FilmDirector2
User Manual

For users of Intellemetrics
Dual Beam Integrated Optical Monitor Systems
for Precision Optical Coating

FilmDirector2 USER MANUAL

User Manual

This documentation is provided as an instruction manual to Intellemetrics Global's customers and potential customers **only**.

Read this manual before you install and use the IL55x Optical Monitor.

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1. FilmDirector2 Overview

FilmMaker2 and FilmDirector2 are software suites from Intellemetrics Global Ltd designed to work with the Intellemetrics range of optical monitors. Their function can broadly be described as;

FilmMaker2

- *Creation of a film stack from scratch or reading a film stack in from a 3rd party design package.*
- *Modelling of the film stack*
- *Creation of an optical monitoring scheme to allow the fabrication of the film stack.*
- *Tools to help you optimise the various parameters of the optical monitoring scheme.*
- *Tools to allow you to investigate the performance and yield of the optical monitoring scheme and the products that it will help you fabricate.*
- *Tools to allow the analysis of previous coating runs.*
- *The final optical monitoring scheme is saved as a FilmMaker Project.*

FilmDirector2

- *Full communication interface into the coating chamber control system for automated operation.*
- *Full communication to all optical monitoring hardware, including source modules, detector modules and test glass changers.*
- *Uses the FilmMaker Project.*
- *Provides a full graphic user interface at the coating system for monitoring and controlling the coating run.*

FilmMaker2 and FilmDirector2 are both preinstalled on the Intellemetrics Controller Module which will be sited close to the coating chamber. Projects can be created from scratch or just modified on the Controller Module and immediately used for a coating run. Alternatively FilmMaker2 is supplied as a standalone product to install on a separate PC running under the Windows 7 operating system.

2. Preparing to Monitor and Control a Coating Run

2.1. Starting FilmDirector2

Power up the Controller Module. On the desktop you will see two shortcut icons as shown in the figure on the right, these being for FilmMaker2 and FilmDirector2.

Important Note: *Do not run FilmMaker2 and FilmDirector2 at the same time. Always close one before opening the other.*

To start FilmDirector2, simply double click on the FilmDirector2 icon to open the screen shown below.

Figure 2-1 The FilmMaker2 and FilmDirector2 desktop shortcuts.

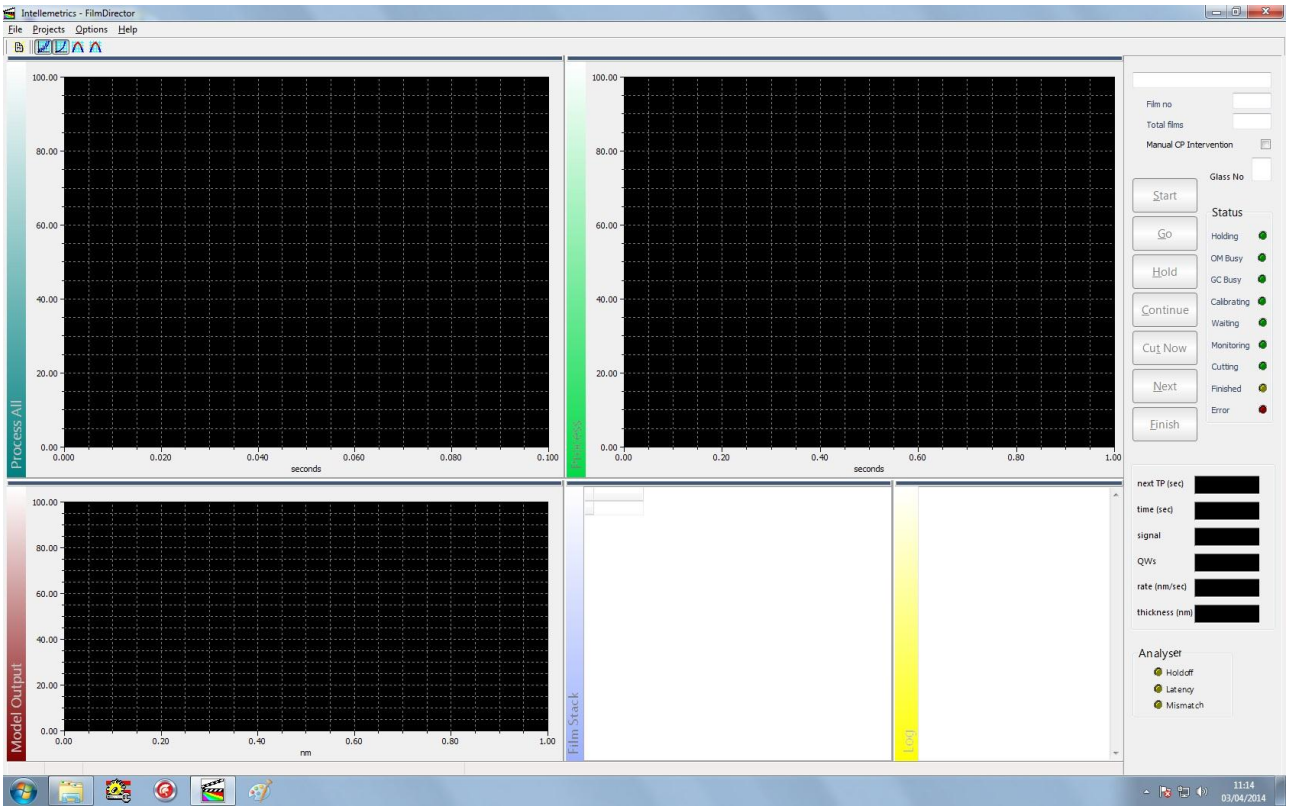

Figure 2-2 The FilmDirector2 screen layout.

