

Acoustic Sample Management

TRANSFORMING SAMPLE MANAGEMENT WITH ACOUSTIC LIQUID HANDLING



Access™

DUAL ROBOT SYSTEM
for Acoustic Sample Management

BROCHURE

Version 1.1 | APRIL 2018

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LABCYTE 

Acoustic Sample Management

Acoustic Sample Management optimizes sample library design and distribution for a smarter approach to high-throughput screening. This fully tip-less, non-contact solution enabled by acoustic liquid handling sets new standards for sample integrity, sample management efficiency, and data quality.



Access™ Dual Robot System

The Access Dual Robot System (DRS) is a modular and configurable automation platform optimized for sample management workflows and integration with the new Echo® 655T Liquid Handler.

- **Configured to achieve optimal throughput for sample management workflows**
- **Compact and ergonomic design with docking modules, turntables, retractable shelves, and drawers**
- **Optional features can include environmental management to protect samples from hydration or evaporation**

Echo® 655T Liquid Handler

The latest addition to the family of Echo Liquid Handlers, the Echo 655T Liquid Handler supports sample transfer directly from storage tubes to enable fully non-contact liquid handling workflows from sample storage all the way to assay-ready plates.

- **Non-contact transfer from Echo® Qualified Microplates and Tubes**
- **Transfer of fluids for 'Omics and Screening applications**
- **Accurate and precise transfer of samples in volumes as low as 2.5 nanoliters**
- **Avoids risk of compound loss, carryover, and contamination**
- **Minimizes sample hydration and evaporation with purge-able transfer zone**



Acoustic Liquid Handling from Tubes – A Groundbreaking Innovation

Acoustic Sample Management adds flexibility to workflows and enables researchers to benefit from the advantages of acoustic liquid handling earlier in the sample management process.



MAXIMIZE Lab Budget

- Miniaturize assays
- Conserve sample and reagent
- Eliminate tip costs
- Reduce workflow steps



INCREASE Data Quality

- Minimize sample loss
- No pipetting variances
- Eliminate carryover
- No cross-contamination



IMPROVE Sample Integrity

- Minimize sample exposure
- Eliminate unnecessary freeze-thaw cycles
- Limit hydration and evaporation



ACCELERATE Productivity

- Validate hits faster
- Transfer samples acoustically without source plates
- Create dose response curves starting from source tubes

Fully Acoustic Workflows for Sample Management

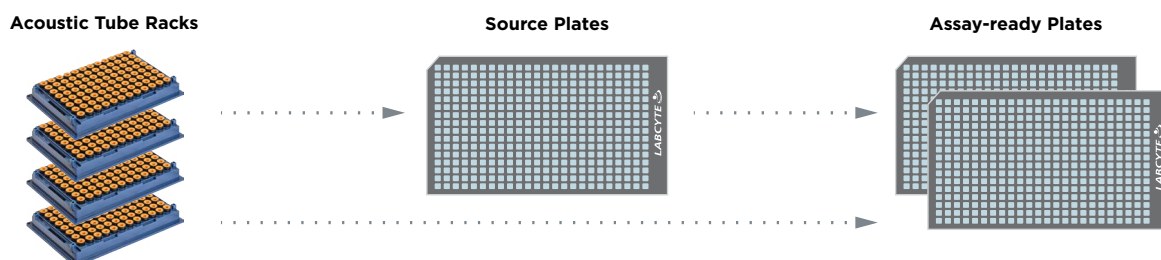
The introduction of acoustic tubes enables fully acoustic sample management workflows and offers all the benefits of tip-less liquid transfer, starting at sample preparation. Acoustic tubes coupled with the Echo 655T Liquid Handler and Access Dual Robot System offer superior results for sample management applications.

- Primary Screening
- Secondary Screening
- Hit Validation
- Dose Response, IC_{50} , EC_{50}
- Assay-ready Plate Production
- Targeted Screening

Primary Screening

Primary screening workflows benefit from a completely acoustic liquid handling solution, eliminating the risk of sample contamination or loss. Sample transfers can be made directly from source acoustic tubes to source plates or assay-ready plates.

