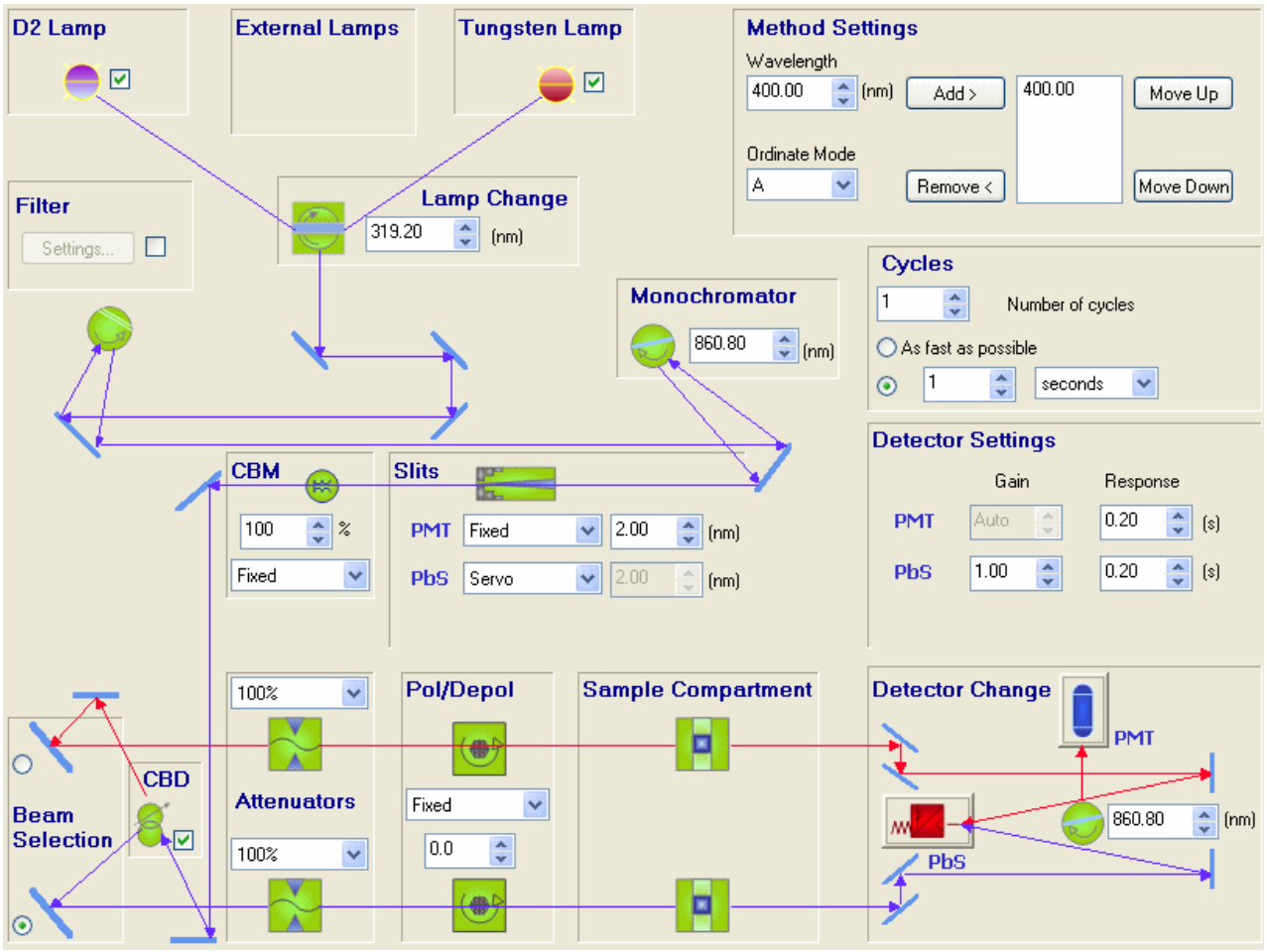
High Performance Instruments – Data Collection

Show All | Hide All

The picture below shows the Data Collection page for High performance instruments. Only the Method Settings vary between Methods, and depend on the type of task you are creating. Please see Scan Task Data Collection, Timedrive Task Data Collection, Wavelength Task Data Collection, Thermal Denaturation Task Data Collection, Polarization Task Data Collection or Manual Control Data Collection for information about the Method Settings for the selected Method.

NOTE: Scanning Quant and Wavelength Quant are derivatives of Scan and Wavelength Program, respectively, and so are not covered separately here.

Click on an area of the picture for further information about the generic settings on the Data Collection page, or select the appropriate link below.



NOTE: If you enter a value outside the defined limits in a field, the field turns red until an acceptable value is entered. You are still able to access other nodes of the Folder List leaving invalid values on this page.

NOTE: The settings on the Data Collection page MUST NOT be altered when the Sample Table is being run.

D2 Lamp

The **D2 Lamp** selection is available for all High performance instruments. The check box allows the lamp to be selected or deselected for methods, allowing methods to be run without the lamp being switched on.

- Select the check box to enable the D2 Lamp.

NOTE: If you wish the lamps to be turned off when the instrument is not in use, this can be set within Manual Control.

If the **D2 Lamp** is turned off (deselected), the **Lamp Change** is automatically grayed.

External Lamps

The External Lamp selection is available for all High performance instruments. The check box allows the lamp to be selected or deselected for methods, allowing methods to be run without the External Lamp switched on.