On initial opening of FilmDirector2, the Controller Module will establish communication with the optical monitor hardware (Detector Module and Source Module and Test Glass Changer if applicable) and perform various initialisation tasks. During this stage you will see the following message on the screen. This may take a few minutes to complete.

Once the hardware initialisation message has cleared you are free to proceed.

Figure 2-3 Hardware Initialisation Message.

2.2. Importing a FilmMaker2 Project from Another PC

***NOTE:** If your project has already been registered on the Controller Module, or you created it on the Controller Module, then you can skip this section.*

We will assume you have created a project using FilmMaker2 on another computer. On that computer, with FilmMaker2 open, do the following;

- *Make sure the project has been modelled. If in doubt press Run Model.*
- *Select Projects | Copy This Project To Media.*
- *Copy the project to a memory device (e.g. a USB memory stick). This will create a copy of the project folder on the memory device.*

Now at the Controller Module do the following;

- *Copy the project folder on to the Controller Module. We recommend creating a folder called C:\Projects and creating a shortcut to this location on the desktop. Copying from the memory device is then just a case of dragging and dropping the project folder into this folder.*

- *Make sure that FilmDirector2 is closed before opening FilmMaker2.*
- *In FilmMaker2 select Projects | Copy Project from Media to FilmMaker. Select the desired project folder from the Projects folder.*
- *In FilmMaker2 select Projects | Open Existing Project and select the project name that you just registered.*
- *Press Run Model, and then close FilmMaker2*

The project is now registered on the Controller Module and ready for use by FilmDirector2.

If you wish to make changes to the project, then make sure FilmDirector2 is closed before opening FilmMaker2, opening the project, making the desired changes, pressing Run Model and then closing FilmMaker2.

2.3. Loading a Project

To load a project into FilmDirector2 do one of the following;

- *Select Projects | Open Project*
- *Press the Open Project icon on the main icon bar.* 

When a project is loaded then the screen will look something like this;

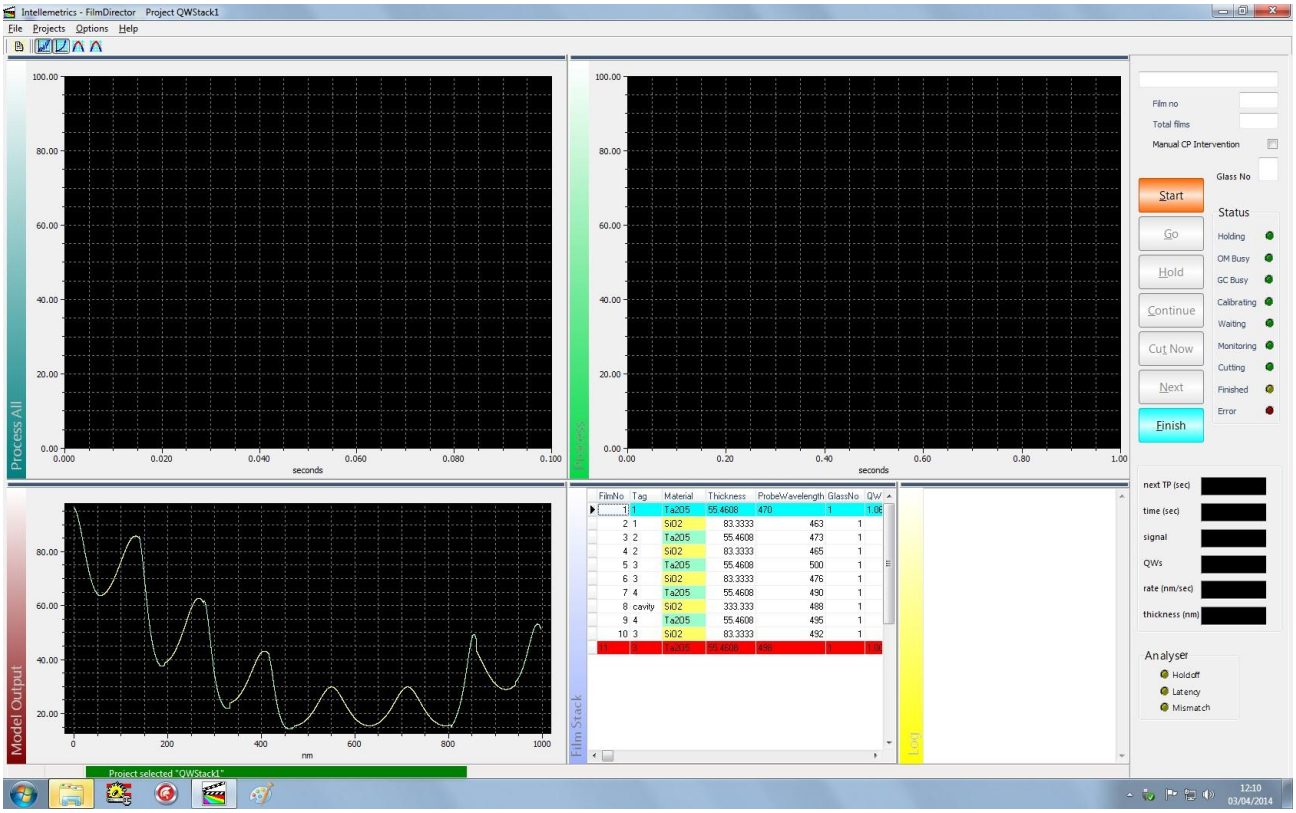

Figure 2-4 The FilmDirector2 screen with a project loaded.

