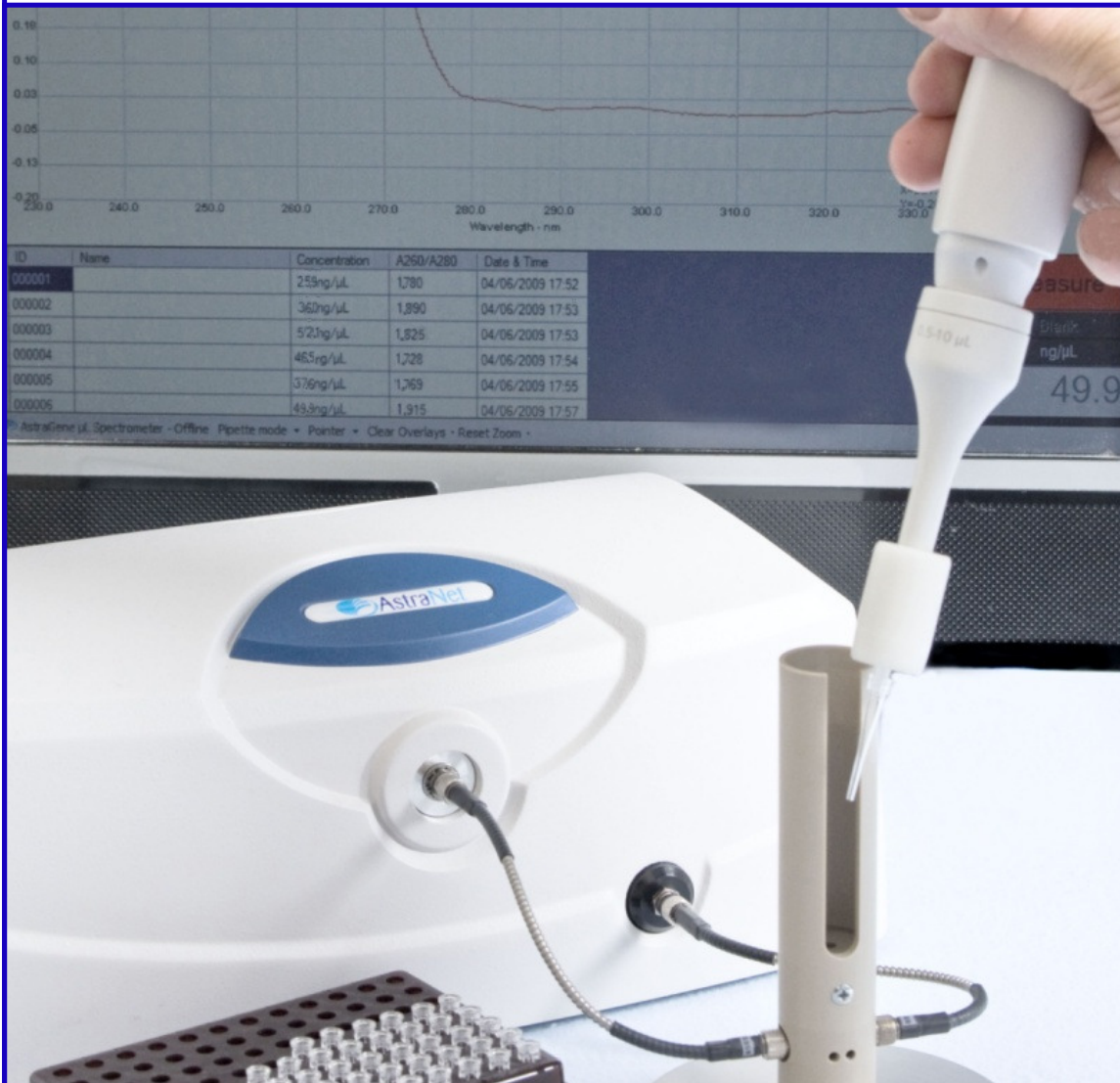


AstraGene

Science

Making Life Easy

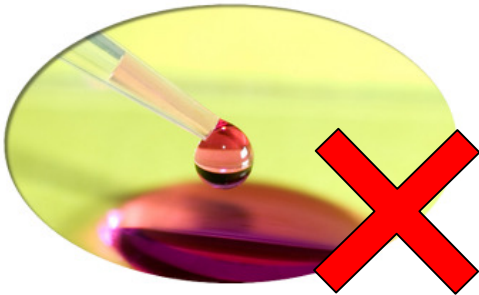


Simple Through-the-Tip Measurement
Just Pick-Up and Measure 2μl Samples
Includes Pipette and Tips

Working with you - for speed and efficiency

The simplest solutions are often the best; and when it comes to the analysis of micro-volume samples AstraGene's fundamental principle is as simple as it gets.

