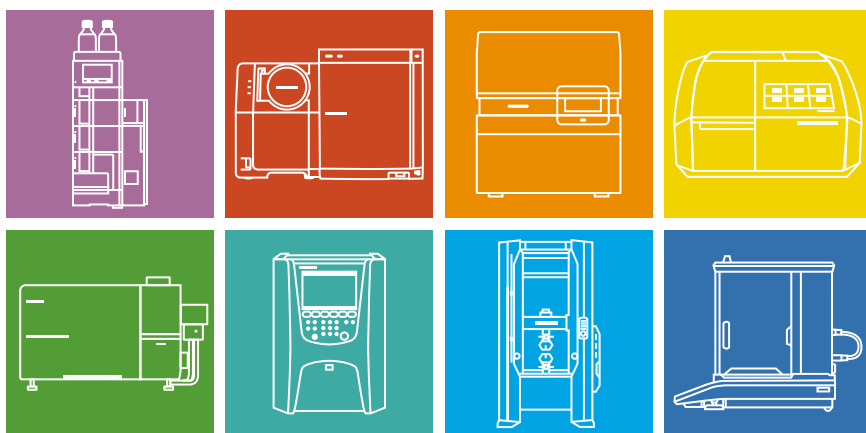


Shimadzu Analytical and Measuring Instruments



2026-2027

Excellence in Science

SHIMADZU has been offering solutions for the advancement of human health, the safety and security of society, and industrial development to innovate and solve societal challenges together with customers.



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Life Science Lab Systems

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Spectroscopy Systems

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Material Testing and Non-Destructive Inspection Systems

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Physical Properties Measurement Systems



Instruments for Pharmaceutical Sciences Research, Development and QC



Support from Drug Discovery to Quality Control

Shimadzu offers extensive support for proteomics, genomics, metabolomics and other life science research products as well as chromatograph, mass spectrometer, and properties testing instrument. Shimadzu provides instruments for analysis and services for quality control, including IQ/OQ and supports for regulatory, to meet today's demands for safe pharmaceutical manufacture.

Field		Applications and Objectives	Shimadzu Products
Discovery		Basic drug discovery and research	MALDI-TOF MS, LCMS, GCMS, Imaging mass microscope, MultiNA
Low-Molecular Weight Pharmaceuticals	Drug Discovery and Chemistry (Synthesis and Purification)	Drug discovery and chemical research	Preparative HPLC, Particle size analyzer, Balances
		Synthesis	HPLC, LCMS
		Impurities analysis	Co-Sense, ICP
	CMC (Development, Formulation, Manufacturing QA/QC)	Analytical method development	HPLC, GC, Material testing machine, X-ray CT/inspection system, Balances
		Pharmaceutical formulation investigation	Thermal analyzers, Particle size analyzer, Material testing machine, X-ray CT system
		Impurities analysis	Co-Sense, Headspace GC (GCMS)
		Elution tests	HPLC, UV
Biopharmaceuticals	Drug Discovery	Structural analysis	MALDI-TOF MS, HPLC
		Culture solution analysis	HPLC
	CMC (Development, Formulation, Manufacturing QA/QC)	Analytical method development	HPLC, Protein sequencing systems, Aggregation analysis system, Balances
Pharmacokinetics, Metabolomics, Safety		PK/TK ADME	HPLC, LCMS, Imaging mass microscope
Manufacturing		Quality control	Balances
		Cleaning validation	TOC, UV, HPLC, LCMS

■ Discovery

■ Pharmacokinetics, Metabolomics, Safety

■ Pharmaceuticals (Low-molecular, Bio)

■ Manufacturing



■ Nexera series →P. 8
■ Ultra High Performance Liquid Chromatograph



■ LCMS-8060RX →P. 19
■ Liquid Chromatograph–Triple Quadrupole Mass Spectrometer



■ Nexera Prep →P. 12
■ Preparative Purification Liquid Chromatograph



■ Headspace Analysis System →P. 28
■ GC and GC-MS Application System



■ TOC-L →P. 44
■ Total Organic Carbon Analyzer



■ Aggregates Sizer →P. 60
■ Aggregation Analysis System for Biopharmaceuticals

Analytical and Testing Instruments for Food, Beverages and Drinking Water



Support for Food Safety and Development

Food products must taste good but they also require unceasing efforts to maintain safety and reliability. Inspection, analysis and evaluation instruments play a major role in this process. Shimadzu instruments assist in satisfying the sophisticated and strict food safety requirements at all manufacturing and inspection stages.

Field	Application and Evaluation	Shimadzu Products
Food Safety Quality Control (General Foods)	Residual pesticides	HPLC, LCMS, GC, GCMS, Balances
	Veterinary drugs	HPLC, LCMS, Balances
	Mycotoxins	HPLC, LCMS, Balances
	Foreign substances and odor	FTIR, EDX, X-ray CT/inspection system, GC, GCMS
	Hazardous metals	AA, EDX, ICP, HPLC, UV
	Additives	HPLC, LCMS, GC, GCMS, UV, FTIR, AA, EDX, ICP, Balances
	Production origin and product variety	MultiNA, ICP, ICP-MS
	Microbial	MultiNA, MALDI-TOF MS
	Total organic carbon	TOC
	Packaging	GC, GCMS, Material testing machine, UV, Balances
Food Development (Functional Foods and Supplements)	Food texture, taste	EZ Test, Particle size analyzer, Thermal analyzers, Moisture analyzers
	Flavor	GC, GCMS
	Functionality	HPLC, LCMS, GC, GCMS
	Therapeutic efficacy	Molecular imaging instrument

- Food Safety and Quality Control (General Foods)
- Food Development (Functional Foods and Supplements)



LCMS-8060RX →P. 19
Liquid Chromatograph-Triple Quadrupole Mass Spectrometer



GCMS-TQ8050 RX →P. 25
Triple Quadrupole Gas Chromatograph Mass Spectrometer



TOC-L →P. 44
Total Organic Carbon Analyzer



SALD-7500nano →P. 60
Nano Particle Size Analyzer



AP Series →P. 61
Analytical Balance



EZ Test →P. 49
Table-Top Universal Testers

Delivering New Technology for Life Science



Toward Discovery of Novel Life Sciences

Shimadzu continually provides leading-edge instrument to support genetic and protein research. For example, Shimadzu mass spectrometers for the identification of proteins boast world-leading analytic capacity and provide a total system to support research from the pretreatment stage. Shimadzu aims to further develop current technologies to contribute to disease diagnosis and other next-generation medical treatments by identifying abnormalities in the marker proteins contained in minute samples of blood.

Field	Applications and Objectives	Shimadzu Products
Genomics	Genotyping	MultiNA
	Marker discovery	MultiNA
	Analysis of nucleic acid compounds	MALDI-TOF MS, LCMS, TMSPC, SPM
	Genetic examination of foods	MultiNA, BioSpec-nano
	Microbial and viral examinations	MultiNA
Proteomics	Protein expression analysis	MALDI-TOF MS, LC-MS/MS, nano-LC, AccuSpot
	Post-translational modifications analysis	MALDI-TOF MS, nano-LC, AccuSpot
	Structural analysis	LC-MS/MS
	N-terminal amino acid sequencing analysis	Protein sequencing system, MALDI-TOF MS
	Marker discovery	MALDI-TOF MS, LC-MS/MS, nano-LC, AccuSpot
Metabolomics	Marker discovery	GCMS, LC-MS/MS, Imaging mass microscope
	Metabolite analysis	GCMS, HPLC, LCMS
Imaging	In vitro imaging	MALDI-TOF MS, Imaging mass microscope, EPMA
	Optical brain-function imaging	LIGHTNIRS, LABNIRS

- Genomics
- Proteomics
- Metabolomics
- Imaging



iMScope QT → P. 31
Imaging Mass Microscope



LCMS-9050 → P. 21
Liquid Chromatograph–Quadrupole Time-of-Flight Mass Spectrometer



MALDI-8030 → P. 30
Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometer



MultiNA II MCE-301 → P. 33
Microchip Electrophoresis System



PPSQ-51A/53A → P. 34
Protein Sequencer



LIGHTNIRS → P. 32
Portable functional Near-Infrared Spectroscopy System for Research

Evaluation Instruments for Renewable Energy



Renewable Energy for Building a Sustainable Society

Shimadzu offers solutions that contribute to next-generation energy technologies for achieving a sustainable society. These technologies include biorefineries to produce fuel or chemical raw materials from microalgae, artificial photosynthesis to create hydrogen or organic matter from sunlight, water, and carbon dioxide using a photocatalytic reaction based on the photosynthesis system of plants, and zero carbon dioxide emission fuel cells or hydrogen electric generation.

Field	Manufacturing Process and Components	Shimadzu Products
Algal Biomass	Monitoring quantities of algae cells and generated organic matter	TOC, UV, Balances
	Analysis of generated oils/fats and hydrocarbons	GCMS, LCMS, HPLC
	Cell surface hardness and particle size distribution	SPM, SALD
	Qualitative–quantitative analysis of purified substances	GCMS, LCMS, HPLC, Balances
Photocatalysts and Artificial Photosynthesis	Evaluation of heterogeneous photocatalysts	UV, XPS, FTIR, SPM
	Evaluation of homogeneous photocatalysts	UV, LCMS, FTIR
	Evaluation of reaction products	GC, HPLC
	Isotopic evaluation of reaction mechanisms	GCMS
Energy Carriers (hydrogen energy)	Analysis of impurities in hydrogen	GC, GCMS
	Evaluation of synthetic or reforming catalysts	UV, XPS, FTIR, SPM
Fuel Cells (Solid PEFC)	Catalyst layers	EDX, FTIR, XPS
	Supported carbons	Particle size analyzers, Balances
	Membrane electrode assemblies (MEA)	X-ray CT system, EPMA
	Electrolytes	Thermal analyzers, SPM, Micro hardness tester, Tensile tester, Fatigue tester
	Electrolyte membrane degradation components in generated water	Ion chromatograph, LCMS

- Algal Biomass
- Photocatalysts and Artificial Photosynthesis
- Fuel Cells
- Energy Carriers



■ **UV-1900i Plus** → P. 34
■ UV-VIS Spectrophotometer



■ **IRXross** → P. 37
■ Fourier Transform Infrared Spectrophotometer



■ **ALTRACE** → P. 40
■ Energy Dispersive X-ray Fluorescence Spectrometer



■ **SPM-Nanoa** → P. 43
■ Scanning Probe Microscope/Atomic Force Microscope



■ **LCMS-8060RX** → P. 19
■ Liquid Chromatograph–Triple Quadrupole Mass Spectrometer



■ **GCMS-QP2050** → P. 26
■ Gas Chromatograph Mass Spectrometer



■ **Nexis GC-2060** → P. 14
■ Gas Chromatograph

Ultra High Performance Liquid Chromatograph

Nexera series

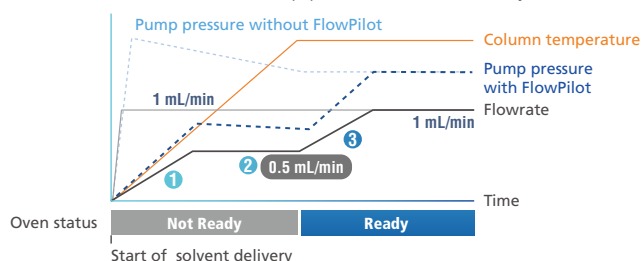
EXPERIENCE NEW BENCHMARKS

In response to the wide variety of customer demands for improving analytical workflow, Shimadzu is constantly introducing advancements in high-performance liquid chromatographs, with features such as superior reproducibility of retention times or for ultra-trace sample injection volumes, fast multianalyte analysis, low carryover, automatic sample pretreatment, high-sensitivity detection, and longer-lasting consumables. Using network technology based on the Internet of Things (IoT) and the cloud to automatically collect information about instruments within laboratories, it is now possible to not only monitor the operating status of instruments, but also ensure instruments can always be used in their optimal state. By merging and making further advancements to such state-of-the-art technologies, the Nexera series offers the unprecedented experience of analytical instruments thinking on their own to better support the analysis workflow of customers.

FlowPilot Protects Columns



HPLC columns can be damaged by sudden pump starts and stops or extreme gradient changes. The Nexera automatically uses FlowPilot (Smart Flow Control) to increase the flow rate gradually to the set point. There is no need to create startup protocols for each analysis.



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.

Mobile Phase Levels Measured in Real Time



This monitor uses weight sensors (optional) to monitor the level of mobile phases, autosampler rinse solutions, or other solutions (up to 12 solutions) in real time. If the remaining solution level is less than required when starting an analysis, then a message is displayed to notify the operator. The operator is also notified if there is a risk of running out of the solution during an analysis. A smart device can be used to check the current level of each bottle, which makes it easier to decide in advance when to replenish bottles.



UHPLC/HPLC (SUS)

Bioinert UHPLC/HPLC

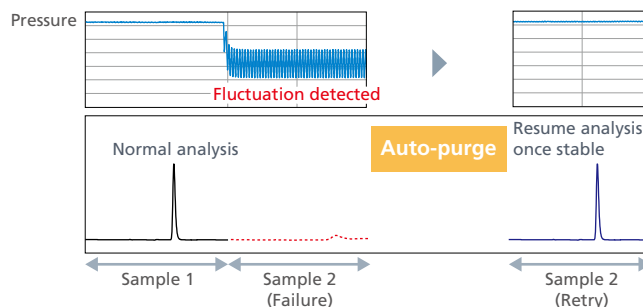
High-end UHPLC Up to 130 MPa	 Nexera X4	
UHPLC Up to 105 MPa	 Nexera XS	 Nexera XS inert
UHPLC-like Up to 70 MPa	 Nexera XR	
HPLC Up to 44 MPa	 Nexera lite	 Nexera lite inert Up to 20 MPa (For aqueous mobile phase with inert kit)

A diverse system lineup has been assembled to accommodate a wide range of column specifications, analytical pressure ranges, and chemical properties of target compounds. The optimal instrument can be selected to meet varied analytical needs, from a basic model ideal for routine analysis to high-end UHPLC systems that deliver outstanding performance in ultra-high-pressure, high-speed applications.

Auto-Diagnostics and Recovery



In rare cases, air bubbles can form in the mobile phase and cause problems if inhaled into the pump. The Nexera has the ability to monitor baseline changes and pressure fluctuations to check for abnormalities. When it detects an unusual fluctuation, it can automatically pause the analysis, purge the flow path, and restart analysis once it has confirmed recovery to normal pressure.



Product

Brochure No. C196-E096



Automated support functions utilizing digital technology, such as M2M, IoT, and Artificial Intelligence (AI), that enable higher productivity and maximum reliability.

New

Ultra High Performance Liquid Chromatograph

Nexera X4

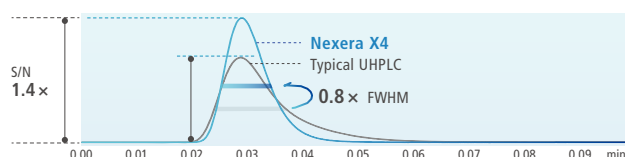
EXPERIENCE NEW SEPARATION

Expanding on technologies cultivated with previous Nexera series models, the next-generation Nexera X4 ultra high performance liquid chromatograph (UHPLC) achieves an incomparable level of analytical performance. The lowest degree of peak broadening* in the industry results in ultra-sharp peaks and outstanding separation performance while cutting-edge fluid control technology provides exceptional solvent delivery consistency, even for fast analysis under ultra-high-pressure conditions, and highly reliable results. Engineered with precision, the high-end Nexera X4 UHPLC offers new value for all laboratories that demand maximum performance.

* ECBB value or 7 μ L

Exhibiting Maximum Performance while Maintaining Instrument Robustness

Nexera X4 systems incorporate proprietary Nexflow technology that minimizes extra-column band broadening without changing the tube's internal diameter or length. By reducing the risk of blockages and minimizing peak broadening, the Nexera X4 delivers outstanding separation performance.



Product

Ultra-Sharp Peaks

Reduces peak dispersion to achieve excellent chromatographic separation.

Ultra-Fast Analysis

Increases productivity by ensuring consistent ultra-fast gradients.

Ultra-Low Solvent Consumption

In combination with narrow-bore columns, it significantly reduces the quantity of solvent consumed.

Major component units	SCL-40, LC-40B X4, SSU-40, SIL-40C X4, CTO-40C, SPD-M40 X4, LabSolutions LC, and others
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Brochure No. C196-E102

Ultra High Performance Liquid Chromatograph Nexera XS inert



Acquiring highly reliable data with a standard UHPLC system that uses stainless steel parts can be difficult due to the adsorption of small and medium-sized metal-coordinating compounds such as oligonucleotides and compounds with phosphate groups to metal surfaces. Mobile phases with high salt concentrations and extreme pH levels can also lead to the corrosion of stainless steel parts. Nexera XS inert is a UHPLC system (resistant to 105 MPa) that uses non-metal materials in wetted flow lines. This reduces adsorption of metal-coordinating compounds in flow lines and improves peak shapes, thereby improving peak separation, sensitivity, and quantitative accuracy in LC and LC/MS analysis. The use of non-metal materials also eliminates the risk of flow line corrosion by mobile phases and resolves system durability issues. The optional pHM-40 pH monitor stores mobile phase pH data gathered in real-time as a data file for even greater data reliability and traceability.

Major component units	SCL-40, LC-40D XSi, SIL-40C XSi, CTO-40S, SPD-M40, Low pressure gradient unit, pHM-40, LabSolutions LC, and others
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Brochure No. C190-E275

High Performance Liquid Chromatograph Nexera lite inert



Nexera lite inert is an HPLC system (up to 20 MPa with aqueous mobile phases) that produces reliable data for size exclusion chromatography and ion exchange chromatography even when running mobile phases with high concentration haloid salts and using methods with extreme mobile phase pH levels. HPLC systems with stainless steel parts must be cleaned immediately with pure water after running these types of mobile phases, but Nexera lite inert uses non-metal materials in wetted flow lines, thereby preventing rust-related issues and ensuring stable long-term operation. The use of non-metal materials in flow lines also prevents the adsorption of metal-coordinating compounds and helps improve peak shapes and peak separation. Nexera lite inert supports a wide variety of system configurations for high-pressure and low-pressure gradients, mobile phase blending, and other conditions.

Major component units	CBM-40lite, LC-40i, DGU-403, SIL-20AC (inert kit), CTO-40C, SPD-40, LabSolutions LC, and others
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Brochure No. C190-E292

Chromatography Systems

Mass Spectrometry Systems

Life Science Lab Systems

Spectroscopy Systems

X-ray and Surface Analysis Systems

Environmental Measurement Systems

Material Testing and Non-Destructive Inspection Systems

Physical Properties Measurement Systems

Ultra High Performance Liquid Chromatograph Nexera Method Scouting System



Nexera Method Scouting System is constructed with the objective of automating and shortening the time required for the analysis method development process. With this system, data is automatically acquired using a maximum of 192 (16 times 12) method combinations based on 16 (4 times 4) mobile phase solvents and 12 columns. This enables a comprehensive investigation of analysis conditions while shortening the total time required for method searches. Using the mobile phase blending function to investigate mobile phase composition and FlowPilot to protect the column during automated equilibration significantly improve the efficiency and reliability of your analytical method development.

Major component units	SCL-40, LC-40D X3×2, DGU-405×2, SIL-40C X3, CTO-40C, SPD-M40, LabSolutions LC, and others
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• Configuration also possible with Nexera XS inert

Brochure No. C190-E216

Nexera Application System Nexera GPC System



By combining the superior solvent delivery and sample injection performance of the Prominence series with a temperature-controlled detector, this system achieves rapid baseline stabilization and outstanding reproducibility of analytical results, which results in providing highly reliable data. Convenient features, such as an overlapping injection function and automated analysis workflow, help increase productivity for routine GPC measurements. The system is also able to recycle mobile phase from intervals where no components are eluted,* which minimizes any environmental impact.

* Using a solvent recycle valve (optional).

Major component units	CBM-40, LC-40D, DGU-403, SIL-40, CTO-40C, RID-20A, LabSolutions LC, LabSolutions GPC software, and others
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Brochure No. C190-E092

Nexera Application System Post-column Amino Acid Analysis System



The Nexera Amino Acid Analysis System uses detection by post-column fluorescence derivatization, with o-phthalaldehyde (OPA)/N-acetylcysteine as the reaction reagents. This detection method enables the selective, high-sensitivity quantitation of amino acids in samples containing high levels of contaminants. Two models are available. The "Na" model, which is optimized for the rapid analysis of amino acids hydrolyzed from protein, and an "Li" model, designed for the separation of free amino acids. In terms of the mobile phase, the pH must be carefully prepared in order to obtain reproducible separation. To avoid this labor-intensive process and reduce the risk of preparation mistakes, the mobile phase and reaction reagent used in this system are available as a special reagent kit that can be used immediately after opening.

Major component units	CBM-40, LC-40D×2, LC-20AB, DGU-403×2, SIL-40C, CTO-40C, RF-20Axs, LabSolutions LC, and others
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Nexera Application System Organic Acid Analysis System



Shimadzu's unique post-column pH-buffered electroconductivity method is ideal for the selective and highly sensitive detection of organic acids. Compared to conventional methods, such as the UV short wavelength method or a simple conductivity method, this system improves quantitation reliability. Compared to the post-column VIS absorption detection methods using pH indicators, this system has higher sensitivity, better linearity, and is easier to use. Complex samples (which usually require troublesome pretreatment) can be analyzed after simple pretreatment techniques such as dilution and filtration.

Major component units	CBM-40, LC-40D×2, DGU-403, SIL-40C, CTO-40C, CDD-10Avp, LabSolutions LC, and others
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New Ion Chromatograph

Nexera IC

Make Every Analysis Count

Every day, laboratories around the world carry out regulatory-compliant analyses to safeguard the environment and protect human health. Ion chromatography plays a critical role in water quality testing, driving the need for intelligent analytical instruments that enable users of all experience levels to deliver accurate, reliable results with complete confidence. The Nexera IC ion chromatograph combines a compact footprint with uncompromising performance, enabling anyone to perform analysis effortlessly and efficiently.

Compact & Cost-Effective

Essential analytical functions are seamlessly integrated into a compact, space-efficient design, while thoughtful engineering and proprietary software minimize maintenance and reduce downtime. The result is faster, more efficient day-to-day operation and consistently reliable analytical results.

Effortless Efficiency

An innovative user interface makes operation effortless, allowing anyone to perform analysis with confidence. Complementary software streamlines daily workflows and ensures the instrument delivers stable, reliable performance every day.

Streamlined Automation

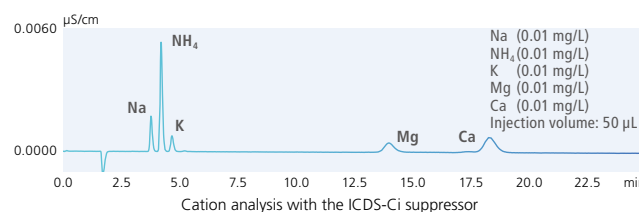
Advanced automation intelligently monitors system status and results to prevent errors, ensuring reliable data no matter the user's experience level. By streamlining tasks, it also reduces workload and boosts overall efficiency of the analytical workflow.



Product

High-Sensitivity Analysis Using a Cation Suppressor

Equipped with a newly developed dialytic cation suppressor, the Nexera IC delivers significantly higher sensitivity than conventional non-suppressor systems.



Major component units IC-150, SI-150, Cation/Anion suppressor, LabSolutions LC, IC Solution, and others

Brochure No. C197-E005

New High Performance Liquid Chromatograph

i-Series



LC-2070/LC-2080

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

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.

innovative

With FlowPilot automated flow rate control, mobile phase monitoring, Analytical Intelligence driven functionality, and LabSolutions Direct



Product

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.

intuitive

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. The auto-validation function allows any user to follow a standardized procedure to easily verify instrument condition.

Brochure No. C196-E100

Preparative Purification Liquid Chromatograph Nexera Prep



These preparative purification LC systems offer expandability for collecting up to 3240 fractions in 10-mm diameter test tubes by linking up to six new LH-40 liquid handler or new FRC-40 fraction collector units, which require about 50 % less installation space than comparable competing products, and a column hub that can hold up to six columns and four flow channel selection valves. LH-40 liquid handlers can be used not only as a fraction collector, but also as an autosampler equipped with a liquid level detection function (optional) or for seamlessly checking purity by reinjecting fractions after fractionation (optional). That supports achieving even higher efficiencies for preparative purification operations.

Major component units	CBM-40, LC-20APx2, DGU-405x2, SPD-M40, LH-40, Column Hub, LabSolutions LC, and others
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Brochure No. **C193-E034**

Analytical to Preparative Scale-up System Nexera ASAPrep



In compound synthesis, both principle components and impurities are produced. Accordingly, purification processes become necessary, and preparative purification liquid chromatographs (preparative LC) are often used. With the Nexera ASAPrep* system for scaling up from analytical to preparative analysis, even inexperienced operators can easily perform preparative purification due to the intuitive UI design. This system automatically determines the difficulty level of preparative separation for the sample and then provides the optimal preparative conditions. Also, by assigning preparative separation tasks based on the level of difficulty, the system improves the efficiency of operations.

* Automated Scale-up from Analytical to Preparative

Major component units	Nexera XR: CBM-40, LC-40D XRx2, SIL-40C XR, DGU-405x2, CTO-40C, SPD-M40, LCMS-2050, software, and others Nexera Prep: CBM-40, LC-20APx2, DGU-405x2, SPD-M40, LH-40, LCMS-2050, Column hub, software, and others
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Brochure No. **C190-E331**

Supercritical Fluid Extraction/Chromatography System Nexera UC/s: SFC/UHPLC Switching System



By simply adding one UHPLC pump to an SFC system, this system can automatically switch between SFC and UHPLC analysis modes to measure the same sample with both separation modes. In addition to use as a conventional UHPLC system for analyzing in the normal way, it can also be used for samples that are difficult to separate by UHPLC to evaluate analytical conditions for SFC analysis, which offers a different separation mode than UHPLC. It enhances user-friendliness and operability by allowing the investigation of separation conditions and performing reverse-phase high-speed analysis in a single system. Shimadzu also provides a kit to upgrade from your current UHPLC system to the UHPLC/SFC switching system.

Major component units	LC-30AD SF, SFC-30A, CBM-40, LC-40D XRx2, DGU-405x2, SIL-40C XR, CTO-40Cx2, SPD-M40, Upgrade Kit, LabSolutions Multi LC-PDA, and others
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Brochure No. **C190-E288**

Semi-Preparative Supercritical Fluid Chromatography System Nexera UC Prep



Nexera UC Prep is a preparative supercritical fluid chromatography system created by the combination of Nexera UC's superior fundamental technology and innovative new technology. By using our unique gas-liquid separation technology "LotusStream Separator", we can achieve a high recovery rate even for volatile components by suppressing a decrease in recovery rate due to the scattering of eluate during CO₂ vaporization. The dedicated software, which enables intuitive parameter settings, helps ensure preparation for the targeted, regardless of skill. This space-saving benchtop model includes a carbon dioxide pump that does not require an external chiller. While the system is compact and can be installed in any environment, it achieves both high recovery rate preparative processing and excellent operability, and promotes the efficiency of preparative processing.

Major component units	LC-40P SF, CO ₂ Cooling Unit, SFC-40P, FRS-40, HEX-40, CBM-40, LC-20AP, LC-20AR, CTO-40C, SPD-M40, DGU-403, FCV-20AH ₂ , LabSolutions LC, Prep Solution, and others
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Brochure No. **C190-E288**

Ultra High Performance Liquid Chromatograph for Online Analysis Nexera FV



Nexera FV and LabSolutions FV together form a new UHPLC system capable of monitoring flow synthesis and batch synthesis reactions, and automating formulation dissolution testing. There is an increasing need for a Quality by Design (QbD) approach using process analytical technology (PAT), and process monitoring, in which the quality of each product is controlled during each unit operation, in the manufacturing of pharmaceuticals. With its proprietary design, the Nexera FV flow through vial autosampler periodically collects samples that are sent into the flow through vial from the reaction tank or dissolution vessel. Two analytical modes can be selected depending on the sampling time and LC analysis time, to provide optimally timed analytical data collection. Nexera FV provide new solutions for pharmaceutical quality control.