The following points should be noted;

- *The project name has appeared at the top of the screen.*

- *The Model Output window shows the modelled T% or R% as a function of thickness with the colour coding as defined in the project.*
- *The Film Stack window shows a copy of the FilmBuilder window. The layer highlighted in light blue is the first layer that will be monitored, and the layer highlighted in red is the last layer to be monitored.*
- *In the Control Panel, the START and FINISH buttons have been highlighted indicating that pressing these buttons will have the relevant effect. Pressing any of the greyed out buttons will have no effect.*

The project is now ready to be run.

2.4. Manually Performing a Run

The Control Panel buttons can be operated manually simply by placing the mouse cursor over them and pressing the left mouse button. FilmDirector2 will only respond to button presses if the button is illuminated. If the button is greyed out then FilmDirector2 will not respond. The set of illuminated buttons is context sensitive and will automatically change during a process reflecting the present state of the system and what inputs can be accepted.

The most simple things you can manually do before a run has started are press the START button or press the FINISH button.

2.5. Automatically Performing a Run

Generally an optical monitor will be integrated into the control system of the coating chamber so that a multilayer coating run can be monitored and controlled from start to finish in a completely automated fashion. In this case the START button is 'pressed' by the coating chamber control system sending an McSTART command to the Controller Module via the digital IO communications interface. Manually pressing the START button and sending an McSTART command will have exactly the same effect.

In this way, all of the manual button presses can be replaced by automated digital IO commands from the coating chamber control system.

Note that during an automated coating run you can still manually press any of the illuminated buttons to override the coating chamber control system.

2.6. Changing the Start and Finish Layers

By default FilmDirector2 will assume you want to start monitoring on the first layer and finish after the final layer. However, on rare occasions you may wish to override this and start or finish on other layers. To do this you need to;

- *Place the mouse cursor within the Film Stack window and press the right mouse button.*
- *Select Edit First Film or Edit Last Film from the drop down list as shown in the image on the right.*
- *Select the relevant layer from the drop down list.*

Once selected, that layer will appear highlighted in light blue or red as appropriate.

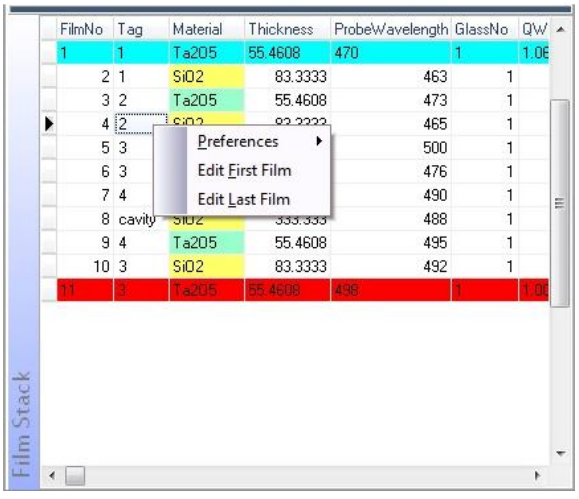

Figure 2-5 Changing the First and Last layers.

3. Sequence of Events During a Run

The following sections describe the generic sequence of events during a run.

3.1. Initial Calibration

After the START button has been pressed (or an McSTART command has been received) the optical monitor will do the following;

- *The Control Panel will show the assigned Data File name, the film number, the total number of films and the starting test glass number as shown in the image on the right.*
- *The START button will be greyed out to indicate that pressing it again (or resending another McSTART command) will have no effect.*
- *The OM Busy and GC Busy LEDs will briefly flash to indicate the respective state of the optical monitor.*
- *The Calibrating LED will become illuminated indicating that the optical monitor is performing its initial calibration routine.*
- *The Log window will be populated with a record of log events.*

Figure 3-1 Control Panel after pressing START.

The initial calibration routine consists of the following;

- *FilmDirector2 notes all of the wavelengths that will be used in the present project and creates an ascending list from them.*
- *The monochromator is moved to the lowest wavelength in the list, and any required order sorting filter moves are made.*
- *The detector module performs a number of measurements in order to calibrate the signal level at the present wavelength to the T% or R% expected on a bare test glass in the present monitoring configuration and at the present wavelength.*
- *From the above it can calculate and record suitable gain levels and calibration factors.*
- *It will then move to the next wavelength in the list and change order sorting filters if needed and perform a calibration step for this wavelength.*
- *When calibrations at all the wavelengths in the list have been performed then it will return to the wavelength and order sorting filter setup designated for layer 1.*

The Log window will show something similar to the following;

```
03/04/2014 13:20:15: wavelength 410nm
03/04/2014 13:20:16: CFAvCount 5
Calibrate to 96.19%
03/04/2014 13:20:52: wavelength 470nm
03/04/2014 13:20:53: CFAvCount 5
Calibrate to 96.19%
03/04/2014 13:21:22: wavelength 410nm
03/04/2014 13:21:23: gain 0dB
```

The Log window above shows that there are two wavelengths in the project, namely 410nm and 470nm. It starts by moving to 410nm and performing a calibration to 96.19%. Once completed, it then moves on to 470nm and repeats the process. When it has calibrated at all of the desired wavelengths then it returns to the wavelength of the first layer and sets the predetermined gain level.

