The Lovibond® PFX*i* Windows® software V3.02

Introduction

The PFX*i* Windows® software package is a tool that allows users to configure and operate a PFX*i* from a Windows® platform. The Windows platform is connected to the instrument via USB.

Using this tool, the user is able to configure the instrument and perform readings. Results are presented in a variety of numerical and graphical formats. The tools can also be used to report the PFX*i* event log and perform system updates.

Files

The following files are included in the package:

PFXi.exe	This file contains the main executable code of the tool.
PFXiVS32.dll	This file is a dynamically linked library that is required to run the tool.
PFXi.ini	This is a text file that contains details of the current configuration of the tool. If it is not present (for example, when the tool is first installed) it will automatically be generated.

Installation and Startup

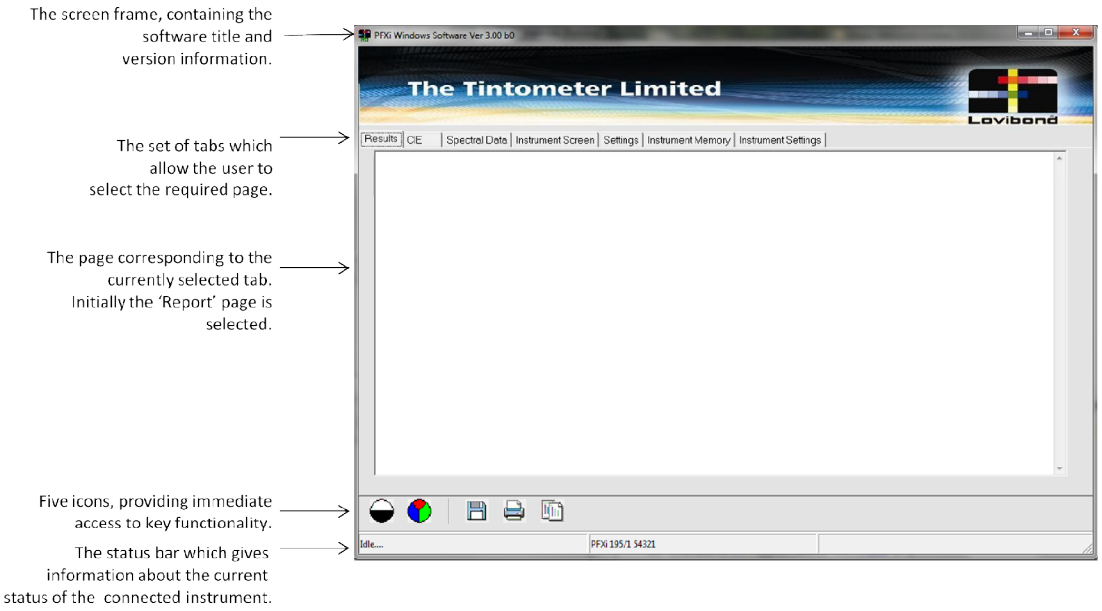
Installation

Run the file 'setup.exe'. An installation wizard will guide the user through the software installation.

Startup

The PFX*i* instrument is connected to the Windows platform using the supplied USB cable.

To startup the tool, select the PFX*i* icon with a double mouse click. The initial screen is displayed.



Performing a First Reading

For details of correct instrument operation, please see the Lovibond® PFX*i* Operator's Instruction Manual.

Start the PFX*i* software. The status 'Disconnected' will be reported in the status bar.

Turn on the instrument and connect it to the Windows® platform using the supplied USB cable. The status of the instrument, as reported in the status bar, should change to '*Idle*'.

Note: it may take a few seconds for the change in status to be reported.

Ensure that the instrument's Sample Chamber is empty and select the 'Zero Icon'. A progress bar will be displayed in the centre of the screen, reporting '*Baseline Measurement*' and the instrument will begin the operation. The zeroing operation takes can take up to a minute to complete.

Place a sample in the instrument's Sample Chamber and select the 'Read Icon'.
A progress bar will be displayed in the centre of the screen, reporting '*Measurement in Progress*' and the instrument will start to the measurement. This takes about 35 seconds.

When the measurement is complete, results will be reported on the 'Results' page.

Common Features

Most features of this tool require the appropriate page to be selected before they can be accessed. However, the following are available irrespective of which tab is selected:

Status Bar

The status bar has three sections.

