

# Tempo™

## AUTOMATION CONTROL SOFTWARE

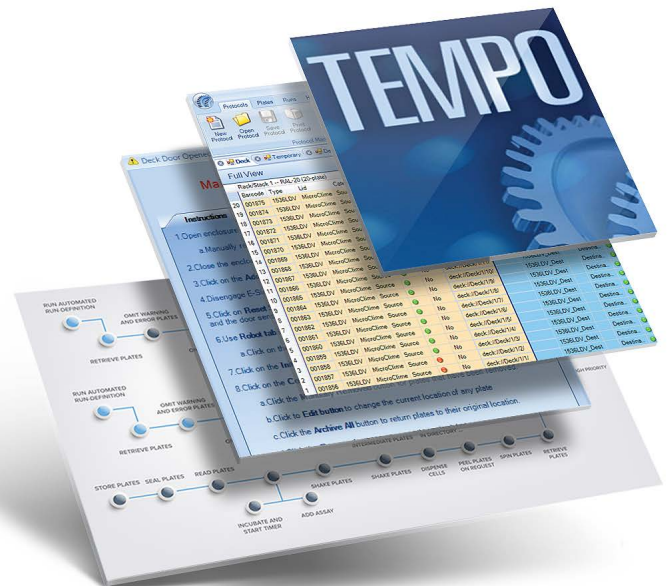
### BROCHURE

Version 2.1 | MAY 2017



**LABCYTE INC.**  
170 Rose Orchard Way  
San Jose, CA 95134  
USA

Toll-free: +1 877 742-6548 | Fax: +1 408 747-2010



# Tempo™ Automation Control Software

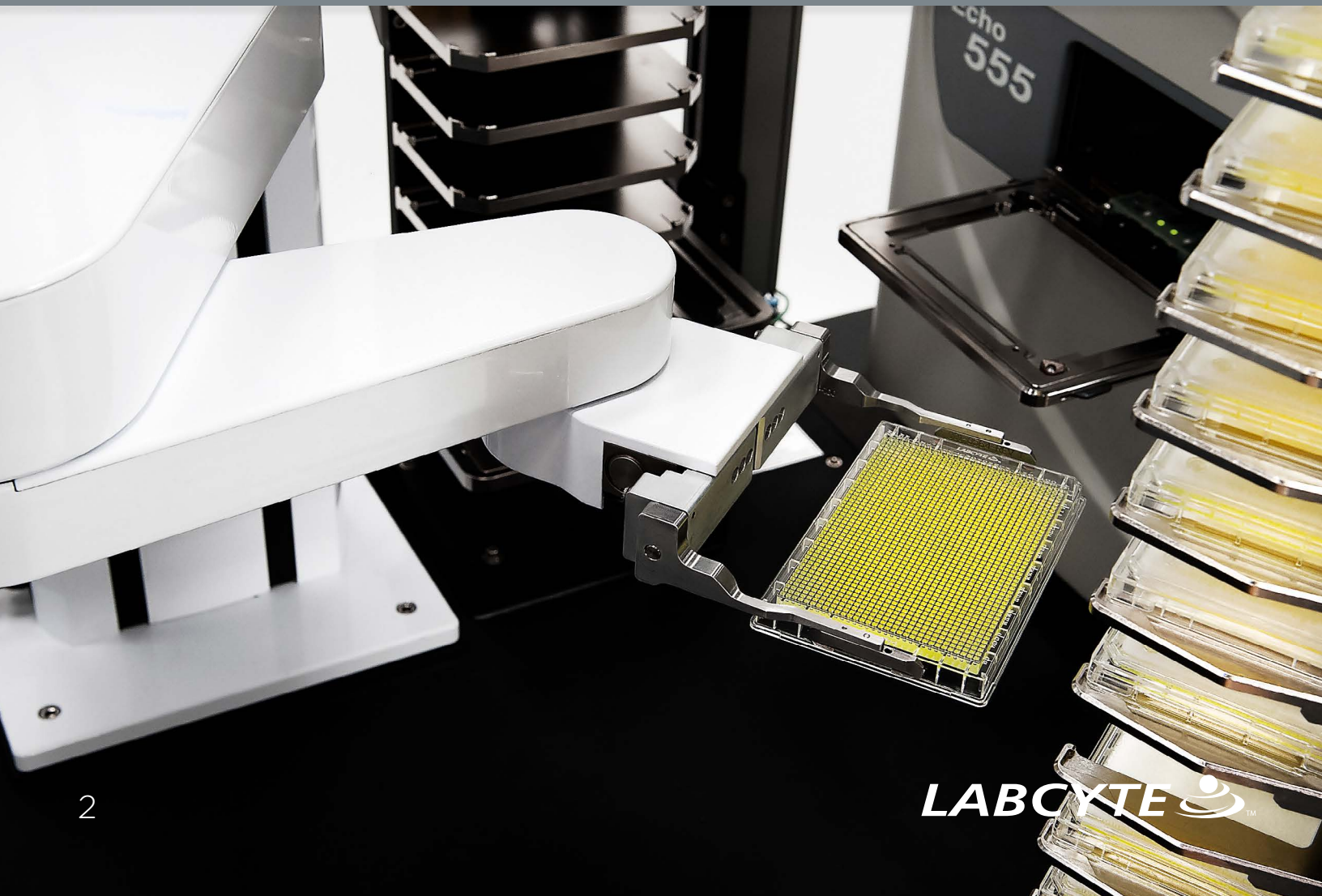
## Dynamic Scheduling for Labcyte Automation Systems