The information in the Log window is automatically saved to the Run Data folder when the FINISH button is pressed.

Note that the time taken to perform the calibration routine can vary from system to system and from project to project. The main factors effecting the calibration routine duration include;

- *The number of wavelengths in the project. The more wavelengths you have then the more calibration iterations are required.*

- *The value of CFAvCount. This factor is defined in the project. See the FilmMaker2 manual for more information.*
- *The sample rate of the monitoring system. For systems monitoring a stationary test glass the sample rate is generally between 2 and 3 Hz. However, for systems where monitoring is performed on a rotating calotte then the sample rate is determined by the rotation rate of the calotte. If this is low (e.g. 0.2Hz) then calibration will take proportionally longer.*

3.2. Waiting For Go

Once the calibration routine has completed, the following will happen;

- *The Go button will become illuminated and the Waiting LED will flash. These indicate that the optical monitor is now waiting for either the Go button to be pressed or for an McGo command to be sent from the coating chamber control system.*
- *The live signal level will be indicated in the Signal display box below the control panel buttons.*

3.3. Monitoring

When the Go button is pressed, or the McGo command is received, the following will happen;

- *The Go button will be greyed out, and the Hold and Cut Now buttons will become illuminated.*
- *The Monitoring LED will flash indicating that the optical monitor is now monitoring the live signal level.*
- *The Analyser area at the bottom of the Control Panel will indicate if the trace is in HoldOff or Latency, or whether an analyser mismatch is detected.*
- *The Process chart will show the live measurements. Auto scaling of both axes is permanently on.*

Figure 3-2 Data viewing icons. Left to right: Raw Data, Filtered Data, Fitted Data.

The Process chart can show any combination of the raw data, the filtered data and the fitted data (if the Fitter Analyser Modes are used for the present layer). The information shown can be selected in the following ways;

- *From the top line menu select Options | View data.*
- *Press one or more of the icons on the main icon bar as shown on the right.*

3.4. Hold and Continue

When the optical monitor is in a monitoring mode the Hold button is illuminated indicating that pressing this button, or sending an McHold command, will put the system into a hold state. When in the hold state the following will happen;

- *The monitoring will stop.*
- *The Hold button will become greyed out and the Continue button will become illuminated.*
- *The Holding LED will flash.*
- *The Log window will record a "Process Holding" event.*

The only ways to exit from the Holding state are;

- *Pressing the Continue button or sending an McContinue command from the coating chamber control system. In either case the monitoring will seamlessly continue.*
- *Pressing the Finish button or sending an McAbort command from the coating chamber control system. In either case the project will be aborted all screens cleared and all data and log files written.*

3.5. Cutting The Layer

The method used to decide when to cut the layer is generally determined in the project at the FilmMaker2 stage. However, for clarity we shall review then below;

3.5.1. Automatic Optical Monitor Cut

The default cut method in FilmMaker2 is Optical. In this mode, during the monitoring process FilmDirector will analyse the live signal to determine the cut point condition based on the characteristics of the optical signal as a function of time. When the endpoint criteria is satisfied, FilmDirector2 cuts the layer.

The Log window will show the following events;

```
CutPoint
03/04/2014 13:20:16: Cutting
```

3.5.2. Cut On Time

If Time has been selected as the cut method for a particular layer in the project, then FilmDirector2 will cut the layer after the Time has elapsed since the beginning of the layer.

The Log window will show the following events;

```
CutPoint
03/04/2014 13:20:16: Cutting
```

3.5.3. Manual Cut

If Manual has been selected as the cut method for a particular layer in the project, then FilmDirector2 will monitor the layer and wait for an external cut signal to be received. This cut signal can take the form of pressing the Cut Now button or the Controller Module receiving an McCut command from the coating chamber control system.

The Log window will show the following events;

```
03/04/2014 13:20:16: cut by user
03/04/2014 13:20:16: Cutting
```

3.5.4. Manual Cut Point Intervention

In the upper section of the Control Panel is a tick box labelled Manual CP Intervention. By default this box is unticked, and this is the recommended state for the majority of situations. It can be ticked or unticked at any time during the process. If Manual CP Intervention is ticked, and the present layer is set to cut on Optical, then the optical monitor will do the following;

- *It will continue monitoring as normal and analysing the live signal looking for the optical cut point condition.*
- *When it anticipates that the cut point condition will be achieved in around five seconds then the manual CP Intervention message shown on the right will appear.*
- *The timer bar will move from left to right in around five seconds.*
- *If you do nothing then the timer bar will reach the right-hand side and the layer will cut.*

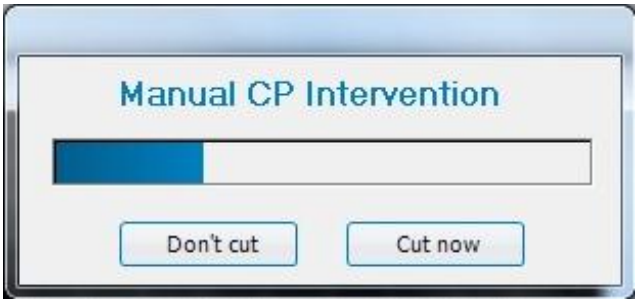

Figure 3-3 Manual CP Intervention message box.

- *If you press the Cut Now button then the layer will cut immediately.*
- *If you press the Don't Cut button before the timer bar reaches the right hand side then the message will remain on the screen, the timer bar will halt, and the optical monitor will continue monitoring the live signal until you press the Cut Now button.*

The Log window will show the following events;

```
03/04/2014 13:20:16: cut by user
03/04/2014 13:20:16: Cutting
```

From the above you can see that the Manual CP Intervention can be used to override the optical monitor cut decision and allow the monitoring to continue indefinitely.

