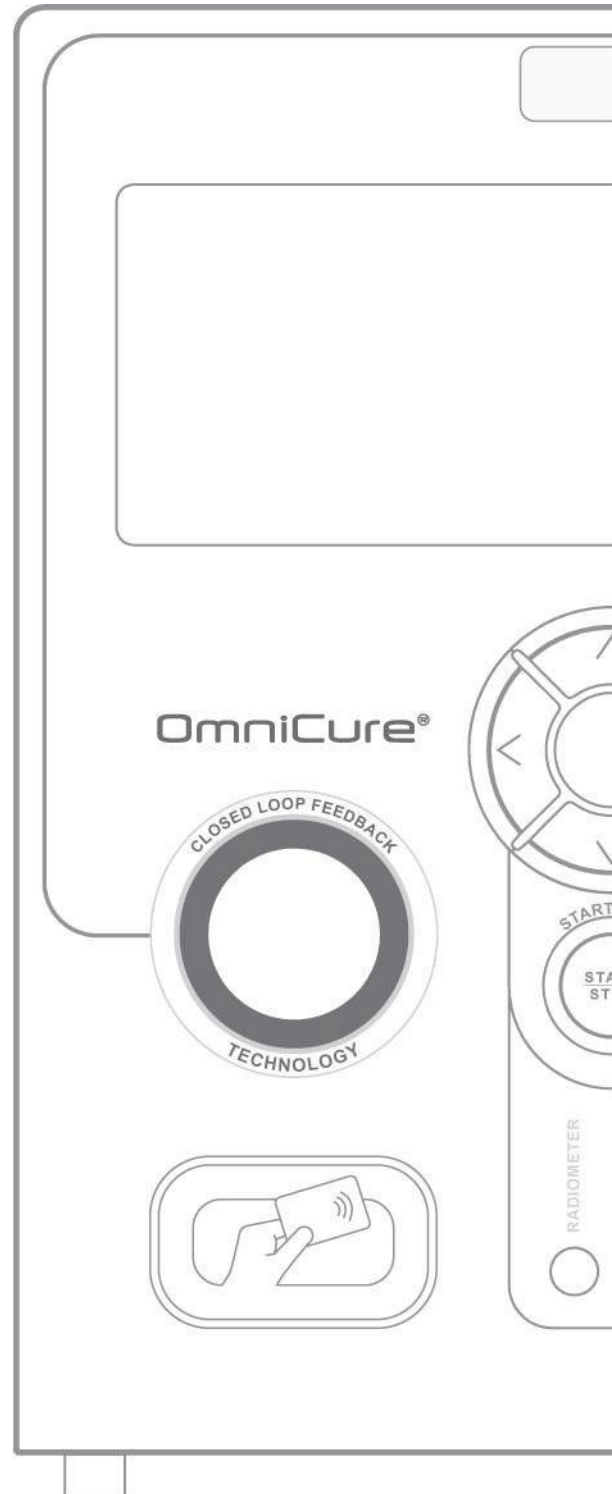


OmniCure®
UV Bonding • In Control

**S2000 Elite/ S1500 Pro
Firmware Update Guide
System Firmware V.1.1.2
WEB UI V.1.0.5**



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S2000 Elite/ S1500 Pro - Firmware

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S2000 Elite/ S1500 Pro - Firmware

1. Firmware Updates

The S2000 Elite runs two separate sets of code, one for the System firmware (EES or EEC) and another one for the WEB UI software interface (BIN). Firmware can be easily updated to the latest versions. It is recommended to run the latest firmware versions as they include improvements, bug fixes, and additional features and options.

- [Firmware Update via USB](#)
- [Firmware Update via SD Card/System Touchscreen](#)
- [Firmware Update via WEB UI](#)
- [Firmware Release Notes](#)

S2000 Elite/ S1500 Pro - Firmware

1.1. Firmware Update via USB

The S2000 Elite/S1500 Pro System Firmware (.EEC) can be upgraded using a Windows PC and a USB cable.

Materials Required

1. S2000 Elite/S1500 Pro System with reliable power source.
2. Windows PC with the provided update package downloaded. The package contains:
 - a. Excelitas Updater Application (ExcelitasUpdate.exe)
 - b. The USB Firmware Update file: *ldgi.eec*
3. Supplied USB Type-B to Type-A Cable.



The USB update method is only for the System Firmware. To upgrade the Web Software (applicable only to S2000 Elite), refer to Performing The Web Software Upgrade.

Upgrading the System Firmware using USB is estimated to take 5 minutes.

Operating System required: Windows 8 minimum. Windows 10 recommended.

Performing the System Firmware Upgrade



Do not disconnect the system power supply once the System Firmware update has started. Otherwise, you will be required to restart your upgrade.

Ensure there are no SD card inserted in the system's front panel.