The current instrument status is displayed in the left section. The following status positions are recognised:

Status	Meaning
Disconnected	The instrument is not turned on or not correctly connected.
Idle…	The instrument is available for operation.
Performing Baseline Calibration	The instrument is currently performing a baseline reading.
Reading	The instrument is currently performing a sample measurement.
AD Gain Setting	The instrument is currently performing an 'AD Gain Setting' operation.
Seeking Home	The instrument is currently adjusting the filter wheel position
Error	An error has been detected by the instrument
Awaiting Sample ID Input… **Awaiting User ID Input…**	The instrument is waiting for the input of a User or Sample identifier. See the 'General' sub-tab on the 'Instruments Settings' page for details of the options available for specifying these identifiers.
Averaging Readings…	The instrument is performing a series of readings which will be used to produce an average reading.

The instrument's type and version number are displayed in the in the central section of the Status Bar.

The firmware version of the instrument software is displayed in the right hand section of the status bar. Note, however, that this is only reported after the first read has been performed.

Status bar, showing the Firmware version:

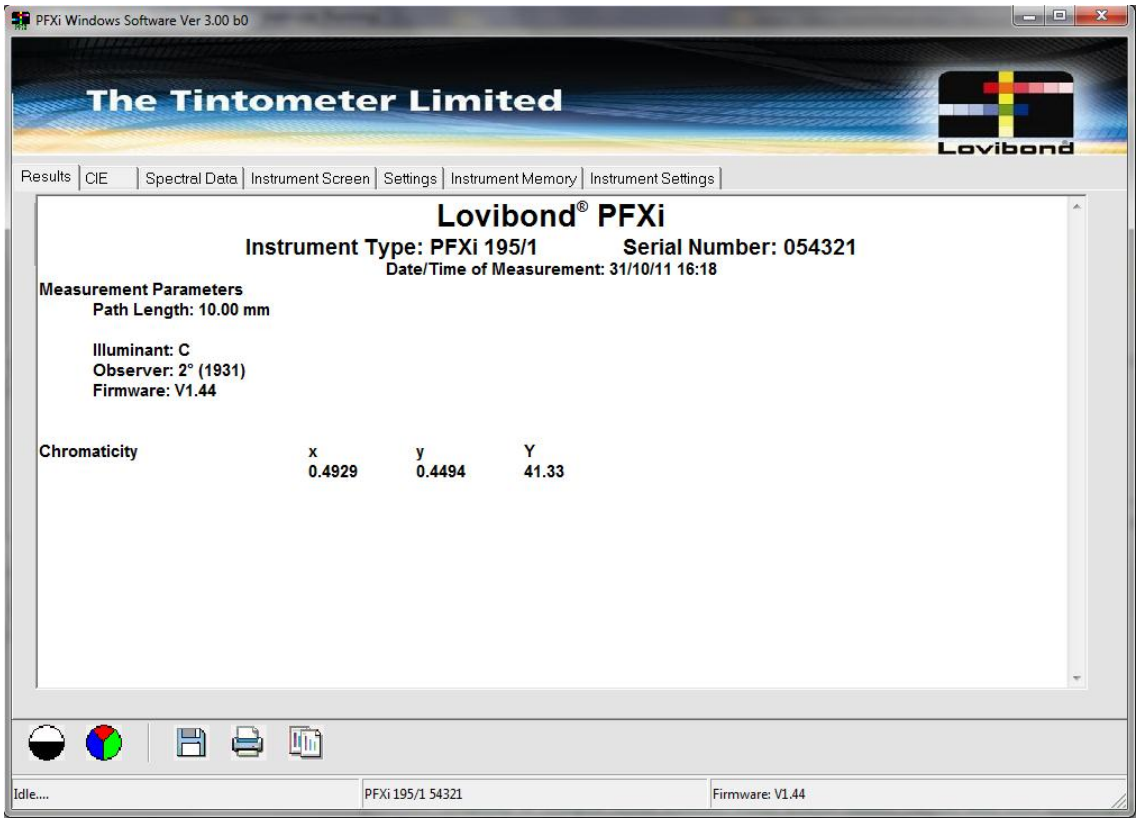
Common Icons

The following icons are displayed near the bottom of the screen:

Icon	Title	Function
	Zero	Instruct the instrument to perform a baseline reading
	Read	Instruct the instrument to perform a Measurement.
	Save	Save the current reading to disk. The user is prompted for a file name and location and the data for the selected scales is saved in a comma separated variable (CSV) format. This file may then be read by an appropriate application such as a spreadsheet. Note 1: this functionality allows the user to save data for a single reading. Separate logging functionality allows the ongoing recording of all readings (see the 'Settings' page for details). Note 2: To include spectral data in this file, select the 'Log Spectral Data' flag on the 'Settings' page.
	Print	Print the data for the current reading.
	Copy	Copy the contents of the current results screen to the Windows clipboard. From here it may be copied into an appropriate application such as a word processor.

