Sola-Manager

User Reference

Revision 1.2 (pre release)
(P/T:51702020002)

Contents

Calibration

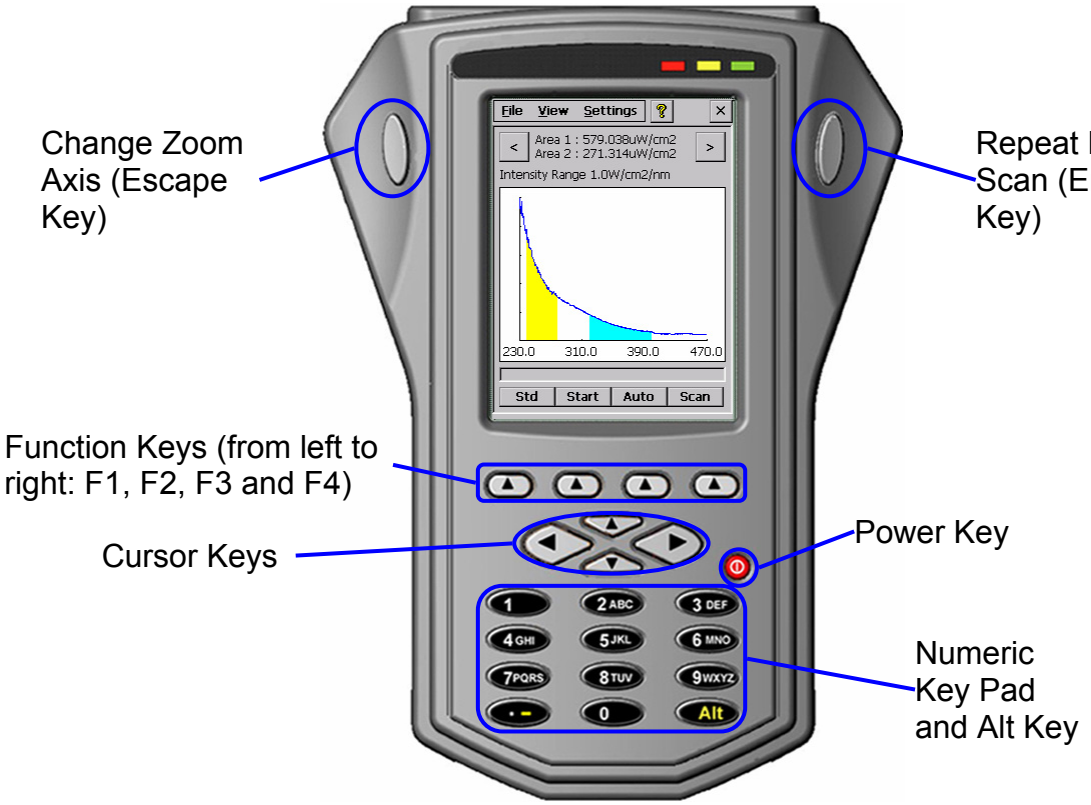
The Sola-Manager provides a variety of features to modify how the attached Sensor works. The following will effect the calibration of the Sensor and invalidate the Calibration Certificate for the Sensor.

1. Custom Calibration.
2. Custom Calibration Data Scale.
3. Incorrect use of the Orange Filter Stray Light Subtraction.
4. Incorrect use of the Solarium Mode Stray Light Subtraction.

The Sola-Manager Interface

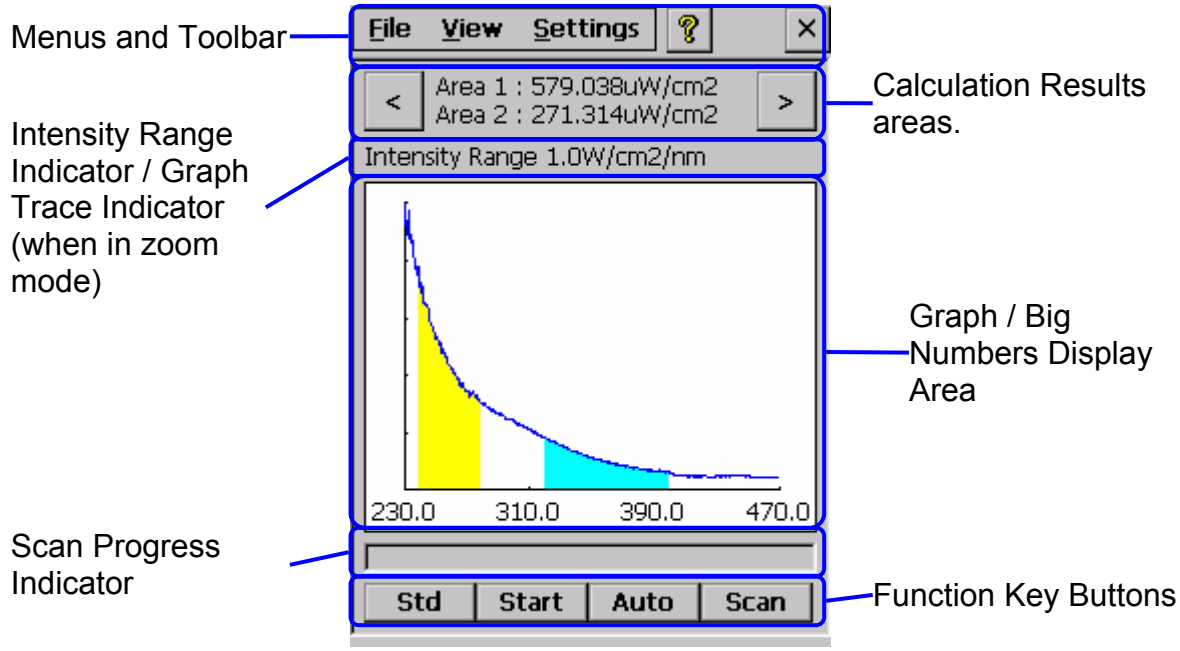
Hard Keys

The Sola-Manager Software is designed so most features can be use with just the hard keys. Details of how to operate a specific function using just the hard keys will be explained in that functions section.



When navigating the menu system or a Message Box or Dialog Window appears, the Repeat Last Scan and Change Zoom Axis Keys can be used as Enter and Escape Keys respectively. When a Dialog Window appears, the F1 and F2 keys can be used as TAB and Backspace keys respectively.

