

OmniCure®

UV Bonding • In Control

OmniCure® Series 1500 UV Spot Curing System

USER'S GUIDE

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OmniCure®

UV Bonding • In Control

User Guide

SERIES 1500 User's Guide

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Table of Contents

1	Introduction	1
2	Getting Started	2
2.1	Front Panel	2
2.2	Rear Panel.....	3
3	Safety Precautions	4
4	Installing the Lamp Module	7
5	Inserting and Removing the Light Guide	10
6	Powering Up and Powering Down	11
7	Adjusting the Light Output	12
7.1	Adjusting the Light Output.....	12
8	Locking and Unlocking the UP/DOWN Adjustment Button	13
9	Timed Exposures	14
9.1	Adjusting the Exposure Time	14
9.2	Running a Timed Exposure.....	14
10	Interfacing with the S1500	15
10.2	Input/ Output Signals and Descriptions.....	15
10.3	Audio Style Foot Pedal Connector: Signal Descriptions.....	21
11	Viewing the Accumulated Lamp Hours	21
12	Messages / Indicators	22
13	LED Indicators	24
14	Clearing Audible Alarm	24
15	Remote Automated Control Requirements	25
15.2	Com Port Configuration:	25
15.3	Message Format and Protocol:.....	25
15.4	Command Descriptions:	26
15.5	Command Timing Specification:	29
15.6	Sample Code:.....	29
16	Routine Care and Maintenance	32
16.1	Replacing the Lamp Module	32
16.2	Replacing the External Fuses	33
16.3	Replacing the Air Filter	33
16.4	Replacing the Bandpass Filter	33
17	Troubleshooting	34
18	Technical Specifications	37
18.1	Lamp Module.....	37
18.2	Light Guide	38
18.3	Power Input	38
18.4	I/O Ports (Including RS-232).....	39
18.5	USB Interface	39
18.6	Environmental Conditions	39
18.7	Noise and the OmniCure S1500	40
19	Regulatory Compliance	41
19.1	Product Safety and Electromagnetic Compatibility:.....	41

User Guide

19.2	FCC Part 15, Subpart B, Class B-Unintentional Radiators	41
19.3	WEEE Directive	42
19.4	China RoHS	43
19.5	Mechanical Specifications	44
19.6	Miscellaneous	44
20	Warranty	45
20.2	Replacement Bulb Warranty	46
20.3	Returning your S1500 to Excelitas Technologies for Service	46
21	Component Part Numbers	47
22	Contact Information	48

User Guide

Table of Figures

Figure 1 Front Panel.....	2
Figure 2 Rear Panel	3
Figure 3 Lamp Housing Panel	7
Figure 4 Lamp Direction	8
Figure 5 Lamp Connection	8
Figure 6 Active Low Signal Circuit Configuration:	16
Figure 7 Active High Signal Circuit Configuration:	16
Figure 8 Rear Panel Sample Connection	17

List of Tables

Table 1 “P1” Pin-Out	18
Table 2 “P2” Pin-Out	18
Table 3 “P3” Pin-Out	20
Table 4 Foot Pedal Pin-Out.....	21
Table 5 LED Status	24
Table 6 Unit Status.....	26
Table 7 Lamp Part Number	32
Table 8 Replacement Filter Part Numbers.....	33
Table 9 Message References.....	34
Table 10 Front Panel LED Descriptions.....	35
Table 11 Front Panel Button Descriptions	35
Table 12 Component Part Numbers	47

User Guide

1 Introduction

The OmniCure® SERIES 1500 delivers the power, control and reliability never before available in such a cost effective UV curing system. The S1500 joins the Excelitas Canada Inc. family of light systems offering the same high level of innovation, quality and reliability that our customers have come to expect. Since 1982, Excelitas Canada Inc. (formerly Lumen Dynamics Group Inc. & EXFO Life Sciences & Industrial Division) has combined next generation optical engineering, state-of-the-art electronics and fiber-optics to produce sophisticated technologies that employ light. Today Excelitas Canada Inc. is a leading developer of light-based systems for sectors ranging from manufacturing to bio-medicine and we are unmatched in our commitment to quality and service.

The heart of the OmniCure S1500 is a proprietary 200-watt mercury short arc lamp with an amazing 2000-hour guaranteed lifetime. This extended lifetime is made possible by the proprietary technology Incorporated into the design of the system. The lamp is mounted in an elliptical reflector with a proprietary coating to provide excellent spectral and power output.

Control for the OmniCure S1500 is provided by a rotary shutter / iris mechanism. The iris is adjustable in 1% Increments to provide very precise amounts of light to your application.. Other standard features Incorporated in the S1500 Include: the pre-aligned Intelli-Lamp® system, band pass filter, exposure timer, an accumulative lamp hour meter, "lock out" protection, ,and a light guide status indicator. Units are configured for standard curing applications.

We suggest that you read this manual to discover all features of the OmniCure S1500, and how to use them.