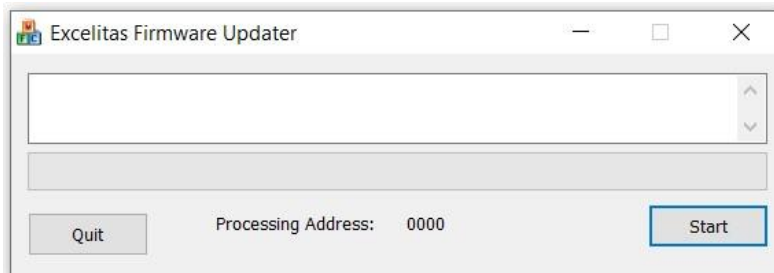
If updating both the System and the Web Firmware, the System Firmware needs to be updated first.

The system lamp must be OFF or READY before starting the upgrade. If the lamp is COOLING or WARMING UP, you must wait for that process to complete.

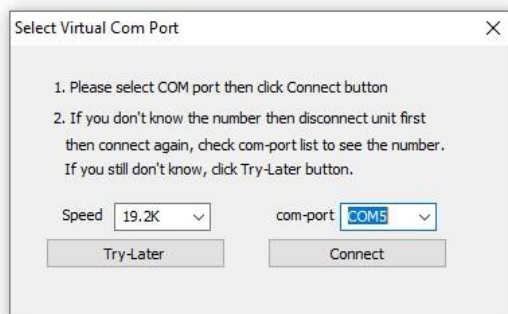
1. Power on your S2000 Elite/S1500 Pro unit.
2. Connect the USB cable from the S2000 Elite with your Windows PC.

S2000 Elite/ S1500 Pro - Firmware

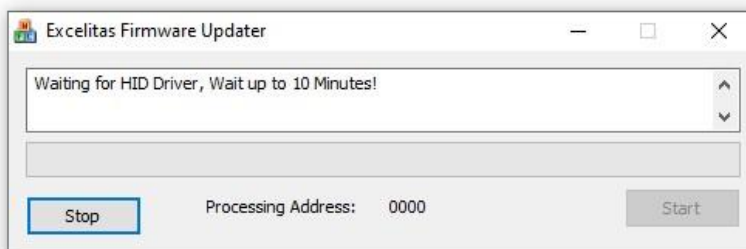
3. Launch the Excelitas Updater Application and hit the Start button.
4. Follow the on screen instructions for completing the upgrade.
5. Perform a power cycle on the unit (flip the ON/OFF switch on the rear panel).



The Excelitas Firmware Updater application. Hit the "START" button to connect to your device.



Select the COM port that was assigned to your S2000 Elite/S1500 Pro System when it was plugged into your computer.



The Firmware Upgrade has started. Wait for the progress bar to complete.

- i** If you see multiple COM ports in the drop-down, you can determine your specific COM port by opening the Window's Device Manager.

S2000 Elite/ S1500 Pro - Firmware

1.2. Firmware Update using SD Card

The S2000 Elite/S1500 Pro System Firmware and Web Software can be upgraded directly using the touchscreen and an SD card.

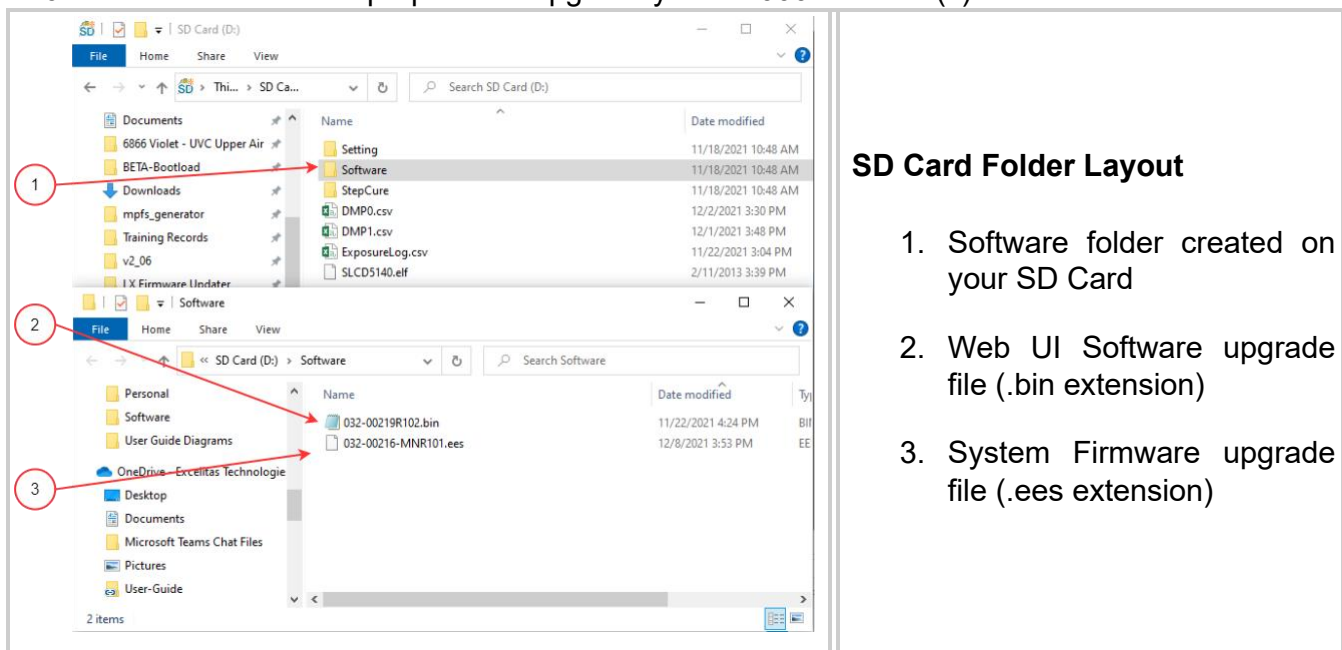
Materials Required

1. S2000 Elite/S1500 Pro System with reliable power source
2. Computer to download latest firmware file(s) with SD card read/write capability
3. Compatible SD Card formatted to FAT32