NOTE: If you wish the lamps to be turned off when the instrument is not in use, this can be set within Manual Control by deselecting the checkbox.

1. Select the check box to enable the External Lamp.
2. Select the type of lamp from the drop-down list.

NOTE: The drop-down list is empty unless a lamp has been added in the Instrument properties dialog.

Tungsten Lamp

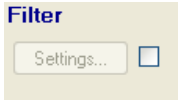
The check box allows the lamp to be selected or deselected for methods, allowing methods to be run without the lamp switched on.

NOTE: If you wish the lamp to be turned off when the instrument is not in use, this can be set within Manual Control.

- Select the check box to enable the Tungsten Lamp.

If the **Tungsten lamp** is turned off (deselected), the **Lamp Change** is automatically grayed.

Filter



This Filter setting only appears if you have Service permission. Selecting Filter and clicking settings displays the Filter Change Settings dialog.

The Filter Change Settings dialog displays the current filter table settings that can be modified, and is mainly for use by PerkinElmer Service Engineers. You should not alter anything unless you fully understand the implications of doing so.

Filters are held on a disc within the instrument, which moves to the correct position when the appropriate wavelength is reached. The disc can rotate in one direction only. The table below shows how the filter is related to the position (defaults). Positions 8, 9, and 10 are NIR filters, and are only available on the Lambda 750, 900, 950 and 1050 spectrometers.

Position	Wavelength (nm)	Filter
1	150	Glass Filter
2	319.2	T=100%
3	379.2	UG11
4	562.4	BG38
5	690.4	OG550
6	810.4	RG665
7	1190.4	RG780
8	1670.4	T-LPG-1.0
9	2620.8	T-LPG-1.5
10	3350	T-LPG-2.5

A maximum of 20 rows can be specified in the Filter table.

1. To add a row, click **Add**.
   A row is added to the table.
2. Click in the **Wavelength** field, and enter the required wavelength.
   It is not possible to enter the same wavelength twice.
3. Click in the **Position** field and select the position from the drop-down list. The **Filter Type** is automatically updated.

   OR

Click in the **Filter Type** field and select the filter from the drop-down list. The **Position** field is automatically updated.
The same filter position and filter type can be specified in the table more than once.

NOTE: The wavelengths can be added in any order. If you wish to re-order the wavelengths, you can click on the wavelength column header. When the dialog is closed the software will automatically re-order the table into wavelength order if they are not already.

- To delete a row, click anywhere in the row and click **Remove**.
- To return the table to the default values, click **Defaults**.

Lamp Change

This is used to set the point at which beams are switched between deuterium and tungsten lamps.

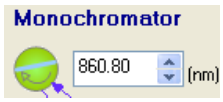
- Enter or select the lamp change point.

  The default wavelength is 319.2 nm.

NOTE: If you press ▲ or ▼ the wavelength increases or decreases by 0.1 nm respectively. If you keep the button depressed, the wavelength increases or decreases by 10 nm respectively.

NOTE: We recommend that you do not set the value outside 300–350 nm as this may damage the instrument.

Monochromator



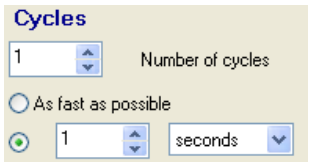
NOTE: This is only applicable for Lambda 750, 900, 950 and 1050.

- Enter the monochromator change point.
  The default is 860.8 nm. The minimum is 175 and the maximum is 900 nm. Values below 700 nm or greater than 900 nm may damage your instrument. Please refer to the manual provided with the instrument.

NOTE: If you press ▲ or ▼ the value increases or decreases by 0.1, respectively. If you keep the button depressed, the value increases or decreases by 10, respectively.

NOTE: When the monochromator change point is modified, the detector change point is updated to the same value automatically.

Cycles



Cycles are available for Wavelength Program, Polarization and Scan methods.

Cycles enable you to perform multiple scans per sample. It is possible to select the **Number of cycles**, and then select either **As fast as possible**, or enter a cycle time.

NOTE: In Timedrive methods, this section of the Data Collection page is blank or, if a Three Detector Module or an InGaAs sphere is installed, contains settings for NIR Baseline Gains.

1. Enter or select the **Number of cycles**.
   The default is 1. The minimum is 1 and the maximum is 999. As the results are generated, each result includes .cycleX at the end of the name, where X is the number of the cycle.

NOTE: If you press ▲ or ▼ the number increases or decreases by 1, respectively. If you keep the button depressed, the number increases or decreases by 10, respectively.

2. Select **As fast as possible** or a cycle time.
   If As fast as possible is selected, the cycle time will be shown in brackets. As soon as a cycle finishes the next one begins.
3. If a cycle time is selected, enter the time and select the time units (**seconds**, **minutes** or **hours**) from the drop-down list. The time you enter must be more than the minimum, and, in effect, you are introducing a delay before the next cycle begins.
   The limits are 1–999 seconds, 0.01–999.00 minutes and hours.

Common Beam Mask (CBM)

The Common Beam Mask applies a mask in the common beam to reduce the beam height. 100% means that the mask is fully open and 100% of the beam passes through. 0% means that the mask is closed and no light passes through.

The CBM is not available on the Data Collection page when a Universal Reflectance Accessory (URA) is installed, as

the value is defined on the Universal Reflectance Accessory (URA) page. This applies when Absolute Reflectance Mode or Relative Reflectance Mode is selected. If Transmission (Sample Compartment) Mode is selected on the accessory page, the CBM is available on the Data Collection page, but the allowable values are limited due to the optics of the URA.

