

Miniature UV Radiometers MICROCURE and MICROCURE PLUS



Features

- Small Size: 1.3" x 0.95" x 0.25"
- Lightweight: 0.33 ounces
- MicroCure measures total energy density in Joules/cm²
- MicroCure Plus measures total energy density in Joules/cm² and peak power density in Watts/cm²
- 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 new MicroCure and MicroCure Plus measurement systems are 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. The MicroCure Plus also measures 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. MicroCure Plus additionally measures 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 seen by the radiometer (MicroCure) or both total UV energy and peak UV irradiance (MicroCure Plus). In the case of MicroCure Plus, short pushes 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 26,000 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 and moved from the web using a special Web Accessory Kit. 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:

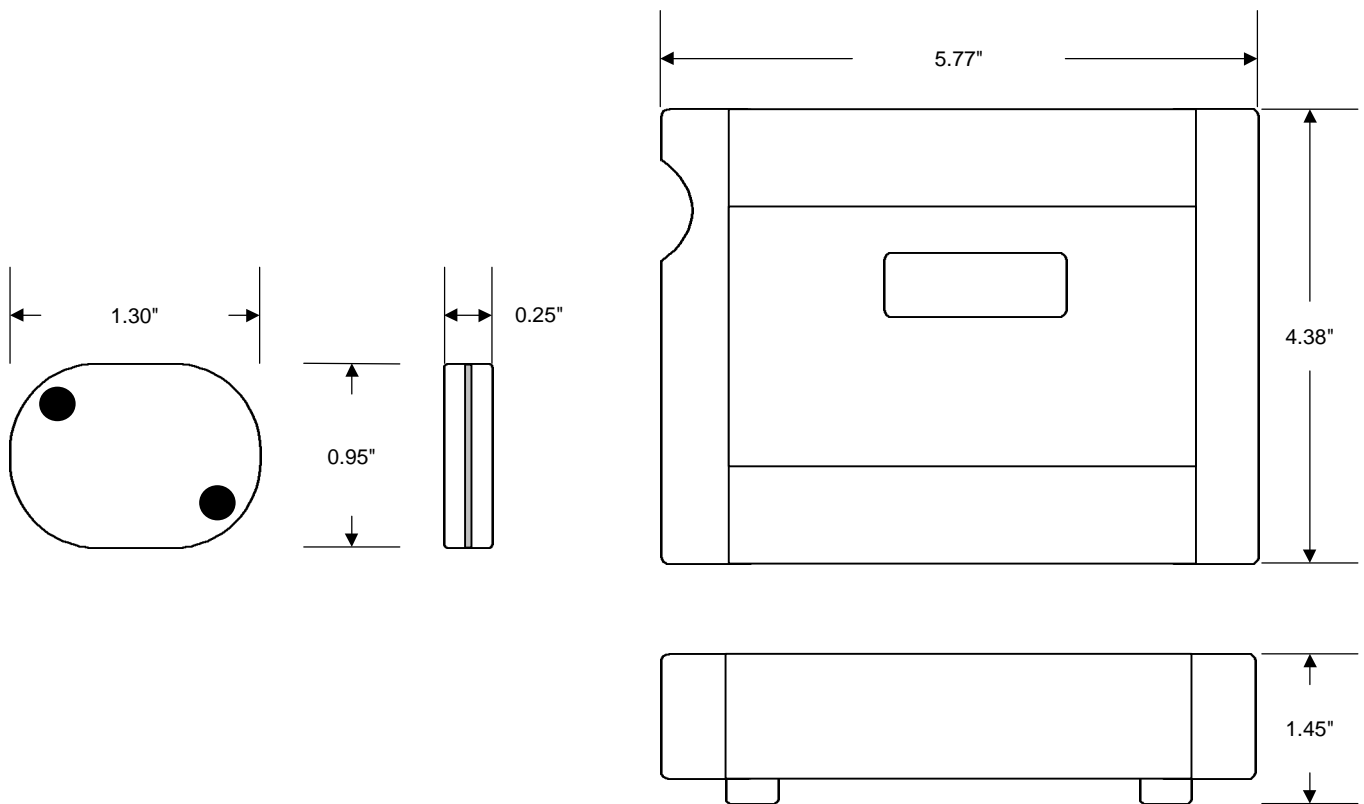
MICROCURE RADIOMETER

Range	Low Power (-2 Version): 100mW/cm ² to 2W/cm ² High Power (-10 Version): 500mW/cm ² to 10W/cm ²	} Display flashes on over-range.
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 °C over operating range	
Peak UV Irradiance (MicroCure Plus only)	Low Power (-2 Version): 100mW/cm ² to 2W/cm ² High Power (-10 Version): 500mW/cm ² to 10W/cm ²	} Display flashes on over-range.
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	

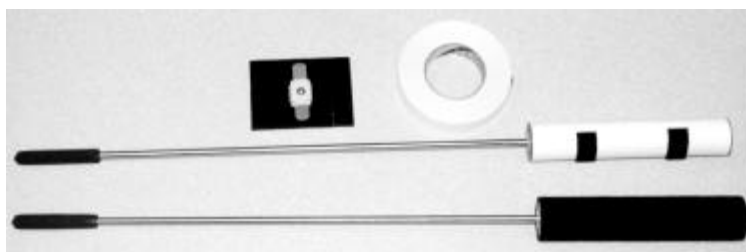
MICROCURE DATAREADER

User Interface	Push button switches allow user to display total energy (and peak UV irradiance for MicroCure Plus) 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



WAK-1 Web Accessory Kit

PRODUCT ORDERING INFORMATION

MicroCure Radiometer, 2 Watt Version (MicroCure Plus, 2 Watt Version)	MCA-J-2 (MCA-J-I-2)
