C196-E100

SHIMADZU
Excellence in Science

High Performance Liquid Chromatograph

i-Series

Sustainability in Every Separation

The new i-Series integrated LC: Sustainable design. Reliable results. Uncompromising performance.

Sustainable by Design: Crafted from sustainable materials and featuring new functions to reduce your environmental impact.
Built for Reliability: Experience exceptional robustness and consistently accurate analytical results you can trust.
Uncompromising Performance: Delivers the same outstanding capabilities as previous models in an eco-friendlier design.

As the global demand for both efficiency and sustainability transforms analytical operations, Shimadzu's innovative "smart" and "eco-friendly" solutions help users reduce their environmental impact while boosting productivity.

intelligent

Analytical Intelligence™ features enable automated functions such as bubble detection and resolution, automated method development, and peak deconvolution.

innovative

Designed to deliver the highest performance with the smallest-in-class design, always keeping lab productivity and efficiency at its peak.

intuitive

Maintenance reminders and QR codes simplify instrument troubleshooting and keep the instrument delivering consistently reliable results.

ANALYTICAL
INTELLIGENCE

i-Series

Integrated High Performance Liquid Chromatograph

Core Performance Capabilities Driving Analytical Results

High-Value Performance Features

Detector

Compatible with All Shimadzu and 3rd-Party Detectors for a Variety of Applications

Systems can be selected with a UV/VIS detector or a photodiode array (PDA) detector as options. However, any other external detector can be added at any time.

Baseline Stability

Achieve exceptionally stable baselines and highly reproducible results. Our advanced optical temperature control system for the UV/Vis and PDA detectors and flow cell neutralizes the impact of ambient room temperatures, ensuring your measurements are accurate and consistent.

Solvent Delivery Unit

High Gradient Accuracy

Handle even the most complex methods with ease. The quaternary pump's 10 µL micro-plungers ensure highly accurate and reproducible delivery of four solvents. For maximum versatility, expand to seven solvents with the optional switching valve.

System Expandability

Any detector, including the compact LCMS-2050 mass spectrometer, can be added without sacrificing operational efficiency.

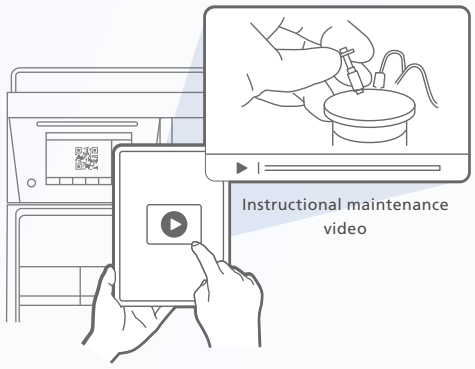
Control Panel

Intuitive Control for Every User

The vibrant color LCD touch panel provides an intuitive experience for users of any skill level. Easily navigate operations, perform routine maintenance with step-by-step on-screen instructions, and get instant troubleshooting help by scanning the displayed QR codes.

Real-Time Monitoring Right at the Instrument

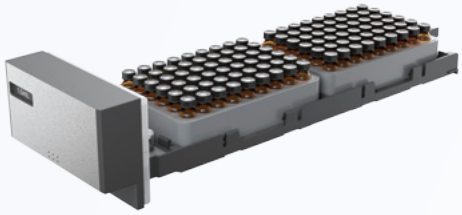
Glance at the column conditioning and check peak shapes in real time directly on the vibrant touch panel. This convenient feature allows you to monitor the system quickly, eliminating the need to reach for the monitor.



Smart Support for a More Efficient Lab

Resolve issues instantly by scanning the QR code displayed on the touch panel. This provides immediate access to a dedicated support website with maintenance guides and expert commentary, helping to maximize system availability and efficiency.

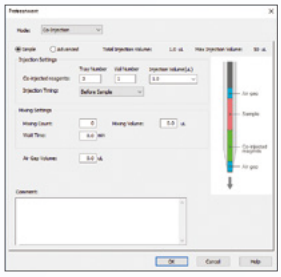
Autosampler



14-second Injection. 1536 Samples. Zero Compromise.

Accelerate your workflow with an ultra-fast 14-second injection cycle that dramatically shortens overall analysis times. The high-capacity design holds up to 1536 samples (using 384-well MTPs), allowing for extended, unattended runs.