The Sola-Manager Main Screen Interface

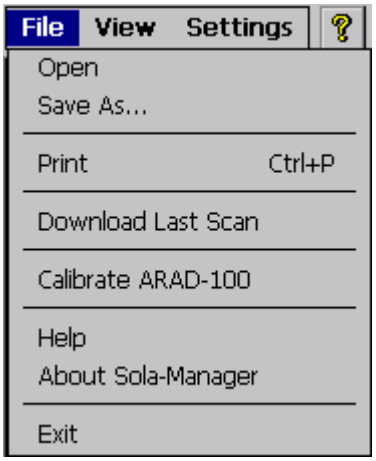


The Sola-Manager has a touch screen interface allowing the unit to be used with a stylus. Although the unit is designed so it can be used without a stylus (except for graph tracing) it is sometimes easier to complete operations using the stylus.

The Menu and Toolbar

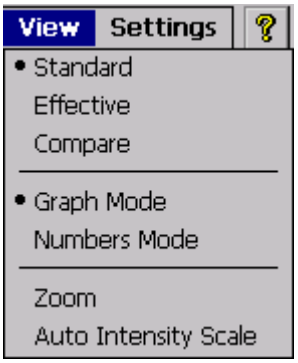
The File Menu

This menu contains File Management features, ARAD-100 Calibration, access to the Help system and the ability to Download the Last Scan taken by the Solatell Sensor.



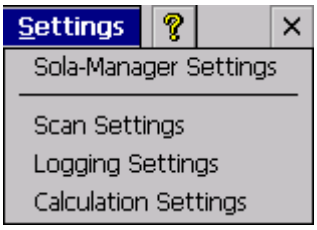
The View Menu

This menu allows the graph view to be changed and selection of Number Mode.



The Settings Menu

This menu allows the modification of settings that effect the operation of the Sola-Manager software.



Navigation using only the Hard Keys

To access a menu from using only the Hard Keys:

- Press the Alt Key and the File menu will be highlighted.
- Navigate using the cursor keys to the menu you require.
- When the required menu item is highlighted press the Enter key

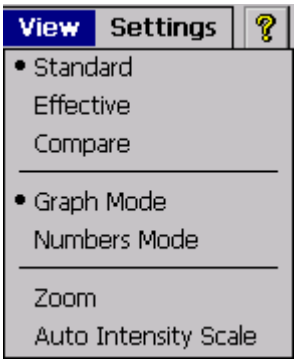
The Toolbar

The Toolbar has two icons on it:

1. The Help toolbar icon open the help file for the Sola-Manager software, this is the same as the Help menu item from the File menu. 
2. The Exit toolbar icon quits the Sola-Manager software, this is the same as the Exit menu item from the File menu. 

Viewing the Scan Data

The Sola-Manager provides two view modes, Graph Mode and Numbers Mode. To select the view mode select either the Graph Mode menu item of Numbers Mode menu item from the View menu.



There are three different graph views, Standard, Effective and Compare. These can be selected by selecting the relevant menu item from the View menu.

The F1 key will cycle through the view modes in the following order

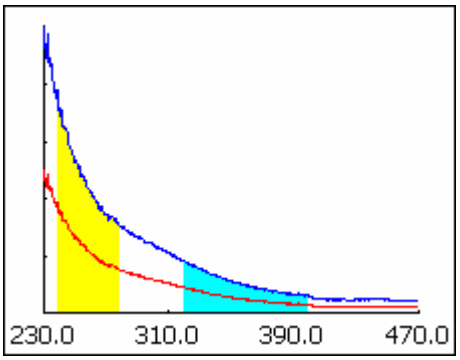
- Graph Mode – Standard View (Std)
- Graph Mode – Effective View (Eff)
- Graph Mode – Compare View (Comp)
- Number Mode (Num)

The F1 keys button will display one of the bracketed text strings above indicating the current view mode.

Standard View

Standard Mode displays the Energetic Data.

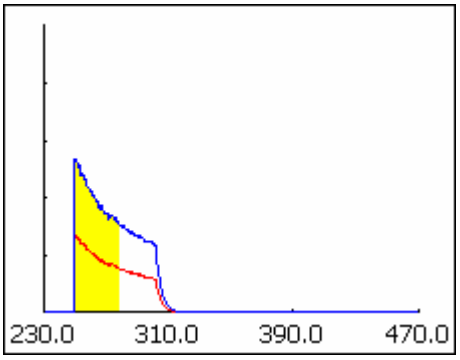
The area highlights relate to the calculation result displayed in the Calculation Results area (see the Area Highlights section).



Effective View

Effective Mode displays the Effective Data.

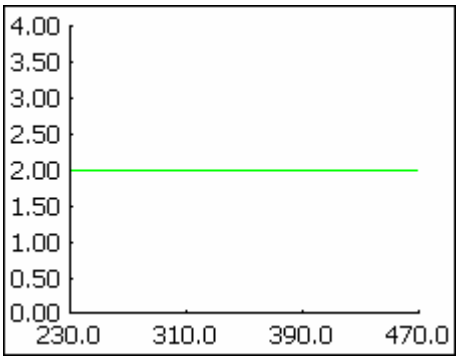
The Effective Data is calculated using the system EAS (see the Setting the System EAS File section)



Compare View

Compare Mode displays the scaling difference between the Current and Baseline data.

The compare data is calculated by dividing each point in the Current dataset by its corresponding point in the Baseline dataset



Auto Intensity Zoom

Auto Intensity Zoom is a feature available in the Standard and Effective graph views and determines what the maximum value of the Intensity Axis (Y-Axis) represents. If Auto Intensity Zoom is disabled the maximum Intensity Axis value represents the saturation level for the Intensity Range/Sample Time the scan data was taken at. If Auto Intensity Zoom is enabled the maximum Intensity Axis value represents the maximum value in the current data set.

