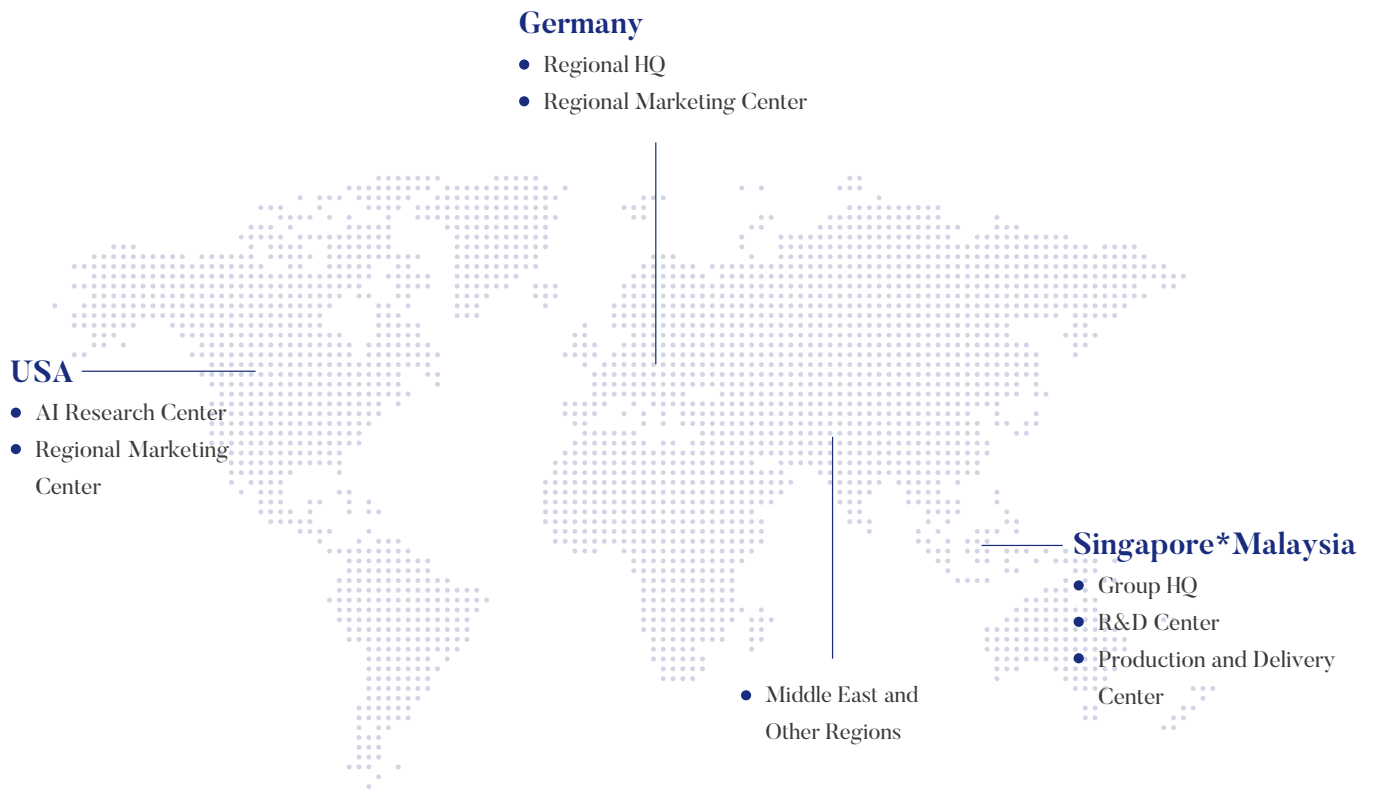


Smart Plate Handler



**Efficiently Empowering
Life Sciences Research**



ABOUT Galatek

Galatek is an innovator in science and technology, and a catalyst for global change, driven by a commitment to enhancing human life and fostering a more vibrant, resilient, and sustainable world.

By harnessing the power of artificial intelligence and automations, Galatek helps to maximize the potential of the global scientific community. We empower researchers and innovators with cutting-edge production tools, freeing their minds from mundane tasks and igniting a firestorm of breakthroughs in a variety of markets, from life sciences, clinical diagnostics and applied chemicals to integrated circuits and sustainable energy.