Master Challenging Samples with Smart Co-Injection



Simple UI for Configuring Pretreatment Settings

Streamline your workflow with automated sample pretreatment. The intelligent autosampler can be easily programmed to co-inject samples with a compatible solvent, ensuring robust analysis and perfect peak shape without manual intervention.

Preserve Precious Samples, Trust Your Data

Achieve exceptional results even with injection volumes of 1 µL or less. Our system delivers outstanding reproducibility and linearity with near-zero carryover (< 0.0004 %), ensuring highly reliable data for both trace-level biological samples and direct high-concentration analysis.

Column Oven

Flexible Capacity, Precise Temperature Control

Our versatile column oven offers both high capacity and precise thermal control. It accommodates up to six 100 mm columns for method development, while the forced-air circulation system provides stable temperatures up to 90 °C for demanding high-temperature applications such as sugars analysis.

Green Transformation

Eco-Friendly Solutions for People and the Planet

Sustainable Material Integration

Chemically recycled plastics are used in select product components to decrease reliance on petroleum and limit carbon dioxide output.

Optimized Packaging Materials

Smarter packaging design—lighter, smaller, and more efficient—helps cut shipping costs and reduce environmental impact.

Lower Running Costs

Higher durability of parts reduces replacement frequency. That means fewer analysis interruptions during part replacements, which increases the instrument uptime rate and improves operating efficiency.

Lower Power Consumption

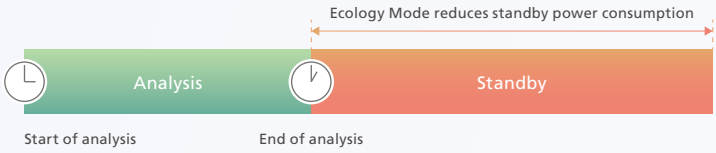
The auto-shutdown function minimizes power consumption while in the standby mode after analyses, which can reduce standby mode power consumption by 95 % or more compared to the regular standby mode.

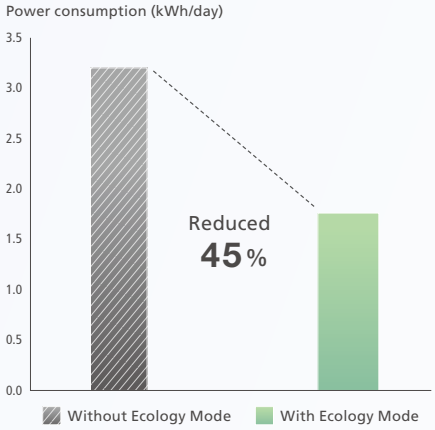
Lower Power Consumption

Ecology Mode

Activating ecology mode* reduces power consumption while the instrument is in standby between analyses. For instance, with 10 hours of daily sample analysis and 14 hours in standby, ecology mode can cut power use by approximately 45 %. This reduction not only conserves energy but also decreases heat output from the system, potentially lowering air conditioning demands.

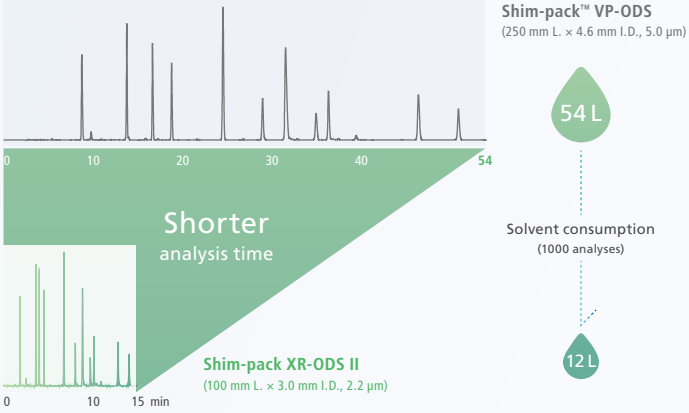
* Only with LabSolutions LC/GC



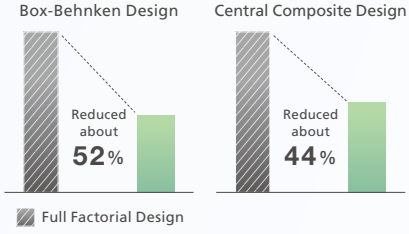


Lower Solvent Consumption

Improved Analytical Efficiency Through Optimized Experimental Design



Experimental Design Method	Experimental Data Points Needed
Full Factorial Design	27 points
Box-Behnken Design	13 points
Central Composite Design	15 points



Comparison of Data Points Required for Each Experimental Design Method

Analysis times can be greatly reduced by selecting a column with a narrower internal diameter, even when the packing material remains the same. Solvent usage decreases proportionally to the square of the column's internal diameter. When LabSolutions MD is used to develop new methods, analytical conditions can be optimized efficiently with fewer trials, further minimizing both the time and solvent required for experiments.

