

F.A.S.T.™

96-Channel Positive Displacement Liquid Handler

Precise Nanoliter Sample Transfers

The F.A.S.T. (Flow Axial Seal Tip) is a reliable and easy-to-use liquid transfer system designed to move any viscosity of liquid quickly with its one-of-a-kind positive displacement, 96-channel head. With its high accuracy, precision, and reliability for low volume sample transfers, the F.A.S.T. system saves researchers time and reduces reagent costs.



Volume Range

Min: 0.1 μ L

Max: 50 μ L

Technology

Positive
Displacement

Precision

CV 5%

@ 0.1 μ L



Save Time on Low Volume Transfers

Aspirate and dispense any viscosity liquid with high precision (CV 5% @ 0.1 μ L)



Flexible to Fit Your Workflow and Budget

Choose how many tips to use; Compatible with any SBS-format microplate



Go from Zero to Running Experiments in Minutes

No need for any programming or understanding difficult coding languages

Benefits

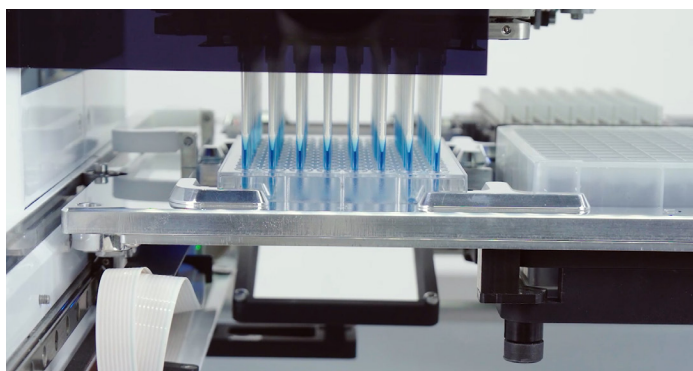
- **Fast:** Save time on your liquid transfers with the unique 96-tip head that can pick up both LV (13 µL) and HV (50 µL) tips
- **Flexible:** Save on consumables by using your choice of 1, 8, 12, or 96 tips to transfer reagents between 96- and 384-well plates. Minimize interruptions for tip box replacement by getting optional storage for tip disposal
- **Versatile:** Perform cherry-picking, serial dilutions, and plate copies (broadcast, mother-daughter transfers) with ease
- **Liquid Class Agnostic:** Forget having to program liquid classes ever again; the positive displacement tips mitigate the effects of viscosity on accuracy
- **Compact:** Save on lab space as the system's small footprint allows for desktop use yet is open for integration with complementary automation
- **No Cross-Contamination:** The positive displacement disposable tips ensure the integrity of your samples without any risk of cross-contamination
- **Smart:** Conduct your transfers with confidence as the system features multiple state-of-the-art failsafes, including tip position sensors, automatic tip arrangement, and ultra-sensitive collision detection
- **Automation-Friendly:** F.A.S.T.'s software offers an open API for seamless integration, showcasing how effortlessly integratable it is
- **Biosafety Cabinet Compatible:** With its compact dimensions (532 mm x 403 mm x 596 mm), the F.A.S.T. can be used in various biosafety cabinets to accommodate workflows that require this level of safety



BioSafety cabinet compatible

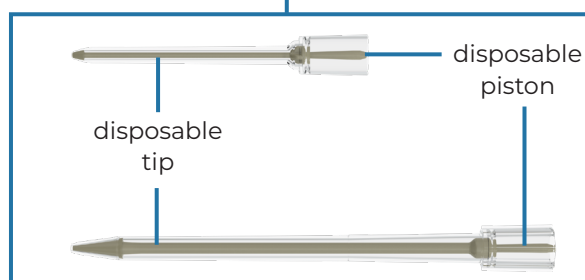
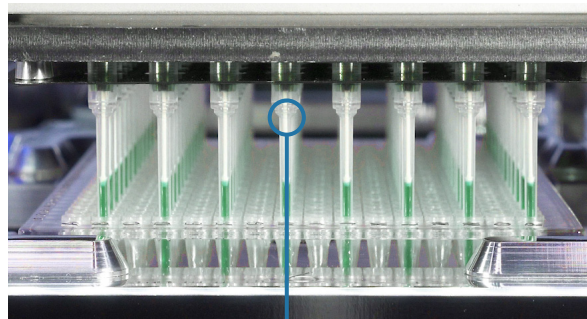
Broad Range of Applications