User Guide

2 Getting Started

2.1 Front Panel

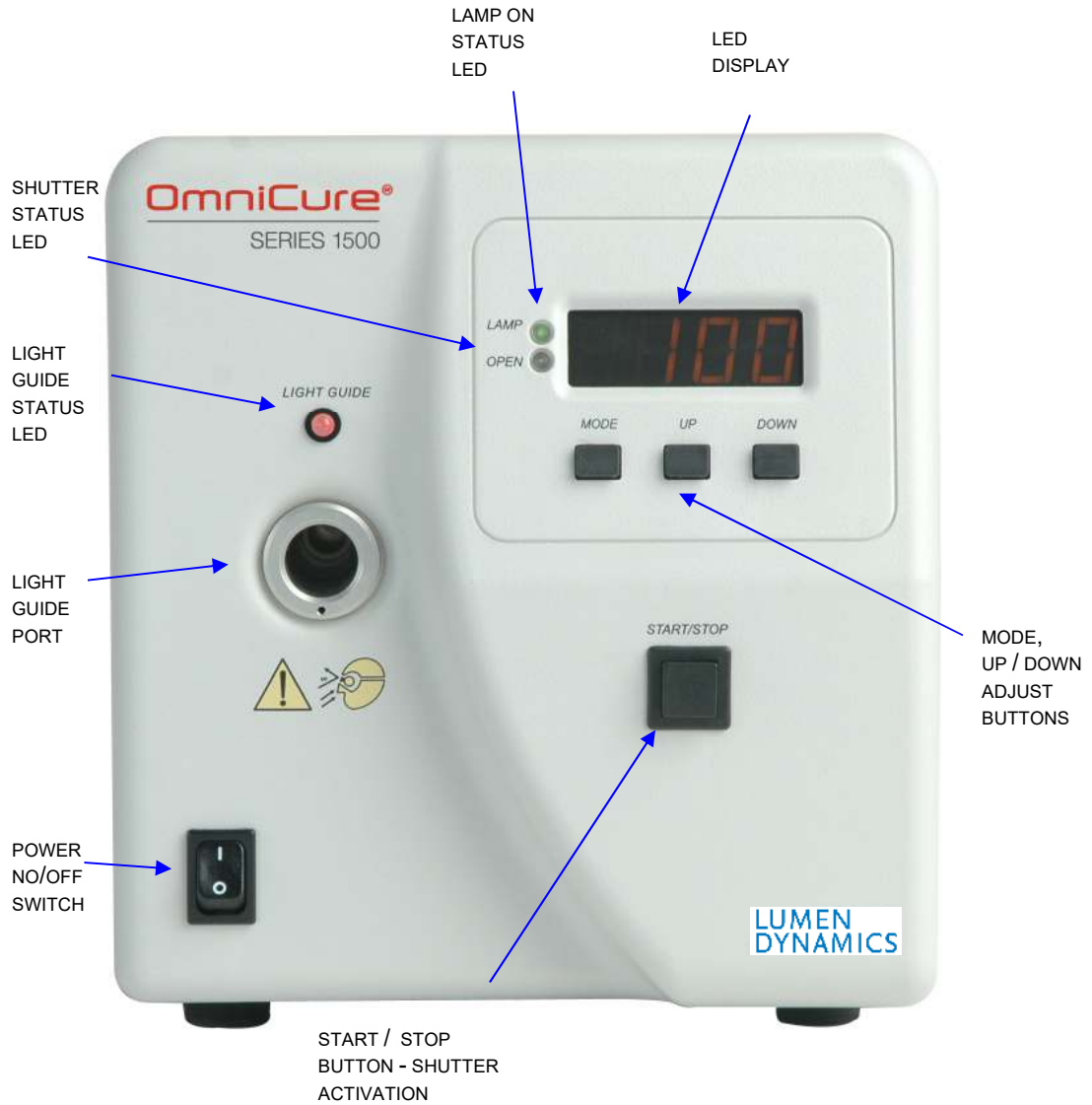


Figure 1 Front Panel

User Guide

2.2 Rear Panel

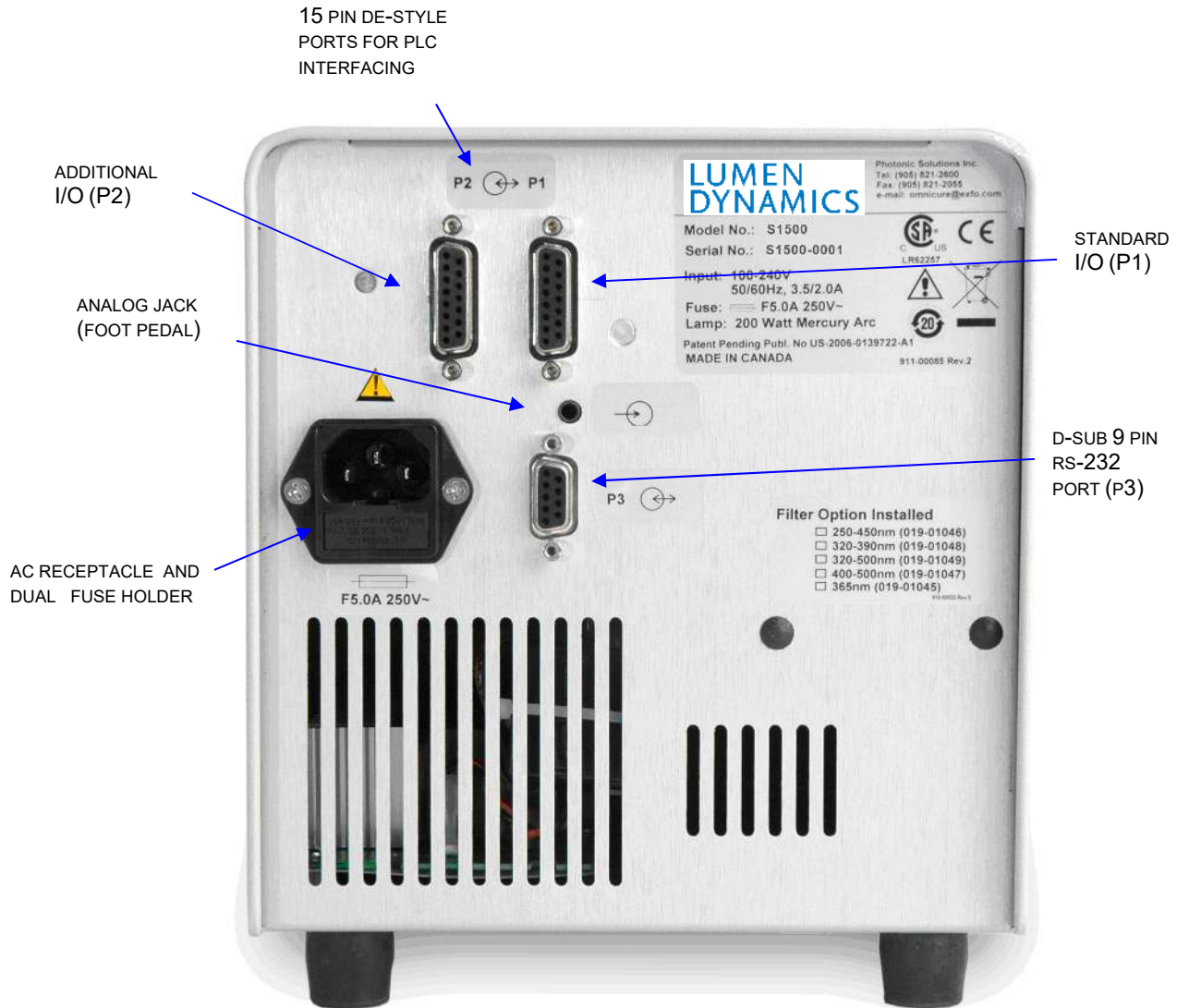


Figure 2 Rear Panel

User Guide

3 Safety Precautions

Glossary



Caution risk of danger – consult accompanying documents



Caution eye damage may result from directly viewing ultraviolet light – protective eye shielding and clothing must be used at all times.

Input/Output Signals 

Input Signal 

The OmniCure S1500 is equipped with two safety sensors to protect the user from accidental UV exposure. In addition, please observe the following precautions during use. This series of cautions, warnings and dangers relate to the operation and maintenance of the S1500. They are also presented throughout this User's Guide where necessary.



Warning

Eye damage may result from directly viewing the light produced by the lamp used in this product. Always use the UV protective eyewear supplied with the unit and always turn the lamp off before removing lamp housing cover.



Caution

Never look into the light emitting end of the light guide. The light could severely damage the cornea and retina of the eye if the light is observed directly. Eye shielding must be used at all times as well as clothing to protect exposed skin.



Warning

Always make sure the light guide is properly inserted into the OmniCure S1500 prior to turning on POWER to the unit. This will minimize the risk of exposure to the UV light.



Warning

To reduce the risk of fire or shock, always replace the fuses with the same type and rating. Always detach the POWER supply cord prior to attempting to replace fuses!



Warning

Disconnecting of the main supply source is only possible by unplugging the POWER cord.

User Guide



Danger

This unit contains HIGH VOLTAGE components. It is recommended that ONLY QUALIFIED TECHNICAL PERSONNEL perform any testing or repairs.



Monitoring the unit during manual operation

The Level of UV energy supplied by the OmniCure S1500 is sufficient to ignite flammable substances. During manual operation, the unit must be attended at all times by a qualified operator. The unit must not be left unattended while turned on. If an operator leaves the work area of the unit, the POWER switch must be turned off.



Monitoring the unit during automated operation

The Level of UV energy supplied by the OmniCure S1500 is sufficient to ignite flammable substances. Therefore, when the unit is operated unattended in an automated environment, an alarm function must be provided by the user to indicate a malfunction in the associated equipment used.



Warning

Hg – LAMP CONTAINS MERCURY, Manage in Accord with Disposal Laws, see: www.lamprecycle.org or 1-800-668-8752



Danger

When unpacking or installing the lamp, always wear protective clothing and a face mask. Operate lamp only in the OmniCure S1500 lamp housing. This prevents direct viewing of the arc and in the case of lamp bursting, contains the lamp particles. In the rare instance in which a lamp bursting occurs, and the mercury content is released, the following safety precautions are recommended: all personnel should be immediately evacuated from the area to prevent inhalation of the mercury vapor. The area should be well ventilated for a minimum of 30 minutes. After the lamp housing elements have cooled, the mercury residue should be collected with the use of a special absorbing agent available from laboratory equipment suppliers.

Listed below are examples of internet web sites for obtaining Mercury Spill Kits:

- <https://www.amazon.com/mercury-spill-kit/s?k=mercury+spill+kit>
- https://www.uline.ca/BL_272/Mercury-Spill-Kit

User Guide

**Warning**

Should this OmniCure S1500 unit be used in a manner not specified by Excelitas Canada Inc. the protection provided by the equipment may be impaired.

**Warning**

The method in which lamps are disposed of must comply with local rules & regulations for disposal of hazardous materials. Lamps may be returned to Excelitas Canada Inc., providing they are returned in its original packaging. Excelitas Canada Inc. will dispose of them in the appropriate manner.

**Caution**

The lamp module's operational life can be significantly shortened if it is handled incorrectly. Do not touch the bulb's glass envelope or the inside surface of the reflector. Skin oils can cause the lamp module to fail prematurely.

**Caution**

Prior to opening the unit and handling the lamp module, allow the lamp module to cool down completely (approximately 20 min).

**Caution**

Any electronic equipment connected to the OmniCure S1500 must be IEC950 certified.

**Cleaning**

Clean exterior of the unit with a water dampened cloth and simple detergent only.

User Guide

4 Installing the Lamp Module

Note: Refer to Section 3 – Safety Precautions before proceeding

- 4.1.1 Be sure the AC POWER cord is disconnected from the unit.
- 4.1.2 Remove the screw from the lamp housing side panel using the tool provided (fastened to the bottom face) and remove the panel from the unit cover.



Figure 3 Lamp Housing Panel

- 4.1.3 Carefully remove the lamp module from its container, holding only the ceramic component and lamp rim.



Caution!

The lamp module's operational life can be significantly shortened if handled incorrectly. Be sure only to handle the ceramic surfaces and the lamp rim. Do not touch the bulb's glass envelope or the inside surface of the reflector. Skin oils can cause the lamp module to fail prematurely

User Guide

- 4.1.4** As illustrated below position the lamp facing towards the front of the unit with the POWER leads facing towards you. The lamp should be aligned so that the leading edge of the reflector (lamp rim) fits into the mounting groove on the lamp holder assembly.

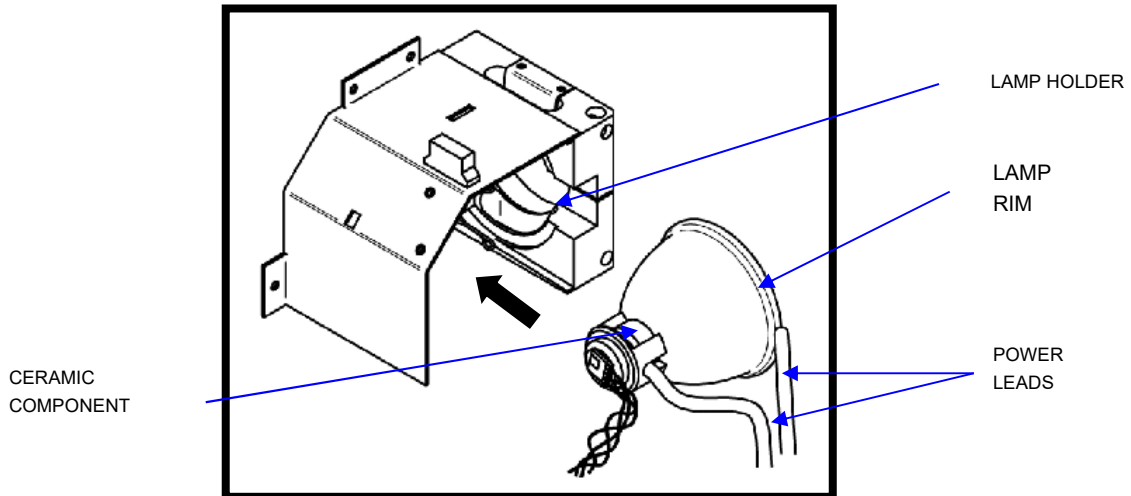


Figure 4 Lamp Direction

- 4.1.5** Make sure the middle of the lamp is in position to fit into the spring clamp. Slide the lamp until it snaps into the spring clamp. The leading edge of the reflector (lamp rim) should fit snugly into the lamp holder recess.