3.5.5. Cut from an External Source

As described above, the optical monitor project can be set up to expect a cut from the characteristics of the optical monitor signal, time or manual. In any of these modes an external input in the form of either pressing the Cut Now button on the Control panel, or sending an McCutNow command from the coating system control system will result in the layer being cut.

The Log window will show the following events;

```
03/04/2014 13:20:16: cut by user
03/04/2014 13:20:16: Cutting
```

3.6. Next

Whenever a layer is cut by any of the methods above the following will happen;

- *The monitoring stops.*
- *The Cutting LED briefly flashes.*
- *The Next button becomes illuminated.*

Assuming that the next layer in the film stack is being deposited on the same test glass then pressing the Next button, or receiving an McNext command from the coating chamber control system results in the following happening;

- *The film number cycles to the next layer number.*
- *The wavelength and order sorting filters change if required.*
- *Gains are changed if required.*
- *The light blue highlighted layer in the Film Stack window moves to the next layer.*
- *The signal trace in the Process chart window will be transferred to the Process All window.*

The following messages are written to the Log window;

```
03/04/2014 13:25:16: Next Film 2
03/04/2014 13:25:16: AcqRate 1Hz
03/04/2014 13:25:17: Wavelength 410nm
03/04/2014 13:25:16: gain 0dB
```

If the next layer is being monitored on a new test glass then the following additional steps will happen;

- *The test glass number will be indexed.*
- *A calibration routine will be performed on the new test glass at each wavelength that will be used on that test glass.*

After the above has been completed, the Go button will become illuminated and the Waiting LED will flash. This indicates that the system is ready to monitor the next layer whenever it is instructed to.

3.7. At the End of the Run

When the final layer is cut the following will happen;

- *The Finish button will be illuminated.*
- *The Finished LED will flash.*

All of the data will remain on the screen until the Finished button is pressed, or an McAbort command is received from the coating chamber control system. When this happens all of the data is cleared from the screen and any final data files and log files are written to the hard disk.

The system is now ready for a new run.

4. Using the Data Server

When FilmDirector2 starts, it opens two servers that will run at all times in the background, namely the Data Server and the Digital IO Server. Icons for these two servers appear in the notification area of the Windows taskbar, as shown to the right.

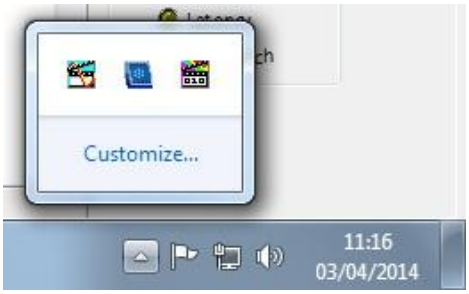

Figure 4-1 Data Server (left-hand icon) and Digital IO Server (right-hand icon) in the Windows notification area.

> **NOTE:** The Digital IO Server controls all communications between the Controller Module and the Source and Detector Modules, and also between the Controller Module and the coating chamber control system. These communications are set up at the installation stage and should not be changed without consulting Intellemetrics. The Digital IO settings are discussed in the "IL55x Digital IO Integration Manual". The discussion here shall therefore be restricted to the Data Server.

4.1. Data Server Overview

The Data Server is running whenever FilmDirector2 is running. For the vast majority of the time the Data Server can run in the background and you don't need to concern yourself with its operation. However, there are some useful features within it that you will want to use from time to time. The main uses will be in general checking of the energy levels before committing to a long coating run, or in optical alignment of the system.

To view the Data Server, double click on the Data Server icon in the notification area…

This will cause the above icon to appear on the Windows task bar. Click on the icon in the Task Bar and the following window will appear;

