IS310
UV Logger

INN◎SEN

⚠️

Charge battery to full <u>once a month</u>!

**Failure to do so will <u>void warranty</u>.**

1. DESCRIPTION

The IS310 is a credit card-sized UV measurement device for monitoring UV curing processes. It provides a numeric measure of cure performance. It is only 6mm (0.24") thick and will fit under guards which, when safely set, are too low for other systems.

The device can store reference data for up to 9 lines/ovens and enables the user to identify and easily scroll through individual peak levels of up to 9 lamps for each line/oven.

The device also includes a Utility Software that allows user interaction with the IS310. Users can plot the last line read which can also be downloaded to the PC. The detection range of the device can also be adjusted to cater the user's different needs.

The front of the IS310 has the display and operator button while the rear houses the UV sensor.
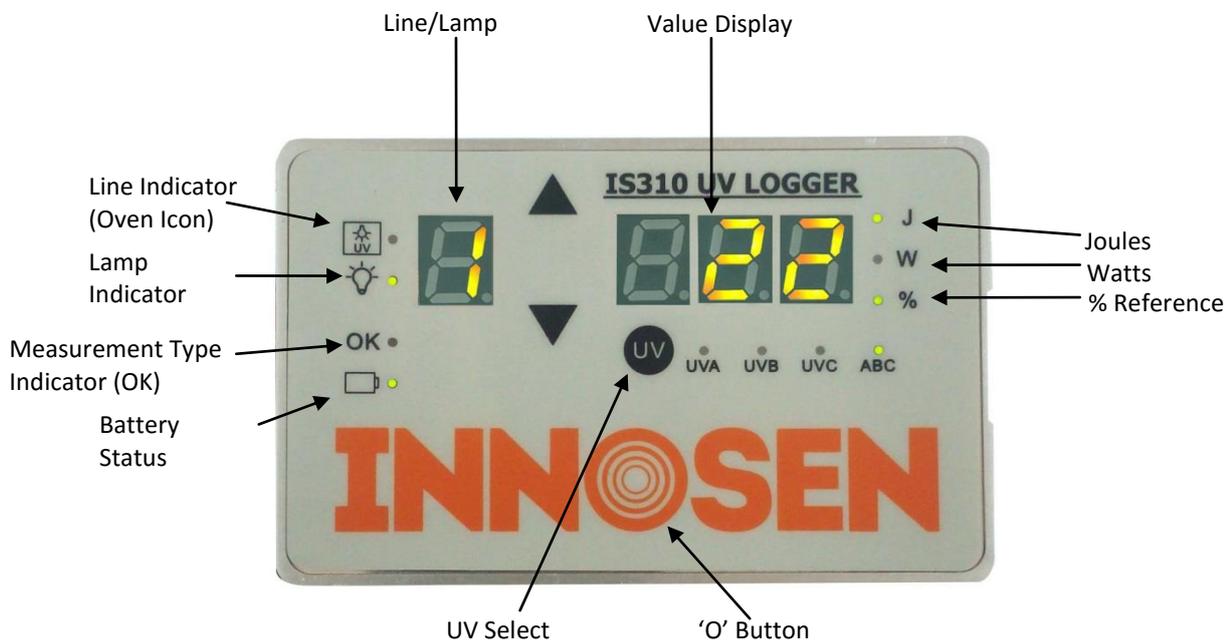
2. HOW IT WORKS

The IS310 monitors UV radiation falling on the surface of the sheet on which it is placed. It displays two important types of information which will help the operator keep track of the performance of the curing oven.

- Total Energy J/cm^2: This indicates the integrated total dose of UV received by the sensor/sheet. This will be related to cure.
- Peak Power W/cm^2: This is also used as a cure indicator but in addition will give an indication of the state of the reflector focusing and therefore efficiency of the system.

Reference values should be recorded with new lamps and reflectors when cure is good. Subsequent checks at regular intervals will determine at what point the cure process will no longer function in a reliable manner. This then sets a quality band within which the cure system must stay. Continued regular monitoring will then clearly indicate any trend towards a possible poor cure situation.

The IS310 is capable of two measurement types namely Auto Peak Detect and Continuous. In Auto Peak Detect Mode, it can automatically detect up to 9 lamps/peaks (depending on the modulation of the lamps) and stops automatically when there is no UV detected. In Continuous Mode, it counts only the total energy and peak power for a period of time. The maximum sampling time is 128 seconds but can be stopped anytime.

3. SPECIFICATIONS

Dimensions	86 x 54 x 6mm (approx. 3.4 x 2.1 x 0.24 inch)		
Spectral Response	UV Broadband (260 – 400 nm)		
Sampling Rate	1000 readings/sec.		
Selectable Detection Range (Power) and resolution	Detection Range	Resolution	
		UV Logger display	Utility Software
	0.002 to 0.4 W/cm^2	0.01	0.001 to 0.002
	0.004 to 0.8 W/cm^2	0.01	0.003 to 0.004
	0.007 to 1.7 W/cm^2	0.01	0.006 to 0.007
	0.014 to 3.0 W/cm^2 (default)	0.01 to 0.02	0.013 to 0.014
Detectable Energy Range	0.001 to 99.0 J/cm^2		
Battery	Lithium Polymer Rechargeable. Unit is provided with USB cable that can connect to any PC USB port or 5V wall adapter with USB port		
Storage Temperature	- 20 °C to 65 °C (- 68 °F to 149°F)		
Operating Temperature	10 °C to 45 °C (50 °F to 113 °F) continuous. Temperatures up to 60°C can be tolerated for short periods of time <10 seconds		
Automatic Turn off Period	Approx. 3 minutes when idle		
Accuracy	6% typical at calibration, 12% at limit		
User Interface	Four (4) Push buttons to allow users to display Total Energy, Peak UV Irradiance, Percentage Value and Selection of Lines and Lamps		

PC Connection	USB 2.0 via MicroUSB Cable
PC Operating System	Windows XP, 7, 8.1 and 10
PC Screen Resolution	At least 1280x960
Display	Seven (7) segment display
Environment	Correct handling in a normal print or coating process will ensure reliable performance
Maximum Sampling Time	128 seconds
Error Indicators	E1 – Exceeded Maximum Detection Range. E2 – Exceeded Maximum Sampling Time (128 Seconds). E3 – Unit requires reset via pressing 'UP' and 'DOWN' button for at least eight seconds.

4. BATTERY INDICATORS

COLOR	STATUS
GREEN	Battery OK
BLINKING RED AND GREEN	Recharging needed
RED	Critical, unit automatically turns off when battery is depleted
BLINKING RED	Charging (On going)
BLINKING GREEN	Charging (Done) [1]

Note:
To ensure proper charging of battery, the Logger is disabled for measurements and data recall while charging. You may, however, use the device in User Interface Mode.
[1]When charging, green led is only turned on when maximum charge voltage is already achieved.

