Features

- Small Size: 1.3" x 0.95" x 0.25"
- Lightweight: 0.33 ounces
- Measures total energy density in Joules/cm^2
- Measures peak power density in Watts/cm^2
- 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

Introduction

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.

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:

Small Conveyor or Batch Mode – In this application, the radiometer is placed in the UV curing environment in the same manner as an actual work piece. The radiometer's very small size and ability to withstand harsh environments provides measurements in such previously inaccessible areas as small conveyorized semiconductor marking, credit cards, small part curing, etc.

Small Container Curing – UV environments encountered in small container curing such as cosmetic or drink containers, are generally characterized by putting the radiometer in the place of one of the containers. In the case of cylindrical

containers like shampoo bottles, the radiometer can be attached onto the product using EIT's innovative Web Accessory Kit. The radiometer can also be placed inside a container with the measurement being made through a pre-cut hole. The radiometer is retrieved at the end of the process and inserted in the DataReader. The DataReader displays the radiometer readings.

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.

Flexible Light Guide Curing Systems - Some flexible light guide systems, such as those used in curing adhesives on small objects, are fixed into geometries that make it impossible to place a standard radiometer in the curing region. The MicroCure® radiometer's very small size makes such measurements generally possible.


SPECIFICATIONS:

MICROCURE® RADIOMETER

Spectral Response	UVA (320-390nm, 10% power points)
Sample rate	2000 per second
Total Energy	0 to 9999 Joules/cm^2
Resolution	0.001 Joules/cm^2
Accuracy	+/- 7% typical @ 25°C, -0.2% per ^{o}C over operating range
Peak UV Irradiance	Low Power (-2 Version): 100mW/cm^2 to 2W/cm^2 ⎤ ⎟ Display flashes on over-range. High Power (-10 Version): 500mW/cm^2 to 10W/cm^2 ⎦
Spatial Response	Cosine approximation
Operating Temperature Range	15-70°C internal
Time-out Period	Approximately 4 minutes after last UV exposure
Batteries	Permanent lithium cell
MicroCure® Radiometer Life	200 readings or 1 year , whichever comes first
Dimensions	1.30" long x 0.95" wide x 0.25 thick (33.00mm x 24.13mm x 6.35mm)
Weight	0.33oz (9.4 grams)
Materials	Plated Aluminum, nylon

MICROCURE® DATAREADER

User Interface	Push button switches allow user to display total energy and peak UV irradiance or to reset the unit
Dimensions	5.77" long x 4.38" wide x 1.45" high (146.56mm x 111.25mm x 36.83mm)
Weight	11.75 oz (333.11 grams)
Display	4 digit LCD, programmable decimal point
Operating Temperature Range	0-70°C
Timeout	30 seconds
Package Material	Steel, nylon, polycarbonate
Battery	One user replaceable 9V lithium battery; 36,000 readings or 5 years