Major component units	CBM-40lite, LC-40D XR, DGU-405, SIL-40C XR, CTO-40C, SPD-40V, LabSolutions LC, and others
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Brochure No. C190-E214

HPLC Columns Shim-pack Scepter Series

CoreFocus



The Shim-pack Scepter series utilizes an organo-silica hybrid material for the packing material, offering superior performance and durability over a wider range of analytical conditions than conventional silica particle-type columns, and includes 8 different column chemistries for selectivity (including seven RP and one HILIC). It demonstrates its effectiveness in method development and allows for the selection of columns suitable for various applications. Additionally, with a wide range of particle sizes available, seamless method transfer between UHPLC, analytical HPLC, and preparative HPLC is possible. The column bodies are available in three types: the standard stainless-steel type, the metal-free type using PEEK, and the bioinert type with a special adsorption suppression treatment.

Stationary phases	C18-120, C18-300, HD-C18-80, C8-120, C4-300, Phenyl, PFPP, Diol
Particle diameter	1.9 μm , 3.0 μm , 5.0 μm
Column I. D.	1.0 mm, 2.0 mm, 2.1 mm, 3.0 mm, 4.0 mm, 4.6 mm, 10 mm, 20 mm, 30 mm

Brochure No. C190-E221

High-Quality Vials for Chromatography Analysis Shim-vial Series

CoreFocus



New

Shim-vial (For GC, GC-MS)

Shim-vial H/S glass (For LC, LC-MS)

The Shim-vial series is a line of high-quality vials manufactured and inspected under a strict quality control system. For LC and LC-MS applications, the lineup consists of the "Shim-vial H glass", which reduces surface metal content to an absolute minimum and suppresses adsorption of basic compounds to the inner vial surface, and the "Shim-vial glass", which offers excellent cost performance. For PFAS analysis, PEEK/silicone septa and PP vials are available. For GC and GC-MS applications, high-quality septa are used to minimize siloxane bleed from the septum, a common analysis issue, through careful material selection and manufacturing process improvements.

Brochure No. Shim-vial H/S glass C190-E322

Fully-Porous Silica C30 Columns Shim-pack SR-C30

New

CoreFocus



The Shim-pack SR-C30 is a reversed-phase column with triacontyl (C30) groups bound to a silica gel base material. The long C30 chains provide hydrophobic retention capacity and responsiveness to structure, enabling clear separation of isomer peaks that have insufficient resolution when run on C18 columns. As a result, the SR-C30 is well-suited for the analysis of retinoic acid isomers and aldehydes regulated under U.S. Environmental Protection Agency (EPA) 8315A. This column helps improve reliability and efficiency across applications from regulatory environmental analysis to advanced research.

Stationary phases	C30
Particle diameter	3.0 μm , 5.0 μm
Column I. D.	4.6 mm

Brochure No. C190-E348

New

Gas Chromatograph

Nexis GC-2060

Built on 70 years of technological expertise, the Nexis GC-2060 is Shimadzu's flagship GC and a new benchmark for the industry. We have developed the MMI multi-mode injection unit, which meets a wide range of analytical needs, as well as new FID and TCD detectors that offer the world's highest performance. It also offers enhanced expandability, allowing for the simultaneous installation of two injectors, three injection units and four detectors. This flexibility allows one system to handle multiple applications with ease while saving valuable bench space and maximizing versatility. It pairs proven reliability with ongoing innovation to boost throughput, reduce downtime, and provide laboratories with a trusted partner now and well into the future.

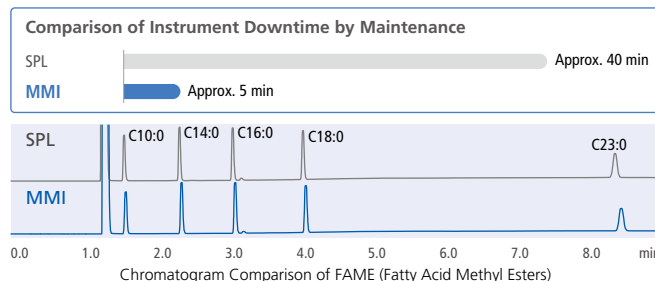
Column temperature	Max. 450 °C (Room temperature + 2 °C)
Carrier gas control	Constant linear speed control, constant flow rate control, constant pressure control possible Pressure: Max. 970 kPa, Flow rate: 1,300 mL/min
Sample injector	Split/splitless, direct, on-column, multi-mode, packed column injection unit, gas-only splitter
Detectors	FID, TCD, BID, ECD, FPD, FTD, MS
System capabilities	Supports simultaneous dual-line analysis Max. number of units installable: 3 injection units, 4 detectors, 8 flow controllers
Display	7-inch color touch screen GC operation and capable of displaying chromatograms available via Remote Display app

Brochure No. C184-E056

The Near Zero-Maintenance Downtime Injection Units

Multi-Mode Injection Unit (MMI)

The MMI supports split/splitless, programmable temperature vaporization (PTV), direct, large-volume injection (LVI), and thermal desorption/extraction injections in a single module. This innovative design preserves data compatibility with the conventional split/splitless injection unit (SPL), allowing you to expand capabilities without revalidating existing methods. Contaminated samples often mean frequent liner swaps. In addition, slow injection unit temperature changes can cost valuable time. Shimadzu's proprietary injection unit insulation delivers excellent temperature stability plus rapid heating and cooling, cutting wait times and keeping your lab running efficiently.



Eco Idling

By using the "Automatic Eco-Operation" function, which learns analytical patterns from operating history and performs optimal eco-friendly operation, you can reduce power consumption by approximately 60 % compared to conventional models. The system delivers maximum performance during analysis and automatically switches to energy-saving (Eco Idling) mode during standby.

Power consumption comparison

Conventional model



Nexis GC-2060 with automatic eco-operation



approx. 60 % reduction

The Next Industry Standard



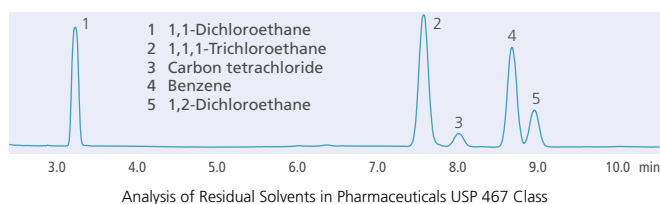
Product

Detectors with Unmatched Sensitivity and Stability

Next-Gen Flame Ionization Detector (FID)

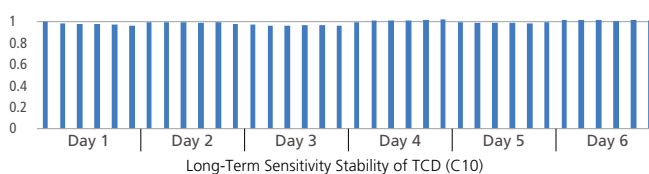
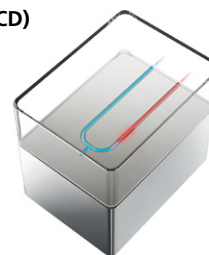
The redesigned FID in the Nexis GC-2060 reaches a minimum detectable level of 1.0 pg C/s. In addition, it is the world's first* multi-mode FID (MMF) equipped with Hy/Ox and Hy/Air modes, which allow flexible selection of detector gases, as well as Shimadzu's proprietary Jetanizer and Polyarc modes.

* As of March 2026, according to a Shimadzu survey



Next-Gen Thermal Conductivity Detector (TCD)

The redesigned TCD uses single-filament technology to dramatically reduce start-up time. With industry-leading sensitivity and excellent linearity, it stabilizes quickly and delivers accurate, repeatable results for a variety of gas and inorganic analyses.



Comparison of TCD sensitivity stabilization time after startup

Conventional TCD

Redesigned TCD

8 hours or longer
Approx. 30 min

Gas Chromatograph

Brevis GC-2050

"Smaller, simpler, and easier to use — without compromising performance." That's the demand from analysts. And that's why Shimadzu developed the Brevis GC-2050. This new space-saving GC delivers uncompromising analytical performance in a modern yet rugged design, easily meeting the analysis needs of laboratories in a range of industries.

Column temperature	Max. 450 °C (Room temperature + 4 °C)
Carrier gas control	Constant linear speed control, constant flow rate control, constant pressure control possible Pressure: Max. 970 kPa, Flow rate: 1,300 mL/min
Sample injector	Split/splitless, direct, on-column, programmable temperature vaporizer, packed column injection unit
Detectors	FID, TCD, BID, FTD, FPD, ECD, MS

Brochure No. C184-E050

Brevis — Compact without Compromise

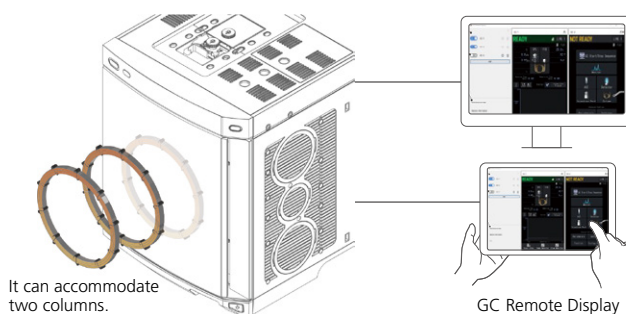
Thanks to its power saving design, the instrument provides a 30 % reduction in power consumption in comparison to conventional Shimadzu models. Despite its compact size, the Brevis GC-2050 does not require special columns, and two ordinary capillary columns can be used. Both glass/SUS packed column also can be used. The GC Remote Display on your smart device or PC can be used to check instrument status, manage daily maintenance procedures, watch videos, etc.

ECO Idling Function, Alternative Carrier Gas Operation

The ECO Idling function maintains GC's accurate analytical performance as usual during analysis, and automatically switches to an energy-saving status when not analyzing. The amount of helium gas used can be reduced by combining the carrier gas saving function with a gas selector (option) that automatically switches to an alternative gas during standby.



Product



It can accommodate two columns.

GC Remote Display

New

FluxEdge Modules for Gas Chromatograph

FluxEdge GC systems

FluxEdge Technology is an innovative solution that takes gas chromatography (GC) gas analysis applications to the next level. Compatible with Shimadzu's latest GC platforms, FluxEdge provides reliable results with minimal maintenance, whether bench-scale analytical testing or continuous data monitoring is required.

Max. pressure	400 kPa
FluxEdge module Max. operating temp.	Brevis GC-2050 + FX-40-SB-T: 100 °C (independent temperature control) GC column oven maximum operating temperature: 350 °C Nexis GC-2030 (FX-TTT) : 60 °C (controlled by GC column oven)
Sample type	Gas
Max. number of modules installed	Brevis GC-2050: 1, Nexis GC-2030: 3

Note: GC units are not included with this product.

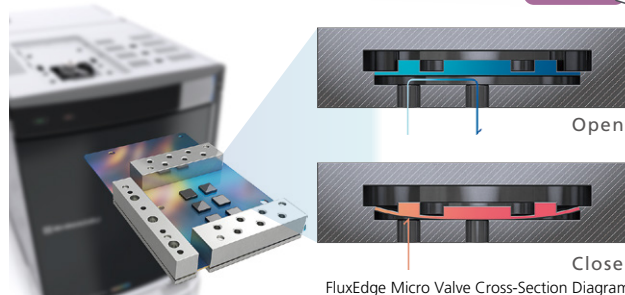
Brochure No. C184-E054

Unmatched Durability and Performance

FluxEdge uses a microvalve with a diaphragm structure developed by combining microfabrication technology from semiconductor manufacturing with Shimadzu's cutting-edge inert Technology. This provides durability hundreds of times greater than conventional rotary valves used in gas analysis. FluxEdge with a heat resistance of up to 100 °C, supporting a wide range of gas analysis applications. The valve itself requires no maintenance throughout the GC system's lifespan.



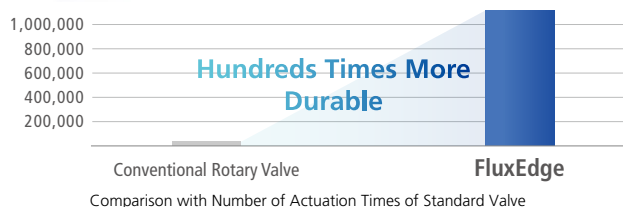
Product



Open

Close

FluxEdge Micro Valve Cross-Section Diagram



Sulfur Chemiluminescence Detection Gas Chromatograph Nexis SCD-2030



This sulfur chemiluminescence detector (SCD) offers high reliability that has changed industry reliability levels. It features the industry's first horizontally-oriented redox cell, which improves oxidation-reduction reaction efficiency of samples by providing ample reaction space and reaction time within the cell. The patent-pending ultra-short flow path technology enables unstable components generated within the cell to move into the reaction bar very quickly, thereby achieving about 2.5 times higher sensitivity than previous products. The horizontal orientation also provides easier access to enable inner pyro tube replacement without disassembling the reactor. "Analytical Intelligence" technology fully automates process steps from gas and temperature control during system startup to sample conditioning.

Minimum detection sensitivity	0.3 pgS/sec
Stability	<3 %RSD (24 hrs)

Brochure No. C184-E048

GC Application System Headspace Analysis System



Nexis GC-2060 + HS-20 NX

With short transfer lines and patented isolation gas technology, HS-20 NX series headspace samplers reduce carryover to one-tenth the level of previous models and significantly increase laboratory productivity. The ability to overlap processing of up to 12 vials makes the samplers especially useful in fields that require high throughput. Featuring the world's only* electronically-cooled trap, the HS-20 NX Trap enables over ten times higher sensitivity than regular headspace analysis. The product line also includes an HS-20 Long Transfer Line (LT) model compatible with packed columns.

* As of August 2021, according to a Shimadzu survey

Applicable models	GC-2060/2050/2030, GC-2010 Plus/2010, GC-2014
Number of vials	90
Vial stirring	5-stage

Brochure No. C180-E094

Auto Injector/Auto Sampler for GC/GC-MS AOC Series



AOC-20s U

AOC-30i

The AOC-30i is a next-generation intelligent auto injector with Sampler Navigator functionality that is packed with injection expertise. The skip function uses vial-sensing technology to increase throughput and help improve data integrity. The 30-vial sample capacity is large enough to handle most workflows, but can be expanded to 150 vials in combination with an AOC-20s U auto sampler. Though the AOC-20i Plus offers exceptional cost-effectiveness for broad market appeal, it also features extensive functionality, such as co-injecting derivatizing agents.

	Auto Injector		Auto Sampler
	AOC-30i	AOC-20i Plus	AOC-20s U
Number of vials	30	6/12	150
Applicable models	Nexis GC-2030, GCMS-NX series	GC-2010/2014/2025, GCMS-QP/TQ series	All of GC, GCMS

Brochure No. AOC-30 series C180-E096
AOC-20i/20s C189-E021

Software for PONA Analysis and Detailed Hydrocarbon Analysis PONAsolution



This software can be used with the Nexis GC-2060/2030 high-end gas chromatograph and LabSolutions software to perform PONA-specific identifications and calculations, create reports, and manage identification tables. PONAsolution Ver. 6 features retention index libraries that support relevant ASTM standards, an intuitive user interface with various identification support functions, and reporting capabilities. The column, consumables, GC equipment, and software required for DHA are all provided by Shimadzu to ensure total support.

Applicable samples	Mixture of hydrocarbons such as naphtha, gasoline
Quantitation	Quantitation by peak area value %, weight %, and capacity %, separately by carbon number and type (n-paraffin, i-paraffin, olefin, naphthene, diolefin, aromatic, and others)
Supported standards	ASTM D5134, D6729, D6730, D6733

Brochure No. C180-E090

Analytical Data System

LabSolutions CS

Test Information Management System

LabSolutions i-QLinks

LabSolutions can increase workflow efficiency and strengthen compliance with data integrity requirements, providing solutions for a wide variety of industries and departments.

Integrating the robust analytical data system 'LabSolutions CS' with the test information management features of 'LabSolutions i-QLinks' greatly enhances laboratory operations. This seamless combination consolidates various types of laboratory information into a single platform, streamlining workflows and improving both efficiency and overall operational effectiveness.

Brochure No. LabSolutions DB/CS C191-E018
LabSolutions i-QLinks C191-E057

Single Platform for Efficient Laboratory Operations

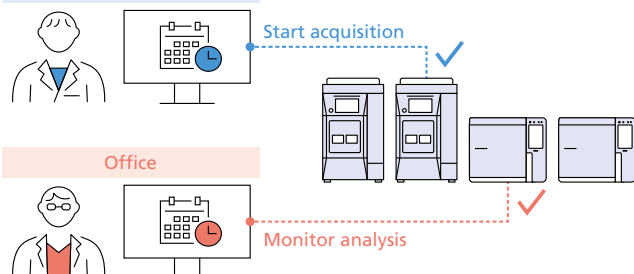
Data, operation logs, and other information from a wide variety of analytical instruments, including HPLC, GC, LC-MS, GC-MS, spectrophotometers such as IR and UV, elemental analysis instruments such as ICP-MS, testing machines, TOC analyzers, and balances, can be centrally managed on a server. The Multi-Instrument Data Registration functionality centralizes the data and PDF reports generated by any 3rd party system automatically.

Furthermore, i-QLinks facilitates a seamless connection between test/sample information and analytical data to provide efficient operations and traceability.



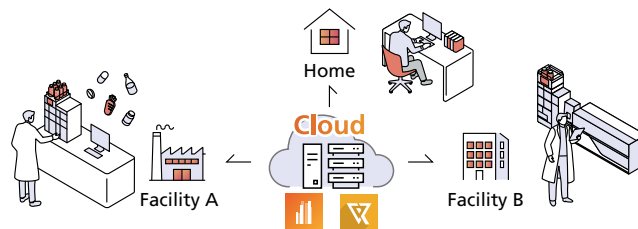
Instrument information for the whole laboratory, including for instruments not connected to a PC as well as those controlled by LabSolutions CS, can be centrally managed. By registering calibration records and scheduling details, operators can understand the status of instruments at a glance, which enables more efficient operations and better optimization of assets.

Analytical Instrument Room



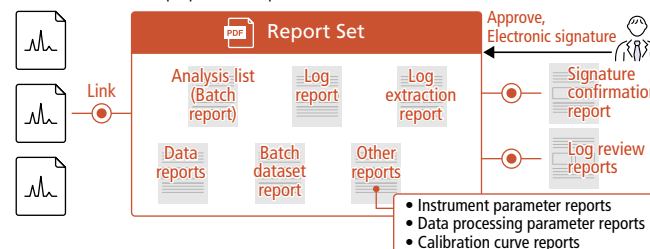
Flexible Work Environment

Instruments and data can be accessed from client PCs in any location. i-QLinks enables administrators to verify the progress of tests, review analytical results, and approve reports via a web browser. In addition, by securely connecting sites and cloud environments, organizations can build a location-independent network that supports flexible work from anywhere.

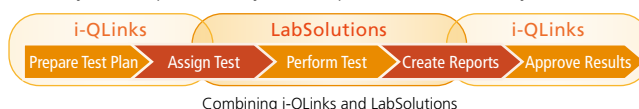


Increased Productivity by Integrating System

LabSolutions CS provides a consistent and user-friendly operating environment. In addition to supporting analytical operations, LabSolutions CS optimizes pre- and post-analytical activities, including instrument conditioning and safe shutdown procedures, improving overall workflow efficiency. The Report Set functionality makes it possible to review and electronically approve analytical results and operation logs in a single pdf file. This prevents data falsification and enables efficient paperless operation.

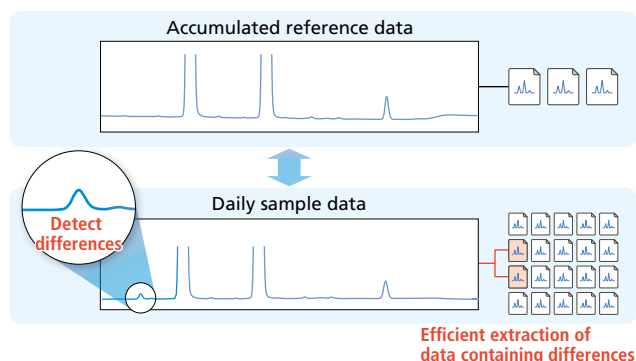


i-QLinks seamlessly links sample information and analysis conditions to analytical instruments, enabling more efficient testing. Data acquired from an analytical instrument is automatically transferred to a pre-configured spreadsheet for test report generation. This reduces the risk of data falsification and human error. The combination of a robust data system with powerful test management functions enhances workflow efficiency, drives productivity, and improves data reliability.



Anomaly Detection Support Software LabSolutions Detect

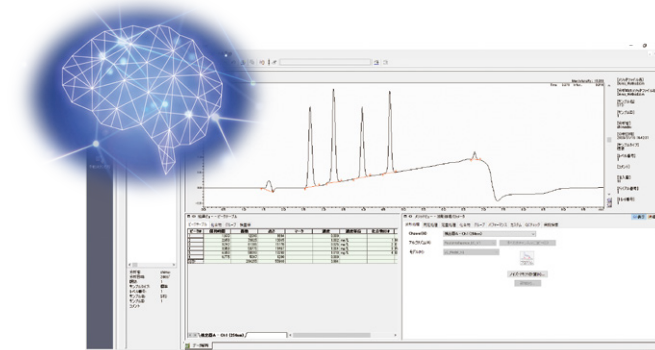
New



LabSolutions Detect is an optional software solution designed to support difference analysis of chromatogram data. In quality control testing, large volumes of analytical data must be reviewed to verify that compound contents are within acceptable limits and that no impurities are present. By setting accumulated data as reference data and simply specifying the sample data to be evaluated, LabSolutions Detect enables efficient, intuitive difference analysis, allowing users to rapidly and reliably identify anomalous data. The alignment function (automatic retention time correction) overlays chromatograms to facilitate visual confirmation of differences between samples. In addition, the clustering function (grouping of similar peaks) automates the matching of compound and impurity peaks, significantly improving the efficiency of data review.

Brochure No. C191-E064

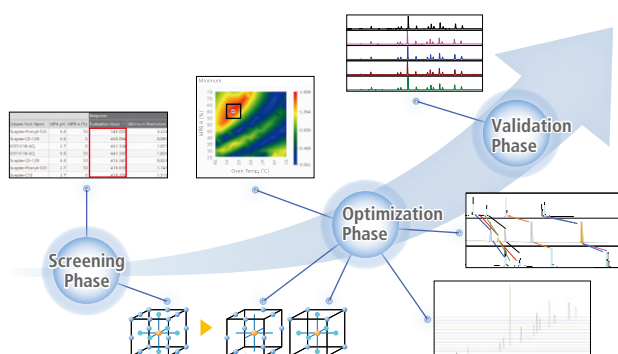
Peak Integration Software for LabSolutions Peakintelligence for LC



Peakintelligence for LC is optional peak integration software equipped with AI algorithms developed by Shimadzu. When analyzing complex samples containing many target components, peaks are often obscured by a mixture of various large and small peaks from principal components and impurities in the sample, which can require a long time for determining parameter settings and manually integrating peaks. By using AI algorithms trained based on expert peak integration techniques, peak integration can be performed automatically without users having to specify parameter settings. For more complicated analysis that requires manually correcting peak integration results, Peakintelligence for LC requires only about one-fourth the time otherwise required for data analysis.

Brochure No. C191-E059

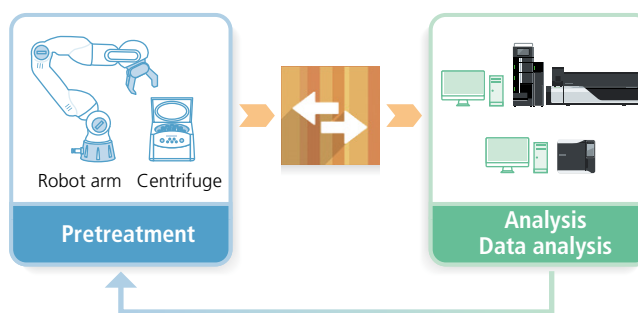
Solution for Method Development and Analytical Quality by Design LabSolutions MD



Based on Analytical Quality by Design (AQbD), a method for evaluating and verifying analytical methods by clarifying the development process and rationale, LabSolutions MD streamlines the method development workflow from data acquisition using the experimental design method to visualization using the design space, enabling the development of optimal analytical methods even by non-expert users. This software efficiently develops highly reliable analysis methods by configuring mobile phases, columns, and other parameters using an analysis function that automatically generates analysis schedules with the experimental design method and a data analysis function that plots a design space and predicted chromatogram.

Brochure No. C190-E278, C190-E308

LabSolutions External Control Software LabSolutions Sync



LabSolutions Sync is optional software that supports automating entire systems by seamlessly integrating the operation of non-Shimadzu software, such as for pretreatment or synthesizer units, with Shimadzu LabSolutions software. Increasing automation throughout entire analytical laboratory workflows can reduce labor and costs. Entire workflows from compound synthesis can be automated by using LabSolutions Sync to automatically load and analyze analytical files created by non-Shimadzu software used to control pretreatment and synthesizer units. Data analysis results and reports output after data acquisition is finished can also be loaded by non-Shimadzu software.

Brochure No. C191-E053

Liquid Chromatograph–Triple Quadrupole Mass Spectrometer

LCMS-TQ RX Series

Ultrafast Track to Your Success

Innovative technology, exceptional design and new ways of thinking are part of our engineering DNA delivering solutions for the ever-changing needs of any laboratory. As our scientific and business needs change our engineering design evolves and adapts. The result is the RX Series of triple quadrupole LC-MS instruments designed with unmatched capability, redefined reliability and creating a new standard in actionable data.

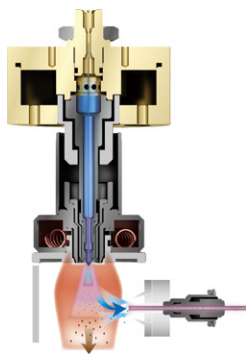
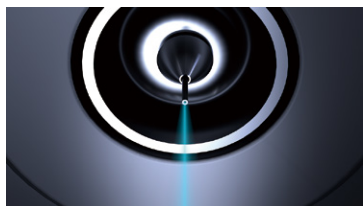
	LCMS-8060RX	LCMS-8050RX	LCMS-8045RX
Mass range	m/z 2 to 2,000		
Resolution	$R < 0.7 \mu$ (FWHM)		
Scan speed	Max. 30,000 u/sec		
Positive–negative ion polarity switching time	5 msec		
MRM measurement speed	Max. 555 ch/sec		

Note: LC units are not included with this product.

Brochure No. C146-E485

Enhanced Ionization Performance —CoreSpray—

CoreSpray, a newly developed gas delivery system, improves performance and uniformity of nebulization with higher flows and better heat transfer.



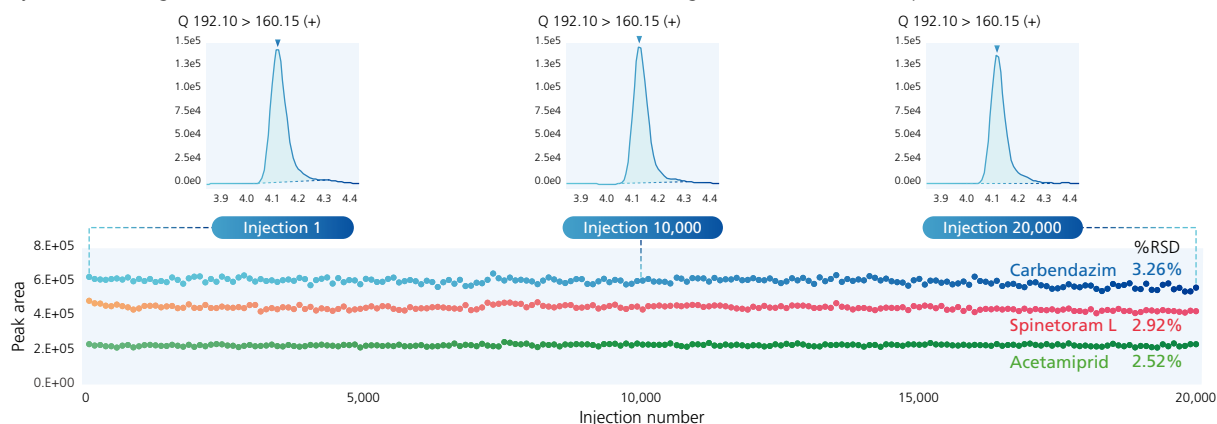
PERFORMANCE CONCIERGE



PERFORMANCE CONCIERGE makes tuning a mass spectrometer easier than ever before. A tuning standard is automatically introduced into the instrument to verify parameters, including mass accuracy, resolution, and signal strength. Based on these checks, tuning may be automatically initiated to ensure optimal performance. Should the criteria not be met, PERFORMANCE CONCIERGE will diagnose the issue and alert the operator of required maintenance and maximize uptime.