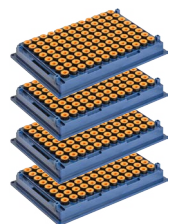
Fully Acoustic Liquid Handling Solution



Secondary Screening

Whether you are verifying targets by re-screening hits or creating dose response curves, acoustic sample management workflows will validate hits 8x faster. The ability to cherry-pick only identified hits into a tube rack prevents unnecessary freeze-thaw cycles and risk of hydration or evaporation due to exposure to the environment.

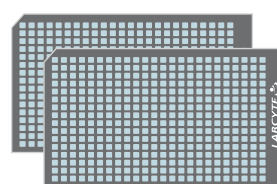
Acoustic Tube Racks



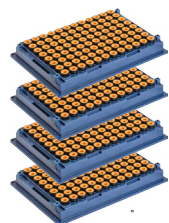
Validate Hits 8X Faster

Process 625 tube racks instead of 5,209 384-well source plates, when screening 2,000,000 compounds at a 3% hit rate.

Assay-ready Plates



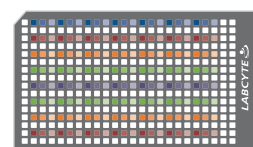
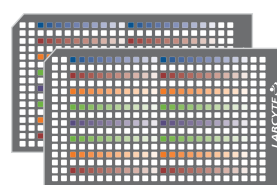
Acoustic Tube Racks



Increase Data Quality of Dose Response Assays

Create curves and intermediate dilutions directly from tubes, avoiding sample carryover and cross-contamination.

Assay-ready Plates



Intermediate Dilution Plates

Access™ Dual Robot System for Acoustic Sample Management

The Access DRS is a compact, modular, high-capacity, and high-throughput platform, designed and optimized for the use of Echo Liquid Handlers in sample management workflows. It is the only automation platform on the market compatible with the Echo 655T Liquid Handler, enabling the production of assay-ready plates from acoustic sample tubes. The system combines industry-leading devices and software with ergonomic and environment management options to provide a complete, easy-to-use, store-to-assay sample management solution.



Maximum Throughput and Uptime

Two robotic arms efficiently feed devices to minimize robotic movement and streamline workflows. With redundancy across critical devices and enough capacity to store up to 672 tube racks and 1,120 destination plates, the system can continuously run unattended over nights and weekends.

Industry-leading Devices

Integrated components include high-capacity storage devices, high-speed and high-imbalance tolerant centrifuges, nanoliter-scale bulk dispensers, acoustic tube cap removal devices, thermal sealers, seal peelers, microplate labelers, and barcode readers for sample tracking.

Compact and Ergonomic

Integrate more than 15 devices in a compact space without sacrificing user-friendly access to devices or access to the inside of the system.

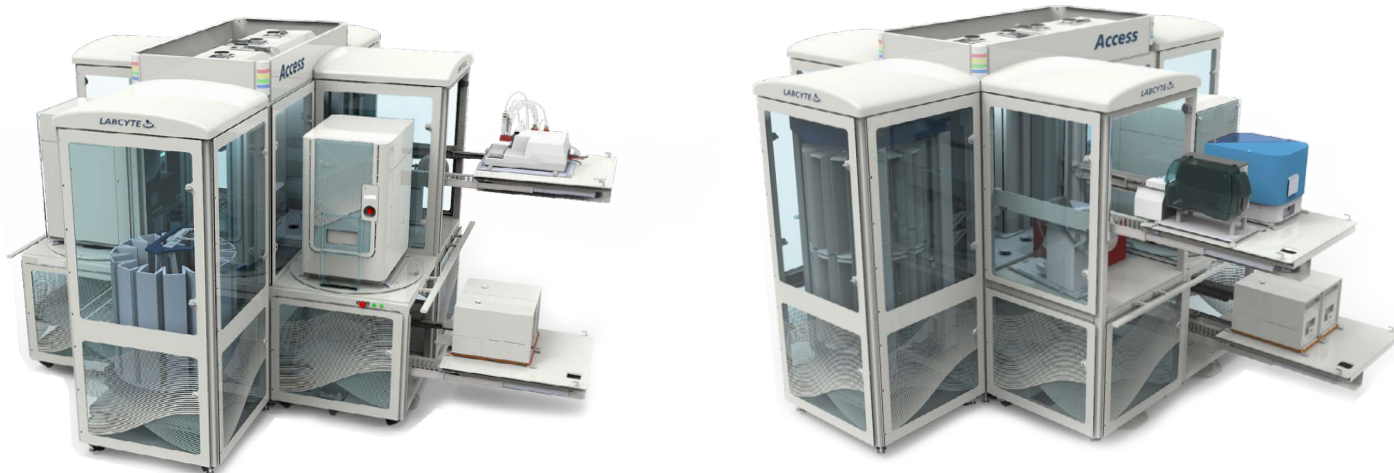
Modular

Configure and reconfigure system modules to meet application needs. Dock and undock up to 6 standardized modules for integrating Echo systems, plate handling devices, and plate stores.



