

LIGHT INTENSITY METER

Model : HD2302.0

It measures Illuminance, luminance, PAR and Irradiance (across UVA, UVB and UVC spectral regions).

The probes are fitted with the SICRAM automatic detection module : In addition to detection, the unit of measurement selection is also automatic. The factory calibration settings are already memorized inside the instruments.

The Max, Min and Avg function calculate the maximum, minimum or average values.

Other functions include: the relative measurement REL, the HOLD function and the automatic turning off that can also be disabled.

The instruments have IP67 protection degree.



INSTRUMENT TECHNICAL CHARACTERISTICS

Measuring unit lux-fcd- $\mu\text{mol}/\text{m}^2 \cdot \text{s}$ -cd/m²-W/m²- $\mu\text{W}/\text{cm}^2$

Instrument

Display 2x4½ digits plus symbols-52x42mm
Visible area: 52x42mm
Dimensions (L x W x H) 140x88x38mm
Weight 160g (complete with batteries)
Materials ABS

Operating Conditions

Operating temperature -5...50°C
Warehouse temperature -25...65°C
Working relative humidity 0...90%RH without condensation

Protection degree IP67

Power

Batteries 3 1.5V type AA batteries
Autonomy 200 hours with 1800 mAh alkaline batteries
Power Absorbed with instrument off 20 μA

Connections

Input module for the probes 8-pole male DIN45326 connector.



HTA INSTRUMENTATION (P) LTD.,

An ISO 9001: 2015 Certified Company & NABL Accredited Calibration Laboratory as per ISO/IEC 17025:2017

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Optional Measuring Probes Available for Measurement

ILLUMINANCE measurement probe LP 471 PHOT				
Measurement range (lux) :	0.01...199.99	...1999.9	...19999	...199.99.10 ³
Resolution (lux):	0.01	0.1	1	0.01.10 ³
Class	C			
Calibration uncertainty:	<4%			
f ₁ (in agreement with photopic response V(λ)):	<8%			
f ₂ (response according to the cosine law):	<3%			
f ₃ (linearity):	<1%			
f ₄ (instrument reading error):	<0.5%			
f ₅ (fatigue)	<0.5%			
α (temp. coefficient) f ₆ (T)	<0.05%K			
Drift after 1 year:	<1%			
Functioning temperature:	0...50°C			
Reference Standards	CIE n.69-UNI 11142			

IRRADIANCE measurement probe LP 471 RAD				
Measurement range (W/m ²) :	0.1.10 ⁻³ ...999.9.10 ⁻³	1.000 ...19.999	20.00 ...199.99	20.00 ...1999.9
Resolution (W/m ²):	0.1.10 ⁻³	0.001	0.01	0.1
Spectral range:	400nm....1050nm			
Calibration uncertainty:	<5%			
f ₁ (response according to the cosine law):	<6%			
f ₃ (linearity):	<1%			
f ₄ (instrument reading error):	± 1 digit			
f ₅ (fatigue)	<0.5%			
Drift after 1 year:	<2%			
Working temperature:	0...50°C			

Quantum radiometric probe for the measurement of the photon flow across the chlorophyll range PAR LP 471 PAR			
Measurement range (μmol / m ² s) :	0.01... 19.99	200.0...1999.9	2000...10000
Resolution (μmol / m ² s) :	0.01	0.1	1
Spectral range:	400nm.... 700nm		
Calibration uncertainty:	< 5%		
f ₁ (response according to the cosine law):	< 6%		
f ₃ (linearity):	< 1%		
f ₄ (instrument reading error):	± 1 digit		
f ₅ (fatigue)	< 0.5%		
Drift after 1 year:	< 1%		
Working temperature:	0...50°C		

IRRADIANCE measurement probe LP 471 UVB				
Measurement range (W/m ²) :	0.1.10 ⁻³ ...999.9.10 ⁻³	1.000 ...19.999	20.00 ...199.99	200.0 ...1999.9
Resolution (W/m ²):	0.1.10 ⁻³	0.001	0.01	0.1
Spectral range:	280nm...315nm (Peak 305nm)			
Calibration uncertainty:	< 5%			
f ₁ (response according to the cosine law):	< 6%			
f ₃ (linearity):	< 2%			
f ₄ (instrument reading error):	± 1 digit			
f ₅ (fatigue)	< 0.5%			
Drift after 1 year:	< 2%			
Working temperature:	0...50°C			

IRRADIANCE measurement probe LP 471 UVA				
Measurement range (W/m ²) :	0.1.10 ⁻³ ...999.9.10 ⁻³	1.000 ...19.999	20.00 ...199.99	20.00 ...1999.9
Resolution (W/m ²):	0.1.10 ⁻³	0.001	0.01	0.1
Spectral range:	315nm...400nm (Peak 360nm)			
Calibration uncertainty:	< 5%			
f ₁ (response according to the cosine law):	< 6%			
f ₃ (linearity):	< 1%			
f ₄ (instrument reading error):	± 1 digit			
f ₅ (fatigue)	< 0.5%			
Drift after 1 year:	< 2%			
Working temperature:	0...50°C			