Why Choose It



Improving Device Utilization

With automation, it is possible for lab to run experiments at night without human supervision. This not only accelerates research, but also improves device utilization more efficiently



Safe Transferring

Safely transfers samples between the stack and device without worrying about spills or plate dropping



Focusing on Your Science

Reduces time spent on tedious and repetitive tasks, enabling scientists to dedicate more attention to sophisticated experimental designs.



High Throughput and Compact Design

The high-value devices in the lab are no longer just for display purposes; instead, they are integrated into the most compact spatial configuration possible to maximize utilization frequency and enhance detection throughput.



Data Management

Automatically captures, records experimental progress and results, ensuring traceability and minimizing the risk of data loss or inaccuracies.

Experimental Devices

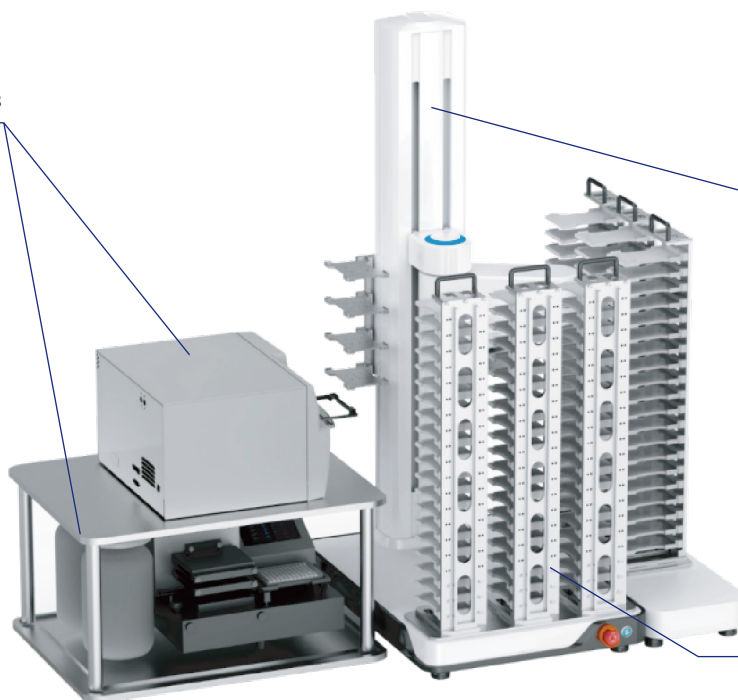
Flexible integration of 1-2 mature scientific devices according to the application requirements, supporting the integration of existing devices

Four-Axis Collaborative Robotic Arm

Designed for sample handling, it supports operations such as de-lidding and barcode scanning. Features a manual touch-stop function to ensure safety and ease of use.

Consumable Stacks

Used for temporary storage of consumables, with options for sequential-access stack and random-access stack. The detachable carrying handle enhances the ease of use.



Scalable Product Throughput

	Standard Throughput	Expanded Throughput	Maximum Throughput
Product Image			
System Configuration	● Fixed stack ● Robotic arm ● Market-proven device ● Scheduling software	● Fixed stack + Expanded fixed stack ● Robotic arm ● Market-proven device ● Scheduling software	● Fixed stack + Carousel ● Robotic arm ● Market-proven device ● Scheduling Software

Fixed stack with narrow-side gripping

Configuration 1 (Random-Access Stack)

3 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 60 plates

6 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 120 plates

3 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 60 plates;
1 random-access carousel, with a capacity of 200 SBS sample plates;
A total of 260 sample plates

Configuration 2 (Sequential-Access Stack)

3 sequential-access fixed stacks, each with a capacity of 25 SBS sample plates, for a total of 75 plates

6 sequential-access fixed stacks, each with a capacity of 25 SBS sample plates, for a total of 150 plates

3 sequential-access fixed stacks, each with a capacity of 25 SBS sample plates, for a total of 75 plates;
1 random-access carousel, with a capacity of 200 SBS sample plates;
A total of 275 sample plates

Fixed stack with wide-side gripping

Configuration 1 (Random-Access Stack)

2 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 40 plates

4 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 80 plates

2 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 40 plates;
1 random-access carousel, with a capacity of 200 SBS sample plates;
A total of 240 sample plates

Product Features

High Compatibility



- Flexible robotic arm adapted for various devices, such as plate washer, microplate reader, dispenser, etc.
- Multiple types of plate storage modules are optional, providing flexible layout configuration
- Compatible with lidded micro-well plate handling, easy to handle cell plate

