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TECHNOLOGIES

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S2000 Elite - Software Upgrade

System Software V.1.0.2

WEB UI V.1.0.4
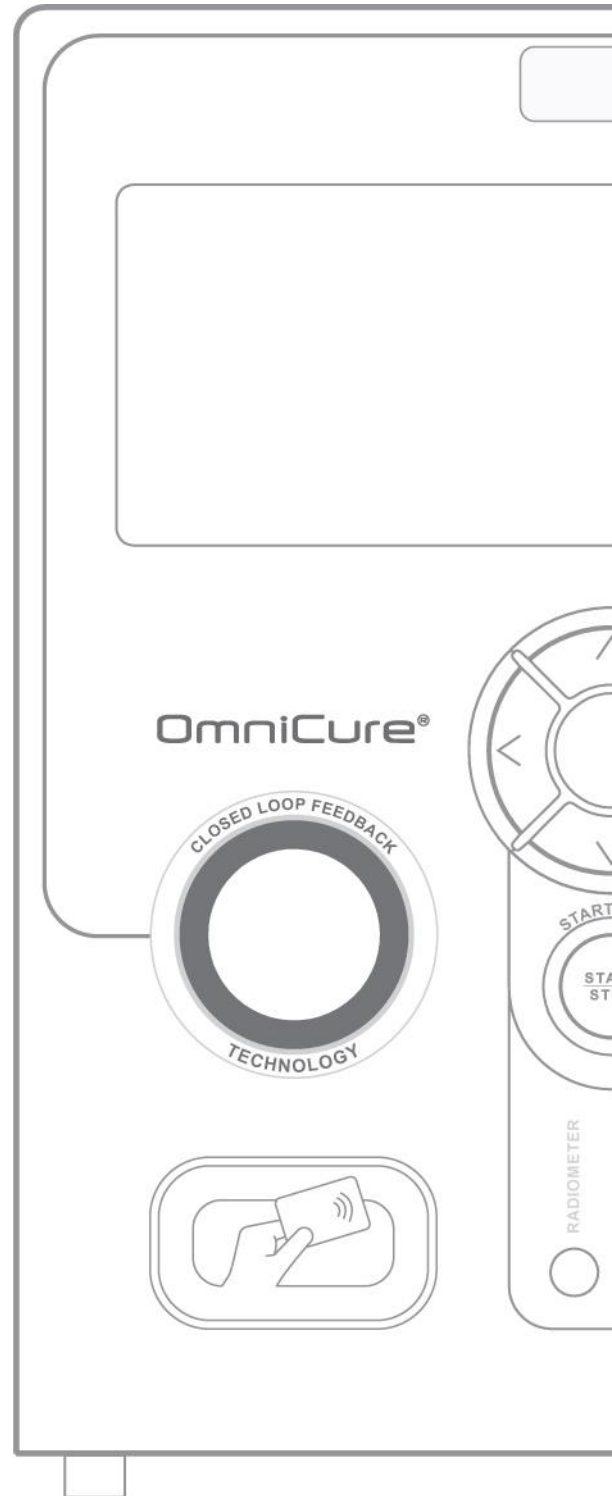
S2000 Elite - Software Upgrade

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1. Software Updates

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

- Software Update via S2000 Elite Touchscreen
- Software Update via WEB UI
- Software Update via USB
- Software Releases

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1.1. Software Update via S2000 Elite Touchscreen

The S2000 Elite's System Software and Web Software can be upgraded directly using the touchscreen and an SD card.

