OmniCure® LX50X

Windows Control Panel User Guide

Applicable for the following UV LED Head Controller models:

Model	Part Numbers
LX500-2 (supports two LED Heads)	010-00369R
LX500-4 (supports four LED Heads)	010-00375R

Installation/Reference Guide

035-00666R

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Revision History

Revision #	Comments
Rev 0	Initial Release

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Table of Contents

1   Introduction

The LX50X Windows Control Panel is a Graphic User Interface (GUI) that provides remote access and control of the OmniCure LX500 UV LED Spot Curing System via a Personal Computer (PC) This manual includes a descriptive overview of installation, capabilities and operation.

This user manual covers the following models:

LX500-2   010-00369R
LX500-4   010-00375R

Excelitas Technologies recommends reading this guide to discover all features of the OmniCure® LX50X series Windows Control Panel prior to use.

For more detailed information the OmniCure LX500 Series UV LED Spot Curing System and Accessories please visit our website at http://www.excelitas.com/Pages/Product/OmniCure-LX500.aspx or call us at 905-821-2600 and toll free 1-800-668-8752 (USA and CAN only).

2   Installation

2.1   Installing the USB Driver

Before the LX Control Panel can be used, the USB driver for the LX50X must be installed. To install the USB driver, follow these steps:

1. Download the USB Driver onto the computer.

2. Unpack the driver into a folder on the computer.

3. Connect the LX50X to the computer.

4. Power on the LX50X.

5. When prompted for a driver for the LX50X, select "Browse my computer for driver software".

6. Click on Browse, select the folder the driver was unpacked to in step 2.

7. Click on Next.

8. Allow the driver installation to complete.

2.2 LX50X Control Panel Installation

To install the LX Control Panel, follow these steps:

1. Download the LX Control Panel onto the computer.

2. Unpack the software into a folder on the computer.

3. In the folder, double click on setup.exe.

4. When the installer opens, Click on Next to continue
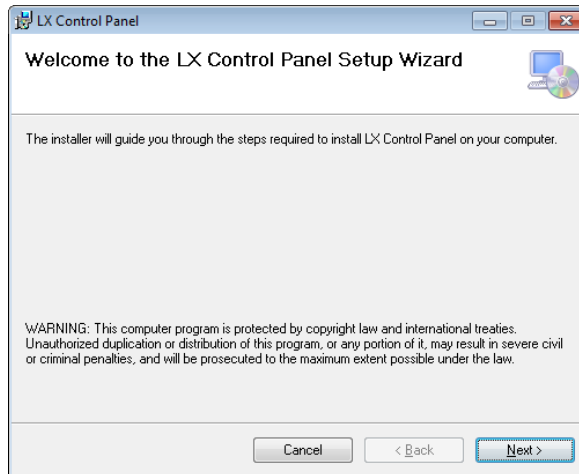
5. Select the destination folder, the default is recommended. Also select if the control panel is to be made available to all user accounts on the computer, or just the installers account.
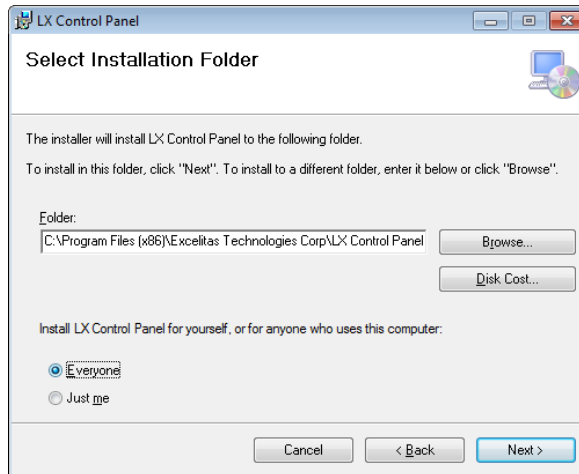
6. Confirm that the installation is to take place.

