

# EIT MicroCure® and DataReader

## Miniature UV Radiometers

EIT's MicroCure® radiometer is a microprocessor-based, electro-optical instrument that measures and accumulates the total UV energy that is applied to the measurement surface of the instrument.

EIT's MicroCure® measurement system is comprised of two separate stand-alone items; the data collection radiometer which is placed in the ultraviolet (UV) environment to be measured, and a DataReader which reads and displays the measurement results from the radiometer.

The UV integrating radiometer is a microprocessor-based, electro-optical instrument that measures and accumulates the total UV energy that is applied to the measurement surface of the instrument. The MicroCure® radiometer measures the total amount of UV energy that would be impinged on a work piece passing through the curing system and the peak UV irradiance. The radiometer combines very small physical size and adaptability to address a variety of demanding physical and thermal measurement environments.



### Operation

The MicroCure® radiometer is designed to be placed in a UV curing environment so that the UV radiation strikes the radiometer in the same manner as it would strike an actual work piece. The radiometer is designed so that when UV strikes the measuring face of the instrument, it automatically measures and stores electronically the amount of UV energy impinged upon it and the peak UV irradiance. Upon completion of the measurement, the operator places the radiometer in a stand-alone DataReader. Depressing the "Select" button on the DataReader downloads the information in the radiometer and displays on an LCD the total UV energy and peak UV irradiance seen by the radiometer. A short push of the "Select" button toggles between the dosage and UV irradiance measurement readings. Pressing the "Reset" button on the DataReader will clear the electronic storage in the radiometer and the readings on the DataReader display. The radiometer is now ready to take another reading.

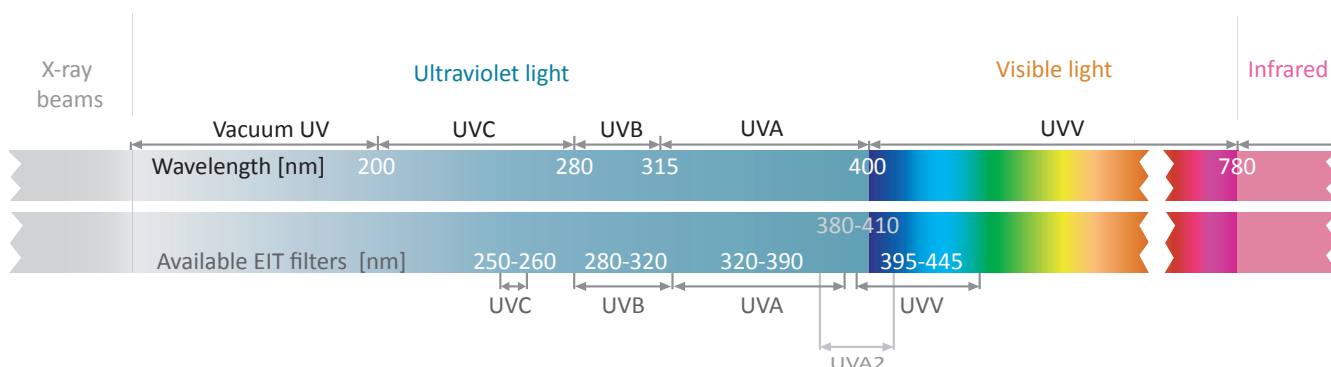
If no UV radiation above a threshold value is encountered for four minutes, the radiometer will enter a "deep sleep" mode. In the "sleep" mode, the radiometer batteries will last a minimum of one year. Alternatively, the unit can make 200 measurements on the same battery.

### Features

- Small Size: 33mm x 24,13mm x 6,35mm
- Lightweight: 9,4 grams
- Measures total energy density in Joules/cm<sup>2</sup>
- Measures peak power density in Watts/cm<sup>2</sup>
- Battery powered
- High sample rate: 2000 Samples per second
- Automatic operation
- High temperature resistance

### Applications

- UV systems requiring small size and automatic operation
- Small container curing (bottles, cans, etc.)
- Three-dimensional objects
- Web printing
- Very small conveyORIZED and batch applications (semiconductor printing, small part bonders, etc.)
- Statistical Process Control measurements



To ensure that the radiometer battery has sufficient remaining energy, the DataReader display indicates how many readings have been made by the individual radiometer since new.