Materials Required

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

> ⓘ
>
> If your computer does not have an SD card slot to read/write, an external SD card to USB adapter can be used.
>
> The S2000 Elite is compatible with SD, SDHC or SDXC cards. MiniSD or MicroSD cards are accepted once inserted into an SD adapter.
>
> Upgrading the System Software 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 Software upgrade file (.EES) and/or the Web UI Software 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)
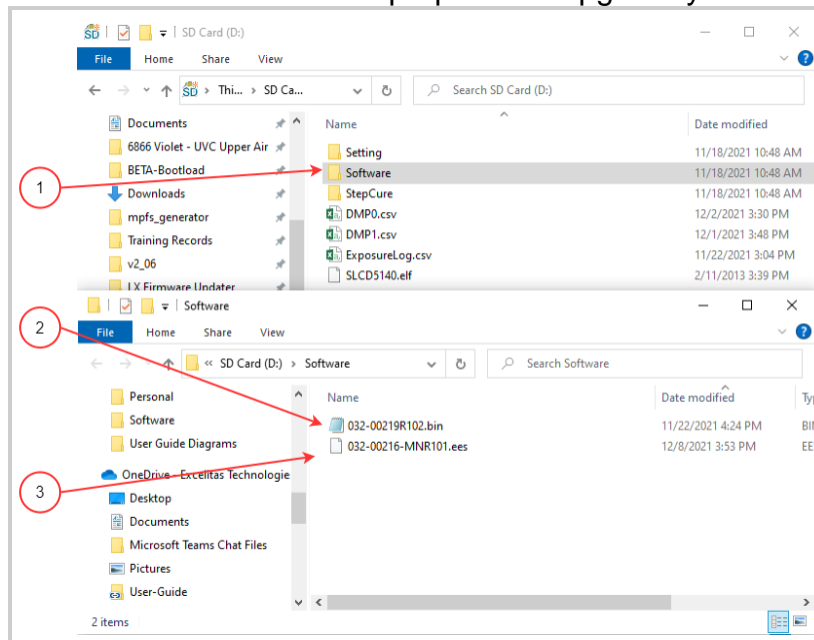
SD Card Folder Layout

1. Software folder created on your SD Card

2. Web UI Software upgrade file (.bin extension)

3. System Software upgrade file (.ees extension)

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Performing the System Software Upgrade

⚠ Do not disconnect the system power supply once the System Software update has started. Otherwise, you will be required to Software Update via USB method.

ⓘ
If updating both the System and the Web Software, the System Software 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 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
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 software upgrade, the system has detected a corrupt file and is requesting for the files to be loaded through USB. Refer to Software Update via USB method.

Performing the Web Software Upgrade

ⓘ If updating both the System and the Web Software, the System Software 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

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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 Software.

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1.2. Software Update via WEB UI

The S2000 Elite's System Software and Web Software can be remotely upgraded using the Web UI.

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. Software file(s) saved on your device OR a correctly prepared SD Card (refer to Software Update via S2000 Elite Touchscreen 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 Software is estimated to take 3 minutes.

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

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Performing the System Software Upgrade

⚠️ Do not disconnect the system power supply once the System Software update has started. Otherwise, you will be required to Software Update via USB method.

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

ⓘ If updating both the System and the Web Software, the System Software 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** and clicking the "Web Software Upgrade" button, or directly with the following link: **http://**[*your-host-name-or-ip*]**/softwareupgrade.htm**

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

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⚠️ 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](#).

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Performing the Web Software Upgrade

> ⓘ   If updating both the System and the Web Software, the System Software 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 1. Upload file dialog box to select file from your device's local storage 2. 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** and clicking the "Web GUI Upgrade" button, or directly with the following link: **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
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 Software.

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Using a prepared SD card

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

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1.3. Software Update via USB

The S2000 Elite's System Software (.EEC) can be upgraded using a Windows PC and a USB cable.

Materials Required

1. S2000 Elite 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 Software Update file: *ldgi.eec*
3. Supplied USB Type-B to Type-A Cable

> ⓘ
> The USB update method is only for the System Software. To upgrade the Web Software, refer to update via Touch Screen or update via WEB UI
>
> Upgrading the System Software using USB is estimated to take 5 minutes.
>
> Operating System required: Windows 8 minimum. Windows 10 recommended.

