

LISSY

Liquid Sampling System



LISSY is a compact, PC controlled robotic sample processor, capable of automating all precision liquid handling tasks. Easy to use, flexible software makes this an ideal system.

LISSY uses a robotic XYZ arm with four independent tips. These operate over the instrument's workbench, which can accommodate any kind of racks and holders for tubes, vials, microplates and slides. The workbench layout is displayed graphically on the computer screen.

A microplate handler can be fitted on the XYZ arm as an option, as well as a stacker for multiple plate handling.

Simple Programming with a Mouse

LISSY is as easy to use as a manual pipette, due to the unique 32-bit Windows® -NT software "WinLISSY".

Using "drag and drop" techniques the user can easily design their own layouts for the workbench and generate protocols for their individual requirements and test them in a simulation run. Additional commands can be added to switch internal and external devices on or off, e.g. valves, shakers, alarms and screen messages.

Integrated safety

WinLISSY automatically calculates optimum parameters in the protocol e.g. airgaps and dispensing speeds. If necessary, the user can define their own parameters from their experience and intervention is not required, once LISSY has been set up. During the run, each individual step is documented in a logfile and stored after the run. In case of an interruption, for example a power failure, the liquid handling task can proceed without any difficulty.

A Flexible System

LISSY is an open system which allows the WinLISSY software to interface with any network organisation or automation structure via an RS232 port.

Applications

LISSY is designed for tube to tube, tube to plate and plate to plate pipetting. Applications include sample preparation for immunoassay protocols, cytogenetics, PCR, Solid Phase Extraction, etc.

Precision and Accuracy

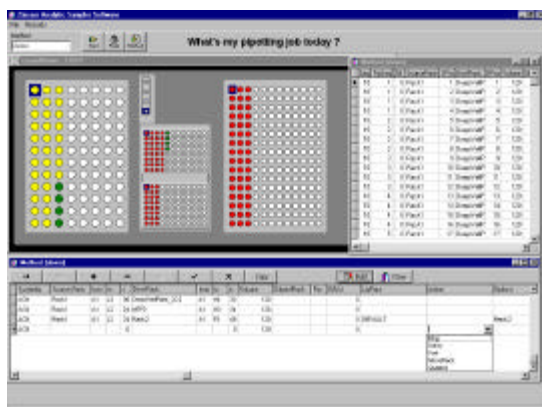
Each of LISSY's 4 sampling tips has its own dedicated precision syringe pump. The software allows the use to preoptimised operational and precision parameters.

Minimising Carry-over

LISSY offers the choice of washable or disposable sampling tips as an option. Each tip has an individual liquid level sensor to prevent over-submersion of the tip during sampling. A wash station is used to rinse washable tips inside and outside between samples or reagents.

Software

32-bit WinLissy®-Software for Windows® -NT.



Throughput

LISSY uses 4 sampling tips which adjust their spacing automatically when pipetting from one spatial arrangement to another, so ensuring maximum efficiency at every stage.

Safety Features

Operator Safety

A safety bar deters access to the instrument while it is working. Additionally, each movement axis of the LISSY has a feedback circuit to detect incorrect positioning. This helps to prevent accidental injury and instrument damage in the unlikely event of a collision.

Sample Tracking

The optional bar code reading device is fully integrated, and can read any commercially available bar code format. Resulting bar codes are transferred to the final work-list output, which matches the destination position of each sample with its identified bar code.

General Specifications

Accessories and Options

Sample tube racks for tube diameters 11-18mm
Standard and customised reagent racks
Reagent stirrers (option)
Microplate shaker, capacity 1 or 4 microplates (option)
Tube rack shaker for 192 tubes (option)

Bar codes

Most commercially available bar codes can be read

Carry-over

Washable tip: down to 10^{-7} with sufficient tip wash
Disposable tip: Zero

Capacity

up to 192 tubes and 6 plates, or up to 400 tubes

Interface

RS 232

Liquid Detector

Capacitive detector. Minimum detectable volume 200 μ l (with 0.9% sodium chloride in a tube diameter 16 mm)

Operating Conditions

Temperature: 15°C to 30°C
Relative Humidity: 10-85% at 30°C or below

Pipetting Throughput

Up to 1500 sample transfers per hour

Precision and Accuracy

Pipetting better than 1% at 10% syringe volume, based on volume range 10 ml to 1ml, gravimetric evaluation

Pumps

4 x High precision syringe pumps for precision liquid handling, syringe size variable from 250 μ l to 5 ml.
4-channel peristaltic pump for tip wash, minimum flow rate 100ml/min

Tube sizes

Max: Tubes OD 18 mm,
Min: Tubes OD 8 mm

Tips

Washable: special stainless steel tip with smooth surface inside and outside and PTFE coating on the outside. Other materials may be available.
Disposable: conductive, volume 200 μ l or 1 ml (option)
Spacing: from 9 to 38 mm

Volumes

Sample/reagent volumes from min. 5 μ l to max. 1 ml

Power, Dimensions and Weight

Self regulating power 90 to 260 AC, 47-63 Hertz
Weight: 38kg
Work space: 720 x 290 x 150 mm (WxDxH)
Overall dimensions: 900 x 710 x 600mm (WxDxH)



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