

The Leader in **UV Measurement**

Instrument Features

- Robust, industrial design
- Reliable, repeatable results
- Choice of wavelength response:
 - UVA (320-390nm)
 - UVB (280-320nm)
 - UVC (250-260nm)
 - UVV (395-445nm)
- High out of band rejection rate

EIT Instrument Markets

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UV Measurement

From The Innovative UV Measurement People



UV MAP PLUS

A complete line of

UV measurement and



process control instrumentation



100200.CAT REV B 305

Why UV?

Ultraviolet light has been used to cure inks, adhesives, coatings and resins for almost 30 years. UV cured material use has increased as more applications are found for this technology. The advantages include faster production times, lower pollution, improved products, and new products which cannot be made with traditional solvent-based chemicals.

Why Measure UV?

Curing of UV products has often been described as art. Measurement of the curing process parameters with EIT equipment will make it more of a science. Measurement of the UV irradiance and energy density are important in establishing a UV process window. Operating within your process window should save you time, money, and product. UV Measurement provides a means of supplying process documentation for customers who demand it.

Why EIT Products?

EIT radiometers and online monitoring equipment are designed, manufactured, assembled and serviced in our facilities in Sterling, VA. Our in-house metrology lab calibrates the units to a NIST traceable source.

With over 150 employees, EIT designs and manufactures a variety of electronic products and assemblies in medical, telecommunications, and industrial process control areas. In addition, the EIT Quality Management System is ISO 9001:2000 registered.





Profiling Radiometers

The PowerMAP[™]and UV MAP Plus[™] measure and display the peak power and total energy density in a UV curing system. Four spectral bandwidths, covering most of the industrial spectrum, are available on the PowerMAP[™]; one spectral bandwidth is available on the UV MAP Plus[™]. The units also profile the temperature and irradiance in a UV system as a function of time. This allows the user to check the focus of a system and monitor the temperatures to which the workpiece is exposed. The information is transferred to a computer and our PowerView[™] software package allows the user to view, analyze, manipulate and store the data.

PowerMAP[™] and UV MAP Plus[™] products Features

- Measures peak irradiance power and total energy density of one spectral bandwidth (UV MAP Plus[™]) or four spectral bandwidths simultaneously (PowerMAP[™])
- Detachable optics head
- Fast sampling rate up to 2048 samples per second
- Stores up to one million data points
- Transfers data to a PC
- Displays and stores the collected data in graphical and tabular form



Applications

Measure performance of the entire UV process

V POWERMAP

- Compare characteristics of multiple lamps
- Compare UV system over time or compare different systems to each other
- Measure temperature in curing environment
- Track and store archival data

Radiometers

EIT radiometers are exposed to the UV source. The radiometers provide the total UV energy (joules/cm²) and/or UV peak irradiance (watts/cm²) in absolute units. Each radiometer is calibrated to a NIST traceable source. Most radiometers are available in several bandwidth choices. Contact EIT for our current offerings.

UVICURE[®] Plus and UV Power Puck[®] Features

- Compact size: 4.6" Diameter (117mm) x 0.5"H (13mm)
- Measures UV peak irradiance (watts/cm²) and total UV energy (joules/cm²) of one spectral bandwidth (UVICURE[®] Plus) or 4 different UV bandwidths simultaneously (UV Power Puck[®])
- Self-contained battery-powered (user-replaceable lithium batteries)

Applications

- Curing applications All UV curing chemistries including inks, adhesives, soldermasks and epoxies.
- Measure UV lamp performance
- Compare the efficiency of curing systems
- Establish UV level for proper curing



UVIRAD[®] Features

Small size: 5.25" Diameter (133mm) x 0.38"H (9.9mm)

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UVICURE PLUS

UV Power Puck

- Rounded edges and case strength allow insertion directly into vacuum frame
- Measures total exposure energy (millijoules/cm²)

Applications

- Use in imaging and plate making applications where irradiance levels are low (<100mW/cm²)
- Exposure machine irradiance profiling (find "hot" and "cold" spots within a vacuum frame)
- Establish a benchmark exposure value
- Platen and artwork opacity measurements
- UV lamp evaluation

MicroCure[™]/DataReader Features

- Miniature radiometer: 1.3"L x 0.95"H x 0.25"T (33.00mm x 24.13mm x 6.35mm)
- High sampling rate 2000 samples per second
- Measures peak irradiance (watts/cm²) and total energy (joules/cm²)
- Displays data on a portable DataReader

Applications

- Use in relatively inaccessible applications (small container, small conveyor, three dimensional, and batch applications)
- Establish UV curing levels
- Measure UV lamp performance

SpotCure[®]_ Features

- Small size 6.4"L (162mm) x 1.74" Diameter (44.2mm)
- Adaptors allow repeatable measurements of different size light guides
- Measures UV irradiance (watts/cm²)
- Easy to use; extremely long battery life (100,000 measurements)

Applications

- Monitor spot curing system performance
- Measure light guide degradation
- Determine optimum positioning of light guide cable
- Compare the efficiency of spot curing systems



Radiometers

Quickly and easily profile dimensional and shaped objects of any size using EIT's 3DCURE[™] Multi-Dimensional Measurement System. The system is used for simultaneous multi-point (up to 32) measurement for setup and process verification of your UV lamp system. 3DCURE[™] can be used with UV lamps mounted in a fixed bank or on a robotic arm. The collected exposure data (watts/cm² and joules/cm²) is displayed on your computer for each sensor position via Cure_3D[™] software, and ActiveX[®] controls allow customization and export of the data into other programs.

