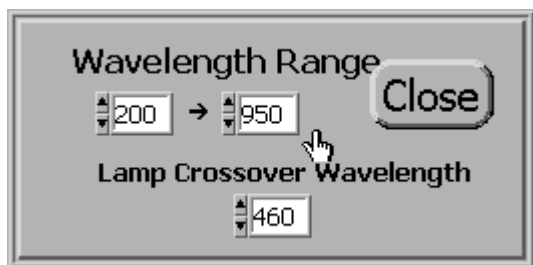


## Timed Acquisition

***This feature of the 400 Series Spectrophotometer allows for data collection over a specified time range with data points occurring at certain time intervals. Acquired data is graphically presented in one of two formats, namely **FULL SPECTRUM** or **DISCRETE WAVELENGTHS**. Each of these will be addressed individually as the function of each varies slightly.***

### Introduction

Before beginning a timed acquisition, the specified wavelength range must to be selected. This will designate what spectral range needs to be examined by the timed acquisition. This can be done from the main panel under the **Operate** drop down menu and selecting **Wavelength Range**. The following window in Figure 1 will appear. Simply select the wavelength range of interest and select the crossover wavelength. The crossover wavelength designates the wavelength at which the deuterium and tungsten measurements meet. A typical crossover wavelength is 460nm. Now the timed acquisition feature can be activated.

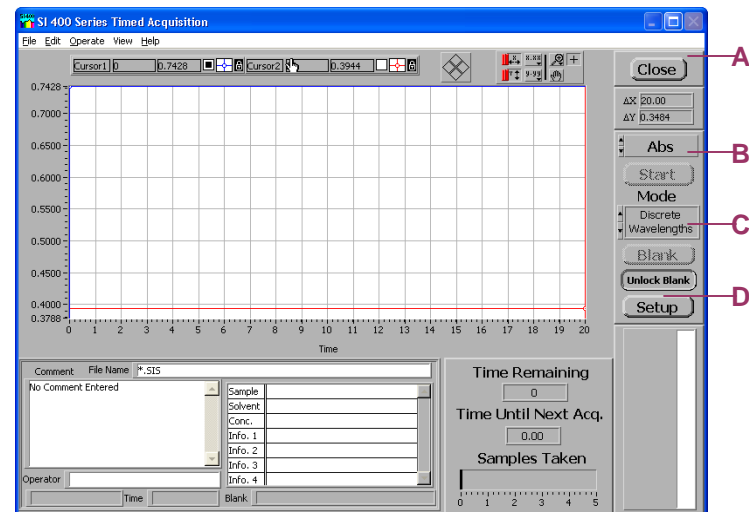


**Figure 1: Wavelength range window**

### Timed Acquisition Panel

This section will introduce the main features of the Timed Acquisition front panel. Select **Operate** from the main front panel and then

**Timed Acquisition.** A new window will open which is the Timed Acquisition interface panel located in Figure 2. Each feature is pointed out and briefly described.



**Figure 2: Timed Acquisition Interface Panel**

- A) This button exits the timed acquisition feature.
- B) Using the scrolling arrows on the left of this button switches the data type recorded. The options are **Absorbance**, **Intensity**, **% Reflectance** and **% Transmittance**. The graph output will automatically change to accommodate the information type desired.

C) The scrolling arrows on the left side of this button switch between **Discrete Wavelengths** and **Full Spectrum**.

D) Setup allows for the specific time period, time intervals and wavelengths for data acquisition options.

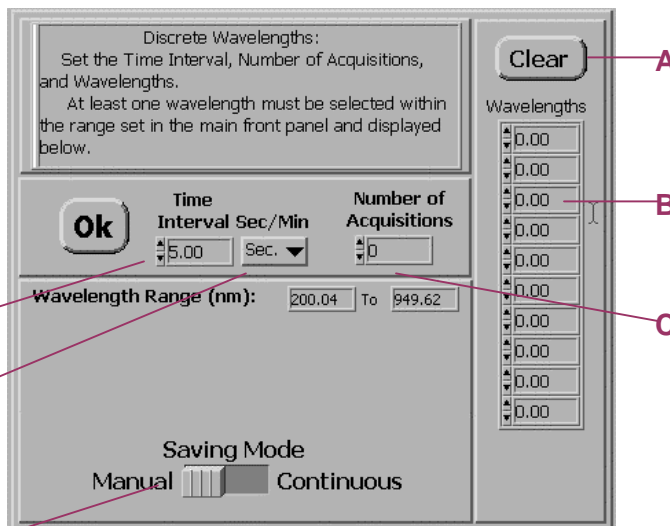
D) The time interval can be entered manually or scrolled with the arrows

E) This feature allows for the increment of time desired for the time interval, either seconds or minutes

Two options for saving the obtained data are available, Manual or Continuous.

