



SmartFlow Fluidics System TF1005



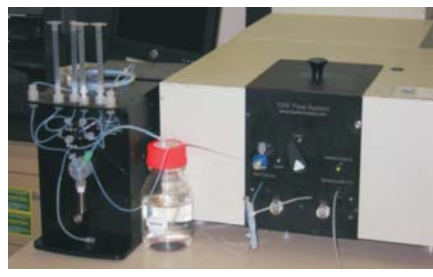
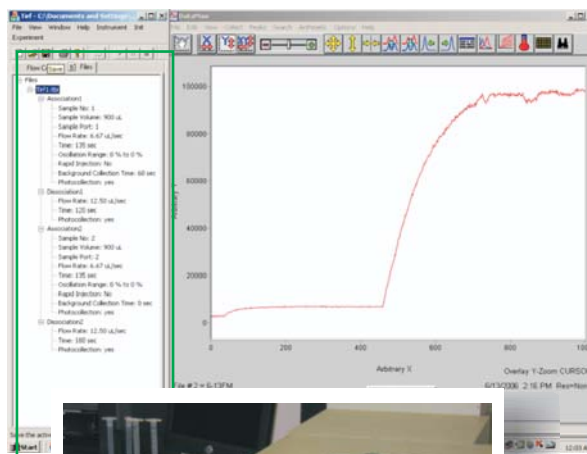
Features

- Facilitates measuring of TIRF sensograms to derive k_{on} and k_{off}
- Minimizes the effects of mass transfer and dead volumes
- Automated processing of 4 bioanalyte solutions and 2 buffers
- Automated sample loading/injection
- Profiled flow rate extends association stage
- Templates for standard and wizard for customized experiments

Specifications

- Precision digital syringe pump and computer-controlled valves
- Default syringe volume: 2500 μL , optional syringes 50 μL -5 mL
- Flow rates: 0.0001 $\mu\text{L}/\text{sec}$ - 5000 $\mu\text{L}/\text{sec}$
- Minimum sample volume - 20 μL ; maximum - 2500 μL
- USB communication port interfaces SmartFlow with computer

The SmartFlow TF1005 is a compact stand-alone fluidics, which facilitates measurements of kinetics and analysis of biomolecular interactions. SmartFlow is equipped with a precision syringe digital pump and computer-controlled valves. It is designed for use with TIRF spectroscopy, TIRF microscopy, SPR, SERS, electrochemical, and other real-time analytical techniques that employ flow cells, where one partner of the interactions (receptor or “capture” molecule) is immobilized at the surface of a sensor chip, and the other partner (ligand or “target” molecule) is present in the solution phase. When the bioanalyte solution is injected into the flow cell. There is a transient period, during which the interactions are limited by mass transfer, rather than by the kinetics of receptor-ligand interactions. In traditional fluidics systems, the transient time is large. If the rate constant is fast, one needs large amount of bioanalyte solution to resolve the kinetics. SmartFlow TF1005 allows for minimizing the amount of bioanalyte necessary for measurements of fast rate constants. Typically, 100 μL or less of bioanalyte solution is sufficient to record a sensogram and determine association and dissociation rate constants k_{on} and k_{off} . In contrast to traditional fluidics systems, SmartFlow provides profiled flow rate, which is fast at the beginning and slower or oscillating near the equilibrium. The flow profile is precisely reproducible from sample to sample. User-friendly software guides the experimenter through all preparation stages and allows for creating custom-designed protocols. The fluidics operates automatically, once launched by the user. SmartFlow handles up to 4 bioanalyte solutions (up to 8 in “stair-case” experiments), and 2 buffers. Additionally, easy-to-use graphic user interface enables the user to operate the syringe pump and valves separately or intervene with manual manipulation, if necessary.



SmartFlow fluidics is recommended for use with TIRF Flow System TA1004, and lightguide-, objective- and prism-based TIRF microscopy flow systems. SmartFlow application window can be conveniently open in one screen with your fluorometer application or microscopy imaging software. SmartFlow facilitates measuring of sensograms and deriving of rate constants k_{on} and k_{off} .