7. Wait for the installation to complete.

8. Once the installation is complete, Close the installer.
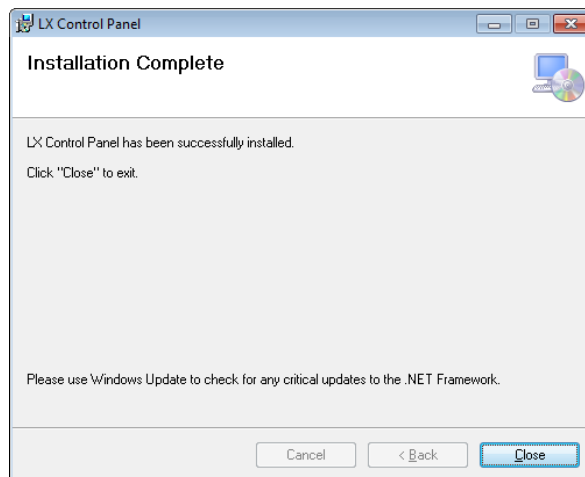
3   Using the Control Panel

3.1   Main Control Panel

The main control panel is divided into 6 sections, the Connection, Calibration, LED Info, LED Control, SD Card Info and extended controls sections.

Connection Section

Calibration Section

LED Info Section

LED Control Section

SD Card Info Section

Extended Controls Section
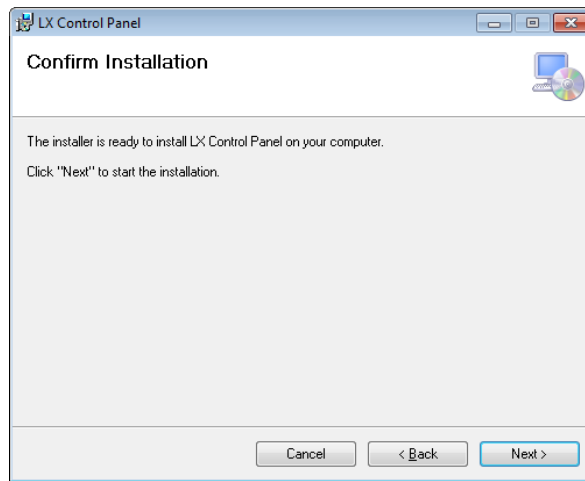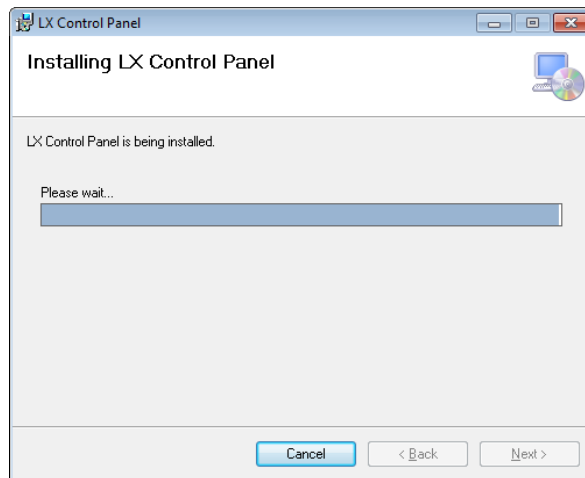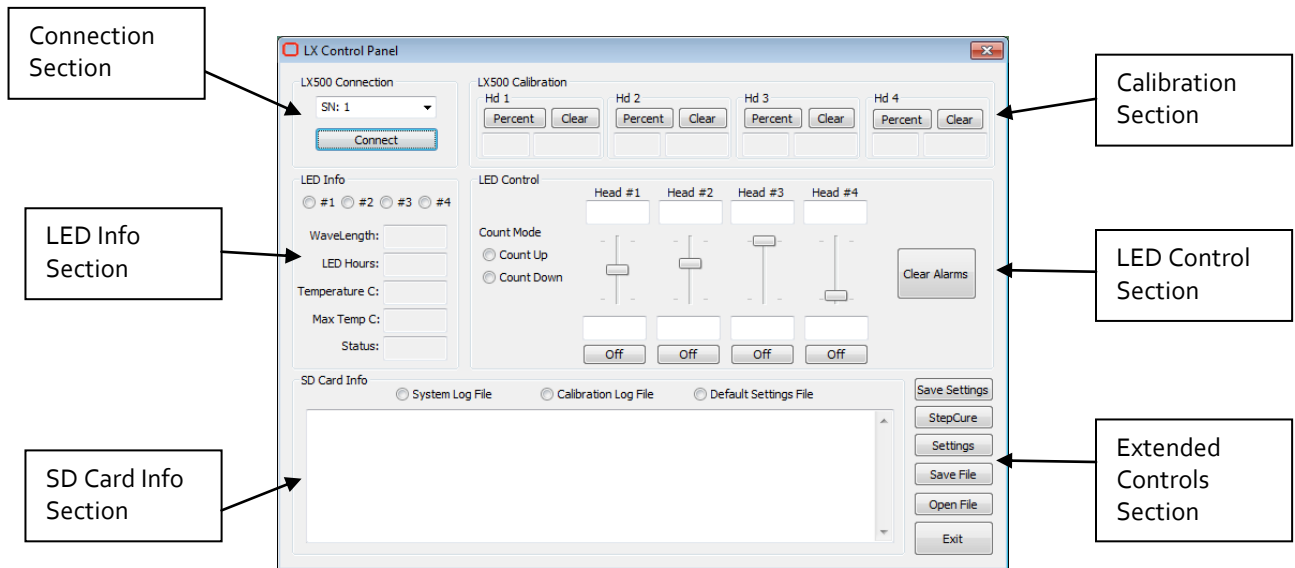