- DNA and RNA Extraction
- DNA, RNA, and Protein Purification
- PCR Setup and Cleanup
- Next Gen. Sequencing (NGS) Library Prep
- Serial Dilutions
- Cell-based Assays
- Antibody Assays
- Enzymatic Assays
- Compound Management (Picklists from .csv files)
- Proteomics

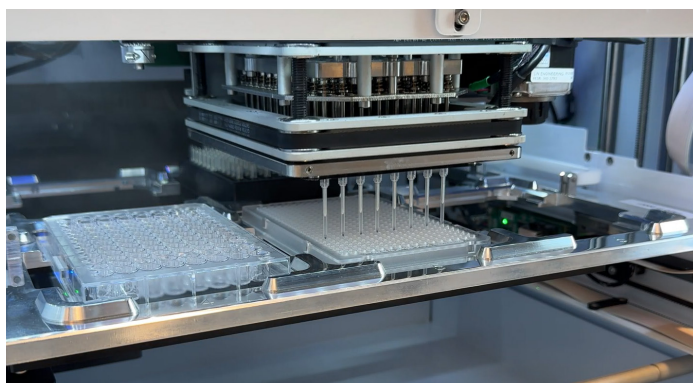


Best in Class Performance without the Risk of Contamination

With positive displacement pipette tips, the precision of the F.A.S.T. is not affected by the types of liquid samples that are being transferred. Without the need to account for each liquid class, less time is needed to set up your experiment, while greater accuracy and precision are achieved. The disposable tips ensure the integrity of your samples while preventing any cross-contamination.



Positive displacement LV (13 μ L) and HV (50 μ L) tips



Save on Reagents with Reaction Miniaturization

The F.A.S.T., similar to the Mantis® and Tempest® liquid dispensers, is a tool designed for low-volume sample and reagent transfer at high accuracy, which is crucial when setting up minimized assay reactions:

- Conserve your samples and costly reagents
- Increase assay sensitivity
- Increase throughput
- Reduce the cost per sample

“We tested multiple liquid handlers, and the F.A.S.T. has been the only instrument able to deliver rapid, sub- μ L liquid transfers and mixing with high precision and no cross-contamination. The software interface is intuitive, and we were easily able to program all our protocols. With an expert and highly responsive support team, we feel that all aspects of the platform are best-in-class.”



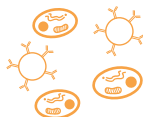
Peter Girling
COO at Tessara Therapeutics

Common Applications



Sequencing Technologies

Miniaturize your cDNA synthesis and library preparation reactions, even with limited starting material



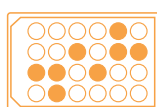
Cell & Bead-Based Assays

Gentle and even distribution of suspension, adherent and 3D cell cultures



PCR Technologies

Enhance the cost-effectiveness of any qPCR plate preparation workflow



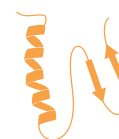
Assay Development & Screening

Simplify the evolution from assay design to drug discovery



Nucleic Acid Workflows

Automate your nucleic acid extraction, recombination, and synthesis while avoiding cross-contamination and ensuring precision with the tipless technology of the Mantis



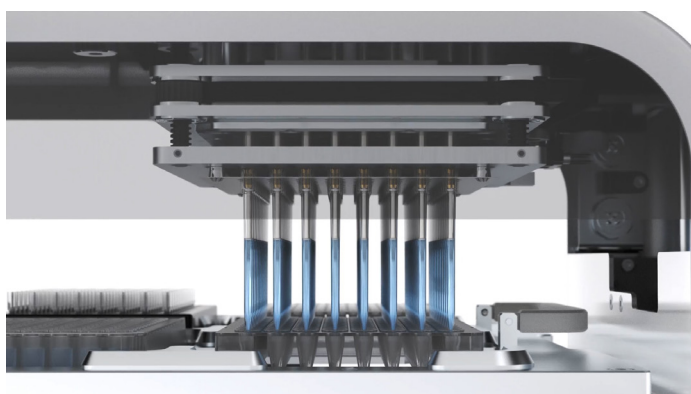
Proteomics

Automate critical steps of proteomics workflows in proximity extension assays—such as Olink—allowing researchers to streamline processes, improve reproducibility, and accelerate discoveries