Traceable Data



- The robotic arm is equipped with a code scanning module as standard, which is compatible with 1D/2D codes, ensuring the sample traceability
- Supports unattended operation and automatic alarm for abnormalities

Efficient Handling



- Standard consumable transfer station, improving the overall operating efficiency
- Fastest transfer of plates in 10 seconds, enabling fast transfer of devices

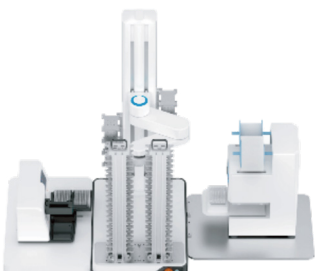
Expanded Integration



- The plate handling system has a width of 500 mm and a depth of 700 mm, saving space on the laboratory deck
- Supports integrating 1-2 devices, can be upgraded from single-device-integrated to dual-devices-integrated
- Additional fixed stacks or carousels can be equipped on either side to improve the throughput of consumable storage

Flexible Product Application Scenarios

Galatek's Smart Plate Handler, with its innovative compact design, flexible and adjustable modular storage solutions and excellent high-precision robotic arm, has received wide recognition from users in the field of laboratory automation. The system seamlessly integrates with mainstream laboratory devices and significantly improves the efficiency of experimental processes through automated scheduling. For the differentiated needs of life sciences, drug development and other fields, Galaek has developed a comprehensive matrix of scenario-based solutions. In addition to enabling deep integration with the customer's existing automation devices, we also provide customized solutions for laboratory automation upgrades. Here are some examples of application scenarios:

Automated Plate Washing System	Automated Plate Washing & ELISA System	Automated High-Content Imaging System	Automated Cell Dispensing System
			
Automated qPCR Analysis System	Automated Reagent Dispensing and Film Sealing System	Automated Reagent Dispensing System	Automated Nanoliter Pipetting System
			

Automated Plate Washing System

In ELISA and other assay experiments, the process of multiple washings is time-consuming and does not require specialized expertise, making it a key factor that limits the improvement of throughput. The automated plate washing system significantly reduces the washing time for each plate. Equipped with two high-speed plate washers, and sequential-access stacks for placing sample plates, the system supports automatic de-lidding and lidding of lidded sample plates to protect the samples.



Application Directions

ELISA

Drug Discovery

Infectious Disease
Antigen/Antibody Testing

Quality Control

System Parameters

Stack Types	Standard configuration: 3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)	
Expanded Options	Expanded Option 1: Additional fixed stacks (optional sequential-access or random-access stacks) Expanded Option 2: Additional carousels (optional sequential-access or random-access stacks)	
Equipped Devices	2 plate washers	
Compatible Plate Types	SBS standard sample plates (adapted to the plate washer)	
Labware Transfer Station	4-plate position, used for switching the orientation of SBS sample plates	
Standard Barcode Scanning	Compatible with common 1D or 2D codes	

Automated Plate Washing & ELISA System

Microplate readers are widely used in experimental scenarios such as ELISA, cell activity assay, protein quantitation, etc. The ELISA assay and subsequent plate washing are simple and repetitive tasks in the laboratory, but require a lot of manpower and time. The automated ELISA plate washing system can seamlessly connect the detection and cleaning processes, freeing up laboratory personnel, significantly improving the experiment efficiency and reducing human error.



Application Directions

ELISA

Drug Screening

Infectious Disease
Antigen/Antibody Testing

Quality Control

System Parameters

Stack Types	Standard configuration: 3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)	
Expanded Options	Expanded Option 1: Additional fixed stacks (optional sequential-access or random-access stacks) Expanded Option 2: Additional carousels (optional sequential-access or random-access stacks)	
Equipped Devices	Plate washer + Microplate reader	
Compatible Plate Types	SBS standard sample plates (adapted to the plate washer)	
Labware Transfer Station	4-plate position, used for switching the orientation of SBS sample plates	
Standard Barcode Scanning	Compatible with common 1D or 2D codes	

Automated High-Content Imaging System

The high-content imaging system enables real-time analysis of the morphology of organelles/cells/organoids to provide data on the fluorescence intensity, morphological structure, time and space of cell populations. It is widely used in drug research, cell biology research, antibody drug development and biomedical research. The automated high-content screening system, equipped with a four-axis collaborative robotic arm and incubator, enables long-term live cell imaging through control of humidity, temperature and CO2 concentration. The product can be placed on a standard laboratory desktop, designed with a compact size, flexible throughput, and easy upgrades.



