HPLC System - Liquid Chromatograph - DAD 190-800 nm - 1800 lines/mm Grating

Model **MSHPLC-W3200SWISS** | Brand **Master Science**











The Master Science HPLC Liquid Chromatography System is a modular high-performance liquid chromatograph built for routine quantitative analysis and method development. Pump, autosampler, column oven and detector are separate modules, so a laboratory can start with the configuration it needs today and add detectors or valves later.

KEY HIGHLIGHTS

- Better repeatability between runs
- Lower running costs
- One system for many methods
- Reliable operation with organic solvents
- Data integrity support

AT A GLANCE

190 to 800 nm (simultaneous detection) DAD WAVELENGTH RANGE	**UV, DAD, FLD, RID, ELSD** DETECTOR OPTIONS
188 to 900 nm UV DETECTOR WAVELENGTH RANGE	**Deuterium lamp and tungsten lamp (dual-lamp design)** UV DETECTOR LIGHT SOURCE

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Overview

It is used for the separation, identification and quantification of compounds in pharmaceutical, food, environmental and chemical samples, with a choice of UV, DAD, fluorescence, refractive index and evaporative light scattering detection.

The key specifications of the Master Science HPLC Liquid Chromatography System and its main modules are listed below. Values are taken from the manufacturer's product documentation.

For other analytical instruments that work alongside an HPLC in the same laboratory, see the Master Science laboratory instrument range.

The Master Science HPLC Liquid Chromatography System suits laboratories that need to separate and quantify compounds in liquid samples, including:

The Master Science HPLC Liquid Chromatography System addresses several everyday problems in chromatography laboratories:

Key Benefits

Better repeatability between runs
electronic pulsation suppression and solvent compression compensation reduce pressure fluctuation, which helps keep retention times and peak areas consistent.

Lower running costs
secondary suspension in the high-pressure pump reduces seal wear, and online plunger rod cleaning helps prevent buffer salt deposits that shorten seal life.

One system for many methods
the Master Science HPLC Liquid Chromatography System accepts five detector types, so the same platform can cover UV-active compounds, fluorescent analytes and compounds with no chromophore.

Reliable operation with organic solvents
acetonitrile-resistant check valves are designed for the mobile phases most used in reversed-phase work.

Data integrity support
the chromatography software provides audit trail and multi-level user access, which helps laboratories working under GMP record-keeping requirements.

Technical Specifications

GENERAL	
Brand	Master Science
Model Number	MSHPLC-W3200SWISS
SKU	MSHPLC-W3200SWISS
System Design	Modular HPLC system
Pump Options	Isocratic pump, binary pump (2 or 4 solvents), quaternary pump
Pump Technology	High-pressure constant flow pump with secondary suspension; electronic pulsation suppression and solvent compression compensation
Check Valves	Acetonitrile-resistant check valves
Gradient Valve	High-precision gradient valve
Degasser	Integrated, serving the pump and the autosampler wash solvent
Plunger Cleaning	Built-in online plunger rod cleaning
Grating	1800 lines/mm
ELSD	Low-temperature evaporation, split-flow mode, independent nebulization, evaporation and detection gas control, photomultiplier tube detection, 7-inch touch screen
Autosampler	High-precision metering pump, polar coordinate design with XYZ movement, multiple injection modes, auxiliary air pump, optional cooling mode, internal lighting
Column Oven	Bidirectional forced-air heating and cooling
Column Capacity	**2 × (250 mm column + guard column) or 4 × (150 mm column + guard column)**

GENERAL

Column Oven Options	Switching valves for two-dimensional chromatography and online sample preparation

OPTICAL PERFORMANCE

Detector Options	UV, DAD, FLD, RID, ELSD
DAD Wavelength Range	**190 to 800 nm (simultaneous detection)**
UV Detector Light Source	Deuterium lamp and tungsten lamp (dual-lamp design)
UV Detector Wavelength Range	**188 to 900 nm**
UV Detector Functions	Dual-wavelength detection, full-range wavelength scanning, leak alarm, automatic spectral calibration
Fluorescence Detector	DC xenon lamp, dual monochromator, touch-screen LCD, dual analog outputs, RS232 or Ethernet data transfer
Refractive Index Detector	LED light source, temperature-controlled module, leak alarm, digital and analog output, 7-inch touch screen
Air bubbles and noisy baselines	the integrated degasser treats both the mobile phase and the autosampler wash solvent.

DISPLAY & DATA

Software	Chromatography data system with local or network deployment, database storage, audit trail and multi-level access control
Audit findings on data records	the software keeps an audit trail and controls user access levels.

COMMON LABORATORY PROBLEMS AND HOW THIS SYSTEM HELPS

Drifting retention times	pulsation suppression and solvent compression compensation keep flow steady, and the forced-air column oven holds column temperature uniform.
Frequent pump seal replacement	secondary suspension and online plunger cleaning reduce wear on seals.
Buying a new instrument for each method	the modular design lets you add a detector instead of a second system.

Applications

- **Pharmaceutical assay, impurity and dissolution testing**
- Food analysis, including vitamins, amino acids and aflatoxins (fluorescence detection)
- **Environmental testing for polycyclic aromatic hydrocarbons**
- Sugar and polymer analysis with refractive index or ELSD detection
- **Chemical quality control and research method development**

Pump

- Isocratic, binary or quaternary configuration
- High-precision gradient valve for repeatable gradients
- Integrated degasser for pump and autosampler wash solvent
- Acetonitrile-resistant check valves and online plunger rod cleaning

Autosampler

- High-precision metering pump for accurate injection volumes
- Polar coordinate design with XYZ three-dimensional movement
- Several selectable injection methods
- Optional sample cooling and internal lighting for easy observation

Column Oven

- Forced-air heating and cooling for uniform column temperature
- Holds two 250 mm or four 150 mm columns with guard columns
- Accepts switching valves for 2D chromatography and online sample preparation

Detectors

- DAD with 190 to 800 nm range, spectral library, peak purity and 3D views
- UV detector with deuterium and tungsten lamps, 188 to 900 nm
- Fluorescence detector with xenon lamp and dual monochromator
- Refractive index detector with long-life LED source
- ELSD with low-temperature evaporation for thermally unstable compounds

Optional Accessories

- Additional detector modules: UV, DAD, FLD, RID, ELSD
- Column switching valves