Tempo Automation Control Software offers a research-friendly interface for scheduling the Access™ Laboratory Workstation protocols. In a dynamic fashion, Tempo software manages all tasks — including sample management, plate handling, liquid handling, detection, and Laboratory Information Management System (LIMS) updates without custom programming or scripting. Included with all Access Workstations, Tempo software is the only platform that allows researchers to rapidly create automation routines incorporating protocols developed with Labcyte Echo® Software Applications.

## Efficient Integration

*Ensure maximum throughput and walk-away time*



# Automation Routines Optimized for Echo® Liquid Handlers

## Research-friendly Interface to Automate Any Workflow

- 🔍 Integration of all Echo Liquid Handlers
- 🔍 Import any Echo Software Application protocol
- 🔍 Integrate a range of laboratory devices
- 🔍 No scripting or custom programming required
- 🔍 Dynamic, event-driven scheduling adjusts on the fly
- 🔍 Guided error recovery to quickly resume runs



Echo® 555 LIQUID HANDLER

### Intuitive Interface

*Develop complex automation protocols with little experience*

## Seamless Integration *with* Echo Software Applications

Echo Software Applications utilize interactive wizards and graphics to develop complex liquid transfer protocols for Echo systems. Tempo Software imports these protocols and coordinates Echo liquid handling actions, robotic plate movements, and tasks performed by integrated devices into a fully optimized schedule — without requiring users to build loops, write custom scripts, or manage external programs.

Echo® Array Maker	Echo® Cherry Pick	Echo® Combination Screen	Echo® Dose-Response	Echo® Plate Audit	Echo® Plate Reformat
Transfer samples from microplates to custom microarrays, MALDI chips, or arrays at the bottom of a microplate well	Import pick lists to cherry pick samples from large libraries for secondary screening and lead optimization	Provides a graphical interface to visually combine dose-response curves, controls, and single concentration transfers into combination screening protocol	Interactive prompts guide the mapping of transfers to create curves of varying concentration range using direct dilution	Analyze sample characteristics across sample plates and build validation rules to qualify plates for Tempo software protocols	Quickly replicate sample plates into standard or completely custom layouts

# Key Features

## Plate Storage Control

Tempo software's plate storage control tracks plate properties in real-time. The status of various plate properties, such as plate type, lid type, plate location, barcode, and seal presence is available in a customizable table that is continuously updated during protocol runs. In addition to plate properties, the table also identifies plates that have been allocated to a run or rendered invalid after analysis with the Echo Plate Audit application.