Application Directions

Organoid Drug Sensitivity Screening

Drug Discovery

Gene Function Research

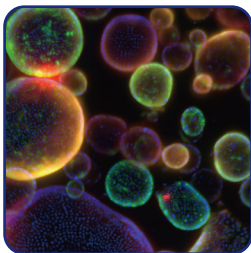
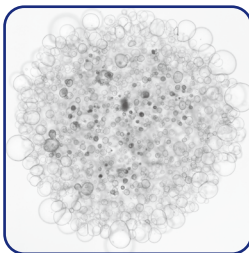
Toxicology Research

System Parameters

Number of Plate Positions in the Incubator	≥42 cell culture plates (96-well as an example)
Equipped Devices	High content imaging system + Incubator
Compatible Plate Types	SBS standard sample plates
Labware Transfer Station	4-plate position, used for switching the orientation of SBS sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

High Content Imaging System

The High Content Imaging System uses a high-resolution CMOS camera with digital confocal algorithms in a flexible and user-friendly configuration to power ultra-high-performance high content imaging for your platform or laboratory.



Five-Color Fluorescence + Color Brightfield + Digital Phase Contrast

Meets multiple observation and analysis needs



Fluorescence Channels: 4 LEDs + 1 Laser

Weak phototoxicity, narrow bandwidth to prevent color crosstalk



High-Resolution CMOS + Digital Confocal

Significantly improves sensitivity and clarity



Infrared Laser/Image Autofocus

Fast focusing on complex consumables, samples



Stage with Sub-Micron Resolution and High Precision

Fine viewing, adjustable movement speed

Automated Cell Dispensing System

Manual cell culture and dispensing face challenges such as tedious operations, low efficiency, and susceptibility to human error and contamination. Uneven mixing of cell suspensions or differences in dispensing volume will affect experimental reproducibility, and manual operation is prone to microbial contamination, and repeated pipetting may damage the cell activity. The automated cell dispensing system enables precise dispensing of cell suspensions by using aseptic tubing and seamlessly integrates with the incubator for dynamic culture. With the software control of the dispensing parameters and culture conditions, it significantly improves the experimental efficiency and reproducibility. The system supports high-throughput multi-plate handling and real-time monitoring, and is suitable for research scenarios that require long-term culture and data traceability, such as drug screening and cell therapy development.



Application Directions

Drug Screening

Stem Cell Research

Tumor Immunology Research

CAR-T Cell Research

System Parameters

Stack Types	Standard configuration: 3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)
Equipped Devices	High-speed sample dispensing system + Incubator
Compatible Plate Types	SBS standard sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

Automated qPCR Analysis System

Real-time fluorescence quantitative PCR is a common bioanalytical method used in applications such as disease diagnosis, CDC testing, food safety testing, and quantitative molecular biology research. Due to the long detection time per plate (about 1-2 hours), manual plate replacement, process setting and data collection are the key factors limiting the increase of its analysis throughput. The automated qPCR analysis system, equipped with a flexible and safe four-axis collaborative robotic arm, enables 24-hour uninterrupted detection. The system can be widely used in research areas such as gene expression regulation, drug screening, and efficacy evaluation.



Application Directions

Pathogenic Microorganism
Molecular Diagnostics

SNP Genotyping

Gene Expression Analysis

Gene Editing Effect
Verification

System Parameters

Stack Types	Standard configuration: 3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)
Expanded Options	Expanded Option 1: Additional fixed stacks (optional sequential-access or random-access stacks) Expanded Option 2: Additional carousels (optional sequential-access or random-access stacks)
Equipped Devices	1 qPCR machine
Compatible Plate Types	96-/384-well PCR plates
Labware Transfer Station	4-plate position, used for switching the orientation of sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

Automated Reagent Dispensing and Film Sealing System

Dispensing and sealing, which are routine steps in biological experiments, are widely used in scenarios such as PCR/qPCR, ELISA, strain culture. The automated reagent dispensing and sealing system can automate the fast dispensing of 96-/384-well plates, with adaptive sealing of different heights of the plate, can be matched with various consumables for different application scenarios, enabling the automation of high-throughput reagent dispensing and sealing. The film sealing machine is available with pressure sealing or heat sealing to meet the needs of different customers.