5. OPERATION

A) MEASUREMENT MODE (DATA LOGGING)

Before Measuring:

BUTTONS	OPERATION	FUNCTION
◎	Press & Hold	Turn on unit
▲	Press	Increase line number
▼	Press	Decrease line number
◎ + ▲	Press & Hold	Select Measurement Type (Auto Peak Detect or Continuous)

Measurement Type Indicator (OK LED):

COLOR	STATUS
BLINKING GREEN	AUTO PEAK DETECT
GREEN	CONTINUOUS

After Measuring:

BUTTONS	OPERATIONS	FUNCTION
◎	Press	Go to lamp readings (Last Lamp number measured by the logger will be displayed)
◎	Press	Toggle through readings (Joules, Joules Percentage, Watts, Watts Percentage)
▲/▼	Press	Increase/Decrease lamp number
◎ + UV	Press & Hold	Save the Current Readings as Reference Values (optional)
◎	Press & Hold	Turn off unit

1. To switch the unit on, hold the power button ('O' button) for at least two (2) seconds. Do not release until all the segments on the display light up.
2. Select the line number to be measured by pressing the ▲/▼ button until desired line displays.
3. To select measurement type, hold the power button ('O' button) and ▲ button simultaneously. Do not release until all the segments show '- ---'(dash).
4. Check if OK LED is GREEN or BLINKING GREEN (depending on the selected measurement type). This indicator signifies that the logger is ready to take measurements. Attach logger to the metal sheet in a face down position – display is facing the metal sheet while the UV sensor is facing the UV lamps. Feed metal sheet with the logger through the oven.
5. **Auto Peak Detect Mode**: After the measurement, remove logger from the sheet. Logger will start to show the last line measured. Pressing the "O" button momentarily will show the Joules/cm^2 reading of the last lamp measured by the unit.
   Continuous Mode: To end measurement, remove logger from the sheet and press the "O" button momentarily. Logger will start to show the last line measured. Pressing the "O" button momentarily will show Joules/ cm^2 reading of the last lamp measured by the unit.
6. Press the "O" button momentarily to toggle through the measurements.
   a. Joules/cm^2 – The integrated total dose of UV received by the sensor/sheet.
   b. % Joules/cm^2 – The percentage difference of the total dose of UV received by the sensor/sheet compared to the reference value of the same line which is saved by the user (reference value: measurement taken when cure is good).
   c. Watts/cm^2 – Indicates the peak power measured by the UV logger per lamp.
   d. % Watts/cm^2 – The percentage difference of the peak power of the UV received by the sensor/sheet compared to the previous reading on the same line which is saved by the user (reference readings, ex. Measurements taken when the cure is good).
7. Use ▲ or ▼ button to display the readings of other lamps on the line.
8. To save the current readings as a reference value for the measured line, press the "O" button and UV button simultaneously and hold until "OK" led lights up. Release. Keep pressing the "O" button to update the display (Joules % and Watts % should show '100').
9. Turn the unit off by pressing the "O" button for two (2) seconds.
10. To measure multiple ovens, turn on the unit and use up or down button to choose another line. The unit will remember the last measurement type selected (continuous or auto peak detect). Repeat steps 4 to 9.

*IMPORTANT: The logger is capable of storing data for lamp profiling/graphing for the current line only. If measuring different ovens, please download data of current line first before measuring (refer to User Interface Mode of this manual). This way, lamp profile data of the current line is recorded before it is overwritten by the succeeding line measurement. Watts and Joules measurement of previous lines, however, can still be viewed on the UV logger display and can be downloaded to PC (refer to User Interface Mode of this manual).

B) RECALL READING MODE

BUTTONS	OPERATION	FUNCTION
◎	Press & Hold	Turn on unit
◎ + ▼	Press & Hold	Go to Recall Reading mode
▲/▼	Press	Increase/Decrease line number
◎	Press	Go to lamp readings (Last Lamp number measured by the logger will be displayed)
◎	Press	Toggle through readings (Joules, Joules Percentage, Watts, Watts Percentage)
▲/▼	Press	Increase/Decrease lamp number
◎ + UV	Press & Hold	Save the Current Readings as Reference Values (optional)
UV	Press	Go back to Line Selection
◎	Press & Hold	Turn off unit

1. To switch the unit on, hold the power button ('O' button) for at least two (2) seconds. Do not release until all the segments on the display light up.
2. Press the ('O' button) and ▼ button simultaneously for at least (2) seconds to go to Recall Mode. All segments of the display will light up to indicate that it is Ok to release buttons. Display will show the last line measured by the logger, once buttons are released.
3. Press the "O" button momentarily to go to the readings of each lamp. Logger will display '0' which indicates the summary of the entire exposure – Total Joules and Peak Watts. These readings are for the last lamp measured.
4. Press the "O" button momentarily to toggle through the measurements.
   a. Joules/cm^2 – The integrated total dose of UV received by the sensor/sheet.
   b. % Joules/ cm^2 – The percentage difference of the total dose of UV received by the sensor/sheet compared to the reference value of the same line which is saved by the user (reference value: measurement taken when cure is good).
   c. Watts/cm^2 – Indicates the peak power measured by the UV logger per lamp.
   d. % Watts/cm^2 – The percentage difference of the peak power of the UV received by the sensor/sheet compared to the previous reading on the same line which is saved by the user (reference readings, ex. Measurements taken when the cure is good).
5. Use ▲ or ▼ button to display the readings of other lamps on the line if auto peak detect is the measurement mode.
6. To save the current readings as a reference value for the measured line, hold the "O" button and UV button simultaneously. Release buttons after "OK" led lights up. Keep on pressing the "O" button until you see "100" on display for Joules Percentage (J,%) and Watts Percentage (W, %).
7. The logger is capable of displaying the last readings of up to 9 lines. To change the current line to other measured lines, press the UV button (back function), then use ▲ or ▼ button to change line number. Selection only shows line numbers where there is a reading.
8. Once desired line has been selected, press "O" button momentarily to go to the readings. Repeat steps 4 and 5 to get the readings for the selected line.
   Turn the unit off by pressing the "O" button for two (2) seconds.

C) USER INTERFACE MODE
You will need:
   a. PC with Windows XP, or later
   b. IS310 Utility Software Installer (copy the entire folder from CD, or download from this link: https://www.innosen.com/software/uv-logger.php)

SOFTWARE INSTALLATION

1. Run the IS310 Utility Software Installer. If a pop-up window appeared asking to allow the application to make changes in the computer, click "OK". A new window will appear instructing the user on the proper installation of the Utility Software.
2. After the installation of the Utility Software, another window will appear. This is the installer for the FTDI driver of the IS310 device. Follow the instructions to properly install the FTDI driver.
3. After the installation of the FTDI driver, the installer for the Microsoft Visual C++ Redistributable 2008 will run. This will install certain DLLs needed to run the software. If the required DLLs are not found in the system, it will give you instructions on how to install them. If on the other hand the DLLs are already present, the installation can be cancelled.
4. Once the three installations are done, the software can be accessed in the list of the installed programs or in the created desktop shortcut.
5. Plug one side of the cable to the unit and the other side to the PC USB port and run the IS310 Utility Software.