### Customizable view of plate properties tracked in real-time

Rack/Stack 1 -- RAL-20 (20-plate)							Rack/Stack 2 -- RAL-20 (20-plate)						
Barcode	Type	Lid	Category	Status	Sealed	Location	Barcode	Type	Lid	Category	Status	Sealed	Location
20	001875	1536LDV	MicroClime	Source	No	deck//Deck/1/20/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
19	001874	1536LDV	MicroClime	Source	No	deck//Deck/1/19/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
18	001873	1536LDV	MicroClime	Source	No	deck//Deck/1/18/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
17	001872	1536LDV	MicroClime	Source	No	deck//Deck/1/17/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
16	001871	1536LDV	MicroClime	Source	No	deck//Deck/1/16/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
15	001870	1536LDV	MicroClime	Source	No	deck//Deck/1/15/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
14	001869	1536LDV	MicroClime	Source	No	deck//Deck/1/14/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
13	001868	1536LDV	MicroClime	Source	No	deck//Deck/1/13/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
12	001867	1536LDV	MicroClime	Source	No	deck//Deck/1/12/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
11	001866	1536LDV	MicroClime	Source	No	deck//Deck/1/11/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
10	001865	1536LDV	MicroClime	Source	No	deck//Deck/1/10/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
9	001864	1536LDV	MicroClime	Source	No	deck//Deck/1/9/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
8	001863	1536LDV	MicroClime	Source	No	deck//Deck/1/8/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
7	001862	1536LDV	MicroClime	Source	No	deck//Deck/1/7/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
6	001861	1536LDV	MicroClime	Source	No	deck//Deck/1/6/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
5	001860	1536LDV	MicroClime	Source	No	deck//Deck/1/5/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
4	001859	1536LDV	MicroClime	Source	No	deck//Deck/1/4/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
3	001858	1536LDV	MicroClime	Source	No	deck//Deck/1/3/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
2	001857	1536LDV	MicroClime	Source	No	deck//Deck/1/2/	1536LDV_Dest	Destina...	Destina...	Yes	deck		
1	001856	1536LDV	MicroClime	Source	No	deck//Deck/1/1/	1536LDV_Dest	Destina...	Destina...	Yes	deck		

## Runtime Actions

After importing an Echo software protocol, Tempo software provides a list of plate handling actions that can occur before or after Echo liquid handling tasks. The actions available are dynamically generated based on the devices integrated. Barcode reading, bulk filling, shaking, sealing, centrifuge, peeling, and detection are some of the actions available.

## Barcode Handling

If a Tempo software protocol is processing samples according to a pick list, barcode verification is enabled. Barcodes are tracked in the plate storage table and verified by Access or POD barcode reading stations and Echo system barcode readers throughout a protocol run. Operators are notified of missing or mismatched barcodes with step-by-step recovery guidance to continue the run.

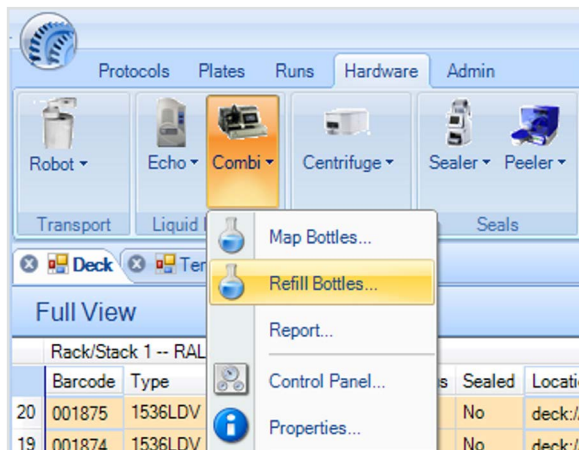
Rack/Stack 1 -- RAL-20 (20-plate)							Rack/Stack 2 -- RAL-20 (20-plate)							Rack/Stack 3 -- RAL-20 (20-plate)						
Barcode	Name	Type	Lid	Category	Status	Sealed	Barcode	Name	Type	Lid	Category	Status	Sealed	Barcode	Name	Type	Lid			
20																				
19																				
18																				
17																				
16																				
15																				
14																				
13	11316	Source[1]	384PP	MicroClime	Source	Yes														
12	11318	Source[1]	ERES	MicroClime	Source	No														
11																				
10	11308	Destination[10]	Corning 3724 black 1536	MicroClime	Destination	Yes														
9	11307	Destination[9]	Corning 3724 black 1536	MicroClime	Destination	Yes														
8	11306	Destination[8]	Corning 3724 black 1536	MicroClime	Destination	Yes														
7	11305	Destination[7]	Corning 3724 black 1536	MicroClime	Destination	Yes														
6	11304	Destination[6]	Corning 3724 black 1536	MicroClime	Destination	Yes														
5	11303	Destination[5]	Corning 3724 black 1536	MicroClime	Destination	Yes														
4	11302	Destination[4]	Corning 3724 black 1536	MicroClime	Destination	Yes														
3	11301	Destination[3]	Corning 3724 black 1536	MicroClime	Destination	Yes														
2	11302	Destination[2]	Corning 3724 black 1536	MicroClime	Destination	Yes														
1	11311	Destination[1]	Corning 3724 black 1536	MicroClime	Destination	Yes														