Expanding Workflow Versatility with 50 μ L Tips

The F.A.S.T. 50 μ L tips enhance the system's flexibility and performance for higher-volume workflows. Supporting a broad volume range from 3.0 μ L to 50 μ L with exceptional precision (CV <5% at 3.0 μ L), these tips enable seamless handling of assays like ELISAs, PCR, NGS, cell culture, and nucleic acid workflows.

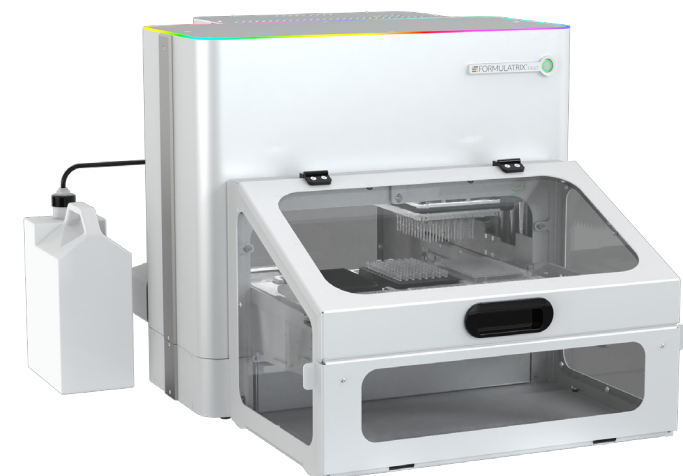
The tips' versatility supports both low- and mid-volume protocols as well as those involving deep-well SBS plates, thereby reducing the need for multiple instruments. By minimizing transfer steps, simplifying setup, and enabling direct bulk reagent addition, the F.A.S.T. 50 μ L tips improve throughput, reduce contamination risk, and maximize return on investment from a single, adaptable liquid handling platform.



High volume Positive Displacement pipetting with F.A.S.T. 50 μ L tips

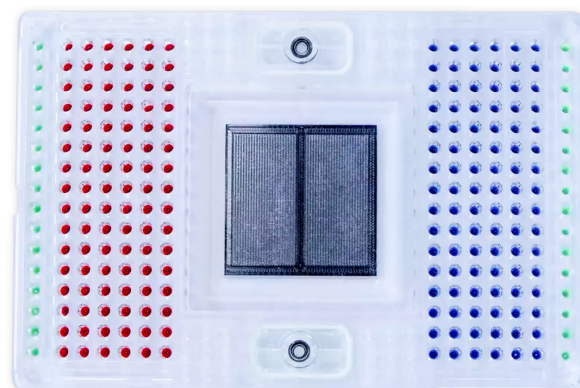
Protect Low-Volume Transfers with Humidity Control

Preserve precious low-volume samples by minimizing evaporation during liquid handling. Rapid humidity stabilization reaches target conditions in under five minutes, while precise $\pm 5\%$ RH control (up to 85% RH) helps ensure consistent volumes and reproducible results. Reduced static improves droplet release for more accurate nanoliter-scale dispensing. Continuous temperature and humidity monitoring safeguards sensitive assays in real time, and a door-sensor alerts users when the chamber is open to help maintain stable conditions. The compact humidity chamber integrates seamlessly with the F.A.S.T. instrument and software.

