UNI EN 473 - ISO 9712)

Technical specifications of the probe LP 471 P-A
Illumination

Measuring range (lux):

0.01...199.99	...1999.9	...19999	...199.99·10 ³
0.01	0.1	1	0.01·10 ³

Resolution (lux):

Spectral range:	in accordance with the standard curve V(λ)
α (temperature coefficient) $f_6(T)$:	<0.05% K
Calibration uncertainty:	<4%
f_1 (in accordance with the standard curve V(λ)):	<6%
f_2 (cosine response):	<3%
f_3 (linearity):	<1%
f_4 (instrument):	<0.5%
f_5 (fatigue):	<0.5%
Class:	B
Drift after 1 year:	<1%
Operating temperature:	0...50 °C
Reference standard	CIE n°69 – UNI 11142

UVA Irradiance

 Measuring range ($\mu\text{W}/\text{cm}^2$):

0.01...199.99	...1999.9	...19999	...199.99·10 ³
0.01	0.1	1	0.01·10 ³

 Resolution ($\mu\text{W}/\text{cm}^2$):

Spectral range:	315 nm...400 nm (Peak 365 nm)
Calibration uncertainty:	<5%
f_2 (cosine response):	<6%
f_3 (linearity):	<1%
f_4 (instrument reading error):	± 1 digit
f_5 (fatigue):	<0.5%
Drift after 1 year:	<2%
Operating temperature:	0...50 °C