1. Select the source of the Common Beam Mask data.

   Fixed will use the value shown above this drop-down list.

   If you select **Sample Table**, the value will be defined in the Sample Table.

   Selecting Sample Table means that different values can be specified for each sample if required.

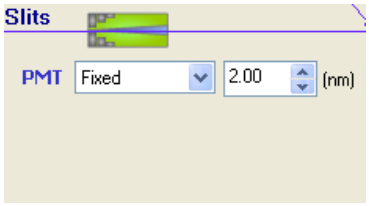
2. Enter or select the mask percentage.

   The default wavelength is 100%.

NOTE: If you press ▲ or ▼ the percentage increases or decreases by 1%, respectively. If you keep the button depressed, the percentage increases or decreases by 10%, respectively.

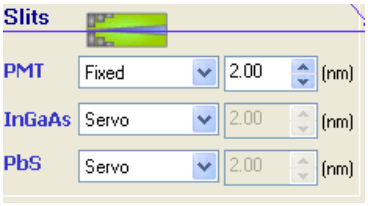
Slits

Lambda 650, 800 and 850 spectrometers



Lambda 750, 900 and 950 spectrometers

Lambda 1050 WB and 1050 NB spectrometers and Three Detector Module



NOTE: The Lambda 1050 has the Three Detector Module installed as standard. The Three Detector Module check box must be selected on the Accessory page for the Three Detector Module settings to appear.

NOTE: The PbS slit is only available for the Lambda 750, 900, 950 and 1050 spectrometers. The InGaAs slit is only available for the Lambda 1050 or a High performance instrument with the Three Detector Module installed.

NOTE: Slits are not available on the Data Collection page when a Universal Reflectance Accessory (URA) is installed as the slit width is defined on the Universal Reflectance Accessory (URA) page.

Select the slit mode – **Fixed**, **Servo**, **Programmed** or **Sample Table**.

- If **Fixed** is selected, enter the slit width in the adjacent field.

  For the PMT (UV/Vis) slit, the default is 2.00. The minimum is 0.05 and the maximum is 5.00. Click ▲ or ▼ to increment the slit width by 0.05 nm. If you keep the button depressed, the width increases or decreases by 0.5 nm.

  Set a slit width that is between one-fifth and one-tenth of the bandwidth of the spectral feature of interest.

  Set a wide slit width to increase the energy throughput and the signal-to-noise ratio. This decreases the resolution and the photometric accuracy and can cause band broadening.

  Set a narrower slit width to increase the resolution and the photometric accuracy. This decreases the signal-to-noise ratio.

  For the PbS and InGaAs (NIR) slits the default is 2.00. The minimum is 0.2 and the maximum is 20.0.

  Click ▲ or ▼ and keep the button depressed to increase or decrease the width by 1 nm, respectively.

- If **Programmed** is selected, the slit width field is grayed, and values must be defined on the Program page.

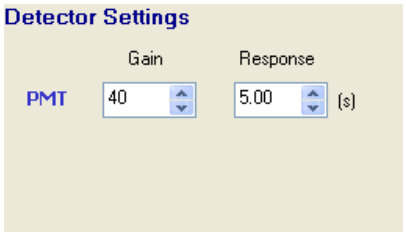
- If **Servo** is selected,the slit width field is grayed, and the system will monitor the reference beam energy and adjust the slits to avoid over saturation of the detectors. Servo is only available for the PbS and InGaAs slits.

- If you select **Sample Table**, the value will be defined in the Sample Table. Selecting Sample Table means that different NIR nodes

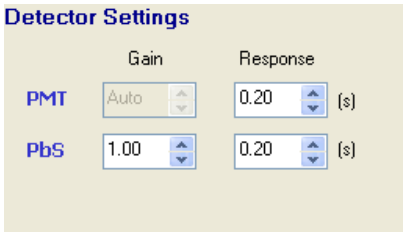
and slit widths can be specified for each sample if required.

Detector Settings

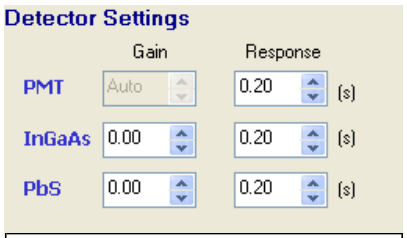
Lambda 650, 650R, 650S, 800 and 850 spectrometers



Lambda 750, 900 and 950 spectrometers



Lambda 1050 WB and 1050 NB spectrometers and Three Detector Module



NOTE: The Lambda 1050 has the Three Detector Module installed as standard. The Three Detector Module check box must be selected on the Accessory page for the settings for the Three Detector Module to appear.

Photomultiplier Tube (PMT) Gain Setting

Defines the photomultiplier tube (PMT) gain factor for the UV/Vis range. It is used for energy measurement in single beam mode. A gain must be set on the PMT to produce a useable spectrum. If the gain is too low, no spectrum will be observed. If the gain is too high, the detector will saturate and the spectrum will be truncated. Setting the gain is a matter of 'trial and error' as the correct gain will depend on other factors such as slit width.

- Enter or select the required gain.

  The available options are Auto or 0–255.

  If you press or the gain increases or decreases by 1 respectively. If you keep the button depressed, the gain increases or decreases by 10 respectively.