MicroCure Radiometer, 10 Watt Version (MicroCure Plus, 10 Watt Version)	MCA-J-10 (MCA-J-I-10)
MicroCure DataReader	MCR2000
Web Accessory Kit	WAK-1
Transport Applicator	TA-1
ROLER (Rapid On-Line Equipment Removal)	ROLER
Double-Sided Tape – High Tack	DST1
Double-Sided Tape – Low Tack	DST2
Transport Pad	TP1
Carrying Case	CC1
DataReader Battery	DRB

Orders may be placed through your local representative or distributor. Call or FAX directly to EIT at the numbers listed below. If you have access to the Internet, visit our web site at www.eitinc.com.

Other EIT Products

- **UV POWERMAP™ & UV MAP PLUS™** (4-Channel and Single Channel Measurement Systems) – Profiles UV intensity and temperature throughout a curing system.
- **UVICURE® PLUS High Energy UV Integrating Radiometer** – Measures total UV dosage in Joules/cm² and peak irradiance in Watts/cm². For use in establishing optimum curing energy in UV curing applications.
- **UV POWER PUCK®** – Measures total UV dosage in Joules/cm² and peak irradiance in Watts/cm² of four spectral UV ranges in one pass through the conveyor.
- **UVIRAD® Low Energy UV Integrating Radiometer** – Measures UV in 100µW/cm² to 100mW/cm² range.
- **SPOTCURE® UV Intensity Meter** – Measures the intensity emitted by a UV spot curing system, up to 19.99 W/cm².
- **ONLINE UV INTENSITY DISPLAY MODULE** – Continuously monitors a single UV source and provides a digital display of its relative output.
- **DIN RAIL MOUNT UV INTENSITY MONITOR** – Continuously monitors the output of a single UV lamp in convenient DIN rail mount configuration.
- **MULTIBRITE™ 4-Channel UV Monitoring System** – Continuously monitors up to four separate UV sources and provides a digital display of the relative UV output for each source. Local and remote alarms may be set if the output drops below a preset threshold.