AstraGene works the way you do, with no new skills required or special techniques to learn. Simply pick-up 2 μ l of sample and measure – right there in the pipette tip, no drops to dispense, no arms to close, no caps to replace not even a sample chamber to open. Fewer steps are required to execute each reading; speeding work and reducing the risk of error.



No Drops to Dispense – AstraGene does not require the sample to be dispensed onto a pedestal, a tray, a plate or even into a cuvette. The sample remains in the pipette tip where it is measured. There it is protected from contamination and evaporative loss, so giving the enhanced repeatability that will boost confidence in your results



No Restricting Sample Chamber – and no arms to close. AstraGene has no moving parts and does not use any electro-mechanical components. Because of this, movement and wear have been eliminated, so reducing maintenance to an absolute minimum and enabling system calibration to be fixed for life. While press-to-read operation ensures the pulsed xenon lamp should never need replacing.



No Clean-Up Between Samples – with AstraGene your sample stays in the pipette tip, so there is no need to pick it up again, eliminating the risk of cross-contamination and enabling all of your sample to be re-used. After each measurement you won't have to clean every surface it touched either, or carry out periodic reconditioning, recalibration or replacement of sample platforms.

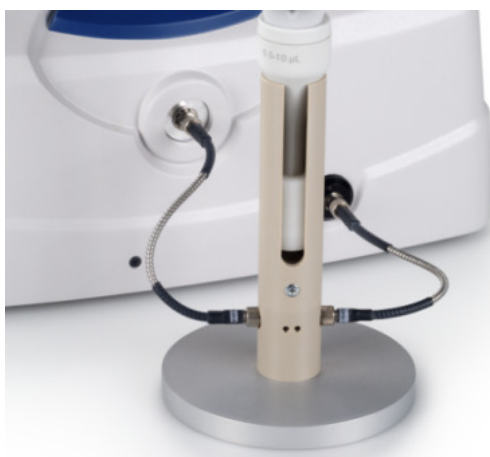
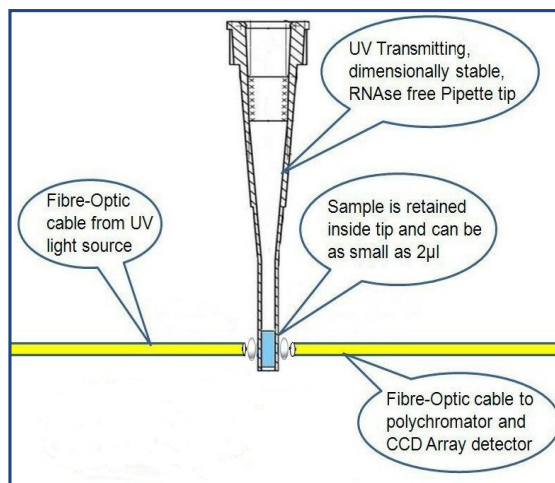
AstraGene – Simply Making Your Life Easier

Through-the-Tip Measurement Technology

AstraNet Systems have many years experience in solving difficult analytical applications using their fibre-optic coupled, CCD Array spectrophotometers.

These spectrophotometers are proven in some of the toughest industrial environments around the world and form the heart of the AstraGene system.

In the Tip - The micro-volume sample accessory is connected to the spectrophotometer by two fibre-optic cables. One delivers the light from the xenon lamp to the sample, which remains in the pipette tip. The other one collects the transmitted wavelengths on the opposite side of the tip and passes them to the spectrophotometer for measurement.

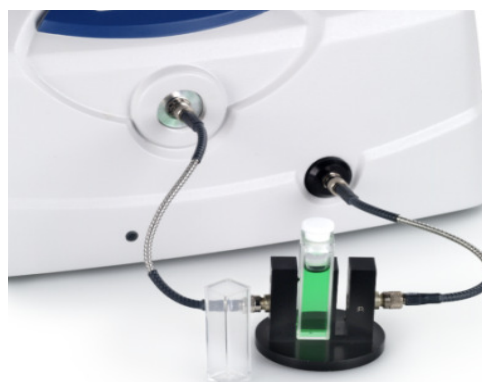


Pick-Up and Go - This simple system makes your work-flow as easy as just taking up the 2µl sample with the pipette, placing the pipette and tip in the holder and selecting the 'measure' option. The sample can then be recovered, with no risk of contamination, for further processing or other analysis.