*continued...*

## Device Management

To simplify the management of integrated devices, Tempo software provides easy access to device parameters and options. Options to perform device maintenance, reset cycle counts, and set devices on or offline are just a few examples. Integrated devices can be operated in a standalone or manual fashion when they are not required for a protocol in progress.

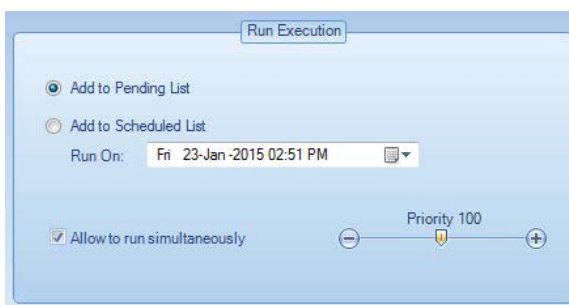
### Quickly initiate device-specific tasks and view essential parameters



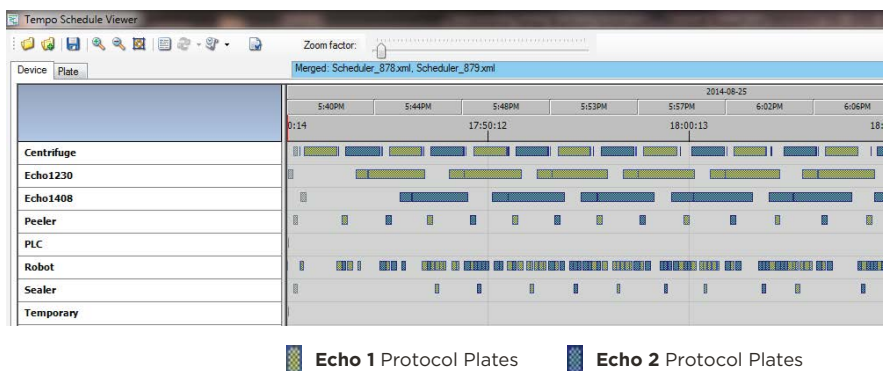
## Simultaneous Protocols

Tempo software allows for the running of multiple protocols in parallel. The software automatically manages plate and device handling based on priorities designated for each protocol by the user. Users can start multiple Tempo protocols simultaneously; whether they involve an Echo protocol or not.

### Quickly assign priorities to each protocol running simultaneously



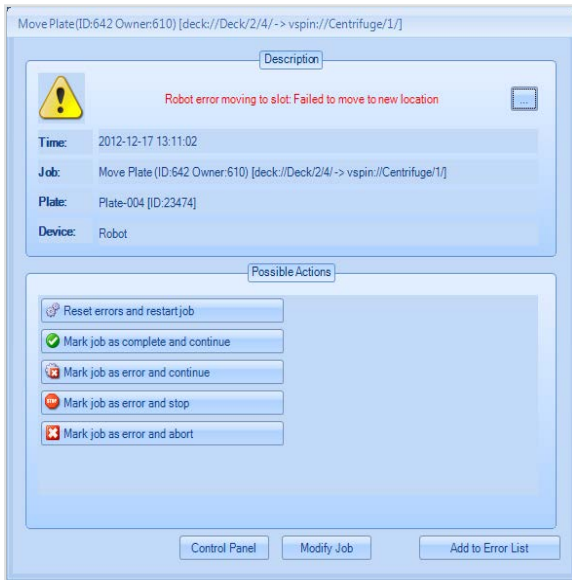
### Scheduling of device utilization between simultaneous protocols