Application Directions

Antibody Dispensing

Lysis Buffer Dispensing

ELISA

PCR Reagent Dispensing

System Parameters

Stack Types	Standard configuration: 3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)
Equipped Devices	Dispenser + Film sealer
Compatible Plate Types	SBS standard sample plates
Labware Transfer Station	4-plate position*2, used for switching the orientation of sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

Automated Reagent Dispensing System

Galatek automated reagent dispensing system is equipped with two dispensers to meet the fast dispensing of SBS well plates with higher throughput, such as dispensing lysis buffer, medium, etc. It significantly improves the dispensing efficiency and accuracy, and reduces the manual error and labor, thus reducing the work intensity of laboratory personnel.



Application Directions

Lysis Buffer Dispensing

Medium Dispensing

ELISA

PCR Reagent Dispensing

System Parameters

Stack Types	3 fixed stacks with narrow-side gripping or 2 fixed stack with wide-side gripping (optional sequential-access or random-access stacks)
Expanded Options	Expanded Option 1: Additional fixed stacks (optional sequential-access or random-access stacks) Expanded Option 2: Additional carousels (optional sequential-access or random-access stacks)
Equipped Devices	2 dispensers
Compatible Plate Types	SBS standard sample plates
Labware Transfer Station	4-plate position, used for switching the orientation of sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

Automated Nanoliter Pipetting System

Immediate Drop-on-demand Technology (I.DOT) is a patented method designed to optimize non-contact liquid handling tasks. It plays a crucial role in applications such as high-throughput screening, library preparation, microfluidics, genomics, and magnetic bead dispensing. The automated nanoliter pipetting system enables continuous, multi-batch nanoliter pipetting of target plates, reducing the need for manual intervention. This significantly improves experimental efficiency and precision, meeting the high-throughput and high-speed liquid handling requirements of laboratories.



Application Directions

NGS Library Preparation

Drug screening

Organoid Drug Sensitivity
Screening

High-Throughput
Molecular Testing

System Parameters

Stack Types	3 fixed stacks with narrow-side gripping or 2 fixed stacks with wide-side gripping (optional sequential-access or random-access stacks)
Expanded Options	Expanded Option 1: Additional fixed stacks (optional sequential-access or random-access stacks) Expanded Option 2: Additional carousels (optional sequential-access or random-access stacks)
Equipped Devices	Nanoliter liquid dispenser
Compatible Plate Types	SBS standard sample plates
Labware Transfer Station	4-plate position, used for switching the orientation of sample plates
Standard Barcode Scanning	Compatible with common 1D or 2D codes

Parameters of Smart Plate Handler

Basic Parameters	Dimensions	500 mm(W)*700 mm(D)*1,212 mm(H)
	Weight of Main Unit (Stand + Robotic Arm + 3 Stacks)	65 kg
	Available Stack Types	Available in 2 fixed stacks with wide-side gripping or 3 fixed stacks with narrow-side gripping, with optional random-access or sequential-access configurations for fixed stacks Additional configurations available for expanded fixed stacks or carousels
	Maximum Number of Plate Positions (Random-Access Stacks)	3 random-access fixed stacks, each with a capacity of 20 SBS sample plates, for a total of 60 plates 1 random-access carousel, with a capacity of 200 SBS sample plates; A total of 260 sample plates
	Maximum Number of Plate Positions (Sequential-Access Stacks)	3 sequential-access fixed stacks, each with a capacity of 25 SBS sample plates, for a total of 75 plates 1 random-access carousel, with a capacity of 200 SBS sample plates; A total of 275 sample plates
	Compatible Plate Types	SBS standard sample plates
	Minimum Transfer Time	10s
	Supply Voltage	220 V, 50 Hz
	Operating Environment	Temperature: 5-35 C , humidity: 5 %-95 % (no frost)
	Expansibility	Sequential-access stacks, random-access stacks and carousels can be added to increase the throughput
Robotic Arm	Maximum Load	500g
	Error Handling	Real-time automatic alerts for failures in plate gripping, dropping, and incorrect placement
Barcode Scanner		Built-in scanning module in the robotic arm, compatible with common 1D and 2D codes

Software

Synchronize all the required information in one software system



Robotic Arm

Controls the four-axis collaborative robotic arm with easy teaching points and safe performance for ultimate flexibility in transferring samples, consumables, and de-lidding



