



Agilent 240 Ion Trap Mass Spectrometer

Data Sheet

Overview

The Agilent 240 MS, combined with the Agilent 7890A GC, delivers exceptional performance and unsurpassed flexibility with both MS and GC options. The MS can be configured in internal or external ionization modes, offers MS/MS and MSⁿ and provides positive (PCI) and negative (NCI) chemical ionization. An optional, oil-free foreline pump is available.

Configuration	El full scan	PCI	NCI	El↔CI
Internal	X	X		Auto within runs
External	X	X	X	Auto between runs
Hybrid		X	X	

MS/MS is available in all modes of operation.



Agilent Technologies

Agilent 240 MS Specifications

Mass Analysis

- Mass range: 10–1000 Da in 0.1 Da steps; scan range is time programmable throughout the run
- Resolution: Unit mass resolution over the entire mass range
- Scan rate of 5000 or 10000 Da/s
- Mass axis stability: ± 0.1 Da over 72 hr

Scanning Modes

- Time programmable: In all modes during the analytical run
- Full scan
- Selected Ion Storage (SIS): Stores up to six range of ions; ejects matrix, column bleed
- MS/MS: Using non-resonant or frequency modulated resonant CID generating full scan product ion spectrum
- MS^n where $n \leq 10$

Ionization

- Ionization: Dual filaments in all EI and CI configurations
- Filament current - internal mode: 10–100 μA
- Filament current - external mode: 10–250 μA
- Ionization energy: External mode variable; internal mode fixed
- Pulsed ionization: Ionization turned off during mass analysis in all modes to minimize contamination
- Maximum ionization time: 65 msec
- PCI Internal mode: Low pressure PCI compatible with gas or liquid reagents; kit for single liquid or gas reagent included
- PCI External mode: High pressure PCI compatible with gaseous reagents
- NCI External mode: Electron capture NCI; high pressure NCI compatible with gas reagents
- PCI Hybrid mode: Low or high pressure PCI compatible with gas or liquid reagents; allows the selection of the reagent ion(s) to react with analytes
- NCI Hybrid mode: True negative ion reaction; low or high pressure NCI compatible with gas or liquid reagents; allows the selection of the reagent ion(s) to react with analytes

Operating Temperatures

- Analyzer: Up to 250 °C
- Manifold: Up to 120 °C
- Source: Up to 300 °C (external mode only)
- Transfer line: Up to 350 °C

Ion Trap Mass Analyzer

- Electrode surface: SilChrom for maximum inertness (standard)
- Damping gas: Electronic flow control, 0.5–7.0 mL/min in external ionization mode

Detection System

- Detector: Off-axis design, ± 10 kV HED and electron multiplier
- Analytical linear dynamic range: 10^3 to 10^4 , compound-dependent based upon mode of operation and analytical methods

Software

- MS Workstation (MSWS) for acquisition, automation and qualitative and quantitative data review; can collect 2 GC detector signals while acquiring MS data; automatic MS file format conversion to MassHunter format
- MassHunter for qualitative and quantitative data review

Vacuum System

- 280 L/s turbomolecular pump
- Manifold ion gauge: Bayard-Alpert gauge tube with burn-out resistant, thoria-coated iridium (ThO-Ir) filaments
- Foreline pump thermal vacuum gauge
- Standard Foreline Pump: DS-102
 - Dual stage, rotary vane
 - Voltage: 100, 120, 230 V
 - Pumping speed greater than 95 L/min (5.7 m³/h)
- Optional oil free foreline pump:
 - IDP-3 dry scroll pump
 - Hermetic design
 - Low noise and vibration
 - Pumping speed 60 L/min (3.6 m³/h)

Optional Software

- Spectral databases: National Institute of Standards and Technology (NIST), Wiley, and Maurer Pflieger Weber (MPW) libraries
- Selection of custom software:
 - EnviroPro for general and EPA specific report requirements
 - ToxPro Plus includes three-ion ratio reports for toxicology applications
 - MultiCompound for general extended reporting
 - Access control and audit trail software for 21 CFR Part 11 compliance

Performance Specifications

Scan rate at 5000 Da/s

Internal Sensitivity

- EI scan: 200 fg octafluoronaphthalene, on-column, S/N 20:1 RMS for extracted ion m/z 272
- PCI scan: 5 pg benzophenone, on-column using methane or methanol CI, S/N 50:1 RMS for extracted ion m/z 183

External Sensitivity

- EI scan: 500 fg octafluoronaphthalene, on-column, S/N 30:1 RMS for extracted ion m/z 272
- PCI scan: 50 pg benzophenone on-column using methane CI, S/N 10:1 RMS for extracted ion m/z 183
- NCI scan: 1 pg decafluorobenzophenone on-column using methane NCI, S/N 50:1 RMS for extracted ion m/z 362

Gas Chromatograph (Agilent 7890A GC)

For more specifications on GCs refer to the GC Data Sheet

Injector	Split/splitless, Multi-mode inlet, PTV
Autosampler	7693 ALS, CombiPAL, 7697A Headspace Sampler
Oven temperature	Ambient + 4 to 450 °C
Oven ramps/plateaus	20/21. Negative ramps are allowed.
Electronic pneumatic control (EPC)	Auto pressure regulation for split/splitless, septum purge
Carrier gas control modes	Constant pressure and flow modes; pressure and flow programmable
Pneumatic splitter	Capillary Flow Technology devices for backflushing

Utilities and Environment

Power Requirements for MS

- 90-130 Vac, 60 Hz \pm 3 Hz, 12 A, 1440 VA
- 180-260 Vac, 50 Hz \pm 3 Hz, 6 A, 1440 VA

Environmental Requirements

- Humidity: 40% to 80% relative humidity (without condensation)
- Temperature: 18 °C to 27 °C

Physical Specifications

Weights and Dimensions

	Weight		Height		Depth		Width	
	Kg	lbs	cm	in	cm	in	cm	in
240 MS	42	93	50	19	65	26	37	15
DS 102 foreline pump*	22	49	46	18	43	17	21	8
IDP-3	10	22	18	8	39	15	14	6
7890A GC	45	99	57	22	54	21	58	22.8

*with oil mist eliminator

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Printed in the USA
March 14, 2011
5990-7664EN



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