Photomultiplier Tube (PMT) Response Setting

Defines the signal average time. One chopper cycle is 0.04 sec. This is the minimal time for the measurement of one transmission value.

- Enter or select the required response (0.04–60.00).

If **Programmed** is selected for the slits, the PMT Response Setting is grayed. The value must instead be entered on the Program page.

InGaAs Gain Setting

Defines the gain factor for the InGaAs detector. It is used for energy measurement in single beam mode (E1 or E2 Ordinate Mode). A gain must be set on the InGaAs detector to produce a useable spectrum. If the gain is too low, no spectrum will be observed. If the gain is too high, the detector will saturate and the spectrum will be truncated. Setting the gain is a matter of 'trial and error' as the correct gain will depend on other factors such as slit width.

- Enter or select the required gain (0–20).

  If you press or the gain increases or decreases by 0.1, respectively. If you keep the button depressed, the gain increases or decreases by 1, respectively.

If **Programmed** is selected for the slits, the InGaAs Gain Setting is grayed. The value must instead be entered on the Program page.

InGaAs Response Setting

Defines the InGaAs response. One chopper cycle is 0.04 sec. This is the minimal time for the measurement of one transmission value.

- Enter or select the required response (0.04–60.00).

Increasing the response setting decreases the scan speed.

If **Programmed** is selected for the slits, the InGaAs Response Setting is grayed. The value must instead be entered on the Program page.

PbS Gain Setting

Defines the gain factor for the lead sulfide detector. It is used for energy measurement in single beam mode (E1 or E2 Ordinate Mode). A gain must be set on the PbS detector to produce a useable spectrum. If the gain is too low, no spectrum will be observed. If the gain is too high, the detector will saturate and the spectrum will be truncated. Setting the gain is a matter of 'trial and error' as the correct gain will

depend on other factors such as slit width.

- Enter or select the required gain (0–10).

  If you press ▲ or ▼ the gain increases or decreases by 0.1, respectively. If you keep the button depressed, the gain increases or decreases by 1, respectively.

If **Programmed** is selected for the slits, the PbS Gain Setting is grayed. The value must instead be entered on the Program page.

PbS Response Setting

Defines the PbS response. One chopper cycle is 0.04 sec. This is the minimal time for the measurement of one transmission value.

- Enter or select the required response (0.04–60.00).

Increasing the response setting decreases the scan speed.

If **Programmed** is selected for the slits, the PbS Response Setting is grayed. The value must instead be entered on the Program page.

Beam Selection

The sample beam is purple. The reference beam is red.

NOTE: When using the Universal Reflectance Accessory (URA), the front beam must be the sample beam.

- Select the front or rear beam as the sample beam.

  The front beam is selected by default.

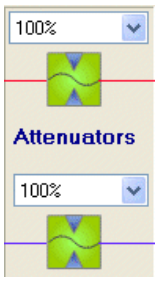
Common Beam Depolarizer (CBD)

The Common Beam Depolarizer is an optional accessory. It is used to depolarize the radiation that comes from the monochromator. The Common Beam Depolarizer is mounted in the common beam within the spectrometer and does not affect the available space within the sample compartment. This is only available if the Common Beam Depolarizer is enabled from the Instrument Properties.

If you wish to perform Polarization scans, we recommend that you have the Common Beam Depolarizer and Depolarizer/Polarizer installed. If using a Universal Reflectance Accessory, we recommend that you have the Common Beam Depolarizer installed. If it is not installed, you may observe polarization effects.

- Select the check box to enable the Common Beam Depolarizer.

Rear and Front Beam Attenuators



The Front and Rear beam attenuators are used to select the attenuation in the sample and reference beam. Reference beam attenuation is used to improve noise levels at high absorbance/low transmittance. The instrument uses a single detector (photomultiplier for UV/Vis and PbS or InGaAs for NIR). A ratio is measured between the sample and reference beam. With highly absorbing samples this means there is a ratio between a very small signal (highly absorbing sample) and a big signal (the unblocked reference beam). The instrument cycles between the two readings every 40 milliseconds and the rapidly changing light levels can cause the detector to become noisy. In addition, there is the mathematical problem of performing a ratio with a large difference between the numerator and the denominator.

Adding a 10% (1 A), 1% (2 A) or 0.1% (3 A, Lambda 1050 only) attenuator in the reference beam reduces the reference signal and improves the situations described above and so a better spectrum results.

Select **0%**, **0.1% (Lambda 1050 only)**, **1%**, **10%**, **100%**, **Automatic** or **Sample Table** from the drop-down lists for the front and rear beam attenuators.

NOTE: Automatic is only available for the sample beam.

0%, **0.1% (Lambda 1050 only)**, **1%**, **10%**, **100%** correspond to the amount of energy passing through the attenuator. 100% means that the beam is open. 0% means that the beam is closed.

If you select **Sample Table**, the values (**0%**, **0.1%**, **1%**, **10%**, **100%**, **Automatic**) can be defined on a per sample basis in the Sample Table. Also, if **Programmed** is chosen as the slit mode, the attenuator drop-down lists will be grayed out and the attenuator can be defined on the Program page.

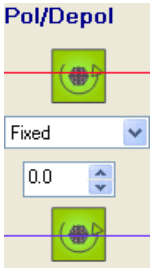
For samples that have an absorbance >3 A, you should consider using the attenuators. For samples that have an absorbance >4 A, we

recommend that you use the attenuators.