3DCURE™ 3DCure™ Sensors

- Multiple low profile Sensors: 1.75" diameter (4.5cm) x 0.5" H (1.27cm)- up to 32 per system.
- Each calibrated and serialized; Available in UVA, UVB, UVC, or UVV bandwidths.
- Flexible daisy-chain quick connector system allows Sensors to be placed exactly where they are needed without creating a maze of cables
- Special "Positioners" to provide repeatable consistent readings at a particular location.

Data Collection Module (DCM)

- Small, durable, & portable; uses rechargeable batteries that provide power to the Sensors.
- Stores collected Sensor data; transfers digital file to a computer via EIT Cure_3D™ software.
- Cure_3D[™] software displays energy (joules/cm²), and irradiance (watts/cm²), plus other pertinent information in table format from each Sensor in the chain.
- ActiveX[®] controls allow data manipulation and export to other software programs for analysis.

Applications

- Measure UV source output on any 3D configuration, including automobile fenders, hoods, entire bodies; wood cabinets, doors with complex edges, internal/external doors, frames, molding, furniture; large dimensional objects such as airplane canopies, composite parts, shower stalls, boat hulls, panels.
- Use as a tool for UV lamp positioning, robotic programming.
- Develop process design, transition to production, and verify UV system output.

PALM Probe[™] (Production Ambient Light Measurement) System

Features

- Wide Dynamic Range Measurements (100,000:1); Autoranging and zeroing
- Measures and displays peak irradiance (watts/cm²), energy density (joules/cm²), and exposure time (seconds)
- Electrically isolated and insulated probe. Contains no optical fiber that can break.
- Choice of UVA, UVB or UVV
- Probe Locator Kits available for exact positioning

Applications

- Measure system performance in applications where space is limited or difficult to access (ex., label, web applications)
- Establish and maintain UV process window
- Coordinate readings from online displays
- Multiple uses from production curing (high irradiance) to stray hazard (low irradiance)

ET PALM PROSE

Online monitoring equipment

EIT online monitoring equipment provides continuous monitoring of UV lamp intensity. The user selects a sensor and also selects how to display the data from the sensor by choosing one of EIT's display options. Results are provided as a percentage of the original output, which is usually set to 100%.

Display Options

Applications

- Use for Statistical Process Control (SPC)
- Monitor output of UV lamp(s) continuously
- Track UV degradation of a single lamp
 - Online UV Intensity Display - Din Rail Mount UV Intensity Monitor
 - Battery-Powered Monitor
- Track UV degradation of multiple lamps simultaneously - Multibrite®
- Relamp based on actual UV output
- Use the 0-10V signal for PLC control
 - Online UV Intensity Display
 - Din Rail Mount UV Intensity Monitor - Multibrite®



Online UV Intensitv Display

Features

- Monitors a single UV lamp
- 0-10V analog output proportional to UV
- Relay contacts close when UV output falls below user-settable threshold
- Panel mount convenience
- 2 1/2" digit LED display of lamp's relative intensity from 0-199%
- 24V AC/DC power

Battery-Powered Display Module

Features

- Continuously monitors the output of a single UV lamp
- Large LCD display for easy viewing
- Self-contained stands alone or easily mounts on a wall or panel
- Easy hookup no external power connection required
- Long lasting battery up to eight years continuous use

MULTIBRITE®

Features

- Monitors up to 4 UV lamps simultaneously
- 3 digit LED displays lamps' relative intensities from 0-199%
- Adjustable audible and visible alarms; external alarm outputs
- 4-20 mA and 0-10V outputs proportional to UV intensity

Online Sensors Applications

- Monitor UV lamp intensity for process control and maintenance
 - Full time online monitoring -Periodic sampling via PLC controls
- Reliable lamp replacement indication
- Outputs to any EIT display option

Compact Sensor Features

- High resistance to solarization
- Small profile for installation in tight spaces
- Squared body design for easier mounting
- Optional port for air/nitrogen purge to keep the sensor clean
- Sealed optics to prevent fouling
- Provides signal proportional to UV intensity
- Choice of spectral bandwidths
- Multiple mounting options



DIN Rail Mount UV Intensity Monitor

Features

- Monitors a single UV lamp
- Relay contacts close when UV output falls below threshold
- 0-10V output proportional to UV intensity
- 24V AC/DC power
- **DIN** rail mountable
- Designed for PLC, computer or strip chart monitoring

Suggested Sensor Locations



The above locations are suggested only. UV lamp systems vary in design and installation.

Locations

1 Behind reflector near end of bulb.

(6)

- 2 Behind reflector looking at bulb and reflected energy.
- ③ From end of lamp housing.
- 4 Through filter material or rod.
- **(5)** Looking up at bulb and reflector from below.
- 6 Directly under the lamp at substrate level.