- i** If your computer does not have an SD card slot to read/write, an external SD card to USB adapter can be used.
- i** The S2000 Elite/S1500 Pro is compatible with SD, SDHC or SDXC cards. MicroSD cards are accepted with an SD adapter.
Upgrading the System Firmware is estimated to take 3 minutes.

Preparing the SD Card

1. Insert your FAT32 formatted SD card into a computer.
2. Create a folder called “Software” in the root directory of the SD card.
3. Download the latest System Firmware upgrade file (.EES) and/or the Web UI Firmware upgrade file (.BIN) to your computer.
4. Copy the downloaded files into the previously created Software folder on the SD Card.
5. Safely eject the SD card from your computer.
6. The SD card is now prepared to upgrade your S2000 Elite unit(s).



S2000 Elite/ S1500 Pro - Firmware

Performing the System Firmware Upgrade

 Do not disconnect the system power supply once the System Firmware update has started. Otherwise, you will be required to [Firmware Update via USB](#).



If updating both the System and the Web Firmware, the System Firmware needs to be updated first.

The system lamp must be OFF or READY before starting the upgrade. If the lamp is COOLING or WARMING UP, you must wait for that process to complete.

1. Power on your S2000 Elite/S1500 Pro unit and insert the SD card into the system.
2. Using the touchscreen, navigate to Settings → Load Save and select the “SD Card” and then “Firmware Update” toggle on the bottom of the screen. The files loaded on the SD card should now appear.
3. Using the UP or DOWN navigation buttons or the touchscreen, select the .EES file you wish to load and press the “LOAD” button on the touchscreen, or the keypad ENTER button.
4. The system will prompt a warning to confirm if you wish to continue with the update, select the Check Mark to continue. If your lamp is on, the system will request to turn the lamp off before proceeding.
5. The system screen will update with a warning prompt that the upgrade is in progress.
6. The system screen will turn black and the light guide ring will flash GREEN confirming the system upgrade is in progress. The system will reboot after the update completes.



If the light guide ring flashes BLUE instead of GREEN during the firmware upgrade, the system has detected a corrupt file and is requesting for the files to be loaded through USB. Refer to [Firmware Update via USB](#).

Performing the Web Software Upgrade (Applicable Only to S2000 Elite)



If updating both the System Firmware and the Web Software, the System Firmware needs to be updated first.

1. Power on your S2000 Elite unit and insert the SD card into the system.
2. Using the touchscreen, navigate to Settings → Load Save and select the “SD Card” and “Firmware Update” toggles on the bottom of the screen. The files loaded on the SD card should now appear.

S2000 Elite/ S1500 Pro - Firmware

3. Using the UP or DOWN navigation buttons or the touchscreen, select the .BIN file you wish to load and press the “LOAD” button on the touchscreen, or the keypad ENTER button.
4. The system will prompt a warning to confirm if you wish to continue with the update, select the Check Mark to continue.
5. The system screen will perform the upgrade and return back to the MAIN screen after the upgrade completes.
6. There is no need to reboot the unit after the upgrade completes.



Your Web Browser Cache must be cleared to view the new Web Firmware.

1.3. Firmware Update via WEB UI

The S2000 Elite System Firmware and Web Software can be remotely upgraded using the Web UI. **(Note: Not available on S1500 Pro)**

Materials Required

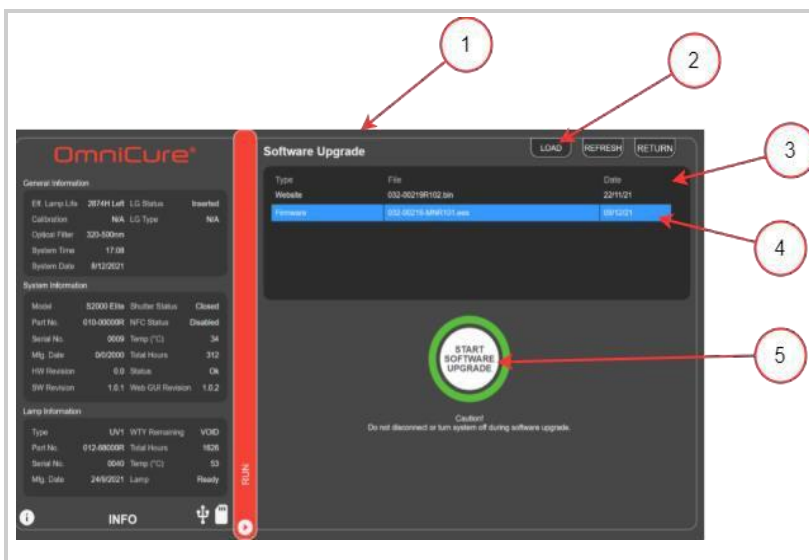
1. S2000 Elite System with reliable power source and network connectivity.
2. Computer or mobile device with one of the supported browsers: Google Chrome or Microsoft Edge.
3. S2000 Elite System host name or IP address.
4. Firmware file(s) saved on your device OR a correctly prepared SD Card (refer to [Firmware Update Using SD Card](#) on how to prepare an SD card for upgrade(s)).