Specifications are subject to change without notice.
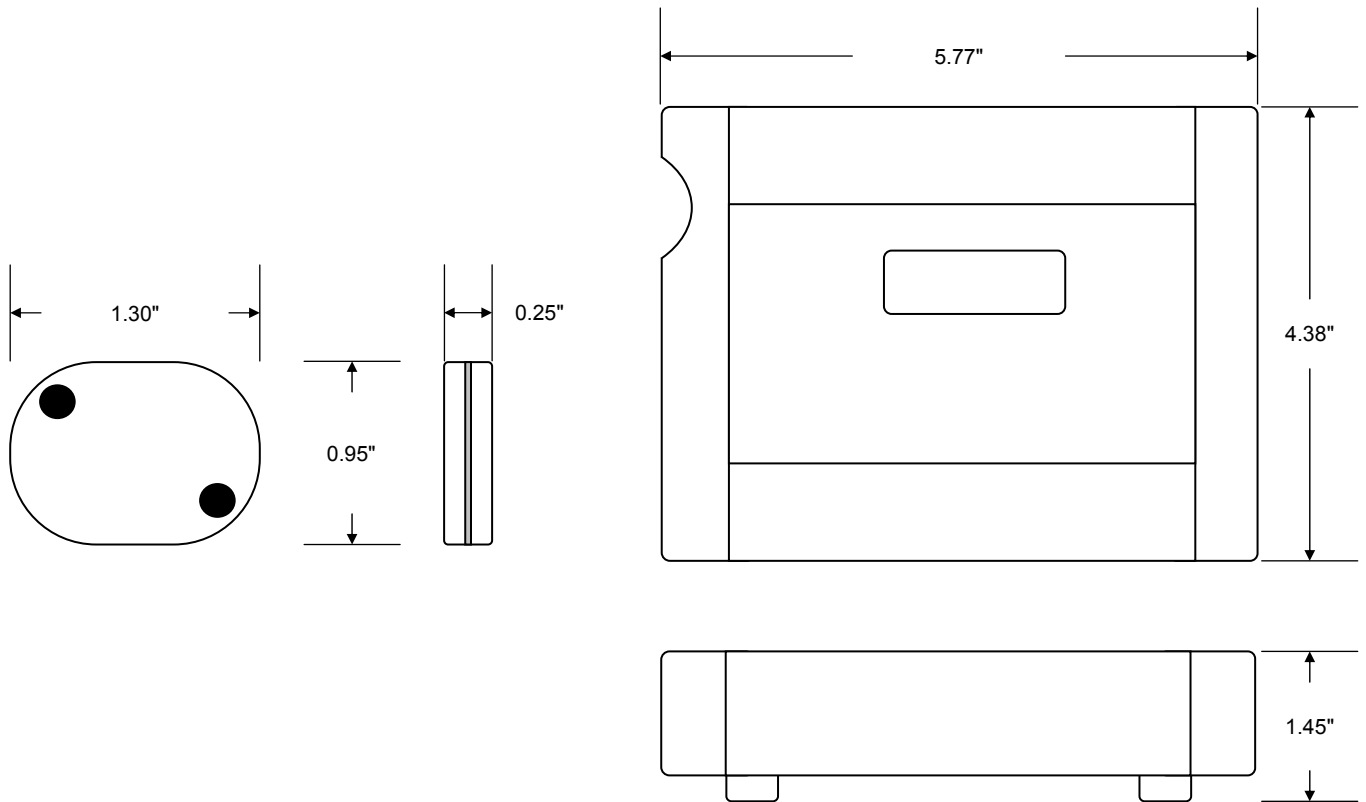
MicroCure® Radiometer and DataReader Dimensions

PRODUCT ORDERING INFORMATION

MicroCure® Radiometer, 2 Watt Version	MC - 2
MicroCure® Radiometer, 10 Watt Version	MC - 10
MicroCure® DataReader	MCR-2000

[Ordering Information]

A MICROCURE® Series - Complete System

NO	Part Number	Model	Division	Spectral Ranges	Operating Range	Description
1	ISM007-074	MCP-2	Low Range	320-390nm (UVA)	UVA : 100mW/cm² to 2W/cm²	MicroCure® DataReader with Radiometer, 2 Watt Version
2	ISM007-074A	MCP-10	High Range	320-390nm (UVA)	UVA : 500mW/cm² to 10W/cm²	MicroCure® DataReader with Radiometer, 10 Watt Version

B MICROCURE® Series - Separate Parts

NO	Part Number	Model	Division	Spectral Ranges	Operating Range	Description
1	ISM007-084	MC-2	Low Range	320-390nm (UVA)	UVA : 100mW/cm² to 2W/cm²	MicroCure® Radiometer Low Power, 2 Watt Version Sensor
2	ISM007-084A	MC-10	High Range	320-390nm (UVA)	UVA : 500mW/cm² to 10W/cm²	MicroCure® Radiometer High Power, 10 Watt Version Sensor
3	ISM007-MCR2000	MCR-2000				MicroCure® DataReader
4	ISM007-CC1	CC1				Carrying Case
5	ISM007-DRB	DRB				DataReader Battery

MicroCure® Radiometer, 2 Watt
MicroCure® Radiometer, 10 Watt

MicroCure® DataReader

Complete System

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