IS310 UTILITY SOFTWARE

1. Locate the software icon either in the list of programs or the desktop shortcut and double-click to run the program.
2. Without connecting the device, click the **drop down button** below the COM PORT label. This will display the recognized serial COM ports in the PC. Connect the device to the PC and wait a while for the software to update the port locations. Click the drop down button again. An additional port location will be displayed in the list of ports. This is the port location of the device.
IMPORTANT: The software cannot be connected to the device if no port location is chosen.
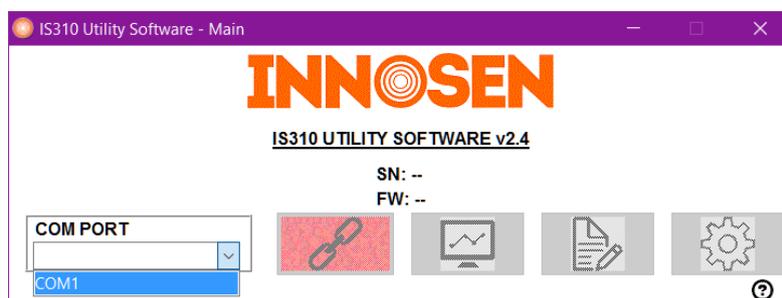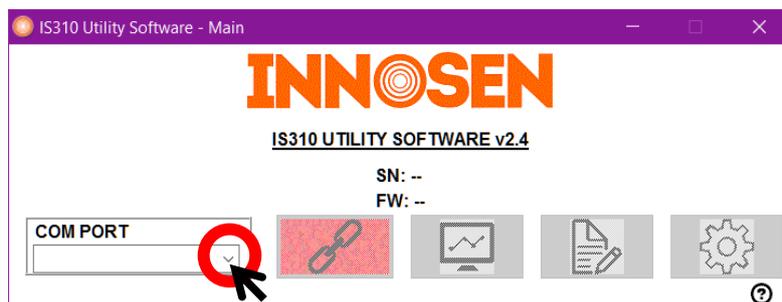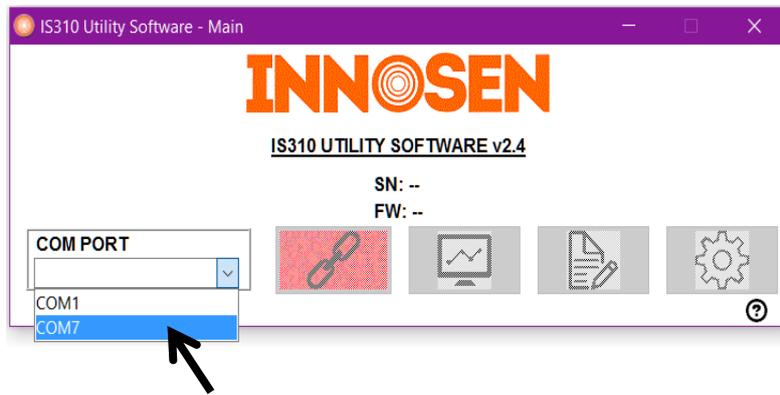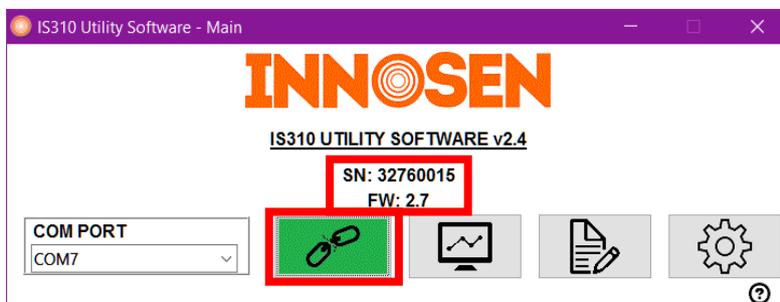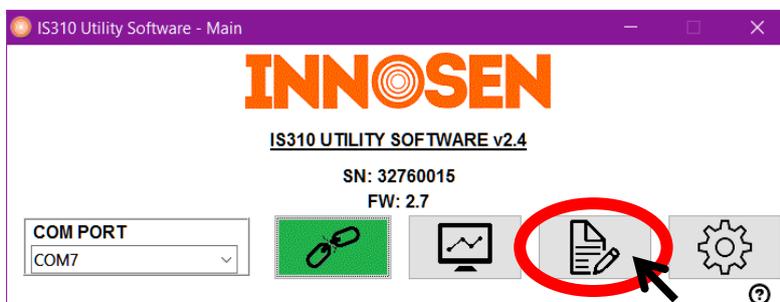
3. After choosing the correct port location, click the **Connect/Disconnect button**.
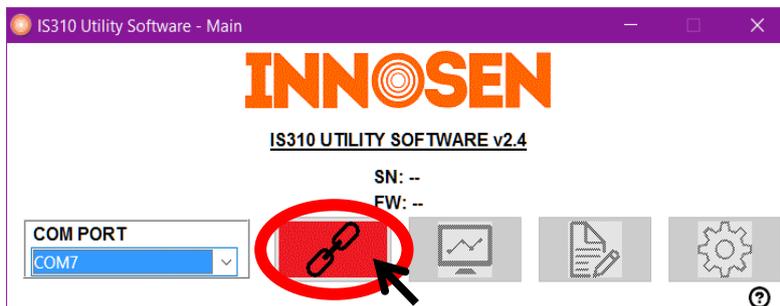
4. The **serial number (SN)** and the **firmware version (FW)** of the device will appear upon successful connection. The icon in the Connect/Disconnect button will also change.


5. To display all the lamp values in all the stored lines in the device, click the **Data List button**.


DATA LIST WINDOW

6. When the Data List button is clicked, a pop up window will appear showing the first line stored in the device. If there are several lines stored in the device, click the **drop down button** below the

LINE NUMBER label to choose a different line. To save the line reading, click on the **Save button** and choose the location and file name desired. The saved file will be in **.txt** format.
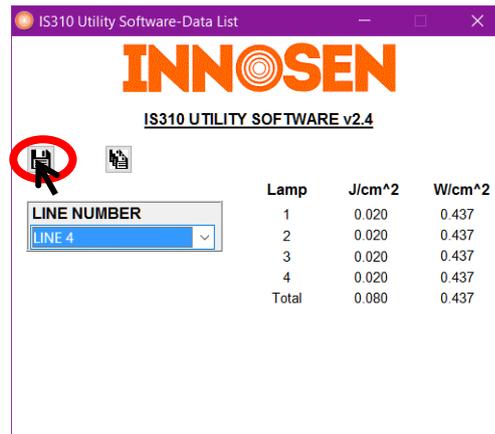
7. To save all lamps for all stored lines, click the **Save All button**. The saved file will also be in .txt format.
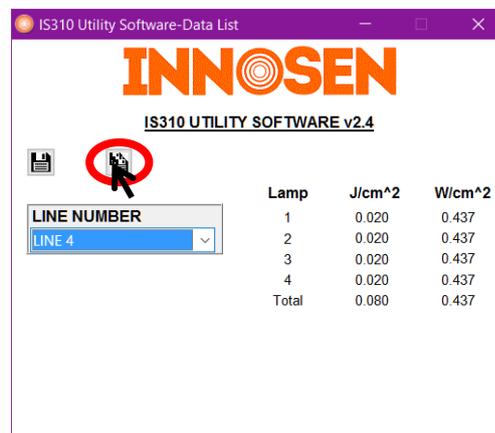
8. To display the graph of the last line stored in the device, click the **Data Graph button**. This process might take a while depending on the amount of time the device is exposed to the UV lamp/s.
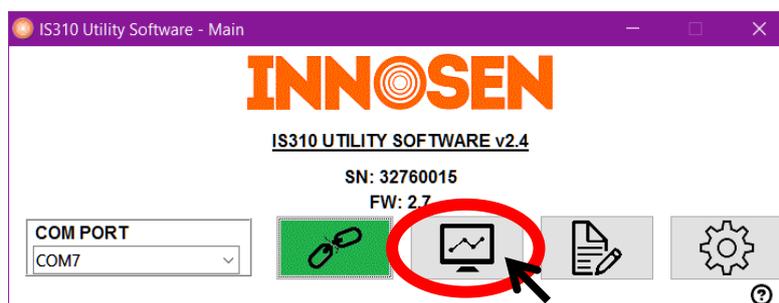
USER INTERFACE WINDOW

