



Using SPT Labtech's mosquito[®] Liquid Handler with Mosaic Software

Michael Wood, Steffen Köhler
Titian Software Ltd

v2.0

INTRODUCTION

Automated liquid handlers, such as SPT Labtech's mosquito®, are an essential component of the modern laboratory, significantly improving pipetting speed and accuracy while reducing error rates by automating tedious tasks. However, liquid handlers still need to be programmed and set up for operation, and the data they generate needs to be combined with other process data and interpreted. These tasks can be distracting and time consuming for research scientists.

If automated liquid handlers are not integrated into lab workflows, they can present some challenges for their operators, such as:

- Inventory errors caused by inaccurate manual transfers of data files
- Time consuming inventory updates to synchronise inventory data
- Human error in setting up the liquid handler ready for transfers
- Human error in calculations, such as half log serialisation volumes
- Difficulties connecting information from stores holding the source samples used for dispensing

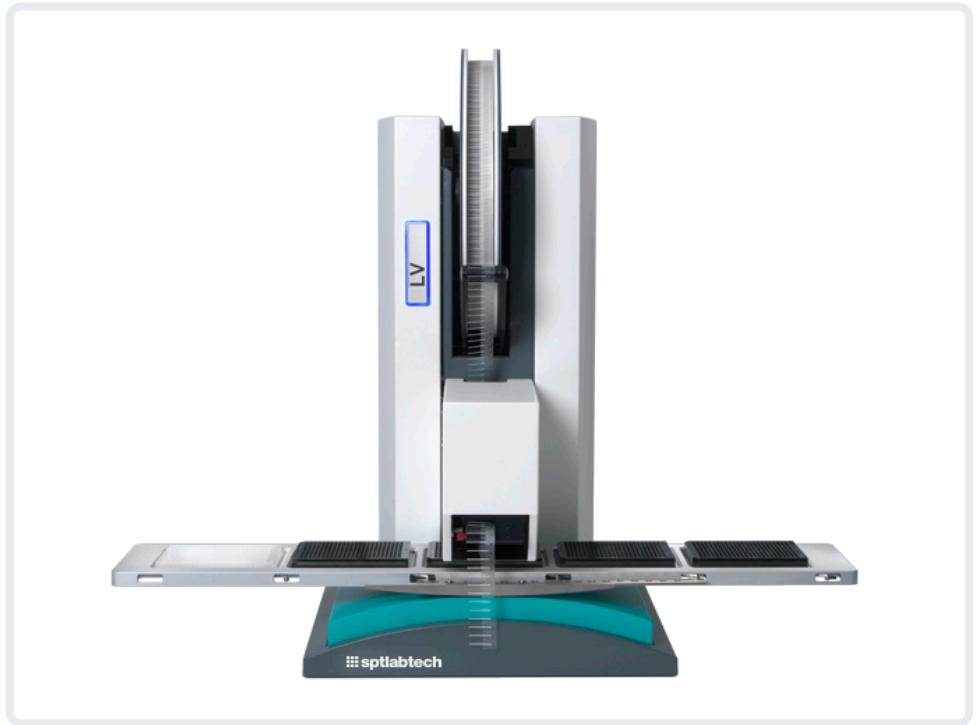
BENEFITS FROM USING MOSQUITO FOR LIQUID HANDLING

SPT Labtech's mosquito provides liquid handling using unique disposable micropipettes. It offers the following benefits for serial dilutions and plate replications:

- Accuracy and precision at low volume ranges
 - 25 nL–1.2 µL (LV and X1 models), or
 - 500 nL– 5 µL (HV and X1 models)
- Liquid handling in 96, 384, 1536 well formats
- Dead volumes are minimised to under 0.3 µL
- Disposable micropipettes guarantee zero carry-over between samples



- No need for liquid class setup as positive displacement pipetting removes liquid viscosity considerations
- Automatic pipette tip exchange



INTEGRATING MOSAIC SOFTWARE AND SPT LABTECH MOSQUITO

The powerful Mosaic workflow management system can integrate the mosquito liquid handler into multi-stage workflows for sample processing involving other machines and/or manual pipetting. Mosaic provides dedicated worklists to the mosquito software to perform precise pipetting instructions. All mosquito's actions are recorded in Mosaic's comprehensive audit trail to ensure the integrity of your process. Mosaic brings end-to-end inventory and sample tracking to the mosquito.



