OmniCure®
UV Curing • In Control

OmniCure S Series UV Curing Solutions

Setting the Standard for Precision UV Spot Curing

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The Preferred Choice of Precision Manufacturers

Manufacturers in advanced technology sectors around the world increasingly rely on the advantages that light-based, spot curing brings to precision assembly. The use of UV/visible light cure adhesives has become a vital assembly technique due to their rapid processing, on-demand nature, ease of automation and solvent free bonding.

A Proven Track Record

Founded in 1984, OmniCure® delivers UV spot curing solutions to more than 70 countries worldwide and is recognized as the most advanced in their field. Wherever rapid processing, cure-on-demand, ease of automation, lower energy usage and solvent free bonding is required, OmniCure is the obvious choice.

Precise and Reliable Curing

Whether manufacturing medical devices for the human body, electronics industry assembly or other industrial components, there is no room for product failure. The OmniCure Series of curing systems are trusted by critical industries everywhere to provide quality adhesion, time and time again.

Substrate Versatility

Partnered with light cure adhesives, OmniCure's leading-edge technology is used with a broad range of substrates to deliver stronger, faster bonds - resulting in improved quality, rapid production and reduced manufacturing costs for a wide range of applications.

System Versatility – Lean Manufacturing

OmniCure precision technology is effective in both fully automated assembly lines and semi-automatic applications, making it suitable for every type of manufacturer. The ability to calibrate equipment, and accurately set the irradiance level and duration of exposure provides the process control necessary to efficiently maximize yields.

Calibrated Output

An integral part of the OmniCure curing system is the OmniCure R2000 Radiometer. Used to both measure irradiance and calibrate the S2000 and S1500 to the set irradiance levels, this advanced tool greatly enhances the precision and reliability of the OmniCure Series systems.

Experience Counts

With UV applications expertise built over the years since 1984, our global Sales & Support footprint provides all the knowledge you need to help solve your applications needs.

Meets Regulatory Standards

OmniCure technology meets all regulatory CE, UL, CSA and ETC requirements. The OmniCure S2000 and S1500 are also RoHS compliant.

Typical Applications

Medical	Optoelectronics	Electronic Assembly	Optics & General Assembly
Needle Assembly	Fiber Optic Components	Cell Phone Assembly	Optical Lens Assembly
Catheter Assembly	Optical Data Storage	Micro-Speaker Assembly	Stereolithography (SLA)
Cannula Assembly	Digital Projectors	LCD/LCM	Sealing and Coating
Tubing and Connectors	Optical Sensors	Automotive Electronics	Analytical Instrumentation
Endoscope Assembly	Lasers	Smart Cards	
Insulin Pens	Compact Camera Modules	High Density Drives (HDD)	
Blood Oxygenators		Bluetooth Headsets	
		Pick and Place 'Flat Topping'	

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Patented Intelli-Lamp Technology

...the heart of all OmniCure systems

Guaranteed Long Life	The OmniCure S2000 and the OmniCure S1500 systems with Intelli-Lamp® technology have a guaranteed 2000-hour lifetime and up to 4000-hour typical lifetime.
Maximize Lamp Output	Snap-in insertion and built-in reflector optimize the light energy coupled to the light guide without operator alignment or focusing.
Automatic Lamp Hour Tracking	The Intelli-Lamp technology automatically maintains the lamp hours directly on the lamp to facilitate activation of lamp warranty if required.
Broad Spectral Output	The broad spectral output across the UV and visible spectrum, make it suitable for a wide range of adhesive/substrate bonding applications.
Always Connected	OmniCure systems automatically detect the Intelli-Lamp technology ensuring the benefits without the need for operator intervention.
Hot-Strike Prevention	Automatic lamp striking cools and prevents hot-striking to protect lamp life.