9. After clicking the Data Graph button, a different window will appear showing the graph of the last line stored in the device. This window is separated into 7 sections each with a different function.
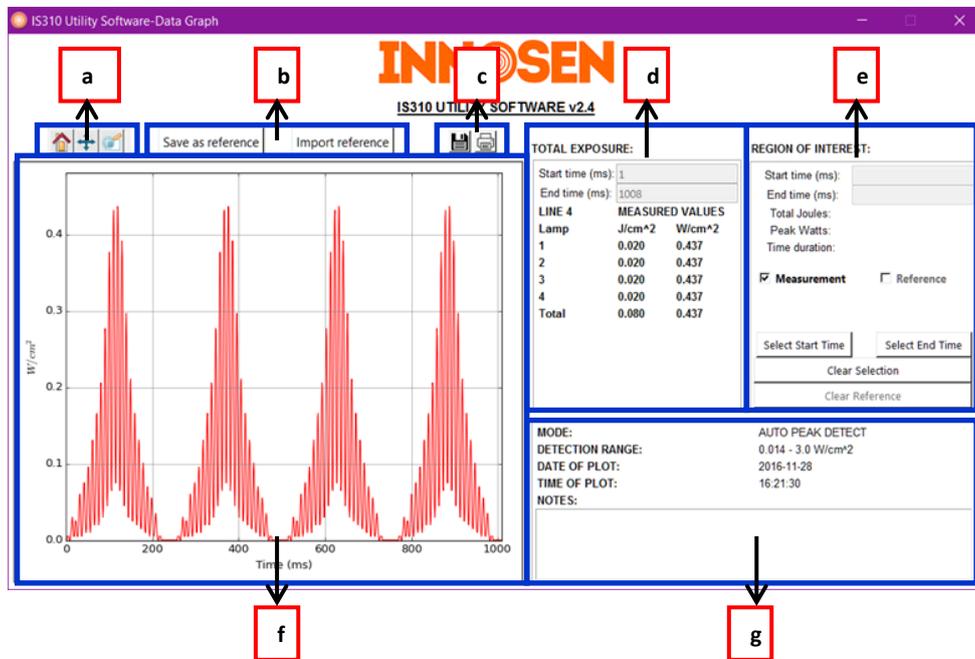
a. **Navigation Toolbar:** This toolbar allows the navigation of the Graphing Area Section.
b. **Reference Toolbar:** This toolbar allows the saving and importing of a reference data to be plotted in the Graphing Area Section.
c. **Export Toolbar:** This toolbar allows the export of data.
d. **Total Exposure Section:** This section displays a summary of measured values read from the IS310 unit.
e. **Region of Interest Section:** This section allows the user to manually select the time range to compute the total Joules and peak Watts.
f. **Graphing Area Section:** This is where the measured data and the reference data are displayed.
g. **Information Section:** This section displays pertinent information about the unit's settings.

<u>**Navigation Toolbar**</u>

There are three buttons in the Navigation Toolbar: Home, Pan and Zoom buttons.

10. **Home button** 🏠 **:** This button will revert all pan and zoom actions done in the Graphing Area Section.

11. **Pan button** ✛ **:** This button is a toggle action button. When the cursor is inside the Graphing Area Section, a click-drag action of the left mouse button will move the graph left or right. A click-drag action in the right mouse button will contract or expand the graph.

12. **Zoom button** 🔲 **:** This is another toggle action button. When the cursor is inside the Graphing Area Section, a click-drag of the left mouse button will zoom in the area selected. A click-drag of the right mouse button will zoom out the area selected.

Reference Toolbar

13. The displayed measured data can be saved as a reference by clicking the "Save as reference" button in the Reference Toolbar. A .log file will be saved in the user defined PC directory location.

14. The saved reference file can also be imported to be compared to a subsequent measurement. To do this, click the "Import reference" button in the Reference Toolbar. Choose the .log file of the reference data and click OK.

15. The reference data will be plotted automatically (blue dashed line) together with the measured data (red solid line) in the Graphing Area Section. Once imported you can also use the "REGION OF INTEREST" section to do calculation of Joules and Watts on the reference graph by clicking the checkbox named "Reference".
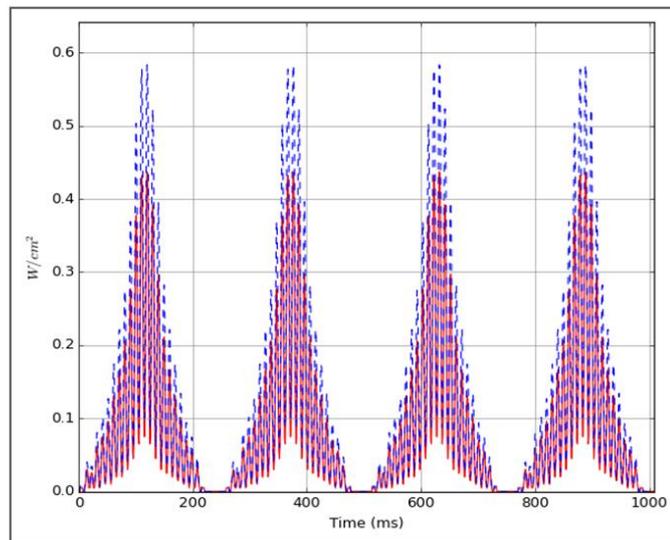
16. Only one reference file can be imported. Once one is selected, the "Import reference" button is disabled. To choose a different reference file, the "Clear Reference" button in the Region of Interest Section must first be clicked to remove the existing reference data.
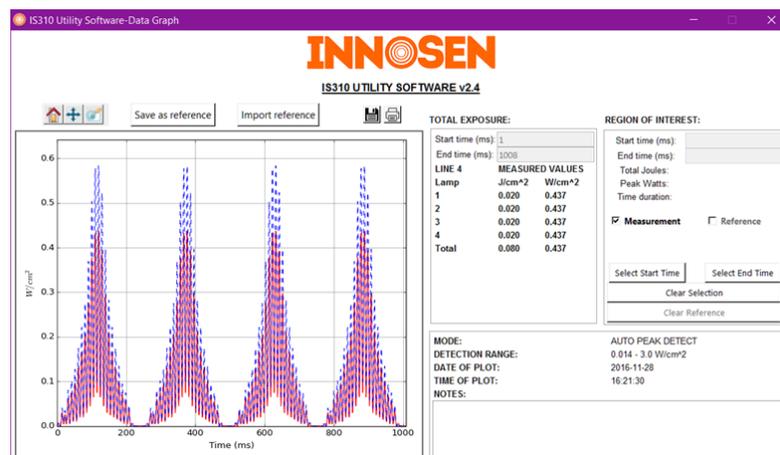
Export Toolbar

The data of the User Interface Window can be exported in two ways:

17. **Save button** 💾 **:** A .JPG screen shot of the window can be saved by the user.