Your device must be connected on the same network as the S2000 Elite.

You can determine the network properties of your S2000 Elite system by navigating to the Network Setup screen using the touchscreen. Record your IP address or host name (DNS).

Upgrading the System Firmware is estimated to take 3 minutes.



Firmware Upgrade Page

1. Firmware Upgrade HTML page
2. LOAD button for selecting a local .EES file from your device and upgrade via Network
3. List of all Firmware Upgrade and Web Upgrade files located on the SD card
4. Selected SD card file for upgrade
5. Start Upgrade button

S2000 Elite/ S1500 Pro - Firmware

Performing the System Firmware Upgrade



Do not disconnect the system power supply once the System Firmware update has started. Otherwise, you will be required to [Firmware Update via USB](#).

Do not close your browser tab once the System Firmware update has started and ensure you have a stable network connection. Interruptions may require you to restart the upgrade.



If updating both the System Firmware and the Web Software, the System Firmware needs to be updated first.

The system lamp must be OFF or READY before starting the upgrade. If the lamp is COOLING or WARMING UP, you must wait for that process to complete.

The Web Software Upgrade page is found by navigating to **[http://\[your-host-name-or-ip\]/index.htm](http://[your-host-name-or-ip]/index.htm)** and clicking the "Web Firmware Upgrade" button, or directly with the following link: **[http://\[your-host-name-or-ip\]/firmwareupgrade.htm](http://[your-host-name-or-ip]/firmwareupgrade.htm)**

The System Firmware can be uploaded using the Web UI in two ways:

1. Directly transferring a local .EES file that is stored on your device over your network.
2. Using the Web UI to access a connected SD card.

Using a local file on your device

1. Power on your S2000 Elite unit and ensure the network cable is connected.
2. Using your computer/mobile device browser, navigate to the S2000 Elite Web Software Upgrade page.
3. Select the LOAD button on the top right of the screen and locate the .EES file on your device.
4. The Web UI will prompt a warning to confirm if you wish to continue with the update, select the Check Mark to continue. If your lamp is on, the Web UI will request to turn the lamp off before proceeding.
5. The Web UI screen will update with an estimated countdown for the time remaining
6. If your system is visible, you will notice:
 - a. The touchscreen will update with a warning prompt that the upgrade is in progress.
 - b. The system screen will turn black after the file is transferred, and the light guide ring will flash GREEN confirming the system upgrade is in progress.

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7. The system will reboot after the update completes and the Web UI will refresh back to the home page.



If you are not able to remotely access your system after the upgrade:

- Your S2000 Elite network settings may have changed after a power cycle. Confirm the network settings on your unit.
- If your light guide ring is flashing BLUE instead of GREEN, refer to [Software Update via USB method](#).

If the network transfer of the .EES file is interrupted, a warning prompt will display on the Web UI. Acknowledge this pro

Using a prepared SD card

1. Power on your S2000 Elite unit and ensure the network cable and SD card are connected to the unit.
2. Using your computer/mobile device browser, navigate to the S2000 Elite Web Software Upgrade page.
3. The page will show the files on your SD card. Click on the .EES file you wish to upload.
4. Click on the Start Upgrade button.
5. The Web UI will prompt a warning to confirm if you wish to continue with the update, select the Check Mark to continue. If your lamp is on, the Web UI will request to turn the lamp off before proceeding.
6. The Web UI screen will update with an estimated countdown for the time remaining.
7. If you have access to your system, you will notice:
 - a. The touchscreen will update with a warning prompt that the upgrade is in progress.
 - b. The system screen will turn black after the file is transferred, and the light guide ring will flash GREEN confirming the system upgrade is in progress.
8. The system will reboot after the update completes and the Web UI will refresh back to the home page.



If you are not able to remotely access your system after the upgrade:

- Your S2000 Elite network settings may have changed after a power cycle. Confirm the network settings on your unit.
- If your light guide ring is flashing BLUE instead of GREEN, refer to [Software Update via USB method](#).

