Powering connected, data-driven automation

Thermo Scientific Momentum Workflow Scheduling Software

Thermo Scientific™ Momentum™ Workflow Scheduling Software is a powerful, flexible software solution designed to execute complex laboratory automation. Combining dynamic cheduling,advanced inventory management and real-time data connectivity, this software enables fully connected, data-driven workflows across instruments, devices, and systems.

Built for modern laboratories

Momentum software is much more than a scheduler. Its intuitive, easy-to-use interface allows users to create, design, and modify workflows with ease—no coding expertise required. With exceptional data handling, this software provides real-time access to data and full track-and-trace capabilities down to the individual well, empowering laboratories to confidently scale automation.

Momentum software supports:
- Dynamic, event-driven scheduling
- Persistent inventory and sample management
- Real-time, bi-directional data connectivity
- Granular control at the container and well level
- Data integrity and audit trail traceability

Improving the scientific experience

Why choose Momentum software?
- **Ease-of-use:** Dashboards, guiding wizards, and flow controls help reduce onboarding time and make automation more accessible for those without coding experience
- **Flexibility:** The Concurrent driver license model makes it easier to reconfigure platforms on your own without additional device drivers
- **Connectivity:** RESTful API and Unite modules enable real-time bi-directional data connectivity for quicker tech stack integrations
- **Power:** Features such as granular batch controls and expression editors lead to smart, dynamic workflows, minimizing expensive mistakes
- **Reliability:** Persistent data and audit logs give you uninterrupted and traceable workflows, enabling compliance with requirements, such as 21 CFR part 11

New features in version 7.5

Version 7.5 introduces powerful new capabilities designed to further reduce errors, accelerate onboarding, and enhance operational awareness.

Guided workflow execution

The software's guided workflow execution provides contextual, just-in-time guidance directly within workflows to help users run processes correctly and confidently. Instructions, SOP highlights, files, and web content are delivered at defined operational moments, such as startup, load, or unload. This helps ensure users receive the right information exactly when and where they need it.

Benefits include:
- **Reduced errors and rework** by surfacing prerequisites, SOP highlights, and common pitfalls in the moment of action
- **Accelerated onboarding** with embedded just-in-time instructions for new and cross-trained staff
- **Supported compliance and consistency** through required acknowledgments and standardized execution across teams and sites
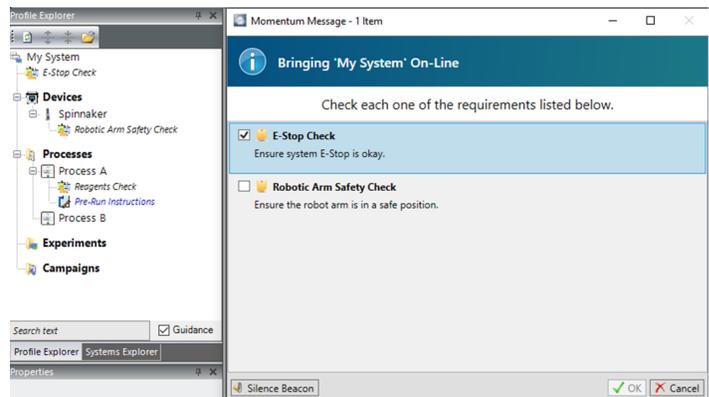

Figure 1. System startup checklist for safety.

Device tester

Momentum software's device tester enables direct execution of operations and tasks on compatible devices without needing to create a process or work unit, providing a fast, low-risk way to interact with individual hardware.

Benefits include:

- **Accelerated testing and validation** by eliminating the need to build full workflows for individual devices
- **Simplified troubleshooting** by isolating devices and running targeted operations with minimal setup
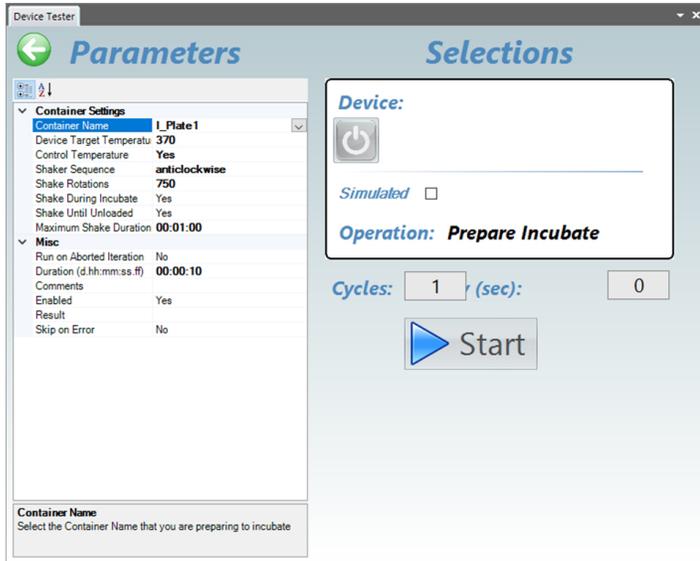- **Protected production workflows** with a safe sandbox for configuration checks, tuning, and acceptance testing

Figure 2. Device tester screen for **Prepare Incubate** operation.