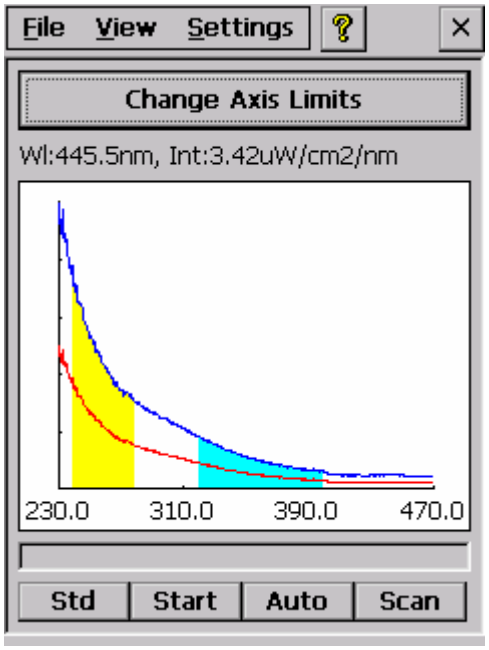
Graph Zoom

Graph Zoom is available for the three graph modes. To enter zoom mode select the Zoom menu item from the View menu.

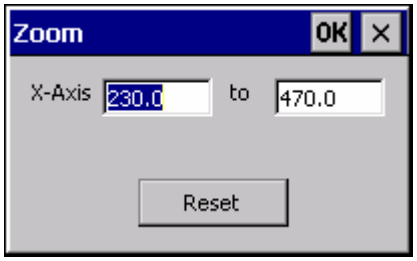
Tracing the Graph

To trace the graph, move the stylus over the graph and the Wavelength and Intensity will be displayed in the Graph Trace Indicator.

The data point traced is based on the wavelength (x-axis) location of the stylus only.



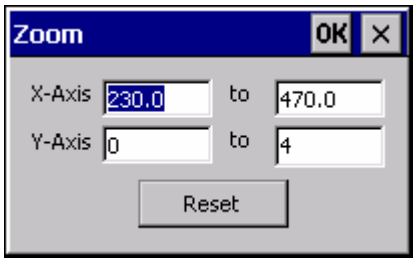
Modifying the Axis Values



To modify the axis

1. Open the Modify Axis window by either clicking on the Change Axis Limits button or pressing the Change Zoom Axis button.
2. Enter the required axis settings in the dialog and click the Ok button.

Once the axis settings have been modified they will stay fixed, even if a new scan is performed.



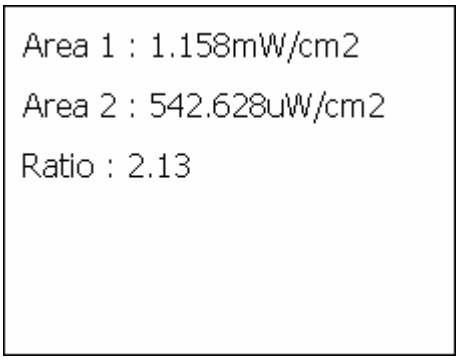
To reset the axis so they change when a new scan is performed

1. Open the Modify Axis window by either clicking on the Change Axis Limits button or pressing the Change Zoom Axis button.
2. Click the Reset button.

The Standard and Effective views only allow modification of their Wavelength Axis (X-Axis) and the Auto Intensity Zoom feature works the same in Zoom mode. The Compare view allows its both its Wavelength Axis (X-Axis) and Y-Axis to be modified.

Numbers Mode

Numbers Mode displays the results of the Calculations. (See the Calculations section)



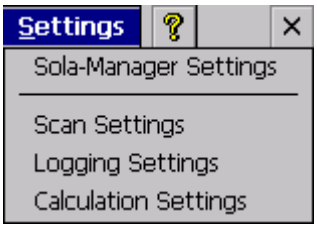
Scanning

The Sola-Manager provides a quick and easy method of scanning a Solatell Sensor and provides a collection of extra features not available on the standard Solatell Sensor.

Scan Settings

The Sola-Manager provides a wide variety of settings to modify how the scan operates, however for the average user the default settings will meet their requirements. The basic settings are explained in this section, the more advanced settings are explained in their own sections.

To open the Scan Settings window, select the Scan Settings menu item from the Settings menu.



Once the required settings have been set, press the Ok button to confirm the changes.

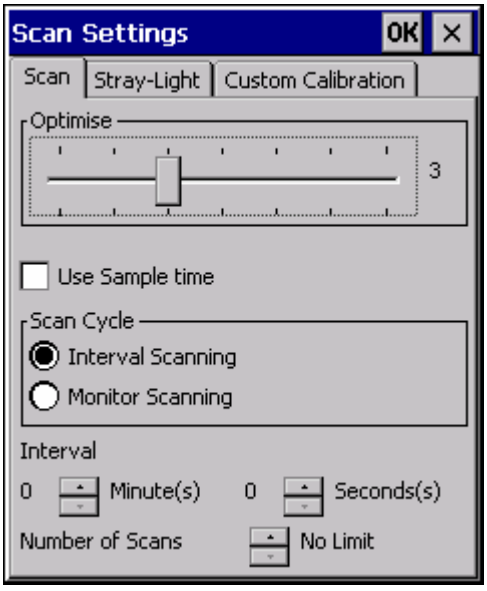
Settings the Optimise Factor

To set the optimise factor use the Optimise slider at the top of the Scan tab.

Selecting to use Sample Time or Intensity Range

The Sola-Manager can be configured to set its FSD using either Intensity Range or Sample Time.
The Use Sample time checkbox in the Scan tab sets if the Sola-Manager will use Sample Time (checked) or Intensity Range (unchecked).

(See the What the Scan Settings Do section for an explanation of what these settings do.)



Setting the Intensity Range/Sample Time

The Intensity Range/Sample Time can be set from the Main Screen Interface using the Up and Down cursor keys. The Intensity Range/Sample Time is displayed in the Intensity Range Indicator above the Graph/Big Numbers Display Area.

Scanning the Sensor

To scan the sensor:

1. Press the Scan F-Key (F4), the attached sensor will start scanning at the specified Intensity Range or Sample Time.
2. The Scan Progress Indicator will show how far through the scan the attached sensor is.
3. When the Scan Progress Indicator reaches the end the Sola-Manager will indicate the scan has finished by flashing the three LEDs at the top of the unit three times and the new scan data will be displayed.

Auto Ranging

If the required Intensity Range/Sample Time is unknown it is possible to make the Solatell Sensor calculate the required value.

To perform an Auto Ranging Scan:

1. Press the Auto F-Key (F3), the attached sensor will calculate the required Intensity Range/Sample Time and perform the scan as if it was a normal scan.
2. Once the Scan is finished the Sola-Manager will read the Intensity Range/Sample Time the Sensor calculated and change its Intensity Range/Sample Time to match.