When the sample beam attenuator is set to automatic and you click  , the software will collect three spectra:

1. 100%T baseline – Sample beam and reference beam set to 100%
2. 0%T baseline – Sample beam 0% and reference beam 100%
3. Attenuator spectrum – Sample beam set to the value defined for the reference beam attenuator on the Data Collection page (for example 1% or 10%) and reference beam set to 100%.

Depolarizer/Polarizer



Along with frequency and amplitude, polarization is a key parameter that is used to describe the character of radiation. Radiation is said to be polarized when there is a preference direction of oscillation of the electromagnetic waves. Natural radiation (for example, the sun) consists of electromagnetic waves, with the oscillation of the electric and magnetic vectors being distributed in all planes perpendicular to the direction of propagation. When natural radiation interacts with optical elements, it becomes polarized to a certain extent. Therefore, the radiation within a spectrometer will inevitably be polarized.

The optional depolarizer/polarizer mounts within the sample compartment. It is used to polarize or depolarize the beam of light entering the sample. A switch on the accessory sets it to depolarizer or polarizer.

It can be configured with separate depolarizers or polarizers for the sample and reference beams. The accessory is fully automated and is recognised by the UV WinLab software.

For certain types of samples, the spectroscopic results are dependent on the orientation of the sample to the existing plane of polarization of the sample beam. Placing depolarizer optics into the beam can eliminate this influence. The depolarizer unit comprises two quartz wedges: one of natural quartz and the other of Suprasil quartz. A depolarizer is recommended for all samples exhibiting anisotropic behavior of absorbance, and for all types of transmission and reflectance measurements involving a non near angle of incidence for the sample. The applicable wavelength range is 190 to 2600 nm. Since the radiation is depolarized directly in front of the sample, the depolarizing efficiency is better than 98%.

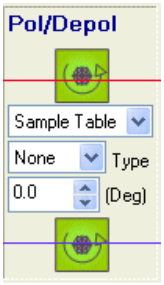
NOTE: The picture above shows the sample beam at the front. The actual position (front or rear) depends on the beam selection (see beam selection above). The Depolarizer/Polarizer is not shown on the Data Collection page if it is not installed in the instrument.

1. Select the Source (**Fixed** or **Sample Table**) from the drop-down list.
   If **Sample Table** is selected, the value below becomes grayed and the values must be entered in the Sample Table.

2. If **Fixed** is selected, enter the angle in the field below the drop-down list.
   The minimum is 0° and the maximum is 340° .

NOTE: The Depolarizer/Polarizer is grayed for a Polarization method. The settings are defined in the Method Settings area at the top of the Data Collection page.

When a Universal Reflectance Accessory (URA) is installed, an extra drop-down list is available:



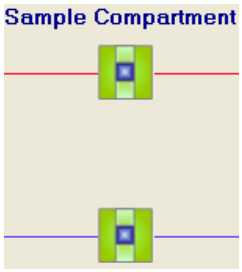
The **Type** drop-down list is used to alter the effective pathlength to allow for the polarizer/depolarizer installed.

- Select the type from the drop-down list – **None**, **1 mm**, **2mm**, **5 mm**, **10 mm**, **15 mm**, **20 mm**, or **30 mm**.

  A Polarizer type column is added to the sample table. The value selected on the Data Collection page is used in the sample table by default but it can be altered for each sample or measurement.

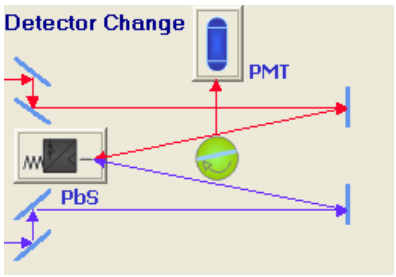
Sample Compartment

No settings are required here.

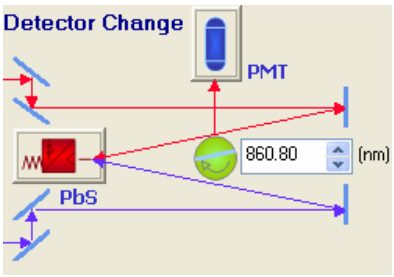


Detector Change

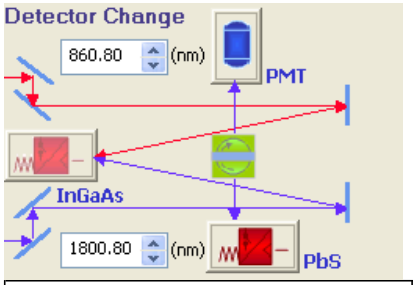
Lambda 650, 650R, 650S, 800 and 850 spectrometers



Lambda 750, 900 and 950 spectrometers



Lambda 1050 WB and 1050 NB spectrometers and Three Detector Module



NOTE: The Lambda 1050 spectrometer has the Three Detector Module installed as standard. The Three Detector Module check box must be selected on the Accessory page for the settings for the Three Detector Module settings to appear.

Defines the Detector Change point(s) (nm).

- For a Lambda 750, 900, 950 or 1050, enter or select the detector change point(s).

  For the PMT/PbS change point the default is 860.80 nm.

  For the PMT/InGaAs change point (Lambda 1050 and Three Detector Module only) the default is 860.80 nm.

  For the InGaAs/PbS change point (Lambda 1050 and Three Detector Module only) the default is 1800.80 nm.

  If you press ▲ or ▼ the value increases or decreases by 0.1 respectively. If you keep the button depressed, the value increases or decreases by 10 respectively.