Performing the System Software Upgrade

> ⚠
> Do not disconnect the system power supply once the System Software 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 Software, the System Software 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 unit
2. Connect the USB cable from the S2000 Elite with your Windows PC
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)

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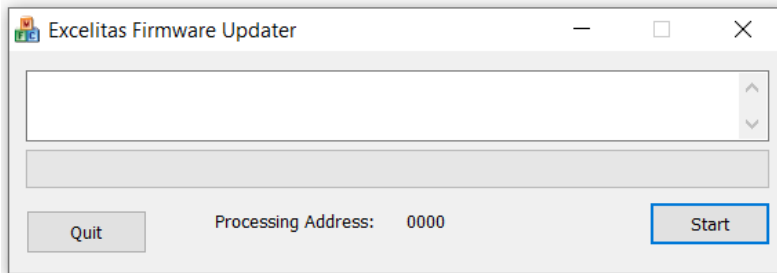
	The Excelitas Firmware Updater application. Hit the "START" button to connect to your device.
	Select the COM port that was assigned to your S2000 Elite System when it was plugged into your computer.
	The Software Upgrade has started. Wait for the progress bar to complete.
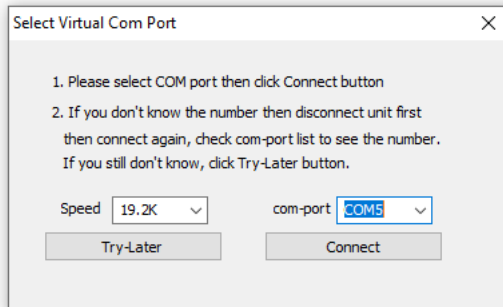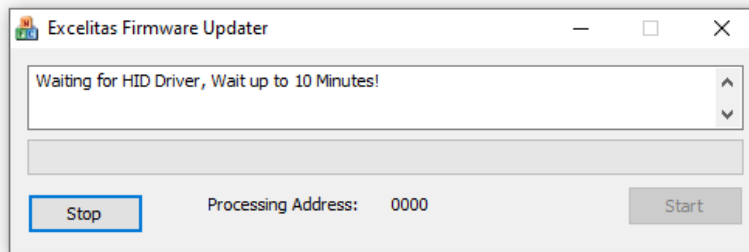
ⓘ	If you see multiple COM ports in the drop-down, you can determine your specific COM port by opening the Window's Device Manager

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1.4. Software Releases

Download

April 29th, 2022

System Software: 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: • Bug-Fix door and front panel lock PLC inputs are properly evaluated on startup • Bug-Fix, PLC signals are triggered on correct edge • Bug-Fix, corrected PLC StepCure 'Pause' input • Bug-Fix, sending SIL command 3ms before OPN command would prevent the system from responding to SIL commands • Bug-Fix, 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

February 2nd, 2022

System Software: 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 button 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.	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 software. 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.

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- 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.
- 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.
- Stopped the NVM from saving during the lamp strike event (assumed to be 3 seconds long).
- There are now Warning flight recorder log messages if the unit boots up and there was an NVM corruption detected in the main NVM bank or the mirror NVM bank. The backup bank is promptly and silently loaded and both banks are corrected.
- There is an error message in the flight recorder and the unit will enter an un-clearable error state if both the main and mirror NVM bank are corrupted. The error message states "Issue retrieving system settings. Contact support". The only way out of this error is for a power-user to remote into the system (equipped with our password) and to issue the SAV command after correcting the missing parameters (refer to Mfg doc). If you shut down the unit, the unit will boot backup with the error state (unless of course, the error was corrected by the power user).
- StepCure repeat counter can now be infinite if you load a 0 to counter value. The StepCure can only be stopped intentionally with the StepCure Clear functionality, or inadvertently by some sort of system error.
- Check for Severe Lamp Abuse. If the lamp is abused passed 100 events, the lamp will not strike and the customer will need to replace the lamp. An appropriate message will be shown on the screen and logged to the flight recorder.
- Analogue intensity control in calibrated and relative mode defined.
- interlock feature added to StepCure (emergency stop).
- Lamp state to be ON by default. If no lamp installed, system throws clearable error which allows user to use the system as if the lamp was OFF.
- Navigation button logic on the run screen remains the same as previous software revision and different from all other screen in the

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.

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<table>
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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.
</td>
<td></td>
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Corrections:

- 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.

</td>
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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 long showing.
- StepCure selection is no longer greyed out when StepCure is active.

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Initial Release - December 24th, 2021

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<tr>
<th>System Software: V.1.0.0</th>
<th>Web Software V.1.0.0</th>
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<td>Initial Release</td>
<td>Initial Release</td>
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