# Proprietary Closed-Loop Feedback

Automatic Correction to Lamp Intensity Drop-off

Over time, lamp output decreases, diminishing effective curing. The OmniCure S2000 Closed-Loop Feedback technology includes an internal intensity sensor to monitor lamp output in real time and adjust the iris to automatically maintain the irradiance level to within +/-5% of the set point, ensuring repeatable and measurable doses of curing energy for increased yields and quality.

A PLC/audible alarm warns when the lamp can no longer generate the set irradiance level. Now you can use your lamp until the end of its lifetime, without the requirement to frequently check the irradiance level.

Calibration with the OmniCure R2000 Radiometer offers real time display of irradiance on the OmniCure S2000.

Closed-Loop Feedback Comparison

With Closed-Loop Feedback

No Closed-Loop Feedback used

Irradiance (mW/cm²)

Elapsed Time (Lamp Hours ON)

- The only system that can be calibrated in real time for NIST accuracy
- Ideal for automated or semi-automated environments
- Often imitated – never duplicated
- Proprietary technology of Excelitas Technologies
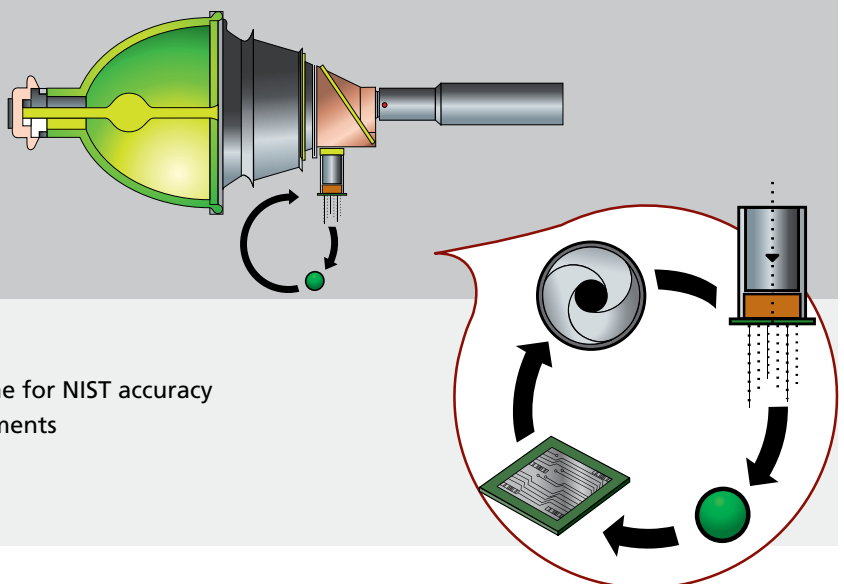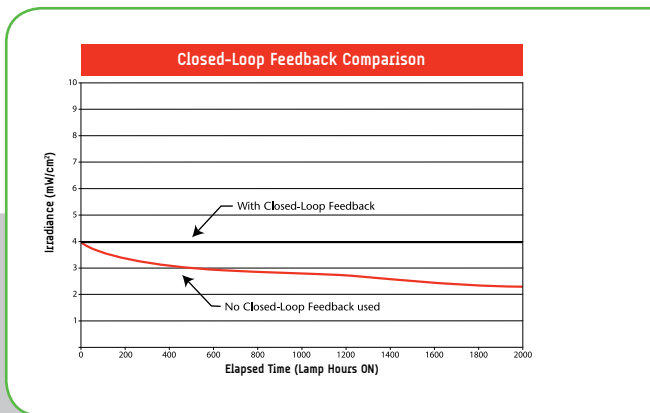
The OmniCure S1500

The OmniCure S1500 delivers power, control and reliability in a cost-effective and easy-to-use spot curing system.

This UV curing solution offers excellent value for the UV adhesive curing of high-volume, automated manufacturing requirements such as microelectronic and optoelectronic manufacturing applications.

