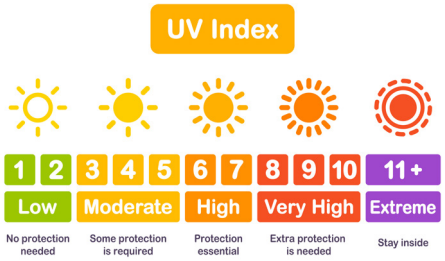
Radiometro UV Index

LPUVI02

THE IDEAL DEVICE FOR CALCULATING DAILY EXPOSURE TO UV RADIATION

INTRODUCTION

The UV index is a measure of **the strength of ultraviolet (UV) radiation** from the sun at a particular place and time. Developed by the World Health Organization (WHO) and other organizations, it is designed to help people protect themselves from harmful UV exposure. The index scale typically ranges from 0 to 11+, with higher values indicating greater potential for skin and eye damage. The amount of UV radiation reaching the surface is primarily related to the elevation of the sun in the sky, the amount of ozone in the stratosphere, and the amounts of cloud cover. Nowadays, many services that provide weather data include the UV index in the available data.



FEATURES

Designed for the purpose

LPUVI02 is meant for the purpose: it measure precisely the global effective irradiance on a flat surface and allows to calculate the exact UV index in accordance with the requirements of the WMO.

Dual Component Detection

Unlike visible light, UV light is strongly scattered by the atmosphere. The LPUVI02 ensures precise measurement of both direct and diffuse irradiance components, providing reliable data for comprehensive analysis.

Superior Sensitivity

Optimized for the ultraviolet spectral region, offering enhanced sensitivity and accuracy compared to conventional radiometers.

Robust Design

Engineered for reliability and durability, perfect for continuous use in diverse environmental conditions.

CONFIGURATION & MEASUREMENT

Output Options

Different output options to be easily integrated in exhisting networks of sensors.

Versatility for Extreme Environments

Avilable **extended full scale 0...20 version**, designed for accurate UV measurement in equatorial areas and high mountains, where the UV index often exceeds 11 for extended periods.

ACCORDING TO THE STANDARD
Fully compliant with WMO (World Meteorological Organization) requirements for the measurement of UV-Index. Spectral range in accordance with ISO/CIE 17166:2019.

STAND ALONE OR PART OF A NETWORK
Often combined with other radiation sensors for a complete overview of all solar radiation components.

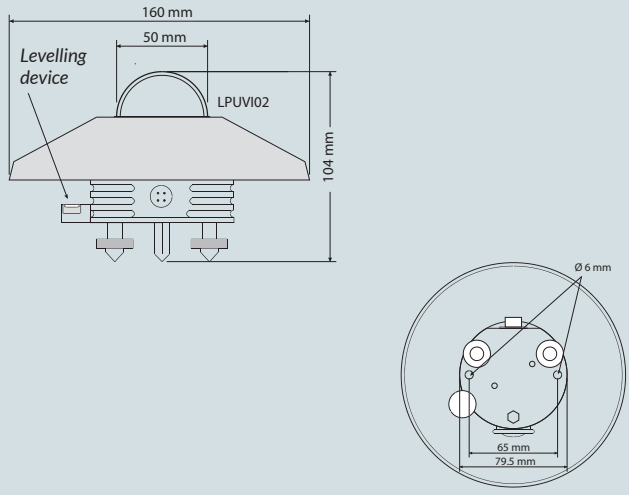
MAINTENANCE-FREE OPERATION
Engineered for long-term, maintenance-free performance, making it ideal for remote meteorological stations.

ACCURATE & RELIABLE
Supplied factory calibrated & with a Calibration Report.

Technical specifications

Measuring range	0...16 UV Index (LPUVI02AV...) 0...20 UV Index (LPUVI02.1AV...)
Viewing angle	2π sr
Spectral range	According to UV weighting curve ISO/CIE 17166:2019
Spectral error	<|±20| %
Response time	<0.5 s (95%)
Zero offset (in darkness)	<|±1| mV
Output type	0...1 V, 0...5 V or 0...10 V depending on model
Output impedance	< 1kΩ
Power supply	8...30 Vdc (models with 0...1 V and 0...5 V output) 15...30 Vdc (models with 0...10 V output)
Operating temperature	-40...+80 °C
Directional response (cosine law)	< 5 % (up to 70°) < 8 % (70...80°)
Long term instability (1 year)	<|±3| %
Non linearity	<|±1| %
Temperature response	< 0.1%/°C
Weight	900 g approx.
Protection degree	IP 67

Dimensions

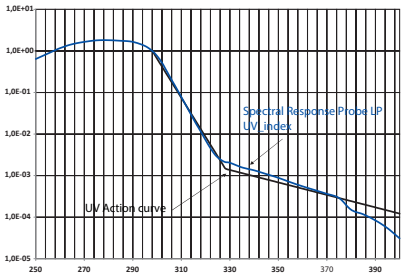


Ordering codes

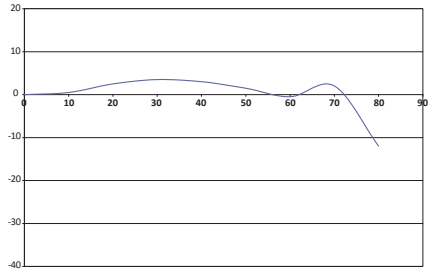
LPUVI02	AV	0...16 UV Index range; 0...10 Vdc output
	.1AV	0...20 UV Index range; 0...10 Vdc output
	AV1	0...16 UV Index range; 0...1 Vdc output
	.1AV1	0...20 UV Index range; 0...1 Vdc output
	AV5	0...16 UV Index range; 0...5 Vdc output
	.1AV5	0...20 UV Index range; 0...5 Vdc output

Measuring principle

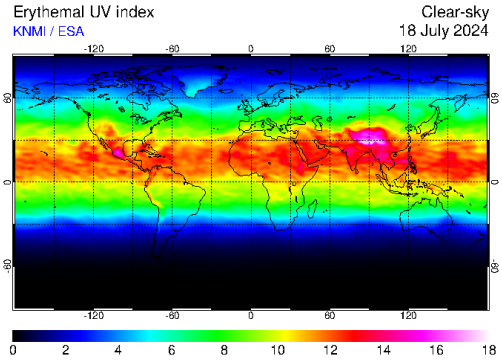
LPUVI02 is based on a solid state sensor, whose spectral response has been adapted to the UV weighting curve (CIE, Erythema action curve). The following figure shows the comparison between the spectral response of LPUVI02 and the UV action curve.



The radiometer is equipped with a quartz dome in order to ensure adequate sensor protection against weather agents.
The response according to the cosine law has been obtained by using a material with excellent ultraviolet diffusion and transmission properties.
The deviation between the theoretical and the measured response is shown in the following figure.



Error response according to the cosine law f2<3,5%



Example of UV index map.
The Sun Index forecast refers to the daily maximum.
Source: www.temis.nl

V 2.1

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