

MonUV



*UV radiation monitoring station
for environmental protection applications*

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Why MonUV

The MonUV system is a measuring station specifically designed for the monitoring of those environmental parameters which are fundamental for the prevention of damages due to exposure to environmental UV radiation.

The station can be configured according to different needs, like for power supply (e.g. mains or solar panels), or for system and data transmission protocol (e.g. FTP on data line, SMS from GSM modem or files transmission from GPRS modem), or for sensor typology, in order to fit the different operational needs.

The MonUV system is capable of acquiring from sensors the following bio-meteorological parameters :

■ **Erythemat global horizontal UV radiation**

(UV index, standard WMO/WHO – compliant with CIE standards for measurement of erythemat UV radiation)

■ **Air temperature**

Other bio-meteorological measurements can be integrated at request (e.g. relative humidity, wind speed and direction, solar radiation in the visible, ...)

It is also possible to integrate the system with the UV-VIS-NIR spectroradiometer SpectrAIR.

The basic ENVOMON software automatically calculates the suggested exposure times for each phototype (DIN 5050 regulation) and transmits them on a serial line for display on an electronic panel (available at request).

By exploiting the different measurements it is possible to derive the most important bio-meteorological parameters related to the impact that environment has on health, like, for example, the heat index, the perceived temperature, the safe sun exposure time as a function of phototype.



Visualization of data acquired by the **MonUV** station installed in Livorno in 2005 and used by **ARPA Toscana** (MEDSUN project). On the electronic panel are shown: phototype, exposure time, UV index, temperature.





Technical features

MonUV configurable monitoring system, composed in its basic version by the following modules :

- *Personal Computer and monitor LCD 15"*, supplied by 220 V/50Hz
- *High speed data acquisition board :*
 - 225 k sample/s; 8 analog diff. input; 23 digital bi-directional I/O @ 12 bit;*
 - 4 counters/timers up to 5 MHz*
- *Modem GPRS with integrated antenna*
- *Power back-up unit (about 20 minutes run time)*
- *Sensors :*

UV radiometer : *accuracy: 8% (NIST standard)*
cosine error : max. 3% for zenith angle < 70 degrees
range: 0 – 16 UVI
spectral sensitivity: 290 – 400 nm (UVB-UVA)

Temperature sensor : *accuracy: 0.5 °C*

- *SW ENVMON Base*
 - Application for Windows (98/XP) for data visualization and acquisition on the PC.*
- *Small hard suitcase for sensors and cables*
- *Shielded cable (7 m length) and connector for acquisition board*

Other devices and sensors available on request :

VIS radiometer : *accuracy: 5% (NIST standard)*
dynamic range: 0 – 1500 W/m²
spectral range: 400 – 1100 nm

Relative humidity sensor : *accuracy: 3%*

Anemometer : *accuracy: 0.5 m/s, range 0 – 50 m/s*

Electronic panel: *alphanumeric, two lines, for outdoor use;*
characters size: 10 cm; panel dimensions 150 x 40 x 8 cm

Other software modules available on request :

- *SW ENVMON GPRS : application for Windows (98/XP) for visualization, management, acquisition, log, formatting and data transmission on GPRS channel.*
- *SW InsertDB : utility that allows the routing of data received from GPRS channel and their direct insertion into a MySQL database or compatible databases.*