IRRADIANCE measurement probe LP 471 UVC				
Measurement range (W/m ²) :	0.1.10 ⁻³ ...999.9.10 ⁻³	1.000 ...19.999	20.00 ...199.99	200.0 ...1999.9
Resolution (W/m ²):	0.1.10 ⁻³	0.001	0.01	0.1
Spectral range:	220nm...280nm (Peak 260nm)			
Calibration uncertainty:	<5%			
f ₁ (response according to the cosine law):	<6%			
f ₃ (linearity):	<1%			
f ₄ (instrument reading error):	± 1digit			
f ₅ (fatigue)	<0.5%			
Drift after 1 year:	<2%			
Working temperature:	0...50°C			

Measurement probe LP 471ERY of TOTAL EFFECTIVE IRRADIANCE (W/m^2) according to the UV action curve UV (CEI EN 60335-2-27)				
Measurement range (W_{eff}/m^2):	0.1.10 ³ ...999.9.10 ³	1.000 ...19.999	20.00 ...199.99	200.0 ...1999.9
Resolution (W_{eff}/m^2):	0.1.10 ³	0.001	0.01	0.1
Spectral range:	UV action curve for erythema measurement (250nm... 400nm)			
Calibration uncertainty:	<15%			
f_s (linearity):	<3%			
f_r (instrument reading error)	±1digit			
f_e (fatigue)	<0.5%			
Drift after 1 year:	<2%			
Working temperature:	0.05°C			
Reference Standards	CEI EN 60335-2-27			

The probe LP 9021 ERY measures the total effective irradiance (W_{eff}/m^2) according to the UV action curve (CEI EN 60335-2-27). A particular type of photodiode and a combination of special filters bring the spectral response closer to the UV action curve.

ECI EN 60335-2-27 standards establish a maximum allowable dose of 100J/m² for first-time exposure and an annual dose of 15000J/m².

The typical spectral response curve of LP 9021 ERY is shown in the Figure together with the UV action curve. The good accordance between the two curves enables the instrument to take reliable measurements of different types of lamps (and filters) used at present for tanning machines.

Each probe is individually calibrated at photo-radiometry laboratory by means of a double monochrome. **Calibration is performed at 290 nm through a Sit calibrated reference photodiode.**

Order Codes :

HD2302.0K : The kit is composed of; instrument HD2302.0, 3×1.5V alkaline batteries, operating manual, case. The probes must be ordered separately.

Probes Complete with SICRAM Module

LP 471 PHOT : Photometric probe for ILLUMINANCE measurement complete with SICRAM module, spectral response in agreement with standard photopic vision, diffuser for cosine correction.

Measurement range : 0.01 lux....200-10³ lux.

LP 471 LUM 2 : Photometric probe for LUMINANCE Measurement complete with SICRAM module, spectral response in agreement with standard photopic vision, vision angle 2°.

Measurement range : 0.1cd/m².....2000·10³ cd/m².

LP 471 PAR : Quantum radiometric probe for the measurement of the photon flow across the chlorophyll range PAR (Photosynthetically Active Radiation 400nm....700nm) complete with SICRAM. measurement in mmol/m²s, diffuser for cosine correction.

Measurement range : 0.01 mmol / m²s.....10·10³µmol/m²S.

LP 471 RAD : Radiometric probe for IRRADIANCE measurement complete with SICRAM module; in the 400nm... 1050nm spectral range, diffuser for cosine correction.

Measurement range : 0.1·10³W/m².....2000 W/m².

LP 471 UVA : Radiometric probe for IRRADIANCE measurement complete with SICRAM module; in the 315nm....400nm, peak 360nm, UVA spectral range, quartz diffuser for cosine correction.

Measurement range : 0.1·10³W/m².....2000 W/m².

LP 471 UVB : Radiometric probe for IRRADIANCE measurement complete with SICRAM module, in the 280nm... 315nm, peak 305nm, UVB spectral range, quartz diffuser for cosine correction.

Measurement Range : 0.1·10⁻³W/m².....2000 W/m².

LP 471 UVC : Radiometric probe for IRRADIANCE measurement complete with SICRAM module, in the 220nm...280nm, peak 260nm, UVC spectral range, quartz diffuser for cosine correction.

Measurement range : 0.1·10³W/m².....2000 W/m².

LP 471 ERY : Radiometric probe for TOTAL EFFECTIVE IRRADIANCE (W_{eff}/m^2) according to the UV action curve (CEI EN 60335-2-27) complete with SICRAM module. Spectral range : 250 nm....400nm, quartz diffuser for cosine correction.

Measurement range : 0.1·10³ W_{eff}/m^22000 W_{eff}/m^2 .

LP BL : Base with leveling device for the probes.