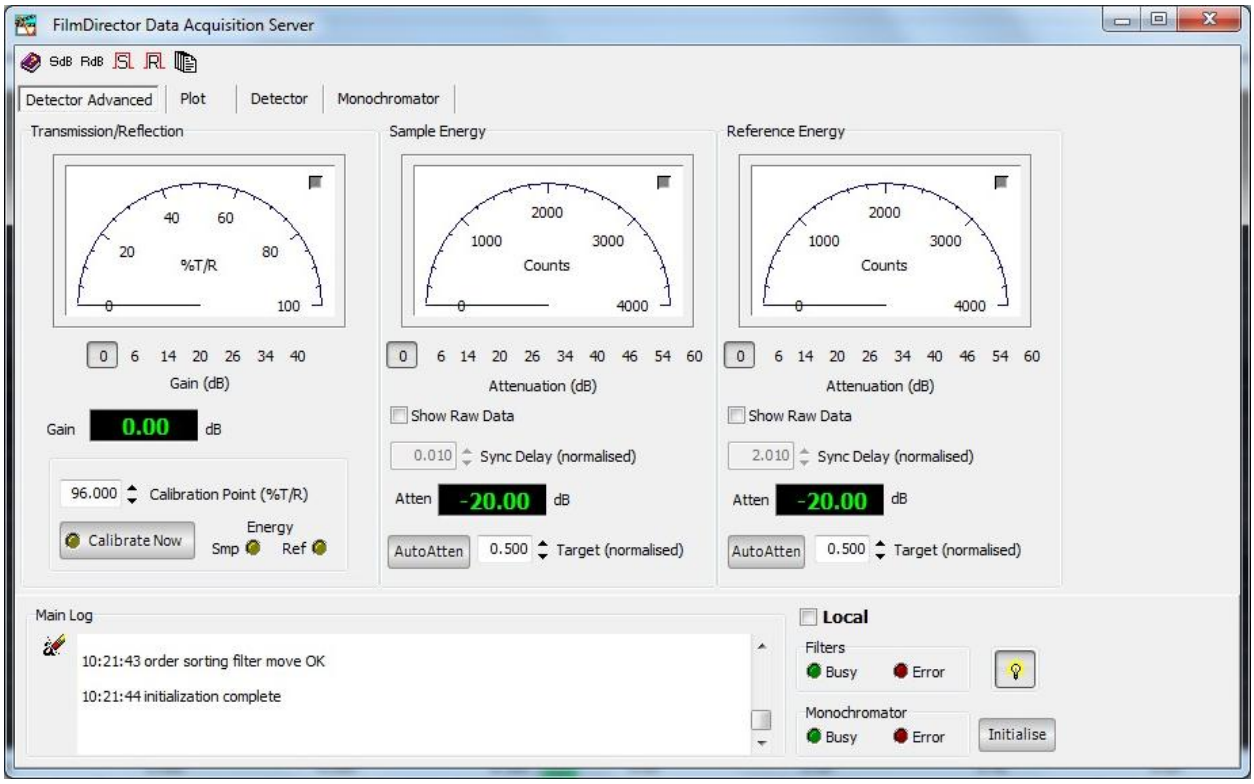

Figure 4-2 Data Server.

At this point it is worth describing the main features of the Data Server. Along the top of the window are four tabs, namely Detector Advanced, Plot, Detector and Monochromator. The Detector Advanced tab is the one that we will be using the most, so we will describe that a bit further.

Below the tabs are three main sections; Transmission/Reflection, Sample Energy and Reference Energy.

At the bottom of the window is a Main Log which shows useful information which we will describe in the following sections.

NOTE: Do not adjust the Target (Normalised) values. These are factory set.

4.2. Checking Energy Levels

4.2.1. Overview

One of the main tasks you will use the Data Server for is to check the energy levels in the Sample and Reference paths. You might want to do this before a long coating run to check that the energy levels are OK.

Make sure of the following before you proceed;

- *On most chambers, the optical alignment is optimised when the chamber is under vacuum. Therefore make sure the chamber is under vacuum.*
- *Make sure a suitable test piece is in the correct position. If you are using a test glass changer then make sure a suitable test glass is in the monitoring position. If you are monitoring a test piece on a moving calotte then make sure the test piece is in place and the calotte is rotating.*
- *Make sure the optical path is clear. No shutters blocking the optical path etc.*

4.2.2. Procedure

The first thing we want to do is to move the monochromator to a suitable wavelength to check the energy levels. As a starting point it is best to use a wavelength somewhere near the middle of the range of your

particular detector module. For instance, if you have an IL552 Detector Module with a wavelength range of 400nm to 1100nm, then taking an energy level measurement at 800nm would be sensible.

To move to a given wavelength do the following;

- *Click on the Monochromator tab.*
- *In the Monochromator section enter the desired wavelength and then press the Go To WL button.*

The Main Log will show the following;

```
10:33:11: moving to 800nm

10:33:18: order sorting filter move OK

10:33:21: monochromator move OK
```

Once you see the “monochromator move OK” message then you can go back to the Detector Advanced tab. In the Transmission/Reflection section there is a data entry point for Calibration Point (%T/R). In this box you need to enter the approximate signal level that you will be calibrating to. This depends on the test piece that you are monitoring and the monitoring configuration. A few examples are shown below;

- *A glass test piece in transmission mode then calibrate to 92%.*
- *A double side polished glass test piece in reflection then calibrate to 8%.*
- *A back side roughened glass test piece in reflection then calibrate to 4%.*
- *A silicon test piece in reflection then calibrate to 30%.*

The actual calibration values that you use are not too important, the main thing is that you monitor them at the same values each time so that you know if the energy levels are ‘good’ or are getting low for some reason.

Now, to perform the calibration, press the Calibrate Now button that is situated just above the Main Log window. You will notice the following happening;

- *The Reference Energy Attenuation (dB) value will start at -120dB and step down in approximately 6dB steps and then fine tune its value.*
- *The Sample Energy Attenuation (dB) value will start at -120dB and step down in approximately 6dB steps and then fine tune its value.*
- *The Main Log will show a number of messages culminating in “calibration done”.*

Once you see the “calibration done” message then the Sample and Reference Attn figures represent the energy in the sample and reference beams at the specified wavelength and the specified calibration value.