Repeating the Last Scan

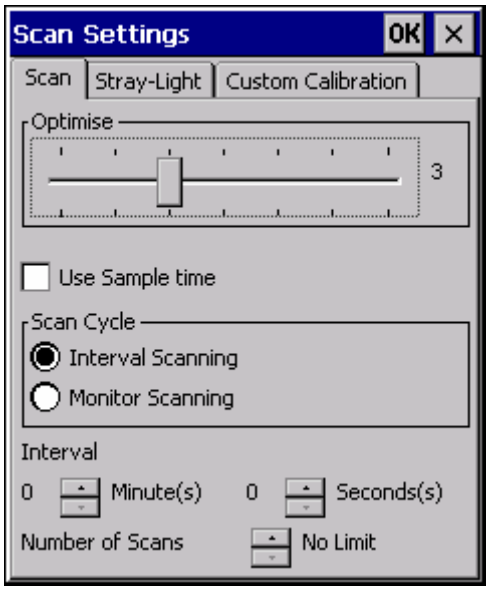
For ease of use the Sola-Manager has a Repeat Last Scan Key, this key will scan using the last type of scan (Normal or Auto Ranging) performed by the Sola-Manager. It is important to note that only the last type of scan is repeated and if the scan settings have been modified the Repeat Last Scan feature will not reset the settings back to their previous state.

Interval and Monitoring Scanning Cycles

The Sola-Manager provides two automatic scanning cycles that allow data collection without user interaction; these are Interval Scanning and Monitoring Scanning.

Interval Scanning

Interval Scanning allows the Sola-Manager to perform a specified number of scans with a defined interval in-between each scan.



To setup Interval Scanning:

1. Open the Scan Settings Window by selecting the Scan Settings menu item from the Settings menu and select the Scan Tab.
2. Select Interval Scanning option in the Scan Cycle Radio Group.
3. Set the required interval between scans using the up-down Interval controls.
4. Set the required number of scans using the Number of Scans up-down control (or select No Limit equivalent to selecting 0 with the up-down control)
5. Press OK to confirm the changes

To start Interval Scanning press the Start F-Key (F2) from the main interface an the Sola-Manager will start the interval scanning.
If a Number of Scans limit was set then the Interval scanning will stop after the specified number of scans.
To stop Interval Scanning if no limit was set or to stop it prematurely, press the Stop F-Key (F2).

Monitoring Scanning

Monitoring Scanning allows the Sola-Manager to monitor an external trigger on the attached Solatell Sensor. The setup for this is application specific and cannot be covered by this manual; refer to the accompanying application note supplied by Solatell if the system was bought for use with an automatic external trigger.

Scan Errors

Under Range and Over Range

The Under Range and Over Range errors occur when the specified Intensity Range is out of range of the attached Solatell sensor. Change the Intensity range to one that is within range.

No reply from sensor (<x> bytes)

This error indicates the Sola-Manager could not get a response from the Solatell sensor. Retry the operation if the problem persists contact Solatell technical support.

NOTE – If the number of bytes (<x>) is 0 this usually indicates that there is no Solatell sensor attached to the Sola-Manager, attach a Solatell sensor.

What the Scan Settings Do

Intensity Range and Sample Time

The Sola-Manager allows the FSD for a scan to be set using two scales, Intensity Range and Sample Time.

Sample Time

When using the Sample Time scale the Sample Time set represents the time the scan will take using an Optimise factor of 1 (See the Smart Scan (Optimise Factor) section).

Using the Sample Time scale has the advantage that the length of the scan is known so the instrument can be set to take a measurement within a specified time window. (NOTE – Setting a Sample Time that is too short (where the data is not close to saturation) will lead to inaccurate results.)

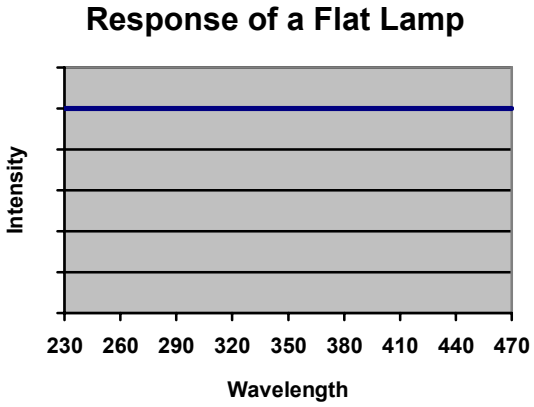
The disadvantage in using the Sample Time scale is that a Sample Time that produces reliable data (near saturation but not saturated) on one Solatell Sensor, could produce unreliable data (not near saturation) or saturated data on a different Solatell Sensor even if the lamp output and measuring conditions are the same for both Sensors.

Intensity Range

The Intensity Range scale allows the FSD to be set in relation to the power output of the Lamp being measured (when the scan starts the Intensity Range is converted into a Sample Time by the Solatell Sensor).

The Intensity Range set represents the maximum power output the Solatell Sensor can measure from a Lamp that has a flat response.

In practice no Lamp has a flat response so an Intensity Range that is higher than the power output of the Lamp being measured will be required.



Using the Intensity Range scale has the advantage that an Intensity Range that produces reliable data for one Solatell Sensor will produce the same reliable data for another Solatell Sensor providing the lamp output and measuring conditions are the same.

The disadvantage of the Intensity Range scale is that the time the scan is going to take to complete is unknown until the scan starts.

Smart Scan (Optimise Factor)

Smart Scan is a feature designed to improve the accuracy of the less intense sections of the spectrum, it works by taking a set of scans with varying Sample Times and combining them to produce the final data set.

The Optimise Factor sets the number of scans that will be taken and combined to produce the final data set. Each scan in a smart scan is half the length of the previous scan with the final scan taking the set Sample Time to complete.

For example if the Sample Time is set to1 second and the Optimise Factor of 3, the total time the scan would take to complete would be:

4 + 2 + 1 = 7 seconds

Calculations

Calculations are the processing that the Sola-Manager performs to provide the user with an application specific interpretation of the Scan Data.
The number of Calculation results the Sola-Manager produces depends on the number of Calculation Modules that are installed, a standard Sola-Manager only has one Calculation module installed, the “Area Calculate” Calculation.

