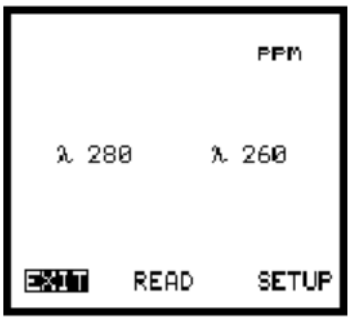
3.7 DIRECT UV

This measurement mode differs from the other 4 in that it does not use a calibration curve for measurement, but requires readings at 280 and 260nm and an answer calculated based on:

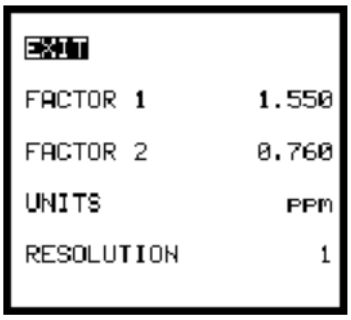
A_{280} x 1.55 – A_{260} x 0.76

Measurements can be made using 280nm only. In this instance, the Factor 1 value should remain as set (1.550), and the Factor 2 value should be set to 0.000.

Select **DIRECT UV** from the Protein mode. The following display will be shown:

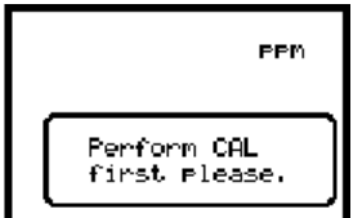


Select the **SETUP** option:



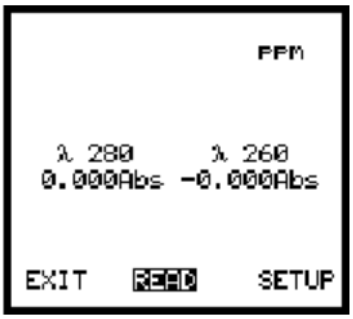
EXIT	Allows user to exit this menu
FACTOR 1	Value at which the Abs at 280nm gets multiplied by
FACTOR 2	Value at which the Abs at 260nm gets multiplied by
UNITS	Allows the user to select the preferred measurement unit (ppm, mg/l, g/l, M, %, µg/l, µg/ml, mg/ml, ng/ml, none, mM)
RESOLUTION	Allows the user to select the preferred resolution (1, 0.1, 0.01 or 0.001). The final figure shown will be reduced in resolution if it not possible to show all the required decimal places on the screen.

If the **READ** option is selected prior to performing a calibration the following message will be displayed:

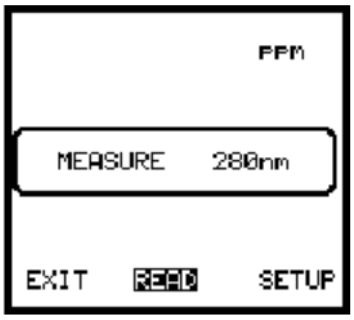


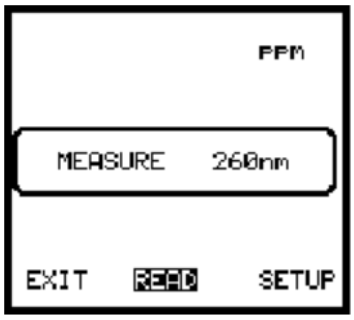
When all set up parameters have been entered, exit this option. Place a sample blank into the sample chamber and close the lid. Press **CAL** and the instrument will calibrate at 280 and 260nm (even when only 280nm is required).

The display will update to show zero at both points:



Remove the sample blank from the chamber and insert the unknown sample. Close the sample chamber lid. Select **READ** and the instrument will measure at both points (even when only 280nm is required):





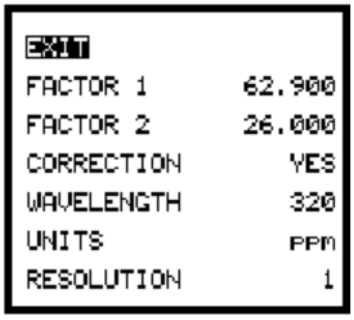
Once the measurement sequence has been successfully performed, the display will update to show the final sample reading.

3.8 DNA/RNA MODE

Select the **DNA/RNA MODE** option from the main menu:

Set up and measurement procedures are the same for **260/280nm** and **260/230nm** modes, as detailed below. Select the appropriate mode of operation: **260/280nm** or **260/230nm** and the following screen will be displayed:

Select **SETUP** and the following menu will be displayed:

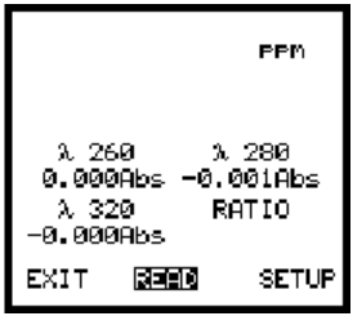


EXIT	Allows the user to exit this menu
FACTOR 1	Value at which the Abs at 260nm gets multiplied by
FACTOR 2	Value at which the Abs at either 230 or 280nm gets multiplied by
CORRECTION	YES/NO option. A reference wavelength is optional. If this is to be used in calculations then YES should be selected
WAVELENGTH	If the correction option is set to yes, then the wavelength must be specified
UNITS	Allows the user to select the preferred measurement unit (ppm, mg/l, g/l, M, %, µg/l, µg/ml, mg/ml, ng/ml, none, mM)
RESOLUTION	Allows the user to select the preferred resolution (1, 0.1, 0.01 or 0.001). The final figure shown will be reduced in resolution if it not possible to show all the required decimal places on the screen.