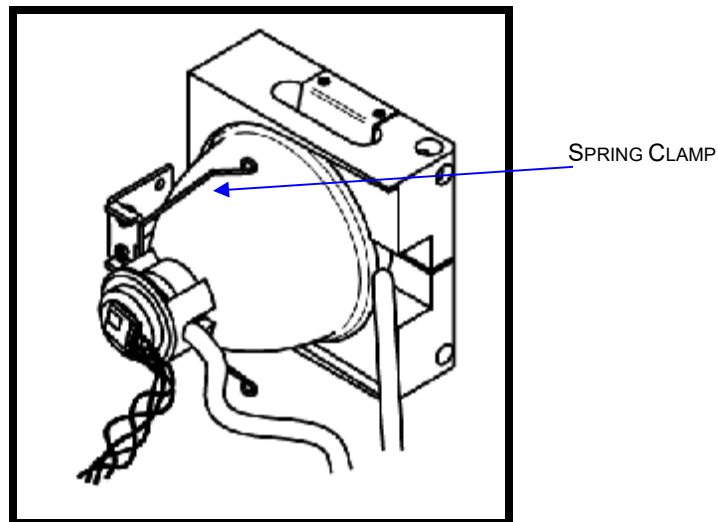


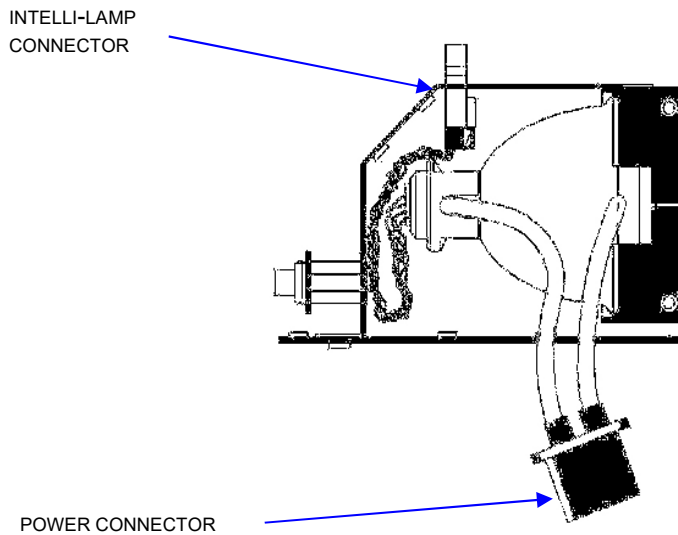
Figure 5 Lamp Connection

User Guide

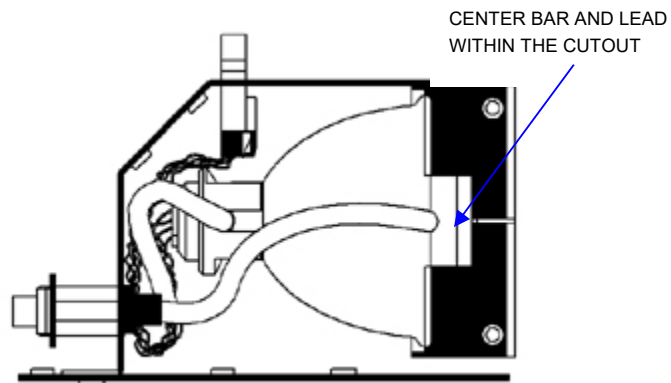
- 4.1.6** Locate the 4-pin Intelli-Lamp sensor connector at the rear of the lamp module and connect it to its mate located on the top of the lamp-housing wall.

Tip: the Intelli-lamp connector will only attach in the correct orientation. If you are having difficulty attaching the connector, try rotating it by 180°.

Note: if the Intelli- lamp connector is not installed correctly, the lamp will not strike and the “bulb” message will display when POWER is turned on to the unit.



- 4.1.7** Locate power connector with two leads and connect it to its mate located on the side of the lamp-housing wall.



User Guide

- 4.1.8 Ensure the lamp anode cooling fin (bar) and lamp power lead, at the front of the lamp, are centered within the lamp holder cutout. Rotate the lamp as required.
- 4.1.9 Replace the lamp housing side panel and tighten the fastening screw.

Note 1: If the lamp housing panel is not secured completely the lamp will not strike and the “**bulb**” message will display when power is turned on to the unit.

Note 2: If the wrong type of lamp has been installed in your unit the message “**E1**” will appear on the LED display. Refer to section 17 for troubleshooting information.

5 Inserting and Removing the Light Guide

Note: 3mm single leg liquid light guides are not compatible with the S1500

- 5.1.1 Ensure that the protective end caps are removed from both the input and output ends of the light guide prior to installation.
- 5.1.2 Insert the light guide into the light guide port located on the front panel of the unit. Push the light guide in until it seats with a second positive “click”.

Tip: When the light guide is fully inserted, the LED above the light guide port will illuminate green when POWER is on to the unit. If the light guide is not fully inserted the LED will illuminate red.

Note: The shutter will not open if the light guide is not fully inserted.

- 5.1.3 During installation or removal, grasp the light guide on the strain-relief nearest the input end of the light guide.

Note: Never grip the light guide during installation or removal in a place other than the strain relief portion of the light guide.

- 5.1.4 To remove the light guide, firmly grip the strain relief near the light guide retainer and pull out firmly.

Note: The OmniCure S1500 is designed for use with Excelitas Canada Inc. Light Guides. Excelitas Canada Inc. cannot guarantee the performance of the OmniCure S1500 if using light guides other than those supplied by Excelitas Canada Inc.

User Guide

6 Powering Up and Powering Down

Lamp Warm-UP:

The ARC lamp has 3 distinct phases of operation;

1. Ignition.

2. Warm-up. Excelitas Technologies Inc. recommends 20 minutes of proper warm-up and to ensure a stable optical output.

3. Stable Operation.

It is recommended that phase 1 and 2 are not interrupted. This can result in shortened lamp life. **The lamp must be allowed to warm-up uninterrupted.**

- 6.1.1 Ensure that the lamp and light guide have been properly installed as per section 4 and section 5 and that the lamp housing panel is securely fastened.
- 6.1.2 Plug the OmniCure S1500 unit into a properly grounded AC outlet.
- 6.1.3 Turn on the mains POWER switch “I”, located on the front panel and check the fan for airflow.
- 6.1.4 As soon as the LED display turns on it will display the version of software currently programmed in the S1500 (i.e. r – x.x). Once the software version level has been indicated, the display will reset after several seconds to the next display mode.
- 6.1.5 The lamp will automatically turn on within 45 seconds and the lamp indicator will illuminate. The display will flash during the warm up period for approximately 4 minutes. The display will stop flashing when the warm up period has completed. Wait until the warm up period has completed before using the S1500 to perform an exposure.

Note: *If the lamp is turned off, and an attempt is made to turn it back on before it has fully cooled, the “cool” message will appear on the display. The lamp will automatically re-strike when the lamp has cooled.*

- 6.1.6 To power down the unit, set the mains power located on the front panel to “0”.
- 6.1.7 10 exposures must be run to save any new exposure settings (intensity & timer) into memory for it to remember next time the system is powered-up.

User Guide

7 Adjusting the Light Output

Your OmniCure S1500 system includes an iris adjustment to control the intensity level of the light output from the unit. The intensity level adjustment is only possible through the DROP LED mode.

7.1 Adjusting the Light Output



Warning:

UV light will be emitted from the light guide. The light could severely damage the cornea and retina of the eye if the light is observed directly. UV protective eye shielding must be used at all times as well as clothing to protect exposed skin.

Note: *The shutter will not open if the light guide is not inserted properly.*

7.1.1 Press the **start /stop** button to open the shutter. The open LED indicator will illuminate. The display will show three (3) digits (XXX). The three digit number shown will indicate the percentage of maximum iris opening

Note: *While in Level Mode, pressing the **start/stop** button will manually open the shutter until the **start/stop** button is pressed again to close the shutter. The timer function will not be activated.*

7.1.2 Press the up button to increase the light output or press the down button to decrease the light output. The % iris opening displayed will increase or decrease by 1 for each time the up or down button is pressed.

Note: *The shutter must be in the open position to make adjustments to the iris position.*

7.1.3 For coarse adjustments, press and hold the up or down button to rapidly Increase or decrease the light output.

7.1.4 Press the start /stop button to close the shutter. The open LED indicator will turn off.

User Guide

8 Locking and Unlocking the UP/DOWN Adjustment Button

8.1.1 Your OmniCure S1500 system allows you to disable the up/down buttons. When the system is locked, no modifications to the set time or the optical output power can be made. This can help to ensure process control when multiple operators are using the same equipment.

Note: *This feature is available only when the unit is set to “Timer” or “Level” modes. Since the mode button is designed to make the mode jump to the next level i.e. Timer if you are in Hours Mode & Level if you are in Timer Mode, you should pre-set the mode to the previous level to lock the system in next level.*

8.1.2 To Lock the up/down buttons:

- A. Push and hold the mode button
- B. While pressing the mode button, and within 2 seconds press the following sequence of buttons:
Down - Up – up – up
- C. After 2 seconds the message “LOC” will appear for 2 seconds. While the system is locked, only the mode button and the start/stop button will function. If the up or down button is pressed, the “LOC” message will appear for 2 seconds.

8.1.3 To Unlock the up/down buttons:

- A. Push and hold the mode button
- B. While pressing the mode button, and within 2 seconds press the following sequence of buttons:
Down - Up – up – up
- C. After 2 seconds the message “ULOC” will appear for 2 seconds. When the system is unlocked, all of the front panel buttons will perform their respective functions.

User Guide

9 Timed Exposures

Your OmniCure S1500 system includes a timer to automatically close the shutter after a user selected amount of time. Adjustments to the exposure time can only be made when the S1500 unit is in Timer Mode.

9.1 Adjusting the Exposure Time

- 9.1.1 The number shown will indicate the exposure time in seconds and tenth of seconds (XXX.X).
- 9.1.2 Press the up button to increase the exposure time by 1/10 sec, or press the down button to decrease the exposure time by 1/10 sec.
- 9.1.3 For coarse adjustments, press and hold the up or down button to rapidly increase or decrease the exposure time.

