



SafeSun Sensor

User's Manual

Optix

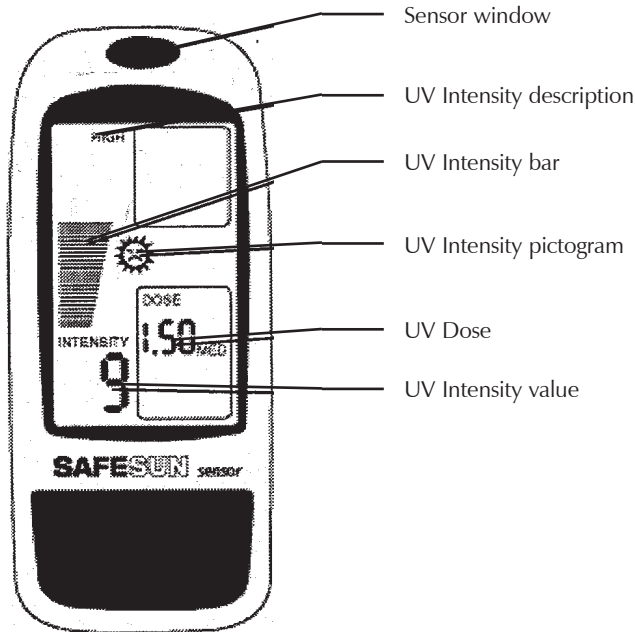
Optix Tech Inc.
1100 1711 St. N.W., Suite 1101
Washington, DC 20036
phone: 202-737-6641
fax: 202-737-2351
info@safesun.com info@safesun.com
http://www.safesun.com http://www.safesun.com

Introduction

The SafeSun Sensor is a personal precision ultraviolet (UV) radiation meter. It reports the UV Index (UVI) and UV Dose. The UV Index represents the "skin burning" power of UV light. The UV Dose is the overall amount of radiation received during a day. See the following sections for an interpretation of the dose reported by the SafeSun Sensor.

The main application of this meter is to monitor the amount of UV radiation absorbed by the user. By monitoring the UV that the user has absorbed, the user can avoid painful and harmful sunburn.

Figure1: SafeSun Sensor



Human skin's sensitivity to burning by UV is described by a standard accepted worldwide - the Erythemal Response Spectrum. Because of human skin's extreme sensitivity to changes in the wavelength of sunlight, an accurate report of the UV Index requires precise measurements of the entire UV spectrum. The SafeSun Sensor UV meter provides such measurements, and thus it can be used as a monitoring tool to avoid sunburn. This device however, should not be used as a substitute for sunscreen or other sun protection devices.

Operation

The unit is fully automated, thus providing user-friendly operation.

The unit turns on, and automatically begins to measure the sun's UV intensity and dose when exposed to sunlight. Please make sure that the sensor window is clean and unobstructed. Avoid touching the sensor window.

UV Intensity and UV Dose Readouts

SafeSun Sensor measures UV intensity in UVI units. The numeric indicator of the UV intensity is displayed in the lower left-hand corner of the LCD. A graphic bar indicator also represents the value measured. The level of intensity (moderate, high, very high) is displayed in the upper left-hand corner. The level is shown as a pictogram on the LCD:

| Intensity level | UV Intensity (UVI) | Pictogram |
|-----------------|--------------------|--------------|
| Moderate | 5-6 | |
| High | 7-9 | ☹ |
| Very high | 10 & more | ☹ (blinking) |

(US Environmental Protection Agency classifications)

The device calculates the UV Dose based on the actual UV Intensity over the course of a day. The dose is displayed in the conventional units of MEDs (Minimal Erythemal Dose).

The Personal Daily Dose resets overnight. It also automatically resets when the unit is out of daylight for more than eight hours. The UV dose is displayed on the lower right-hand corner of the display. The unit will beep with every whole number MED increase. A single beep will signal 1 MED, two beeps 2 MED, and so on.

Important: The UV dose measured has to be compared with your Personal Allowed Daily Dose (PADD). You should move out of the sun before exceeding your PADD.