Increased Productivity

The powerful 200 Watt lamp with patented Intelli-Lamp technology installed in the OmniCure S1500 guarantees an amazing 2000-hour lamp life and a typical lamp life of up to 4,000 hours. Faster curing is achieved with high UVA irradiance of up to 10W/cm^2. With OmniCure's latest design enhancements to the lamps used in the S2000 and S1500, customers benefit from improved robustness that meets its highest quality and performance standards.

Intelligent Operation

The OmniCure S1500 has a multitude of built-in features that provide greater control, precision and versatility. Features include an adjustable iris, patented Intelli-Lamp technology, selectable bandpass filters, process alarms, and 'lock out' protection, most of which are found only in higher-priced curing systems. The curing system can also be programmed and controlled externally from a PLC using the 15-pin I/O ports.

Ease-of-Use

With snap-in lamp insertion, finger touch controls, an easy-to-read LED display, process indicators and automatic lamp striking, the OmniCure S1500 is simple to use.

OmniCure S1500 Typical Irradiance*
(W/cm^2), 5mm LG & 0mm Working Distance

S1500	R2000
FILTER (nm)	IRRADIANCE (W/cm^2)
320-500	23
400-500	14.5
320-390	7.3
365	5.9
250-450	19.1
no filter	27.7

*Measured using an OmniCure R2000 Radiometer.

OmniCure S2000

The OmniCure S2000 is engineered for high-speed automated manufacturing assembly.

Building on the core OmniCure technology, the OmniCure S2000 has a more powerful 200 Watt lamp with a 2000 hour life guarantee and typical lifetime up to 4000 hours. The OmniCure S2000 includes proprietary Closed-Loop Feedback technology and the added flexibility of a PC software interface for computer-controlled operation. Greater control and with enhanced reliability, the OmniCure S2000 raises the bar for mission critical bonding applications.

Faster Shutter Activation

The OmniCure S2000 is equipped with a fast shutter activation time, providing a maximum trigger shutter activation latency of only 50ms in PLC mode.

Downloadable StepCure®

StepCure software has the option to download a customized multi-phase cure profile directly to the system. Previously only available while connected to an external Desktop PC, this offers users more convenience and greater efficiencies.

Increased Productivity

Powerful 200W lamp with patented Intelli-Lamp technology has a guaranteed life of 2000 hours with up to 4000 hours typical lifetime. Provides fast, even curing with high UVA irradiance of up to 10W/cm². With OmniCure's latest design enhancements to the lamps used in the S2000 and S1500, customers benefit from improved robustness that meets its highest quality and performance standards.

Closed-Loop Feedback

Over time, lamp output decreases, diminishing effective curing. The OmniCure S2000 Closed-Loop Feedback technology includes an internal intensity sensor to monitor lamp output in real time and adjust the iris to automatically maintain the irradiance level to within +/-5% of the set point, ensuring repeatable and measurable doses of curing energy for increased yields and quality.

Online tools are available on the OmniCure website at excelitas.com/omnicure to determine associated cost savings using Closed-Loop Feedback.

Multiple Site Light Delivery

The OmniCure S2000 is ideal for use with multi-legged High Power Fiber Light Guides to cure multiple sites with a single light source. Also offered are Single-Legged, Liquid-Filled or Fiber Light Guides to suit most customer needs.

Intelligent Automation

The OmniCure S2000 is ideal for automated processes, and is easily integrated into an automated system, minimizing development time. The curing system can be programmed and controlled externally from a PLC, using the 15-pin I/O ports or directly from a PC via serial communication. PC software and commands are included with the system.

OmniCure S2000 Typical Irradiance*
(W/cm²), 5mm LG & 0mm Working Distance

S2000	R2000
FILTER	**IRRADIANCE**
320-500	24.70
400-500	16.55
320-390	9.83
365	7.28
250-450	26.64
no filter	37.33

*Measured using an OmniCure R2000 Radiometer.

Shared Features

The following features are found in the OmniCure S1500 and S2000 products

Quiet Fan

The noise level of the OmniCure cooling fan has been reduced considerably – ideal for long operator work periods.