ANALYTICAL INTELLIGENCE

- Automated support functions utilizing digital technologies, such as M2M, IoT, and Artificial Intelligence (AI), that enable higher productivity and maximum reliability.
- Allows a system to monitor and diagnose itself, handle any issues during data acquisition without user input, and automatically behave as if it were operated by an expert.
- Supports the acquisition of high quality, reproducible data regardless of an operator's skill level for both routine and demanding applications.

i-Series

intelligent

The new i-Series models offer three key functionalities for diagnosis, prevention, and system restoration to maintain analytical robustness. During startup, the system checks the status of the check valve and autosampler, preventing analysis if any issues are detected. It also safeguards data quality by stabilizing flow and protecting against column degradation. Additionally, the system continuously monitors operations during analyses, automatically restoring functionality and minimizing downtime in case of problems.

Diagnosis

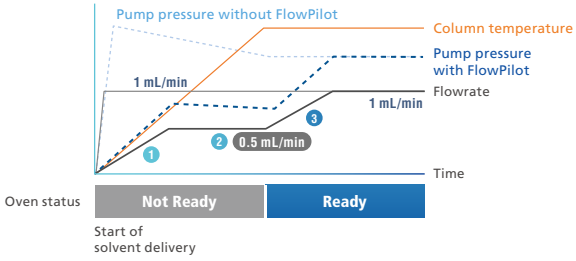
Diagnoses Pump and Autosampler Status

During the pump's flow path check, the system identifies check valve malfunctions, while the autosampler's flow path check detects contamination and blockages in the injection system.

Prevention

Automatic Equilibration with Column Protection

To prevent column deterioration caused by sudden pressure spikes, the mobile phase flow rate should be gradually increased as the column temperature rises. The FlowPilot flow rate control feature is synchronized with the column oven temperature, ensuring columns are protected from abrupt pressure changes during automatic equilibration.



FlowPilot ANALYTICAL INTELLIGENCE

The pump flow rate is adjusted according to the oven temperature. As the oven reaches the specified temperature, the flow rate is gradually increased ① and then held at half the method-specified value ②. Once the oven attains the target temperature, the flow rate is gradually raised to the full value specified in the method ③.

Recovery

Automatically Detects and Corrects Air Bubbles in the Pump

Dissolved air in the mobile phase can sometimes be drawn into the pump, causing solvent delivery errors. The recovery function detects such occurrences and automatically restores the system by purging the air bubbles. This ensures highly reliable data — even during unattended operation — while avoiding downtime, mobile phase waste, and loss of valuable samples.

Management

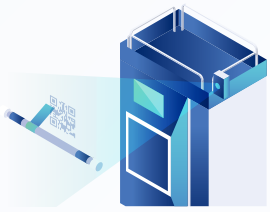
iCMP Intelligent Column Management Platform

Seamlessly Links the Column to Analytical Data

iCMP Next-Generation Column Management

Maintaining a record of column usage history is crucial for ensuring high data reliability. The intelligent Column Management Platform (iCMP)* provides an integrated solution for tracking column usage, improving both usability and data integrity.

* Sold separately. Only available with LabSolutions CS.

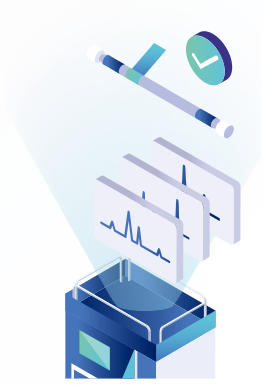


Column Registration

Using two-dimensional code labels to identify columns allows for the registration and management of all columns in the laboratory—not just Shimadzu columns.

Column-to-History Association

When analysis begins with a previously registered column, its history can be loaded to associate analytical conditions, analysis count, and other relevant data with that column.



