SHIMADZU
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Specification Sheet

Liquid Chromatograph Mass Spectrometer

LCMS-8045

The LCMS-8045 offers the proven high sensitivity, high speed, and robustness of Shimadzu's UFMS series to provide highly reliable data for applications that demand the sensitivity and speed of a mass spectrometer, such as for simultaneous analysis used in the food safety and environmental measurement fields. Due to the heated-ESI probe and UFsweeper II collision cell, it offers the highest sensitivity in the middle-range class (UFsensitivity). LCMS-8045 also includes other various patented proprietary ultrafast technologies (UF technologies), such as ultra-high-speed polarity switching (UFswitching) and ultra-high-speed scanning (UFscanning). In combination with Shimadzu's UHPLC system, which is among the fastest in the world, the LCMS-8045 can shorten analysis times even further. It also features excellent durability and ease-of-maintenance refined over many years.

Instrument

Model	LCMS-8045
Mass range	*m/z* 2 to 2,000
Sensitivity	ESI positive: 1 pg reserpine, S/N > 100,000:1 (RMS) ESI negative: 1 pg chloramphenicol, S/N > 100,000:1 (RMS)
Resolution	R < 0.7 u FWHM
Mass stability	0.1 u / 24 hr
Mass accuracy	±0.15 u or less (*m/z* 1,000)
Cross-talk	< 0.003 %
Minimum pause time	1 msec
Minimum dwell time	0.8 msec
Scan speed	Max 30,000 u/sec (in all modes of scanning) (0.1 u step: 300,000 data points/sec)
Polarity switching time	5 msec
Interface	ESI (Standard), APCI (Optional), DUIS (Optional)
Applicable LC flow rate	ESI 1 µL/min to 2 mL/min
MRM transition speed	Max 555 channels/sec
ESI desolvation temperature	More than 650 °C
APCI desolvation temperature	More than 500 °C

Analysis mode	Q1 Scan/SIM Q3 Scan/SIM MRM Precursor ion scan Product ion scan Neutral loss scan

Mass Analyzers and Detector

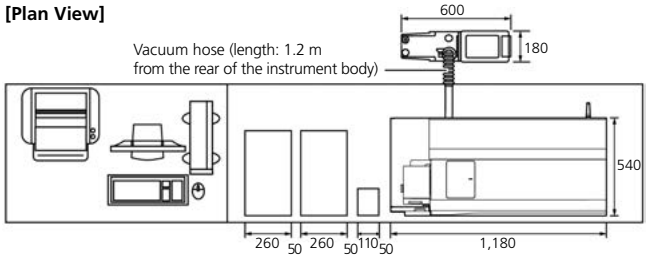
Mass analyzers	Q1 & Q3 are molybdenum hyperbolic mass filters with pre-rods; Q1 includes post-rods
Collision cell	Tapered multipole type ultra-high-speed collision cell (UFsweeper II collision cell)
Detector	Secondary electron multiplier with off-axis conversion dynode
Ion optics	Q-array focus optics operating in Field-Flow mode, multipole transfer optics
Digital detection system	Operates in pulse counting mode for fastest operation
Detection mode	Ultra-fast positive/negative ion switching
Dynamic range (pulse counting)	2×10^7 cps
Vacuum system	Rotary pump: 1 unit Vacuum pumping speed: 28 m^3/hr Triple-inlet turbo molecular pump: 1 unit 40 L/sec, 260 L/sec, 210 L/sec

Software

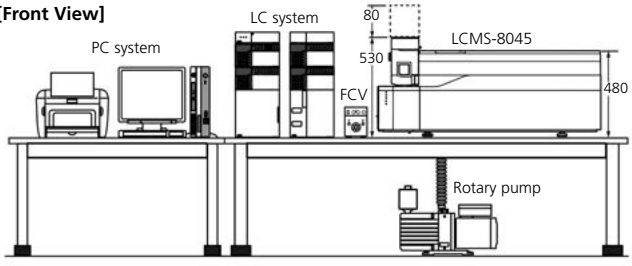
Workstation	LabSolutions LCMS
Instrument control	Prominence and Nexera series
MS acquisition mode	Scan (Max. 1,000 events), SIM (Max. 1,000 events × 32 channels)
MS/MS acquisition mode	MRM (Max. 1,000 events × 32 channels) Product ion scan Precursor ion scan Neutral loss scan
Auto-tuning	Possible to optimize sensitivity, resolution, and mass calibration in both positive and negative ionization mode

Installation Example

[Plan View]



[Front View]



Units: mm

Installation Conditions

Temperature	18 to 28 °C
Humidity	20 to 70 % (Non-condensing)
Size	1,180 mm (W) × 540 mm (D) × 610 mm (H)
Weight	140 kg
Power supply	MS unit: AC 230 V 15 A (50/60 Hz) Single-phase
Gas requirements	Nitrogen gas: Maximum 24.4 L/min, Purity greater than 97 % Argon: Purity greater than 99.99% as CID gas Dry air: Maximum 20 L/min, oil/water-free Total nitrogen plus air: 25L/min maximum

The above are not standard installation specification. All LCMS-8045 instruments will be installed and tested in accordance with standard performance tests as detailed in the Shimadzu document ZEAH-0500, Shimadzu High-Performance Liquid Chromatograph Mass Spectrometer LCMS-8045 Installation Standard.

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