S2000 Elite/ S1500 Pro - Firmware

Performing the Web Software Upgrade

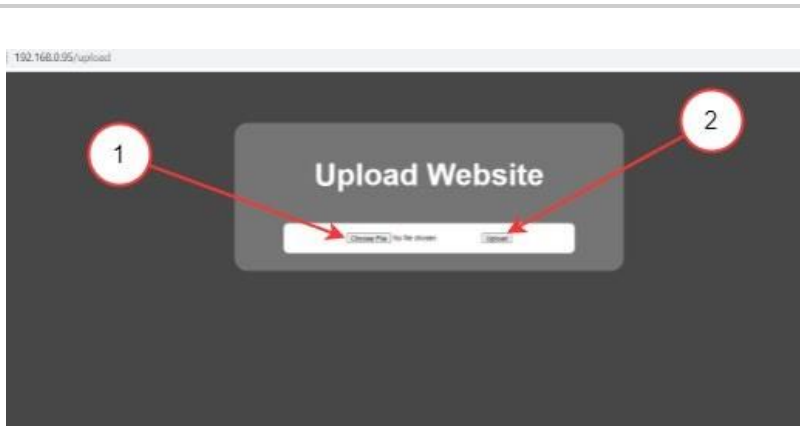


If updating both the System Firmware and the Web Software, the System Firmware needs to be updated first.

The Web Software can be uploaded using the Web UI in two ways:

1. Directly transferring a local .BIN file that is stored on your device.
2. Using the Web UI to access a connected SD card.

Using a local file on your device



Web Software Direct Upload Page – Upload File Dialog Box

1. Select file from the local storage on your device.
2. Select the Upload button to upgrade the Web Software.



The Web Software direct upload page is found by navigating to **[http://\[your-host-name-or-ip\]/index.htm](http://[your-host-name-or-ip]/index.htm)** and clicking the "Web GUI Upgrade" button, or directly with the following link: **[http://\[your-host-name-or-ip\]/upload.htm](http://[your-host-name-or-ip]/upload.htm)**

1. Power on your S2000 Elite unit and ensure the network cable is connected.
2. Using your computer/mobile device browser, navigate to the S2000 Elite Web Software Upgrade page.
3. The page will show an upload file dialog box, click on the box to select an appropriate .BIN file.
4. Click on the upload button and the upload should take a few seconds.

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5. If the upload is successful, a success message will be displayed, otherwise, retry the upgrade.
6. There is no need to reboot the unit after the upgrade completes.



Your Web Browser Cache must be cleared to view the new Web Firmware.

Using a prepared SD card



The Web Software Upgrade page is found by navigating to **[http://\[your-host-name-or-ip\]/index.htm](http://[your-host-name-or-ip]/index.htm)** and clicking the "Web Firmware Upgrade" button, or directly with the following link: **[http://\[your-host-name-or-ip\]/firmwareupgrade.htm](http://[your-host-name-or-ip]/firmwareupgrade.htm)**

1. Power on your S2000 Elite unit and ensure the network cable and SD card are connected to the unit.
2. Using your computer/mobile device browser, navigate to the S2000 Elite Web Software Upgrade page.
3. The page will show the files on your SD card. Click on the .BIN file you wish to upload.
4. Click on the Start Upgrade button and the upload should take only a few seconds.
5. There is no need to reboot the unit after the upgrade completes.



Your Web Browser Cache must be cleared to view the new Web Firmware.

S2000 Elite/ S1500 Pro - Firmware

1.4. Release Notes

[Download](#)

System Firmware 1.1.2/ Web Software 1.0.5 – August 2026

System Firmware: V.1.1.2

- Added a new general alarm function for the S1500 Pro. The general alarm is now triggered when NVM (Non-Volatile Memory) corruption is detected.
- Improved lamp warranty notification handling. Previously, a warning was generated every five minutes for one hour after the lamp warranty limit was reached. This has been changed so that the warning is displayed only once.
- The S1500 Pro general alarm is now activated when a lamp fault occurs and is automatically cleared when the fault condition is resolved.
- Added S1500 Pro general alarm activation for iris control failures to improve fault indication and system monitoring.
- Alarm routing on the S1500 Pro has been updated. Applicable alarm conditions are now correctly mapped to the general alarm PLC output for improved compatibility and fault reporting.
- Clearing an alarm on the S1500 Pro now correctly resets the general alarm PLC output signal.
- Added general alarm handling for missing lightguide conditions. If an exposure is initiated without a lightguide installed, the S1500 Pro now activates the general alarm PLC output.
- S1500 Pro general alarms can now be cleared through the PLC interface, the CLR command, or the front panel controls.
- Clearing a general alarm on the S1500 Pro now also resets any active StepCure program. The underlying fault condition must still be resolved before the alarm can be cleared.
- Added an S1500 Pro general alarm status bit to the overall unit error reporting structure, providing enhanced diagnostic visibility and fault status monitoring.

System Firmware 1.1.1/ Web Software 1.0.5 – January 2026

System Firmware: V.1.1.1

- S2000 Elite front panel LED light ring color was incorrect immediately following completion of a calibration and did not update until after the first exposure. This has been corrected; the light ring color now updates immediately after calibration.
- S2000 Elite firmware unexpected termination/ reboot after calibration if the intensity setpoint setting on the R2000 exceeds the S2000 Elite maximum intensity. This has been corrected.
- Calibration could be started if lamp was not ready (only when using the front panel start button to initiate calibration). This has been corrected; the calibration will not start if the lamp is not ready.
- When the S2000 Elite had no active calibration, the lightguide diameter displayed was "5mm" which is incorrect. The diameter displayed for this case has been changed to "Unknown".
- The live reading in the calibration screen was displayed only during calibration. This has been improved so that the live reading is now always displayed when the shutter is open.
- Pressing the start button on the S2000 Elite calibration screen with an R2000 connected caused a timeout error because the R2000 does not support this function. This has been corrected so that there is no timeout error, and an error message has been added indicating that the feature is not supported.
- Red PLC output was not being updated correctly after calibration. This has been corrected.
- S1500 Pro PLC output mapping has been changed - the cooling signal on the S1500 Pro is remapped to the "general alarm" signal that is already implemented on the previous S1500 model.
- Changes made to address a backward compatibility issue – the lamp cooling fan is now turned on immediately after the system is powered on.
- Changes made to address a backward compatibility issue - PLC outputs were on during startup - this has been corrected such that PLC outputs are off during startup.