Results Page

The current result is presented. This consists of a header and the specific results chosen for display.



The following information is always included in the header:

- ✓ Instrument Type and Serial Number
- ✓ Date and Time of Measurement
- ✓ Path Length
- ✓ Illuminant and Observer

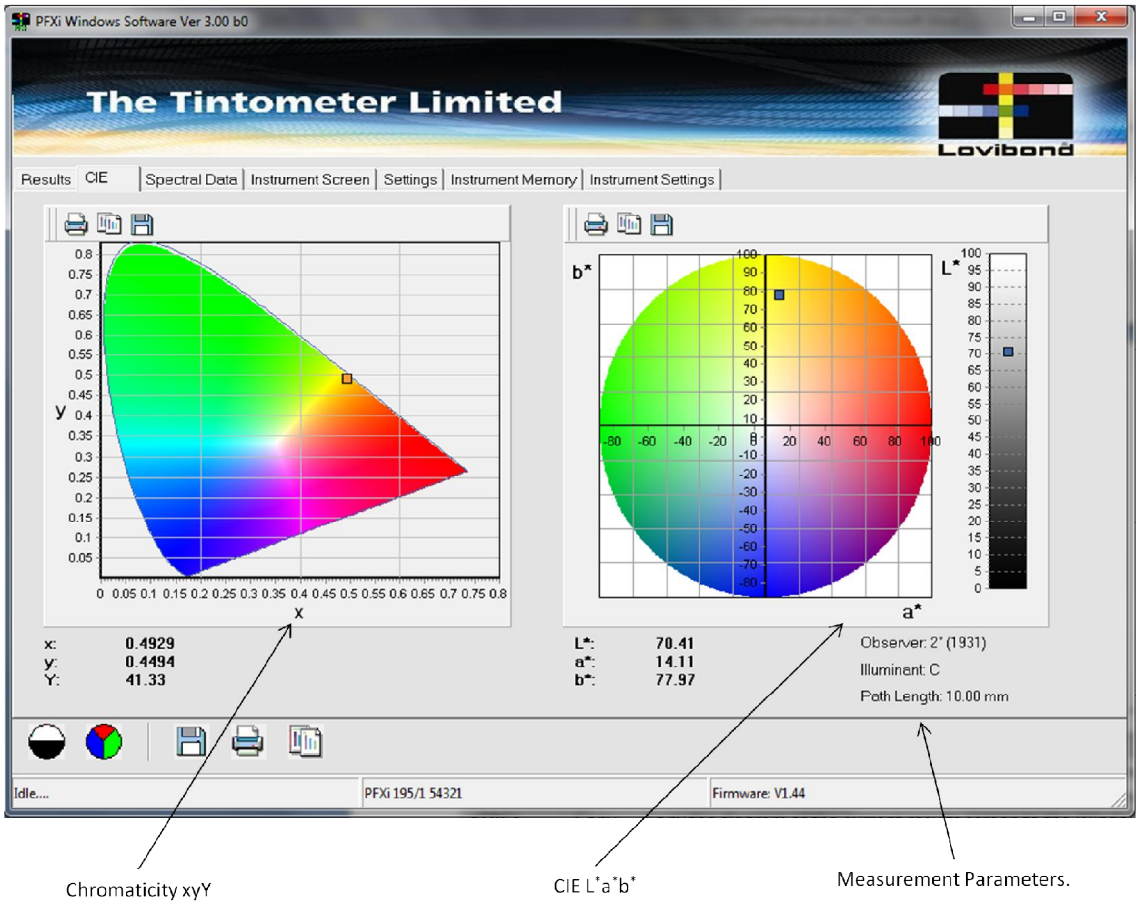
In addition, depending on the instrument's capabilities and local configuration, the following information may be displayed:

- ➢ User and Sample Identifiers
- ➢ Dilution Factor
- ➢ Heater Temperature
- ➢ The Brix value

The scales to be displayed and other relevant variables controlling this display are specified on the ‘Settings’ and ‘Instrument Settings’ pages.