As the Calculation modules installed on the Sola-Manager can vary this manual cannot cover every single Calculation Module, for this reason the “Area Calculate” Calculation Module will be used as an example.

Navigating the Calculation Results

To navigate the calculation results use either the left and right cursor keys or the left and right buttons in the Calculation Results Area.

Graph Display

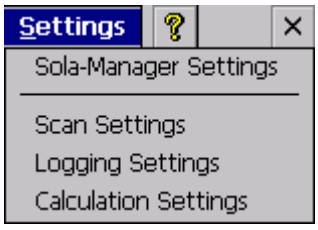
While in Graph View the Calculation Results are displayed in the Calculation Results Area. It should be noted that as the Calculation Results Area only displays two lines even a single Calculation may navigated to display additional results.

Big Numbers Display

The Big Numbers Display is designed specifically to display Calculation Results; it may also have more than one screen for an individual Calculation.

Modifying the Calculation Settings

To open the Calculation Settings Dialog, select the Calculation Settings menu item from the Settings menu.

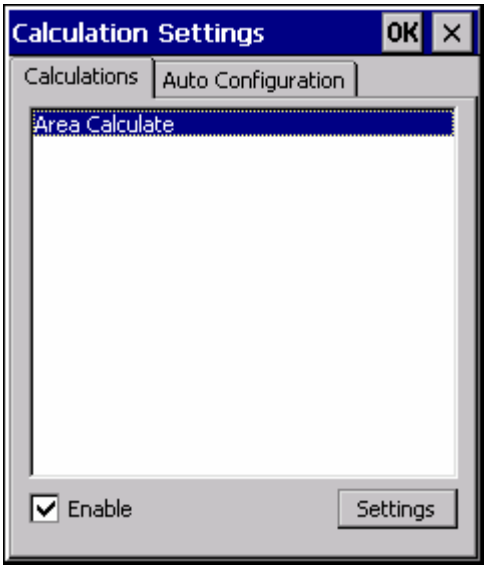


Enabling/Disabling Calculations

To Enable or Disable a Calculation:

1. Select the required Calculation in the Calculations list box.
2. Check the Enable checkbox to enable the Calculation or uncheck it to disable the Calculation.

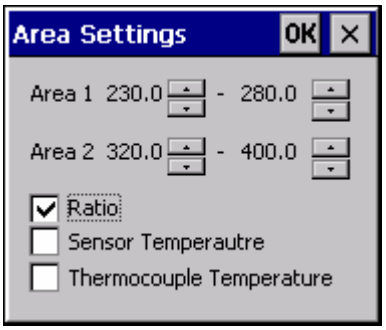
The currently disabled Calculations are marked with a “[Disabled]” label appended to their name in the Calculations list box.



Modifying the Settings of a Calculation

To Modify the settings of a Calculation:

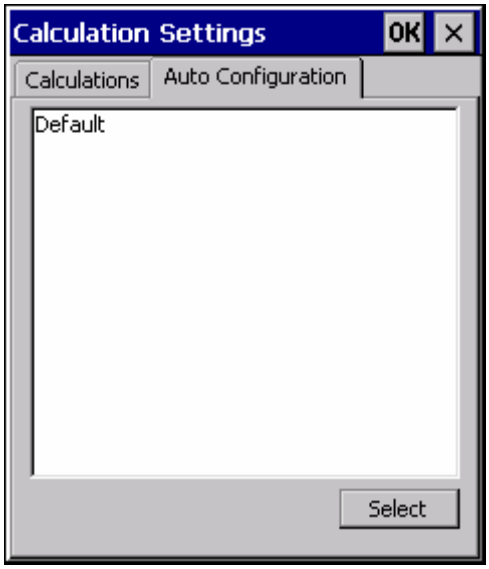
1. Select the required Calculation in the Calculations list box.
2. Click on the Settings button and the Calculations setting dialog will appear.



Auto Configuration Scripts

Auto Configuration Scripts allow quick configuration of the Calculations using a simple scripting language.
To run a script:

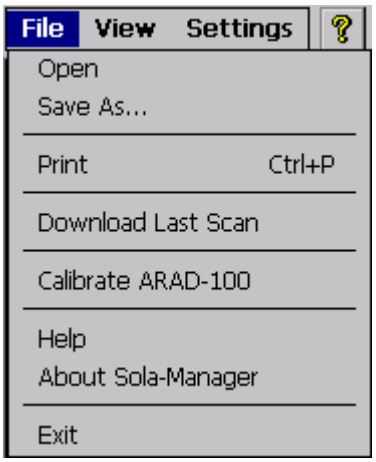
1. Open the Calculation Settings Dialog and select the Auto Configuration tab.
2. Select the required script.
3. Click the Select button and the script will run.
4. A message box will appear informing that the script execution was successful or reporting the number of errors in the script.



Printing the Calculation Results

To print the Calculation Results select the Print menu item from the File menu.

If the system is configured to use a serial printer, printing will start automatically. If a graphical printer is configured the Windows CE print dialog will appear to allow configuration of the printer. (See the Settings the Printer Type section for details on configuration the printer)

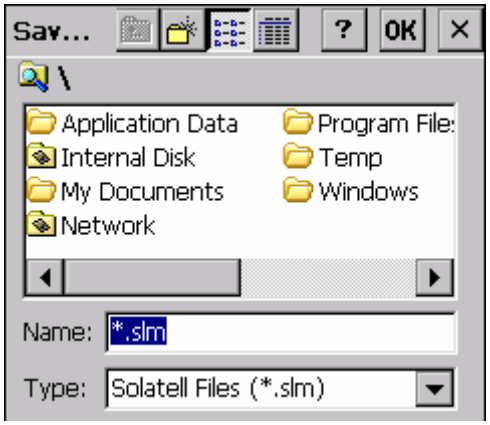


File Management

Saving Files

To save a file:

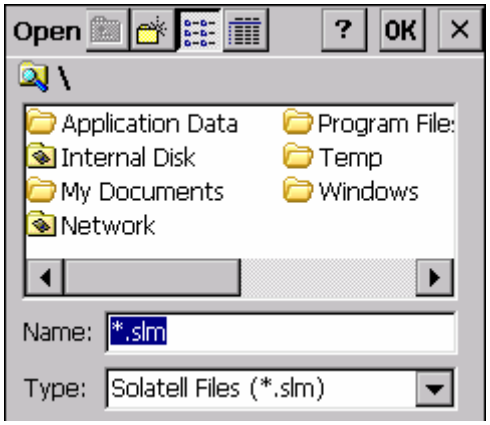
1. Select Save As menu item from the File menu and the Save As Dialog will appear.
2. Navigate to the required folder using the file and folder navigator.
3. Enter the required file name in the Name text box.
4. Click the OK button to save the file.