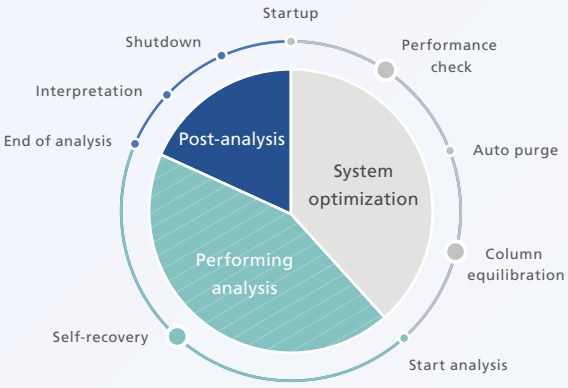
Tracking Performance

Tracking the history of each column enables comparison of retention times and peak shapes, providing a useful tool for assessing column performance. Additionally, when columns are shared among multiple users, the recorded history allows confirmation of the analytical conditions previously applied.

i-Series

innovative

Enhancing Workflows Through Automation and Remote Monitoring



With FlowPilot automated flow rate control, mobile phase monitoring, Analytical Intelligence driven functionality, and LabSolutions Direct software, everything from system startup to analysis shutdown can be managed through automated processes or remote control/monitoring. These automated workflows embed the expertise of seasoned analysts, ensuring consistent data acquisition over extended periods while reducing manual labor in the lab and enhancing overall productivity.

Control Laboratory Instruments from Anywhere

Remote Operation and Monitoring

A web browser interface on a smart device or computer at a separate location can be used to remotely operate the system via LabSolutions Direct in order to execute a pre-configured method or batch analysis. Instrument status and chromatograms can also be monitored remotely, reducing the time needed to travel to and from the laboratory and helping to improve workflow efficiency.

i-Series

intuitive

Simplified System Management

Streamlined User Interface

The intuitive user interface mirrors the system's flow path, allowing users to easily visualize operating status. Methods can be created or edited directly from the same screen, streamlining operation. Designed for ease of use, the interface enables even first-time liquid chromatography users to get started with minimal training.

Built-In Data Integrity Assurance

Auto-Validation Function

The auto-validation function allows any user to follow a standardized procedure to easily verify instrument condition. It automatically checks key performance metrics, such as solvent delivery stability, wavelength and absorbance accuracy, gradient precision, and signal drift or noise. In addition, a built-in instrument check function performs routine pre-run inspections and generates a comprehensive report with self-diagnostic results and consumables usage—tracking solvent volume delivered, total injections by the autosampler, and lamp operating hours. All auto-validation results are centrally managed, enabling quick and accurate assessment of instrument status.

Auto-validation Startup

Procedures, mobile phases, and all necessary validation details are displayed on-screen, guiding you step-by-step to complete inspections with ease.

Creating a System Check Report

Validation results can be viewed from the i-Series main unit. Validation reports can also be generated from the workstation.

Consistently Reliable Method Development

Automated Analytical Method Development Software

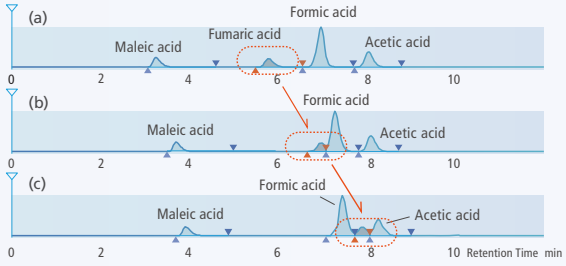
Optimized Method Development

LabSolutions MD

Unlock intelligent method development with LabSolutions MD software. It automatically generates analysis schedules based on key parameters to narrow the design space and save valuable development time. From there, LabSolutions MD helps you identify optimal conditions and confidently evaluate robustness, empowering you to streamline the entire process with ease and precision.

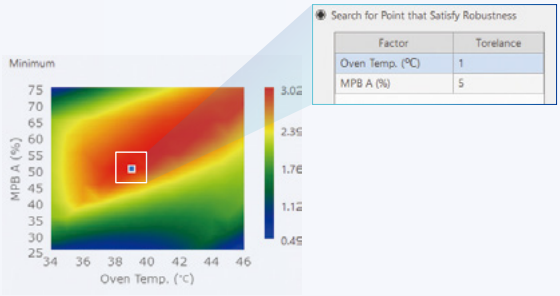
Automatic Tracking of Target Peaks

The figure at right illustrates an example of automatic peak identification for fumaric acid. It highlights how retention time varies with changes in acid concentration and column oven temperature. By filtering out other components based on peak height, the software can automatically detect fumaric acid peaks—even when they elute at different retention times. This enables accurate peak identification through the combined use of multiple parameters.