When all set up parameters have been entered, exit this option.
If the **READ** option is selected prior to performing a calibration the following message will be displayed:

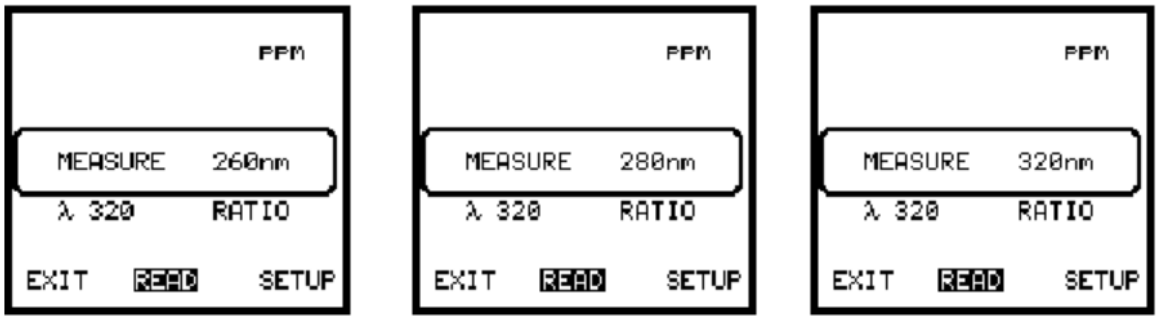
Place a sample blank into the sample chamber and close the lid. Press **CAL** and the instrument will calibrate at **260/280nm** or **260/230nm**, depending on the mode selected.

If the reference wavelength option is selected a third calibration will be performed at the nominal reference wavelength of 320nm. All 3 values will be shown on the instrument display.



The DNA calculation will be performed by reading the absorbances at the required wavelengths and calculating the answer based on the pre-entered factors.

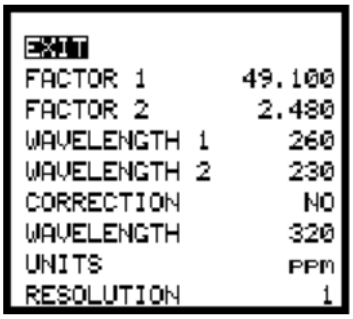
Remove the sample blank from the chamber and insert the unknown sample. Close the sample chamber lid. Select **READ** and the instrument will measure at 2 or 3 points, depending on selection/non-selection of reference wavelength option.



Once the measurement sequence has been successfully performed, the display will update to show the final sample reading.

VARIABLE RATIO

This mode operates in the same way as the **260/280nm** and **260/230nm** modes, with the additional benefit of the ability to specify wavelength values where peaks are not at 260/280 or 260/230. This enables fine adjustment for greater accuracy.

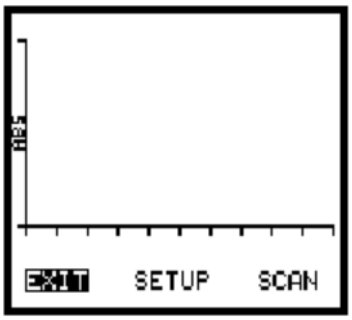


EXIT	Allows the user to exit this menu
FACTOR 1	Value at which the Abs at Wavelength 1 gets multiplied by
FACTOR 2	Value at which the Abs at Wavelength 2 gets multiplied by
WAVELENGTH 1	Allows adjustment of the first wavelength value (260)
WAVELENGTH 2	Allows adjustment of the second wavelength value (230)
CORRECTION	YES/NO option. A reference wavelength is optional. If this is to be used in calculations then YES should be selected
WAVELENGTH	If the correction option is set to yes, then the wavelength must be specified
UNITS	Allows the user to select the preferred measurement unit (ppm, mg/l, g/l, M, %,

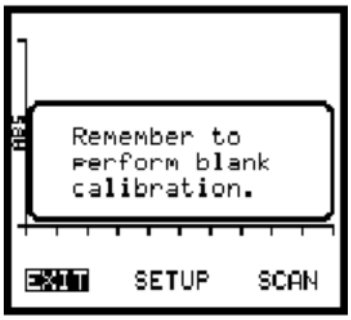
PURITY SCAN

This mode provides a graphical representation of the Abs range and determines the peak absorbance. It allows a sample to be scanned (absorbance versus wavelength) 50nm either side of a user entered centre wavelength (250-950nm) at 1nm steps.