The DataReader is battery powered and can perform 36,000 readings on a single battery. A low battery condition is indicated on the display.

### Applications

The MicroCure® radiometer is very versatile because of its small size and automatic operation. Exact method of use will depend on the given application. Some specific examples are:

#### 3-D Objects

Attach the radiometer to objects such as furniture or vehicle dashboards to monitor UV levels on unusual shapes and processes.

#### Web Press

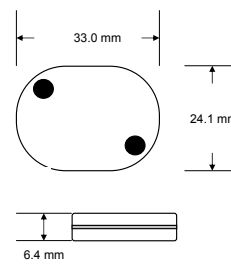
In this application, the radiometer is attached to the web. The measurement is made as the radiometer passes under

the lamp station in question. (The radiometer is placed on the web while it is stationary or moving and removed prior to the print station). Because of its very small size, it can pass over rollers without damage.

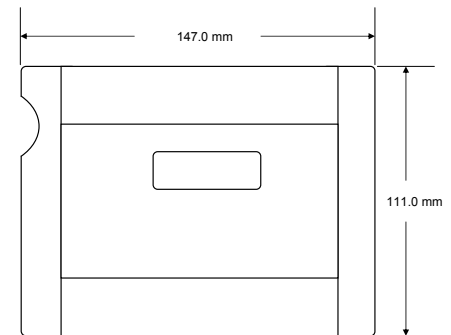
#### Compact Disc Manufacture

The MicroCure® radiometer is sufficiently small that it can be inserted directly into one of the CD “nests” to measure the UV radiation used to cure UV coatings and finishes.

#### Dimensions



Radiometer



DataReader

### MicroCure Radiometer and Datareader Specifications

Dimensions	MicroCure Radiometer	DataReader
Spectral Response	UVA (320-390nm, 10% power points)	
Sample rate	2000 per second	
Total Energy	0 to 9999 Joules/cm <sup>2</sup>	
Resolution	0.001 Joules/cm <sup>2</sup>	
Accuracy	+/- 7% typical @ 25°C, -0.2% per °C over operating range	
Peak UV Irradiance	Low Power (-2 Version): 100mW/cm <sup>2</sup> to 2W/cm <sup>2</sup> High Power (-10 Version): 500mW/cm <sup>2</sup> to 10W/cm <sup>2</sup>	
Spatial Response	Cosine approximation	
MicroCure® Radiometer Life	200 readings or 1 year, whichever comes first	
Operating Temperature Range	15-70°C internal	0-70°C
Time-out Period	Approximately 4 minutes after last UV exposure	30 seconds
Batteries	Permanent lithium cell	One user replaceable 9V lithium battery; 36,000 readings or 5 years
Dimensions	33.00mm long x 24.13mm wide x 6.35mm thick (1.30" x 0.95" x 0.25")	146.56mm long x 111.25mm wide x 36.83mm high (5.77" x 4.38" x 1.45")
Weight	9.4 grams (0.33oz)	333.11 grams (11.75 oz)
Materials	Plated Aluminum, nylon	Steel, nylon, polycarbonate
Display		4 digit LCD, programmable decimal point
User Interface		Push button switches allow user to display total energy and peak UV irradiance or to reset the unit

#### Further information

Efsen Engineering have wide experience of measuring UV and the practical aspects of the use of EIT's instruments in different applications.

For more detailed information regarding price, delivery time and further specifications, please contact us.

#### Calibration of UV radiometers

Efsen Engineering is the European center for calibration of EIT instruments, and is certified to calibrate according to EIT standards. More information is available at [www.efsen.dk](http://www.efsen.dk)



MicroCure® is patented by U.S. Patent #6,023,066