Controlled Curing Power

The OmniCure Series products offer the ultimate in control, providing unparalleled levels of customization and precision to leading manufacturers in the most demanding advanced technology fields. Built-in UV Sensors and Optical Feedback offer constant UV intensity for stable curing and high bond integrity.

Selectable Bandpass Filters

All OmniCure models come equipped with a standard heat-cut filter, or they can be ordered with selectable band pass filters to select and control the wavelength required for your specific application.

Adjustable Iris

The OmniCure adjustable iris allows you to select precise irradiance levels to meet the requirements of the specific application. The iris setting is adjustable in 1% increments with a linear relationship between the iris position and the output irradiance, providing exceptional precision for process optimization.

Ease of Use and Process Integration

Snap-in lamp insertion, finger touch controls, LED display, process indicators and automatic lamp striking make the OmniCure Series simple to use. The flexibility of output and computer controllability of the OmniCure S2000 make it simple to incorporate into complex manufacturing processes.

Designed with Safety in Mind

A built-in sensor automatically detects light guide status, and if the light guide is missing or improperly inserted, the shutter automatically closes and the status LED will turn red.

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R2000 Radiometer

The OmniCure R2000 Radiometer is an integral part of the OmniCure curing system.

Used to measure irradiance levels and calibrate the S2000 and S1500 to the irradiance set point, it is the most advanced tool of its kind; greatly enhancing manufacturing precision and cure reliability.

Cure Ring Radiometer
Measures output power from the Cure Ring directly at the cure site, ensuring a highly repeatable process.

Cure Site Radiometer
Measures the irradiance of a light guide or Optical Accessory directly at the cure site.

Lamp Output Adaptor
Allows measurements directly from the lamp to test the integrity of the light guide.

Proximity Adaptor
Measures power or irradiance in flood geometry.

Repeatability Through Calibration

The OmniCure R2000 Radiometer is the industry standard in radiometry – providing several advanced features not found in competitive products.

It is used with the OmniCure S2000 and S1500 systems to set irradiance levels* and calibrate the system from a single reference point, providing a complete curing station, and dependable, repeatable results.

Radiometer calibration is traceable to NIST, with calibration valid for one year.

*Measures power and irradiance from any UV curing system commercially available.

Calibrate Multiple Units

The handheld unit also allows you to calibrate multiple curing systems from the same radiometer through serial communication. The unit can be connected by up to four remote sensors.

Proprietary Detector System

Proprietary detector system provides the accurate wideband measurements crucial to maintaining consistent results and production yield.

Light Guide Detection

Automatically detects and identifies the Light Guide diameter with color-coded adaptors for proper insertion.

Precision

Proprietary optical interface virtually eliminates beam profile dependence and significantly improves measurement accuracy.

PC Control Panel Software

PC Software memory capability for storing calibration and measurement data for process validation and quality assurance.

Custom Sensors

Sophisticated electronics built into the OmniCure R2000 Radiometer allow for connection to custom sensors to measure light energy directly at the cure site.

Light Guides & Accessories

The OmniCure S Series offers single-legged and multi-legged, liquid-filled or fiber Light Guides to best meet customers' needs, as well as a range of other accessories.

1 Liquid Light Guides	2 High Power Fiber Light Guide	3 High Power Fiber Light Lines
Available in 3, 5 and 8mm tip diameters. An economical choice for light delivery. Standard lengths range from 750 to 3000mm. Dual configurations for multi-site curing.	Provides over 50% more throughput power than industry standard fiber guides for greater flexibility in your curing process. Technology in multi-legged guides supplies an equal distribution of light energy to multiple cure sites from a single source.	Utilizes technology developed in the High Power Fiber Light Guides to provide a high output linear beam of curing energy. The fibers are continuous from the light guide input to termination eliminating coupling losses seen with standard light line accessories. Ideal for bonding of main seal, chip on glass, TAB & flexible printed circuit on flat panel displays.