Inventory container heat map

The software's inventory container heat map visualizes well-level inventory attributes as a user-defined, color-coded matrix, allowing users to quickly interpret values across plates while preserving spatial context.

Benefits include:

- **Ability to identify patterns and outliers instantly** through intuitive color gradients that highlight trends and anomalies
- **Potential to make faster, more informed decisions** by quickly pinpointing wells that require intervention or retesting
- **Optimized processes and data quality** by revealing spatial effects, bottlenecks, or instrument drift
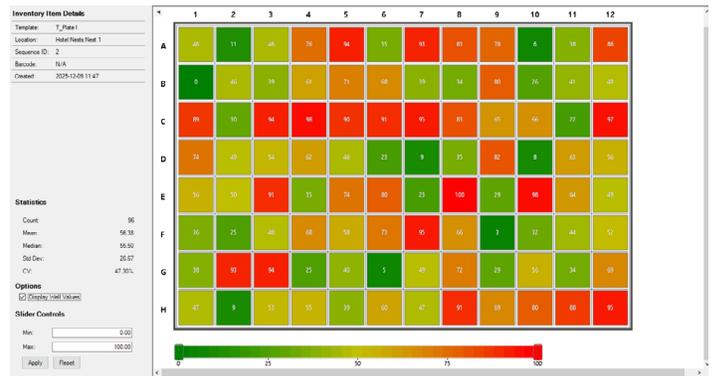

Figure 3. 96-well plate heatmap of well values.

Container orientation awareness

Momentum software's container orientation awareness tracks the precise orientation of containers within the system, including the exact location of the A1 well, and automatically manages the required robotic movements based on device nest configuration

Benefits include:

- **Decreased alignment errors** with help ensuring that picks, dispenses, scans, and reads target the correct wells
- **Protected sample integrity** by avoiding incorrect transfers and cross-contamination caused by rotated plates
- **Improved automation reliability and data quality** through accurate well indexing and precise robotic execution
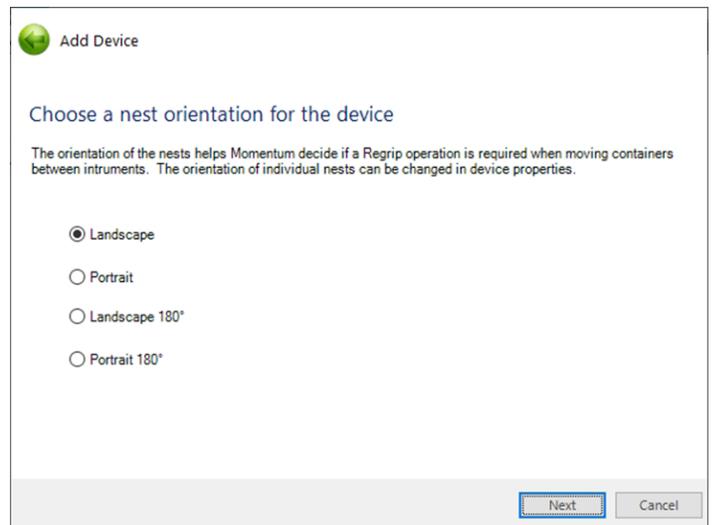

Figure 4. Configuring nest orientation.

Architectural modernization

Adopting PostgreSQL as our new database engine establishes a modern, reliable foundation for customer data, advancing compliance goals, and supporting Lab of the Future visions.

Benefits include:
- **Fast, predictable performance** to keep your processes running smoothly
- **Security** with enterprise-grade protections built to safeguard sensitive data and meet compliance with confidence
- **Easy scalability** to support growing data and increasing demand

The momentum software advantage

Momentum software empowers laboratories to build smarter, more adaptive workflows while connecting automation systems into a unified, data-driven ecosystem. It enables teams to confidently scale automation— maintaining control, compliance, and traceability, while maximizing instrument utilization and operational efficiency. With version 7.5, laboratories can move faster with clarity, consistency, and control across every step of their automated workflows.

Learn more at **thermofisher.com/momentum**