No results are displayed until a read has been performed.

CIE Page



Chromaticity xyY Display

The diagram for the current reading in x-y space is presented.

There are also three icons:

Icon	Title	Function
	Print	Print this diagram.
	Save	Save this diagram to disk. The user is prompted for a file name and location and the data is saved in the 'Tee Chart Pro' file format.
	Copy	Copy the diagram of the current results screen to the Windows® clipboard.

CIE $L^*a^*b^*$ Display

The diagram for the current reading in a^*-b^* space is displayed together with a scale illustrating the L^* value.

The three icons, as described for the Chromaticity xyY Display above, are also available.

For convenience, the Observer, Illuminant and Path Length are also displayed.

No results are displayed until a read has been performed.

Spectral Data Page

Transmittance Diagram

The diagram showing the variation of Transmittance with wavelength is displayed.

The three icons, as described for the Chromaticity xyY Display above, are also available.

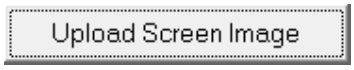
Transmittance Chart

A table presenting the percentage Transmittance and Absorbance, and the Optical Density for individual wavelengths is presented.

Again, no results are displayed on this page until a read has been performed.

Instrument Screen Page

This page allows the capture of the current instrument screen image.

The 

button is used to capture the current instrument screen content.

The 

button copies the locally displayed information to the Windows® clipboard. This information can then be copied into an appropriate application such as 'Microsoft® Paint'.

Settings Page

Colour Scales

This list of checkboxes allows the user to specify which scales are to be displayed on the local system.

Logging

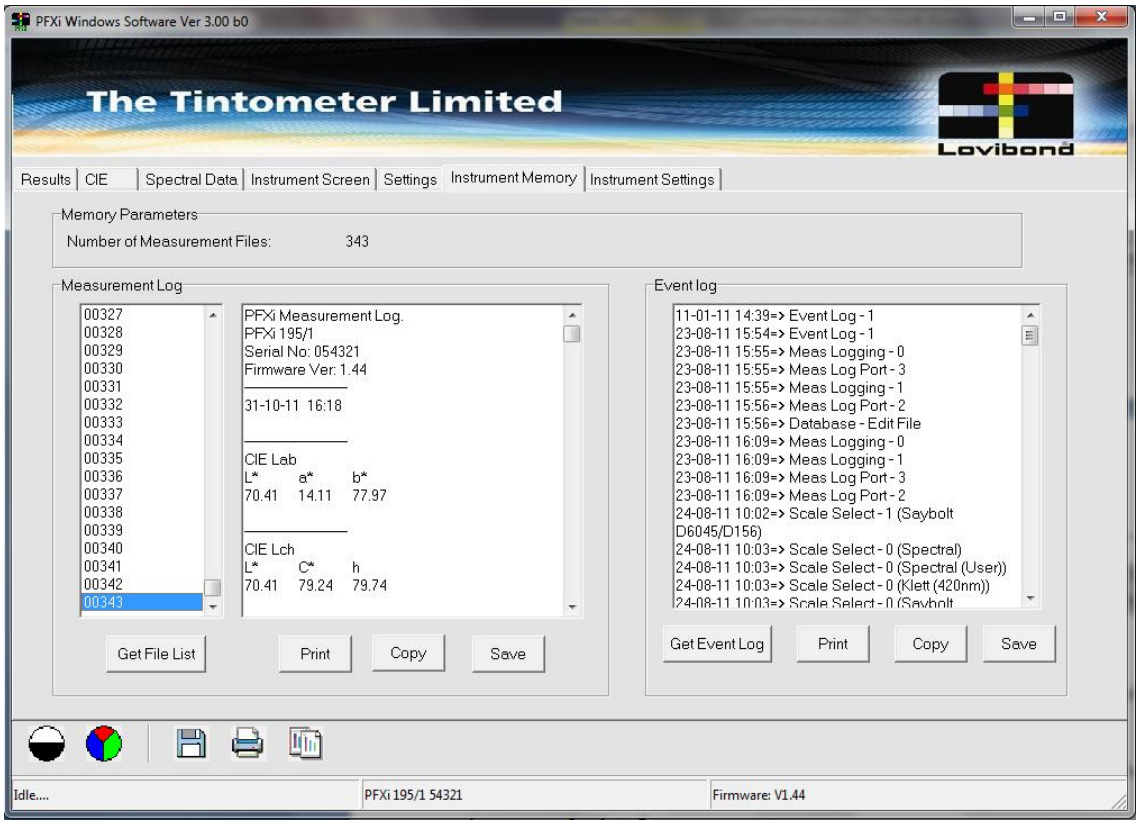
The logging functionality allows users to automatically capture the results of all reads. The results are captured in a Comma Separated Variable (CSV) format. This file can then be read by an appropriate application such as a spreadsheet.