### Discrete Wavelengths

This option for the wavelength type allows the user to enter up to ten wavelengths of interest. In the **Setup** window, the option to enter the desired wavelengths is provided. Selection of wavelengths can be performed by clicking in the individual boxes and typing the values or by using the scrolling arrows on the sides of the individual boxes. The **Wavelength Range** reconfirms the wavelength range selected before entering the timed acquisition feature. In Figure 3 below, the different features are indicated and described below.



**Figure 3. Discrete Wavelength Setup**

A) Clicking the clear button deletes all the entries made in the wavelengths table

B) Left clicking the mouse in the box indicated allows for a wavelength value to be entered by the user. The up/down arrows to the left of the indicated box scrolls through wavelength values.

C) Like the wavelength boxes, the number of acquisitions can be entered manually or by scrolling through the preset values

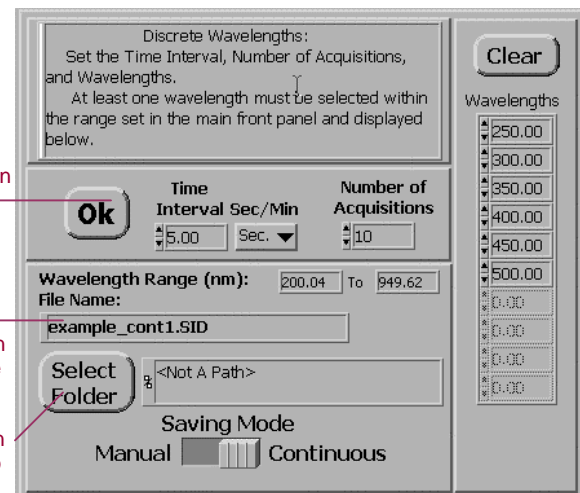
### Saving Mode

#### Manual:

When the manual mode for saving spectra is selected, the user must save the acquired data after the timed acquisition has completed. This is done by going under **File** in the main Timed Acquisition panel and selecting **Save**. Here the directory and the file name must be selected. The setup window will look the same as Figure 3.

#### Continuous:

The setup window for the continuous save differs from that in of the manual mode as seen in Figure 4 below. The spectra is automatically saved to the selected file. Once continuous saving mode is selected, the option to select a folder appears. Click this option and designate a folder to save the recorded data to. Choose the option **Select Cur Dir** to select the desired directory as shown in Figure 5. To exit the setup mode, click **OK** to begin timed acquisition.

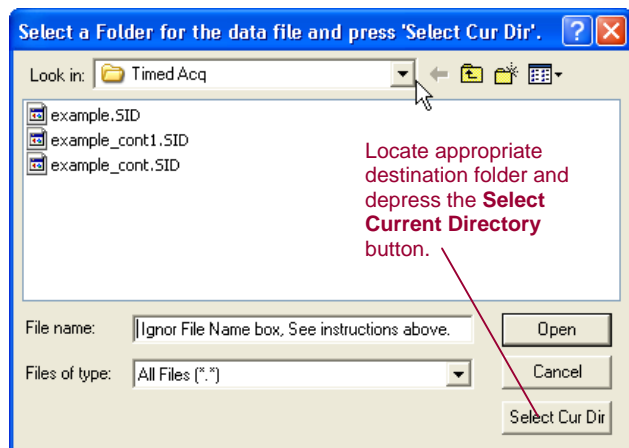


**Figure 4. Discrete Wavelength Destination File Path**

Left click this button to exit setup and begin timed acquisition after the appropriate settings were chosen

A file name must be entered after the **Select Folder** option is selected and a file path set