# Key Features *continued...*

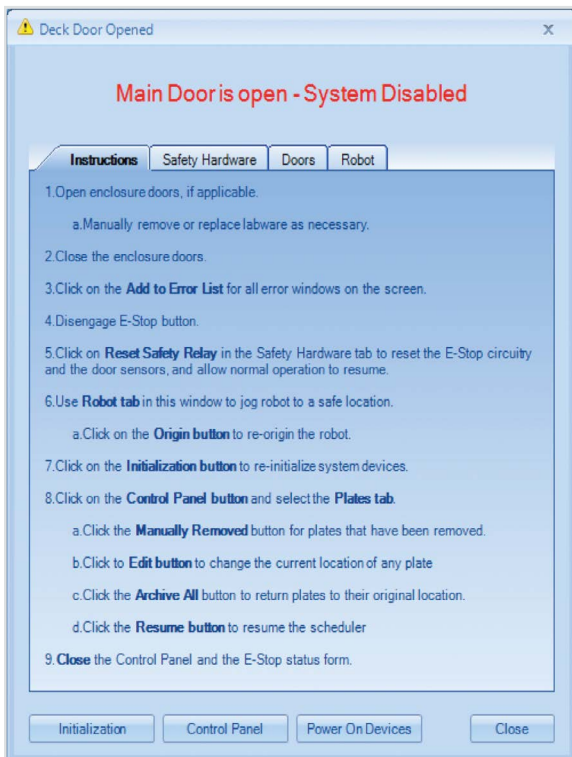
## Guided Error Recovery

In the event of an error, Tempo software provides operators with interactive prompts to return the system to an operating state. Error recovery options include manual plate removal, manual device command and standard error handling options such as abort, ignore, and retry.



## Error Handling Options

*Runtime error prompts offer ways to quickly recover and continue*



## Error Recovery Wizards

*Step-by-step guidance to recover quickly from any error or emergency stop*

# Notification and Reports

Runtime notifications can be configured globally or for each individual protocol. Notifications are reported in the run status view and can be communicated through email. All activities that occur during a run are recorded into a set of reports organized by plate activities, device actions, errors, run details and more.

## Tempo software offers a growing list of advanced features

### External Program Integration

Initiate external programs before or after protocols begin to validate protocols against custom rules, update LIMS databases, or interact with external software applications

### Device Pooling

Split plate handling activity across common devices to increase throughput

### External Data Management

All data from integrated devices (including detection platforms) can be routed to user-defined directories for easy access at run completion

### Gantt Chart Viewer

Compare the timing of events across multiple protocols to analyze the impacts of priorities and other scheduling considerations

### Counter-balance Management

Counter-balance plates can be mapped to plates used across Tempo software protocols. As soon as a protocol plate is ready to start a centrifuge step, Tempo software automatically schedules the loading of the appropriate counterbalance plate





**LABCYTE INC.**

170 Rose Orchard Way  
San Jose, CA 95134  
USA

**Toll-free:** +1 877 742-6548 | **Fax:** +1 408 747-2010

**SALES**

<b>North America</b>	+1 408 747-2000	<a href="mailto:info-us@labcyte.com">info-us@labcyte.com</a>
<b>Europe</b>	+353 1 6791464	<a href="mailto:info-europe@labcyte.com">info-europe@labcyte.com</a>
<b>Japan</b>	+81 03 5530 8964	<a href="mailto:info-japan@labcyte.com">info-japan@labcyte.com</a>
<b>Asia</b>	+61 39018 5780	<a href="mailto:info-asia@labcyte.com">info-asia@labcyte.com</a>
<b>Other</b>	+1 408 747-2000	<a href="mailto:info-us@labcyte.com">info-us@labcyte.com</a>

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BRH-TASW-2.1  
MAY 2017