System Firmware 1.1.0/ Web Software 1.0.5 – June 2025

System Firmware: V.1.1.0

- Calibration process now errors-out correctly in cases where the data cable is removed during calibration.
- Unexpected system behaviour could be observed in cases where the light guide was removed during calibration, this has been addressed.

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- If a CLF saturation error occurred during warm up, the system aborted the warmup and voided the lamp warranty. CLF saturation is now only monitored after the four minute warmup is complete.
- Timing on the RS-232 port (located on the back of the unit) was out of expected range by ~4%, this has been addressed.
- When the lamp has 100 hours remaining, the system no longer generates an alarm/error. The system display will show a warning that the remaining lamp life is 100 hours.

System Firmware 1.0.9 - February 2024

System Firmware: V.1.0.9

- Increased robustness of system NVM saving routines previously causing issues retrieving saved system settings from NVM on bootup.

System Firmware 1.0.8 - February 2024

System Firmware: V.1.0.8

- Calibration initiation is now restricted during active StepCure exposures to avoid conflicts.
- Increased the responsiveness of the on-screen start stop button to user inputs.
- Updated display control, when entering power or irradiance, the display now correctly shows 0's after the decimal point. Previously, entering 1.03 would display 1.3, although 1.03 was accepted by the system.
- Light guide insertion routines have been updated to prevent shutter fault caused by a hard light guide insertion.
- SD card routines have been updated for transferring firmware into the NVM memory during the firmware upgrade process, mitigating occasional update failures originating from the SD card.

System Firmware 1.0.7 - August 2023

System Firmware: V.1.0.7

- Both Foot pedal and Pin 47 now respond to SPM command to switch to Level mode.
- SPM mode setting is now recorded in the system NVM and therefore is now automatically loaded from memory on system startup.
- Foot pedal trigger activation has been changed to press action instead of release.
- Exposure can now be executed even if shutter trigger input is activated at the same time as releasing shutter interlock.
- Resolved an issue that caused calibration failures for UV3 Lamp with 250-450nm filter configuration.

System Firmware 1.0.6 - July 2023

System Firmware: V.1.0.6

- PLC Tree lights have been delayed from reflecting current status until 3s after "All On" status has been shown.
- When setting a new PIN, the screen now displays asterisks (****) instead of showing the actual number.
- Addressed an issue that previously allowed the system to be unlocked without entering a PIN when the PIN was set to 0000.
- Modified StepCure functionality to accept entries with a value of 0, except for Virtual I/O actions.
- Fixed a time formatting issue associated with entering time settings, ensuring that colons are now automatically inserted.
- After setting a new PIN, the screen now consistently returns to the settings menu.
- When shutter mode select is inactive, shutter verification output now serves as a shutter alarm (same as S2000XL behavior).
- NTP setting and DHCP mode setting has been added to SD Card file for both read and write functions.

S2000 Elite/ S1500 Pro - Firmware

System Firmware 1.0.5 - June 2023

System Firmware: V.1.0.5

- Added TCP Keep Alive to the Direct TCP Connection port (9761), to detect when the host has dropped the connection incorrectly, so the port can be properly reset and will be available for the next connection.
- Introduced a reset button on the run screen for StepCure mode to enable cure profile reset. If reset is not applicable, it becomes a Clear StepCure button.
- Enabled StepCure Reset button functionality that is available even when the system is locked.
- Fixed synchronization issue between touch screen and physical start/stop button during StepCure process.
- Enhanced lock button behavior to prevent toggling while running a StepCure profile on a system that is locked.
- Implemented a warning message that is displayed when the Clear StepCure button is selected on a system that is locked.
- Fixed an issue related to system locking where the lamp now no longer turns off if the checkmark icon is selected during the process of locking the system.
- When saving Flight Recorder data to SD card or exporting via USB command, all 819 Flight Recorder events are now transferred.
- Fixed an issue related to saving a StepCure profile to SD card where the profile was saved to local memory instead of the SD card.
- Fixed an issue related to saving StepCure profiles where, if the profile name included numeric character(s) at the end of the name and the keyboard cancel button in the number pad screen was selected to cancel out of the save action, the system would incorrectly save the profile/ truncate the last character.
- Improved functionality on the StepCure Block Configurator screen to ensure that the numeric entry field value is cleared when editing a block.
- Improved touch screen sensitivity for number pad and keyboard top corner buttons.