The [Enable Logging] checkbox allows users to enable or disable logging.

The [Select Log File] button allows the user to specify the name and location of the log file. The name of the log file currently in use is also displayed

By default, the spectral data for a reading is *excluded* from log files. The [Log Spectral data] checkbox is used to force its inclusion.

Instrument Memory Page



Measurement Log

The Measurement Log functionality allows users to access the log of measurements held on the instrument's SD card.

To retrieve the list of Measurement log files, select the [Get File List] button.

To display the reading held in one of the files, double click the file name in the 'Measurement Log' list.

The three buttons below the Measurement Log allow operations on the currently displayed reading.

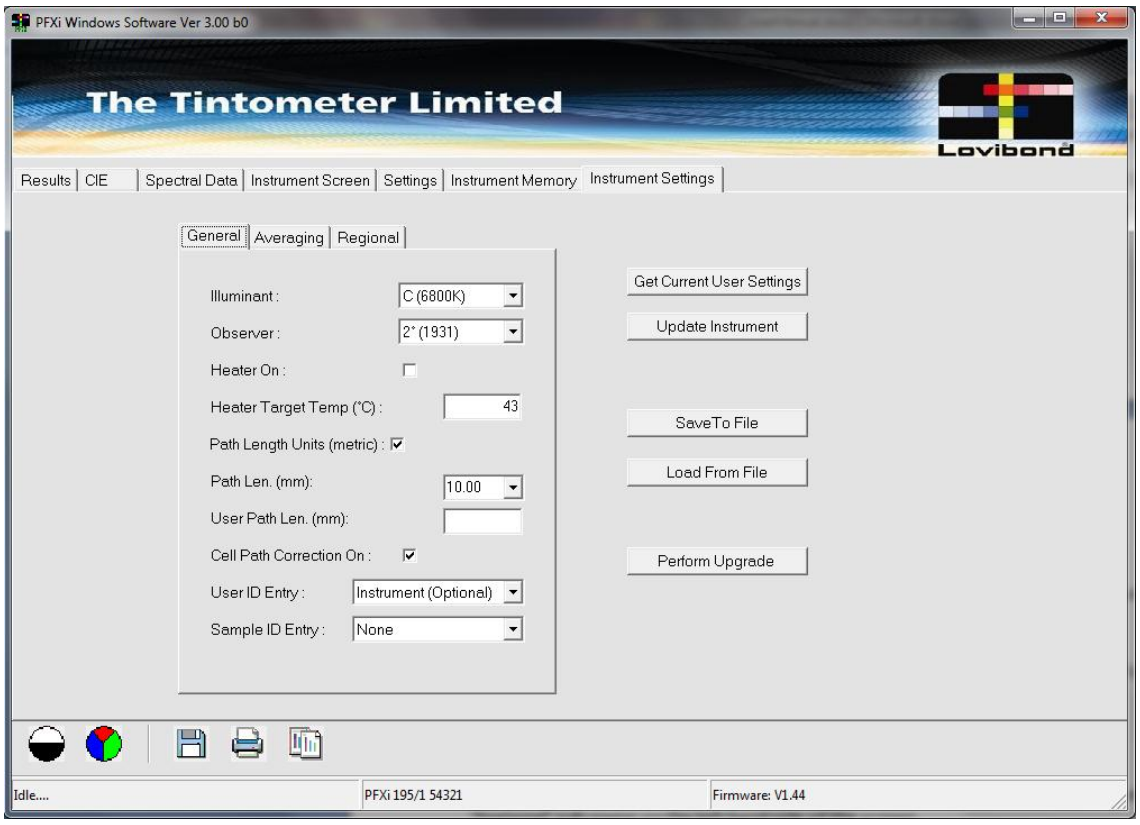
Name	Function
Print	The reading is printed.
Save	The user is prompted for a file name and location and the reading is saved in Rich Text Format (RTF).
Copy	The reading is copied into the Windows clipboard. From here it may be pasted into an appropriate application such as a word processor.