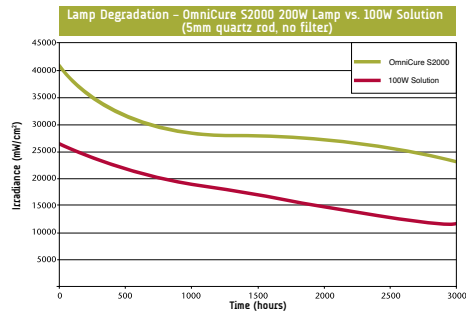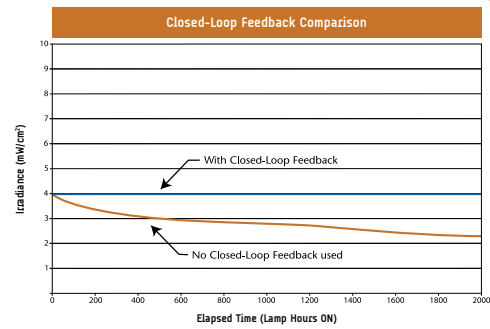| 4 Adjustable Collimating Adaptor	5 Light Line	6 Cure Ring
Ideal for any application that requires a uniform spot from 1" up to 6" (2.54cm to 15.2cm). Equal distribution of power allows the user to cure adhesive evenly without having to compensate for uneven light distribution.	Converts the Light Guide's spot of light into a focused, linear beam of curing energy. Efficiently cures small rows of components, inks on tubing and cable, anything that requires up to two inches of line length. Also performs tacking and strain relief of multi-strand wiring, as well as edge bonding of flat panel displays.	Allows a Light Guide 360° of curing power. Standard ring for use with Liquid Light Guides available in solid or slotted versions. Ideal for bonding a number of medical devices such as catheters and also tubes, cables or any other parts that require 360° curing.

OmniCure Output

The OmniCure spot curing platform offers customers a choice of systems with optional radiometry to measure irradiance.

LONG SERVICE LIFE

Lamp Degradation – OmniCure S2000 200W Lamp vs. 100W Solution (5mm quartz rod, no filter)

Legend: OmniCure S2000, 100W Solution
Y-axis: Irradiance (mW/cm²) — 5000 to 45000
X-axis: Time (hours) — 0 to 3000

The OmniCure S2000 includes a 200W lamp for plenty of power, with a guaranteed life of 2000 hours to lower cost of operation. Most of our customers see lamp life up to 4000 hours Intelli-Lamp technology records the lamp hours right on the lamp.

CONSTANT OUTPUT

CLOSED-LOOP FEEDBACK TECHNOLOGY

Closed-Loop Feedback Comparison

Y-axis: Irradiance (mW/cm²) — 1 to 10
X-axis: Elapsed Time (Lamp Hours ON) — 0 to 2000
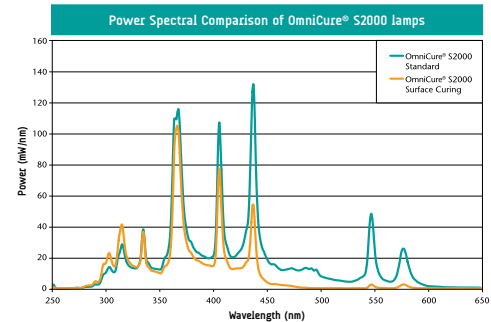Labels: With Closed-Loop Feedback; No Closed-Loop Feedback used

The OmniCure S2000 features Closed-Loop Feedback technology that automatically makes adjustments to maintain the user selected irradiance value. Light intensity usually varies over a period of time due to lamp degradation; the CLF ensures the required output level is maintained for every cure, ultimately controlling even the most advanced assembly processes.