3.1.1   Connection Section

The List of device serial numbers is only populated during the start-up of the control panel. The control panel will search out any devices that are present in the computer, and not currently being communicated with. If another copy of the control panel is open and communicating with a device, that device will not be present in this list. Select the device you wish to communicate with and click Connect.

3.1.2   Calibration Section

The calibration section is divided into the four LED heads, each head control has a button and status for calibrating, a button to clear the calibration, a box showing the calibration hours remaining and a box showing the maximum power or irradiance.

Button to start a calibration, shows current calibration mode.

Button to clear the calibration

Calibration hours remaining

Maximum Power or Irradiance

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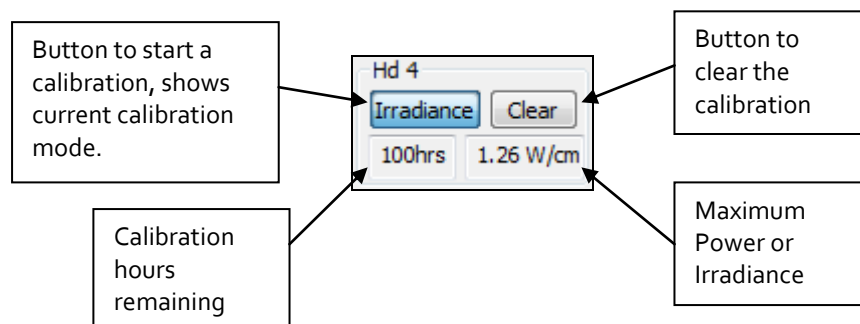
3.1.3   LED Info Section

The LED Info section shows the information for the LED head selected. This includes the centre wavelength, number of hours on the LED head, current temperature in °C, maximum temperature in °C and the current connection status. The connection statuses can be:

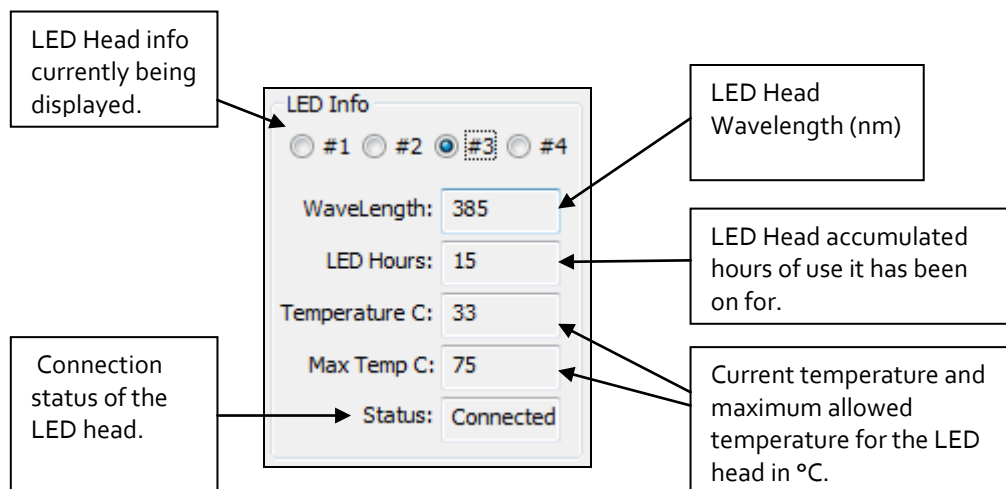| Connection Status	Description
Connected	LED head is currently connected and operational
Disconnected	LED head was connected after the LX50X was powered on, and was disconnected afterwards. The LX50X must be turned off before reconnecting the LED head.
Not Present	LED head was not connected when the LX50X was powered on.
Unknown	The LED head state is unknown; restart the LX50X and Control Panel.

LED Head info currently being displayed.

LED Head Wavelength (nm)

LED Head accumulated hours of use it has been on for.

Connection status of the LED head.

Current temperature and maximum allowed temperature for the LED head in °C.

3.1.4   LED Control Section

The LED control section allows for modification of the current settings. The intensities of the LED heads can be adjusted via the sliders, or manually entered in the text entry boxes below the sliders. The intensity can only be entered in the format it is calibrated for. For example, if head #4 is calibrated for irradiance, an irradiance value must be entered into the text entry box. Refer to the calibration section to know what the maximum allowed irradiance is. If a value that exceeds the maximum irradiance is entered, the control panel will return the value to the previous set value. The exposure time can be entered if the unit is in count down mode, if in count up mode, the value is fixed at 0.0s. The count mode can be changed at any time, however if it is changed in the LX50X, the control panel will automatically detect this change and update its setting. Alarms are shown as dialog boxes on top of the control panel, if an alarm occurs it can be cleared by clicking the clear alarms button. If the alarm does not clear, the LX50X must be powered off and back on to clear the alarm.

Count Mode, Select Count up or Count Down.

Exposure time in seconds, 0.1->999.9s in count down mode.

Clear Alarms button.

Intensity setting, in percent (not calibrated), irradiance or power (calibrated).