Open Files

To open a file:

1. Select Open menu item from the File menu and the Open Dialog will appear.
2. Navigate to the required folder using the file and folder navigator.
3. Select the required file in the file and folder navigator or enter the files name in the Name text box.
4. Click the OK button to open the file.

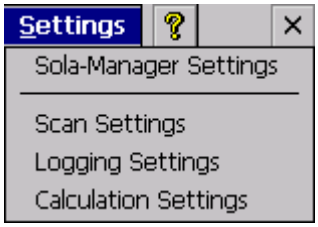


Logging

When enabled the Logging feature will save the scan data to a specified location after each scan.

Modifying the Logging Settings

To open the Logging Settings Dialog, select the Logging Settings menu item from the Settings menu.

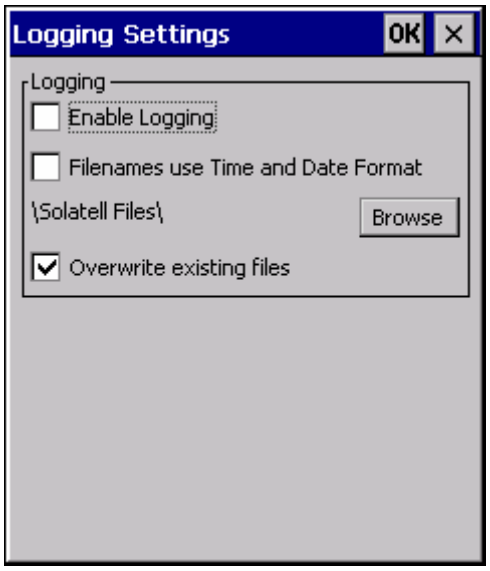


Enabling/Disabling Logging

To enable logging check the Enable Logging check box, to disable it, uncheck the Enable Logging check box.

Selecting the Logging File Naming Format

To make the Sola-Manager save the log files using Time and Date format select the Filenames use Time and Date Format check box. To use the “Solatell x” format uncheck the Filenames use Time and Date Format.



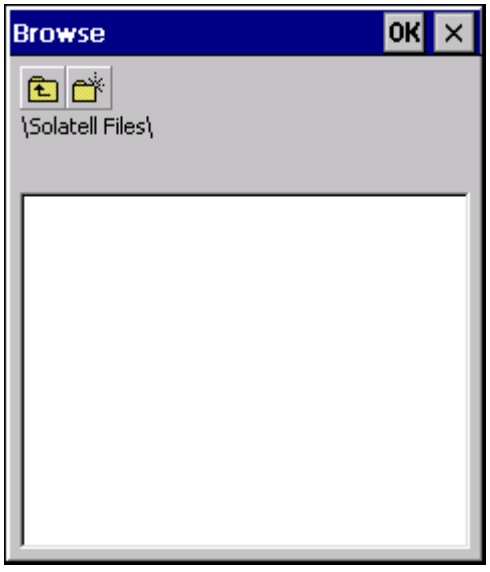
Selecting to Overwrite Files

To instruct the Sola-Manager to overwrite existing files while logging check the Overwrite existing files check box.

Selecting the Location to Save the Log Files

To select the location to save the log files to:

1. Click the Browse button in the Logging Settings dialog and the Folder Browse dialog will appear.
2. Select the folder and click the OK button.



Stray Light Subtraction

WARNING – Incorrect use of either of the Stray Light Subtraction features will produce invalid results.

Although Solatell Sensors have built in stray light removal features, these can be overwhelmed by large amounts of visible light and further stray light removal may be necessary. Currently two methods of Stray Light removal are provided, Orange Filter Subtraction and Solarium Mode Stray Light Subtraction.

Solarium Mode Stray Light Subtraction was designed specifically for the Tanning market and should only be used with Solarium Tanning lamps.

Orange Filter Subtraction is designed for use with other types of lamps providing it is possible to take a measurement using an Orange Filter.

Both forms of Stray Light Subtraction occur before the Custom Calibration is applied to the Scan Data.

Orange Filter Stray Light Subtraction

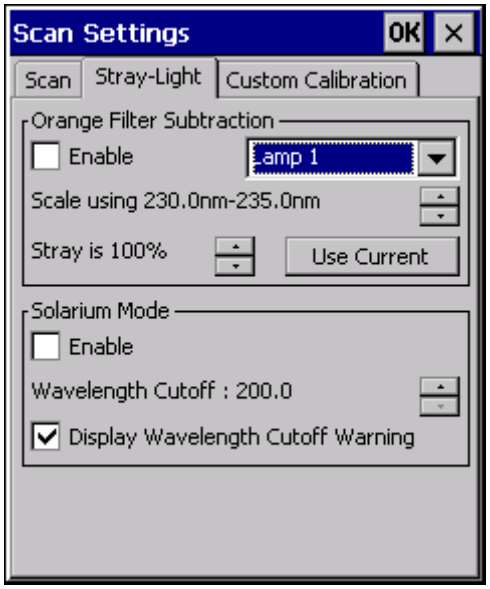
Orange Filter Stray Light Subtraction works by subtracting a scaled stray light shape file from the Scan Data read from the Solatell Sensor. It can be setup for use with 5 different lamps (these are not predefined).

Taking an Orange Stray Light Scan

1. Ensure Custom Calibration is switched off. (See the Enabling/Disabling Custom Calibration section.)
2. Place the Orange Filter in front of the entrance aperture to the Solatell Sensor so all the light entering the aperture passes through the Orange Filter.
3. Perform an Auto Ranging Scan using an Optimise Factor of at least 3.

Setting the Orange Stray Light File

1. Follow the Taking an Orange Stray Light Scan Instructions.
2. Open the Scan Settings Dialog by selecting the Scan Settings menu item from the Settings menu. Select the Stray-Light tab.
3. Select the Lamp number that relates to the lamp being scanned using the Lamp drop-down list in the Orange Filter Subtraction frame.
4. Click the Use Current button; this sets the current scan data as the Orange Stray Light File. The Scale using and Stray is up-down control will enable.
5. Modify the 'Scale using' area to an area where the amount of light that is stray, is known.