There's Beauty in Simplicity - AstraGene's beauty is not just skin deep though! So when your sample volumes are not as restricted you can simply fit the optional cuvette holder accessory, and carry out your other analyses without even lifting a sample chamber lid.

Dip and Measure - Immersion probes are just as easily connected to AstraGene and will save on sample transfer time and washing up, while reducing the risk of breaking expensive cuvettes.

Immersion probes are available down to a tiny 1.5mm diameter, ideal for use in Eppendorf and other micro-tubes. They can also be supplied with a fixed 10mm path length or detachable tips that give a selection of path lengths from 40mm down to 2mm*; saving on the need for many sample dilutions too.

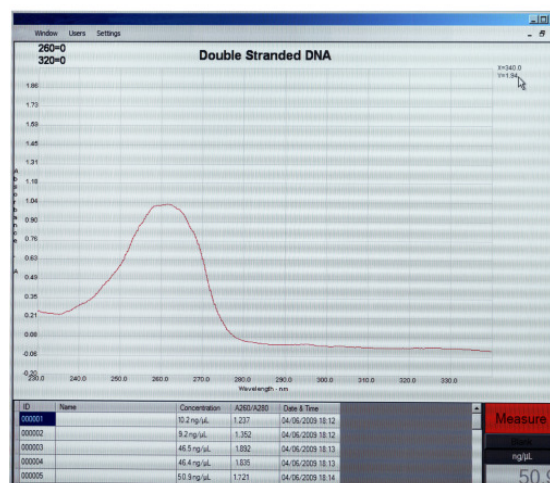


*AstraGene automatically compensates for path lengths of 10 and 1mm, other path lengths require manual correction.

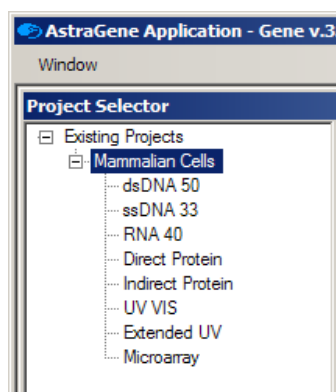
DNA/RNA Concentration and Purity

Using the characteristic UV absorbance of Nucleic Acid is well established as a standard method for the determination of DNA/RNA concentration and purity. A spectrum scan of absorbance across the wavelengths of interest will give further, graphical evidence of contamination, pH control or other irregularities in the sample.

Fast Scanning - Running a scan on every sample with a traditional spectrophotometer could take several minutes per sample and considerably slow your work-flow and productivity. This is where AstraGene's high resolution CCD Array detector brings you more advantages, completing a full scan in less than 2 seconds and displaying the results instantly, along with the calculated concentration, purity ratios and turbidity reference.



Spectral Bandwidth - The DNA peak at 260nm has a natural bandwidth (NBW) of 47nm. In general, for exact measurements at an absorbance peak, the spectrophotometer must have a spectral bandwidth (SBW) equal to, or less than, one tenth of the NBW of the compound being measured. AstraGene's 3nm spectral bandwidth improves on this requirement ensuring accurate results with good energy levels.



Menu Driven - AstraGene is pre-programmed with all the calibration data for single stranded and double stranded DNA and RNA, simply select your sample type from the menu and measure.

Each sample has a numerical identity as well as a time and date stamp, to ensure full traceability. While to help you track specific samples an alpha-numeric 'name' can be entered for each one too.

Intuitive Operation - AstraGene ensures sample measurement can not proceed before a successful blank measurement has been carried out, with a clear red and green indication of which step is required. Each user's results are protected by their secure log-on, while concentration, purity ratios and scan data can all be exported to Excel for presentation or archiving. Stored scans can also be recalled and overlaid for easy comparison of results.

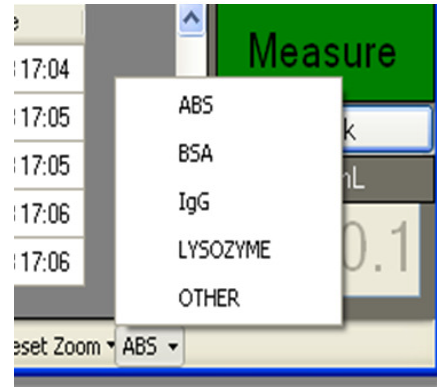
AstraGene – Simply Intuitive

Protein and Micro-Array Analysis

Proteins can be measured directly at their wavelength of maximum absorbance (λ_{max} of 280nm), or indirectly by adding reagents to the sample to produce a colour proportional to the protein concentration, then measuring at the λ_{max} for that colour.

Direct Choices - The direct method requires little or no sample pre-treatment so has a lower cost and is much quicker and easier to perform than the indirect methods. However it is less suited to measuring mixtures of proteins or when other substances that absorb at 280nm are present.