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System Firmware 1.0.4 - Apr 2023

System Firmware: V.1.0.4

- Improved touch screen and UI response time
 - Reduced boot-up time
 - StepCure Screen improvements
 - 'Set' loads the profile as active and takes the user to the Run screen (user can use the StepCure button on the Run screen to quickly jump back into the edit profile screen). The Test button was removed as the Set button now provides this capability.
 - New warning messages:
 - warning displayed if a user adds an intensity element without a preceding DU element.
 - error displayed if a user tries to input absolute values on an uncalibrated system.
 - Pressing 'Return' now takes you back to the previous screen (to the Run screen if you entered StepCure from the Run screen shortcut icon, or Settings screen if you entered StepCure from the Settings screen).
 - Load/ Save screen
 - 'Clear' button now deletes the selected profile.
 - When modifying an existing profile, pressing save will now update the existing file without requiring the user to enter the profile name again.
 - When saving a new profile, pressing 'Save will automatically select the first empty position in the list and the user can enter the filename (if no empty positions are available a memory full warning message will be displayed, and the user then has the option of selecting one of the currently used positions and overwriting that profile name).
 - Run Screen:
 - Added 'StepCure' quick access button (Home button has been removed).
 - The 'Reset' button replaced with a 'Clear StepCure' button.
 - The 'Clear StepCure' button unloads the active StepCure profile and the system switches to default operation mode (where the user can set time and intensity from the Run screen).
 - When a StepCure profile is running, 'Clear StepCure' takes the user back to the main run screen.
 - When running an exposure, the 'Pause' button is now replaced with 'Stop' -- the 'Stop' button stops the active operation and resets the timer in default mode or reverts to the beginning of the StepCure profile in StepCure mode.
 - StepCure settings are now displayed on the run screen as soon as a profile is set to 'Active'.
 - The flickering of buttons when running an exposure has been corrected.
 - If the user attempts to execute an exposure while the light guide is not detected by the system, a warning message will now be displayed.
 - The D-Pad control for the Run screen Time and Intensity settings has been updated to improve UI consistency (Note: navigate to the Time and Intensity fields first and then update as needed).
 - On-screen keyboard:
 - Simplified UI by removing un-supported characters in the number-pad.
 - The backspace button now functions as a backspace (previously functioned as clear all).
 - D-Pad now works across the entire UI and can be used as an alternate input method to the touch screen. UI changes have also been made to make use of the D-Pad more intuitive.
 - HW Revision has been removed from the system info screen (Note: HW Revision did not provide any configuration information relevant to the user, but rather provided information relevant only to Excelitas Canada).
 - Removed UI elements not currently supported (Light Guide Info, Language).
 - Added 2-step confirmation to manual lamp strike from the Home screen.
 - Lamp Information screen now updates in real-time.
-
- Removed auto NVM updates from the Flight Recorder log to increase the available memory to capture more user relevant entries.
 - Updated the splash screen graphics.

S2000 Elite/ S1500 Pro - Firmware

System Firmware 1.0.3 - November 2022

System Firmware: V.1.0.3

New Features and Improvements:

- Improved communication reliability while performing calibration with R2000
- Improved robustness for detecting ballast failures
- Added redundant safety checks for when light guide is removed

Corrections:

- Removed startup "Hello\r" command on RS232 port
- Incorrect display on Calibration screen (for example, a setpoint of "2.08" appeared as "2. 8")
- Corrected the shutter PLC input select action to be consistent with S2000 XL
- Incorrect clearing calibration with UV1 lamp, no liter on startup • Remaining lamp life calculation

System Firmware 1.0.2 - April 2022

System Firmware: V.1.0.2

New Features and Improvements:

- Support for new hardware revision (1.1)
- PLC Reset action in StepCure now behaves same as the front panel reset action

Corrections:

- Door and front panel lock PLC inputs are properly evaluated on startup
- PLC signals are triggered on correct edge
- Corrected PLC StepCure 'Pause' input
- Sending SIL command 3ms before OPN command would prevent the system from responding to SIL commands •
Lamp on PLC signal functions after first bootup
- When on home screen, and timer is 0s for a count up exposure, press start button, screen flips to run screen, press stop, play/pause icon is not correct

