

The Olis[®] Titrator Series



Perfect Titrations into any type of cuvette

With considerable effort, one can do precise titration studies by hand. Or, one can let the OLIS titrators do the technician's work over and over again, perfectly.

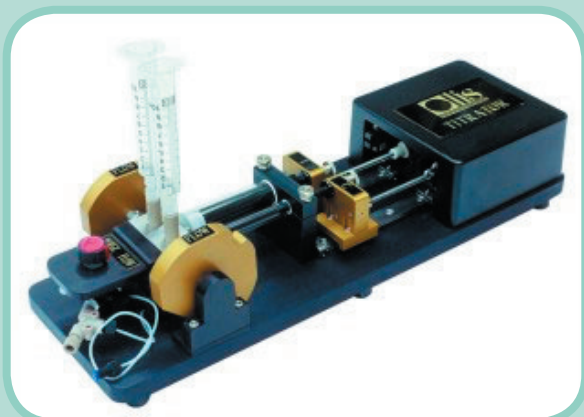
There is a great deal of flexibility in this computer controlled titration accessory. Volumes added can be from 0 to 100% of the volume of the syringe, in increments to 0.0001th of the syringe volume. The syringes in the titrator can be the same or different sizes; volumes can be 0.25, 0.5, 1.0, 2.5, 5, or 10 mL. Thus, stepping resolution (minimum volume moved) is 0.025 μ L to 1 μ L.

Stirring in the cuvette is not required, so cuvettes of any pathlength and geometry can be used. The cuvette can be cylindrical or rectangular, long pathlength or short, as the measurement requires.

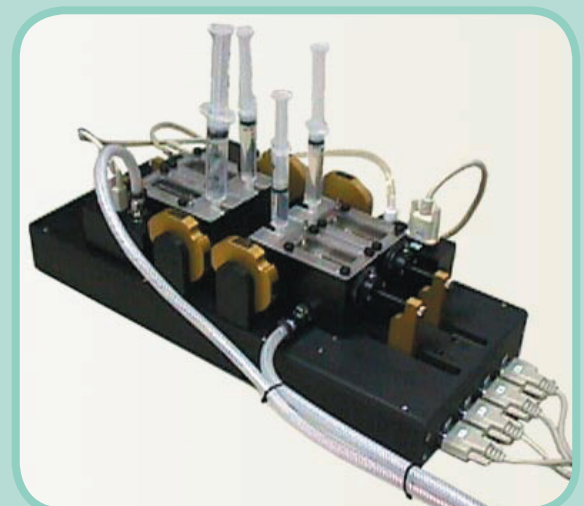
Any number of scans can be made of each sample preparation, so one can test for temporal stability, too. Ambient and Peltier versions are available.

Do your protein folding/unfolding, equilibrium ligand binding experiments, and acid/base titrations by hand. Over and over. Or free yourself with the OLIS Titrator. It is to hire a perfect and tireless pipetter.

Every Desirable Attribute



Two syringe ambient model



Four syringe Peltier model



Our first model, purchased by UIUC

- The Olis Automatic Titrator supports use of all dimension cuvettes, rendering it useful in UV CD of protein, as well as UV/Vis/NIR absorbance and fluorescence.
- Stirring within the cuvette is not required, so that CD work to the lowest UV limits in 0.1 or 0.2 mm pathlength cuvettes is possible.
- Mixing is accomplished by computerized infusion and withdrawal cycles from the syringes to the measuring cell.
- The sample is perturbed to the minimum level, so sudsing issues are completely avoided.
- Anaerobicity can be maintained throughout the experiment.
- The sample is in the measuring beam only during the measurement, so photolysis is held to a minimum.
- Mixing is complete.
- Delay times to wait for equilibrium are user-selectable.
- The geometry of the cuvette determines the volume used.
- Dilution ratio of sample and titrant are arbitrary.
- There are no 'overflow' issues; sample is 'mixed and stored' in an external syringe until time of optical measurement; and volume to be measured is precisely what is needed to fill cuvette (any 'overflow' remains in mixing/storage syringe).
- In-line pH microelectrode can be positioned within flow line from storage syringe to sample cell.
- The sample is in the light path only when measurements are made.
- Users of the Olis' U.S.A. Stopped-Flow will recognize the trademark user friendly knobs. (No easily broken switches here!)
- The accessory is also mounted on a thick metal sheet, continuing Olis tradition of creating a sturdy, indestructible product.
- Motors and electrical components are housed on the undercarriage of this accessory.