9.2 Running a Timed Exposure

- 9.2.1 While in Timer or Lamp Hours mode, press the start /stop button. The shutter will open and the exposure time will begin to count down. When the exposure time has elapsed to zero, the shutter will close.
- 9.2.2 Running a timed exposure is only possible when the unit is set in either TIMER or LAMP HOURS mode.
- 9.2.3 To view the remaining exposure time during a timing cycle, the unit must be set in TIMER MODE. The display will indicate the remaining time as the unit counts down.

Note: The open LED indicator will illuminate when the shutter is open. The shutter will not open if the light guide is not inserted properly.

Note: To stop a timed exposure from running, press the start /stop button. The shutter will close and the exposure time will reset after approximately 2 seconds. The open LED will not be illuminated.

S1500 Exposure Timer Tolerance
+/- 250ms or 1% of the exposure time setting, whichever is greater.

User Guide

10 Interfacing with the S1500

10.1.1 Connection Options

10.1.2 The S1500 is designed to be fully automated both quickly and easily via PLC control or computer control using the RS-232 port. All of the advanced features ensuring process control and curing repeatability can be accessed through built in standard optically isolated I/O signals. In addition to a foot pedal jack, there are two PLC compatible I/O connectors that are 15 pin DE style (P1 & P2), the RS-232 port is a D-Sub 9-position socket (P3). One RS-232 9 pin cable has been provided with the unit to expedite implementation.

10.1.3 The PLC I/O's, foot pedal and RS-232 port are optically isolated from the control S1500 control electronics. This has been done in order to maximize the S1500's immunity to noise and minimize its noise output.

10.2 Input/ Output Signals and Descriptions

10.2.1 Output Signals

- an output signal is said to be active when the output is ON
- a signal is said to be ON when the transistor side of its respective optocoupler is conducting current
- the description of current conduction is dependent upon its' end configuration, selectable by the user
- an output can be configured as active high in which case the transistor is sourcing current, or active low in which case the transistor is sinking current

Note: Refer to the following page for examples of output signal circuit configurations

The "digital" outputs have the following characteristics:

>polarized type, output device:	optocoupler, NPN transmitter
>logic Level:	uncommitted emitter and collector can be used as active high or active low
>maximum voltage withstand:	30VDC capability (Vce):
>maximum carry current:	8 mA

Note: A signal is said to be active when the transistor side output of the optocoupler is on/conducting and inactive when the transistor side of the optocoupler is off.

User Guide

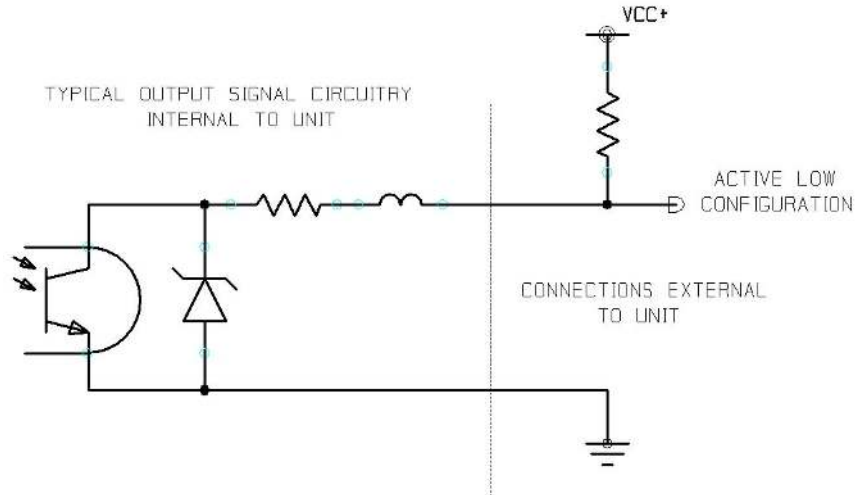


Figure 6 Active Low Signal Circuit Configuration:

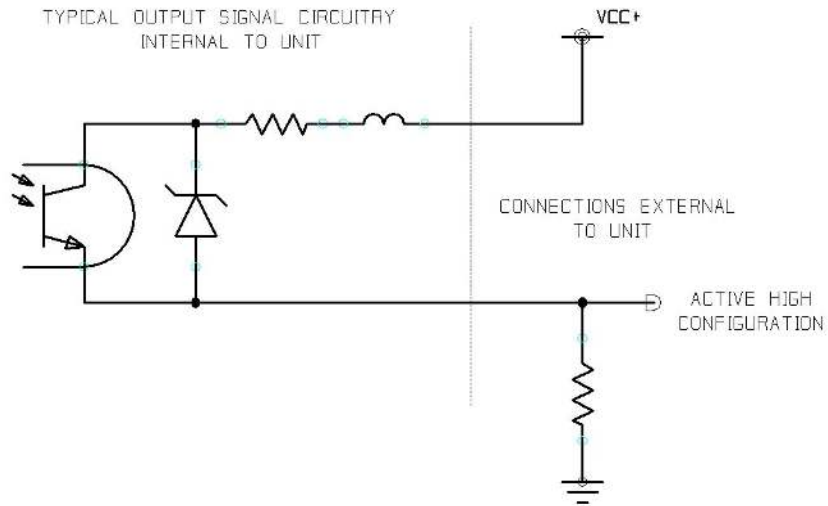


Figure 7 Active High Signal Circuit Configuration:

User Guide

10.2.2 Input Signals

The "digital" inputs have the following characteristics:

- | | |
|-----------------------------------|--|
| >polarized type, input device | optocoupler, photo-diode, cathode side |
| >logic Level | active low, zero voltage input |
| >max open circuit output voltage: | 6 VDC |
| >max current sinking requirement: | 5mA |
| >logic low time for momentary | 150mS, minimum |

The diagram below is a sample connection method which may be utilized for the S1500 rear panel I/O connections:

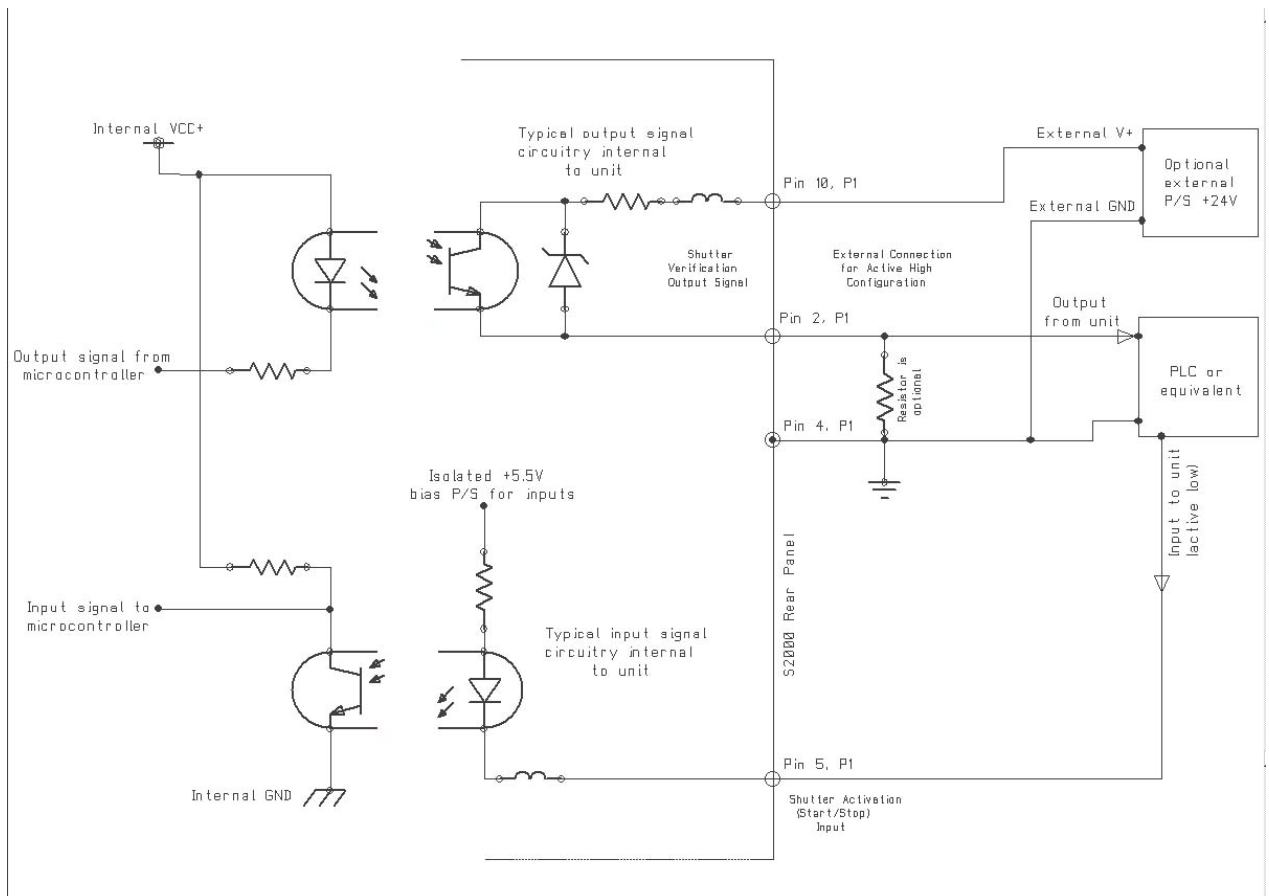


Figure 8 Rear Panel Sample Connection

User Guide

10.2.3 PLC Signal Descriptions

The rear panel has an I/O signal connector labeled “P1”; it is a 15 pin DE style connector. It has the following pin-outs:

PIN NO	SIGNAL NAME
1	Lamp ON out (-)
2	Shutter verification out (-)
3	Lamp ready out (-)
4	Common for inputs (GND)
5	Shutter activation (start/stop) in (+)
6	Shutter Interlock in (+)
9	Lamp ON out (+)
10	Shutter verification out (+)
11	Lamp ready out (+)
12	Lamp ON/OFF in (+)

Table 1 “P1” Pin-Out

Additionally, the rear panel Optional I/O signal connector labeled “P2”; it is a 15 pin DE style connector. It has the following pin-out:

PIN NO	SIGNAL NAME
1	alarm clear input (+)
2	shutter alarm out (-)
3	shutter alarm out (+)
4	bulb alarm out (-)
5	bulb alarm out (+)
8	general alarm out (-)
9	general alarm out (+)
10	sync out (-)
11	sync out (+)
15	common for inputs

Table 2 “P2” Pin-Out

User Guide

10.2.4 I/O signal connector (P1): signal descriptions

Pins 1 (-) and 9 (+): Lamp on output

This signal advises the user of the lamp status. When the lamp is ON the signal is active. When the lamp is OFF, the signal is inactive.