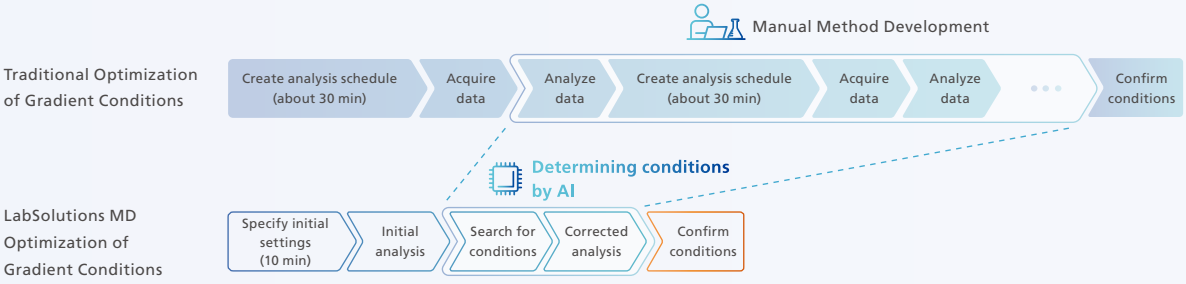
Design Space-Driven Discovery of Optimal Analytical Conditions

During the initial screening phase, samples are analyzed under multiple automatically specified conditions. This data is then used to visually illustrate how variations in each parameter affect separation performance. In the design space shown in the figure on the right—where organic solvent concentration in mobile phase B is plotted on the vertical axis and column oven temperature on the horizontal axis— the results identify 50 % organic solvent and a column oven temperature of 39 °C as the most robust combination of LC parameters.



Automatic Optimization of Gradient Conditions Based on Proprietary AI Algorithm

Shimadzu's proprietary AI algorithm enables automated searching for gradient conditions that meet user-defined separation criteria. Unlike traditional method development—which requires manual creation of analysis schedules and interpretation of results—this AI-driven approach automatically configures subsequent gradient conditions based on acquired data. As a result, optimal gradient conditions can be identified without the need for human intervention.

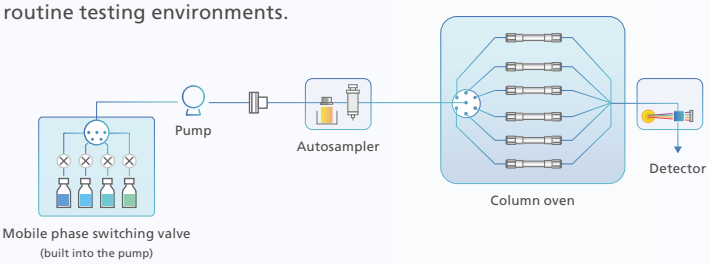


Increase Method Development Productivity

Method Scouting Solution

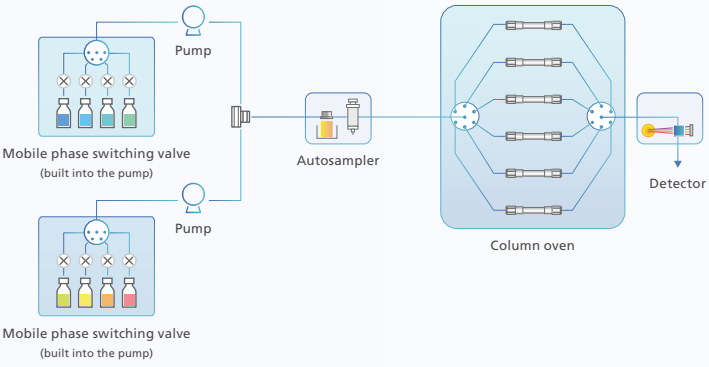
i-Series Method Scouting System —Standard Model—

This system can evaluate 24 combinations using 4 mobile phase types and 6 columns (4x6). This space-saving, budget-friendly system is designed to reduce the cost and complexity of transferring analytical methods to routine testing environments.