LED Head on/off buttons, Triggers the emission of UV
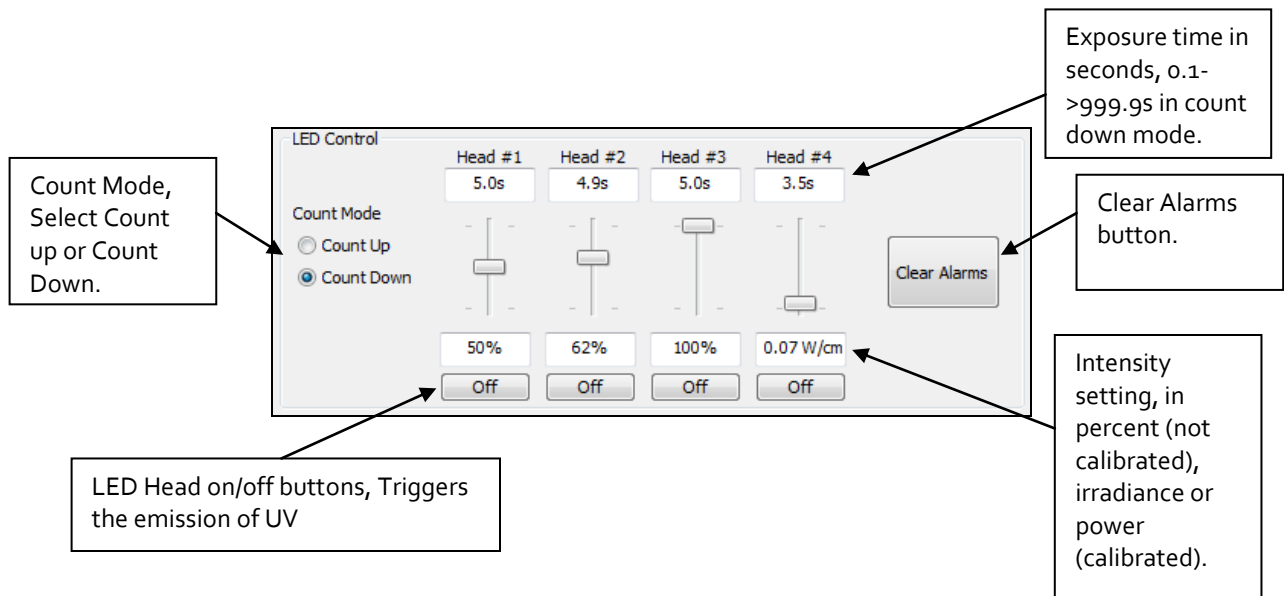
If the door interlock is activated, the LED Control section will appear with a DOOR LOCK message across the controls.
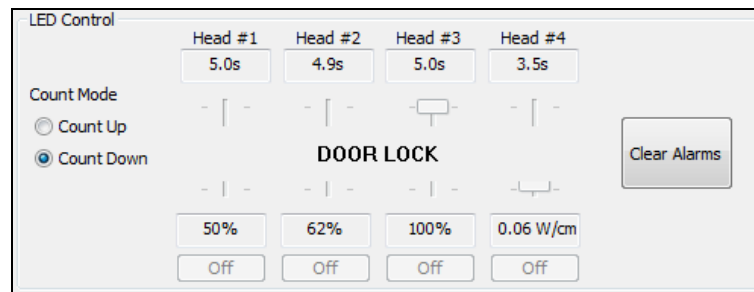
3.1.5   SD Card Info Section

The SD Card info section allows viewing of the log files and system settings file. Click on the file you would like to view and it will appear in the text box. Due to the large size of the files, they may take some time to download, and the text box will only show the most recent 20 entries. See the extended controls section to view the complete log files.

When a file is selected, a warning message is displayed informing of the impact on exposure performance of the LX50X. Only download files if the LX50X is not currently performing exposure operations. If the LX50X is performing exposure operations, click no, otherwise click yes to download the log or settings file.

Radio buttons to select a file to download.