Event Log

The instrument holds a record of configuration changes. To retrieve this record, select the [Get Event Log] button.

[Print], [Copy] and [Save] Buttons are available – see '*Measurement Log'*, above, for details.

Instrument Settings Page



Configuration parameters for the instrument are set in the 'General', 'Averaging' and 'Regional' sub-pages on the left hand side of the screen.

This set of parameters can be transferred to or from the instrument or stored on a local disk, using the buttons on the right hand side.

For more details of the parameters described below, see the PFX*i* Operator's Instruction Manual.

General Sub-Page, Measurement Parameters

Pull down lists are available to allow the user to specify the 'Illuminant' and 'Observer' to be used for measurements.

A checkbox and an entry field are available to allow the turning on of the heater and to specify the target temperature. These controls are only effective if the instrument is fitted with a heater.

General Sub-Page, Path Length

A checkbox is available to specify whether metric or imperial units are to be used on the instrument and locally.

A pull down list allows the user to select the [Path Length]. Non-standard cell sizes are specified by selecting 'User path length' from this list and then entering the actual path length in the 'User Path Length' field.

A checkbox is provided to allow the user to specify whether 'Cell Path Correction' is enabled.

General Sub-Page, Identifier Configuration

Pull down lists are provided to allow requirements for User Identifier and Sample Identifier to be specified. The following options are provided:

Option	Function
Instrument (Optional)	The Identifier is to be entered at the instrument.
Instrument (Required)	The Identifier is to be entered at the instrument. A valid value must be provided.
Host (Optional)	The Identifier is to be entered locally.
Host (Required)	The Identifier is to be entered locally. A valid value must be provided.

Averaging Sub-Page

A checkbox allows the user to turn the averaging functionality 'on' and 'off'.

The 'Num Measures to Avg' entry box allows the user to enter the number of measurements that are to be averaged.

A pull down list allows the user to specify the 'Averaging Method'. If 'Manual' averaging is selected, the user must select the instrument [Read] button or the local [Read] icon to perform each of the reads. If 'Automatic' averaging is selected, then the sequence of 'reads' is performed automatically by the instrument.

The ‘Avg Interval’ entry box is used to specify the timer period between the successive automatic reads that are to be averaged.

Averaging Sub-Page: Measurement Logging

A checkbox allows the user to turn the instrument-based logging functionality ‘on’ and ‘off’.

A pull down list is used to specify the target for the measurement logging information:

Option	Function
USB	The USB port
LAN	The LAN port
RS232	The RS232 interface
Internal	The information is stored locally on the SD card.

Regional Sub-Page

The regional configuration parameters allow the user to specify the regional configuration parameters for the instrument.

Pull down list allows the selection of the ‘Language’, the ‘Date Format’ and the ‘Decimal Separator’ to be used on the instrument.

Note: the host application is not affected by these parameters.

Regional Sub-Page: Date and Time

Selection boxes display the current date and time on the instrument. These are automatically resynchronised.

To manually resynchronise the date and time, select the [Re-Sync] button.

To update the instrument date and time, entered the required values in the ‘Date’ and ‘Time’ boxes then select the [Set] button.

Common buttons

A set of buttons allows the user to manipulate the instrument parameters:

Button	Function
Get Current User Setting	The set of instrument parameter is read from the instrument and displayed locally
Update Instrument	The locally held parameters are copied into the instrument. Note: changes to the locally held parameters will not impact the instrument behaviour until the 'Update Instrument' button has selected and the instrument has been reset
Save to File	A file name and location is specified and the set of locally held instrument parameters is copied to a file. This functionality could be used, for example, to store the configuration required for individual users or for different types of readings.
Load from File	The file name and location is specified and the set of instrument parameters is copied from the file into local memory. Note: to update the instrument with these parameters, the user must then select the 'Update Instrument' button.

Perform Upgrade

This button allows users to transfer an 'Update File' to the instrument. This 'Update File', which is supplied by The Tintometer Ltd, is used to update the instrument type and the set of Scales supported by the instrument, together with other internal configuration parameters.

To perform the upgrade, select the [Perform Upgrade] button and input the file name and location, as prompted.

Note: Once the file has been transferred, the instrument must be reset.