18. **Print button** 🖨 **:** A screen shot of the window can be printed to any printer chosen by the user. If no printer driver is installed in the computer, an error prompt window will appear.

Total Exposure Section

19. Total Exposure Section will give instantly the calculation of the Joules and Watts reading based on the total exposure time of the last line measured. This is indicated by the Start time (ms) and End Time (ms).

20. The displayed measured values will depend on the mode set when the IS310 is fed through the UV light. If it is in the Auto Peak Detect mode, the total Joules and peak Watts values per lamp together with the total Joules and peak Watts of the total exposure time are displayed. If it is in the Continuous mode, only the total Joules and peak Watts of the total exposure time are displayed.
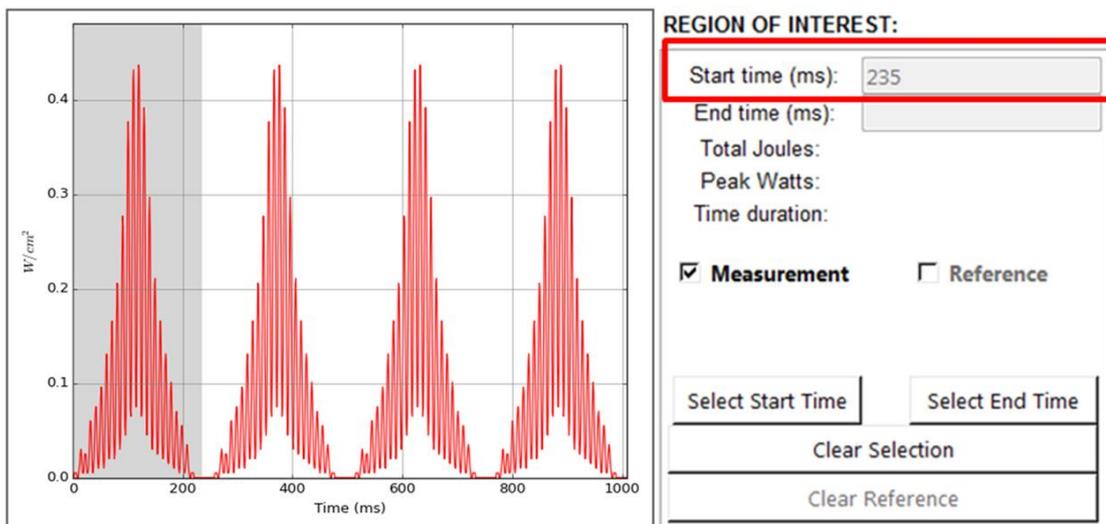

Region of Interest Section

21. To select a start time, click the "Select Start Time" button. Once activated, the button will turn orange.

REGION OF INTEREST:

Start time (ms):	
End time (ms):	
Total Joules:	
Peak Watts:	
Time duration:	

☑ **Measurement**   ☐ Reference

Select Start Time   Select End Time

Clear Selection

Clear Reference

22. Once the button is activated, click the location where to start the measurement. The time selected will be displayed beside the "Start time (ms)" label. All the graph data before the selected start time will be gray-scaled to indicate the uncalculated area.

23. When a proper time is selected, the button will be deactivated. It will revert back to its original color. To select a different start time, click the button again.

24. To select an end time, click the "Select End Time" button. Once activated, the button will turn orange.

25. Once the button is activated, click the location where to end the measurement. The time selected will be displayed beside the "End time (ms)" label. All graph area after the selected time will be gray-scaled to indicate the uncalculated area.
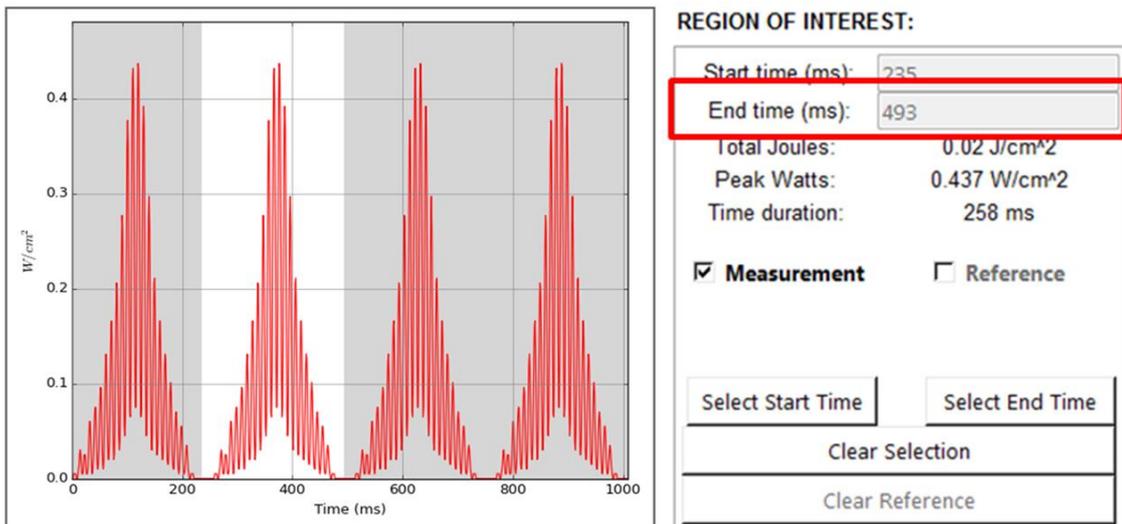
26. When a proper time is selected, the button will be deactivated. It will revert back to its original color. The total Joules, peak Watts and the time duration will be automatically computed and displayed. To select a different end time, click the button again.

REGION OF INTEREST:

Start time (ms):	235
End time (ms):	493
Total Joules:	0.02 J/cm^2
Peak Watts:	0.437 W/cm^2
Time duration:	258 ms

☑ **Measurement**   ☐ Reference

Select Start Time   Select End Time

Clear Selection

Clear Reference

27. The start and end time selection can only be between the start and end time of the total exposure. It also cannot overlap. If any of this happened, an error message will be displayed on top of the time selection buttons. To remove the error, choose a different start or end time.

REGION OF INTEREST:

Start time (ms):	
End time (ms):	
Total Joules:	
Peak Watts:	
Time duration:	

☑ **Measurement**   ☐ Reference

Chosen time not valid! Select time between 1 and 1008 ms.