Pins 2 (-) and 10 (+): Shutter verification output

The shutter verification output signal remains inactive during successful shutter activations. The signal is active only when if a shutter activation failure is detected. This signal is also dependent on the state of the "Shutter verification mode" input signal.

Pins 3(-) and 11 (+): Lamp ready output

This signal advises the user of the lamp ready status. The signal is active after lamp warm up period is completed. The signal is inactive when lamp is off, cooling or warming up.

Pin 4: Common/return for inputs

The isolated common/return signal is the reference point for all digital inputs.

Pin 5: Shutter activation (start/stop) input

This is a contact closure type signal. The shutter activation input triggers the shutter. The functionality of this signal duplicates the front panel start/stop button.

Pin 6: Shutter interlock input

The shutter interlock input is a closed contact type signal. Activating this signal by closing the contact will prevent the shutter from opening. Leaving this signal open will result in normal unit operation.

Pin 12: Lamp off/on input

This contact closure type signal toggles power to the lamp. If the lamp is OFF, a momentary low on this input will turn the lamp on. Conversely, if the lamp is ON, a minimum low of .8 seconds on this input will turn the lamp off.

10.2.5 I/O signal connector (P2): signal descriptions

Pin 1: Remote Alarm clear input

This signal allows the user to clear the alarm state of the unit. Accompanied with an alarm signal would be an audible alarm. In addition to clearing the output alarm signal this input signal would allow the user to shut down the audible alarm. When an activation signal is received, the alarm state of the S1500 will be cleared.

Pins 2 (-) & 3 (+): Shutter alarm output

This signal provides an indication of a shutter failure. The output signal is ON when an alarm condition is present. The optocoupler is OFF at all other times.

User Guide

Pins 4 (-) and 5 (+): Bulb alarm out

This signal provides an indication of a lamp failure. The output signal, accessible through pins 4 and 5, is ON when an alarm condition is present. The optocoupler is OFF at all other times.

Pins 8 (-) and 9 (+): General alarm output

This signal is activated when the unit enters E2 error mode. The signal is inactive when the audible alarm is cleared.

Pins 10 (-) & 11 (+): Sync output

This signal is enabled only during a timed exposure cycle. Once the cycle is completed and the shutter closes, the signal becomes disabled.

Pin 15: Common/ return for inputs (GND)

This pin is used as a return for the inputs. Tying any of the inputs to this pin will activate that input function.

10.2.6 RS-232 9 Pin Connector (P3): Signal Descriptions

The rear panel 9 pin RS-232, female connector is labeled “P3”. This is a RS-232 interface which utilizes a standard 9 pin serial cable that is supplied with the unit. Plugging the cable into any free serial port of a PC, allows data to be transferred to and from a PC to perform a variety of functions. All functions are initiated by a program that executes on the PC. See Section 15 for further details.

PIN NO	SIGNAL NAME
1	N/C
2	RS232 transmit
3	RS232 receive
5	RS232 GND
6	N/C
7	N/C
8	N/C
9	N/C

Table 3 “P3” Pin-Out

User Guide

10.3 Audio Style Foot Pedal Connector: Signal Descriptions

10.3.1 The rear panel foot pedal connector, a 3 mm audio style jack, has the following pin-out:

Connection Point	SIGNAL NAME
Outer Rim	Positive input, active low
Center Pin	Common ground (GND)

Table 4 Foot Pedal Pin-Out

10.3.2 This is a simple 2-wire, audio style jack that can be connected to a foot pedal (supplied with each unit) or any other electro-mechanical triggering device. This is an exposure trigger input used to start an exposure. The shutter activation input and front panel START/STOP button will also trigger the shutter.

11 Viewing the Accumulated Lamp Hours

11.1.1 Your OmniCure S1500 system automatically accumulates the number of hours that the lamp is on and shows this information on the LED display. The lamp hours are shown when the unit is in Lamp Hour mode.

11.1.2 Set your S1500 to Lamp Hour Mode by pressing the Mode button until the LED display shows four digits with a flashing “.” (decimal) located to the right of the furthest right digit. This shows the accumulated number of hours the lamp has been on. (XXXX.)

Note: *Pressing the start/stop button while in Lamp Hour mode will open the shutter for the set Exposure Time*

User Guide

12 Messages / Indicators

The OmniCure S1500 display provides information to the user to aid in unit operation and to advise when certain conditions exist. The following is a collective listing of messages and their meanings.

1. "XXXX."

A flashing decimal point to the right of the four numbers on the display advises the user that the unit is in Lamp Hour Mode. Reference Section 11, Viewing the Accumulated Lamp Hours.

2. "XXX.X"

A decimal point to the left of the furthest right digit of the four digits on the display indicates the unit is in Timer Mode. The number shown will indicate the exposure time in seconds and tenth of seconds. Reference Section 9, Timed Exposures.

3. "XXX"

Three digits on the display indicate that unit is in Intensity Mode and shutter is open. The three digit number shown will indicate the percent iris opening. Reference Section 7, Adjusting the Light Output.

4. "bulb"

The "bulb" message advises the user that the bulb has failed to ignite or extinguished after striking.

If the bulb message appears immediately after power up and is accompanied by an audible beeping, this indicates that the lamp has not been installed correctly. Reference Section 4, Installing the Lamp Module.

If the bulb message appears after about 45 seconds and is accompanied by an audible beeping, this indicates that the lamp has failed to strike. It may be a result of the lamp reaching end of life, that the lamp housing panel is not secured properly in place or that the lamp power connector is not plugged in. Press the start/stop button to clear the audible alarm. Turn power off to the unit and disconnect power cord. Check that the lamp housing panel is secured properly in place and verify that all lamp connections as correct as per section 4. Wait a few minutes and turn power on to the unit. If it still does not strike, re-check all electrical connections to the lamp.

5. " old / bulb"

The "old" and then "bulb" message appear in alternating sequence for about 10 seconds when POWER is first turned on to the unit if the accumulated lamp hours have reached 2000 hours. When this message occurs, it is recommended that the lamp be replaced soon.

User Guide

6. "end / bulb"

The "end" and then "bulb" message appear in alternating sequence when POWER is first turned on to the unit if the accumulated lamp hours have reached 4000 hours. This indicates that the lamp has reached the end of safe life. If the lamp hours reach 4000 hours, safety measures will prevent the lamp from striking or extinguish the lamp if it is running. The lamp must be replaced at this point.

7. "COOL"

The "cool" message advises the user that the lamp must cool down before re-ignition. It appears on the display when POWER is turned on to the unit and the lamp is too hot to strike. Striking the lamp when it is too hot will significantly reduce lamp life. The lamp will automatically strike once it has reached optimum temperature.

8. "LOC"

The LOC message appears for about 2 seconds when the up/down adjustments are initially locked. It also appears if the up or down button is pressed while they are locked, advising the user that these functions are locked out. Reference Section 8 – Locking and Unlocking the up/down Adjustment Buttons.

9. "ULOC"

The ULOC message appears for about 2 seconds after unlocking the up/down adjustment buttons to advise the user they have been unlocked. Reference Section 8 – Locking and Unlocking the up/down Adjustment Buttons.

10. "SFI"

The "SFI" message appears if there is a shutter failure. The lamp will shut down when a shutter error occurs. POWER down the unit, wait a few minutes and turn POWER on to the unit. If the unit displays a shutter failure again, contact your local Excelitas Canada Inc.. Service Centre to have your unit serviced.

11. "E1"

The "E1" message appears when the wrong type of lamp has been installed into the unit. Verify that the lamp part number is correct

12. E3

The "E3" message appears on the display when the lamp temperature monitoring has turned off the lamp due to excessive heat. Verify the cooling exhaust vent is not blocked.

13. E4

The "E4" message appears on the display when an internal error has occurred. If error re-occurs the unit should be serviced

14. E5

The "E5" message appears on the display when the communication to the intellilamp has failed, open the lamp access door and verify all connections are secure.

User Guide

13 LED Indicators

LED indicators display the status of the following:

- Light Guide
- Lamp
- Shutter

The following table describes LED status and descriptions of each status in details.

LED Indicator	Status	Description
Light Guide	On – Green	The light guide is fully inserted
Light Guide	On – Red	The light guide is not fully inserted
Lamp ON	On	The lamp is on
Lamp ON	Off	The lamp is off
“Open” Shutter Status	On	The shutter is open
	Off	The shutter is closed

Table 5 LED Status

14 Clearing Audible Alarm

14.1.1 The OmniCure S1500 provides an audible alarm to alert the user of various error conditions.

14.1.2 To clear the audible alarm:

1. Press the front panel start/stop button
Note: *Alternately, depressing the foot pedal, or providing a momentary contact closure on the rear panel analog jack, will clear an audible alarm.*
2. The audible alarm can be also cleared remotely:
 - From a PC through I/O port when the “CLR” command is sent to the S1500.
 - Through the PLC I/O port via P2: pin 1 and pin 15

User Guide

15 Remote Automated Control Requirements

- 15.1.1** The S1500 system is designed to provide remote automated control of the UV spot curing system from a PC.
- 15.1.2** The S1500 PC software requirement specification below is used to describe the communication protocol between the S1500 unit and a PC.