Peak Area Stability in Matrix: 20,000 Continuous Injections

CoreSpray technology applied to the repeated analysis of pesticides in black tea matrix resulting in enhanced robustness (%RSD less than 3.5 %, 20,000 injections). Data generated without internal standards and without diverting to waste for the initial polar matrix effects.



Product

Peakintelligence for LCMS

Peakintelligence for LCMS is an AI driven algorithm for component detection and peak integration without the need for any user parameter. Peakintelligence for LCMS processing results in higher consistency in peak integration and reduces the time-consuming impact of manual review to achieve a more accurate, more reproducible peak processing.



Upgradeable to the RX Series

There are kits to convert all previous models (excluding the LCMS-8065XE) to the RX series, as well as kits to upgrade the LCMS-8045RX/8050RX to the LCMS-8060RX. By combining one or more of these kits, you can upgrade your existing equipment to a hardware configuration equivalent to any model in the LCMS-TQ RX series.

New

Liquid Chromatograph–Triple Quadrupole Mass Spectrometer

LCMS-8065XE

The LCMS-8065XE is a high-performance triple quadrupole mass spectrometer elevates the quantitative analysis of trace components to a new level. By further advancing UF Technologies—a suite of ultra-fast measurement technologies—it delivers superior analytical accuracy and enhanced productivity, empowering the laboratory for the future.

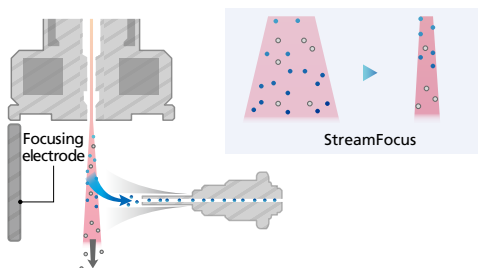
Mass range	m/z 10 to 2,000
Resolution	$R < 0.7$ u (FWHM)
Scan speed	Max. 30,000 u/sec
Positive–negative ion polarity switching time	5 msec

Note: LC units are not included with this product.

Brochure No. C146-E500

EVOLVED —Embrace the power of StreamFocus ionization—

The newly designed StreamFocus ESI probe enhances UFsensitivity analysis by reducing droplet dispersion within the ESI spray. Equipped with a specially engineered low-diffusion nebulizer nozzle, it enables greater ion intake while reducing nebulizer gas consumption—making it particularly well-suited for reducing operational expenses.



Product

EFFICIENT —Achieves exceptional throughput—

The advanced ion transport system in the LCMS-8065XE efficiently delivers a large quantity of ions to the mass separation unit. In addition, the new collision cell features a larger inlet lens diameter to capture more ions. In combination with Shimadzu's proprietary UFsweeper technology, the ion capture quantity can be increased while maintaining high-speed operation. This enables both high sensitivity and high throughput, significantly increasing laboratory productivity.

EXACT —Exceptional accuracy and enhanced sensitivity—

The improved sensitivity enabled by the new design elements enables more accurate quantitation at lower concentration levels. In addition, new inspection standards for negative ion analysis deliver superior analysis accuracy and more reliable data.

Liquid Chromatograph Mass Spectrometer
LCMS-2050

The LCMS-2050 single quadrupole liquid chromatograph mass spectrometer combines the user-friendliness of an LC detector with the excellent performance of MS to provide a complete package of easy to use, high-level performance and compactness. While delivering operational convenience on par with an LC detector, the LCMS-2050 provides the high speed, high sensitivity, and wide mass range that are the hallmarks of Shimadzu mass spectrometers. Capable of analyzing a wide range of compounds from high to low polarity, the LCMS-2050 can be used in a variety of markets and applications. This system is also equipped with data analysis features using Analytical Intelligence and eco conscious functions, which contribute to labor and energy savings in the laboratory.

Mass range	m/z 2 to 2,000
Resolution	0.7 u
Scan speed	Max. 15,000 u/sec
Positive–negative ion polarity switching time	10 msec

Note: LC units are not included with this product.

Brochure No. C146-E442

Liquid Chromatograph–Quadrupole Time-of-Flight Mass Spectrometer
LCMS-9030

The LCMS-9030 integrates the world's fastest and most sensitive* quadrupole technology with unique TOF architecture. A product of Shimadzu's engineering DNA, the LCMS-9030 enhances the most important features of QTOF instrumentation—mass accuracy, sensitivity, and speed—to address qualitative and quantitative challenges with genuine confidence and ease.

* As of June 2018, according to a Shimadzu survey

Mass range	Quadrupole mass range: m/z 10 to 2,000 (resolving mode) TOF mass range: m/z 10 to 40,000
Resolution (TOF)	ESI positive : 30,000 FWHM at m/z 1,972 ESI negative: 30,000 FWHM at m/z 1,626
Mass accuracy	<1 ppm at m/z 622.5662
Maximum acquisition rate	100 Hz

Note: LC units are not included with this product.

Brochure No. C146-E365

Liquid Chromatograph–Quadrupole Time-of-Flight Mass Spectrometer LCMS-9050



The LCMS-9050 inherits the world-class mass accuracy and stability of the LCMS-9030 while incorporating newly developed UFstabilization technology for simultaneous positive ion/negative ion analysis with high mass accuracy at even higher speeds. Ease of use is evident throughout the system from mass calibration to maintenance, allowing the LCMS-9050 to be used easily in any scenario that requires accurate mass spectrometry.

Mass range	Quadrupole mass range: m/z 10 to 2,000 (resolving mode) TOF mass range: m/z 10 to 40,000
Resolution (TOF)	ESI positive : 45,000 FWHM at m/z 1,972 ESI negative: 45,000 FWHM at m/z 1,626
Mass accuracy	Unipolarity Analysis (MS mode): <1ppm at m/z 622.5662 Polarity switching analysis (MS mode): <5ppm at m/z 922.3547 switching speed 800 msec
Maximum acquisition rate	MS/MS mode up to 200 Hz (200 MS/MS spectra per second)

Note: LC units are not included with this product.

Liquid Chromatograph–Quadrupole Time-of-Flight Mass Spectrometer OAD-TOF system

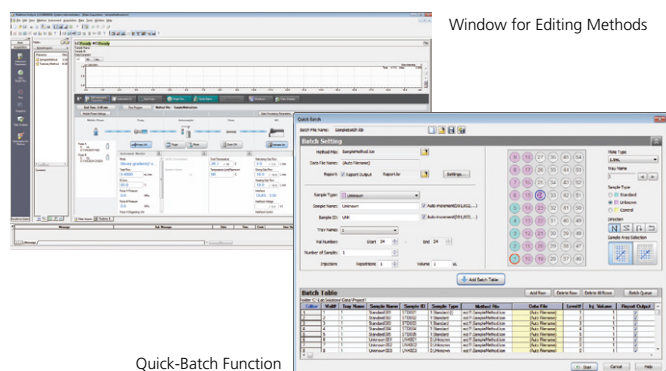


The OAD-TOF system is a LC–QTOF MS that realizes OAD (Oxygen Attachment Dissociation), Shimadzu's proprietary fragmentation technology. It allows the analysis of the position of carbon–carbon double bonds in lipids and other organic compounds. The OAD-TOF system can be used in combination with various options such as DPiMS and Nexera UC compatible with the LCMS-9050. Each optional unit can also be easily combined or replaced with an OAD-TOF system.

Radical generation method	Microwave plasma
Radical source gas	Water vapor (< 1 cc/min), hydrogen gas (<1 cc/min)
Dissociation method	OAD/CID (Switching depends on the measurement method)
Radicals	Hydrogen radicals, oxygen radicals, hydroxyl radicals, etc.
CID gas	Argon

Brochure No. C146-E481

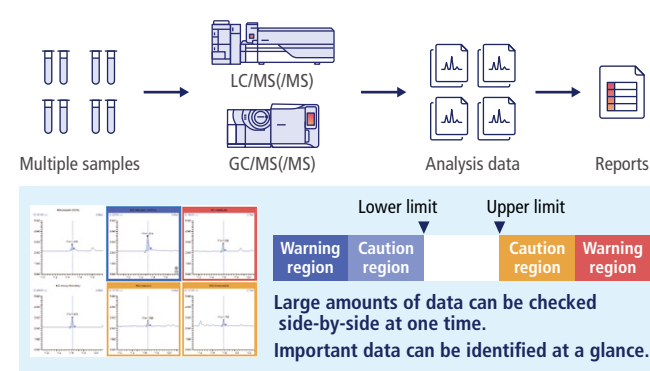
Workstation Software for LCMS Systems LabSolutions LCMS



LabSolutions LCMS is used for LCMS-9050/9030/8060RX/8050RX/8045 RX/2025 system control, data acquisition, and data analysis. In addition to simultaneous LC control, data acquisition, and data analysis, it also supports sophisticated application functionality, such as for co-injection and expansion to a method scouting system. It can also be used to freely specify various measurement parameter settings for analysis that meets a diversity of needs, from routine qualitative and quantitative analysis to unique customized analysis applications. The intuitive LCMS user interface includes a window for editing methods that shows the control panel in graphical form and a Quick-Batch function. That ensures the desired data can be obtained using simple operations.

Note: LCMS-2010 series, LCMS-QP8000 series, and LCMS-IT-TOF systems are not supported, but data processing is supported for LCMS-2010 systems.

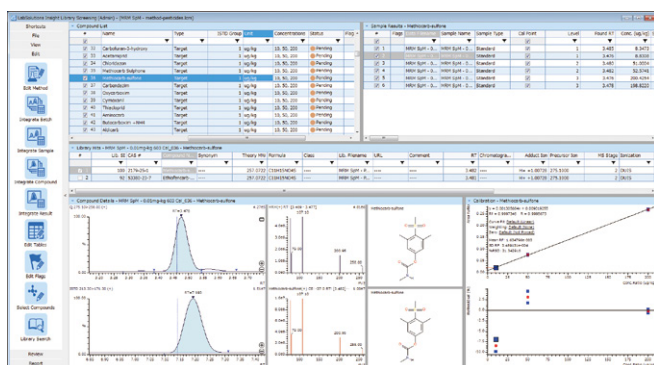
Multi-analyte Quantitation Support Software LabSolutions Insight



LabSolutions Insight is software for GC–MS/MS and LC–MS/MS systems that enables simpler and more efficient analysis of data from multiple analytes, which can dramatically increase the efficiency of research or survey work. While mass spectrometers can obtain large quantities of high-quality mass spectrometry data day and night, analyzing that data would be extremely time-consuming. Therefore, in order to increase analytical productivity, it is important to make this data analysis process more efficient. LabSolutions Insight allows the data from multiple samples to be displayed side-by-side and cautionary data highlighted based on specified threshold values for easy review. This can improve quantitative analysis efficiency and significantly shorten the total time required for data analysis. In addition, an extensive selection of optional products for improving compound identification workflows, using AI for peak detection, and environmental regulatory compliance are available for many industries.

Brochure No. C146-E346

Optional Software for LabSolutions Insight LC/MS/MS LabSolutions Insight Library Screening



This optional software for LabSolutions Insight uses the MTS* method to search for MS, MS/MS spectra of known compounds in the library, and spectra of the actual sample, and then displays both the qualitative results and the quantitation results. In the search results window, structural formulas and spectra are displayed, making it easy to determine whether or not the compound of interest has been identified. Library searches for MRM can also be performed in addition to searches for MS/MS spectra, which is a useful feature for confirming compounds. Moreover, the search results can be printed at the same time as the quantitation results. Since all of the functions of LabSolutions Insight can also be used, qualification and quantitation can be performed simultaneously.

* MTS: Multi-Targeted Screening

Brochure No. C146-E419

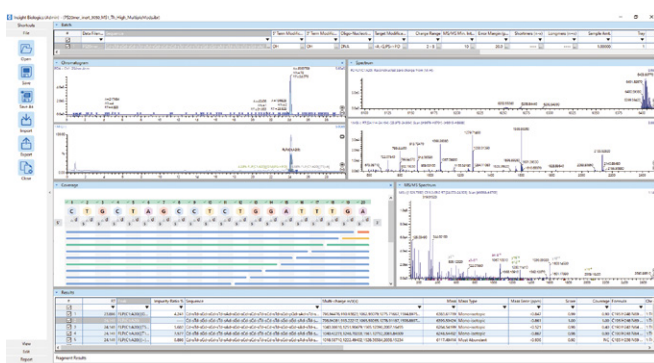
Multi-analyte Screening Software for LabSolutions Insight LC/MS/MS LabSolutions Insight Explore



LabSolutions Insight Explore software supports a full range of workflows ranging from qualitative to quantitative analysis, providing advanced functionality for precision library searching, structural analysis, and formula prediction based on high-resolution and high-accuracy mass spectrometry data. The software provides comprehensive support for identifying unknown components through compound detection, formula prediction, and library searching. Structures can be queried using accurate mass information or molecular formulae, and fragment assignment for MS/MS spectra is also available. The software also offers batch processing and report generation for qualitative analysis, enabling efficient handling of large datasets in applications such as pesticide screening and illicit drug analysis. In total, LabSolutions Insight Explore enables efficient qualitative and structural analysis of unknown compounds as well as quantitative analysis.

Brochure No. C191-E066

Software for Oligonucleotide Characterization LabSolutions Insight Biologics



This oligonucleotide characterization software is designed for use with single quadrupole (SQ), quadrupole time-of-flight (QTOF), or MALDI mass spectrometer systems. It allows for easy input of principal component sequences and setting of analysis parameters with simple operations. Based on the input sequences, it comprehensively identifies the principal components and impurities of oligonucleotides and estimates sequences from MS/MS fragment spectra. The sequence input window displays the structural formula of the entered sequence in real-time, enabling visual confirmation of any input errors. The results window shows chromatograms, mass spectra, identification results, and sequence coverage. There are two methods for displaying sequence coverage, allowing users to switch the display according to the items they want to verify. Reports can be generated in five different formats, along with user customization options to meet specific needs. Additionally, any changes to the analysis parameters in the software are automatically recorded in the operation log.

Brochure No. C146-E475

Non-Targeted Analysis Software for LC/QTOF Data LabSolutions Insight Profiler

New

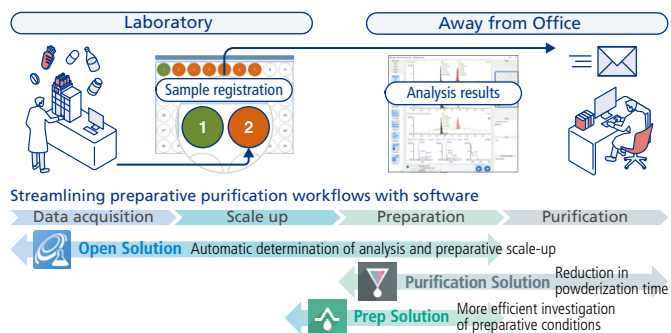


LabSolutions Insight Profiler performs non-targeted analysis of data acquired by LCMS-QTOF, enabling simpler and more efficient analysis of multiple samples. Its intuitive workflow makes it easy for anyone to operate, even those without specialized expertise. It can process multiple (grouped) TOF-MS datasets simultaneously, performing peak picking, alignment using diverse data attributes, gap filling, and statistical analyses such as PCA and volcano plots—all within a single software package. Through comprehensive comparisons between control and analyte groups, it enables the discovery of novel compounds and metabolites, identification of differences between samples, and anomaly detection. It meets a wide range of non-targeted analysis needs in fields such as pharmaceuticals, food, environmental analysis, and academic research.

Brochure No. C146-E513

Software for Data Acquisition and Preparative Purification
for LC and LC-MS Systems

Open Solution



The software enables multiple users to share a single LC or LC-MS system, supporting workflows from routine analysis preparative purification. Its intuitive interface simplifies the entire process, from sample registration and analysis execution to review of chromatograms and MS spectra and report creation. In addition, the software is compatible with server operation, enabling the browsing of measurement results without installing software on individual PCs. With the preparative scale-up function, peak separation status is evaluated, preparative conditions are automatically generated, and the preparative results show which peaks have been fractionated into which test tubes. When used with Purification Solution, which supports powderization for high-purity sample recovery, and Prep Solution, which enables preparative operation while adjusting the preparative conditions, the software helps streamline diverse preparative purification workflows.

Note: LCMS-9030/9050, LCMS-2010/QP8000 series and LCMS-IT-TOF systems are not supported.
Brochure No. C191-E060

LC/MS, GC/MS Data Analysis Software

Multi-omics Analysis Package

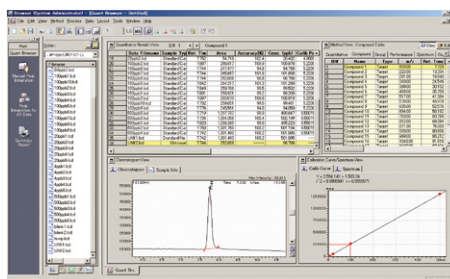


The Multi-omics Analysis Package is metabolic engineering software that can automatically generate metabolic maps and perform a variety of data analysis based on the vast amounts of mass spectrometry data generated in fields such as metabolomics, proteomics, and flux analysis. In conjunction with the various method packages and databases offered by Shimadzu for metabolomic analysis, the Multi-omics Analysis Package can help increase the efficiency of metabolomic data analysis work. It makes it easy to use volcano plots for comparing two groups, principal component analysis (PCA) for comparing multiple groups, hierarchical clustering analysis (HCA), and box plots. Linked PCA, HCA, and box plot results can be displayed in the same window to conveniently identify significant compounds. The metabolic map can be enlarged to confirm where identified compounds are located on the map and to support confirming and interpreting the data. The intuitive visualization of data provides powerful support for drug discovery, functionally enhanced foods, bioengineering, and other life science research applications.

Brochure No. C146-E385

For LabSolutions LCMS

LC/MS/MS Method Packages



The MRM conditions must be optimized before performing quantitation by MRM. However, this imposes a greater burden on the operator as the number of compounds subjected to simultaneous analysis increases.

Residual Pesticides	836 components
Veterinary Drugs	129 compounds
Water Quality Analysis	76 compounds
Rapid Toxicology Screening	231 compounds
Primary Metabolites	198 compounds
Lipid Mediators	214 compounds
Cell Culture Profiling	144 components
D/L Amino Acids	22 amino acids
Mycotoxins	27 mycotoxins
Short Chain Fatty Acids	22 components
Forensic Toxicology Database	more than 2,500 compounds
Aminoglycoside Antibiotics	13 aminoglycosides
Restricted Chemicals in Textiles	105 compounds
Bile Acids	49 bile acids
Modified Nucleosides	4 components
PFAS in Drinking Water	52 compounds
Glycosaminoglycans	6 glycosaminoglycans
Reactive Sulfur Profiling	17 sulfur-containing metabolites
Steroid Hormones	20 components
Sugars and Sugar Nucleotides	34 compounds

Brochure No. C10G-E094

Supporting Micro Flowrate Range Liquid Chromatograph
Mass Spectrometer System

Nexera Mikros



The Nexera Mikros is a micro LC/MS system that achieves a degree of sensitivity that is more than 10 times that of previous models. Moreover, thanks to features such as the UF-Link mechanism, which provides for the one-touch connection of analytical columns to the mass spectrometer, almost anyone can simply and securely perform high sensitivity analyses. Such things enhance usability. This system provides a solution for the issues faced by previous LC/MS or nano LC/MS, such as sensitivity, robustness, ease-of-use, and throughput.

Major component units	LCMS-8060RX, Mikro-ESI 8060, CBM-40lite, DGU-403, LC-Mikros, CTO-Mikros, SIL-40C XR, LabSolutions Insight, and others
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Brochure No. C146-E350

Kit for Direct Probe Ionization Mass Spectrometer DPiMS-8060



DPiMS-8060 + LCMS-8060RX

A triple quadrupole mass spectrometer with a DPiMS-8060 kit installed can acquire trace sample quantities using a probe and analyze component masses in the MS unit. The kit can also be used with an LCMS system, by installing it in an LCMS-8045/8050/8060 series system for easy switching between PESI TQ and ESI units. Its ability to quickly detect drugs or metabolites in blood or tissue samples with only extremely simple pretreatment makes it ideal for simple screening applications.

PESI TQ controller	Controller unit for PESI TQ unit (equipped with LCMS-8045/8050/8060 series)
PESI TQ unit	Probe voltage: ± 5 kV max. Probe drive cycle: 0.75 to 3 Hz
Mass range	m/z 10 to 2,000

Note: LC-MS unit is not included with this product.

Brochure No. C146-E369

Kit for Direct Probe Ionization Mass Spectrometer DPiMS QT



DPiMS QT + LCMS-9030

The DPiMS QT can be connected to a quadrupole time-of-flight mass spectrometer for quick and easy measurement without pretreatment. The DPiMS QT performs high-resolution mass spectrometry by ionizing a very small sample attached to the probe and introducing it into the MS section. The DPiMS QT unit can be easily switched with the ESI unit and can be combined with LCMS. Qualitative analysis and primary screening with the DPiMS QT can reduce the number of samples required for quantitative analysis.

DPiMS QT controller	Control of the DPiMS QT unit (Installed in the mass spectrometer)
DPiMS QT unit	Probe voltage: ± 5 kV max. (set voltage) Probe stroke: 46.30 mm max.

Note: LC-MS unit is not included with this product.

Brochure No. C146-E440

Fully Automated Sample Preparation Module for LC-MS

CLAM-2040

Pave the way for the future of clinical research.

Operational improvements in LC-MS systems have made LC/MS an advantageous technique for clinical research, thanks to its specificity, its accuracy and its capability to analyze several targets simultaneously. The CLAM-2040 is an online automated sample preparation module that brings LC-MS smoothly into your laboratory. The CLAM-2040 accompanies you on most of the analytical workflow and improves your overall throughput by drastically reducing the sample preparation time. Simply place the blood tubes in position and the CLAM-2040 performs the next steps automatically, from sample extraction up to LC/MS analysis and data processing. It can be connected to the LCMS-9050/9030, LCMS-8045/8050/8060 series and LCMS-8040.

Volume in preparation vial	350 μ L maximum
Preparation functions	Sample dispensing, reagent dispensing, shaking, suction filtration and heating *Up to 20 steps can be set in a protocol.
Sample handling	Multiple sample preparations overlap.
Onboard preparation vial capacity	Up to 60 filter vials and 60 collection vials

Note 1: LC and LCMS units are not included with this product.

Note 2: For Research Use Only. Not for use in diagnostic procedures.

Brochure No. C146-E469



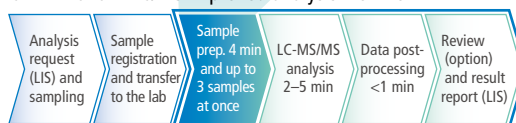
Product

Typical LC/MS analysis workflow in the clinical research laboratory.



One result every 12 to 60 min.

CLAM-2040 + LC/MS improved analysis workflow.



These steps are managed by the CLAM-2040 and LC-MS instrument.

One result every 2.6 min.

New

Gas Chromatograph Mass Spectrometer

GCMS-TQ RX Series

Adaptive by Design, Reliable by Nature

The GCMS-TQ RX Series is a triple quadrupole mass spectrometer that integrates Shimadzu's advanced technologies to meet the diverse and growing demands of modern analytical laboratories. Based on the "3R" concept — Reliable, Resilient, and Responsible — the series delivers consistent performance alongside exceptional ease of use. In addition to highly reliable and stable hardware, the GCMS-TQ RX Series features intuitive software with advanced automation technologies. Together, this integrated, versatile system adapts to a wide range of analytical needs and changing operational workflows, providing laboratories with new value and enabling more efficient analytical operations.

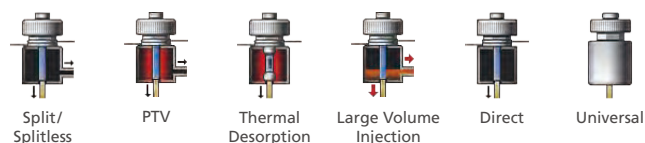
	GCMS-TQ8050 RX	GCMS-TQ8040 RX
Mass range	m/z 10 to 1,090	
Possible setting of FWHM	0.4 to 3.0 u	
High-speed scan rate	20,000 u/sec	

Brochure No. C146-E517

Multi-Mode Injection Unit Enhances Operational Efficiency

Supports Multiple Injection Modes and Enables More Efficient Method Development

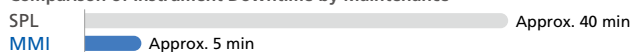
The Multi-Mode Injection Unit (MMI) supports a wide range of injection modes in a single unit, including split/splitless (SPL), programmable temperature vaporization (PTV), large-volume injection (LVI), direct injection, and thermal desorption/extraction (TD/TE). Dedicated software with an intuitive user interface enables easy method creation and seamless method transfer, simplifying analytical workflows.



High Performance with Minimal Downtime

Shimadzu's proprietary thermal insulation technology achieves both high temperature stability and rapid heating and cooling. While maintaining excellent data compatibility with conventional split/splitless inlets, it also significantly reduces downtime for inlet maintenance, such as liner replacement.

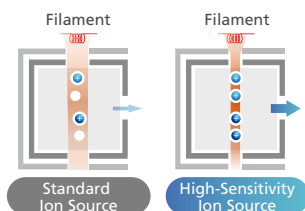
Comparison of Instrument Downtime by Maintenance



Ion Source for Diverse Analytical Needs

Boosted Efficiency Ion Source

Optimizing the focus of the electron beam in electron ionization (EI) maximizes ionization efficiency to the highest possible level, enabling detection at the attogram order.



Smart EI/CI Ion Source

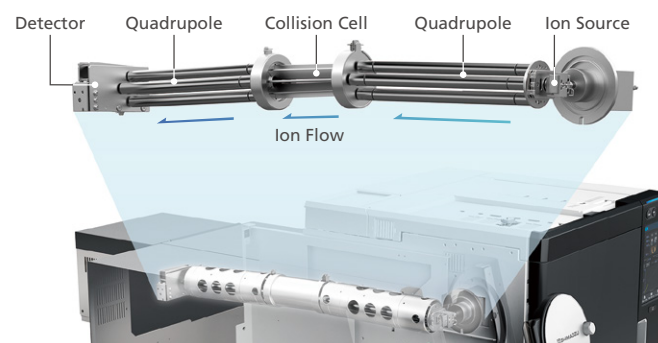
The Smart EI/CI ion source acquires CI data without switching the ion source, and without losing the sensitivity of the commonly used EI. Combining EI mass spectra with molecular weight information obtained from CI results in highly accurate qualitative analysis.

Solvent-Mediated Chemical Ionization (SMCI) Unit

Instead of using conventional flammable gases, SMCI introduces methanol into the ion source to perform CI analysis. By eliminating the need for high-pressure flammable gas cylinders, this approach enhances safety and reduces running costs.

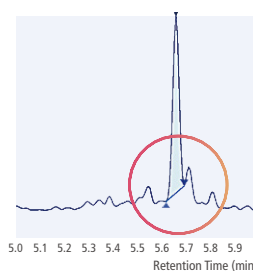
New Low-Noise, Highly Robust Detector

The GCMS-TQ8050 RX is equipped with a newly developed, patented detector that combines the latest noise-reduction technologies with high amplification performance. Combining this with Off-Axis ion optics creates a dual Off-Axis configuration that significantly reduces noise originating from neutral species. In addition, this new detector offers excellent robustness, ensuring stable and reliable long-term performance.

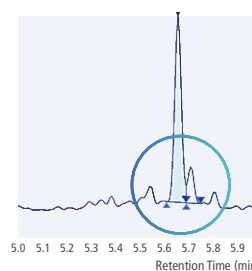


Workflow Automation and Improved Efficiency

The GCMS-TQ RX Series includes Peakintelligence for GCMS, an AI-powered peak processing function, and Smart MRM*, an automated method development tool. By learning from the analysis results of experienced operators, AI assists with peak processing and can reduce data analysis time to approximately one-quarter of that required by conventional methods. The systems also streamline the creation and modification of analytical methods, boosting productivity across the laboratory.