SD Card Info

System Log File | Calibration Log File | Default Settings File

```
Date,Time,LX500 SN,Hd #,LS100 SN,Cal Due,Hd SN,WaveLength,Gain 10%,10%,Gain 20%,20%,Gain 30%
2016-06-07,15:16:15,1,1,332,2017-02-22,7,385,4,0.12,4,0.32,3,0.52,3,0.72,3,0.91,3,1.08,3,1.25,3,1.4
2016-06-22,16:38:31,1,1,332,2017-02-22,7,385,4,0.12,3,0.32,3,0.52,3,0.72,3,0.89,3,1.04,3,1.21,3,1.3
2016-07-06,15:49:18,1,1,332,2017-02-22,7,385,4,0.10,4,0.27,3,0.46,3,0.62,3,0.79,3,0.94,3,1.11,3,1.2
2016-07-06,15:49:50,1,1,332,2017-02-22,7,385,4,0.10,4,0.27,3,0.45,3,0.60,3,0.76,3,0.95,3,1.09,3,1.2
2016-07-06,15:51:22,1,1,332,2017-02-22,7,385,4,0.10,4,0.27,3,0.44,3,0.62,3,0.78,3,0.92,3,1.09,3,1.2
2016-07-06,15:55:25,1,1,332,2017-02-22,7,385,4,0.10,4,0.27,3,0.46,3,0.61,3,0.78,3,0.92,3,1.07,3,1.2
2016-07-08,15:12:5?,2,332,2017-02-22,6,385,4,0.09,4,0.23,3,0.35,3,0.49,3,0.66,3,0.75,3,0.89,3,1.0
2016-07-08,15:3?:18,1,2,332,2017-02-22,6,385,4,0.09,4,0.23,3,0.36,3,0.51,3,0.66,3,0.76,3,0.90,3,1.0
```
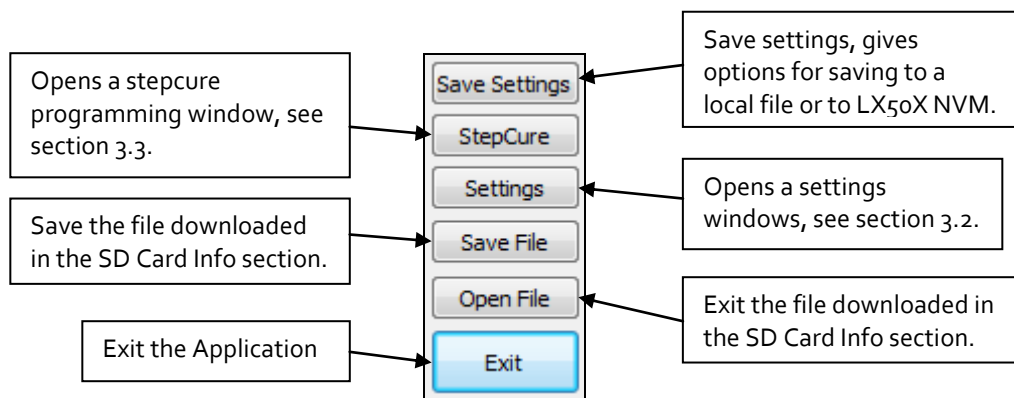
Most recent 20 log entries, or complete settings file.

3.1.6 Extended Controls Section

The extended controls section has options to program Step Cure, change system settings, saving and viewing files downloaded by the SD Card, save settings and exiting the application.

Opens a stepcure programming window, see section 3.3.

Save Settings, gives options for saving to a local file or to LX50X NVM.

Save Settings
StepCure
Settings
Save File
Open File
Exit

Opens a settings windows, see section 3.2.

Save the file downloaded in the SD Card Info section.

Exit the file downloaded in the SD Card Info section.

Exit the Application

The Save settings button will ask two questions, the first is asking if the settings are to be saved to the LX50X. Any changes made by the control panel are not automatically saved to the LX50X. To save the settings, click this button and click Yes to the save settings to the LX50X question.

Save Settings

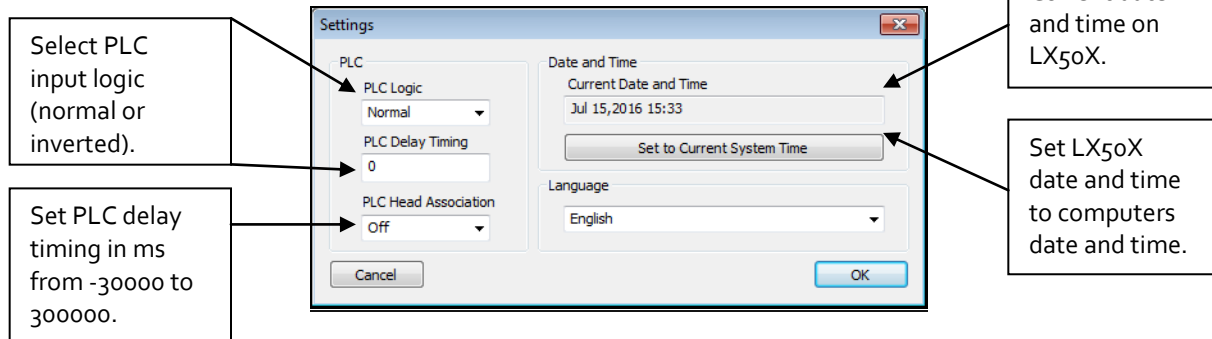Do you want to save settings to the LX50X?