6. Set the ‘Stray is’ value to the percentage of light that is stray in the ‘Scale using’ area.
7. Check the Enable check box in the Orange Filter Subtraction frame to enable Orange Stray Light Subtraction.

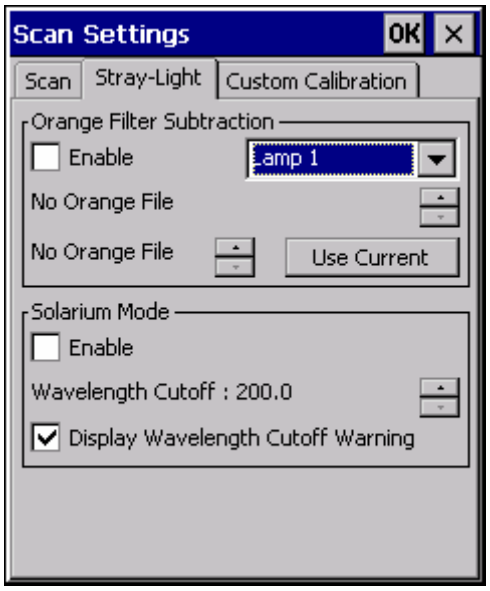
IMPORTANT

1. As the Stray Light Shape for a single lamp will be different for different Solatell Sensors it is necessary to take a different stray light scan for each Solatell Sensor that is used. The Sola-Manager will automatically switch to the correct Stray Light file when the Solatell Sensor is changed.
2. The Stray Light Shape for different bulbs in the same lamp will be different, for this reason it is necessary to take a new Stray Light Scan when the bulb is changed.
3. It is recommended that the Stray Light Scan be updated if the lamp output deteriorates by a considerable amount and once a month if the lamp output hasn’t deteriorated.

Solarium Mode Stray Light Subtraction

To enable/disable Solarium Stray Light Subtraction:

1. Open the Scan Settings dialog and change to the Stray-Light tab.
2. Check the Enable check box in the Solarium Mode frame to enable or uncheck it to disable Solarium Mode Stray Light Subtraction.



The Wavelength Cutoff

When Solarium Mode is enabled the Wavelength Cutoff feature of the Solatell Sensor will also be active. The Wavelength Cutoff feature will blank (set to 0) all of the data below the wavelength it is set to.

Use the up down control to modify the Wavelength Cutoff point.

If the Wavelength Cutoff is active and the Display Wavelength Cutoff Warning check box is checked, each time a scan is taken a warning will be displayed informing the user that the Wavelength Cutoff feature has blanked some of the data.

(NOTE – The Wavelength Cutoff is equivalent to the Wavelength limit feature of the Sola-Sure.)

Custom Calibration

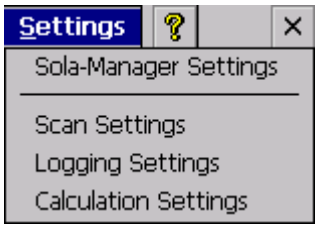
WARNING – Use of this feature will modify the scan data the Sola-Manager and Solatell Sensor produce, for this reason the Calibration Certificate will not apply to the results produced when this feature is enabled.

Custom Calibration allows a user specified calibration to be applied to the scan data. It is sensor dependant so if the Solatell Sensor is changed the calibration from one Solatell Sensor will not effect the calibration of another.

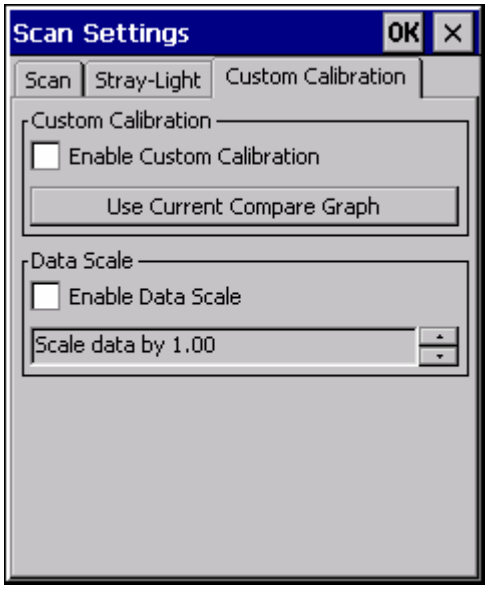
Enabling/Disabling Custom Calibration

To enable Custom Calibration:

1. Open the Scan Settings Dialog; select the Scan Settings menu item from the Settings menu.
2. Select the Custom Calibration Tab



3. Check the Enable Custom Calibration check box to enable Custom Calibration or uncheck it to disable Custom Calibration.



Creating a Custom Calibration

To create a Custom Calibration File:

1. Set the Baseline Scan (either via a scan or by specifying a file) to the data the Sensor should read.
2. Set the Current Data to the scan data the Sensor does read.
3. Check the Compare Graph shows the differences expected between the two data sets.
4. Click the Use Current Compare Graph button and the Sola-Manager will create and save the Custom Calibration Data.

(NOTE – Custom Calibration occurs after Stray Light Subtraction, if the Lamp used to create the Custom Calibration emits a large amount of visible light it is recommended that the Orange Filter Stray Light Subtraction is used when creating the Custom Calibration Data.)

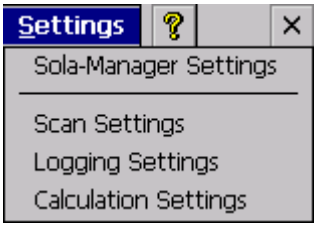
Custom Calibration Data Scale

Custom Calibration Data Scale allows the entire dataset to be scaled by a speified value.