S2000 Elite/ S1500 Pro - Firmware

System Firmware 1.0.1 - February 2022

System Firmware: V.1.0.1	Web Software V.1.0.4
New Features and Improvements: - All entries requiring the use of the on-screen keypad or numpad will now have a preceding message telling the user what and how to enter the information. - The front panel physical navigation buttons are now active across the whole UI. Users can now use and navigate the UI independently from the touchscreen. - The user can now use the arrow keys to change the intensity and duration of the exposure. Holding down the key will accelerate the press. Note, if a StepCure is active, the arrow keys are ignored and the user cannot click the buttons to change them either using the keypad, the StepCure sets the intensity and duration. Further, the arrow key to adjust intensity can also be used while the system does not have any exposure active/stepcure active or the exposure is a count-up exposure. - Launch/Start-up screen is lit in white while the system initializes. - Updated SD card filename limit on website from 16 to 32 bytes. - Updated the file name when saving the Flight Recorder file to the SD card. Now The name will be "SN-XXXX_FlightRecorder.csv" - Changes to functions on the Main Screen. If you hit the START/STOP button it will now run an exposure provided the lamp is ready and the light guide is inserted. It will also navigate into the Run screen. - If there is no exposure or StepCure profile "running" the user will be able to navigate out of the run screen, lock/unlock the system, re-set any paused exposure, put the system to sleep, change the intensity and change the duration. - If there is an exposure currently running or the StepCure profile is "running", the buttons that the user is not able to select will be set to invisible. Example, the sleep mode is not there anymore once the exposure starts. - If the system is locked and the system isn't running an exposure, the sleep mode will also be hidden. - If a StepCure is Active, the StepCure can now be "restarted" from the Run Screen. The Reset button will just do that, it will bring the StepCure to the first step (0,0). - If the StepCure is at the first step (0,0) the StepCure is not considered running. If the StepCure is at any other step, it is considered running. If the StepCure is at the first step, the Reset Button will "clear" the StepCure. The warning message will come up so the user can clear the StepCure. - If you leave the StepCure screen while it is not "running" (at the first step (0,0)) the StepCure scan is paused. It does not scan anymore until you return back to the Run Screen. The Web interface will need to show this state. - Calibration: If you hit the start/stop button it will start a count-up exposure. This is so the user can check their set-point. The text on the screen will flash Ready To Calibrate/Choose Setpoint at a 1Hz rate. You can use the arrow keys to adjust the intensity up/down. You cannot leave the screen while the exposure is active. - Calibration: If they return to the run screen, the previous exposure settings/Stepcure Profile will be restored/resumed. - Changes to the Setting Prompts on the GUI. There is now a prompt that shows up when you click on a setting that requires a Keyboard or Number Pad. This prompt shows details on what to enter. Prompt disappears with a key click. - Changes to the Fan Controller. The Blower Fan Ramp-Up speed was increased slightly.	New Features and Improvements: - All user fillable entries to have message telling user what and how to enter information. - Stepcure. Switch finite to infinite loops by changing value to 0. - When saving the flight recorder the SD card, the name is auto-populated to the value. - When StepCure is active, the sleep mode button is now grayed out. - When StepCure is paused because of the user navigation away from Run-Screen, the web GUI now shows "Pause" Status. - When there is an error activated on the system, the Status will be a hyperlink to the Flight Recorder. - Fixed minor text alignment issue in the left pane/info bar. - If the user starts a SW upgrade they can back out of the upgrade and the system GUI will refresh this change. If there is an upgrade already in progress the website will not try and start a new upgrade. - The website has prompts to turn the lamp off if the lamp is on while trying to upgrade the firmware. The website will not allow the SW upgrade to proceed if the lamp is cooling/warming, customer must wait for the system to be ready before sleeping the lamp. This is the same behavior when trying to use the USB bootloader. - Change command WBN and WBP to not accept NULL username or passwords. - When StepCure is active the user is no longer allowed to make changes to the StepCure profile. It must be cleared. The profile shows up with grayed background Corrections: - When there are a lot of log messages and the user tries to quickly turn on/off the filter buttons before all logs have been loaded, the logs can appear out of order. Added a button lockout until the operation is done. - When loading a smaller StepCure program, the previously loaded StepCure's program rows are no longer showing. - StepCure selection is no longer greyed out when StepCure is active.

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- Changes to the Fan Controller. There is now implementation to check the Fan Tachometer to see if it is actually running when commanded to, If it is not running it will try to turn it on again, if it fails, it will generate a system error. There are two different errors, one for Lamp and one for System fans. To test, disconnect one of the fans and power on the system, or disconnect the system fan while the system is powered on (obviously the lamp will be off).
- NVM abuse event is immediately saved before the lamp strike.
- UI. LEFT/RIGHT buttons change duration, UP/DOWN buttons change intensity. To enter "navigation mode", center select button needs to be press which then allows the user to navigate each icon with the UP/DOWN/LEFT/RIGHT arrows, center select needs to be pressed to confirm selection. After 3 seconds of inaction, navigation mode is exited and Up/DOWN/Left/Right control the exposure settings again.

Corrections:

- Stopped the NVM from saving during the lamp strike event (assumed to be 3 seconds long).
- Light ring is solid white when lamp is not lit (sleep mode).
- Updated iris movement functions to lock in on target intensity quicker, and condition to invoke minimum iris movement decreased by 30%.
- Corrected memory allocation issue with the stepcure file lists.
- Changed command SIL so that it rejects the new intensity if the iris is still hunting for the right position.
- Fix bug with the lock icon.
- Bug-Fix if default lamp state is set to Turn the Lamp On. The unit will freeze after the screen saver.
Fix issue when the system is turned off while the Flight Recorder is being saved to. Created a smart "backup sector" which will restore back-ups of the flight recorder, otherwise, the entire flight recorder gets wiped! Bug-Fix if the Iris Position error is generated while the lamp is on and the light guide is not inserted. The system will attempt to change the error state which will blow out the NVM pretty quickly.

Initial Release - December 2021

System Firmware: V.1.0.0	Web Software V.1.0.0
Initial Release	Initial Release