HIGH PEAK IRRADIANCE

Spectral Output OmniCure S2000

Legend: OmniCure S2000
Y-axis: Power (mW/nm) — 0 to 160
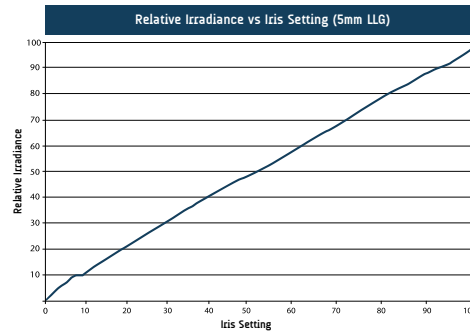X-axis: Wavelength (nm) — 250 to 650
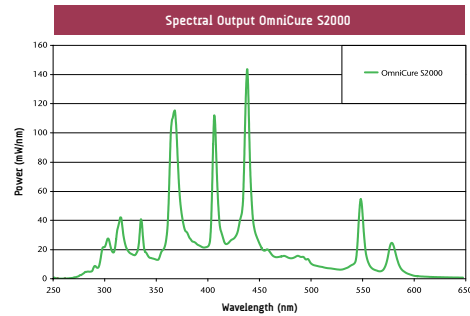
OmniCure S2000 yields extremely strong spectral distribution in the UV range with one of the highest peak irradiance for spot curing systems most effective for UV curing in wide range of applications.

TACK-FREE SURFACE CURING

Power Spectral Comparison of OmniCure® S2000 lamps

Legend: OmniCure® S2000 Standard; OmniCure® S2000 Surface Curing
Y-axis: Power (mW/nm) — 0 to 160
X-axis: Wavelength (nm) — 250 to 650

This exclusive lamp technology promotes a smooth, tack-free surface finish for free radical adhesives without the need for an inert atmosphere during cure, or post-curing at elevated temperatures.

PRECISE INTENSITY

Relative Irradiance vs Iris Setting (5mm LLG)

Y-axis: Relative Irradiance — 10 to 100
X-axis: Iris Setting — 0 to 100

The adjustable iris allows you to select precise irradiance levels for your curing application. The iris setting is adjustable in 1% increments with a very linear relationship between the iris position and the output irradiance. Adjust iris in 10mW/cm² (calibrated).

The tolerance of the output power and irradiance measurements in the graphs above are ±10%

Process Validation

Repeatability

The ability to accurately measure and set the irradiance level and the duration of exposure allow the control of the curing process and the resulting bond necessary to meet the most exacting standards. With the additional capability of verification, reporting, and documentation, the OmniCure light-based systems deliver unparalleled repeatability – the key to the consistent quality necessary to meet the most demanding certification and approval requirements.

Meets Worldwide Regulatory Authority Requirements

The OmniCure product line meets international regulatory requirements for product safety and electromagnetic compatibility, such as CE, as well as applicable environmental legislation such as EU RoHS and China RoHS.

IEC/CSA/UL 61010   FCC part 15
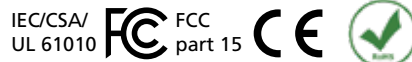
Continuity of Cure

Within the Medical Device manufacturing industry, OmniCure is established as the benchmark curing system. It is especially prized for its ability to provide continuity of cure with successive generations of product.

As a result, OmniCure is the system of choice for precision assembly by all of the world's leading medical device manufacturers.

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Tools for
Process Validation

The following OmniCure features contribute to our unmatched capability in process validation:

Timer Sync Output	Calibrate System Timer
Shutter Verification Output	Verify shutter opens and closes
Shutter, Light Guide & Lamp Alarms	Confirm process
Calibration traceable to NIST	Calibrated OmniCure R2000 Radiometer used to calibrate the OmniCure S2000 and S1500 is traceable to NIST
Exposure Fault Output	Verify that intensity does not deviate more than ±10% from current intensity setting
PC Control Panel Software Commands	Query the status of the Intelli-Lamp, calibration, alarms, and shutter position with the OmniCure S2000 and S1500

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