NOTE: When the monochromator change point is modified, the detector change point is updated to the same value automatically. However, the detector change point can then be modified independently.

NOTE: This detector compartment changes if a Universal Reflectance Accessory (URA) or a Three Detector Module is installed. See What Detector Settings are displayed if a Universal Reflectance Accessory (URA) is installed? and What Detector Settings are displayed if a Three Detector Module is installed? below.

What elements of the user interface are available for the different method types?

Below is a quick look-up table that shows the different parts of the user interface that are available for the different methods (for example, Start polarization angle is only available for Polarization methods).

NOTE: Scanning Quant and Wavelength Quant are derivatives of Scan and Wavelength Program respectively and so are not listed separately in the tables below. Thermal Denaturation also uses the same user interface parts as the Wavelength Program.

The area number refers to the area as numbered below on a map of the Data Collection page.

Lambda 650/650S/650R

Control	Wavelength Programming	Scan	Timedrive	Polarization Scan	Manual Control
D2 Lamp	✔	✔	✔	✔	✔
External Lamp	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Tungsten Lamp	✔	✔	✔	✔	✔

Wavelength	✔	✖	✔	✔	✔
Start Wavelength	✖	✔	✖	✖	✖
End Wavelength	✖	✔	✖	✖	✖
Wavelength Program	✔	✖	✖	✖	✖
Add	✔	✖	✖	✖	✖
Remove	✔	✖	✖	✖	✖
Move Up	✔	✖	✖	✖	✖
Move Down	✔	✖	✖	✖	✖
Data Interval	✖	✔	✔	✔	✖
Total Time	✖	✖	✔	✖	✖
Start Pol angle	✖	✖	✖	✔	✖
End Pol angle	✖	✖	✖	✔	✖
Ordinate Mode	✔	✔	✔	✔	✔
Number of cycles	✔	✔	✖	✖	✖
As fast as possible	✔	✔	✖	✖	✖
Defined interval	✔	✔	✖	✖	✖
Lamp Change	✔	✔	✔	✔	✔
Common Beam Mask	✔	✔	✔	✔	✔
Monochromator	✖	✖	✖	✖	✖
Photomultiplier Gain	✔	✔	✔	✔	✔
Photomultiplier Response	✔	✔	✔	✔	✔
NIR Gain	✖	✖	✖	✖	✖
NIR Response	✖	✖	✖	✖	✖
Front Beam	✔	✔	✔	✔	✔
Rear Beam	✔	✔	✔	✔	✔
Common Beam Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Front Beam Attenuator	✔	✔	✔	✔	✔
Rear Beam Attenuator	✔	✔	✔	✔	✔
Double Polarizer / Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Slit mode	✖	✖	✖	✖	✖
Slit width	✖	✖	✖	✖	✖
Sample compartment	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Ordinate mode	✔	✔	✔	✔	✔
Scan speed (read only)	✖	✔	✖	✖	✖

Lambda 800/850

Control	Wavelength Programming	Scan	Timedrive	Polarization Scan	Manual Control
D2 Lamp	✔	✔	✔	✔	✔
External Lamp	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Tungsten Lamp	✔	✔	✔	✔	✔
Wavelength	✔	✖	✔	✔	✔
Start Wavelength	✖	✔	✖	✖	✖
End Wavelength	✖	✔	✖	✖	✖
Wavelength Program	✔	✖	✖	✖	✖
Add	✔	✖	✖	✖	✖
Remove	✔	✖	✖	✖	✖
Up	✔	✖	✖	✖	✖
Down	✔	✖	✖	✖	✖
Data Interval	✖	✔	✔	✖	✖
Total Time	✖	✖	✔	✖	✖
Start Pol angle	✖	✖	✖	✔	✖
End Pol angle	✖	✖	✖	✔	✖
Ordinate Mode	✔	✔	✔	✔	✔
Number of cycles	✔	✔	✖	✖	✖
As fast as possible	✔	✔	✖	✖	✖

Defined interval	✔	✔	✖	✖	✖
Lamp Change	✔	✔	✔	✔	✔
Common Beam Mask	✔	✔	✔	✔	✔
Monochromator	✖	✖	✖	✖	✖
Photomultiplier Gain	✔	✔	✔	✔	✔
Photomultiplier Response	✔	✔	✔	✔	✔
NIR Gain	✖	✖	✖	✖	✖
NIR Response	✖	✖	✖	✖	✖
Front Beam	✔	✔	✔	✔	✔
Rear Beam	✔	✔	✔	✔	✔
Common Beam Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Front Beam Attenuator	✔	✔	✔	✔	✔
Rear Beam Attenuator	✔	✔	✔	✔	✔
Double Polarizer / Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Slit mode	✖	✖	✖	✖	✖
Slit width	✖	✖	✖	✖	✖
Sample compartment	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Detector change point	✖	✖	✖	✖	✖
Scan speed (read only)	✖	✔	✖	✖	✖