WARNING: *If the user does not observe and adhere to the protocol and command timing specifications, abnormal unit operation will result!*

15.2 Com Port Configuration:

Baud rate:	19200
Data bits:	8
Parity:	None
Stop bits:	1
Flow Control:	None

15.3 Message Format and Protocol:

- 15.3.1** All commands sent to the S1500 and responses from the S1500 include 3 pieces of data: the command section, a CRC8, and a carriage return (“\r” in C code or chr\$(13) in basic code). The CRC8 (one byte value) is entered as a hex string. Please refer to CRC8 routine for details in section 15.6
- 15.3.2** When the carriage return character (CR) is received, the S1500 will respond with an error message if there is a problem.

For example:

Error Message Response: “Err67\r”

- 15.3.3** If there are no errors, the S1500 will respond as indicated below. In the example, the XX presents one byte CRC8 value.

Note: *The command “CONN18\r” must be sent out first to establish communication with the connected PC. If a “READY0A\r” is received from the S1500, communications can commence with the unit, otherwise, the command “CONN18\r” should be resent until the response “READY0A\r” is received.*

User Guide

15.4 Command Descriptions:

1. Connect Series 1500

Command to S1500; **CONN**

Response from S1500; **READY**

2. Disconnect SERIES 1500

Command to S1500; **DCON**

Response from S1500; **CLOSE**

3. Lock the front panel

Command to S1500; **LOC**

Response from S1500; **Received**

4. Unlock the front panel

Command to S1500; **ULOC**

Response from S1500; **Received**

5. Clear Alarm

Command to S1500; **CLR**

Response from S1500; **Received**

6. Get unit status

Command to S1500; **GUS**

Response from S1500; **n** (n represents a integer number)

Example:

If "50XX\r" is received, the unit status is as follows:

Alarm - Off; Shutter Home – Pass; Lamp – On; Lamp

Ready – Yes; Shutter – Close; Front Panel – locked;

Bit		0	1	2	3	4	5
		Alarm	Lamp	Shutter	Home	Lamp Ready	Lock
Status	0	Off	Off	Close	Pass	No	Off
	1	On	On	Open	Fault	Yes	On

Table 6 Unit Status

7. Run a timed exposure

Command to S1500; **RUN**

Response from S1500; **Received**

8. Open Shutter

Command to S1500; **OPN**

Response from S1500; **Received**

User Guide

9. Close Shutter

Command to S1500; **CLS**

Response from S1500; **Received**

10. Turn On Lamp

Command to S1500; **TON**

Response from S1500; **Received**

11. Turn Off Lamp

Command to S1500; **TOF**

Response from S1500; **Received**

12. Get Lamp Configuration

Command to S1500; **GLH**

Response from S1500; **n** (n represents an integer number)

Bit 15: Abuse Bit (0=OK, 1=lamp abused)

Bit 14: Lamp Type (1=standard)

Bit 13 – Bit 0: Lamp Hours

Example:

If “20XX\r” is responded, the lamp configuration is as follows:

No abuse bit set, surface curing with 20 hours lamp.

13. Get iris Level

Command to S1500; **GIL**

Response from S1500; **n** (n represents an integer number 1-100)

Example:

If “20XX\r” is responded, the iris Level will be 20%.

14. Get exposure time

Command to S1500; **GTM**

Response from S1500; **n** (n represents an integer number in 100's of msecs)

Example:

If “20XX\r” is responded, the exposure time will be 2 seconds.

15. Get software versions from main board

Command to S1500; **VEB**

Response from S1500; **n** (n represents an integer number)

Example:

If “10XX\r” is responded, the software version on the main board will be 1.0.

User Guide

16. Get software versions from I/O board

Command to S1500; **VIO**

Response from S1500; **n** (n represents an integer number)

Example:

If "10XX\r" is responded, the software version on the I/O board will be 1.0.

17. Get SERIES 1500 serial number

Command to S1500; **GSN**

Response from S1500; **n** (n represents an integer number)

Example:

If "20XX\r" is responded, the SERIES 1500 serial number will be 20.

18. Set iris Level

Command to S1500; **SILn**

Note: $0 < n \leq 100$

n must be a integer number

Example:

If "SIL20XX\r" is set, the S1500 iris Level will be 20%.

Response from S1500;

Received – if the value n is valid

Invalid – if the value n is out of range

EXP – the 1500 is running a timed exposure, so the value cannot be set.

19. Set exposure time

Command to S1500; **STMn**

Note: $2 \leq n \leq 9999$

n must be a integer number

Example:

If "STM10XX\r" is set, the S1500 exposure time will be 1 second

Response from S1500;

Received – if the value n is valid

Invalid – if the value n is out of range

EXP – the S1500 is running a timed exposure, so the value cannot be set.

20. Get PLC Mode

Command to S1500; **GPM**

Response from S1500; **n**

Note: *If n is '1' then trigger level mode is enabled, if it is '0' then trigger level mode is disabled.*

User Guide

21. Set PLC Mode

Command to S1500; **SPMn**

Note: n, if n is 0 then trigger level mode is disabled. If n is 1 then trigger level mode is enabled.

Response from S1500;

Received – if the command has been accepted.

Invalid – if the value is outside the specified range.

15.5 Command Timing Specification:

15.5.1 The minimum amount of time required for data to be received by the PC is over 20mS except for any commands related to iris movement which is over 200msec. The next command must be sent after the previous command is responded by the unit. Failure to adhere to this requirement will result in dropped responses as well as other undesirable effects.

15.6 Sample Code:

Example Borland C++ code for command "GLG" – Get light guide diameter

```
void __fastcall TForm1::Cmd33Click(TObject *Sender)
{
    signed char Tries = 4;
    float LG_diameter;

    unsigned char *Command;
    String Textcom= "GLG";
    int Command_CRC;

    Timer1->Enabled = false;
    Cmd33->Enabled = false;

    Command = Textcom.c_str();
    Command_CRC = CalcCRC8(0, Command, 3); // Calculate CRC8 for the
command "GLG"

    Screen->Cursor = crHourGlass; // Show hourglass
cursor
    Application->ProcessMessages();

    while (Tries-->0)
    {
        ComPort->FlushInBuffer();
        ComPort->FlushOutBuffer();
        ComPort->PutString(Textcom); // send the
command "GLG"
    }
}
```

User Guide

```
ComPort->PutChar(Asc[Command_CRC>>4]); // send the
CRC8 in hex string
ComPort->PutChar(Asc[Command_CRC & (0xF)]); // send the CRC8
in hex string
ComPort->PutChar('\r');

a=0;
UnitResponse = "";
TimeOut = false;
TimeOutTimer = 1;
while (TimeOutTimer) Application->ProcessMessages();

if (a == '\r')
{
    a = 0;
    if (CompareCRC()) // Check if the data is
received correctly
    {
        if ( strcmp(RdPtr, "Err") == 0) {
            MessageDlg("Command is wrong", mtError, TMsgDlgButtons() <<
mbCancel, NULL);
            Screen->Cursor = crDefault;
            Cmd33->Enabled = true;
            Timer1->Enabled = true;
            Application->ProcessMessages();
            return;
        } else {
            LG_diameter = atof(RdPtr);
            Edit9->Text = FloatToStrF(LG_diameter, fFixed, 12, 3);

            Screen->Cursor = crDefault;
            Cmd33->Enabled = true;
            Timer1->Enabled = true;
            Application->ProcessMessages();
            return;
        }
    }
}

if (TimeOut)
    MessageDlg("No response from Unit", mtError, TMsgDlgButtons() <<
mbCancel, NULL);

Screen->Cursor = crDefault;
Cmd33->Enabled = true;
Timer1->Enabled = true;
Application->ProcessMessages();
```

User Guide

CRC8 sample code:

```
unsigned char CalcCRC8(unsigned char *Data)                // calc 8 bit CRC
{
    unsigned char LoopCntr;
    unsigned char CRC8;
    unsigned char A;
    unsigned char i;

    CRC8 = 0;                                              // reset CRC8

    for (i = 0; i < 8; i++){                               // data loop
        A = *Data++;                                     // get first data byte
        for (LoopCntr = 0; LoopCntr < 8; LoopCntr++, A >>= 1){ // 8 bit loop
            if ((A ^ CRC8) & 0x01){                       // test bit 0 of (OneWire.Data XOR
                CRC8 ^= 0x18;                             // toggle bits 3 and 4 of CRC8
                CRC8 >>= 1;                               // rotate right CRC8, 1 time
                CRC8 |= 0x80;                             // set bit 7 of CRC8
            }else
                CRC8 >>= 1;                               // rotate right CRC8, 1 time
        }
    }
    return CRC8;
}
```

User Guide

16 Routine Care and Maintenance



1. Operate the unit in a well-ventilated area with at least six inches clearance at the rear of the unit for proper air flow. Do not place any objects below the unit, between the feet as this will restrict airflow through the bottom of the front face plate.
2. For safe operation, use only a grounded outlet.
3. Avoid physical shocks or jarring to the unit especially while the unit is operating. Such sudden movements reduce the lamp module life.
4. The lamp module must be operated for a minimum of 20 minutes each time it is turned on to prevent damaging the lamp. Increasing the time between turning the lamp module on and off will maximize lamp life.
5. Replace the air filter, found under the front face plate, frequently to ensure unrestricted air flow. It is recommended as a minimum that the air filter be removed and washed with a mild detergent and water every time the lamp module is replaced.



Note: restricted airflow can cause the lamp temperature to increase above optimum temperature, significantly reducing lamp life.

6. When necessary, clean the light emitting end of the light guide using an optical cleaning solution.
7. Cleaning of unit is not required, however if cleaning is desired, disconnect the AC power cord from the unit and use only a water and simple detergent solution. Ensure that cleaning solution does not come in contact with any optical, moving mechanical or electrical parts.
8. Recommended operation of S1500 is in horizontal position using S1500 beyond 15% of tilt from a horizontal position will wear lamp life.

16.1 Replacing the Lamp Module

16.1.1 The OmniCure S1500 comes configured for standard curing applications only. Please ensure that the appropriate type lamp has been selected for your curing system/ application. The part number of the lamp module is available on the lamp box.