Conventional Shimadzu Algorithm
Baseline processing may vary depending on the operator



Peakintelligence for GCMS
Consistent peak processing results equivalent to those of an experienced analyst



GCMS-TQ8050 RX



GCMS-TQ8040 RX

Product

Chromatography Systems

Mass Spectrometry Systems

Life Science Lab Systems

Spectroscopy Systems

X-ray and Surface Analysis Systems

Environmental Measurement Systems

Material Testing and Non-Destructive Inspection Systems

Physical Properties Measurement Systems

Gas Chromatograph Mass Spectrometer

GCMS-QP2050

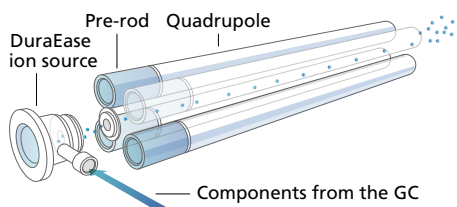
The next-generation GCMS-QP2050 gas chromatograph mass spectrometer, with its accumulation of impressive Shimadzu technology, will lead the way forward. New value is provided by hardware boasting astounding reliability and stability, and easy-to-operate software equipped with superior automated technology.

Mass range	m/z 1.5 to 1,090
Possible setting of FWHM	0.4 to 2.0 u
High-speed scan rate	30,000 u/sec

Brochure No. C146-E476

Robust Engineering Minimizes Maintenance

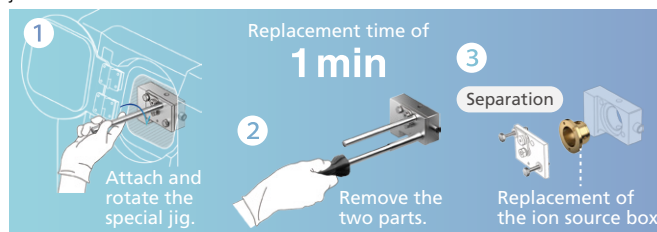
A **contamination-resistant ion optical system** keeps the frequency of maintenance to a minimum while also enabling highly reliable measurements to be performed for an extended period. The structure of the **DuraEase ion source** is inert and achieves a uniform temperature distribution, resulting in high sensitivity and exceptional durability. The newly developed **long-life filament** has an operating life at least five times longer than conventional filaments. There are no concerns about re-analysis or downtime due to sudden filament burnout. The built-in **pre-rod** allows only the ions to efficiently pass through, limiting contamination of the quadrupole.



Product

Ion Source Maintenance Takes Just One Minute

The DuraEase ion source completely re-imagines the conventional ion source to enable more convenient maintenance. The ion source is disposable and no cleaning is required, so maintenance is finished in just one minute.

Gas Chromatograph Mass Spectrometer
GCMS-QP2020 NX

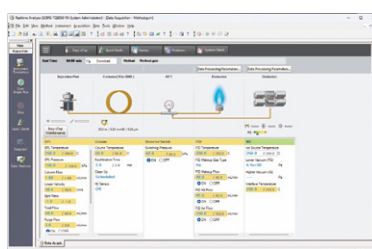
The GCMS-QP2020 NX not only boasts the best performance in its class, but also the highest efficiency. This new high-end single-quad GC-MS excels in both ease-of-use and robustness. The role of high-performance analytical instruments is expanding in areas as diverse as environmental pollution monitoring, forensics and material science. Whatever your field, the efficient and reliable GCMS-QP2020 NX is tailored to meet the needs of your laboratory.

Mass range	m/z 1.5 to 1,090
Measurable FWHM	0.4 to 2.0 u
EI scan S/N	1 pg octafluoronaphthalene m/z 272 S/N $\geq$ 2,000 (helium gas)
High-speed scan rate	20,000 u/sec

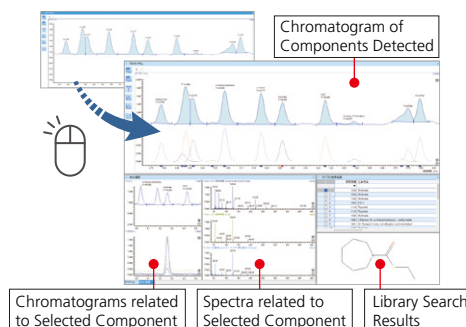
Brochure No. C146-E367

Software for GC-MS and GC-MS/MS Systems

LabSolutions GCMS, LabSolutions Insight/Explore GCMS



LabSolutions GCMS



LabSolutions Insight Explore GCMS

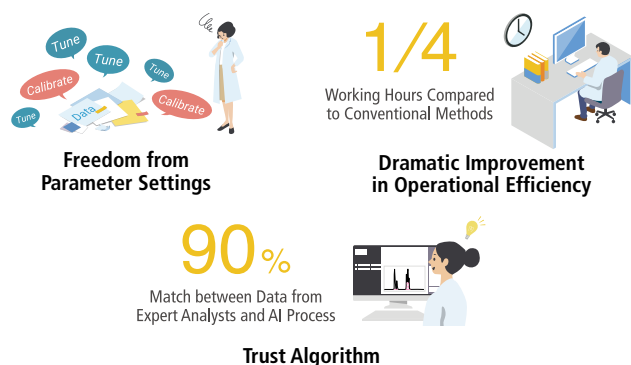
LabSolutions GCMS dramatically improves analysis efficiency, even for inexperienced users, with an intuitive user interface, automatic method creation, functions that simplify multi-sample, multi-component analysis, and reliable qualitative identification using retention indices. In GC-MS analysis, multiple GC and MS parameters must be optimized during data acquisition. LabSolutions GCMS features automatic method creation (Smart SIM+/Smart MRM) and automatic retention time correction (AART). Together, they automatically create optimal analytical methods.

LabSolutions Insight simplifies multi-sample data analysis. Chromatograms for each sample are displayed side by side, and by setting reference values, quantitative results and noteworthy peaks can be reviewed at a glance.

LabSolutions Insight Explore GCMS enables not only quantitative analysis of multi-sample data, but also qualitative analysis using library searching and a deconvolution algorithm. With a single click, users can perform peak detection, library searching, and deconvolution across multiple samples, enabling higher productivity.

Brochure No. LabSolutions Insight: C146-E346

Peak Integration Software for LabSolutions, LabSolutions Insight Peakintelligence for GCMS



Peakintelligence for GCMS is a peak integration software equipped with AI peak integration algorithms. For metabolite analysis, that can involve measuring hundreds of target compounds, which requires massive amounts of time, particularly for visually checking and manually correcting peak integration results during data analysis processes. In addition, analysis of residual pesticides requires the batch analysis of hundreds of controlled pesticides. Configuring the peak integration parameter settings is difficult, and correction by manual peak integration takes time. On the other hand, manually revising peak integration results to reduce peak areas might raise suspicions of data falsification. Peakintelligence for GCMS can increase the efficiency of data acquisition and analysis operations, which can reduce the time required for data analysis by about 75 % while also improving the reliability of quantitation results.

Brochure No. **C146-E460**

Quick-DB for GC-MS and GC-MS/MS GC/MS Residual Pesticides Database

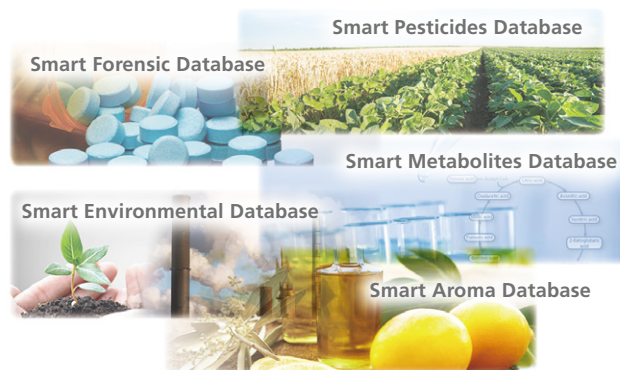


The increase in restricted pesticides caused by the introduction of the Positive List system for agricultural chemical residues in foods in Japan has resulted in an increasing number of samples to be analyzed. Increased purchasing costs and the control operations associated with these standard samples have become issues for the industry. This product is a GC-MS(/MS) analysis database pre-registered with calibration curves created using pesticide surrogates as internal standard substances. This allows for quick residual pesticide screening without the use of pesticide standard samples. In the latest version, the number of pesticides that can be analyzed in MRM mode is 491. The database can also be customized.

No. of compounds registered | MRM: 491, Scan/SIM: 474

Brochure No. **C146-E307**

Database for GC-MS and GC-MS/MS Smart Database Series



With the Smart Database, compound information, transitions, and collision energies are preregistered. Methods configured with the optimal measurement times can be created automatically using the automatic adjustment of retention time (AART) and Smart MRM functions.

Description	No. of compounds registered	Brochure No.
For residual pesticide analysis Smart Pesticides Database	MRM: 530 SIM: 530	C146-E332
For forensic toxicological substance analysis Smart Forensic Database	MRM: 486	C146-E353
For metabolite analysis Smart Metabolites Database	Scan/SIM: 627 MRM: 540	C146-E456
For environmental analysis Smart Environmental Database	MRM: 527	C146-E284
For aroma analysis Smart Aroma Database	Scan/SIM: 506 MRM: 487	C146-E452

Note: Smart Forensic Database and Smart Environmental Database are for the GCMS-TQ series. They cannot be used with the GCMS-QP series.

GC/MS Mass Spectra Library Polymer Additives Library Ver. 2

New



The analysis of additives contained in polymer materials is essential for managing and improving the quality of these materials, and for complying with regulations dealing with chemical substances. The Polymer Additives Library consists of a library, which contains 5,775 mass spectra for 590 types of polymer additives and GC/MS pyrolysates from the pyrolysis GC/MS analysis of additives, and a library containing the mass spectra for 65 compounds often targeted for analysis, selected based on their usage in the commercial market, and chemical substance regulatory information. In addition to mass spectra and retention indices, it contains information on the classification of additives to enable detailed analysis of additives. This library provides GC/MS and PY methods; both contain all necessary conditions and measurement parameters, allowing anyone can easily start analysis with optimal analysis conditions.

Brochure No. **C146-E506**

GC and GC-MS Application System
Headspace Analysis System



GCMS-QP2050 + HS-20 NX Trap

The headspace sampler holds samples at a fixed temperature, and introduces the volatile components that diffuse into the gaseous phase into GC or GC-MS. It is used for qualitative and quantitative analysis of odor components of foods, aroma components of chemicals, and toxic volatile components in environmental water. The trap model includes functionality for concentrating components with an electronically-cooled trap and also enabling the measurement of trace components. By using highly heat-resistant septa, even ultra-trace substances extracted from pharmaceutical packaging or containers can be measured, which has been attracting attention in recent years.

System configuration example	GCMS-QP2050 + LabSolutions GCMS + HS-20 NX series
Sample vial	20 mL or 10 mL (no adaptor required)
Number of samples	90
Sample temperature	300 °C max.

- Systems can also be configured with the GCMS-TQ series, QP series, GC-2060/2050/2030, GC-2014.

Brochure No. C180-E094

GC-MS Application System
Off-Flavor Analyzer



This analysis system can reliably identify the substances responsible for off-flavor problems. To resolve off-flavor issues, the substances causing the odor must be identified. In order to accurately identify them however, expertise and experience are required to know what components are responsible for the off-flavor problems, to discriminate the quality of their odors and to use odor thresholds for those discriminations. The system provides a database of the major odor-causing substances, as well as sensory information (odor qualities and odor thresholds), for use in combination with GC-MS. It provides the total solution needed for off-flavor analysis.

System configuration example	GCMS-QP series, GCMS-TQ series Multifunctional autosampler: AOC-6000 Plus or AOC-5000 Plus Sniffing port: PHASER (GL Science B.V.)
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Brochure No. C146-E292

GC and GC-MS Application System
Thermal Desorption System



GCMS-QP2050 + TD-30R

The TD-30 series heat samples in a sample tube and then concentrate the thermally desorbed gases before injection into a GC or GC-MS system. They are commonly used to measure volatile organic compounds (VOCs) in the atmosphere or measure trace components that are generated from plastic or other samples. It is now possible to target a wide variety of components, from low boiling point to high boiling point. The lineup includes the TD-30, which can hold a maximum of 60 samples, and the TD-30R, which can hold 120 samples and supports re-acquisition and the addition of internal standard substances.

System configuration example	GCMS-QP2050 + LabSolutions GCMS + TD-30/30R
Number of samples	TD-30: 60, TD-30R: 120
Tube desorption temperature	Room temperature +15 °C to 430 °C (Accuracy ± 1° C)
Trap method	Cold trap (cooled with Peltier element)

- A system can be constructed with the GCMS-TQ series and GCMS-QP series. Contact your Shimadzu representative for further details.

Brochure No. C146-E349

GC-MS Application System
AOC-6000 Plus Multifunctional Autosampler System



The AOC-6000 Plus supports multiple sample injection methods including liquid sample injection, headspace (HS) injection and solid phase micro extraction (SPME). Consequently, it can be used for analyzing samples in wide range of formats. Furthermore, it can automatically switch between sample injection methods, so that a combination of different sample injection methods can be used within a single sequence of operations. New functions for managing syringe and fiber usage history support accurate analysis.

System configuration example	GCMS-QP2050 + LabSolutions GCMS + AOC-6000 Plus
Sample capacity	162 2 mL vials (54 × 3) per tray 45 10/20 mL vials (54 × 3) per tray (Up to 2 trays can be loaded)
Syringe heating temperature	35 to 150 °C (1 °C steps)

Brochure No. C146-E396

Screening System for Phthalate Esters, Brominated Flame Retardants and Other Regulated Substances

Py-Screener Ver. 3

New



The Py-Screener Ver. 3 can screen for phthalate esters and brominated flame retardants (PBBs, PBDEs) in resins, which are prohibited under the European RoHS (II) Directive, PIP (3:1), which is regulated under the U.S. TSCA (Toxic Substances Control Act), as well as UV-328, Dechlorane Plus (DP), short-chain chlorinated paraffins (SCCPs), and medium-chain chlorinated paraffins (MCCPs), which are regulated under the POPs Convention. The system, which consists of special software, special standard samples, and a sampling toolkit, supports procedures from sample preparation to data acquisition, analysis, and maintenance, allowing even novices to operate it easily.

System configuration example	GCMS-QP2020 NX + GCMSsolution + LabSolutions Insight + Py-Screener + EGA/PY-3030D Multi-Shot Pyrolyzer + AS-2020E Auto-Shot Sampler (Frontier Laboratories)
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Brochure No. **C146-E507**

GC and GC-MS Application System Pyrolysis System



This system performs pyrolysis for polymer compounds at 500 °C or higher, and analyze the pyrolysates obtained via GC and GC-MS. Since these pyrolysates reflect the structure of the original polymer compounds, they can be used to identify the polymers, and for higher-order structural analysis. Search software using a pyrolysis library also assists in the identification process.

System configuration example	GCMS-QP2050 + LabSolutions GCMS + EGA/PY-3030D Multi-Shot Pyrolyzer (Frontier Laboratories)
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- A system can be constructed with the GCMS-TQ series, QP series, and GC-2050/GC-2030. Contact your Shimadzu representative for further details.

Brochure No. **C146-E184**

GC-MS Differential Split Flow Turbo Molecular Pump System Comprehensive GC-MS (GC×GC-MS) System



The comprehensive GC-MS (GC×GC-MS) technique employs a modulator to link two capillary columns of complementary orthogonal phases. The technique requires a GC-MS system capable of very fast data collection to fully capture the very narrow, fast eluting compounds. Sensitivity is also an important requirement for many Comprehensive GC×GC applications. The GCMS-TQ series, QP series were developed with this multi-dimensional technique in mind. Its best-in-class data collection speeds and superior sensitivity make it the top choice for Comprehensive Chromatography.

Multi-Dimensional GC/GC-MS System MDGC/GCMS Series



This system performs separation using two columns that have different characteristics. It has a mechanism in which the components that are insufficiently separated in the first column they pass through are introduced ("heart-cut") to a second, different column. This enables analysis with a level of separation that cannot be attained in conventional single-column analysis. This is effective for the analysis of samples containing a very large number of compounds, such as petroleum products and perfumes.

Applicable detectors	GC-MS, FID, FPD, TCD, ECD, FTD
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- A GC + GC-MS system can be used as an independent GC or GC-MS system.
- The analytical conditions can be configured easily using the dedicated MDGCSolution software.

Brochure No. **C184-E015**

MALDI Digital Ion Trap Mass Spectrometer MALDImini-1



Despite its light and compact shape, The MALDImini-1 is capable of achieving MS³ analysis, making it suitable for a large number of applications. With its simple configuration and compact size, it is possible to install the MALDImini-1 in places where mass analysis devices could not previously be used. The vacuum pumps are entirely contained within the device. The MALDImini-1 can be installed anywhere where there is an AC 100-120V power supply. By combining a MALDI ion source with Digital Ion Trap (DIT) technology, it is possible to carry out high-sensitivity MSⁿ analysis even on micro-quantity samples.

Mass range	<i>m/z</i> 650 to 70,000
MS/MS mass range	<i>m/z</i> 350 to 5,000
Mass resolution	> 4,000 FWHM
MS ⁿ	1 ≤ <i>n</i> ≤ 3

Brochure No. C146-E395

Benchtop Linear MALDI-TOF Mass Spectrometer MALDI-8020 / MALDI-8030



MALDI-8030

The MALDI-8020/8030 are compact (width of main unit 60 cm) and lightweight table-top linear mode MALDI-TOF instruments that achieve superior resolution and sensitivity. With its dual-polarity ion source, the MALDI-8030 is applicable for compounds best suited to analysis in negative ion mode. This versatile system can be used for a wide range of analytes, including proteins, peptides, oligonucleotides, lipids, glycans, polymers and small molecules.

	MALDI-8020	MALDI-8030
Mass range	<i>m/z</i> 1 to 500,000	
Mass resolution	> 5,000 FWHM	
Mass accuracy	< 20 ppm (internal standard), < 150 ppm (external standard)	
Laser	Solid-state laser (355 nm) Pulse rate: 50, 100, 200 Hz (variable)	
Ionic polarity	Positive	Positive / Negative
Weight	86 kg	92 kg
Brochure No.	MO432	MO473

Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometer AXIMA Series



AXIMA Performance



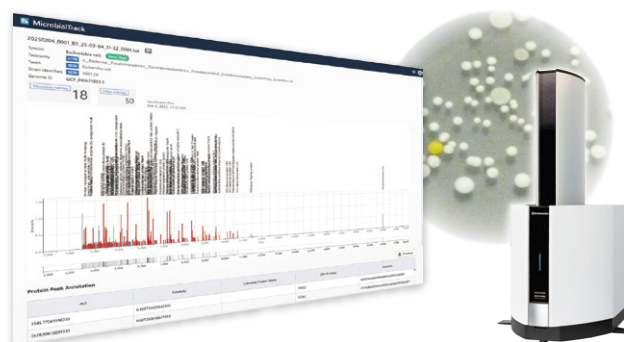
AXIMA Assurance

The AXIMA Series comprises floor-standing MALDI-MS systems for general-purpose analysis. The AXIMA Performance is a 20 keV high-energy CID-MS/MS equipped with Shimadzu's proprietary CFR* (patented) technology, which enables reliable MS/MS measurements of proteins and other biomolecules. The AXIMA Confidence boasts high performance at a reasonable cost with a mass resolution of 15,000 and allows PSD MS/MS spectrum measurements. The AXIMA Assurance is exclusively for linear mode.

* CFR: Curved Field Reflectron

		Performance	Confidence	Assurance
Linear mode	Mass range	1 to 500,000 Da		
	Mass resolution	5,000		
Reflectron mode	Mass range	1 to 80,000 Da		
	Mass resolution	20,000	15,000	—
MS/MS function		CID/PSD	PSD	—
Brochure No.		MO300	MO305	MO304

MALDI-TOF MS Microbial Identification Software MicrobialTrack



MicrobialTrack is a new analytical platform for MALDI-TOF MS-based identification of prokaryotic microorganisms. The largest database of theoretical prokaryotic protein masses predicted from genome sequences, along with an original identification algorithm, enables rapid identification of a wide range of microbial species, independent of culture conditions or MALDI-TOF MS models. In addition to identification results, MicrobialTrack conducts detailed mass spectral analysis using theoretical protein masses to assign proteomic information. The database covers approximately 110,000 prokaryotic species, including well-known microorganisms as well as hard-to-culture and uncultured ones. As a cloud-based service, MicrobialTrack allows identification of microorganisms via a web browser. The database is regularly updated to include newly added taxa and reflect the latest taxonomic system. Users will have access to the latest database during their license period.

Brochure No. C146-E499

Imaging Application Solution for MALDI-8020, MALDI-8030
Benchtop MALDI-TOF Imaging Starter Kit

The MALDI-TOF Imaging Starter Kit provides a complete MALDI imaging application solution for existing Shimadzu MALDI-8020 and MALDI-8030 benchtop MALDI-TOF instruments, expanding the already versatile capabilities of these systems. The kit contains everything a user needs to begin imaging experiments on their MALDI-8020 or MALDI-8030, including custom ITO-coated glass slides, a new custom glass slide holder, the MALDI Solutions Imaging license enabling MALDI Imaging acquisitions, and IonView imaging viewing software.

Brochure No. **MO491**Imaging Mass Microscope
iMScope QT

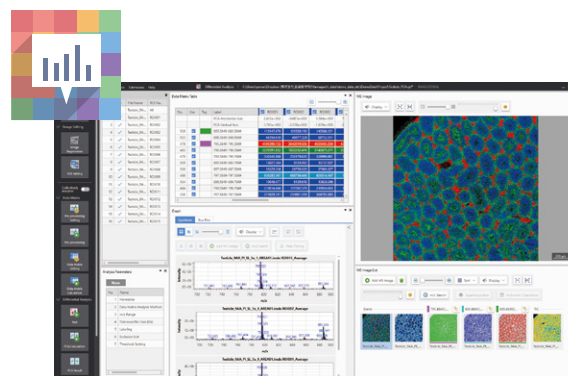
Inheriting the concept of a mass spectrometer equipped with an optical microscope from the iMScope series, the iMScope QT is also Shimadzu's flagship model for MS imaging with a QTOF MS. The iMScope QT boasts not only fusion with morphology studies but also excellent speed, sensitivity, and spatial resolution, clearing the way to next-generation mass spectrometry imaging. It has the spatial resolution of 5 μm , three times the mass resolution and five times the imaging image acquisition speed of conventional models.

Ionization method	MALDI or LDI
Laser type	Laser-diode-excited Nd:YAG laser
Laser repetition frequency	Max. 20 kHz
Laser diameter	Min. $\leq 5 \mu\text{m}$, Max. $\geq 100 \mu\text{m}$

Brochure No. **C146-E415**Automatic Sprayer / Matrix Vapor Deposition System for MALDI Imaging
iMLayer AERO / iMLayer

With mass spectrometry imaging (MSI), suitable pretreatment is important. High-quality MSI analysis results are obtained from a combination of the spray method and the vapor deposition method. The iMLayer AERO incorporates a sample stage that moves at a controlled rate while maintaining the same distance from the spray nozzle, enabling stable matrix spraying. Over multiple strokes, the sample becomes laminated with fine matrix crystals, enabling high sensitivity and high spatial resolution. In addition, a two-step vapor deposition method has been developed, which provides high spatial resolution (5 to 10 μm) and high sensitivity, thanks to a combination of iMLayer AERO (spray method) and iMLayer (vapor deposition method). This unique experiment can only be implemented using Shimadzu sample preparation solutions.

	iMLayer AERO	iMLayer
Matrix coating method	Spray method	Vapor deposition method
Coating thickness measurement mode	—	○
Brochure No.	C146-E414	C146-E262

Mass Spectrometry Imaging Data Analysis Software
IMAGEREVEAL MS

Mass spectrometry imaging involves selecting essential information from a vast amount of data. IMAGEREVEAL MS software can analyze MSI image data automatically with just a few simple settings. The "Collective Analysis" function enables differential analysis and image analysis in as few as three steps. Five analysis modes support multiple ways to analyze data. The software includes the "IMDX Converter" data conversion tool to read general-purpose formats and analyze data from other manufacturers' mass spectrometers.

	Basic license	Imaging license	Screening license	Full license
Basic analysis	○	○	○	○
Quantitative analysis	○	○	—	○
Differential/Image analysis	—	○	—	○
Screening (quantitative)	—	—	○	○

Brochure No. **C146-E400**

Portable functional Near-Infrared Spectroscopy System for Research
LIGHTNIRS



Two kinds of head holders that fit the whole head closely are adopted, enabling the optimal measurement regions to be selected to suit the conditions for measurement. The measurement methods are equivalent to LABNIRS, and the data analysis software is compatible with LABNIRS data. It enables multipurpose measurements related to a variety of cognition issues, motion, somatic sensation, and vision.

Measured item	Variations from the initial values of oxygenated hemoglobin (Oxy-Hb), deoxygenated hemoglobin (Deoxy-Hb), and total hemoglobin (Total-Hb)
Number of measurement channels	8 pairs (max. 22 channels)

Brochure No. C297-E103

Functional Near-Infrared Spectroscopy System for Research
LABNIRS



Measurement using up to 40 sets, 142 channels (previously 16 sets, 52 channels) is achieved, and measurement of the brain over a wider range, higher-density measurement (2x conventional spatial resolution) and faster measurement (5x faster than conventional measurement) are now possible. By measuring the oxygen state of the brain's surface using safe IR rays, the active regions of high-order brain functions, such as vision, hearing and motion, and the active state of these regions can be observed in real time.

Measurement items	Variation from initial values of oxygenated hemoglobin (Oxy-Hb), de-oxygenated hemoglobin (Deoxy-Hb), and total hemoglobin (Total-Hb)
Number of measured channels	LABNIRS 4 sets (10 channels) to 40 sets (142 channels)

Brochure No. C297-E097

New Software for Optimizing of Cell Culture Conditions
CellTune Ver. 2

To achieve bioproduction that is both cost-efficient and high in quality, it is important to optimize parameters, such as the culture medium composition and culturing environment. However, the vast number of possible parameter combinations makes comprehensive optimization difficult. CellTune, software designed to support the optimization of cell culture conditions, uses statistical analysis to identify culture-medium components requiring optimization and proposes optimized conditions for the selected components. This approach enables efficient optimization of culturing parameters regardless of operator experience or expertise level.

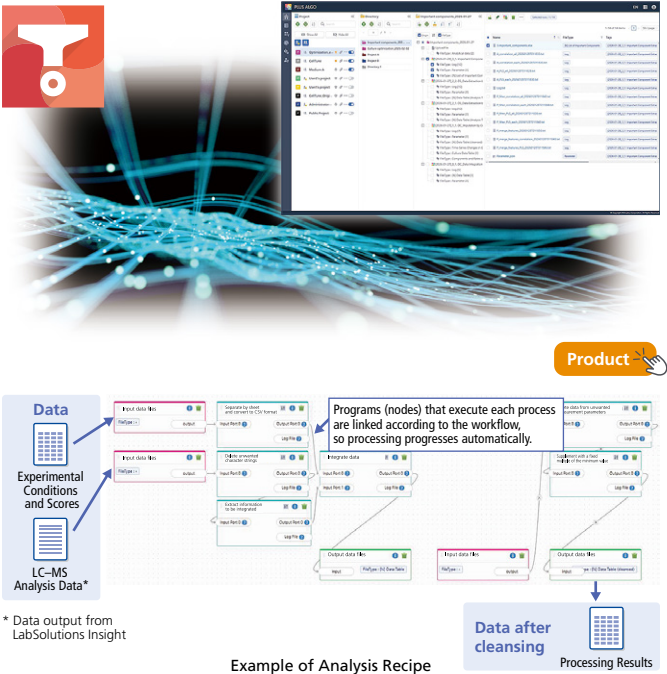
Brochure No. C297-E160

Analyze Parameters and Interpret Results Without Expert Knowledge

CellTune provides "analysis recipes," in which individual analysis programs are linked in workflow order. Users simply select the analysis recipe and specify parameters, such as threshold values, to determine important components and obtain analysis results. Furthermore, the software includes data visualization tools that can generate a variety of graphs to assist in interpreting results.

Advanced AI Algorithms Efficiently Explore Optimal Conditions

By conducting culturing experiments, evaluating results, and entering corresponding values in CellTune, CellTune can generate models for predicting culturing results. Then, as data accumulates, CellTune updates the model to improve prediction accuracy. As a result, users can perform optimized experiments more efficiently.