Monitoring UV absorption, Skin types

By monitoring the amount of UV absorbed, sunburns can be avoided. Burning will only occur after users exceed their PADD. The table below gives indications of PAADs for various skin types:

| Skin Type | | I | II | III | IV |
|------------------|-----|-----|-----|-----|-----|
| PAAD (MED units) | min | 0.3 | 1.0 | 1.5 | 2.0 |
| | max | 1.5 | 2.5 | 3.5 | 6.0 |

Note: the above PADD should not be used in conditions of hyper photosensitive skin. Photosensitivity can be caused by a variety of reasons, including, but not limited to, damaged or healing skin, the



presence of scar tissue, and use of certain medication. For precise determination of your skin type, please consult your dermatologist.

This table helps to determine your personal skin type:

| Skin Type | Skin color in unexposed area | Tanning history |
|------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------|
| I Never tans, always burns. | Pale or milky white, alabaster. | Develops red sunburn, painful swelling, skin peels. |
| II Sometimes tans, usually burns. | Very little brown, sometimes freckles. | Usually burns; pink or red colouring appears, can gradually develop light brown tan. |
| III Usually tans, sometimes burns. | Light tan, brown or olive, distinctly pigmented. | Rarely burns, shows moderately rapid tanning response. |
| IV Always tans, rarely burns | Brown, dark brown or black | Rarely burns, shows very rapid tanning response. |

(US Environmental Protection Agency classifications)

The exact value of the PAAD varies from individual to individual and depends on prior tanning. Personal experience is the key to an exact determination of the PAAD and skin type. We suggest initially that the user not exceed the lowest (min) value given in the table above. If no sunburn occurs, the limit value can be increased on the next day by 0.2MED (skin type I) to 0.5MED (skin type II, III, IV). The above suggestions are indicative only.

To correctly monitor personal UV exposure, the sensor window (see Figure 1) should be exposed to light in a manner which is representative of the body's exposure. For example, laying the meter flat on a surface with the sensor facing the sun provides adequate measurement for people on the beach. The device responds to radiation coming from various angles, just as human skin does.

Features

- Measures UV intensity
- Measures UV daily dose
- Individually calibrated
- Cosine angular response (responds to radiation coming from various angles)
- Large LCD display
- Weatherproof

Specifications

| | |
|------------------------|------------------------------------------|
| Readouts | |
| UV Intensity: | 0-15 UVI |
| UV Dose: | 0-19.9 MED |
| Accuracy: | 15% 3-15UVI; 20% 0-3UVI |
| Dimensions: | 4.6" x 2.0" x 0.9" (115 x 51 x 23 mm) |
| Operation temperature: | 10-20 F (-10-50 degrees C) |
| Weight: | 5 ounces (140 g.) |
| Construction: | ABS plastic |
| Battery Type: | CR24-30 Lithium battery |

Specifications are subjected to change without notice.

Precautions

- Use the SafeSun Sensor to monitor only the sun's natural radiation. It should never be used to measure UV from artificial sources, such as sun beds.
- UV is reflected by many surfaces, for example sand, water, concrete, snow. If the meter is held upright, the UV reading may underestimate this effect.
- Staying in the shade does not provide complete protection from UV radiation due to the scattering effect of UV radiation.
- Alcohol and some medications may change human skin's sensitivity to UV.
- Extreme temperature and humidity may lead to incorrect results. Do not leave the device in conditions of extreme humidity or temperature for long periods.
- Remove batteries if exhausted or if the device will be inactive for a long period of time.
- The SafeSun Sensor may fail to operate correctly if the sensor window is not kept clean. Remove dirt with a piece of soft cloth moistened in alcohol (ethanol, isopropanol). Use cleaning fluids sparingly.
- Upon leaving the factory, the SafeSun Sensor is carefully calibrated. Improper handling (water immersion, strong shocks) may alter the meter's parameters. Handle with care.
- The SafeSun Sensor should not replace your common sense or current method of avoiding skin damage by the sun.

The SafeSun Sensor manufacturers bear no responsibility for the scientific and medical reliability of the Erythral Response Spectrum standard. The SafeSun Sensor manufacturer and distributors shall not be liable for special, incidental, consequential or punitive damages, including, without limitation, health damage, loss of goodwill, profits or revenue, loss of use of this product or any associated equipment or claims of any party dealing with buyer or buyers for such damages resulting from use of this product or any legal theory.