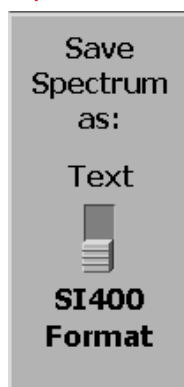
Selecting this option leads to Figure 5 to choose the desired folder



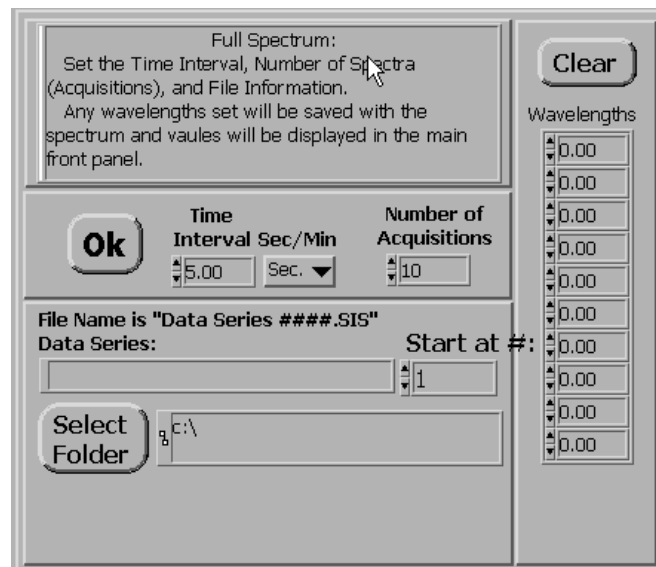
**Figure 5.** Windows Directory Menu

### Full Spectrum Acquisition

When the Full Spectrum option is selected in Timed Acquisition, the measured data will be saved for all wavelengths simultaneously. The main panel of the Timed Acquisition has the option to save the spectrum as Text or SI400 Format, located in the lower right corner. The additional option is depicted in **Figure 6**. It is suggested to save the data as the SI400 format; the data can be exported as a text file at a later time.

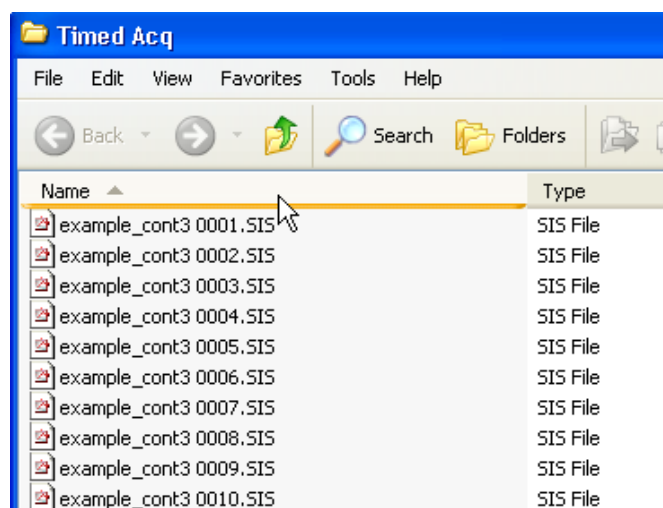


**Figure 5.** File Save Format



**Figure 7.** Full Spectrum Destination File Path

The destination file path is selected in the same manner as indicated in Figure 4 and Figure 5.



**Figure 8.** Saved File Folder Format

Saving the spectra in the Full Spectrum mode is much like the Continuous mode of the Discrete Wavelengths above. A directory folder must be selected and the file name indicated. The difference is that a file is created for every time interval in which data is acquired. In other words, the number of files created equals the number of the acquisitions taken. The **Start at #:** feature indicates the number of the first file name. The file name will increment as the recorded data is automatically saved to the file. An example of the resulting file names for **Figure 7** is shown in **Figure 8**.

After successfully acquiring spectra using the timed acquisition feature, the resulting spectra are sequentially numbered and reside in the folder specified. Each spectrum is sequentially numbered and corresponds with the acquisition number specified in Figures 4 and 7. Users can now choose to view the spectra within the SI 400 Series Software or export the entire folder to Excel for multiple spectrum viewing.