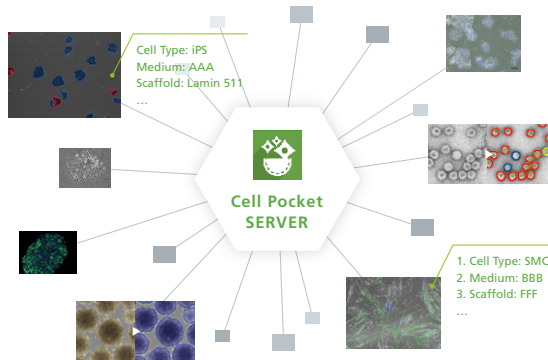
* Data output from LabSolutions Insight

Example of Analysis Recipe

Various Auxiliary Functionality Enables Optimization by Customers

Auxiliary functionality, such as constrained optimization, predicting optimization success rates, and design space visualization, improves the reliability and efficiency of exploring optimal experimental conditions. In addition, it provides an intuitive understanding of how experimental conditions relate to culture performance.

Web Application Supporting Cell Observation Cell Pocket



Cell Pocket is a web application that makes cell image analysis and management incredibly easy. The web application is paired with deep learning to offer quick and easy gathering, analysis, and sharing of lab member data whether from the office or the laboratory.

Quantify the visual state of cells from various aspects

- Deep learning technology can offer the quantification of cell status.
- Easy quantifying and graphing with customizable analysis recipes.

Centralized management of all data from cell observation work

- Easy to gather various cell culture information such as culture conditions, image data, and analyzed data.
- Can be used by up to 20 users.
- Centralized management facilitates sharing data and knowledge among members.

User interface specialized for cell culture management

- Cell image data can be easily linked to culture conditions.
- The user interface for culture management is simple and easy to understand and supports a user's cell analysis work.

Brochure No. C297-E139

Automated Picking and Collecting Tool of Cell Colonies CELL PICKER



The CELL PICKER system automates the pickup and removal of cell colonies using a pipetter. Easy-to-operate software simplifies the cell pickup process. Cell pickup can be made even easier by connecting AUTO CHANGER, new optional equipment designed with automation in mind.

Stress-Free Operations

Unstable and delicate procedures during cell pickup are automated, so the operator can focus on the cell selection process. The software is simple to operate.

Ensuring Traceability

Procedural control and standardization are ensured by methods (procedural conditions). In addition, images of the cells can be recorded automatically before and after pickup.

Brochure No. C297-E127

New Microchip Electrophoresis System MultiNA II MCE-301

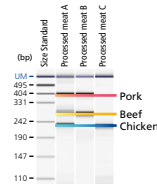
This electrophoresis system separates DNA and RNA by size (chain length) using quartz microchips with microchannels and electrode patterns. Simple operation enables fully automated analysis of up to 120 samples, significantly streamlining gene analysis workflows. Using optimized reagent kits (four for DNA and one for RNA), the system achieves high resolution and high sensitivity. Two new analysis functions have been added: DNA fingerprinting analysis, which automatically determines the presence of target DNA, and grouping analysis, which classifies samples based on analysis results. These significantly improve workflows for genotype determination in genome editing and similar applications.

Resolution	5 bp (25 to 100 bp), 5 % (100 to 500 bp), 10 % (500 to 1,000 bp), 20 % (100 to 12,000 bp)
Sizing accuracy	DNA-500 kit: ± 5 bp (25 to 100 bp), ± 5 % (100 to 500 bp) DNA-1000 kit: ± 15 % (100 to 1,000 bp) DNA-12000 kit: ± 15 % (100 to 12,000 bp) DNA-HS12000 kit: ± 15 % (100 to 12,000 bp)
Detection sensitivity	DNA analysis: 5 pg/ μ L RNA analysis: 5 ng/ μ L (Total RNA)
Required sample quantities	DNA analysis: 2 to 50 μ L RNA analysis: 3 to 25 μ L
External dimensions, Weight	W375 x D520 x H452 (mm), 39 kg

Brochure No. C297-E157



Product



Peak Table				
No.	Fragment Name	(9) A7	(10) A8	(11) A9
1	Goat meat			
2	Chicken			
3	Beef			
4	Mutton			
5	Pork			
6	Horse meat			

Example of Automatically Identifying the Types of Meat Contained in Processed Meat (Fingerprinting Analysis)



Example of Genotype Classification in Genome-Edited Mice (Grouping Analysis)

Simple and Smart Workflow
User-Friendly Design
Expandable Application Range

Protein Sequencer
PPSQ-51A/53A**New**

PPSQ-51A/53A Isocratic System

This device determines amino acid sequences by sequentially cleaving amino acids (PTH-amino acids) from the N-terminus of a protein via Edman degradation and analyzing them by HPLC. In addition to excelling at analyzing amino acid sequences easily and reliably, it can determine the amino acid sequences of proteins not registered in databases. The Isocratic System is now equipped with an easy-to-maintain UV detector (SPD-40) that provides high-quality, stable data. By recirculating a single mobile phase, the system reduces solvent consumption, making it easy to use and ideal for routine analysis. In combination with LabSolutions DB/CS software, it helps users comply with data integrity requirements.

Reaction method	Edman degradation
Reaction time	PPSQ-51A: 46.5 min./cycle, PPSQ-53A: 48 min./cycle
Number of reactors	PPSQ-51A: 1, PPSQ-53A: 3

Brochure No. C297-E162

Spectrophotometer for Life Science
BioSpec-nano

Capable of performing quantitation and purity checking of nucleic acids, quantitation of proteins, and photometric measurements. Simply drop 1 to 2 μL of the sample onto the measurement window and press the instrument's Start button (or click the Start Measurement button in the software window), and all steps in the process, from setting the optical path length, measurement, up until the task of wiping off the sample from the measurement window, are all carried out automatically. Troublesome work of moving arm up and down and wiping the sample from the measurement window now unnecessary. Moreover, when using the specialized software, all it takes to perform a measurement, output a report, export data, or carry out other common tasks is to click buttons on the toolbar.

Optical path length	0.2 mm, 0.7 mm (switched manually)
Sample volume	Optical path length 0.2 mm: 1 μL or more, Optical path length 0.7 mm: 2 μL or more

Brochure No. C101-E112

UV-VIS Spectrophotometer

UV-1900i Plus

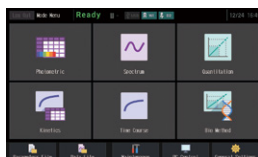
The UV-1900i Plus is a double-beam UV-VIS spectrophotometer using Shimadzu's original LO-RAY-LIGH diffraction grating technology. In addition to its high optical performance, the UV-1900i Plus features high resolution, low stray light, high reproducibility, and an ultra-fast scan function. It also has an easy-to-use interface on a color touch-screen display. The system also features a faster response speed by adopting a new CPU.

Measurement wavelength range	190 to 1,100 nm
Spectral bandwidth	1 nm
Wavelength scanning speed	29,000 nm/min maximum speed
Stray light	0.02 % or less (220 nm, NaI)

Brochure No. C101-E181

Refined User-Friendliness

The UV-1900i Plus on-screen user interface includes large, easy-to-see icons deployed on a black background, so the instrument settings are evident at a glance. In addition, the large, easy-to-see icons improve intuitive understanding, which enables users to quickly become familiar with the operations. Furthermore, the user interface is designed to minimize transitions between windows, so users do not get confused during the operations.

**Startup Validation Function**

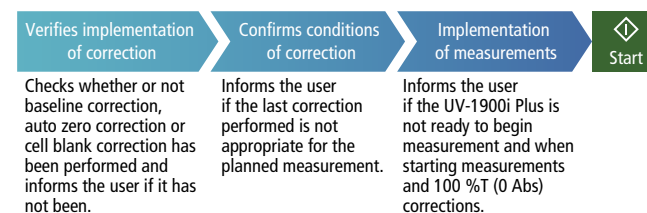
Instrument performance checks can be performed automatically when the instrument is turned ON. This enables even more reliable instrument operation. It can also be implemented in combination with the Wakeup function.



Product

Assist Function*

The instrument assists the user to ensure that measurements are performed using the correct procedure.



* This function is also standard on the UV-2600i Plus/2700i Plus.

Automatic Spectral Evaluation, Shutdown/Wakeup Functions

The automatic spectral evaluation function can be used by controlling the UV-1900i Plus with a PC. Shutdown/wakeup functions are also available for stand-alone models.

UV-VIS Spectrophotometer

UV-2600i Plus UV-2700i Plus

The UV-2600i Plus is a single monochromator with 0.005 % low stray light and the UV-2700i Plus is a double monochromator with 0.00005 % low stray light (220 nm, NaI). It is the double-beam models, which provides high cost-effectiveness.

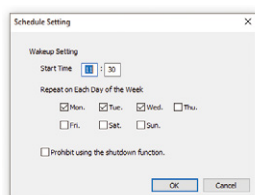
By installing an optional ISR-2600Plus Integrating Sphere Attachment with the UV-2600i Plus, the measurement wavelength range can be extended to include the near-infrared region. The UV-2700i Plus can measure high absorbance levels up to 8 Abs, which means it can measure low transmittance levels in highly concentrated samples, films, or other samples with low transmittance characteristics.

Measurement wavelength range	185 to 900 nm (220 to 1,400 nm with the UV-2600i Plus when the ISR-2600Plus is used)
Spectral bandwidth	0.1 to 5 nm
Stray light	UV-2600i Plus: 0.005 % max. or less (220 nm, NaI) UV-2700i Plus: 0.00005 % max. or less (220 nm, NaI)

Brochure No. C101-E184

Shutdown/Wakeup Functions

The instrument can be automatically shut down and put into sleep mode at a set time to limits power consumption and helps preserve the lamp. It can also automatically wake up the equipment at a specified time, contributing to effective use of time.

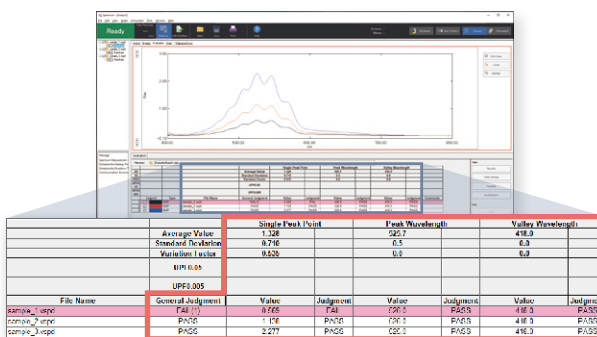


Product

Automatic Spectral Evaluation

ANALYTICAL
INTELLIGENCE

By specifying various evaluation criteria for measurement results, spectra judgments can be made automatically. In the report creation window, reports can either be prepared based on a previously specified report format or freely laid out based on various parameters, data, or other elements.

Photoreaction Evaluation System
Lightway

Lightway is the world's first* photoreaction evaluation system designed for the photochemistry field. It provides support for evaluating photoreaction quantum yield rates. By streamlining previous experiment process steps, it enables results to be obtained even more quickly. In addition, the software includes navigation functionality that allows even inexperienced users to operate the system easily. It eliminates the need to adjust the chemical actinometer, which minimizes operator variability and helps ensure accurate measurement results.

* As of May 2020, according to a Shimadzu survey

Wavelength range	250 to 800 nm
Spectral bandwidth	15.0 nm
Photometric interval	0.1 sec. to 60 min.
Photometric range	Absorbance: 0 to 1.5 Abs

Brochure No. C101-E174

UV-VIS Spectrophotometer
UV-1280

In addition to spectral measurements and quantitative analyses, photometrics, DNA/protein quantitation, and high-level multi-component quantitation can also be performed. This means that it is fully equipped with all of the measurement functions required of a UV-VIS spectrophotometer, thus making it an "All-in-One UV" instrument. By configuring the D₂/WI lamp with a monitor double beam system, more than sufficient stability can be obtained despite its small size. Equipped as standard with instrument validation, which facilitates maintenance inspections for the instrument.

Wavelength range	190 to 1,100 nm
Spectral bandwidth	5 nm
Stray light	0.05 % max.
Installed software	Photometric, spectrum, quantitation, kinetics, time scan, multi-component quantitation, DNA/protein quantitation, instrument validation

Brochure No. C101-E130

UV-VIS-NIR Spectrophotometer UV-3600i Plus



Three detectors of a photomultiplier tube (PMT), InGaAs, and PbS, are equipped not only with the main unit, but also with the multipurpose large-sample compartment and the integrating sphere attachment. It achieved high sensitivity over the entire measurement wavelength range. The ASR series absolute reflectance measuring devices enables high-precision absolute reflectance measurement, and the ISR-1503/1503F large integrating sphere with an inner diameter of 150 mm enables measurement of transparency of plastics and solar reflectance of coating films. Additionally, a thermoelectrically temperature-controlled cell holder or supermicro cell holder can be installed to accommodate a broader range of applications.

Measurement wavelength range	185 to 3,300 nm
Spectral bandwidth	0.1 to 8 nm (UV/VIS), 0.2 to 32 nm (NIR)
Stray light	0.0000 8% or less (220 nm, NaI) 0.0000 5% or less (340 nm, NaNO ₂)

Brochure No. C101-E171

UV-VIS-NIR Spectrophotometer SolidSpec-3700i/3700i DUV



This system equipped with an integrating sphere as standard. Equipped with three detectors, a photomultiplier tube (PMT), InGaAs, and cooled PbS, it has achieved the world's highest level of sensitivity, especially in the near infrared region. A large sample compartment can measure a wide variety of samples (A sample of up to 700 × 560 mm can be set horizontally for measurement.). With the optional Auto XY stage, multi-point automatic measurement of up to 310 × 310 mm samples with nitrogen purge is possible. LabSolutions UV-Vis software is included as standard. The DUV model is deep ultraviolet (From 175 nm).

Measurement wavelength range	3700i: 240 to 2,600 nm (When using the direct light receiving unit: 190 to 3,300 nm) 3700i DUV: 175 to 2,600 nm (When using the direct light receiving unit: 165 to 3,300 nm)
Spectral bandwidth	0.1 to 8 nm (UV/VIS), 0.2 to 32 nm (NIR)
Stray light	0.00008 % or less (220 nm, NaI)

Brochure No. C101-E172

Fourier Transform Infrared Spectrophotometer

IRSpirit-X Series

This portable, compact Fourier Transform Infrared (FTIR) spectrophotometer features 23 pre-packaged applications through the IR Pilot pre-built macro program and a Spectrum advisor function that assesses spectrum quality and suggests improvements, allowing anyone to easily conduct analysis. Furthermore, with the IRSpirit-X series, components are covered by a 10-year warranty*. Three models are available: the reasonably priced IRSpirit-LX, the high-sensitivity IRSpirit-TX, and the IRSpirit-ZX, which has excellent moisture resistance.

* A 10-year warranty does not cover consumables, accessories other than the FTIR main unit, PCs and peripherals, instruction manuals, jigs, and labor charges for the second and subsequent years.

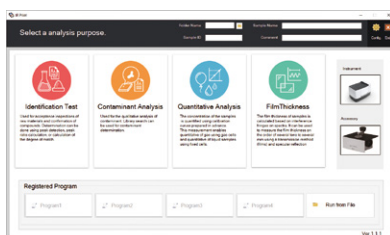
Interferometer	Michelson interferometer (30° incident angle) Equipped with Dynamic Alignment system
Measurement wavelength range	7,800 to 350 cm ⁻¹ (IRSpirit-ZX: 6,000 to 550 cm ⁻¹)
Highest resolution	0.9 cm ⁻¹

Brochure No. C103-E418

IR Pilot

IR Pilot offers a total of 23 application programs as standard, making it easy for operators with minimal FTIR experience to analyze samples by simply selecting the analysis purpose and accessory. There is no need to set parameters. Once a workflow has been

determined, it can be recorded, which means that for analyses with the same procedures, the sequence from measurement to data analysis and printing can be performed with a few clicks.



IRSpirit, Ready to Run



Product



Spectrum Advisor Function

Corrective measures are proposed by comparing the measured spectrum to optimal spectrum examples. Troubleshooting advice is provided on scan parameters, accessories, and post-processing data. As a result, better quality data can be acquired.

Integrated Data Analysis for Contaminants

Both EDX and FTIR models can be controlled with a single computer. The efficiency of time-consuming contaminant analysis can be improved by installing EDXIR-Analysis, an integrated EDX/FTIR analysis program, on the computer.

Reliability to Deploy with Confidence

IRSpirit-TX with KBr window plate offers the highest S/N ratio in its class using the technology inherited from higher-end models. And the robust optics are designed to ensure the system can be used reliably even under harsh temperature and humidity conditions. The IRSpirit-ZX is also available for use in harsher environments using a ZnSe beam splitter with high moisture resistance.

Fourier Transform Infrared Spectrophotometer Plastic Analysis System Plastic Analyzer



When analyzing plastics, libraries are used to qualify their material properties. However, infrared spectra of plastics that have been denatured (have deteriorated) due to heat or UV rays differ in shape from standard spectra, and qualifying them can sometimes be difficult. To address this, the Plastic Analyzer includes a deterioration library, so highly accurate qualification can be performed reflecting the state of deterioration.

Contents	IRSpirit Fourier transform infrared spectrophotometer QATR-S single-reflection ATR attachment Plastic Analyzer method package • UV-Damaged Plastics Library • Thermal-Damaged Plastics Library • Macro Program for IR Pilot/Parameter File
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Brochure No. **C103-E130**

Fourier Transform Infrared Spectrophotometer IRXross



This mid-level FTIR model achieves a high-end 55,000:1 S/N ratio, a high-resolution value of 0.25 cm^{-1} , and a high measurement speed of 20 scans/second. In addition, it is equipped with the IR Pilot analysis navigation system, an analytical intelligence platform that simplifies operation. For micro-region measurements, combining the IRXross with either the AIMsight infrared microscope or the AIRsight infrared Raman microscope enables data acquisition with good sensitivity down to a minimum of $10\text{ }\mu\text{m}$ and $3\text{ }\mu\text{m}$, respectively.

Interferometer	Michelson interferometer (30° incident angle) Equipped with Dynamic Alignment system
Wavenumber range	$7,800\text{ to }350\text{ cm}^{-1}$
Highest resolution	0.25 cm^{-1}

Brochure No. **C103-E135**

Microplastic Automatic Preparation Device MAP-100



The analysis of microplastics requires multiple steps, including sample collection, digestion and filtration, and qualitative and quantitative (size, number of particles, mass or concentration) analysis. To accurately analyze microplastics in aqueous samples, an essential step is to isolate the particles from other components in the sample. This process normally involves digestion and separation steps. The MAP-100 automates the typical steps needed to isolate microplastics. This improves the reproducibility of the analytical workflow, enables lab technicians to focus on other tasks, and makes handling of reagents safer.

Applicable samples	Samples collected from rivers, oceans, lakes, and other environmental water (Incompatible with samples containing a lot of sand or mud from riverbeds, the ocean floor, or sandy beaches)
Extracted plastic size	Major axis $0.3\text{ to }5\text{ mm}$ in length
Extracted plastic density	1.5 g/m^3 max.

Brochure No. **C391-E116**

Fourier Transform Infrared Spectrophotometer IRTracer-100



This system achieves excellent sensitivity with an S/N ratio of 60,000:1, high resolution at 0.25 cm^{-1} , and high-speed scanning capable of 20 spectra/second. The performance of medium and higher end models is supported by high reliability including advanced dynamic alignment and an interferometer with a dehumidifier. This is compatible with applications active in a variety of circumstances, with a library of approximately 12,000 spectra and data analysis programs for contaminant analysis, and time course and rapid scan programs for reaction tracking.

Interferometer	Michelson interferometer (30° incident angle) Equipped with Advanced Dynamic Alignment system Sealed interferometer with automatic dehumidifier
Wavenumber range	$7,800\text{ to }350\text{ cm}^{-1}$ (standard), $12,500\text{ to }240\text{ cm}^{-1}$ (optional)
Highest resolution	0.25 cm^{-1}

Brochure No. **C103-E091**

Infrared Microscope AIMsight



IRXross + AIMsight

Shimadzu's proprietary wide-field camera (standard) supports variable digital zooming as well as observation of large areas up to 10×13 mm. Furthermore, by sharing positional information with the microscope camera, it achieves a digital zoom function capable of zooming to a magnification of about 330 $\times$ for observing areas as small as 30×40 μ m. In AMSolution software, the analyst simply clicks one button and the software automatically recognizes the contaminant. It even determines the optimal aperture size and angle in only one second. AMSolution also includes functionality for measuring lengths, including the lengths of objects in infrared microscope images. The contaminant analysis program for automatically qualifying contaminants is included as a standard feature in LabSolutions IR software.

Supported FTIR	IRTracer-100, IRXross, IRAffinity-1 series
Measurement wavenumber range	5,000 to 700 cm^{-1} (T2SL) 4,600 to 400 cm^{-1} (TGS)

Brochure No. C103-E142

Spectrofluorophotometer RF-6000



Achieves S/N ratios over 1000 (RMS) or over 350 (peak-to-peak), measures long wavelengths up to 900 nm, and scans at ultra fast 60,000 nm/min. Xenon lamp life has also been extended to 2000 hours. Instrument performance can be diagnosed easily using the validation function. Standard functionality such as high-speed 3D measurement, automatic spectral correction, and quantum yield/quantum efficiency measurement functions allow it to be used for a wide variety of applications. LabSolutions RF ensures that the extensive available functionality can be operated easily. When linked with the LabSolutions Network System, compliance with Part 11 can be achieved, adding to safety and ease of mind.

Scanning wavelength range	200 to 900 nm and 0 order
Resolution	1.0 nm or less (Emission)
Wavelength slewing speed	60,000 nm/min.

Brochure No. C125-E009

Infrared/Raman Microscope

AIRsight



IRXross + AIRsight

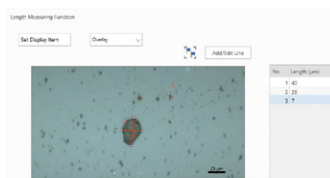
Product

Raman and FTIR microscopy in perfect harmony

The AIRsight infrared/Raman microscope combines two analytical techniques to provide complementary molecular information.

Length measurement function

AMSolution software now includes functionality for measuring lengths, including the lengths of objects in infrared Raman microscope images. Also, length measurement results can be output with a single button click.



Same position



Both FTIR and Raman spectra can be measured without moving samples

Because samples do not need to be moved, both infrared and Raman spectra can be measured from the same position in an extremely small area. That means information about both organic and inorganic substances can be obtained from the same position, which can significantly improve the accuracy of qualitative analysis.

Smart software



One software to measure and analyze both FTIR and Raman spectra

You can easily switch between infrared and Raman measurements with a click. In addition, infrared and Raman spectra can be superimposed and displayed, and various analyses can be performed.

Single system



Obtain organic and inorganic information with one instrument

Infrared microscopes can analyze organic substances, but have difficulty obtaining information for many inorganic substances. On the other hand, Raman microscopes can obtain information about inorganic substances such as titanium oxide and carbon, in addition to organic substances. A single AIRsight unit can analyze mixtures of both organic and inorganic substances.

Supported FTIR	IRXross, IRTracer-100, IRAffinity-1 series
Infrared measurement wavenumber range	5,000 to 700 cm^{-1} (T2SL) 4,600 to 400 cm^{-1} (TGS)
Raman measurement wavenumber range	4,000 to 150 cm^{-1} (532 nm) 3,200 to 150 cm^{-1} (785 nm)

Note: To use this product, a Fourier transform infrared (FTIR) spectrophotometer needs to be connected.

Brochure No. C103-E139

Atomic Absorption Spectrophotometer
AA-7800 Series

The AA-7800 Series is versatile enough for a variety of analytical applications (Any Application), safe and easy to use even for beginners (Any User), and offers continuous analysis using autosamplers and remote data analysis via network connections to increase the flexibility of an operator's work style (Any Location).

The AA-7800 can be upgraded from a flame-only system to a dual atomizer system, allowing the system to evolve in response to changes in customers' usage. Dual atomizer systems are available in two types: manual atomizer switching with excellent versatility and automatic atomizer switching with excellent operation and faster analysis.

Wavelength range	185 to 900 nm
Bandwidth	6-step automatic switching
Optics	Flame: Optical double-beam Furnace: High-throughput single beam
Background correction method	D ₂ or SR method selectable

Brochure No. C122-E064

Simultaneous ICP Atomic Emission Spectrometers
ICPE-9800 Series

The ICPE-9800 series is a Multitype ICP Atomic Emission Spectrometer that can be used in various fields such as environmental testing, pharmaceuticals, foods, chemicals, and metals. Acquisition for All Wavelengths, Automatic Wavelength Selection and a Diagnosis Assistant ensure the reliability of measurements with the most appropriate method at all times. The vertical torch orientation and both axial and radial views allow simultaneous analysis of trace to high-concentration samples without concern for contamination (ICPE-9820). The Mini Torch, Eco Mode and Vacuum spectrometer significantly reduce running costs.

Light source	Axial view (ICPE-9810) or axial and radial view (ICPE-9820), mini-torch
Spectrometer / detector	Echelle semiconductor detector (CCD)
Measurement wavelength range	167 to 800 nm
High-frequency power supply	27 MHz, 1.6 kW max.

Brochure No. C113-E015

ICP Mass Spectrometer

ICPMS-2040/2050

The ICPMS-2040/2050 Series systems have achieved a harmonious blend of environmental-friendliness and analytical performance through its advanced proprietary Mini-Torch system. Without the need for any special options, it reduces measurement time, contributing to the optimization of your workflow efficiency. Moreover, the software comes with various functions, options, and maintenance information that minimize operator intervention, revolutionizing the way you work.

Plasma Ion Source	Spray chamber	Cyclone chamber (Thermoelectric cooling)
	Nebulizer	High Efficiency Concentric nebulizer
RF Power Supply Unit		27 MHz, Max 1.6 kW
Mass Spectrometer	Mass analyzer	Quadrupole type mass spectrometer
	Mass range	5 to 260 u

Brochure No. C113-E031

Eco Friendly yet Competent

The features of Shimadzu's mini-torch system, which consistently reduces argon gas consumption to approximately two-thirds, and can use low-purity (99.95 %) gas, remain. At the same time, optimizing the torch design decreases sample flow rate into the plasma, improving sample ionization efficiency. The new design roughly doubles sensitivity compared to previous models.

Fast at No Additional Cost

The improved gas controller features high-speed cell gas purging. Combined with ProActive Rinsing, measurement times can be significantly shortened.



Product

Minimal Operation Required**"Extended Rinsing"
Automatically Minimizes Carryover**

The extended rinsing function automatically performs an additional rinse sequence when a target element exceeds a predetermined upper limit. A second rinse solution can be used in the additional rinsing sequence to improve rinsing effectiveness. Consequently, carryover is eliminated to ensure high-quality data.

**"Dual Valve Unit" Enables Autonomous
Operation after Plasma Ignition**

When using an Online Internal Standard Kit (optional), the operator must move the probe before and after data acquisition. The optional Dual Valve Unit allows seamless switching between tuning solution and rinsing solution while also automatically adding internal standard solution to samples. The entire sequence, from instrument tuning, to measurement, to rinsing, and plasma off, are performed automatically.

Optical Emission Spectrometer
PDA-8000



This instrument is capable of high sensitivity quantitative analysis of iron and steel, copper, aluminum alloys and other solid metals, as well as impurities and other elements, thanks to a high resolution monochromator and discharge energy stabilized excitation unit. Excellent operability is achieved with software that enhances instrument monitoring and maintenance support functionality. In addition, this is an energy saving model that significantly reduces energy consumption.

Diffraction grating of monochromator unit	Concave radius of curvature: 1000 mm
Wavelength range	120 to 550 nm, 120 to 700 nm
Readout unit	Time-resolution photometry (PDA processing, total integral processing)
Number of light receptors	64 channels max.

Brochure No. C112-E013

Optical Emission Spectrometer
PDA-7000 Series



Emission spectrometry enables rapid and accurate simultaneous determination of many elements in metals. This technique has been adopted as a standard method for metals analysis. The Shimadzu PDA series is a high-performance optical emission spectrometer, utilizing the PDA (Pulse Distribution Analysis) method as standard, which enhances the accuracy and reliability of analyses. The PDA method, combined with excellent hardware quality, makes the PDA series suitable for any application in metals analysis. It enhances analysis productivity in quality control and process control in the ferrous and non-ferrous metals industries.