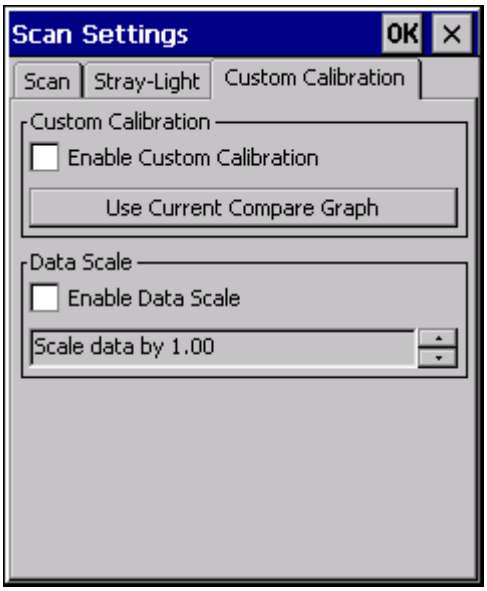
Enabling/Disabling Custom Calibration Data Scale

To enable Custom Calibration:

1. Scan the Solatell Sensor, this allows the Sola-Manager to read the serial number of the Solatell Sensor.
2. Open the Scan Settings Dialog; select the Scan Settings menu item from the Settings menu.
3. Select the Custom Calibration Tab

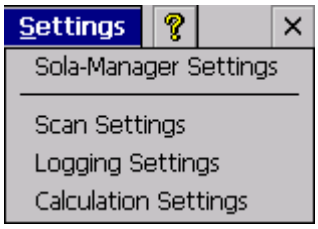


4. Check the Enable Data Scale check box to enable Custom Calibration Data Scale or uncheck it to disable Custom Calibration Data Scale.
5. Use the Scale data by Up-Down control to set the value the data should be scaled by.

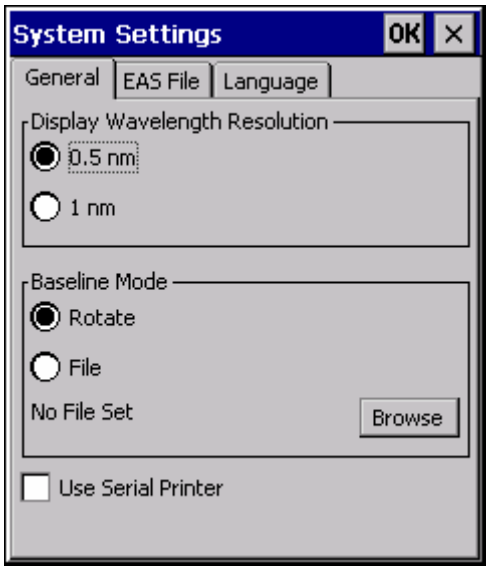


System Settings

To open the System Settings Dialog, select the Sola-Manager Settings menu item from the Settings menu.



The General Tab



Setting the System Wavelength Resolution

In the General tab of the System Settings Dialog select the required wavelength resolution using the Display Wavelength Resolution radio buttons

Baseline Mode

In the General tab of the System Settings Dialog use the Baseline Mode radio buttons to select either a Rotating baseline or a fixed File Baseline. If the Baseline Mode is set to File then use the Browse button to select a file to appear as the Baseline.

Setting the Printer Type

If a serial printer is attached to the Sola-Manager select the Use Serial Printer checkbox, when print is selected, the Sola-Manager will print instantly to the attached serial printer

If a graphical printer is attached, uncheck the Use Serial Printer box and when print is selected a standard Windows CE print dialog will appear to allow the selection of the correct printer type.

The EAS File tab

Settings the System EAS File

In the EAS File tab of the System Settings Dialog, use the Browse button to select a file to use as the System EAS.

WARNING – Certain calculations use their own EAS files, it is important to remember that the data displayed on the graph relates to the EAS file set here and this may differ from the data used by the Calculation.

The Language tab

Changing the Application Language

From the Language tab of the System Settings Dialog, select the required language from the list box and press the Select button to change to the selected language.

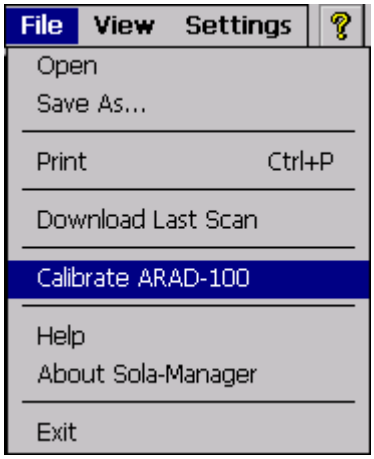
(NOTE – The Sola-Manager software will have to be restarted for this settings to take effect)

ARAD-100 Calibration

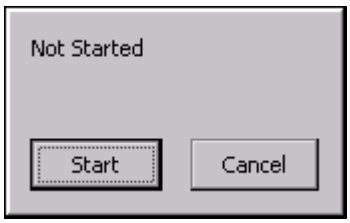
The Sola-Manager can be connected to and calibrate an ARAD-100.

Calibrating an ARAD-100

1. Scan the light source that the ARAD-100 is going to be measuring using the Sola-Manager with a Solatell Sensor attached.
2. Unplug the Solatell Sensor from the Sola-Manager and plug in the ARAD-100.
3. Place the ARAD-100 in front of the light source that it is going to measure ensuring that it is the same distance from the light source as the Solatell Sensor was.
4. Open the ARAD-100 Calibration Dialog by selecting Calibrate ARAD-100 from the File Menu.



5. Click the Start button and the Sola-Manager will calibrate the ARAD-100.



Appendix A – Windows CE Basics

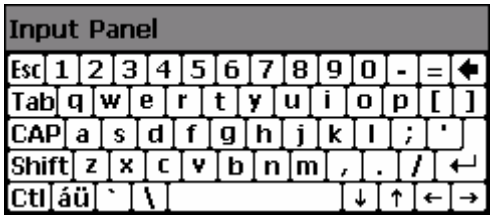
Setting the Time

The Sola-Manager will synchronise its time with the Desktop PC the first time a connection is made with ActiveSync. If the Sola-Manager is not going to be connected to a PC, double clicking on the time display on the task bar will display the Date/Time Properties dialog.

The Keyboard

The Windows CE Keyboard should appear whenever text input is required and can be used simply by clicking on the required key.
If the keyboard does not appear when required:

1. Click the Input Panel icon on the Task Bar
2. Select Keyboard in the menu that appears.



Battery Life

To check the status of the Sola-Managers battery:

1. Click the Start button to open the Start Menu.
2. Select Settings → Control Panel and the Control Panel will appear.
3. Double Click on the Power Icon and the Power Properties dialog will appear displaying information about the current battery state.


Power