Select Start Time   Select End Time

Clear Selection

Clear Reference

REGION OF INTEREST:

Start time (ms):	230
End time (ms):	
Total Joules:	
Peak Watts:	
Time duration:	

☑ **Measurement**   ☐ Reference

Start time and end time must not overlap!

Select Start Time   Select End Time

Clear Selection

Clear Reference

28. When a reference graph is imported, the computation of the total Joules and peak Watts can be toggled between the measured data and the reference data by clicking the "Measurement" and "Reference" checkbox respectively. The total Joules and peak Watts will be automatically updated.

29. When no checkbox is ticked, the computed total Joules and peak Watts will be removed and all the buttons will be disabled. Check either checkbox to enable the buttons and display the computations.
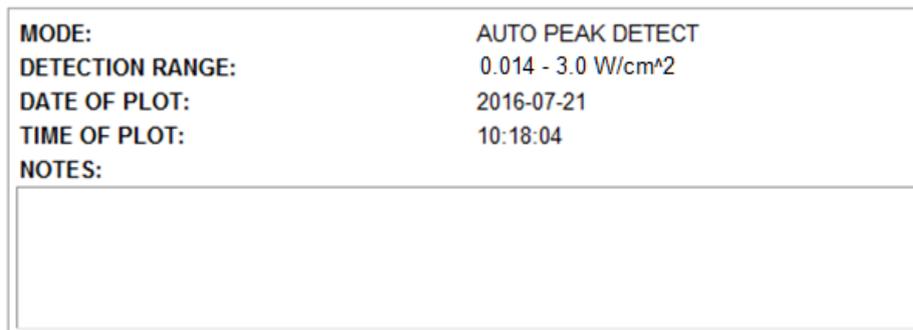

30. To achieve a higher accuracy in the time selection, the pan and zoom buttons in the Navigation Toolbar can be used. When either button is activated, a prompt message is displayed. Once deactivated, the prompt will disappear.
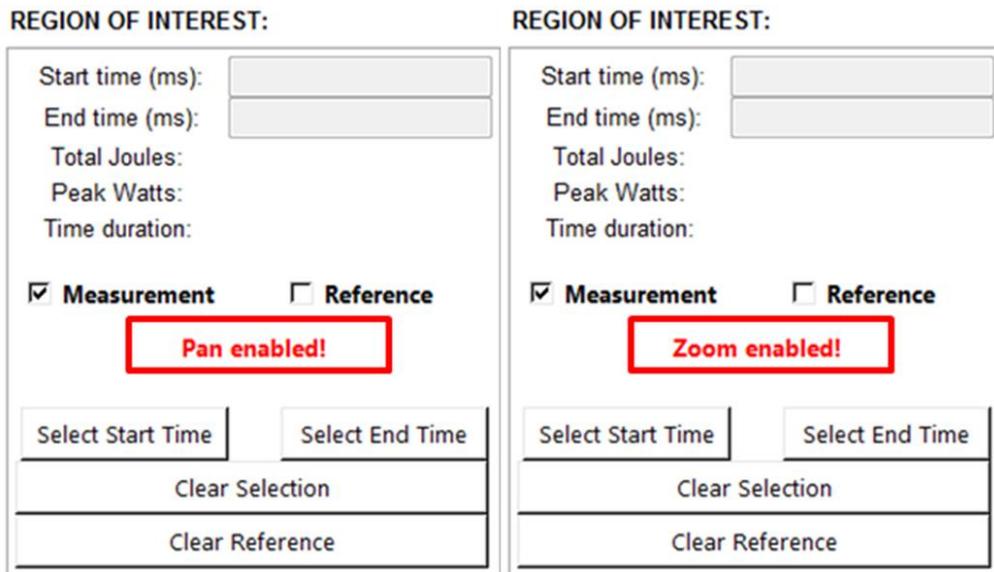
Information Section

31. This section displays the selected mode upon exposure, detection range setting of the IS310, date and time of plotting the graph. There is also a "Notes" portion where the user can manually input other information. When the MODE displayed shows ERROR, it means that an E1/E2 error occurred.

MODE:	AUTO PEAK DETECT
DETECTION RANGE:	0.014 - 3.0 W/cm^2
DATE OF PLOT:	2016-07-21
TIME OF PLOT:	10:18:04
NOTES:	