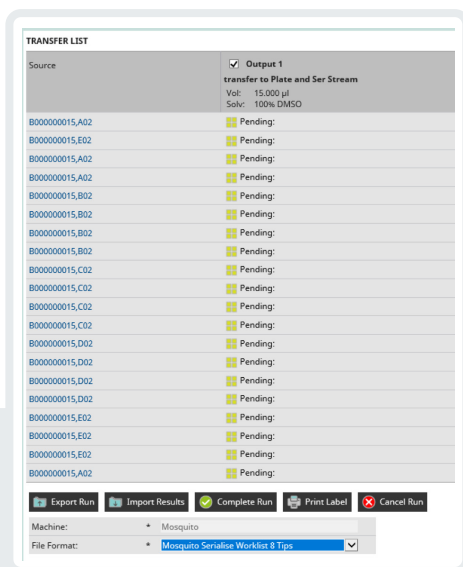
The key benefits to this integration are:

- Worklists for the mosquito are automatically generated, based on labware in Mosaic's inventory
- Automatically create a specified dilution series on a plate
- Replicate plates for other sample management or liquid transfer processes quickly and easily
- Reduced tip wastage thanks to an intelligent tip changing strategy, which is applied only during substance transfers and not solvent only ones
- Uses advanced settings, such as adjusting aspirate/dispense mixing and piston speeds dependent on substances and solvent used, by leveraging mosquito's powerful protocol system
- Results and transfer files can be automatically imported back into Mosaic inventory using an integrated barcode scanner

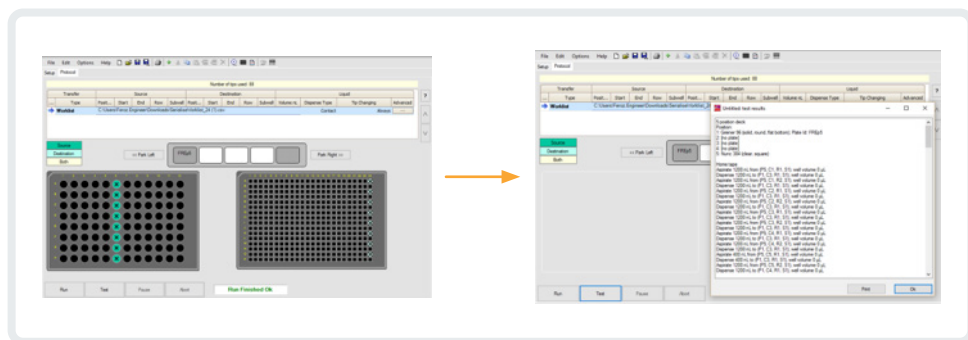
PERFORMING MOSQUITO LIQUID HANDLING WORKFLOWS IN MOSAIC

The steps that an operator undertakes to fulfil an order workflow step on a mosquito are as follows:

1. Select the desired order workflow step in Mosaic
2. Select the desired inputs and outputs to fulfil in the run. Choose a mosquito device and create the run
3. Export a mosquito worklist for the run



4. Switch to the mosquito application
5. Select a pre-configured mosquito protocol
6. Import the mosquito worklist and start the process



7. Wait for run to complete and either load the results file into Mosaic or, if using an integrated barcode scanner, the results will be automatically processed by Mosaic to update the inventory

Machine:	*	Mosquito
File Format:	*	Mosquito Serialise Report & Tips
Auto Confirm:	*	<input checked="" type="checkbox"/>
Confirm Error Action:	*	Halt
Confirm Warning Action:	*	Halt
Select a file:	*	<input type="text"/> Browse...



SUMMARY

Integrating the SPT Labtech mosquito with Mosaic software provides error-free pipetting work lists, advanced tip usage and automated data processing, resulting in auditable inventory updates.

Mosaic users are able to:

- Provide on time delivery of requested substances, with the outputs defined, in the order that the scientists are looking for
- Maintain a highly accurate inventory by capturing precise volume transfers
- Track every sample preparation step via Mosaic's comprehensive audit trail

An additional benefit is that Titian works in partnership with SPT Labtech to continually evolve the integration, so it is responsive to customer requirements and the development of updated liquid handler models and software.

ABOUT TITIAN SOFTWARE

Titian Software is the industry leader in providing sample management software for the life sciences. Using Mosaic software, our customers see significant benefits in terms of their throughput, response times, error rates, labor costs as well as in sample conservation. Titian have done this by producing an application that can process multiple requests with varying sources, and labware output formats. It can easily be run by any operators, instead of tying up an automation expert to write new protocols. We also use our extensive experience in interfacing laboratory instrumentation and robotic systems with our software to ensure that customers make best use of their investment in research and development technologies.



Titian's development efforts never stop as we continue to advance Mosaic toward higher levels of efficiency and practicality for the user. The collaborative relationship between Titian and SPT Labtech continues to ensure that new applications are made available on a timely basis, and we pride ourselves on taking into account customer feedback for all Mosaic modules to drive our product to be the best it can be. It is all part of Titian's commitment to providing innovative solutions that make life easier for sample management professionals.

AUTHORS:

STEFFEN KÖHLER

Steffen Koehler ran the compound management department at Evotec for 10 years before spending 4 years focusing on HTS, screening and automation as Director Industrial Applications at Direvo Industrial Biotechnology. He joined Titian Software in 2013 as a business application consultant.





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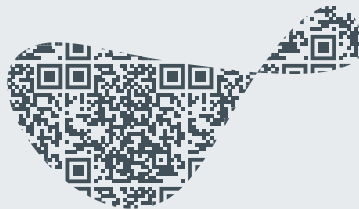


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info@titian.co.uk

www.titian.co.uk

UK Tel:

+44 20 7367 6869

USA Tel:

+1 508 366 2234