Yes | No
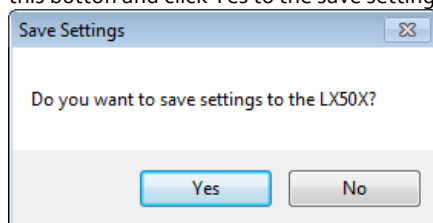
If a local settings file is required, that will be uploaded to the LX50X at a later date by SD card, answer no to the save settings to the LX50X question and answer yes to the save settings to a local settings file.

Save Settings

Do you want to save settings to a local settings file?

Yes | No

OmniCure® LX500 Series
UV Curing Solutions
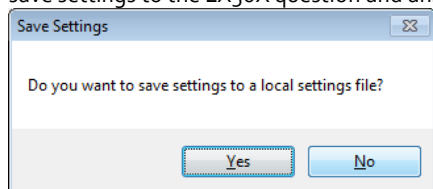
This will then ask for a filename and location to save the settings to. This file can be used to update LX50X units by SD card.
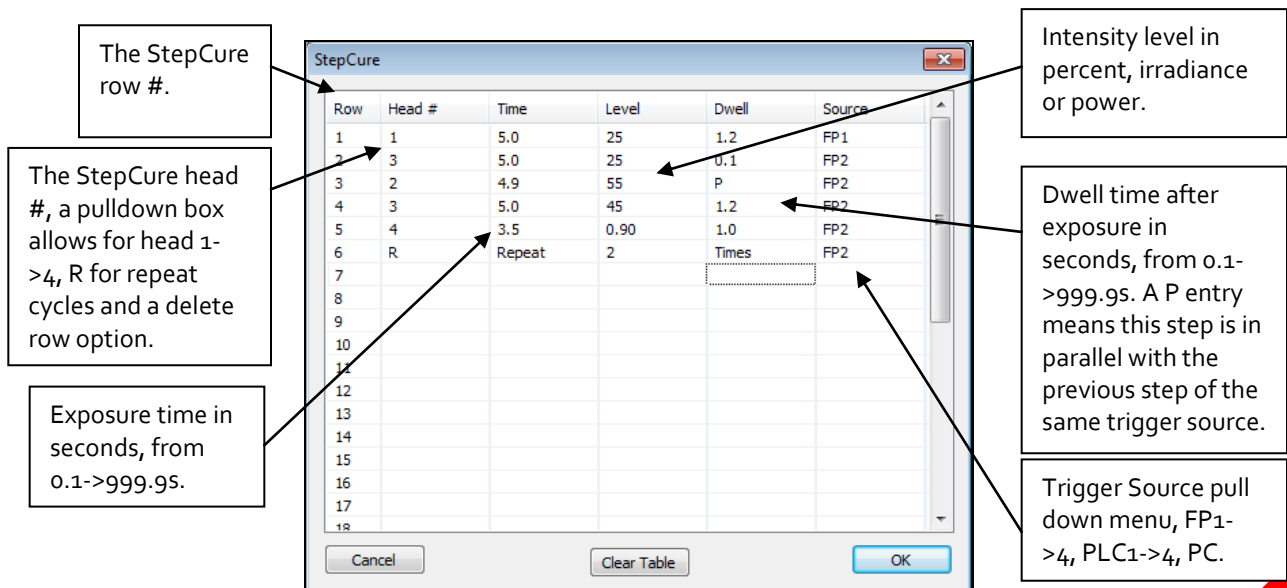
3.2 Settings Window

The settings window is used to adjust items that are in the maintenance screen window on the LX50X unit. These include setting the date and time, setting the PLC auxiliary output settings (Nitrogen) head association and delay time in ms. It also includes the PLC logic and the user interface language.

Select PLC input logic (normal or inverted).

Set PLC delay timing in ms from -30000 to 300000.

Current date and time on LX50X.

Set LX50X date and time to computers date and time.

The PLC logic will lock the front panel of the LX50X, due to the logic inversion, an inverted PLC signal must be applied to the front panel lock input to unlock the LX50X unit. The language option at the time of writing this document only supports english. The date and time is active immediately, all other settings in this window are only applied when the ok button is clicked.