Two And Four Syringe Models For Ambient Or Peltier-controlled Work

Two Syringe Model

With the two syringe Olis titrator, “sample” and “titrant” could be protein and protein, protein and denaturant, DNA and protein, or any other pairing.

To keep the sample concentration constant, chose a four syringe model, wherein the third and fourth syringes can be used to add additional protein (for instance) to the sample preparation.

Four Syringe Model

* Use for automated preparation of enzyme, substrate, inhibitor, and buffer mixtures.

* Standard syringe volumes are 2.5 mL for inhibitor, substrate, and enzyme, and 10 mL for the buffer, which will be used for flushing the cuvette between measurements, too.

* Interfaces directly with all Olis spectrophotometers and can be used freestanding.

In this model, volumes from syringes 1, 2, and 3 are mixed in the mixing valve and volume of syringe 4 is mixed further down the line, nearer the measuring cuvette (see graphics, at right). Thus, the appropriate mixture of inhibitor, substrate and buffer is prepared and then, right before the mixture shoots into the measuring cuvette, the reactant—the enzyme—is added, too. Then, after the scan, instead of the mixture being withdrawn into any of the syringes, it is forced out of the system by a flush of buffer. Thus, the measuring cuvette is thoroughly rinsed with buffer between each run. The syringes will be (for example) 2.5 mL for inhibitor, substrate, and enzyme, and 10 mL for the buffer.

There is a great deal of flexibility in our designs, both explicitly and implicitly. Volumes added can be anything from 0.0 or 0.0001 of the syringe volume to 100% of it. Mixing can be done any number of times.

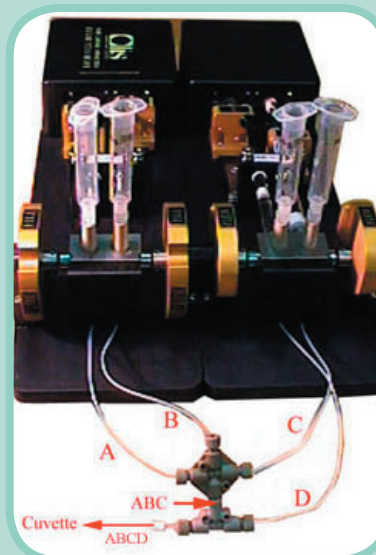
Changing syringes from one size to another is a 5 minute operation. And any number of scans can be made of each dilution.



**Two syringe Peltier
(see also on front cover)**



**Long and short pathlength
flow-thru cuvettes**



**Four syringe ambient with one
possible configuration of junctions**

¹ The “mix cycle” consists of the repeated infusion cycles to create a homogeneous sample preparation. Commonly, a single cycle suffices, but the more disparate the volumes or viscosities are, the more cycles might be needed. Notice that the sample does not remain in the cuvette during these mix cycles - which causes undesirable photolysis effects to many samples - but is out of the measuring beam most of the time.

- Free the students and technicians to focus on sample isolation and data analysis instead of the tedium of serial sample titrations.
- Overnight runs can be made with no supervision.
- To own an OLIS Titrator is to have a tireless and error-free pipetter!
- Protein denaturations, equilibrium titrations, acid-base titrations, enzymatic assays, and more!

Specify...

cuvette volume

sample volume

titrant volume

**number of mix cycles [see footnote, page 3]
and incubation time before data collection**

...Then Walk Away!



For more information on this and other Olis products:

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