Diffraction grating of monochromator unit	Concave radius of curvature: 600 mm
Wavelength range	121 to 589 nm
Readout unit	Time-resolution PDA photometry
Number of light receptors	64 channels max.

Brochure No. C112-E011

Energy Dispersive X-ray Fluorescence Spectrometer

ALTRACE

Pushing the Boundaries of Detection

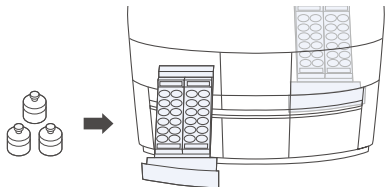
In a variety of industries, including food products, chemicals, quasi-drug products, and the environment, the control and measurement of toxic heavy metals have become essential tasks for protecting human health and safety. In addition, both increasing the efficiency of minerals indispensable to health and measuring them with high sensitivity have become issues addressed in the laboratories of many of our customers. However, in elemental analyses to date, difficult sample pretreatments, including sample ashing and dissolution with acid, have been necessary. ALTRACE enables higher sensitivity analysis of heavy metal elements without performing the type of chemical treatments to date.

Elements to be determined	$_{13}\text{Al}$ to $_{92}\text{U}$
Maximum X-ray output	65 kV, 4 mA, 100 W
Sample replacement	Drawer style tray, 48-sample automatic replacement
Primary filters	6 types (8 including the open position); automatic replacement

Brochure No. C142-E050

Automatic Consecutive Analyses of Up to 48 Samples

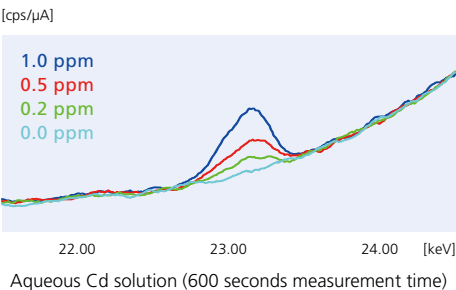
The 710 mm wide main body is equipped with a multi-sample changer. During analysis, ALTRACE can be paused, new samples added, and the analysis schedule adjusted accordingly. As such, there is no need to wait for analysis to be completed to start sample preparation.



Product

Implements Batch Element Analysis Across a Wide Range from the Sub-ppm Level to the % Level

Previous EDX systems could not measure concentrations on the order of 0.1 ppm. With ALTRACE, it is now possible to obtain sub-ppm level detection, without the need for chemical pretreatment.



Aqueous Cd solution (600 seconds measurement time)

Energy Dispersive X-ray Fluorescence Spectrometer EDX-7200



The EDX-7200 is a flagship model of the EDX series in pursuit of high sensitivity, high speed and high precision. This model supports new regulations and directives for consumer and environmental compliance, such as RoHS/ELV, REACH, and TSCA with full exclusive screening analysis kits. The EDX-7200 is equipped with a high-resolution SDD detector to achieve a higher count rate and detection efficiency.

Elements to be determined	$_{11}\text{Na}$ to $_{92}\text{U}$
Sample chamber dimensions	300 (W) × 275 (D) × approx. 100 (H) mm max. (Assuming no rounded corners)
Primary filters	5 types (6 including the open position); automatic replacement
Software	Simple analysis software (PCEDX-Navi) General analysis software (PCEDX-Pro)

Brochure No. **C142-E047**

Energy Dispersive X-ray Fluorescence Spectrometer for RoHS/ELV Screening EDX-LE



The software is loaded with the optimal functions for screening, including automatic calibration curve selection and automatic reduction of measurement time. Utilizing optional analysis kits, the EDX-LE can also accommodate screening analysis of halogen compounds and antimony that are subject to regulations. Furthermore, in combination with the optional Additional Function Kit, the instrument can also be used for applications besides screening, such as qualitative analysis, film thickness analysis, and steel grade determinations utilizing general analysis software.

Elements to be determined	$_{13}\text{Al}$ to $_{92}\text{U}$
Sample chamber dimensions	370 (W) × 320 (D) × approx. 155 (H) mm max.
Primary filters	5 types (6 including the open position); automatic replacement
Software	Screening software
Options	Halogen Screening Analysis Kit RoHS, Halogen, Antimony Screening Analysis Kit

Brochure No. **C142-E035**

Energy Dispersive X-ray Fluorescence Spectrometer EDX-8100

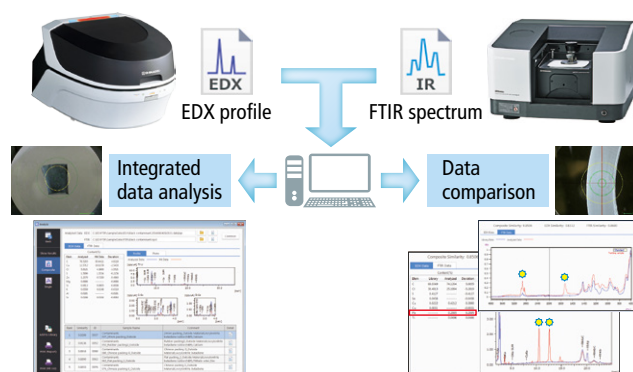


Equipped with an electronically cooled high-performance semiconductor detector, the EDX-8100 is designed for reduced running costs and ease of maintenance while providing better sensitivity, throughput, and resolution than conventional models. The EDX-8100 is a model that accommodates light elements and allows for helium purge. A wealth of optional functions is available, including a vacuum measurement unit, which is effective for light element analysis, and a turret unit, which is effective for consecutive analyses. From management applications involving compliance with RoHS/ELV directives and other environmental regulations to research applications involving the high-level needs of general sample analysis, the EDX-8100 can be applied broadly, whatever the industry.

Elements to be determined	$_{6}\text{C}$ to $_{92}\text{U}$
Sample chamber dimensions	300 (W) × 275 (D) × approx. 100 (H) mm max. (Assuming no rounded corners)
Primary filters	5 types (6 including the open position); automatic replacement

Brochure No. **C142-E044**

Integrated EDX-FTIR Analysis Software EDXIR-Analysis



The integrated EDX-FTIR analysis software, EDXIR-Analysis is especially for qualitative analysis, utilizing data acquired with energy dispersive X-ray fluorescence spectrometers (EDX) and Fourier transform infrared spectrophotometers (FTIR). This software provides identification results and degrees of matching by performing an integrated analysis of data acquired with FTIR, which is ideal for the identification and qualitative analysis of organic compounds, and data acquired with EDX, which is ideal for the analysis of the elements contained in metals and inorganic compounds. It can also perform either EDX or FTIR analysis separately. Shimadzu's proprietary library (containing 485 data as standard), created through cooperation with waterworks agencies and food product manufacturers, is used for the data analysis. Additional data as well as image files and document files in PDF format can be registered in the library. It is also effective for linked storage with a variety of data as digital files.

Brochure No. **C103-E112**

Multi-Channel X-ray Fluorescence Spectrometer
MXF-2400



The MXF-2400 features a compact design and ease of operation. Impurity elements as well as major elements in various types of samples can be readily determined, for the purpose of quality control and R&D. Up to 36 elements can be simultaneously determined in two minutes by the fixed monochromator and up to 48 elements can be determined sequentially by the optional scanning monochromator. An X-ray tube that supports the use of a 4 kW (Thin window) has been installed to further enhance performance. High analytical precision is provided even in high sensitivity analysis of a few ppm quantity level.

Elements to be determined	${}^4\text{Be}$ to ${}_{92}\text{U}$
Converging system	Curved crystal
X-ray tube	4 kW with a thin window

Brochure No. **C142-E024**

Electron Probe Microanalyzer
EPMA-8050G



Shimadzu's FE-EPMA system features a cutting-edge FE electron optical system that provides the ultimate in advanced analytical resolution. This provides unprecedented spatial resolution for SEM observation with beam current higher than 3 μA . In combination with Shimadzu's traditionally high performance X-ray spectrometers, this advanced FE electron optical system can provide both maximum resolution and maximum sensitivity at the same time.

Elements analyzed	${}^4\text{Be}$ (optional) and ${}_{5}\text{B}$ to ${}_{92}\text{U}$
X-ray spectrometer	Max. five high-sensitivity spectrometers
Max. sample size	100 mm square $\times$ 50 mm thick
X-ray take-off angle	52.5 deg.
Mapping resolution	20 nm (10 kV to 10 nA)
Secondary electron resolution	3 nm

Brochure No. **C143-E013**

Electron Probe Microanalyzer
EPMA-1720 Series

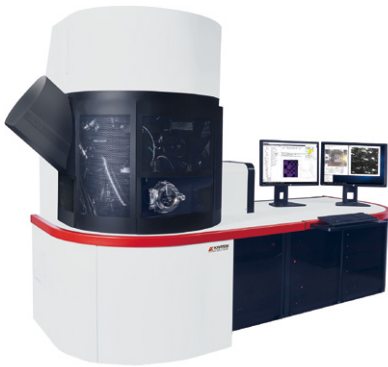


The Electron Probe Microanalyzer (EPMA) allows highly sensitive analysis of elements in micron-scale regions on the sample. The fully digital control system offers revolutionary observation and analysis operations using only the mouse and keyboard. It can also be operated from a networked PC. EPMA-1720H incorporates a high-performance CeB_6 filament that allows EPMA analysis of sub-micron regions.

Secondary-electron image resolution	6 nm (EPMA-1720)	5 nm (EPMA-1720H)
Analyte elements range	${}^4\text{Be}$ to ${}_{92}\text{U}$	
Number of X-ray spectrometers	2 to 5 channels	
X-ray take-off angle	52.5°	

Brochure No. **C143-E012**

Imaging X-ray Photoelectron Spectrometer
AXIS Supra+



This surface analyzer features higher performance and the ability to control all operations via a computer, while maintaining the same system configuration freedom as before. The high-speed real-time XPS imaging using a spherical mirror analyzer achieves spatial resolution of 1 μm that clearly shows the chemical distribution in micro areas. An ample selection of options ensures the system can be used for a wide variety of applications, such as in-situ testing without exposure to air or high-energy XPS measurements.

Imaging resolution	1 μm
Sensitivity	(monochrome X-rays, 0.48 eV FWHM Ag3d) Macro analysis: 400 kcps, 27 μm dia. analysis: 8 kcps
Options	Mg/Al X-ray source, UV light source for UPS, FE Auger electron gun, air-sensitive sample transporter, sample heating/cooling unit, catalyst reaction cell, Ar gas cluster ion gun, Ag monochrome X-ray source, etc.

Scanning Probe Microscope /Atomic Force Microscope

SPM-9700HT Plus

Making the Unknown Visible

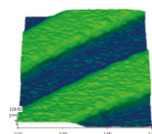
The SPM-9700HT Plus microscope can observe the three-dimensional image or local properties of sample surfaces at high magnifications. It enables high-resolution observation, and can measure a variety of samples in air and liquids. With the exclusive Nano3D Mapping Fast software, data can now be obtained more than ten times faster than with previous Shimadzu models. In addition, it is equipped with NanoAssist, a function that automatically sets the observation conditions. This improves total throughput by significantly reducing the measurement time.

Observation mode	Standard: contact, dynamic, phase, lateral force (LFM), force modulation Optional: magnetic force (MFM), current, surface potential (KFM)
Resolution	X, Y: 0.2 nm, Z: 0.01 nm
AFM head	Displacement detection system: Light source, optical lever, detector Light source: Laser diode (ON/OFF) Irradiates cantilever continuously, even while replacing samples. Detector: Photodetector

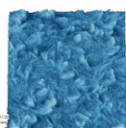
Brochure No. C147-E021

NanoAssist
Optimizes Observation Conditions

Only the observation range needs to be set. Other observation conditions are set automatically.



Diffraction Grating



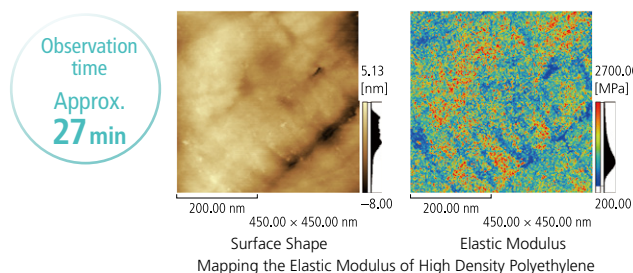
Vapor-Deposited Nb Coating



Product

Nano3D Mapping Fast (Optional)

The time required for physical property mapping has been significantly reduced compared to the previous machine (SPM-9700HT).



Mapping the Elastic Modulus of High Density Polyethylene

Note: This instrument is not available in European regions and may also be unavailable in certain other countries.

Scanning Probe Microscope/Atomic Force Microscope
SPM-Nanoa

The SPM-Nanoa is a middle-range SPM that adopts a low-noise, high-sensitivity detection optical system equivalent to the high-end SPM-8100FM, further advancing automation of operations and high throughput. That means you can observe what you want to observe in more detail, more easily, and more quickly. Consequently, SPM-Nanoa microscopes provide powerful assistance for everything from observing the shape of micro areas to measuring their physical properties.

Observation mode	Standard: contact, dynamic, phase, lateral force (LFM), force modulation Optional: lateral force (MFM), surface potential (KPFM), current, piezoelectric force (PFM), STM
Resolution	Horizontal: 0.2 nm, Vertical: 0.01 nm
SPM head	Displacement detection system: Light source, optical lever, detector Light source: Laser diode (ON/OFF), Irradiates a cantilever continuously even while replacing samples Detector: Photodetector

Brochure No. C147-E018

High-Resolution Scanning Probe Microscope
SPM-8100FM

The SPM-8100FM is a next-generation scanning probe microscope that employs a frequency detection method. Existing SPMs (scanning probe microscopes) and AFMs (atomic force microscopes) generally employ an AM (amplitude modulation) method. In principle however, the FM (frequency modulation) method is a high-sensitivity measurement method, which enables imaging at even higher levels of resolution. Not only does it enable ultra-high-resolution observation of atmospheric or liquid-based targets, but now, for the first time, observation of hydration/solvation of the solid-liquid interface is made possible.

Observation mode	contact, dynamic (AM method and FM method), lateral force (LFM)
Resolution	Horizontal: 0.2 nm, Vertical: 0.01 nm
SPM head	Displacement detection system: Light source, optical lever, detector Light source: laser diode (ON/OFF) Irradiates a cantilever continuously even while replacing samples Detector: Photodetector

Brochure No. C147-E016

Total Organic Carbon Analyzer

TOC-L Series

The role of the TOC analyzer is to quickly and reliably measure all sorts of organic compounds in water. The most important feature of such an analyzer is its ability to efficiently oxidize not only easily-decomposed, low-molecular-weight organic compounds, but also hard-to-decompose insoluble and macromolecular organic compounds.

Shimadzu TOC analyzers deliver both high-efficiency detection of organic compounds via the 680 °C combustion catalytic oxidation method, and high sensitivity capable of even pure water management.

		High-sensitivity model		Standard model	
Model		TOC-LCPH	TOC-LCSH	TOC-LCPN	TOC-LCSN
Operation method		PC-controlled	Standalone	PC-controlled	Standalone
Measurement method		680 °C combustion catalytic oxidation – non-dispersive infrared detection (NDIR) method			
Measurement items		TO, IC, TOC, NPOC (Optional: POC, TN)			
Measurement range	TC	0 to 30,000 mg/L		0 to 30,000 mg/L	
	IC	0 to 35,000 mg/L		0 to 3,000 mg/L	
Detection limit		4 µg/L		50 µg/L	

Brochure No. C391-E079

Applicable to everything from ultrapure water to highly-contaminated water (TOC-LCSH/CPH)

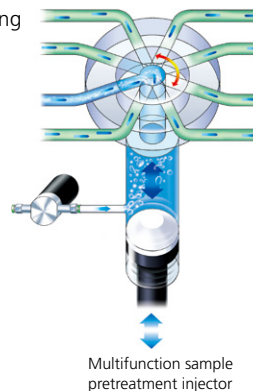
- Capable of TC, IC, TOC (= TC-IC), and NPOC measurements. In addition, installation of optional units enables POC (volatile organic carbon), TOC via POC and NPOC, and even TN (total nitrogen) measurements.
- The blank check function evaluates system blanks by measuring ultrapure water processed automatically within the instrument.
- The automatic dilution function enables measurements up to 30,000 mg/L.



Product

Reliable Sample Injection System

- Automatic sample acidification and sparging
- The automatic dilution function reduces sample salinity, acidity, and alkalinity, significantly extending the period of use of catalysts and combustion tubes. (The effectiveness will differ depending on the samples and measurement conditions.)
- Even when an autosampler is used, stat or priority samples can be added at any time to the analysis schedule without interrupting operation by equipping the system with a sample collection tube for single-unit TOC analyzer measurements.



Multifunction sample pretreatment injector

Autosampler for TOC-L Series

ASI-L



ASI-L

Combination with the TOC-L series results in a fully automatic measurement system. Vials with three different capacities, 9 mL, 24 mL, and 40 mL, can be used.

- Vials with a septum can be used (24 mL and 40 mL vials).
- Can be equipped with a magnetic stirrer (optional).

Types and number of vials	9 mL × 93 vials
	24 mL × 93 vials
	40 mL × 68 vials

8-Port Sampler for TOC-L Series

OCT-L



OCT-L

Combination with the TOC-L series results in an automatic measurement system at an affordable price. Settings are extremely simple, since special vials are not required. In addition, the effects of contamination can be reduced if measurements are performed as is using large-capacity collection bottles.

- Can be combined with commercially-available stirrers and water baths.

Units connected	Up to 2 units can be connected.
Number of vials	8 vials per unit Maximum of 16 vials (with 2 units)

TN (Total Nitrogen) Unit for TOC-L Series

TNM-L



Combination with the TOC-L series results in a simultaneous TOC and TN measurement system. This system can also be used to meet regulations on effluent nitrogen and total volume. The space-saving design enables installation above the TOC-L, meaning that installation space is not a problem when expanding.

Measurement method	Chemiluminescence method
Measurement item	TN (total nitrogen)
Measurement range	0 to 10,000 mg/L

Solid Sample Combustion Unit for TOC-L Series SSM-5000A



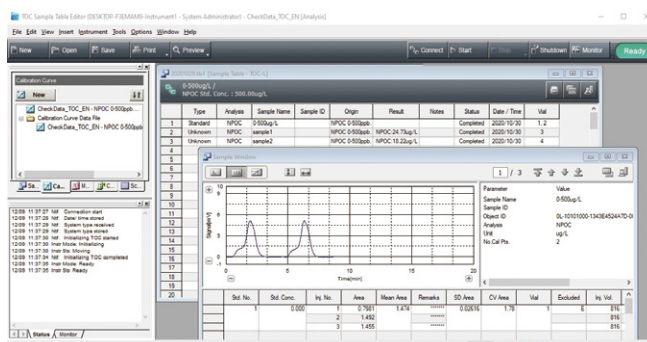
SSM-5000A

When combined with the TOC-L series, TC, IC, and TOC measurements can be performed in soil, sludge, sedimentation, and other solid samples. In addition, with GMP cleaning validation, the system can also be used to evaluate residues using the swab sampling/direct combustion carbon analysis method.

- Can also be connected to the TOC-V series

Combustion temperature	900°C
Measurement range	TC: 0.1 to 30 mgC IC: 0.1 to 20 mgC
Sample volume	1 g max.

Software for TOC-L LabSolutions TOC



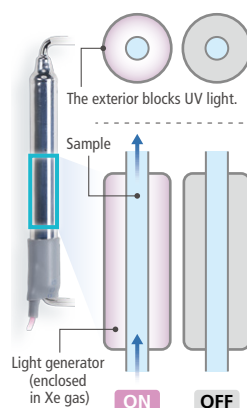
While keeping the operation feeling that has been popular in the previous product TOC-Control L, security functions have been enhanced with full support for LabSolutions CS. LabSolutions TOC uses LabSolutions CS, a world-proven data management software, to centrally manage measurement results and audit trails with a common database and user ID across a variety of devices, including LCs and GCs. Lab administrators don't have to manage devices individually. LabSolutions TOC is equipped with a "Report Set function" that creates a report that links measurement data with related audit trails. By simply and securely reviewing measurement data, it also improves work efficiency.

New On-Line TOC Analyzer for Ultrapure Water TOC-1000e S

In semiconductor manufacturing, even trace levels of contamination can compromise product quality. As semiconductor miniaturization continues to advance, minimizing trace-level organic contamination has become increasingly critical to maintaining high product yields. As a result, quality standards for the ultrapure water used in semiconductor manufacturing are becoming even stricter. Particularly in the manufacturing of cutting-edge semiconductors, the need to detect urea and other hard-to-oxidize compounds has increased. Detecting those compounds has been difficult using conventional techniques. Incorporating feedback from leading semiconductor manufacturers, the TOC-1000e S has been developed to address these challenges.

Superior Detection Sensitivity for Hard-to-oxidize Compounds

Instead of a conventional mercury lamp, the TOC-1000e S uses an excimer lamp for the oxidative decomposition of organic compounds. Additionally, our patented Active-Path technology for the lamp structure integrates the light source with the flow path, surrounding it in close contact and efficiently irradiating the sample with UV light. With this setup, samples are exposed to high-energy shortwave light, enabling the high-sensitivity detection of urea and other hard-to-oxidize organic compounds.



Product

User-friendly Operation for an Efficient Workflow

The instruments features a very straightforward and only requires parts replacement once a year. The only parts requiring periodic replacement in the main unit are the excimer lamp and the pump head. Both can be easily accessed from the front of the instrument, removed, and installed easily without any tools. This reduces running costs and ensures stable measurements.



Measurement items	TOC
Measurement principle	UV oxidation–conductivity measurement method
Measurement range	0 to 500 µg/L
Detection limit	0.02 µg/L
Dimensions, Weight	W270 × H180 × D140 mm, Approx. 3.0 kg

Brochure No. C391-E120

On-Line TOC Analyzers for Pure Water TOC-1000e



TOC-1000e has very high sensitivity and low detection limits, reaching 0.1 µg/L, making it perfectly suitable for ultra-pure water measurement. The TOC-1000e is the first TOC analyzer in the world to use a mercury-free excimer lamp. The TOC-1000e also features new "Active-Path" technology for transferring energy from the lamp to the sample. It efficiently irradiates the sample inside the lamp with ultraviolet light to reliably oxidize organic matter. This new Shimadzu technology achieves both high measurement performance and high environmental performance.

Measurement items	TOC, conductivity (or specific resistance), temperature
Measurement principle	UV oxidation-conductivity method
Measurement range	TOC: 0 to 500/2,000 µg/L Conductivity: 0.023 to 206 µS/cm (without temperature correction) Temp.: 10 to 50 °C
Detection limit	TOC: 0.1 µg/L
Dimensions, Weight	W270 × D140 × H180 mm, Approx. 2.88 kg

Brochure No. C391-E110

On-Line Total Organic Carbon Analyzer TOC-4200 Series



TOC-4200

On-line TOC analyzer with 680 °C combustion oxidation and non-dispersive infrared gas detection (NDIR) method. The measurement range is wide, from 0 to 20,000 mg C/L f.s., and can optionally be used for high-sensitivity measurement of 0 to 1 mg C/L f.s. The reliable oxidizing power of the high-temperature combustion furnace, the NDIR detector that is not affected by interference components, and the fast measurement of the minimum 4 minutes cycle are effective not only for the final effluent but also for upstream monitoring.

Measurement principle	680 °C combustion catalytic oxidation / non-dispersive infrared gas detection (NDIR) method
Measurement items (*Optional)	NPOC, TC, TOC (TC-IC)* TOC (NPOC+POC)*
Measurement range	0–5 to 0–1,000 mgC/L f.s. (0 to 50,000 mgC/L f.s. with dilution function)
Measurement cycle	4 minutes minimum (Using NPOC)
Repeatability	Within ±2 % f.s.

Brochure No. C391-E083

Transportable Gas Analyzers NOA-7100, CGT-7100



NOA-7100



CGT-7100

The portable all-in-one gas analyzer can be used for various purposes a variety of uses in various locations. All pretreatment parts required for measurement, such as the pump, filter, and electric cooler, are built-in. Gas concentration can be measured by simply introducing sample gas. The NOA-7100 supports NO_x measurements for applications ranging from exhaust gas measurement of combustion equipment to combustion and denitrification research.

NOA-7100	Measurement components	Measurement range	Main application
Type 1	NO _x , O ₂	NO _x : 0 to 25/50/100/250/500/ 1,000/2,500/4,000 ppm O ₂ : 0 to 5/10/25 vol%	Combustion equipment test / Research
Type 2 (Small flow measurement)	NO _x , NO, NO ₂	0 to 100/250/500/1,000/2,500/ 4,000 ppm	Catalyst research

Brochure No. C391-E101

CGT-7100	Measurement components	Measurement range	Main application
Type 1	CO, CO ₂	CO: 0 to 1,000/5,000 ppm CO ₂ : 0 to 5/15 vol%	Combustion equipment test / Research
Type 2	CO, CH ₄	CO: 0 to 5 vol% CH ₄ : 0 to 20 vol%	Fuel cell research
Type 3 (Small flow measurement)	CO, CO ₂	CO: 0 to 10/20 vol% CO ₂ : 0 to 10/20 vol%	Catalyst research

Brochure No. C391-E098

Pretreatment Unit for Portable Gas Analyzers CFP-8000



The CFP-8000 is pretreatment unit that is used with NOA-7100/7000 or CGT-7100/7000. When performing continuous gas analysis, dust and moisture must be removed from the gas before sending to the analyzer. This essential preprocessing can be performed by this one device, and two lines of cleaned measurement gas can be used simultaneously. Light-weight and compact, the CFP-8000 is the perfect preprocessor for use with portable analyzers.

Intended use	Air and other gas samples
Permissible ambient temperature	5 to 40 °C
Sampling quantity	Approx. 5 L/min (maximum)

Flue Gas Multi-Component Gas Concentration Analyzer NSA-3080



The NSA-3080 employs a micro-computerized, multi-component, Ratio-NDIR gas analyzer for the measurement of NO_x, SO₂, and CO or CO₂. An O₂ detector is also incorporated to allow measurement of a total of the five components simultaneously.

Application	Measurement of NO _x , SO ₂ , CO, CO ₂ , and O ₂ concentrations in exhaust gases from various boilers, industrial plants (petroleum refinery, steel, cement, etc.), incinerators, and thermal treatment furnaces.
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Continuous Gas Analyzer in Flue Gas NSA-308



This analyzer measures four or five components in exhaust gases from combustion equipment. Two types are available, for measurement of four components: NO_x, SO₂, CO, and O₂, and for measurement of these four components plus CO₂ for a total of five components. The analyzer adopts a high-performance, high-functionality ratio infrared analyzer and a magnetic wind oximeter, to achieve simple and highly reliable sampling.

Measurement method	Non-dispersive infrared ray absorption method (ratio photometry) O ₂ : Magnetic wind method
Measurement range	It differs depending on the components measured, so inquire for details.

Flue Gas Nitrogen Oxide and Oxygen Analyzer NOA-3030



This high performance chemiluminescence system features a space-saving design and easy maintenance. Ideal for monitoring cogeneration system exhaust gases. Chemiluminescence enables highly accurate NO_x measurements with minimal interference.

Measurement method	NO _x : Atmospheric pressure chemiluminescence method O ₂ : Magnetic wind method
Measurement range	NO _x : Ranges from 0-to-50 to 0-to-2,500 ppm O ₂ : 0 to 25 vol% (Optional: 0 to 10 vol%)

Flue Gas Nitrogen Oxide and Oxygen Analyzer NOA-308Dx



Chemiluminescence provides high sensitivity and superior zero point stability. Includes various functionality, such as automatic calibration, remote calibration, calculation processes, and alarms.

Measurement method	NO _x : Atmospheric pressure chemiluminescence method O ₂ : Magnetic wind method
Measurement range	NO _x : Ranges from 0-to-10 to 0-to-2,500 ppm O ₂ : 0 to 10/25 vol%

Flue Gas CO and O₂ Analyzer for Preventing Dioxin Emissions from Waste Incinerators COA-3030



This analyzer is specialized for monitoring waste incinerator compliance with waste processing laws and regulations and guidelines for preventing dioxin emissions. A ratio type infrared gas analyzer is used to measure CO and a magnetic wind type analyzer for O₂.