Lambda 750/900/950

Control	Wavelength Programming	Scan	Timedrive	Polarization Scan	Manual Control
D2 Lamp	✔	✔	✔	✔	✔
External Lamp	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Tungsten Lamp	✔	✔	✔	✔	✔
Wavelength	✔	✖	✔	✔	✔
Start Wavelength	✖	✔	✖	✖	✖
End Wavelength	✖	✔	✖	✖	✖
Wavelength Program	✔	✖	✖	✖	✖
Add	✔	✖	✖	✖	✖
Remove	✔	✖	✖	✖	✖
Up	✔	✖	✖	✖	✖
Down	✔	✖	✖	✖	✖
Data Interval	✖	✔	✔	✖	✖
Total Time	✖	✖	✔	✖	✖
Start Pol angle	✖	✖	✖	✔	✖
End Pol angle	✖	✖	✖	✔	✖
Ordinate Mode	✔	✔	✔	✔	✔
Number of cycles	✔	✔	✖	✖	✖
As fast as possible	✔	✔	✖	✖	✖
Defined interval	✔	✔	✖	✖	✖
Lamp Change	✔	✔	✔	✔	✔
Common Beam Mask	✔	✔	✔	✔	✔
Monochromator	✔	✔	✔	✔	✔
Photomultiplier Gain	✔	✔	✔	✔	✔
Photomultiplier Response	✔	✔	✔	✔	✔
NIR Gain	✔	✔	✔	✔	✔
NIR Response	✔	✔	✔	✔	✔
Front Beam	✔	✔	✔	✔	✔
Rear Beam	✔	✔	✔	✔	✔
Common Beam Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Front Beam Attenuator	✔	✔	✔	✔	✔
Rear Beam Attenuator	✔	✔	✔	✔	✔
Double Polarizer /	dependant on	dependant on	dependant on	dependant on	dependant on

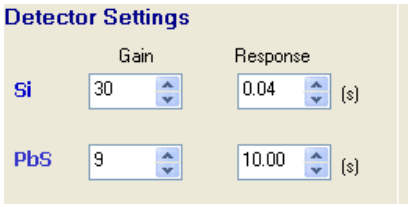
Depolarizer	accessory	accessory	accessory	accessory	accessory
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Sample compartment	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Detector change point	✔	✔	✔	✔	✔
Scan speed (read only)	✘	✔	✘	✘	✘

Lambda 1050/Three Detector Module

Control	Wavelength Programming	Scan	Timedrive	Polarization Scan	Manual Control
D2 Lamp	✔	✔	✔	✔	✔
External Lamp	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Tungsten Lamp	✔	✔	✔	✔	✔
Wavelength	✔	✘	✔	✔	✔
Start Wavelength	✘	✔	✘	✘	✘
End Wavelength	✘	✔	✘	✘	✘
Wavelength Program	✔	✘	✘	✘	✘
Add	✔	✘	✘	✘	✘
Remove	✔	✘	✘	✘	✘
Up	✔	✘	✘	✘	✘
Down	✔	✘	✘	✘	✘
Data Interval	✘	✔	✔	✘	✘
Total Time	✘	✘	✔	✘	✘
Start Pol angle	✘	✘	✘	✔	✘
End Pol angle	✘	✘	✘	✔	✘
Ordinate Mode	✔	✔	✔	✔	✔
Number of cycles	✔	✔	✘	✘	✘
As fast as possible	✔	✔	✘	✘	✘
Defined interval	✔	✔	✘	✘	✘
Use different gains for sample and baseline measurements	✘	✘	✔	✘	✘
InGaAs (baseline gain)	✘	✘	✔	✘	✘
NIR (baseline gain)	✘	✘	✔	✘	✘
Lamp Change	✔	✔	✔	✔	✔
Common Beam Mask	✔	✔	✔	✔	✔
Monochromator	✔	✔	✔	✔	✔
Photomultiplier Gain	✔	✔	✔	✔	✔
Photomultiplier Response	✔	✔	✔	✔	✔
InGaAs Gain	✔	✔	✔	✔	✔
InGaAs Response	✔	✔	✔	✔	✔
PbS Gain	✔	✔	✔	✔	✔
PbS Response	✔	✔	✔	✔	✔
Front Beam	✔	✔	✔	✔	✔
Rear Beam	✔	✔	✔	✔	✔
Common Beam Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Front Beam Attenuator	✔	✔	✔	✔	✔
Rear Beam Attenuator	✔	✔	✔	✔	✔
Double Polarizer / Depolarizer	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Slit mode	✔	✔	✔	✔	✔
Slit width	✔	✔	✔	✔	✔
Sample compartment	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory	dependant on accessory
Detector change point (s)	✔	✔	✔	✔	✔
Scan speed (read only)	✘	✔	✘	✘	✘

Accessories

What Detector Settings are displayed if a Universal Reflectance Accessory (URA) is installed?



The detector settings available for the URA depend upon the ordinate mode selected in the Method Settings Section of the Data Collection page.

Silicon (Si) Gain Setting

Defines the Silicon (Si) detector gain factor for the UV/Vis range. It is used for energy measurement in single beam mode (E1 or E2 Ordinate Mode). A gain must be set on the Si detector to produce a useable spectrum. If the gain is too low, no spectrum will be observed. If the gain is too high, the detector will saturate and the spectrum will be truncated. Setting the gain is a matter of 'trial and error' as the correct gain will depend on other factors such as slit width.

- Enter or select the required gain.

  If you press ▲ or ▼ the gain increases or decreases by 1 respectively. If you keep the button depressed, the gain increases or decreases by 10 respectively.

Silicon (Si) Detector Response Setting

Defines the signal average time. One chopper cycle is 0.04 sec. This is the minimal time for the measurement of one transmission value.

- Enter or select the required response (0.04–10.00).

If **Programmed** is selected for the slits, the Si Response Setting is grayed. The value must instead be entered on the Program page.