32. To disconnect the device from the software, simply click the **Connect/Disconnect button**. The device has successfully been disconnected if the serial number and the firmware version no longer appear on the screen and the Connect/Disconnect icon changed back to the original icon.
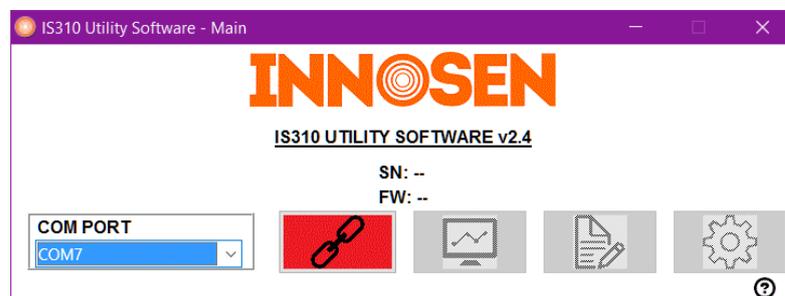
33. To change the detection range of the IS310, click the settings button. A new window will appear that displays the current detection range and the other ranges to choose from. *(Note: This feature is only available for FW version 2.4 or higher.)*
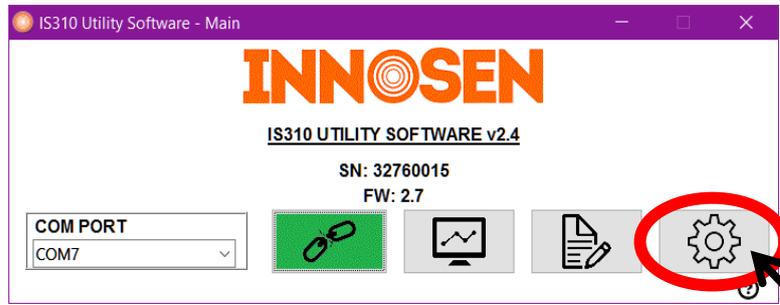
34. A new window will appear that will display the current detection range of the IS310. A drop down selection menu is also present where the user can opt to change the detection range.
(**WARNING**: *Using a detection range not compatible with the UV light's output will either obtain saturated measurements (detection range too low) or no measurements (detection range too high).*)
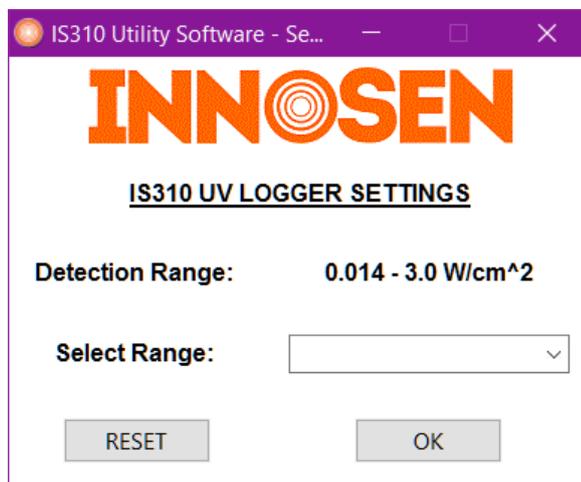
35. To change the detection range, click on the down arrow in the drop down menu. This will show all the available detection ranges of the IS310.
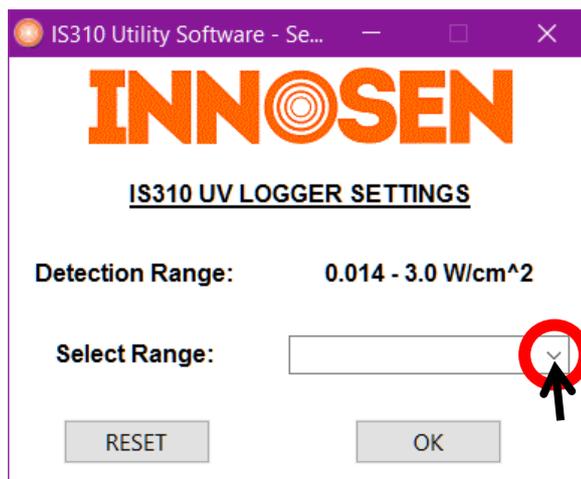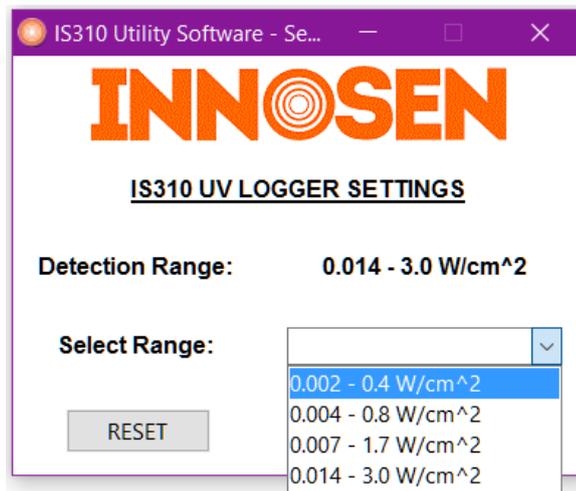
36. From the available options, choose the desired detection range and click OK. The detection range has been successfully changed if the displayed detection range is updated. To restore to the default detection range, just click the RESET button.
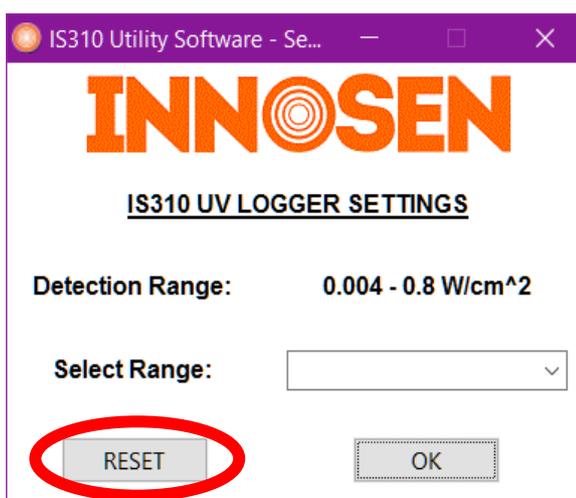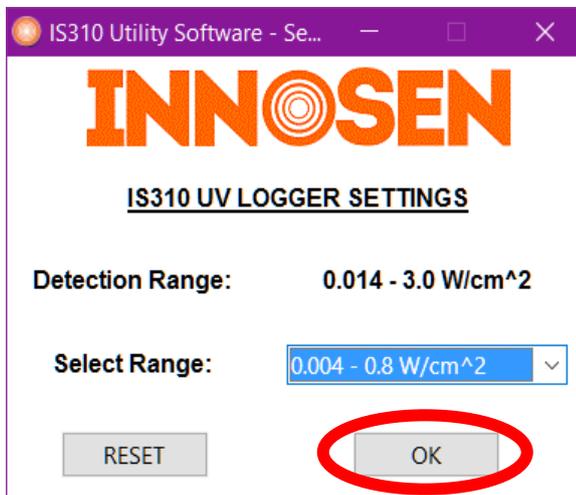
37. When the device is unexpectedly disconnected or a malfunction with the USB cable occurs, a prompt window is shown. Simply reconnect the device to the computer and repeat the action.

38. When the device doesn't have data to show when the Data Graph or Data List button is clicked *(Note: This occurs when the unit hasn't been exposed to a UV source for the first time.)*, prompt windows will be shown to indicate this. Simply expose the device to the UV source.
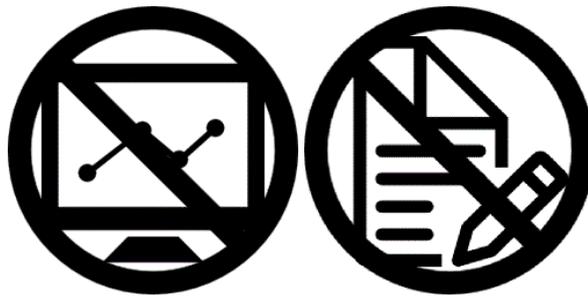
39. When the communication of the device to the computer is disrupted, the prompt window below will be shown. If this error occurs, connect the IS310 to a faster computer and try again.

40. For more information or updates regarding the IS310 device, you can click on the **Innosen logo**. This will open a browser tab or window that directs you to the IS310 web page. The Innosen logo will have the same function in any window of the software.

41. For more information regarding the software or answers to frequently asked questions, click the **FAQ button** found in the lower right side of the main window. If you have questions which are not covered by our list of Frequently Asked Question or if you wish to clarify further, you can e-mail Innosen directly by clicking the e-mail address located in the **FAQ** page.

INNOSEN

IS310 UTILITY SOFTWARE v2.4

SN: 32760015

FW: 2.7

COM PORT

COM7
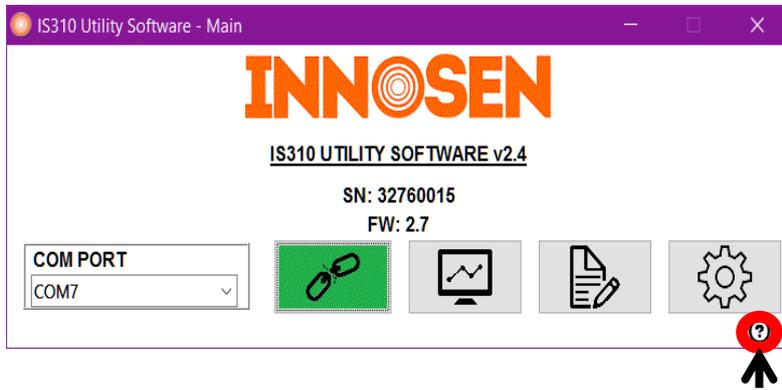
6. CALIBRATION

To ensure that the device is performing within its specified operational limits, calibration needs to be performed on the device annually. Factors such as the natural component aging can make the calibration set point shift, causing reading values that are incorrect and non-correlated. Innosen adheres to the high standards for the accuracy of measurements, so making sure that the device is performing per the specification is the utmost goal.