4.2.3. What Energy Values Should I Get?

The energy levels you should get mainly depend upon the wavelength. During installation and once the system has been fully tested and aligned, Intellemetrics will use a setup routine to calibrate your system at a number of wavelengths across the range of the detector module. These calibration energy values will be saved to a text file which will be located on the desktop of the Controller Module. The file name will be something like “IL55x_FinalTest.txt”. Double clicking on this file will show a table of values. The text below shows a small section of one such file. Each line of the table shows the wavelength, the calibration point, the signal attenuation, the signal target, the reference attenuation, the reference target and the MSD% noise value. When you do a spot wavelength calibration using the Data Server you want to compare the sample and reference attenuation levels with the ones in the table at the given wavelength.

```
Calibrating to,96%,In transmission

Wavelength nm,Calibrated to %,Signal Atten dB,Signal Target,Ref Atten
dB,Ref Target,Noise MSD%
```

```
400, 96.11, -12.20, 0.50, -5.90, 0.50, 0.16
410, 95.90, -14.30, 0.50, -8.40, 0.50, 0.19
420, 96.01, -16.30, 0.50, -8.80, 0.50, 0.17
430, 95.83, -17.70, 0.50, -10.40, 0.50, 0.16
440, 95.90, -19.60, 0.50, -11.80, 0.50, 0.12
450, 96.00, -21.50, 0.50, -14.20, 0.50, 0.14
460, 96.09, -23.10, 0.50, -15.90, 0.50, 0.12
470, 95.95, -24.30, 0.50, -17.00, 0.50, 0.12
480, 95.79, -25.40, 0.50, -18.50, 0.50, 0.11
490, 96.03, -26.70, 0.50, -19.40, 0.50, 0.12
500, 95.95, -27.40, 0.50, -20.20, 0.50, 0.11
510, 96.01, -28.20, 0.50, -21.10, 0.50, 0.11
520, 95.88, -29.00, 0.50, -22.00, 0.50, 0.10
```

4.2.4. What Do I Do If the Energy Level is Too Low?

There are two types of low energy. The first is where the calibration process proceeds to completion, the Main Log window says “calibration done”, but the sample and/or reference values are lower than expected. If the values are maybe 5dB lower than expected then it should be fine to continue. The whole point of the calibration process is to determine how to scale the signal and reference energy levels that are available into the correct T% or R% values, and FilmDirector2 will perform a detailed calibration at the beginning of the run.

However, if the energy levels are excessively low (maybe 10dB lower than expected) then although calibration will proceed normally, the low energy available will result in a reduction in signal to noise ratio. To improve matters it is worth investigating the reason for the lower than expected energy levels and hopefully improve them.

The second type of low energy is essentially no energy at all, or too low to even calibrate. This is indicated by the Sample or Reference Attenuation value showing -2.00dB (the lowest value it can show) and the Main Log window showing “calibration error…sample energy too low”.

The following table shows you the possible scenarios and resulting actions to take.

Energy Levels	**Interpretation**	**Actions**
Sample energy is low but the Reference energy is OK.	The fact that the reference energy is OK indicates that the source and detector modules are working OK and that the bulb is OK.	Check for problems in the Sample path. This could include something blocking the path or coatings on the windows. Check the test glass alignment and that the correct test glass is being used. Check optical alignment of the source and detector modules.
Sample energy is OK but the Reference energy is low.	The fact that the sample energy is OK indicates that the source and detector modules are working OK and that the bulb is OK.	Check for problems in the reference path. This could be a broken, damaged or loosely fitted optical fibre
Sample and Reference energy levels are both slightly lower than expected.	This could indicate that there is a problem with both the Sample and Reference paths (see above). It could also suggest that the bulb is deteriorating.	Check for the above symptoms. Check the bulb for discolouration and change the bulb if necessary.

Sample and Reference energy levels are both much lower than expected.	This usually indicates that the bulb has deteriorated or is not switched on.	Check the bulb is switched on. Check the bulb for discolouration and change the bulb if necessary.

If you are still having problems then contact Intellemetrics for support.

4.3. Optical Alignment

Optical alignment is covered in detail in the Intellemetrics document “Five Stage Optical Alignment.pdf”.

5. View Options

All view options (apart from zooming) will be saved on closing and will be remembered when reopening FilmDirector2.

5.1. Graph Zooming

Zooming is available in all graph windows. Place the mouse cursor anywhere within a graph window, press the right mouse button and select a zoom mode as shown in the image on the right.

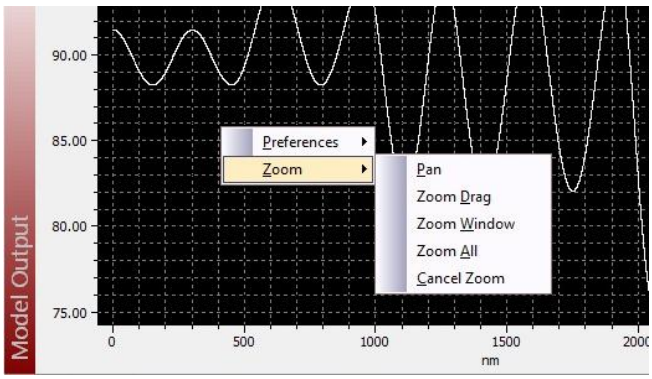

Figure 5-1 Graph Zooming Modes

- *Pan: Hold down the left mouse button and drag the graph in any direction. Useful to move around an already zoomed area.*
- *Zoom Drag: Hold down the left mouse button and drag in any direction. Moving up will zoom in the y-axis direction, moving down will zoom out in the y-axis direction. Moving left or right will have a similar effect on the x-axis scaling.*
- *Zoom Window: Place the mouse cursor in the top left hand corner of the zoom region, hold the left mouse button down and drag a rectangle the right and downwards to create a zoom region.*
- *Zoom All: Select this to revert to full scale in both axes.*
- *Cancel Zoom: Cancels the zooming modes.*

5.2. Copying and Saving Chart Data

Copying graph windows is available in the ProcessAll and Process windows. Place the mouse cursor anywhere within a graph window, press the right mouse button and select a copy mode as shown in the image on the right.