PbS Gain Setting

Defines the gain factor for the lead sulfide detector. It is used for energy measurement in single beam mode (E1 or E2 Ordinate Mode). A gain must be set on the PbS detector to produce a useable spectrum. If the gain is too low, no spectrum will be observed. If the gain is too high, the detector will saturate and the spectrum will be truncated. Setting the gain is a matter of 'trial and error' as the correct gain will depend on other factors such as slit width.

- Enter or select the required gain (0–9).

  If you press ▲ or ▼ the gain increases or decreases by 0.1 respectively. If you keep the button depressed, the gain increases or decreases by 1 respectively.

If **Programmed** is selected for the slits, the PbS Gain Setting is grayed. The value must instead be entered on the Program page.

PbS Response Setting

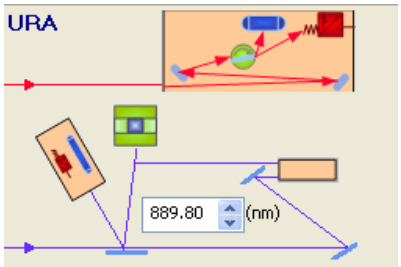
Defines the PbS response. One chopper cycle is 0.04 sec. This is the minimal time for the measurement of one transmission value.

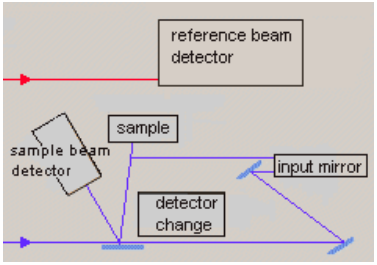
- Enter or select the required response (0.04–10.00).

Increasing the response setting decreases the scan speed.

If **Programmed** is selected for the slits, the PbS Response Setting is grayed. The value must instead be entered on the Program page.

What Detector Change settings are displayed if a Universal Reflectance Accessory (URA) is installed?





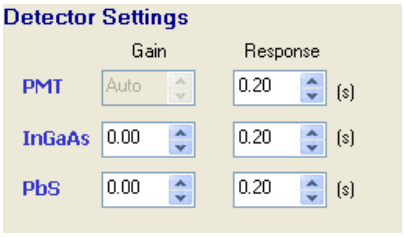
- For Lambda 750, 900, 950 or 1050 spectrometers, enter or select the Detector Change point.

  You should only alter this value if you are fully aware of the implications of doing so.

NOTE: If you press ▲ or ▼ the value increases or decreases by 0.1 respectively. If you keep the button depressed, the value increases or decreases by 10 respectively.

What Detector Settings are displayed if a Three Detector Module is installed?

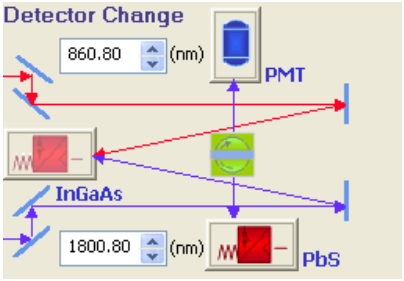
If a Three Detector Module is installed in the High performance spectrometer and selected on the Accessory page, the **Detector Settings** section will look like this:



See Detector Settings for more information.

What Detector Change settings are displayed if a Three Detector Module is installed?

If a Three Detector Module is installed in the High performance spectrometer and selected on the accessory page, the **Detector Change** settings will look like this:



Defines the Detector Change point(s) (nm)

- For a Lambda 750, 900, 950 or 1050 spectrometer, enter or select the Detector Change point(s).

  For the PMT/PbS change point the default is 860.8 nm.

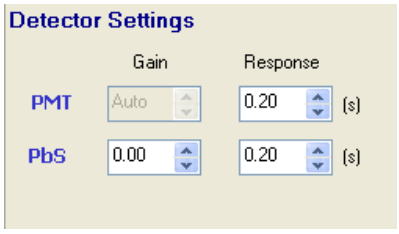
  For the PMT/InGaAs change point the default is 860.8 nm.

  For the InGaAs/PbS change point the default is 1800.8 nm.

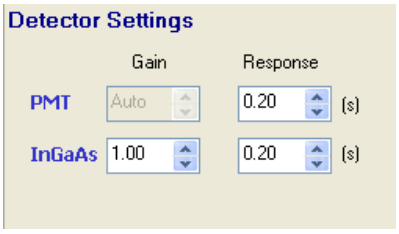
NOTE: If you press ▲ or ▼ the value increases or decreases by 0.1 respectively. If you keep the button depressed, the value increases or decreases by 10 respectively.

What Detector Settings are displayed if a Sphere Accessory is installed?

PbS Sphere (NIR Spectrometer)



InGaAs Sphere (NIR Spectrometer)



The detector settings displayed will depend on the type of sphere (InGaAs or PbS) installed and the type of instrument (UV/Vis or UV/Vis/NIR).

The spheres have two detectors. A PMT for the UV/Vis region and, depending on the variant of sphere accessory, an InGaAs or a PbS detector for the NIR region.

However, if a sphere is installed in a Lambda 650, 800 or 850 spectrometer, only the UV/Vis (PMT) detector will be available.

See Detector Settings for more information on the settings available for the different types of detector.

What Detector Change settings are displayed if a Sphere Accessory is installed?

See Also

Scan Task Data Collection

Wavelength Task Data Collection

Polarization Task Data Collection

Timedrive Task Data Collection

Manual Control Data Collection

Universal Reflectance Accessory (URA)