Measurement method	CO: Non-dispersive infrared ray absorption method (ratio photometry) O ₂ : Magnetic wind method
Measurement range	CO: 0 to 200/1,000 ppm O ₂ : 25 vol%

Precision Universal Testing Machines

AUTOGRAPH
AGX-V2 Series

A motor-driven precision universal testing machine with high performance, operability and safety. By the guaranteed precision range to 1/2000 of full scale, a wide range of test forces can be measured with a single load cell. The autotuning function was further enhanced and strain control performance was improved.

In addition to the standard models, we offer five models, including a “model with a large LCD touch panel” that improves testing efficiency, a “model with a wide testing space” that enables testing of large parts, and a “model with a separate control unit” that is useful for developing new materials.

Aggregation of Cutting-Edge Functions

The sampling speed has been improved to 10 kHz, which is twice as fast as the conventional product, enabling the test force to be collected 10,000 times per second. For tests using the strain control method specified in ISO 6892, the control cycle was increased by 10 times to improve responsiveness.

New Operability with voice “XV-Talk”

The AGX-V2 responds to the operator’s voice. The AGX-V2 operates in response to key phrases spoken by the operator. This frees the operator from frequently used buttons, such as “Start Test” and “Return”.



Product

Choose between Two Controllers

Two types of controllers with touch panel LCD screens are available. Choose from the large LCD “Operation Controller” with graph display and direct operation buttons, or the portable “Smart Controller”.



Capacity	Table-top model 10 N to 50 kN, floor model 20 kN to 600 kN	
Testing speed	AGX-10kNVD2	0.0005 to 3,000 mm/min
	AGX-20/50kNVD2	0.0005 to 1,500 mm/min
	AGX-20/50kNVD2, AGX-100kNVD2	0.00005 to 1,500 mm/min
	AGX-250/300kNVD2	0.00005 to 720 mm/min
	AGX-500/600kNVD2	0.00005 to 540 mm/min

Brochure No. C224-E122

Tabletop Precision Universal Testing Machines

AUTOGRAPH
AGS-V Series

Versatile Support, Built for You.

These are easy-to-operate, safe, and cost-effective testing machines that offer all the necessary functions in a compact design. Increase testing efficiency using dedicated data processing software (TRAPEZIUMX-V).

Load capacity	1 N to 10 kN (11 types)	
Test speed	0.0005 to 1,500 mm/min (Stepless)	
Test force accuracy	High-precision type	Within ±0.5 % of display test force (for 1/1 to 1/500 of load cell capacity)
	Wide-range accuracy type	Within ±1 % of display test force (for 1/1 to 1/1000 of load cell capacity)
	Standard accuracy type	Within ±1 % of display test force (for 1/1 to 1/500 of load cell capacity)

Brochure No. C224-E128

Operator-Friendly Design with Enhanced Safety

A high level of safety is achieved without compromising operability, with features such as a free-stop vertically adjustable cover and an intelligent crosshead function that prevents collisions with jigs.

Cutting-Edge Specifications for a New Era of Testing Quality

With high-speed data sampling of 5 kHz, test force accuracy guaranteed to 1/1000, a wide range of test speeds, and high-speed crosshead return, you can achieve outstanding test quality.



reddot winner 2026

Product

Boost Productivity with Enhanced Usability Features

The operation controller is equipped with a color liquid crystal touch panel. The most appropriate buttons and information are displayed in accordance with the situation. Various operations and information, such as adjusting the distance between jigs before a test and checking measurement values during testing, can be displayed.



New Precision Universal Testing Machines **AUTOGRAPH** **AGS-X2 Series**

The AUTOGRAPH AGS-X2 series provides superior performance and practical testing solutions for a wide range of applications. Offering high-level control and intuitive operation, the AGS-X2 series sets a new standard for strength evaluations while incorporating comprehensive safety features in a modern, stylish design. The AGS-X2 comes standard with TRAPEZIUMX-V data processing software.

Max. load capacity	Table-top model: 20 kN, 50 kN Floor model: 100 kN, 300 kN
Test speed	AGS-20kNX2D: 0.001 to 2000 mm/min (Stepless) AGS-50kNX2D, AGS-100kNX2: 0.0001 to 1000 mm/min (Stepless) AGS-300kNX2: 0.0001 to 500 mm/min (Stepless)

Brochure No. C224-E129

Easy Control of Stress and Strain

The series offers real-time auto tuning of control parameters, based on measured test force and strain data, and allows operators to safely make comparisons to unknown sample data without the need for preliminary tests. In addition, the AUTOTUNING FUNCTION easily performs strain control, an ISO 6892-2009 requirement.

Achieve an Accurate S-S Curve with High-Precision Load Cells

The wide, guaranteed load cell precision range of 1/500 to 1/1 improves testing efficiency and ensures that virtually all of your testing can be performed without switching the load cell or jig. Furthermore, high-speed sampling of 1 msec ensures no missed strength changes.



Product

Required Needs

	IRON & STEEL	In addition to conventional stress control, tensile testing with strain control is increasingly in demand. ISO 6892 JIS Z2241
	PLASTICS & RESINS	Measuring the modulus of elasticity in the ultra-small strain domains proscribed by ISO and JIS standards has become a necessity. ISO 527 ISO 178 JIS K7171
	CERAMICS	Many samples are damaged by microscopic displacements, so accurate control is needed, right from the start of testing.

Table-Top Universal Testers EZ Test

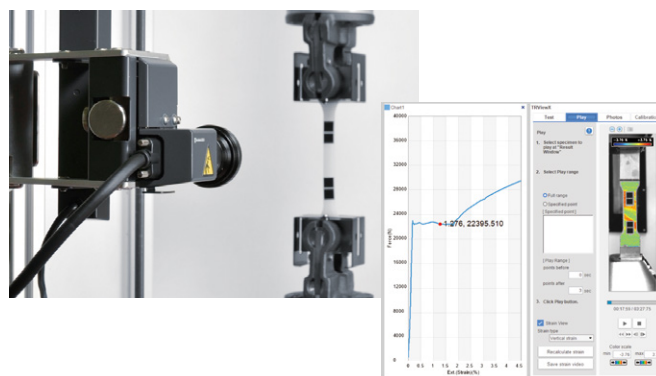


This easy-to-use, compact, stylish frame incorporates enhanced functions, enabling tests to be carried out with good efficiency.

	EZ-SX	EZ-LX	EZ-LX HS
Load capacity	500 N	5 kN	2 kN
Test speed	0.001 to 1,000 mm/min		0.001 to 2,000 mm/min
Return speed	1,500 mm/min		3,000 mm/min
Test force measurement accuracy	High-precision type	±0.5 % of indicated value (Range from 1/500 to 1/1 of the load cell capacity) Complies with JIS B7721 class 0.5, ISO 7500-1 class 0.5, EN 10002-2 grade 0.5, and ASTM E4	
	Standard precision type	±1 % of indicated value (Range from 1/500 to 1/1 of the load cell capacity) Complies with JIS B7721 class 1, ISO 7500-1 class 1, EN 10002-2 grade 1, and ASTM E4	

Brochure No. C224-E055

Non-Contact Digital Video Extensometer TRViewX



The TRViewX non-contact digital video extensometer can accurately measure extension and width of films, which is difficult with contact extensometers, over a wide range without affecting the specimen. It is capable of measuring extension to an accuracy equivalent to JIS B7741 0.5 class.

Type	Optical non-contact, standard line mark tracking format
Gauge length	Any length within camera field of view
Camera field of view	55 to 800 mm
Measurement accuracy	The larger of ±1.5 μm or ±1.5 % of indicated value (for camera field of view 240 mm or less and constant temperature measurement)

Brochure No. C224-E052

Fully Automatic Rubber Tensile Testing System



This system provides full automation, from measurement of specimen dimensions, supply to the testing machine, and fixing of chucks to measurement of extension between standard lines and data processing. The system can be used for continuous nighttime testing, which helps save labor costs.

Load capacity	Max. 1 kN
Test speed	0.001 to 1,000 mm/min
Specimen storage method	Palette type (120 pcs)
Applicable standard	JIS K6251

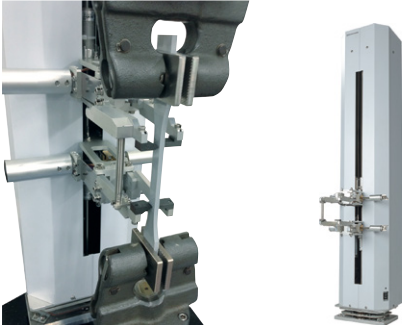
Fully Automatic Plastic Testing System



This is a fully automatic tensile and bending tester for plastics. It is capable of continuous operation from measurement of specimen dimensions, supply, and data processing.

Load capacity	Max. 10 kN (tensile)/5 kN (bending)
Test speed	0.0005 to 1,000 mm/min
Specimen storage method	Palette type (120 pcs) or magazine type (150 pcs)

Automatic Extensometer SIE-560A/560SA

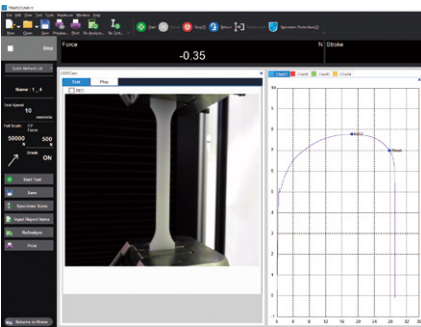


Provides high-precision measurement of the extension of metals, plastics, etc. from the elastic range (very small displacement) to failure (large displacement). All operations, such as automatic fitting and removal of the extension arm onto the specimen, automatic setting of the distance between standard lines, etc., can be executed by the software.

Measurement range	Max. (560 - gauge length) (mm)
Measurement precision	560SA $\pm 1 \mu\text{m}$, 0.5 % (JIS B7741 0.5 class) 560A $\pm 2.5 \mu\text{m}$, 0.5 % (JIS B7741 1 class)
Gauge length	560SA 50 mm (variable with option) 560A 10 to 550 mm

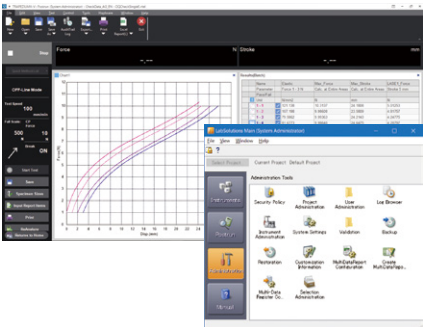
Brochure No. C224-E111

Operation Software for Material Testing TRAPEZIUMX-V



TRAPEZIUMX-V for Windows 10 provides a number of easy-to-use features, such as a data search function, condition setting through a visual wizard, and a quick condition list where you can select test conditions directly from the start-up screen. You can easily create a variety of test conditions, from simple test controls to controls with complicated patterns.

Software for Autograph LabSolutions AG



The Autograph precision universal testing machines are now compatible with the latest in data integrity. Connecting TRAPEZIUM X-V to the LabSolutions system, which provides ER/ES regulatory compliance, enables confident, reliable data management. In addition to Autograph data, consolidated management is available for LC, GC, and UV data.

- Compatible with the AGX-V, AG-X, AGS-X and EZ-X
- Compatible with single software and control software

Brochure No. C224-E116

Compact Thermostatic Chamber for Autograph TCE-N300A



The thermostatic chamber controls the temperature in the testing space, enabling tensile, bending, and compression tests under a variety of temperature conditions. You can discover new characteristics of materials by reproducing real-world temperature environments. The temperature can be set, and the temperature data from the thermostatic chamber can be recorded, using TRAPEZIUM X-V software.

Temperature usage range	-70 to +300 °C
Temperature increase rate	25 minutes from room temperature to 300 °C
Temperature decrease rate	25 minutes from room temperature to -70 °C

Brochure No. C224-E117

Precision Universal Testing Machines Autograph X-V Retrofit



Image after the Retrofit

The Autograph X-V Retrofit is a partial upgrade kit, consisting of a controller and software, for precision universal testing machines. Replacing the existing controller and software with this product significantly improves operation and safety with existing systems. The replacement provides comparable measurement capabilities to the Autograph AGX-V series, Shimadzu's premier systems.

Applicable systems	AG-D, AG-E, AG-G, AG-I, AG-IS, AG-X, AG-Xplus
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Brochure No. **C224-E121**

Hydraulic Universal Testing Machines UH-X Series and UH-FX Series



UH-500kNX



UH-F500kNX

The operability and visibility of the computer-controlled hydraulic servo type universal testing machine (UH-X) and the high-performance universal testing machine (UH-FX), equipped with front opening type hydraulic grips, have been greatly improved by the adoption of a large color touch panel. Equipped with a semi autotuning function that automatically adjusts the control parameters, stress control and strain control (ISO 6892 compliant) can be easily carried out without the need for a preliminary test. The UH-Xh and UH-FXh models feature a new hybrid hydraulic oil source that reduces the required quantity of hydraulic oil, thereby achieving a major reduction in electrical power (about 50 %).

	UH-X Series	UH-FX Series
Load capacity	200, 300, 500, 1,000, 2,000, 3,000, 4,000 kN (7 types)	300, 500, 1,000, 2,000, 3,000, 4,000 kN (6 types)
Capacity	6 stages	
Test control functions	Single, cycle, stress, strain, stroke 3 stage switching, concrete	Front-opening type hydraulic system

Note: Hybrid type and a type without an analog indicator are also available.

Brochure No. **C221-E010**

Concrete Compression Testing Machine CCH-X/CCM-X Series



CCH-2000kNX

In recent years the importance of concrete quality control has increased. This testing machine can carry out concrete compression tests efficiently in accordance with JIS A 1108. With options it can also be used for concrete bending tests and concrete tensile tests.

Load capacity	CCH-X Series 2,000 kN, 3,000 kN, 5,000 kN (3 types)
	CCM-X Series 1,000 kN, 2,000 kN (2 types)

Brochure No. **C221-E012**

Concrete Compression Testing Machine CONCRETO 2000X/3000X



CONCRETO 2000X

This compression testing machine can safely and efficiently perform tests at a high capacity without causing explosive fracture (failure of the specimen) on ultra-high-strength concrete, which is used as a structural material in high-rise buildings, etc. This one machine can be used for materials ranging from ultra-high-strength concrete to specimens that have been recently cast, mortar, etc.

Testing capacity	40 to 2,000 kN in 6 stages range (CONCRETO 2000X) 60 to 3,000 kN in 6 stages range (CONCRETO 3000X)
Control method	Hydraulic servo type (with explosion-proof function)
Upper and lower plate diameter	220 mm

Brochure No. **C221-E012**

Micro Vickers Hardness Tester
HMV-G Series

This micro hardness tester features a built-in CCD camera for standardized automatic length measurement. Hardness can be measured simply and accurately with easy-to-use PC software. The lineup also includes fully automated (FA) machines equipped with an electrically driven revolver mechanism and electrically driven XYZ. A manual machine with an optical head and models with color cameras are also included in the lineup.



HMV-G31 Series

Standardized automatic length measurement function using a digital camera built into a novel G frame



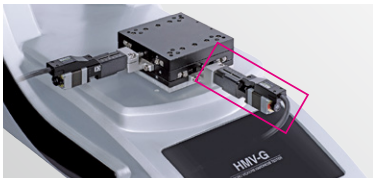
HMV-G31-FA Series

High efficiency, completely automatic measurements using the electric XYZ stage and special software



HMV-G30 Series

Turn it ON and start measuring immediately. Active in educational fields.

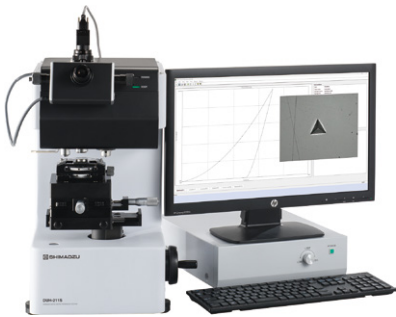


Electric micrometer kit (option)

Test force range	9.8 mN to 19.6 N
Reading method	Automatic (G31), Manual (G30)
Maximum number of indenters and object lenses installed	S: Indenters 1, Object lenses 2 D: Indenters 2, Object lenses 4
With electrically driven revolver	HMV-G31ST, HMV-G31DT, HMV-G31-XY, HMV-G31-FA

Brochure No. C227-E027

Dynamic Ultra Micro Hardness Tester
DUH-211/210 Series



This tester can be used for measuring the surface properties (hardness and elastic modulus) metal materials, thin films, DLC films, surface treated layers such as alumite, plastics, and rubbers. Measurement can be carried out with test forces as low as 0.1 mN (resolution 0.2 μ N).

Test force range	0.1 to 1,961 mN (0.01 to 200 gf)
Indentation depth range	0 to 10 μ m
Minimum display	0.0001 μ m
Testing mode	3 types (211 model), 7 types (211S model)

Brochure No. C227-E024

Micro Compression Testing Machine
MCT Series



With length measurement kit (option)

This strength evaluation tester is designed micro parts and micro particles generated in powder processing. Providing advanced operation and functionality, it can perform compression tests as well as loading and unloading tests, repeated tests, and various other load patterns. In addition to the conventional manual model, we now offer two automated models (MCT-AD). These models can automatically perform successive compression tests on multiple test particles, reducing the time needed to operate the instrument, improving testing efficiency, and contributing to labor savings.

	Manual model				Automatic model	
	MCT-510	MCT-511	MCT-210	MCT-211	MCT-210AD	MCT-211AD
Loading method	Electromagnetic loading method					
Test force range (mN)	9.8 to 4903		9.8 to 1961			
Displacement measurement range (μ m)	0 to 100	0 to 10	0 to 100	0 to 10	0 to 100	0 to 10

Brochure No. C227-E030

Capillary Rheometer Flowtester CFT-500EX/100EX



This device evaluates viscosity properties from the relationship to temperature, pressure, and flow velocity, etc., for flowable materials. It demonstrates its power in research and development, production processes, and quality control for various flowable materials such as thermoplastic resins, thermosetting resins, toner, composite materials, ceramics and rubbers.

Extrusion force	CFT-500EX: 0.4903 to 49.03 MPa (0.4903 MPa step) CFT-100EX: 0.098 to 9.807 MPa (0.098 MPa step)
Test temperature	(Room temperature + 20) to 400 °C
Test type	Constant temperature tests, constant velocity rising temperature tests

Brochure No. **C228-E008**

Mooney Viscometer SMV-301/301RT

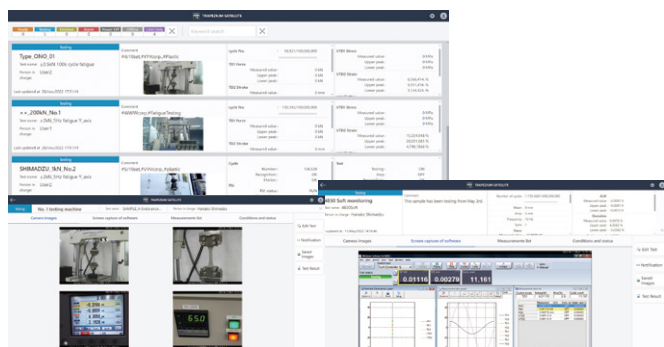


This device evaluates the Mooney viscosity and vulcanization properties of rubbers. Operation is simple using the color LCD touch panel, and basic performance, such as temperature recovery properties, is excellent. A stress-relieving function is also provided based on ISO/ASTM standards (SMV-301RT). It can also be operated using PC software.

Applicable standard	JIS K6300-1, ISO 289-1 to -4, ASTM D1646
Mooney viscosity measurement range	0 to 200.0 M
Temperature control range	70 to 200 °C

Brochure No. **C228-E009**

Testing Machine Remote Monitoring System TRAPEZIUM SATELLITE



USB Camera Image Browsing Window

Windows Software for 4830 Browsing Window

TRAPEZIUM SATELLITE is a remote monitoring system for testing machines. It consists of a monitoring device, a USB camera, and software for remotely monitoring the operating status of fatigue testing machines using a web browser. The ability to monitor the operating status of equipment away from the laboratory increases the efficiency of testing work and reduces workloads.

Brochure No. **C225-E040**

Fatigue and Endurance Testing Machine Servopulser EHF-E Series



This is the standard electrohydraulic servo fatigue testing machine, offering outstanding stable performance. It is capable of carrying out tests ranging from static tests to fatigue tests.

Maximum test force	Dynamic, ± 10 , ± 20 , ± 50 , ± 100 , ± 200 kN
Maximum amplitude	± 25 mm, ± 50 mm
Waveform	Sine, triangular, rectangular, ramp, and haversine waves
Control mode	Test force, stroke

Note: Select the control device from two options: the 4830 (V), and the 4890 (M).

Brochure No. **C225-E029**

Overhead Actuator Type Fatigue and Endurance Testing Machine
Servopulser EHF-U Series



This is a multi-functional fatigue testing machine suitable for specimens, structures and full-sized parts. It is an overhead actuator type with a broad test space, so it is ideal for various types of environmental tests, such as those in corrosion tanks or constant temperature tanks.

Maximum test force	Dynamic, ± 50 , ± 100 , ± 200 kN
Main unit format	Overhead actuator type, testing table with T groove
Waveform	Sine, triangular, rectangular, ramp, and haversine waves
Control mode	Test force, stroke

Note: Select the control device from two options: the 4830 (V), and the 4890 (M).
Brochure No. **C225-E029**

Electromagnetic Force Fatigue and Endurance Testing System
Servopulser EMT Series



High-speed repeated load tests can be carried out with a maximum velocity of 2 m/s, and maximum stroke of ± 50 mm, using clean and quiet electromagnetic force as the driving power, without the use of oil. The test space is large so environmental tests can also be carried out using the constant temperature tank (option).

	EMT-1kNV-30	EMT-1kNV-50
Maximum test force	± 1 kN (static and dynamic tests)	
Stroke	± 30 mm	± 50 mm
Maximum speed	1 m/s	2 m/s
Maximum frequency	200 Hz	

	EMT-5kNV-30	EMT-5kNV-50
Maximum test force	Dynamic: ± 5 kN, Static: ± 3.5 kN	
Stroke	± 30 mm	± 50 mm
Maximum speed	1 m/s	
Maximum frequency	200 Hz	100 Hz

Brochure No. **C225-E029**

Table-Top Fatigue and Endurance Testing Machine
Servopulser EHF-L Series

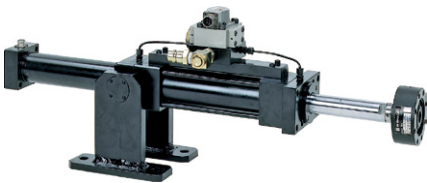


This revolutionary fully digital servo controlled multi-functional materials testing machine opens up a new era in fatigue testing systems. It provides excellence in all aspects, including precision, reliability, and expandability, through its fully digital control achieved by bringing together the latest technologies.

Maximum test force	Dynamic, ± 5 , ± 10 , ± 20 kN
Maximum amplitude	± 25 mm, ± 50 mm
Waveform	Sine, triangular, rectangular, ramp, and haversine waves

Note: Select the control device from two options: the 4830 (V), and the 4890 (M).
Brochure No. **C225-E029**

Compact Hydraulic Vibrator Force Simulator
EHF-JF Series

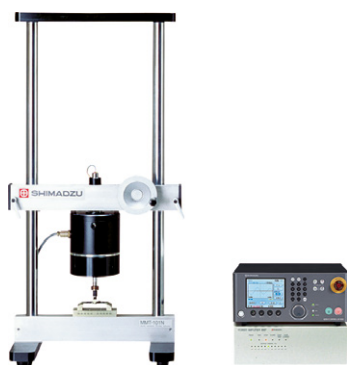


This is a ± 20 kN ± 100 mm vibrator weighing only about 25 kg. It is a light and compact easy-to-handle hydraulic vibrator that can evaluate durability by applying repeated loads to products such as automotive parts, furniture and structures.

Dynamic test force	± 5 kN, ± 10 kN, ± 20 kN, ± 30 kN (4 types)
Effective stroke	± 50 , ± 100 , ± 150 mm (selective)

Brochure No. **C225-E029**

Electromagnetic Force Micro Tester Micro-Servo MMT Series



Achieves test forces in the order of grams and high-speed repeated loads at the micro level through its use of an electromagnetic servo actuator. It is optimal for evaluation of the dynamic strength of items such as micro materials and miniature parts.

	MMT-11NV-2	-101NV-10	-250NV-10
Test force capacity	±10 N	±100 N	±250 N
Stroke	±2 mm	±10 mm	
Maximum frequency	60 Hz	100 Hz	
Power requirements	AC 100 V		

Brochure No. C225-E029

High-Speed Impact Testing Machines HITS-X Series



With the increasing demand for safety and reliability, evaluation of the dynamic strength (impact properties) of materials and parts is becoming more and more important. This machine can obtain data, such as the maximum test force, energy, and displacement, up to a maximum velocity of 72 km/h (20 m/s).

A tensile load type (HITS-TX) and a punching type (HITS-PX) are available.

Impact test force	10 kN
Speed setting range	1 to 20 m/s
Piston stroke	300 mm
Controller	Controller 4870 (dedicated controller for high-speed impact testing)
Software	TRAPEZIUM HITS high-speed impact testing software

Note 1: The PC and printer are not included, so they must be ordered separately.

Note 2: A constant temperature tank can be added as an option.

Brochure No. C225-E037

Electric Motor Driven Actuator NJ-SERVO



This is a ±10 kN ±100 mm electrical powered vibrator that can save about 75 % of the power. The drive source is a motor, so cooling water for a hydraulic oil source is not required. The durability of full-size parts such as automotive parts can be evaluated by applying repeated loads.

Static/dynamic test force	±1 kN, ±5 kN, ±10 kN, ±20 kN, ±30 kN
Effective stroke	±100 mm (±150 mm)

Brochure No. C225-E030

Servopulser Control Unit 4830



Using the touch-panel operation, measurement and control of tests ranging from static tests to dynamic tests can be simply carried out. Up to four testing machines can be operated simultaneously. Functions such as data acquisition and programmed loads can be expanded using USB connection software (option).

Test waveforms	Sine, triangular, rectangular, etc.
Amplifier	Test force, stroke
Control mode	Test force, stroke, virtual transducer
Power requirements	Single-phase 100 V, 300 VA

Note: A wide range of software is available.

Contact Shimadzu for details.

Brochure No. C225-E021

Ultrasonic Fatigue Testing System USF-2000A



This machine uses ultrasonic vibrations to evaluate the fatigue strength of materials in the order of gigacycles over a short period of time. The condition settings and monitoring can be carried out from the included computer.

Test frequency ^{Note 1}	20 kHz ± 500 Hz
Test stress ^{Note 2}	180 to 900 MPa (in the case of a steel circular taper specimen)
Stress ratio	-1

Note 1: The test frequency is determined from the resonance frequency of the sample.

Note 2: Stress values depend on sample shape and physical property values.

Note 3: An air compressor is included. A displacement measuring device is an option.

Brochure No. C225-E029

Servopulser Vibration Testing Machine
EHV Series



This machine performs vibration tests on structures, equipment, transport packages, etc. Vibration directions include horizontal and vertical. Large capacity and large stroke can be obtained with the electro-hydraulic servo system.

Vibration method	Electro-hydraulic servo method
Vibration force	Horizontal 50 kN, vertical 40 kN
Stroke	±50 mm
Vibration direction	Horizontal, vertical
Control mode	Peak values of displacement and acceleration

30 MN Large Structural Testing Machine



This is a 30 MN testing machine, the largest in Japan. It is used for checking the strength properties of either complete actual structures or portions thereof with respect to self-weight, imposed loading, or external loads such as earthquake, wind, and snow, in particular the deformation and ultimate strength, in order to verify the safety of the structure.

Note: The capacity and performance, etc., of the testing machine can be changed in accordance with discussions.

High-Speed Video Camera
HyperVision HPV-X3



reddot winner 2026



The HPV-X3 incorporates the newly developed high-speed CMOS image sensor, FTCMOS3, which provides both a shooting speed of up to 20 million frames per second and a high 300,000 pixels resolution. A frame synchronization function can synchronize an external signal and the imaging timing for each imaging frame. It is also equipped with a synchronous shooting function using two cameras, allowing simultaneous 2-way shooting and 3D image analysis using commercially available software.

Resolution	300,000 pixels; 628 (horizontal) × 480 (vertical)
Recording speed (frame rate)	20 Mfps (fps = frames per second) Variable recording speed between 60 fps and 10 Mfps in 5 ns steps
Recording capacity	256 frames max.