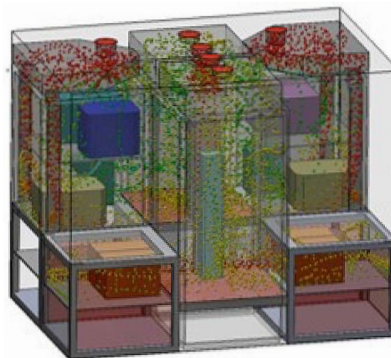
Access to Devices

Easily access devices for standalone operation or maintenance by configuring system modules with retractable shelves, turntables, and automated docking systems. The automated push button docking system allows operators to temporarily undock modules without stopping runs that are in progress.



Preserve Sample Quality

An integrated environment distribution system avoids DMSO hydration, maintains sample integrity, and ensures downstream data quality. The system evenly distributes and recirculates conditioned air from laboratory HVAC systems to each module of the platform, providing a dry, ambient internal environment.



Echo® 655T Liquid Handler

Due to their outstanding throughput, high transfer accuracy, nanoliter volume precision, and any-well to any-well transfer capabilities, Echo Liquid Handlers have long been integral to state-of-the-art sample management and high-throughput screening solutions. Offering these same benefits, the Echo 655T Liquid Handler now supports sample transfer directly from storage tubes in addition to 384-well and 1536-well microplates, enabling a fully non-contact dispensing workflow from sample storage all the way to assay-ready plates. The Echo 655T Liquid Handler seamlessly integrates with the highly configurable Access DRS, enabling a fully automated workflow. Whether your workflow requires plate reformatting, replication, hit picking, or adding samples and reagents for screening assays, the Echo 655T Liquid Handler and Access DRS will meet your needs.



FluidX™ AcoustiX™ Sample Tube by Brooks Life Sciences

The FluidiX AcoustiX Sample Tube (FAST) transforms sample management workflows by enabling acoustic dispensing directly from tubes. The meticulous tube design features a revolutionary cap to increase automated capping cycles from 15 to over 500 cycles, a DMSO-resistant gasket to reduce hydration and evaporation, and replicate 2D barcodes that provide a clear path for acoustic energy to pass through to the sample.

- **Preserve sample integrity from storage to screen**
- **Miniaturize upstream liquid handling steps to conserve sample**
- **Rapidly pick subsets of samples for targeted screening**



FluidX™ AcoustiX™ Sample Tube an Echo® Qualified Consumable

Echo models	655T
Working volume	15 – 70 µL*
Dead volume (Echo)	< 15 µL

* Working volume is dependent on acoustic liquid handling technology and fluid type.

SampleStore™ II by Brooks Life Sciences

The SampleStore II is designed for reliability and storage density, with a modular architecture to maximize adaptability. With the addition of the FluidiX AcoustiX Sample Tube, dual shuttle robots, ultrahigh-density trays, and a quad tray lane, the SampleStore II has leveraged common architectures to facilitate higher density storage and maximum throughput. Existing systems that can hold 300,000 1.4mL tubes can now hold 1,180,000 FAST tubes in ultra high-density trays, in the same system footprint.



Tempo™ 2.0 Automation Control Software

With Tempo 2.0 software, Access DRS operators can easily coordinate plate handling tasks, manage consumable inventories, and report information in real-time to LIMS or databases. Like previous versions, Tempo 2.0 software remains the only automation software that readily imports protocols from Echo® Software Applications, simplifying protocol setup and schedule optimization.