Excelitas Canada Inc..	Description
012-64000R	Standard Curing Lamp

Table 7 Lamp Part Number

Refer to Section 4 for lamp module replacement instructions
 Refer to Section 17 for messages regarding troubleshooting and lamp module replacement.

User Guide

16.2 Replacing the External Fuses



16.2.1 The external (mains) fuses are located in the fuse drawer which is located in the AC inlet module on the rear panel.

16.2.2 Turn off the main POWER switch and remove the AC POWER cord from the unit.

16.2.3 Gently pull out the drawer with the aid of a flat-head screwdriver.

16.2.4 Carefully lever one end of the blown fuse up from its retaining clip with a small flat-head screwdriver and lift it out.



16.2.5 Replace the damaged fuse(s) only with the same type and rating (F5A, 250V). The rear compartment must contain two active fuses.

16.2.6 Close the fuse drawer.

16.2.7 Reconnect the AC POWER cord.

16.3 Replacing the Air Filter



16.3.1 The external air filter is located under the front face plate of the OmniCure S1500.

16.3.2 Turn off the main POWER switch and remove the AC POWER cord from the unit.

16.3.3 Gently slide and pull out the filter.

16.3.4 Push in the replacement filter so that it sits flat in place

16.4 Replacing the Bandpass Filter

16.4.1 The OmniCure S1500 Includes a bandpass filter to limit the wavelengths of light for your application. There are 5 bandpass filters available, which are selected at the time of purchase

Part #	Description
P019-01045R	Filter 365 nm
P019-01046R	Filter 250-450 nm
P019-01047R	Filter 400-500 nm
P019-01048R	Filter 320-390 nm
P019-01049R	Filter 320-500 nm

Table 8 Replacement Filter Part Numbers

16.4.2 The bandpass filter currently installed on your OmniCure S1500 system will be identified on a label located on the back panel of the system. To change the bandpass filter, the system must be returned to your local Service Centre. Reference section 22– Contact Information to find the nearest Service Centre.

User Guide

17 Troubleshooting

Display	Decimal Point Status	Alarm	Message	Description
XXXX.	Flashing	Off	L. Hrs Mode	Displays the accumulated hours the lamp has been on
XXX.X	Solid	Off	Timer Mode	Displays the time in seconds the shutter will remain open when the start button is pressed
XXX	None	Off	Level Mode Iris Opening	Displays the percentage the iris is open while in Intensity Mode.(S1500 is not calibrated)
Flashing	None/Flash	Off	Flashing display	The lamp is warming up. Warm up time is approximately 4 minutes.
bulb	None	On	Bulb Error	Lamp did not strike or extinguished after striking
COOL	None	Off	Cool Warning	Lamp is too hot to strike. The lamp will automatically re-strike when it has reached optimum temperature.
old / bulb	None	Off	Alternating Old and then Bulb	The lamp has accumulated over 2000 hours. Lamp may be near end of life.
end / bulb	None	On	Alternating End and then Bulb	The lamp has accumulated over 4000 hours. The lamp will not strike.
SF1	None	On	Shutter Failure	Shutter has failed. Unit should be serviced
LOC	None	Off	Adjustment Locked	The up/down adjustment buttons have been locked. No changes can be made to the exposure time or iris setting.
ULOC	None	Off	Adjustment Unlocked	The up/down adjustment buttons have been unlocked. Changes can be made to the exposure time and iris setting.
E1	None	Off	Wrong Type of Lamp Installed	Check lamp part# to verify that the appropriate lamp type has been installed.
E3	None	On	Lamp exceeded temperature	The lamp temperature monitoring has turned off the lamp due to excessive heat. Verify the cooling exhaust vent is not blocked.
E4	None	On	Internal error.	An internal error has occurred. If error re-occurs the unit should be serviced
E5	None	On	Failed to communicate with intellilamp	The communication to the intellilamp has failed, open the lamp access door and verify all connections are secure.

Table 9 Message References

Note: The Alarm will be “On” if the light guide is not fully inserted and the shutter is supposed to be open

User Guide

LED Indicator	Status	Description
Light Guide	ON – Green	Light guide is fully inserted
	ON – Red	Light guide is not fully inserted
Lamp	ON	The lamp is ON
	OFF	The lamp is OFF
Open	ON	The shutter is open
	OFF	The shutter is closed

Table 10 Front Panel LED Descriptions

Front Panel Buttons	Position	Description
Front POWER ON/OFF Switch	“I / “O”	POWER ON POWER OFF
Start/Stop Button	Depressed	Shutter Activation
MODE	Momentary Depressed	Selects between three Modes: Timer, Level and Lamp Hours
UP	Momentary Depressed	Increases the current value displayed.
DOWN	Momentary Depressed	Decreases the current value displayed.

Table 11 Front Panel Button Descriptions



Service to be completed by qualified repair personnel only!

17.1.1 If the unit fails to POWER up or function properly, use the following checklist to eliminate the most common causes of problems. Check that:

1. The AC POWER cord is securely plugged into a functional AC wall plug.
2. The AC POWER cord is securely plugged into the AC inlet on the rear of the unit.
3. The mains AC POWER switch is in the ON position.

17.1.2 If the LED display lights and the fan starts, but the lamp will not turn on, check for the following:

1. The LED display indicates the “bulb” message and the system begins to beep. This indicates that no lamp is detected. Check if the lamp has been installed correctly. Refer to Section 4 – Installing the Lamp Module.
2. The LED display indicates the “bulb” message after approximately 45 seconds and the system begins to beep. This indicates that the lamp has failed to strike. It may be a result of the lamp reaching end of life, or that the lamp housing panel is not secured properly in place. Press the start/stop button to clear the audible alarm. Turn power off to the unit. Check that the lamp housing panel is secured properly. Wait a few minutes and turn the power on to the unit. If it still does not strike, replace the lamp.
3. The LED display indicates the “COOL” message. This indicates the lamp is too hot to strike. The lamp will automatically strike when it has cooled.

User Guide

17.1.3 If the shutter does not open, check that:

1. The light guide is fully inserted; the LED above the light guide port will be illuminated green. The lamp is warmed-up; the display is not flashing. The shutter interlock input is not active (P1, pins 6 & 4).
2. The LED displays "SF1", indicating a shutter failure. POWER down the unit, wait a few minutes and turn POWER on to the unit. If the unit displays a shutter failure again, contact your local Excelitas Canada Inc.. Service Centre to have your unit serviced.

17.1.4 If the light intensity is too low, check that:

1. The percent iris opening is set high enough. Put the unit into Level Mode and press the up button to increase the iris opening. See Section 7 – Adjusting the Light Output.
2. There are no foreign substances on the emitting end of the light guide.
3. There are no bends, kinks, or other physical damage to the guide. Replace the light guide if there is any physical damage.
4. The lamp has been installed correctly. Reference section 4 – Installing the Lamp Module.

It may be necessary to replace the lamp or to replace the light guide. Contact your Excelitas Technologies sales representative for information on purchasing a new lamp or light guide.

17.1.5 If the LED display does not light:

1. If the fan is functional, POWER down the unit, wait approximately 20 seconds then POWER it up again
2. If the problem persists, contact your local Excelitas Technologies Service Centre.

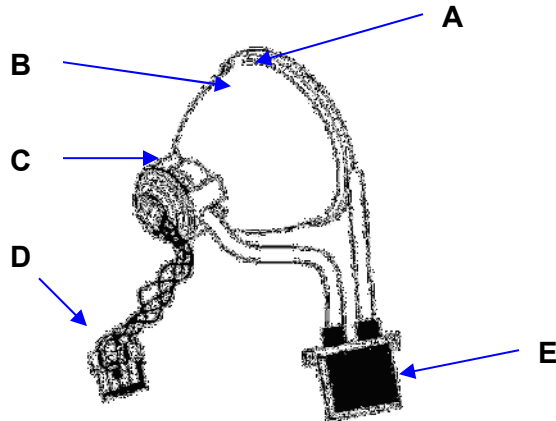
17.1.6 If one or more fans do not work:

1. If the LED display is functional, POWER down the unit, wait approximately 20 seconds then POWER it up again
2. If the problem persists, contact your local Excelitas Technologies Service Centre.

User Guide

18 Technical Specifications

18.1 Lamp Module



A – Rim of Lamp Reflector
D – Intelli-Lamp Connector

B – Reflector
E – Power Connector

C – Back ceramic Mount

Lamp Module

Excelitas Technologies Enhanced 200watt UV lamp

Focal Point of Spot

52.8 mm

Lamp Module Life

2000 hours

Warm Up

4 minutes (min)

Lamp Voltage (new bulb)

60VDC nominal

Lamp Voltage (range)

36VDC to 95VDC

Lamp Current

3.33A typical, 5.7A maximum



Warning

The method in which lamps are disposed of must comply with local rules & regulations for disposal of hazardous materials. Lamps may be returned to Excelitas Technologies providing they are returned in its original packaging. Excelitas Technologies dispose of them in the appropriate manner.



Warning

Hg – LAMP CONTAINS MERCURY, Manage in Accord with Disposal Laws, see: www.lamprecycle.org or 1-800-668-8752

User Guide

18.2 Light Guide

Light Delivery

Flexible High Power Fiber Light Guides will be available in a variety of lengths with a variety of core diameters.

Note: 3mm single leg liquid light guides are not compatible with the S1500!

18.3 Power Input

Power Supply:	Power Factor Corrected, Universal Input
Input Voltage:	100 - 240VAC, 50/60Hz
Current:	3.5A max at 120VAC 2.0A max at 240VAC
Input Surge:	50A max. (cold start)
Protection:	Short circuit auto-recovery Overvoltage (up to 135%, +/- 5% of nominal) EMI filtering integrated into the power supply Power supply has integrated thermal cutoff
Fuse Rating:	Dual fuse system: each fuse rated at F5.0A 250V, 5x20mm type located in the AC receptacle

User Guide

18.4 I/O Ports (Including RS-232)

18.4.1 The S1500 has 4 different I/O ports; 4 located on the back of the unit. The first port is a simple 2-wire, audio style jack that can be connected to a foot pedal (supplied with each unit) or any other electro-mechanical triggering device. This is an exposure trigger input used to start an exposure. The second port is a RS-232 port (9 pin) to be connected to a PC and is described in more detail in section 10.2.6. The third and fourth ports (15 pin DE style) are for PLC interfacing.