Nexera™ Method Scouting System —Advanced Model—

This UHPLC system supports a maximum pressure of 130 MPa and allows testing of up to 192 combinations involving 8 mobile phase types and 12 column options (4 × 4 × 12). Its modular, highly expandable design provides the flexibility needed to explore a wide range of analytical conditions.



Shim-pack Method Development Column Kit

The Shim-pack method development column kits offered by CoreFocus™, Shimadzu's brand of consumables, feature a selection of columns with diverse separation selectivity characteristics, providing valuable support for identifying the most suitable column for a given analysis.

Kit Compatible with Analytical Instruments			HPLC	UHPLC	HPLC (LC-MS)	UHPLC (LC-MS)
01	L1 Kit for HPLC	C18 only	◎			
02	L1 Kit for HPLC / UHPLC (LC-MS)	C18 only	◎	◎	◎	◎
03	Maximum Selectivity RP Kit for HPLC / UHPLC Type A		◎	◎	○	○
04	Maximum Selectivity RP Kit for HPLC / UHPLC Type B		◎	◎	○	○
05	Maximum Selectivity RP Kit for HPLC / UHPLC (LC-MS)		○	○	◎	◎

◎ : Most suitable ○ : Compatible

*These column kits do not guarantee the appropriate separation for customer analyses.

Secure Data Reliability

Client Server Software That Drives Data Integrity and Performance

Control and Monitor Lab Networks Remotely

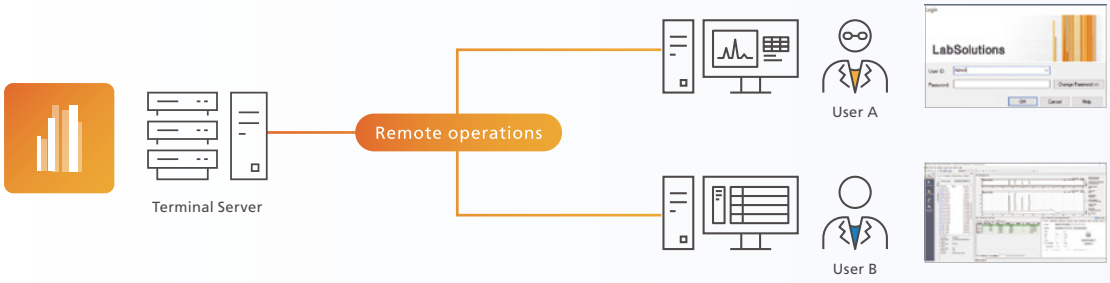
LabSolutions CS

Centralized Management for Multiple Instrument Types

LabSolutions allows centralized management of user account details, system security settings, and operation logs, including data from non-chromatography-based instruments. With Shimadzu's multi-data registration, raw data, PDF reports, and other outputs from a range of analytical instruments can be automatically saved to the LabSolutions database, ensuring secure and consistent data management.

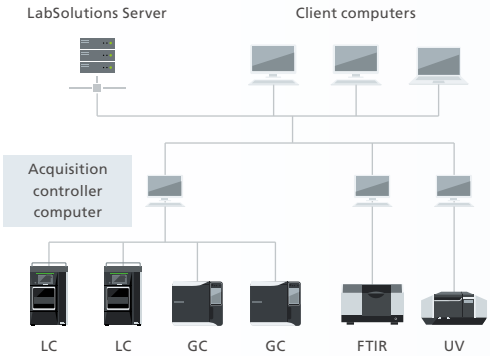
Access Data and Reports Without Installing Software

Support for Windows Terminal Services allows users to check data and reports without installing LabSolutions software on their individual computers. Additionally, for LC, GC, LC-MS, or GC-MS analyses, users can perform data acquisition, analysis, and report generation directly from their own workstations.



Install LabSolutions on Terminal Server

LabSolutions Not Required on Remote PC



Scalable Solutions for Every Laboratory

Systems can be configured to suit the specific instruments customers wish to manage, supporting laboratory environments from small-scale networks with a few devices to large-scale, complex systems. Instruments can also be added easily at any time. With support for non-chromatography instruments, LabSolutions CS delivers streamlined, centralized management that boosts efficiency and lowers overall lab management cost.