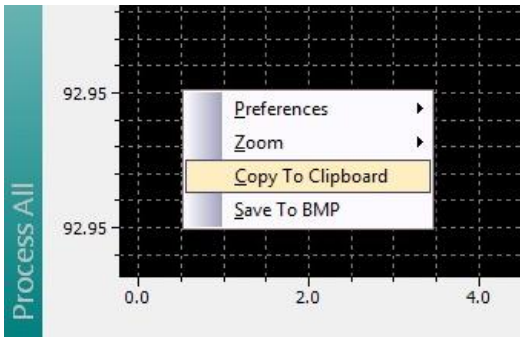

Figure 5-2 Copying Graphs

- *Copy to Clipboard: Copies the graphic window to the Windows clipboard. It is then immediately available to paste into other packages.*
- *Save to BMP: Saves the current graphic window to a Windows Bitmap format. A Windows browser window will open allowing you to allocate a filename and location.*

5.3. Window Preferences

Changing the options for any of the graphic display windows is possible. Place the mouse cursor anywhere within a graph window, press the right mouse button and select Preferences as shown in the image on the right.

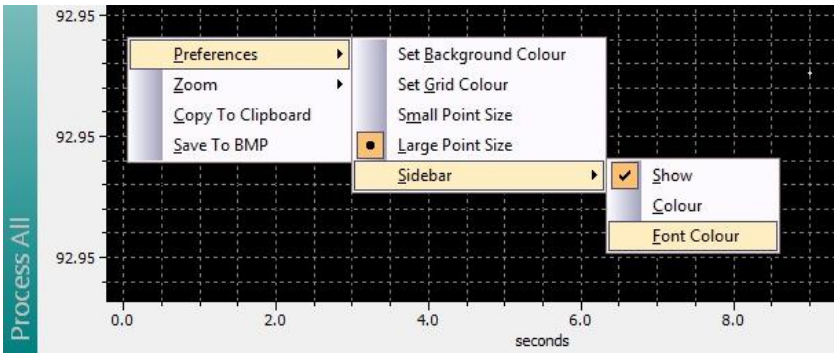

Figure 5-3 Window Preferences

- *Set Background Colour: Allows you to change the background colour of the present graphic window. In the example on the right (which is the default setting) the background is black.*
- *Set Grid Colour: In the example the grid is white.*
- *Small Point Size or Large Point Size: In the example the point size is set to large.*
- *Sidebar: These options refer to the vertical coloured sidebar. In the example above it is the Process All sidebar. The options allow you to either show or hide the sidebar, to change its colour and to change the text colour.*

5.4. Window Sizing

The main area of FilmDirector contains five editable graphic windows (plus the Control Panel which is fixed). The contents of each window can be changed and the size of each window can be changed, so you can change the position and size of the things that are most important to you.

To change the size of a window slowly move the cursor over the interface between two windows. The cursor will change to a symbol, at which point press the left mouse button and drag the window edge to resize the desired winc

5.5. Selecting Window Contents

The default configuration of FilmDirector2 has the various graphic windows in various positions. You can swap these around to give the view that you want. This is a case of closing two (or more) windows and then opening other's in their place.

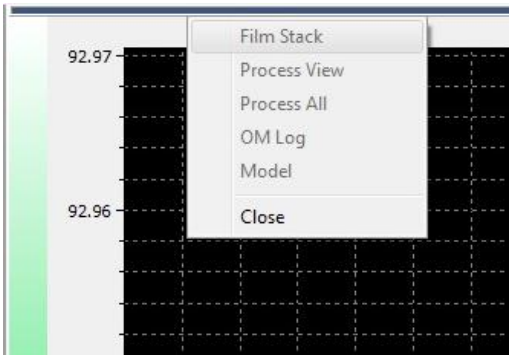

Figure 5-4 Changing Window Contents

Start by placing the mouse cursor over the thin blue bar at the top of a particular window. When the cursor changes from the standard arrow to an upward pointing hand () then press the right mouse button to open the drop down menu shown in the image on the right.

The drop down menu contains the names of all of the available windows. In the image on the right they are all light grey indicating that all of the windows are presently being used. Close the present window by selecting Close. If you closed the Process View window then this window name will appear in black.

Repeat the above process to close at least one other window. Now you can allocate one of the available window names to a particular window by selecting it from the drop down menu.

5.6. Control Panel Button Colours

You can edit the Control Panel button colours by selecting Options | Button Colours. The panel on the right will appear. Click on any button and select a new colour using the Button Colour drop down menu.

Figure 5-5 Control Panel Button Colours

6. File Locations

All run data files (data files and log files) will automatically be saved to the following folder;

C:\Users\Public\Documents\Intellemetrics\FilmDirector

The run data for each layer is written to disk when FilmDirector2 progresses to the next layer. The log files are written when the run finishes.

Registered projects are automatically saved to the following folder;

C:\Users\Public\Documents\Intellemetrics\FilmMaker\Projects*project_name*

Projects are written to this folder during the registration process, i.e. when you select Process | Copy Project from Media to FilmMaker from within FilmMaker.

Note: If you copy a project from another PC onto the Controller Module, then copy it into a default location, such as a folder on the desktop called Projects. When you select Process | Copy Project from Media to FilmMaker, the project is checked and then registered with the FilmMaker and FilmDirector databases, and is copied to the default location described above. If you open the project in FilmMaker or FilmDirector then it is the registered copy in the default location that is being opened. The original copy on the desktop is now redundant and can be deleted if you wish.

Registered public materials databases are automatically saved to the following folder;

C:\Users\Public\Documents\Intellemetrics\FilmMaker\Materials*material_database_name*

Note: The above notes on registered Projects also applies to registered Public Materials Databases.