AstraGene enables the correct extinction co-efficient, for the sample type being measured, to be selected. While there is also the option for a user entered value to be input for other sample types.



Concentration - Indirect methods have been developed to ensure all proteins in a sample are measured correctly. AstraGene is pre-programmed with the Bradford and Lowry methods and can be set-up for most variants of these procedures.

But regardless of which Protein (or other concentration) method you want to use a fully editable calibration curve can be constructed using from 1 to 50 standards and with up to 5 replicates of each. Flexible polynomial curve fitting is easily applied and automatic compensation for the path length of the pipette tip or cuvette can be selected.

The calibration curve is stored along with the results in your secure project folder. For routine operation just a blank or a blank and high standard can be re-checked or all points can be verified as required.

Microarray Measurements - AstraGene can calculate the labeling efficiency of reactions by using the approximate ratio of bases to dye molecules. This ratio can be determined by measuring the absorbance of the nucleic acid at 260 nm and the absorbance of the dye at its λ_{max} . The nucleic acid concentration is also calculated. AstraGene is pre-programmed with common dyes while others can easily be added. There is automatic correction for path length and cross interference from the dye.

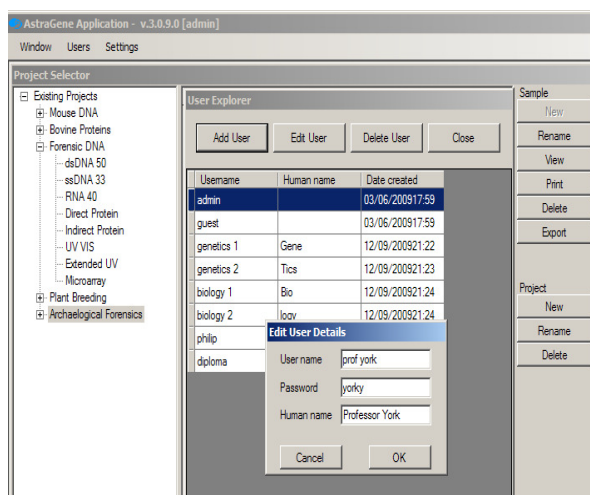
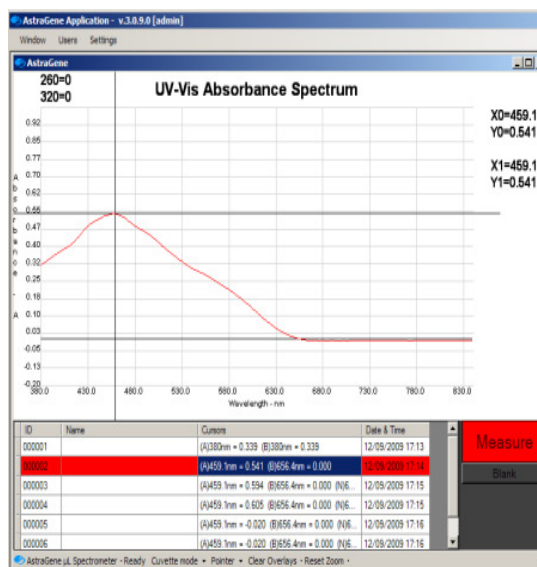
AstraGene – Simply a Perfect Fit

Cell Culture and General Measurements

AstraGene is also a general UV/Visible laboratory spectrophotometer, offering greater flexibility and ease of use through its range of fibre-optic coupled accessories. While its speed and durability will ease your workload and give years of dependable service.

Cell Density – Measuring the OD of cell cultures at 600nm (OD₆₀₀) is used as a convenient method of estimating cell growth rates and their readiness for harvesting. AstraGene can give quick and accurate measurements of optical density at 600nm as well as allowing more detailed calibration against standards of known cell populations.

Full Spectrum – The fast two second scan enables AstraGene to report absorbance values across the full wavelength range. The cursor can be used to return specific values from the scan while the pointer is used to browse data along it. Stored results can be overlaid to easily compare different spectra.



Secure Operation - Free use of AstraGene, as a guest, is possible at any time or users can log on with a password for secure access to their own projects and results. A designated administrator can create new users as well as deleting old ones.

Every sample has an incremental number and can also have a user-entered, name for easy identification. All results are stored automatically with this information along with a time and date stamp to ensure traceability and avoid data loss.

All graphs auto-scale to give the best resolution for the screen, while deep levels of zoom can be selected by dragging the cursor over areas of interest. Full printouts are available in all operating modes and data is easily exported to Excel for presentation or archiving.