Devices and Accessories

Hundreds of devices and automated accessories are immediately configured for use and scheduled in an experimental process that maximizes efficiency



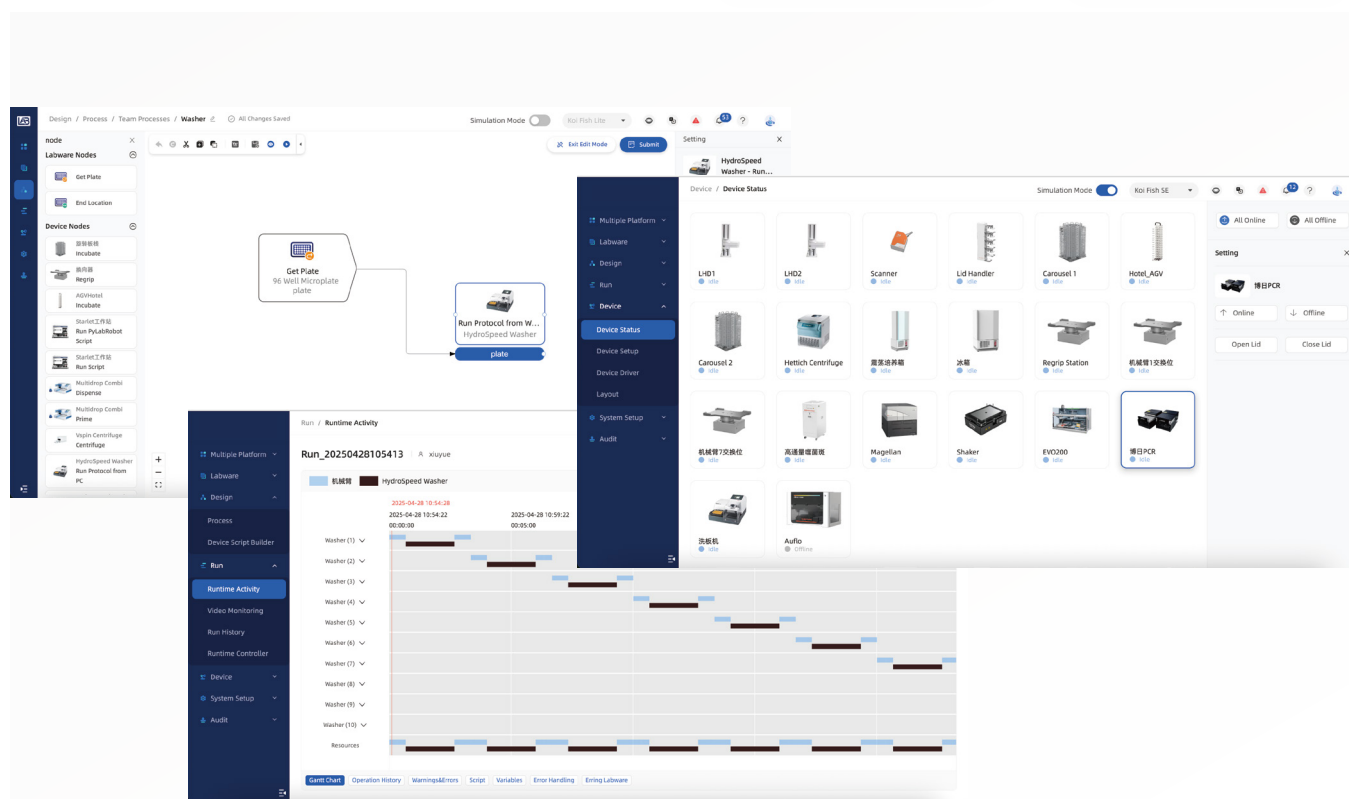
Working Processes

Supports easy drag-and-drop of flat graphs for experimental process editing, and extracts together to required location and analysis system



Visual Data

Aggregates real-time data from all integrated devices to visualize your entire automated lab operation, displaying project status, error reports, and more



Features a complete graphical process editing interface, enabling process editing without the need of any professional programming software

Automatically schedules multiple iterations to run in parallel according to device resources, maximizing the resource utilization

Provides a Gantt chart interface to show the operation and resource utilization of each process and iteration

Supports customizing the dynamic consumables, and provides the function of dynamic replenishment of consumables across iterations according to device requirements

Reasonable allocation of device pools based on iterations to maximize operational efficiency

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Declaration

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