Brochure No. C220-E020

MAIVIS Ultrasonic Optical Flaw Detector
MIV-X



Ultrasonic optical flaw detection refers to nondestructive inspection technology that uses ultrasound and light. The surface of the test object is excited using ultrasound, and the tiny changes in the surface produced by these vibrations are detected using laser irradiation and a camera. If peeling, cracks, or other flaws are present, ultrasound discontinuities (propagation disturbances) are detected. Ultrasonic optical flaw detection enables the visualization of internal flaws (at a depth of about 1 mm) that are hard to find using conventional ultrasonic testing. The MIV-X can easily detect flaws in joints and bonding surfaces in research and development processes involving multi-materials, which are created by combining different materials to increase strength and reduce weight.

Minimum detection size	Approx. 1/100 of inspection area (depends on sample and inspection condition)
Camera distance	250 to 1000 mm
Inspection time	Approx. 25 seconds or less (Observation + Analysis)

Brochure No. C227-E029

Microfocus X-ray Inspection System

Xslicer SMX-6010



Xslicer SMX-6010 is a planer X-ray inspection system, featuring a micro-focus X-ray generator and a 3 megapixel flat panel detector. It delivers high-accuracy images with a wide dynamic range that enable detailed observations of internal structures and defects. In addition, the system switches smoothly between fluoroscopy and Computed Tomography (CT), enabling a variety of observations matched to the shape of the sample. This supports the inspection of various samples ranging from electronic parts with improved miniaturization to mounted boards with advances in high-density multilayer design.

Target object	Electronic parts, mounting boards, etc.
Maximum sample size	W: 470 × D: 420 × H: 100 mm, max. 5 kg max.
Fluoroscopic field of view size	0.75 (vertical) × 1.3 mm (horizontal) to 21 (vertical) × 38 mm (horizontal)
CT field of view size	3 to 30 mm (given 45° laminographic angle) 3 to 14 mm (given 60° laminographic angle)

Brochure No. C251-E040

Benchtop X-ray CT System

XSeeker 8000



The XSeeker 8000 benchtop X-ray computed tomography (CT) system is equipped with a high-output X-ray generator and a high-resolution flat panel detector. Despite its compact size, it has a high X-ray output of 160 kV, enabling clear observations of molded plastic parts, aluminum die cast parts, and other metal parts. In addition, the newly developed XSeeker control software provides high operability and the highest throughput to date. With clear image quality and high throughput, it supports applications in a wide range of situations, from detailed observations in product development and quality evaluation to inspections at machining sites.

Target object	Plastics, light metals and foods, etc.
Maximum sample size	300 mm dia. × H: 320 mm, max. 10 kg max.
Field of view	100 mm dia. max.

Brochure No. C251-E042

Microfocus X-ray Inspection System

Xslicer SMX-1010/1020

The Xslicer SMX-1010/1020 is a vertical emission X-ray system equipped with 90 kV microfocus X-ray generator and a high-resolution flat panel detector. Image quality has been significantly improved over the previous model (SMX-1000 Plus), and Shimadzu's renowned operability has advanced even further. In addition to operability improvements, the stage movement speed and detector acquisition speed have also increased, significantly shortening inspection times. The inspection process is now more efficient. The workflow has also been simplified for the CT unit (optionally available), and operability has been improved. With the Xslicer SMX-1010/1020, everything from X-ray fluoroscopic inspections of surface mounted circuit boards, sensors, and harnesses to 3D defect analysis using CT can be accomplished with a single unit.

Target object	Electronic parts, mounting boards, resin, etc.
Maximum sample size	W: 350 × D: 450 × H: 100 mm, max. 5 kg max.
Fluoroscopy FOV (on carbon plate)	SMX-1010: 1.9 mm (vertical) × 2.2 mm (horizontal) to 38 mm (vertical) × 43 mm (horizontal) SMX-1020: 2.2 mm (vertical) × 3.8 mm (horizontal) to 42 mm (vertical) × 76 mm (horizontal)

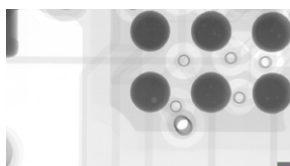
Brochure No. C251-E039

New HDR Processing Function

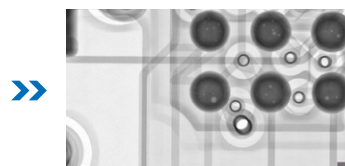
Shimadzu's unique, proprietary image processing technique/algorithm allows fluoroscopic images with a higher dynamic range. Regions that are both easy and difficult to penetrate can be observed at the same time, which shortens inspection times.



Product



Without HDR Processing



With HDR Processing

New

Microfocus X-Ray CT System

inspeXio 7000

The inspeXio 7000 is a high-performance microfocus X-ray CT system equipped with a Shimadzu microfocus X-ray generator and a large high-resolution flat panel detector. The large detection area, input resolution equivalent to 14 megapixels, and an enhanced high-output microfocus X-ray generator enable CT images with a large field-of-view, high resolution, and high contrast. In addition, the improved HPCinspeXio high-performance computing system processes images faster. These developments make the inspeXio 7000 system applicable for researching, developing, or inspecting a wide variety of samples, from composite materials, such as glass fiber reinforced plastic (GFRP) and continuous fiber reinforced thermoplastic laminate (CFRTP) materials to large aluminum die cast parts.

Target object	Aluminum die castings, electronic circuit boards, electronic parts, composite materials, etc.
Maximum sample size	400 mm dia. x H: 300 mm max. 20 kg max.
Field of view	400 mm dia. x 300 mm max.

Brochure No. C251-E046

High-Resolution CT Imaging

The large high-resolution flat panel detector has an input resolution equivalent to 14 megapixels, which provides a large field-of-view and high resolution.

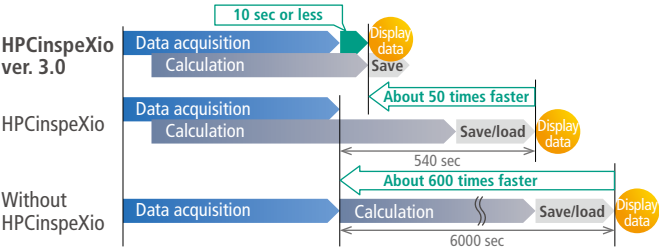
High-Contrast CT Imaging

Improvements to the Shimadzu-made microfocus X-ray generator and the sensitivity characteristics of the state-of-the-art flat panel detector enable unprecedented high output and image contrast.



Easy and Fast CT Scanning

In addition to the automated CT scanning function, which relieves the operator from having to specify parameter settings, the system also includes an improved version of the HPCinspeXio ver. 3.0 high-performance computing system, providing 50 times faster processing speeds.



Dimensional X-ray CT System XDimensus 300



The XDimensus 300 is a dimensional X-ray CT system capable of measuring samples in 3D. In addition to the external surface form of objects, it is capable of measuring the internal form (in locations where probes and lasers cannot reach). It brings added value that could not be provided by conventional measurement systems, by enabling dimensional measurement and observation and analysis of internal structure and defects using CT images.

Target object	Resins and light metals
Maximum sample size	300 mm dia. x H: 300 mm, max. 10 kg max.
Field of view	300 mm dia. x 210 mm max.
Accuracy (sphere distance error)	±(3.8 + L/50) μm

Brochure No. C251-E035

Phase-Contrast X-ray CT System Xctal 5000



The Xctal 5000 is a new X-ray CT system that creates images of X-ray phase shifts. In addition to the X-ray absorption information detected by conventional X-ray CT systems, this system can detect X-ray scattering and refraction information. This enables observations of fine structure, including cracks and the flow of fiber bundles, across a wide field of view, and high-contrast observations of samples with no absorption differences. This is useful for research and development of fiber reinforced resins, composite materials, and biomaterials.

Target object	Fiber reinforced resins, composite materials, and biomaterials
Maximum sample size	150 mm dia. x H: 275 mm, max. 5 kg max.
Field of view	100 mm x 100 mm max. (Fluoroscopy), 100 mm dia. max. (Fiber Orientation Fluoroscopy), 100 mm dia. x H: 100 mm max. (CT Scan), 85 mm dia. x H: 85 mm max. (Fiber Orientation CT Scan)

Brochure No. C251-E043

Differential Scanning Calorimeters
DSC-60 Plus Series

DSC-60 Plus

The DSC is an indispensable thermal analyzer for materials characterization in R&D and quality control applications in the areas of polymers, pharmaceuticals, foods, etc. It offers high sensitivity and easy operation required for the development of high-performance, highly functional new materials. Also included in the lineup is the DSC-60A Plus which has a built-in compact autosampler which allows automated measurement, analysis and printing of reports for up to 24 loaded samples in a single operation.

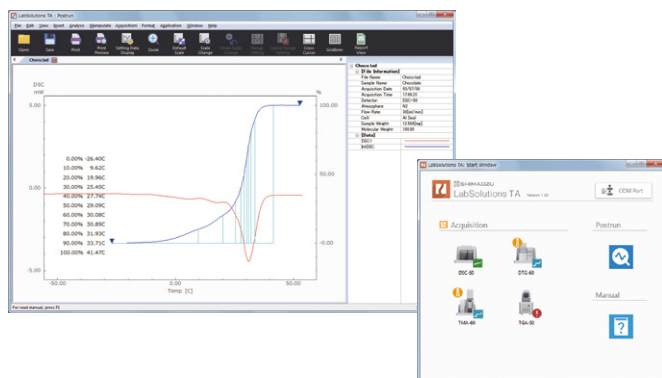
Temperature range	−140 to 600 °C (Liquid nitrogen used below room temperature)
Calorimetric measurement range	±150 mW
Baseline noise	0.5 µW max. (rms, when held at 150 °C using blank)

Brochure No. **C160-E006**TG–DTA Simultaneous Measuring Instruments
DTG-60/60H/60A/60AH

DTG-60A

This simultaneous TG–DTA (thermogravimetry/differential thermal analysis) measuring instrument features a differential type top loading balance with a Roberval mechanism, and a plugin type high-sensitivity thermocouple. It can measure samples up to 1 g. It also provides improved DTA sensitivity at high temperatures. With the auto DTG models (60A/60AH) that incorporates an autosampler, it is possible to place about one day's worth of samples. They are also capable of automatically measuring both empty cells and samples.

Temperature range	Room temperature to 1,100 °C (DTG-60/60A) Room temperature to 1,500 °C (DTG-60H/60AH)
Measurable range (weight)	±500 mg
Measurable range (differential thermal)	±1,000 µV
Number of settable samples	24 per sample tray (DTG-60A/60AH)

Brochure No. **C160-E006**Workstation Software for Thermal Analyzers
LabSolutions TA

Features an updated design and extensive immediately understandable functionality. Consequently, the entire series of operations, from measurement to data analysis and outputting reports, can be performed intuitively. Compatible with LabSolutions networks.

Convenient Operability

Large icons for frequently used functions are arranged above graphs. Mouse wheel and dragging operations can be used to easily scroll vertically/horizontally or enlarge/reduce the graph.

Improved Productivity

Corrections and data analysis can be performed automatically using the template function. If specified before taking measurements using the acquisition program, data analysis and report preparation can be performed automatically.

Improved Data Reliability

Sophisticated security and user management functionality are provided to ensure data reliability and enable compliance with FDA 21 CFR Part 11, PIC/S GMP, and other ER/ES regulations.

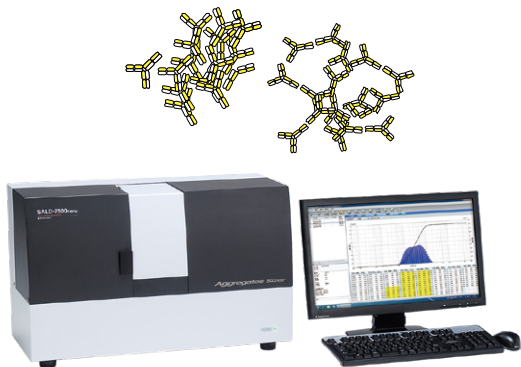
Brochure No. **C160-E006**Dynamic Particle Image Analysis System
iSpect DIA-10

The iSpect DIA-10 combines the particle measurement and image analysis technology that Shimadzu has developed over many years, and can perform particle image analysis, particle shape analysis, particle size distribution measurement, foreign matter detection, and number concentration measurement in as little as 2 minutes with one measurement. Offers functions such as particle counting, particle size measurement, and particle shape measurement in a single system.

Particle size measurement range	5 to 100 µm
Particle count concentration reproducibility	CV ≤ 5 %
Measurement items	Equivalent circular area diameter, equivalent circular perimeter diameter, maximum length, length perpendicular to maximum length, vertical Feret diameter, horizontal Feret diameter, particle perimeter, envelope perimeter, circularity, aspect ratio, horizontal rectangular envelope aspect ratio, particle area, and mean brightness

Brochure No. **C060-E016**

Aggregation Analysis System for Biopharmaceuticals
Aggregates Sizer



Protein aggregates of 100 nm to 10 μ m in size which are contained in biopharmaceuticals and are concerned about severe side effects such as shock symptoms can be quantitatively evaluated as the number concentration (number/mL). Furthermore, by applying mechanical stress at a constant temperature (20 to 42 $^{\circ}$ C), the aggregation process can be shortened and the throughput of protein screening can be greatly enhanced. It can be used for efficiency improvement and quality control of development of antibody drugs, vaccines, clinical testing agents, etc.

Measurement range	40 nm + 20 μ m
Measurement temperature	20 to 42 $^{\circ}$ C (constant temperature)
Batch cell	Sample amount: 5 mL mechanical stimulus can be applied while measuring
Micro cell	Sample amount: 125 μ L

Brochure No. C060-E010

Laser Diffraction Particle Size Analyzer
SALD-2300



The new standard in the SALD series. While maintaining continuity and compatibility with respect to the data of the SALD-2000/2100/2200, which were popular, widely distributed models, this instrument is equipped with many new functions useful for evaluating changes (dispersion, aggregation, dissolution) in particle size distribution relative to the concentration or time. It supports a particle concentration range from 0.1 ppm to 20 % and can perform a series of measurements of 200 data points at 1 second minimum intervals.

Measurement range	17 nm to 2,500 μ m
Light source	Red semiconductor laser
Detection elements	84 elements
Options	Multifunctional variable-volume sampler, batch cell, high-concentration sample measurement system, cyclone injection type dry measurement unit

Brochure No. C060-E007

Nano Particle Size Analyzer
SALD-7500nano

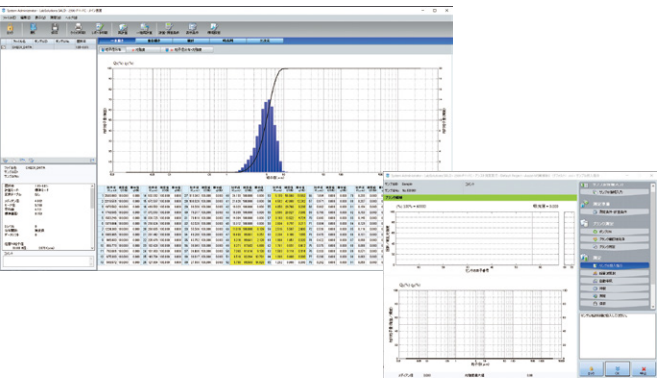


Delivering 10 times the sensitivity of previous models, this innovative analyzer is capable of continuously measuring changes in particle size and particle size distribution at one-second intervals, within a range spanning 7 nm to 800 μ m. In addition, unique options that accommodate the measurement of even high-concentration samples (up to 20 wt%) and trace quantity samples (down to 15 μ L) are available. Due to its leading-edge measurement capabilities, the analyzer will likely be used for many applications in new areas, including nanotechnology, the life sciences, and fine bubbles (microscopic bubbles).

Measurement range	7 nm to 800 μ m
Light source	Violet semiconductor laser (405 nm wavelength)
Detection elements	84 elements
Options	Batch cell, multifunction sampler, high-concentration measurement system

Brochure No. C060-E009

Software for SALD-2300
LabSolutions SALD



LabSolutions SALD is dedicated software of LabSolutions Manager DB/CS. The SALD-2300 laser diffraction particle size analyzer is now compatible with data integrity requirements. Connecting LabSolutions SALD to the LabSolutions system, with its proven compatibility with ER/ES regulations, enables confident, reliable data management. In addition to SALD data, consolidated management is available for LC, GC, and UV data.

Brochure No. C060-E017

Analytical Balances

AP Series

New

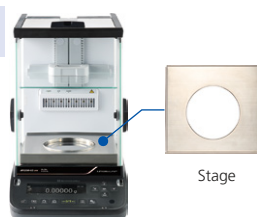
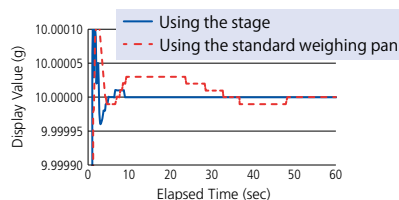
AP W-AD ex Series

AP W ex Series

Accurate Weighing. Next-Level Innovation.
Comfort and Trust in Every Weigh.

Now with Significantly Enhanced Repeatability.

The minimum weighable quantity specified by the United States, European and Japanese pharmacopoeias has been improved 13 mg^{*1} (35 % lower than the previous model), the best performance specified in pharmacopoeias. The balance is equipped as standard with a specially designed stage that minimizes the effects of airflow within the weighing chamber, which can vary depending on the weighing environment. Using the stage shortens stabilization time and enables more accurate weighing, as shown in the graph below.



Example of AP225W-AD ex display fluctuations when measuring a 10 g weight

*1 Compliant with the Japanese Pharmacopoeia, USP 41 and Ph. Eur. 2.1.7. Minimum weight value is met at the Shimadzu Corporation factory using weights equal to approximately 5 % of the weighing capacity. This value is affected by the installation environment, so it is necessary to measure it where the balance will be used.

AP Holder^{*2}, ideal for accommodating various glass container sizes, is a standard accessory.

Effectively eliminates static from glassware and samples on the weighing pan when paired with the STABLO-AP ionizer.



AP Holder

Containers that can be used with the AP Holder (Examples)

Container	Applicable Volume ^{*3}
Centrifuge tube	10 to 50 mL
Test tube	2.5 to 25 mL
Volumetric flask	10 to 100 mL
Conical flask	50 to 300 mL
Beaker	50 to 100 mL

*2 The AP Holder is included as standard with the AP W-AD ex/W ex Series and AP225W-AD/AP225W.

*3 About 70 mm or more height or length is required.

AP W-AD ex Series (with built-in calibration weight)
Smart Auto Door and Touchless Sensors are standard.

Model	Capacity	Minimum Display
AP135W-AD ex	135 g	0.01 mg
AP225W-AD ex	220 g	0.01 mg
AP125WD-AD ex	120 g / 52 g	0.1 mg / 0.01 mg
AP225WD-AD ex	220 g / 102 g	0.1 mg / 0.01 mg

AP W ex Series (with built-in calibration weight)

Model	Capacity	Minimum Display
AP135W ex	135 g	0.01 mg
AP225W ex	220 g	0.01 mg
AP125WD ex	120 g / 52 g	0.1 mg / 0.01 mg
AP225WD ex	220 g / 102 g	0.1 mg / 0.01 mg



AP225W-AD ex

Product

AP W-AD ex / W-AD Series
with Automatic DoorSmart Automatic Door^{*4} Improves Work Efficiency

The AP W-AD series features automatic doors, allowing operators to continue working without setting down samples or spatulas, which reduces overall measurement times.

Touchless Sensors^{*4} Enable Hygienic Operation

By specifying the multi-function mode, a total of four different functions can be executed depending on how long hands are held over the left and right touchless sensors. This ensures safer operation by not contacting the unit when handling toxic substances and enables the balance to be operated while wearing gloves.



Checking the status of function settings by holding hands over both touchless sensors

*4 The Smart Automatic Door, Touchless Sensors, and the STABLO-AP Ionizer are only available on the AP W-AD ex/W-AD series.

AP W-AD Series (with built-in calibration weight)
Smart Auto Door and Touchless Sensors are standard.

Model	Capacity	Minimum Display
AP135W-AD	135 g	0.01 mg
AP225W-AD	220 g	0.01 mg
AP125WD-AD	120 g / 52 g	0.1 mg / 0.01 mg
AP225WD-AD	220 g / 102 g	0.1 mg / 0.01 mg
AP224W-AD	220 g	0.1 mg
AP324W-AD	320 g	0.1 mg

AP W Series (with built-in calibration weight)

Model	Capacity	Minimum Display
AP135W	135 g	0.01 mg
AP225W	220 g	0.01 mg
AP125WD	120 g / 52 g	0.1 mg / 0.01 mg
AP225WD	220 g / 102 g	0.1 mg / 0.01 mg
AP124W	120 g	0.1 mg
AP224W	220 g	0.1 mg
AP324W	320 g	0.1 mg

AP X Series (with built-in calibration weight)

Model	Capacity	Minimum Display
AP124X	120 g	0.1 mg
AP224X	220 g	0.1 mg
AP324X	320 g	0.1 mg

AP Y Series

Model	Capacity	Minimum Display
AP124Y	120 g	0.1 mg
AP224Y	220 g	0.1 mg
AP324Y	320 g	0.1 mg

Analytical Balances

AU Series

These balances are capable of speedy measurements, with a high-speed 3 second display. They are equipped with automatic calibration for room temperature changes, and clock-CAL for calibration at pre-set times, and are capable of direct data readout to Excel and other applications.

Model	Capacity	Minimum Display	Built-in calibration weight
AUW120D	120 g/42 g	0.1 mg/0.01 mg	•
AUW220D	220 g/82 g	0.1 mg/0.01 mg	•
AUW120	120 g	0.1 mg	•
AUW220	220 g	0.1 mg	•
AUW320	320 g	0.1 mg	•
AUX120	120 g	0.1 mg	•
AUX220	220 g	0.1 mg	•
AUX320	320 g	0.1 mg	•
AUY120	120 g	0.1 mg	
AUY220	220 g	0.1 mg	

Brochure No. C054-E032

Analytical Balances

AT-R Series

Even though they are low-cost models, the AT-R Series equipped with the same “UniBloc” technology found in high-end models. They feature highly stable performance, and are capable of highly reliable weight measurements even with extended use. Also equipped with a “smart setting” that can freely switch between responsiveness and stability during measurement, and two interfaces, RS-232C and USB device. The connectivity of external devices such as PCs has been further improved.

Model	Capacity	Minimum Display	Built-in calibration weight
ATX84R	82 g	0.1 mg	•
ATX124R	120 g	0.1 mg	•
ATX224R	220 g	0.1 mg	•
ATX324R	320 g	0.1 mg	•
ATY64R	62 g	0.1 mg	
ATY124R	120 g	0.1 mg	
ATY224R	220 g	0.1 mg	
ATY324R	320 g	0.1 mg	

Brochure No. C054-E032

Electronic Balances

UP Series

This is a top-loading balance with the world's fastest class reaction speed. With a cutting-edge digital control technology, their response time when measuring trace quantities has been shortened to approximately 1 second (1/9 of the conventional level), and it greatly increases the weighing operation efficiency. In addition, it uses a highly durable weight sensor “UniBlock” that has passed 1 million endurance tests (10 times the test standard under the Measurement Act), making it safe to use in various weighing situations. Models with a capacity of 2200 g or more and minimum display of 0.01 g are equipped with a newly designed “UP-Wind Break” as standard to reduce the effects of wind from air conditioners, etc. In addition, by attaching an optional animal bucket set and setting the main body to animal measurement mode, it can be used as an animal balance.

UP-X Series (with built-in calibration weight)

Model	Capacity	Minimum Display
UP223X	220 g	0.001 g
UP423X	420 g	0.001 g
UP623X	620 g	0.001 g
UP823X	820 g	0.001 g
UP1023X	1,020 g	0.001 g
UP2202X	2,200 g	0.01 g
UP4202X	4,200 g	0.01 g
UP6202X	6,200 g	0.01 g
UP422X	420 g	0.01 g
UP822X	820 g	0.01 g
UP4201X	4,200 g	0.1 g
UP8201X	8,200 g	0.1 g



UP6202X



Bucket for small animals

UP-Y Series

Model	Capacity	Minimum Display
UP223Y	220 g	0.001 g
UP423Y	420 g	0.001 g
UP623Y	620 g	0.001 g
UP823Y	820 g	0.001 g
UP1023Y	1,020 g	0.001 g
UP2202Y	2,200 g	0.01 g
UP4202Y	4,200 g	0.01 g
UP6202Y	6,200 g	0.01 g
UP422Y	420 g	0.01 g
UP822Y	820 g	0.01 g
UP4201Y	4,200 g	0.1 g
UP8201Y	8,200 g	0.1 g

Brochure No. C054-E032

Electronic Balances TW/TX Series



One-touch operation enables easy adjustments for optimum stability. The product has various functions, including an Expanded Piece Counting function, anti-theft options, and more.

Model	Capacity	Minimum Display	Built-in calibration weight
TW223L	220 g	0.001 g	•
TW323L	320 g	0.001 g	•
TW423L	420 g	0.001 g	•
TWC623L*	620 ct (124 g)	0.001 ct (0.0002 g)	•
TX223L	220 g	0.001 g	
TX323L	320 g	0.001 g	
TX423L	420 g	0.001 g	
TX2202L	2,200 g	0.01 g	
TX3202L	3,200 g	0.01 g	
TX4202L	4,200 g	0.01 g	
TXC623L*	620 ct (124 g)	0.001 ct (0.0002 g)	

* The TWC623L and TXC623L are carat measurement models. Results can be displayed in carats when measuring precious stones.

Brochure No. C054-E032

Precision Balances for Heavy Samples BW-K/BX-K Series



Animal Balances

The BW-K/BX-K series are capable of measuring heavy objects and can be suspended for measurement by attaching optional hardware. Can be used as an animal balance by attaching an optional small bucket or medium bucket.

Model	Capacity	Minimum Display	Built-in calibration weight
BW12KH	12 kg	0.1 g	•
BW22KH	22 kg	0.1 g	•
BW32KH	32 kg	0.1 g	•
BW32KS	32 kg	1 g	•
BW52KS	52 kg	1 g	•
BX12KH	12 kg	0.1 g	
BX22KH	22 kg	0.1 g	
BX32KH	32 kg	0.1 g	
BX32KS	32 kg	1 g	
BX52KS	52 kg	1 g	

Note: The medium bucket cannot be attached to the BW12KH or BX12KH.

Brochure No. C054-E032

UniBloc Moisture Analyzer MOC63u



A new type of moisture analyzer has been introduced. This electronic moisture analyzer is capable of performing reliable moisture content measurements quickly and easily. Simply load the sample on the pan and shut the cover to start measuring. The system can accommodate a wide range of samples, thereby contributing to heightened work efficiency.

Max. sample quantity	60 g
Min. sample quantity	0.02 g
Minimum indication	0.001 g / 0.01 %
External output	RS-232C interface USB interface DATA I/O interface (used for optional printer connections)

Brochure No. C054-E032

Static Remover (Ionizer) STABLO-AP Series



STABLO-AP



STABLO-AP Ar
STABLO-AP N₂
STABLO-AP DRY AIR

STABLO-AP are draft-free ionizers capable of achieving high-speed static elimination in approx. one second. The lineup includes three new models: STABLO-AP Ar for argon gas environments, STABLO-AP N₂ for nitrogen gas environments, and STABLO-AP DRY AIR for dry air environments. As AC corona discharge-type ionizers, they are a safer and more economical solution than radiation-type ionizers. These draft-free ionizers are perfect for eliminating static from materials such as powders, films, weighing papers, and containers. They can be used in three ways: immobilized using the stand, operated as hand-held devices, or integrated directly into the AP series of analytical balances.

Model	STABLO-AP	STABLO-AP Ar New	STABLO-AP N ₂ New	STABLO-AP DRY AIR New
Static elimination method	AC corona discharge			
Effective static removal range	Approx. 300 mm from the outlet			
Operating environment	Typical atmospheric air environmen	Argon gas environment	Nitrogen gas environment	Dry air environment
Size (unit)	Approx. 120 × 87 × 49 mm (Excluding protruding parts)			
Weight	Approx. 710 g (Main unit: 395 g, Stand: 315 g)			

Brochure No. STABLO-AP: C054-E071, STABLO-AP Ar/N₂/DRY AIR: C054-E079



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