AstraGene could be the only UV/Visible spectrophotometer you need, or it could help reduce the work-load of your existing spectrophotometers while offering the best solution for your micro-volume analysis of DNA/RNA and similar samples.

AstraGene – Simply Comprehensive

Specification and Communication

These specifications reflect the performance that can be achieved under normal conditions in a laboratory environment. Our products are subject to continuous review and may be changed or up-dated without notice. See www.astranetsystems.com for latest information.

Parameter	Specification
Path Length	1mm (or 10mm with optional cuvette holder and 2mm to 40mm with immersion probes)
Sample volume	2 μ l with micro sample accessory (from 20 μ l to >4ml depending on cuvette or immersion probe selected)
Light Source	Pulsed Xenon Lamp (powered for reading only)
Lamp Life	10 years+ in normal operation
Detector	2048 pixel CCD Array (UV enhanced)
Photometric Linearity	Better than 1%
Photometric Range	-0.2 to 2.5A
Wavelength Range	230 to 850nm
Wavelength Accuracy	\pm 0.5nm
Spectral Bandwidth	3nm
Absorbance Precision	0.003A
Detection Limit (DNA)	3ng/ μ l
Detection Limit (BSA)	0.1mg/ml
Read Time	2 seconds (includes full wavelength scan)
PC Communication	Ethernet (cable supplied) or optional USB adapter
Software	PC Format
Mains Supply	100 to 240V AC / 47 to 63Hz / 0.7A
Dimensions	16 x 30 x 12 cm
Weight	2kg
Warranty	2 Years (Second year subject to on-line registration)

AstraGene is PC driven and requires a computer to the following specifications:

Minimum Computer Requirements	
Operating System	Microsoft XP (service pack 2) or Vista
RAM	512Mb
CD ROM Drive	Read 4X
Free Hard Disk Space	200Mb
Processor	2.8GHz Pentium 4 (or 1.6GHz single or dual core)
Graphics	DirectX 9 Compatible with 64Mb RAM (Nvidia 5900)

AstraGene – Simply Performing

Instrument and Accessories

AstraGene is an ultraviolet enhanced spectrophotometer for Life Science applications supplied with a micro-sampling accessory for analyzing samples as small as two micro-litres.

It includes a modern pipette and 1000 free pipette tips (with a voucher for a further 1000 free tips). It has an integral, long-life xenon flash lamp and is PC driven with dedicated software for DNA/RNA, protein and micro-array analysis as well as for standard spectrophotometer operation. AstraGene is supplied ready for use with an Ethernet cable and PC software on CD ROM; an optional USB interface adapter is also available. AstraGene can also be used with the optional cuvette holder accessory and immersion probes.



Description	Order Code
AstraGene instrument as above for use on 100 to 240V AC / 47 to 63Hz	AstraGene SX2

Cuvette Holder Accessory – The cuvette holder accessory is easily fitted using the SMA905 fibre-optic cable connectors and accepts all 10mm path length cuvettes with a beam height of 15mm.

Description	Order Code
Cuvette holder accessory as above for use on all AstraGene spectrophotometers	AstraGene CH1

Immersion Probes – can be used to measure samples in-situ and save on sample transfer time and associated costs of cuvettes etc. They can be used with the laboratory bench stand for a convenient, always-ready, analysis system.



Description	Order Code
Immersion probe with 1.5mm stainless steel shaft, path length of 2mm, typical sample volume of 20µl	DP015UV
Immersion probe with 3.17mm stainless steel barrel, includes 10mm path-length	DP317UV
Immersion probe with 6mm stainless steel barrel, requires tip of specific path-length.	DP200UV
2mm path-length transfection tip	DPT02
5mm path-length transfection tip	DPT05
10mm path-length transfection tip	DPT10
20mm path-length transfection tip	DPT20
40mm path-length transfection tip	DPT40
Immersion probe laboratory bench stand	DPH2

Pipette Tips – AstraGene pipette tips are manufactured from a special UV transmitting polymer and are available RNase free in sterile racks of 96 tips or in non-sterile bags of bulk quantities.

Description	Order Code
50 Boxes of 96 pipette tips (4800 tips)	TIPUVB-50
10 Boxes of 96 pipette tips (960 tips)	TIPUVB-10
1 Box of 96 pipette tips (96 tips)	TIPUVB-01
10 bags of 1000 pipette tips (10,000 tips)	TIPUVG-10
5 bags of 1000 pipette tips (5000 tips)	TIPUVG-05
2 bags of 1000 pipette tips (2000 tips)	TIPUVG-02
1 bag of 1000 pipette tips (1000 tips)	TIPUVG-01



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