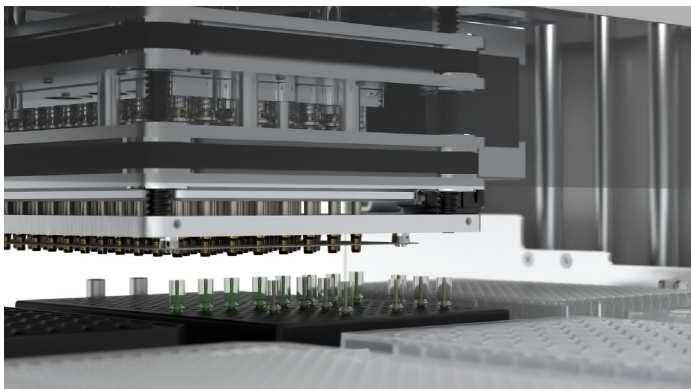


Set up IFCs with Ease

Integrated fluidic circuits (IFCs) from Standard bio tools, such as the ones used in Olink proteomics kits, enable the automation of nanoliter-volume molecular biology applications. This technology facilitates high-complexity analysis for applications that require sensitivity and a broad dynamic range, such as genotyping, gene expression, sample identification, copy number variation, and NGS library preparation. However, sample and assay buffer loading in IFC plates using conventional liquid handlers is challenging due to the complex format of these plates. Hence, small volumes must be pipetted manually, making the process laborious, compromising reproducibility, and leading to health issues such as chronic fatigue in lab personnel. Additionally, manual pipetting can result in primer contamination, incorrect loading into IFCs, and the loss of costly reagents and valuable time due to reruns caused by these errors.



The F.A.S.T. liquid handler offers a solution to these challenges. Its software fully supports the IFC's unique plate format for various sample/assay combinations and automates pipetting operations with high accuracy and precision. The F.A.S.T. not only reduces the risk of cross-contamination and incorrect loading but also enables lab personnel to prepare multiple runs simultaneously, increasing throughput. This allows lab staff to utilize the saved hands-on time for other important projects. The F.A.S.T. performs the same way every run, ensuring reliable results across multi-year studies and among multiple researchers, eliminating concerns about user-to-user variation.



Automatic tip location identification

Never Have to Arrange Tips Again

The F.A.S.T. liquid handler is equipped with computer vision, allowing it to scan the tip caddy to determine the number and location of tips. Before beginning any workflow, the F.A.S.T. can automatically rearrange the tips according to the protocol's specifications. This eliminates the need to rearrange the tips manually and reduces the risk of contamination. It also enables you to maximize the use of your tips while keeping your shelf free of stray tip racks.

Control Your Experiment Setup with Removable Decks

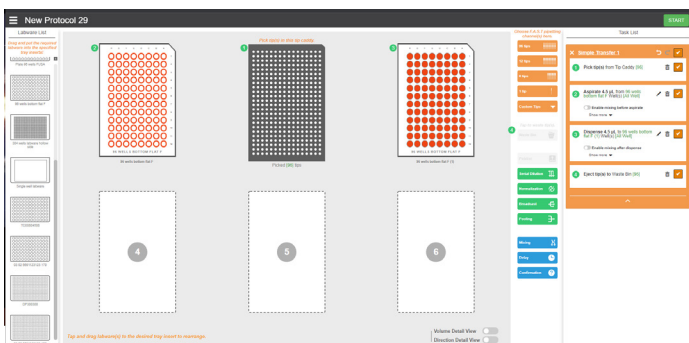
Interchangeable decks allow researchers to set up their tips, plates, and reagents prior to working on the instrument. The customizable decks reduce the time needed for experiment setup and reduce the chances of sample misplacement. Each removable deck is barcoded so the system knows what item (sample, labware, tips, etc.) is located at each of the positions. The system automatically calibrates itself, enabling users to swap decks quickly and seamlessly, ensuring a hassle-free experience.