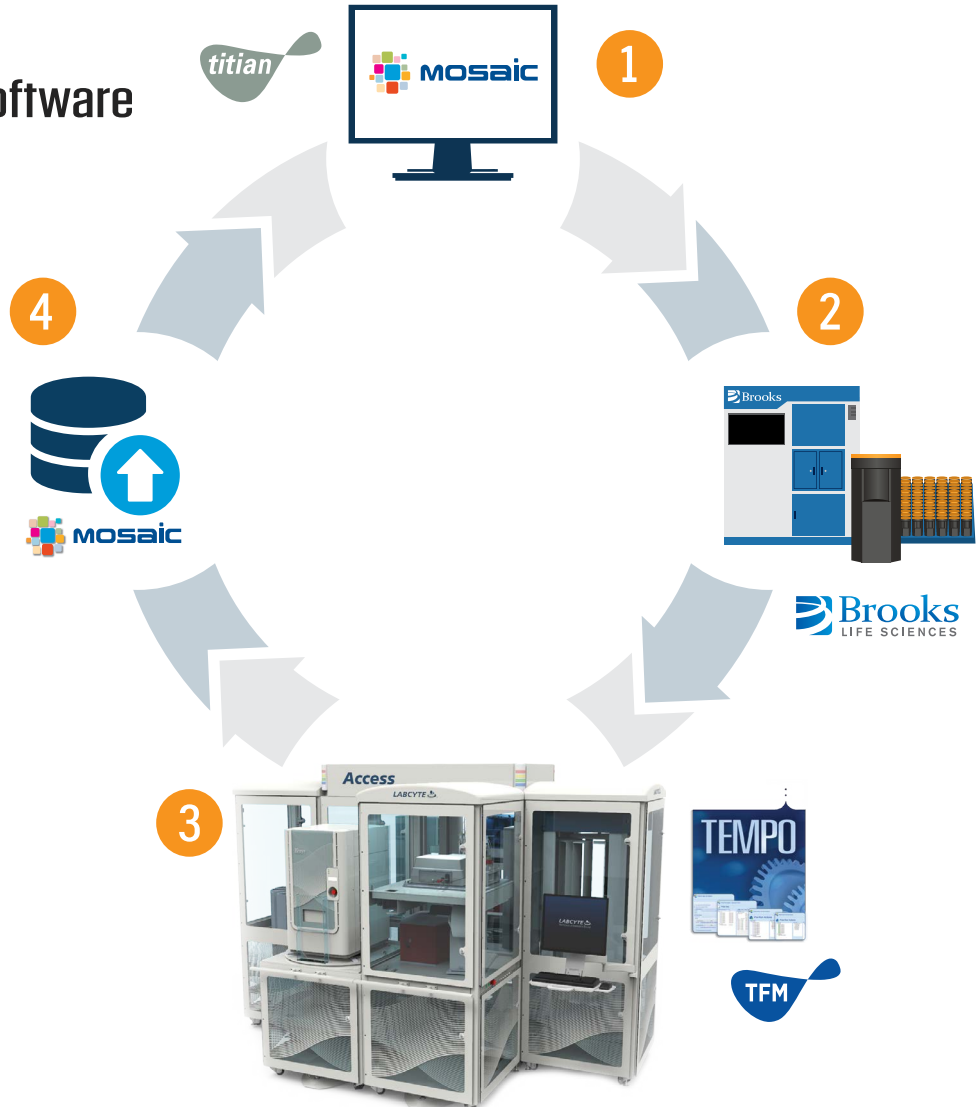
Tempo 2.0 software includes new features to promote usability, throughput, and uptime.

- **Multi-robot coordination**
- **Module and device presence detection**
- **Run throughput optimization**
- **Improved integration with LIMS**
- **Device and consumable utilization tracking**
- **Advanced error recovery**
- **Simultaneous run processing and prioritization**
- **More methods for plate labeling**
- **Integration with external laboratory or building management systems**
- **Inventory search capabilities**

Mosaic TFM by Titian Software

The Mosaic Tempo Fulfillment Module (TFM) from Titian Software combines the scheduling power of Tempo 2.0 software with the inventory management expertise of Mosaic sample management software. This new module for Mosaic software captures the exact transfer and survey volumes as well as sample concentrations reported by Echo Liquid Handlers. Combined with sample lifecycle information, Mosaic software can better track sample distribution, freeze-thaw cycles, and tube decap/cap operations to monitor sample integrity and utilization.

- 1 **Create order using Mosaic software**
- 2 **Retrieve samples from storage**
- 3 **Process order on Access DRS**
- 4 **Report sample and process information**





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BRH-ADRS-1.1
APR 2018