3.3 StepCure Window

The StepCure window shows the table as it appears in the LX50X. It has 32 rows for entering StepCure programming. Each row has a head that can be associated with the step, an exposure time in seconds, an intensity level in percentage, irradiance or power. It also has a dwell time in seconds and a trigger source.

The StepCure row #.

The StepCure head #, a pulldown box allows for head 1->4, R for repeat cycles and a delete row option.

Exposure time in seconds, from 0.1->999.9s.

Intensity level in percent, irradiance or power.

Dwell time after exposure in seconds, from 0.1->999.9s. A P entry means this step is in parallel with the previous step of the same trigger source.

Trigger Source pull down menu, FP1->4, PLC1->4, PC.

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The StepCure program runs in the LX50X and cannot be triggered from the control panel. It runs the program based on the trigger source, so in the example above if foot pedal 2 is pressed, row 2 and 3 will run in parallel, followed by row 4 and so on. See the LX50X user guide for examples of StepCure programming. Note: A source of PC is for the S2000 command set, not for running a StepCure program from the PC control panel.

The StepCure is only downloaded to the LX50X when the ok button is clicked, to clear the StepCure table click the clear table button. A single row can be deleted by selecting "Del" in the head # pull down menu for the row.

4   Troubleshooting

System alarms and LED head alarms will display a popup message box. See the LX50X user guide for actions to perform when an error occurs.

If the control panel fails to recognize the unit, verify the driver is installed as described in Section 2.0. Also ensure that the serial port is not in use by another windows application.

If problems persist beyond these troubleshooting points, please contact Excelitas Technologies Service Department (refer to Section 5, "Contact Information").

4.1   Error Codes

Error	Description	Solution
1	The head(X) has exceeded the allowable operating temperature. (error code will remain present until cleared, however the head will be operative again when the temperature is below the maximum allowable). The channel select button is not required to clear this error. Subsequent triggers will clear the alarm if the temperature of the LED has recovered to below the over-temperature cut-off threshold. (This applies to the front panel Start/Stop button, Foot Pedal, and PLC I/O Start/Stop inputs).	• Check position of clamp location on the head. Refer to **Error! Reference source not found.**. • Check emission mode setting. • Check timing mode setting. • Check lens cleanliness.
2	The head(X) has a short circuit.	• Check LED head to controller connections.
3	The head (X) has been disconnected after power on. (The head will remain disabled until the power is cycled).	• Check LED head to controller connections.
4	The head is open circuit. (The head will remain disabled until the power is cycled).	• Check LED head to controller connections. • Check LED head wire for damage.
5	The 1-wire memory chip for head (X) has an error. (The head will remain disabled until the power is cycled).	• Check LED head to controller connections.
6	No temperature reading from head (X). (The head will be deactivated until the power is cycled).	• Check LED head to controller connections.
7	Head is in a different controller serial # or different head connector position.	• Power off unit and plug into controller serial # and head position specified by error message. • Press select to clear this error and accept the new connection.
8	Intensity setting in the StepCure profile exceeds the capability of the head. Only occurs when the head is calibrated, and the StepCure setting is an irradiance or power setting. This also can occur if the setting in StepCure is an irradiance setting, and the head is calibrated in power, or vice versa.	• Adjust the intensity setting in the StepCure profile. • Recalibrate the head, ensure that the peak intensity is found prior to calibration.
System Error 1	Internal hardware error	• Reset system. • If error code persists contact service center.

Error	Description	Solution
System Error 2	Internal Communication failure	• Reset system. • If error code persists contact service center.
System Error 3	Non-Volatile Memory error	• Reset system. • If error code persists contact service center.
System Error 4	Not used	• Not used
System Error 5	Inadequate system performance	• The system cannot keep up with the control inputs, slow down the control inputs for proper operation.

Table 1 Error Codes

* X = LED Input Ch1, Ch2, Ch3, Ch4

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5   Contact Information

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http://www.excelitas.com/Pages/Support/Service-Instructions.aspx

For a complete listing of Authorized OmniCure Distributors and Service Centres please go to
http://www.excelitas.com/Pages/Support/Service-Centers.aspx.