Easy to Use Software for Any Level of User

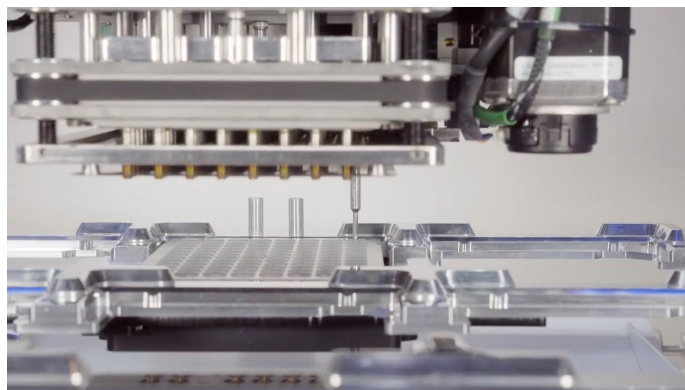
The software was designed for any user to walk up to the system and begin running experiments. This is truly automation for everyone in the lab:

- Go from zero to running experiments in minutes
- Very shallow learning curve for new users
- No need for programming, writing, or understanding difficult software coding languages
- Import .csv files for fast experiment design



Never Have to Manually Program a Plate Definition Again

Do you find manually defining your plates on your liquid handler a tedious and time-consuming task? With the F.A.S.T. plate definition feature, you can say goodbye to the hassle of manual plate definition. This feature automatically defines the exact dimensions and specifications of your experiment plates in seconds, freeing up valuable time so you can focus on your research.



"I have worked with Daniel and his team at FORMULATRIX in testing the F.A.S.T. for qPCR quantification. I really like the instrument in its precision and accuracy with low volumes, which has been very helpful for setting up qPCR SYBR runs."



Gregory Nakashian

Senior Process Development Associate



The system automatically detects a collision to ensure error recovery

Guard Against User Errors with Ultra-sensitive Collision Detection

The F.A.S.T. offers ultra-sensitive collision detection courtesy of a force-sensitive deck that promptly halts the movement of the tips if a human error—like a forgotten plate lid—causes a collision, preventing damage and loss of tips, plates, and reagents. A clear on-screen prompt alerts the user to resolve any detected collisions, allowing the protocol to continue. This safeguard helps protect valuable samples and eliminates the need to restart runs due to simple setup errors.

"The FAST allows Olink customers and lab personnel to prepare multiple runs simultaneously, boosting throughput without increasing FTE hours. It ensures fast and consistent sub-microliter performance across runs, preventing any potential user-to-user variability or fatigue in long-term studies. The pipetting range of 0.1 uL to 13 uL also allows our users to automate both our Olink Explore and Olink Target products lines, which enables our customers to run large biomarker screening all the way down to much more targeted assays."



Olink®
Accelerating proteomics together

Vaughn Walker

Senior Automation Support Engineer

Flexible Hardware That Adapts to Your Workflow

The F.A.S.T. system is designed with flexible hardware options that grow with your research needs. Choose from multiple tray configurations, including the Standard, Dual Caddy, and High-Volume Trays, or enhance the tip storage capacity with the Riser and enlarged waste bin upgrade.

Trays can be easily swapped in and out, allowing you to quickly adapt the system to different applications, throughput requirements, or laboratory workflows without downtime. This modular approach ensures maximum efficiency and scalability for any lab environment.



F.A.S.T. with the Riser and enlarged waste bin upgrade

Technical Specifications

User Interface Specifications

- **Browser:** Google Chrome version 69

Liquid Handling and Labware Features

- **Volume Range:** 100 nL to 13 μ L (LV tips) | 3 μ L to 50 μ L (HV tips)
- **Liquid Viscosity Range:** Any viscosity of liquid
- **Dispense Mode:** Contact dispensing
- **Transfer Precision:** 5% CV at 0.1 μ L
- **Microplate Compatibility:** SBS footprint microplates from 1-well up to 384-well

F.A.S.T. Physical Dimensions

- **Width:** 532 mm (21")
- **Height:** 403 mm (15.8")
- **Depth:** 602 mm (23.7")
- **Weight:** 18 kg (39.6 lbs)



F.A.S.T. with Expanded Waste Tray

- **Width:** 532 mm (21")
- **Height:** 476 mm (18.7")
- **Depth:** 602 mm (23.7")
- **Weight:** 23.7 kg (52.2 lbs)



For more information about the F.A.S.T., visit www.formulatrix.com or email us at info@formulatrix.com.