Reliable and Efficient Peak Integration

Peakintelligence™

ANALYTICAL INTELLIGENCE

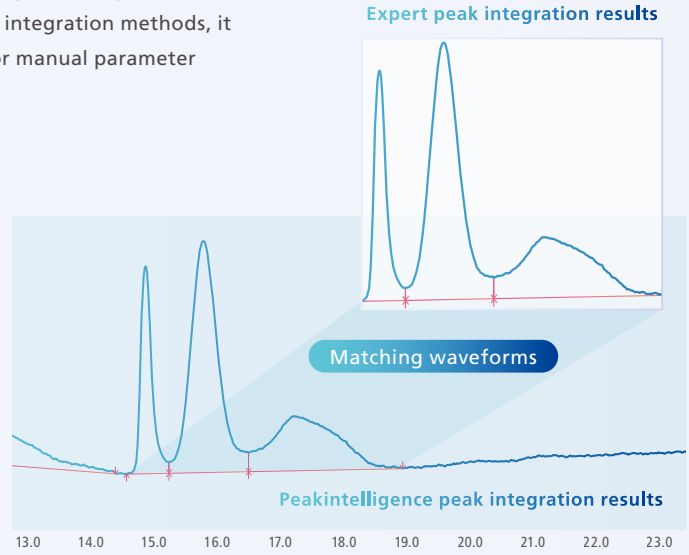
AI-powered chromatogram peak detection offers expert-level precision. Leveraging advanced algorithms trained on expert integration methods, it automates peak identification without the need for manual parameter settings.

Efficient

Users can achieve expert-level peak integration automatically, with no need to set parameters.

Reliable

Reducing manual peak integration safeguards data integrity, ensuring your results are trustworthy and consistent.



Boosting Efficiency in Data Review with Difference Analysis

LabSolutions Detect

By treating reference data as the standard, LabSolutions Detect software supports the detection and confirmation of distinctive peaks, including potential impurities. This streamlines impurity monitoring tasks in quality management and contributes to the development of safe, reliable products.

Specifications

Model		LC-2070	LC-2070C	LC-2070C 3D	LC-2080C	LC-2080C 3D
P/N		228-65880-58	228-65881-58	228-65882-58	228-65883-58	228-65884-58
Dimensions		W410 × H605 × D500 mm (Not including reservoir tray height)				
Weight		58 kg	63 kg		63 kg	
Available pH range		1 to 13				
Pump	Degassing unit	Five Lines: Mobile phase 4 + Rinse solution 1 (Volume 400 µL)				
	Flow rate setting range	0.0001 to 10 mL/min				
	Configuration	Four-solvent low-pressure gradient				
	Gradient / range of set concentrations	0 to 100%, in 0.1% steps				
	Maximum pressure	50 MPa (0.0001 to 3 mL/min) 44 MPa (3.0001 to 5 mL/min) 22 MPa (5.0001 to 10 mL/min)			70 MPa (0.0001 to 3 mL/min) 44 MPa (3.0001 to 5 mL/min) 22 MPa (5.0001 to 10 mL/min)	
	System Delay Volume	650 µL (Option: 460 µL, 1100 µL)			460 µL (Option: 650 µL, 1100 µL)	
Autosampler	Injection method	Total-volume sample injection				
	Injection volume accuracy	±1% (50 µL, N = 10)				
	Injection volume setting range	0.1 to 100 µL (Option: 0.1 to 50 µL, 1 to 500 µL, 1 to 2,000 µL)			0.1 to 50 µL (Option: 0.1 to 100 µL, 1 to 500 µL, 1 to 2,000 µL)	
	Injection volume reproducibility	RSD < 0.20% (5.0–2000 µL) RSD < 0.25% (2.0–4.9 µL) RSD < 0.5% (1.0–1.9 µL) RSD < 1.0% (0.5–0.9 µL)				
	Sample cooler	Not included	4 to 45 °C			
Column Oven	Containable column size	Six columns 100 mm long Three columns 300 mm long				
	Temperature control range	Room temperature –12 °C (–15 °C if an optional unit is installed) to 90 °C, setting range 4 to 90 °C				
	Temperature control precision	±0.1 °C				
	Temperature Accuracy	±0.8 °C (Specified condition), ±0.1 °C (Sensor temperature at 40 °C setting)				
	Flow rate switching valve	Max. 1 pc				
Detector		UV	UV	PDA	UV	PDA

SHIMADZU

Shimadzu Corporation

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