To facilitate on-time calibration and avoid possible problems in the field, the IS310 unit will show a calibration reminder after the 12-month period has elapsed. When "CAL" message starts appearing on the display, it is highly recommended that the customer send the unit back to Innosen for calibration. Although, the device can still be used after the "CAL" message disappears within about 10 seconds.

7. SAFETY

UV radiation can be harmful to eyes and skin. Great care should be taken when working in areas where UV is generated.

Please ensure that you follow all local health and safety precautions while using the IS310.
The unit may be warm when removed from the curing process.

8. CARE FOR YOUR IS310

- Fully charge the unit once a month to avoid battery damage. Failure to do so will void warranty.
- The IS310 has been designed to fit under guards while still set for sheet pass.
- Do not bend the logger by sitting on it or applying pressure to the case.
- Please keep IS310 in the pouch provided and put it in a safe place when not being used.
- Do not get the IS310 wet. If the unit needs to be cleaned, use a soft damp cloth to remove print or coating material while it is still wet or as soon as possible after reading.
- Do not allow the IS310 to be jammed inside the curing oven. It will overheat. The unit is designed for normal line pass through the oven. It may become damaged if it remains under the focus of a UV lamp for an extended period of time. Always place the logger with the detector facing the lamps.
- Avoid touching the detector window. Oil from fingers can smear the detector window and absorb the light that should be measured. This will give incorrect readings.
- Photodiodes are usually rugged but sometimes get dirty due to dust, loose particles or lacquer. These factors degrade the detection sensitivity of the sensor.

A) TO CLEAN SENSOR
1. Lay unit face down on a flat surface.
2. Apply a little Isopropyl alcohol on lint free wipes, lens tissue or cotton swab. Use only a tiny amount of alcohol as this could else get into the logger and destroy it. (Please do not use alcohol near fire hazard areas).
3. Gently wipe the detector surface in circular motion. Repeat procedure for stubborn dirt or contamination.
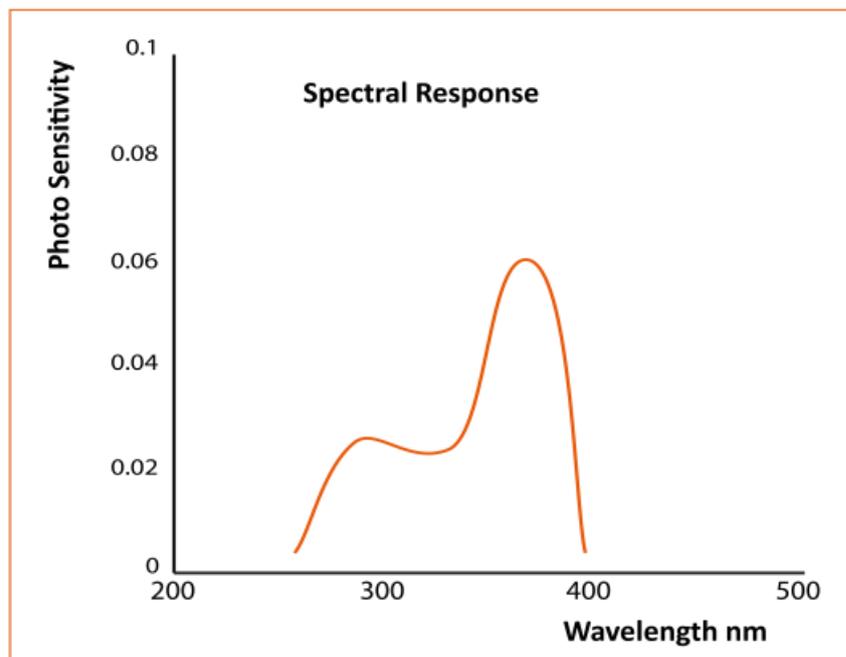
9. HOW TO INTERPRET THE INFORMATION GATHERED

- Peak power will give an indication of the degree of focus within the curing system. If a reflector has sustained physical damage, is badly contaminated or is not on the right position, then the system focus may be impaired and the peak power value will decrease.
- Total energy shows how much UV is received by the coated surface (dose). This will show a decrease if the overall performance of the lamp / reflector system is deteriorating. This may be from contaminated reflector or from lamp ageing / a fault. It could also be that the lamp current has been set too low.
- The most common approach to monitoring a curing line is to take a set of readings when the system has been maintained to a fully performing standard. This is then set as the reference for an acceptable level of cure performance based on the amount of energy required to cure the sheet (produce a dry sheet).
- Regular monitoring and recording of the system will then show any trends towards low performance and action can be taken.
- It may be necessary to determine at what point cure failure occurs so that the lower limit on performance can be set and an appropriate margin of cure safety applied.
- It should be noted that beyond the lamps guaranteed minimum run hours a lamp may become ineffective at cure very quickly.

Several factors can affect cure performance:
- Thickness of print or coating on the substrate.
- Type of substrate.
- Age of material.
- Colour of coating material can affect its ability to absorb UV.
- Some materials require a more highly focused UV source to initiate the cure process.
- Age of the lamp.
- State of the reflectors.

It may not therefore be possible to set a single lamp power level for all sheet /coating.

A) SPECTRAL RESPONSE

10. TROUBLESHOOTING

Error Type/Message:	Likely Reason:	Solution:
Unit does not power on.	Battery empty.	Charge battery to FULL or until blinking green is shown on battery indicator.
Nothing happens when the USB cable is plugged into the UV logger.	Battery fully discharged. USB Cable is broken. USB driver not compatible to Windows 10	Leave it for 10 minutes until the charging LED starts to blink. Replace USB cable. Upgrade USB driver. See link for downloading the latest in section 5C.
Device is unresponsive even if charged for more than 1 hour.	Battery was fully depleted before it was charged.	Reset unit by pressing both arrow (UP and DOWN) keys for at least eight (8) seconds, then release.
The device shows inconsistencies between readings.	Sensor window is dirty or contaminated. Calibration is due.	Clean it with a cotton bud with alcohol or an optics cleaning wipe. Send back the UV Logger for calibration.
Unable to select the right Serial Port for the Logger with the Utility Software, although the computer has detected the device successfully.	There is another program communicating with the UV Logger. Serial port is busy.	Close the IS310 Utility software, disconnect and reconnect the unit on the USB port, launch the IS310 Utility software again and select the right serial port for the UV Logger.
The device shows 'CAL'	Calibration is due.	Send back the UV Logger for calibration.
The device shows 'E1'	Wrong measurement range is selected.	Set the measurement range to a higher setting.
The device shows 'E2'	Reached the maximum exposure/sampling time. Max limit is 128 seconds.	Use the IS310 utility software to graph the data for the 128 seconds exposure since data is not available in the IS310 display.
The device shows 'E3'	IS310 recovered from internal error.	Reset unit by pressing both arrow (UP and DOWN) keys for at least eight (8) seconds, then release.

11. CONTACT INFORMATION

Innosen reserves the right to change product specifications at any time without notice.

Technical information in this data sheet is to the best of our knowledge correct at the time of publication. However, if you have any doubt as to the accuracy of any information, please contact Innosen.

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