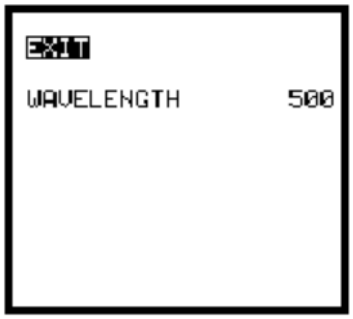
Select the **PURITY SCAN MENU**



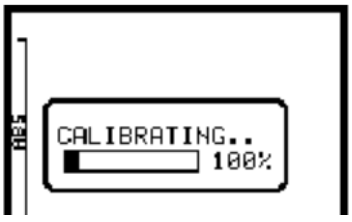
The following display will then be shown:



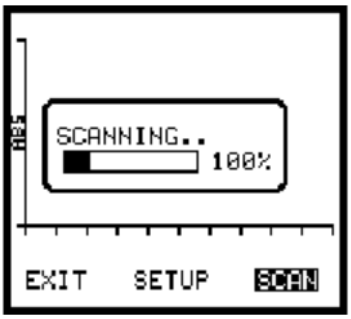
Select **SETUP** and adjust the wavelength value as appropriate for the test being performed.



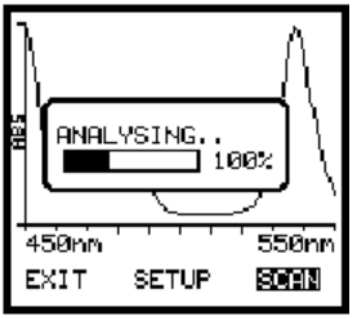
When the required wavelength value has been entered and confirmed, place a sample blank into the sample chamber and close the lid. Press **CAL** and the instrument will perform a calibration as shown.



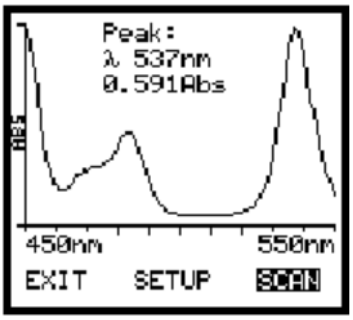
Remove the sample blank from the sample chamber and insert the unknown sample. Close the sample chamber lid. Select **SCAN**. The instrument will perform the scan as shown.



Once the scan is completed the instrument will analyse the data and determine the peak point.



The display will then update to show peak absorbance and the wavelength of the peak.



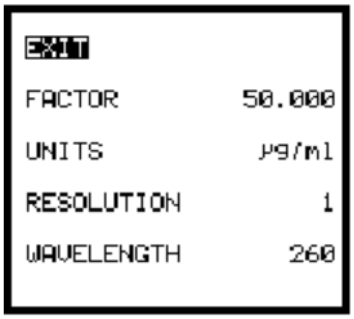
dsDNA, ssDNA, RNA and OLIGO MODES

NOTE: These 4 modes, although using different factor values, are all performed using the same procedures as detailed below. Measurement method is Photometrics. Absorbance, %T and Concentration values are displayed simultaneously, i.e; they are not individually selectable.

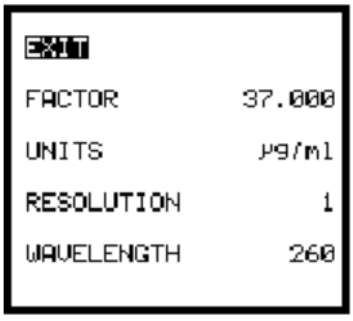
Select the appropriate measurement mode from the main menu and the following display will be shown:

Select **SETUP**

dsDNA factor value

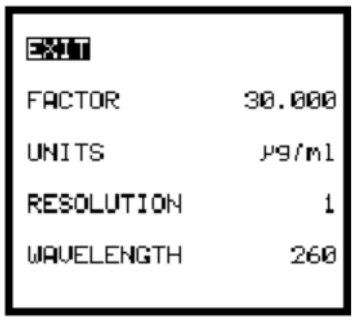


ssDNA factor value



RNA factor value

OLIGO factor value



EXIT	Allows the user to exit this menu
FACTOR	Used for the concentration calculation where concentration = Factor x Abs
UNITS	Allows selection of the units used to display against the concentration reading. The choice available: μg/ml, μg/l, %, M, g/l, mg/l, ppm, mM, none, ng/ml, mg/ml.
RESOLUTION	Allows the user to specify the resolution of the displayed reading (1, 0.1, 0.01, 0.001). The maximum resolution that concentration readings are displayed to can be set up to 3 decimal places. The instrument will automatically display concentration readings to the maximum possible resolution using this parameter.
WAVELENGTH	Allows user setting of preferred wavelength for the test being performed.

Performing a measurement

To perform a measurement it is necessary to calibrate the unit first.
Place a blank solution into the sample chamber and close the lid. Press the **CAL** key.
The instrument will momentarily show **CAL** indicating that the calibration is being performed.
Once calibrated, the display values will update to show ABS, %T and Concentration readings.
Remove the blank solution from the sample chamber.
The instrument is now ready to perform a measurement. The instrument will now continually perform a live measurement.
The sample value will be shown directly as ABS, %T and Concentration.