18.5 USB Interface

18.5.1 A USB interface, an optional feature, can be provided through the existing RS-232 port via an external RS-232 to USB converter device. A RS-232 to USB converter device such as part number RS232B by FTDI (Future Technology Devices International Inc.) or equivalent can be used.

18.6 Environmental Conditions

Operating Conditions

Ambient Temperature:	15°C to 40°C
Altitude:	2000m max.
Atmospheric Pressure:	700 to 1060 hPa
Relative Humidity:	15% to 95% (non-condensing)
Installation Category:	II
Pollution Degree:	2

Transport and Storage Conditions

Temperature:	-40 to +70°C
Relative Humidity:	10% to 100%
Atmospheric Pressure:	500 to 1060 hPa

User Guide

18.7 Noise and the OmniCure S1500

Using the S1500 in a Noisy Environment

18.7.1 What is Noise?

"Electrical noise" is a term used to describe unwanted electronic emissions. Noise is actually comprised of RFI (Radio Frequency Interference) EMI (Electro Magnetic Interference) and other similar sources of energy. Electronic equipment may behave in a non-standard manner (exhibit erratic operation) with the presence of high Levels of noise. They will continue to behave erratically as long as the noise is present, unless protected with noise suppressors.

18.7.2 What are Sources of Noise?

Sources of noise are any electronic equipment which utilize or generate a high frequency AC current and voltage. Specifically, equipment such as metal halide arc lamps, mercury short arc lamps, xenon arc lamps, switch mode POWER supplies, pulsed lasers, x-ray equipment, welding equipment and RFI generators are a few classic examples of large noise producing equipment.

18.7.3 Determining the Noise Level in Your Environment

If the S1500, along with other pieces of equipment, operate abnormally, in an intermittent or continuous manner, it is quite possible that large Levels of noise are present. It is recommended that prior to installing the S1500, the user examine any equipment nearby. If any of the equipment falls into the category of equipment listed above it is further advised that the user examine the ratings and description labels on each piece of equipment. Any equipment that does not have a label indicating that it meets Industry Canada, FCC, or IEC- EMC requirements is a possible noise source. If any equipment is deemed a noise source, or even suspected to be a noise source, then additional noise protection should be incorporated during the installation of the S1500.

18.7.4 Shielding

Any wire or cable assembly entering or exiting the S1500 may act like an antenna which will pick up noise and transmit it to the internal electronics. This may cause the S1500 to operate erratically.

There are several ways in which the S1500 can be shielded (protected). Excelitas Technologies Inc.. recommends the use of shielded cables for all cable assemblies: the AC line cord, the I/O cables and the foot switch. Furthermore, it is advised that clamp-on ferrite shield beads be added to every cable assembly. Suitable ferrite shield beads are: P/N: 0443164251 by Fair-Rite Products Corp. (or) P/N: 28A2025-0A0 by Steward.

Noise suppression products are also available in the form of AC power bars that incorporate surge suppression and noise suppression circuitry. Either type will help in protecting the S1500 from noise. Providing the S1500 with an AC line that is separate from any other noise producing equipment will also be beneficial.

User Guide


Depending on the noise Level in the environment, any combination or all of the above shielding recommendations may be necessary to protect the S1500 from noise and ensure smooth operation. We can help you to shield the S1500 from electrical noise. Please contact Excelitas Technologies Inc.. for further assistance.

19 Regulatory Compliance

19.1 Product Safety and Electromagnetic Compatibility:

The OmniCure S1500 Series has been tested and found to comply with product safety and electromagnetic compatibility requirements. For a complete list of tests and for certification details, please contact your OmniCure representative or visit <http://www.excelitas.com/Pages/Product/OmniCure.aspx>

CE Marking

Council Directive 2014/35/EU	Low Voltage Directive	
Council Directive 2014/30/EU	EMC Directive	
Council Directive 2012/19/EU	WEEE Directive	
Council Directive 2011/65/EU as amended by (EU) 2015/863	RoHS	

19.2 FCC Part 15, Subpart B, Class B-Unintentional Radiators

FCC Class B Digital Device or Peripheral - Information to User

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

WARNING

User Guide

Changes or modifications not expressly approved by Excelitas Technologies could void the user's authority to operate the equipment.

19.3 WEEE Directive



The symbol above indicates that this product should not be disposed of along with municipal waste, that the product should be collected separately, and that a separate collection system exists for all products that contain this symbol within member states of the European Union.

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol indicated above invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration

User Guide

19.4 China RoHS



The following table contains substance information for the OmniCure S1500 Series as required by China RoHS regulations.

Part Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
200W Lamp	X	X	O	O	O	O
Printed circuit board assemblies	X	O	O	O	O	O

This table is compiled according to SJ/T 11364.

O : Indicates that the content of the hazardous substance in all homogeneous materials of the part is below the limit requirement of GB/T 26572.

X : Indicates that the content of the hazardous substance in at least one of the homogeneous materials of the part exceeds the limit requirement specified by GB/T 26572.

User Guide

19.5 Mechanical Specifications

Dimensions

Height:	8.2"/ 20.6 cm
Depth:	13.3"/ 33.8 cm
Width:	7.1"/ 18.0 cm
Unit Weight:	9.05 lbs/ 4.10 kg

19.6 Miscellaneous

Display: 1 line x 4 digit, LED, Yellow

Keypad: 3 button, tactile & 1 start/ stop switch

Specifications may vary slightly and are subject to change without notice.

User Guide

20 Warranty

- 20.1.1** Excelitas Technologies warrants the original purchaser for a period of one (1) full year, calculated from the date of purchase, that the equipment sold is free from defects in material and workmanship. All repairs are warranted for 90 days.
- 20.1.2** In the event of a claim under this warranty, the equipment is to be sent postage and carriage paid to the Excelitas Technologies Service Centre. Returned equipment will not be received without a Return Authorization (RA) Number, issued by the appropriate Service Centre.
- 20.1.3** In order for us to serve you better, Inc. include a written description of the fault and the name and telephone number of a contact person who may be contacted for additional service related questions.
- 20.1.4** Any claims for units received with defects in material or workmanship must be reported to an authorized Excelitas Technologies Service Centre within 30 days from the original date of receipt and returned within 30 days of reporting to an authorized Excelitas Technologies Service Centre. Excelitas Technologies will repair or replace these reported defects free of charge. The equipment must be sent postage and carriage paid.
- 20.1.5** Package the equipment in its original shipping case or as appropriate to prevent damage during transport.
- 20.1.6** In the case of damage caused by wear and tear, careless handling, neglect, by the use of force or in the case of interventions and repairs not carried out by an Excelitas Technologies Authorized Service Center, the warranty ceases to be valid. This warranty may not form the basis for any claims for damages, in particular not for compensation of consequential damages.
- 20.1.7** This warranty is not transferable.
- 20.1.8** No warranty is extended to perishable items (if purchased separately or included in systems). These may include but are not limited to, fuses, air filters, optical filters, cables, light guides and light guide adapters.

Warning: *Apart from lamps (for certain equipment), fuses, air filters, or optical filters (for certain equipment) there are no field serviceable parts within the equipment. Opening the equipment main enclosure will void the warranty.*

User Guide

20.2 Replacement Bulb Warranty

20.2.1 If the OmniCure 200 watt bulb fails to strike during the warranty period of 2000 hours, the bulb will be replaced under warranty. In the event of a claim under this guarantee, the lamp is to be sent postage and carriage paid, including a description of the fault, to the . Returned equipment will not be received without a Return Authorization (RA) Number, issued by the appropriate Excelitas Technologies Service Centre. Lamps must be purchased from an authorized Excelitas Technologies Representative or Distributor to be eligible for the warranty replacement. This warranty is non-transferable.

20.2.2 In the case of damage caused by careless handling, neglect, by the use of force or in the case of interventions and repairs not carried out by an Excelitas Technologies Service Centre to the OmniCure S1500 system, the guarantee ceases to be valid.

20.3 Returning your S1500 to Excelitas Technologies for Service

20.3.1.1 Please make a note of the problem encountered, the steps followed to isolate the problem and the result of any troubleshooting steps taken.

20.3.1.2 Telephone the nearest Excelitas Technologies Service Centre to obtain a Return Authorization Number so that repairs may be completed quickly and efficiently. In North America, request for Return Authorization number can be made online at:
https://www.excelitas.com/ox_service_request_form

20.3.1.3 Enclose details of the problem with the unit and return both to the Excelitas Technologies Service Centre. The unit should be returned in its original packaging if possible. Please do not ship the unit with the lamp installed.

20.3.1.4 Include a phone number and contact person who may be reached for any additional service-related questions.

User Guide

21 Component Part Numbers

Product	Part Number
The OmniCure S1500 UV Spot Curing Unit S1500 with Standard Filter (320nm-500nm)	P010-00224R
The OmniCure S1500 UV Spot Curing Unit S1500 with Optional Filter (specified at Order)	P010-00225R
The Enhanced 200W lamp module	012-64000R
UV Safety Glasses	854-00001R
Foot Pedal Switch	014-00070R
Lamp Housing Access Tool (fastened beneath the system housing)	850-00015
RS-232 Cable (9 Pin)	018-00286R
SERIES 1500 User's Guide (Includes translation CD)	019-00089R

Table 12 Component Part Numbers

User Guide

22 Contact Information

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Toll.:+1 800 668-8752 (USA and Canada)
Fax:+1 905 821-2055
<https://www.excelitas.com/omnicure-x-cite-inquiries>

Technical Assistance

techsupport@excelitas.com
https://www.excelitas.com/ox_service_request_form

For a complete listing of Authorized OmniCure Distributors and Service Centers, please go to the main web site: <https://www.excelitas.com/dealer-search>