



Agilent 5975T LTM GC/MSD System

Data Sheet



LTM GC/MSD

The Agilent 5975T LTM GC/MSD is the first commercial transportable GC/MS system that delivers laboratory quality analysis.

The 5975T takes advantage of Agilent's proprietary LTM technology, which eliminates the conventional GC oven by wrapping the GC column with a heating element and temperature sensor. These column modules provide rapid heating (the maximum ramp rate can reach 1200 °C/min) and cooling of the column for higher throughput. The LTM GC system requires less power compared to a conventional GC, reducing the required power supply from the mobile lab. The Agilent fifth generation EPC and digital circuit ensure retention time precision, and allow easy operation, which makes it suitable and ideal for onsite, fast analysis.

The 5975T inherited the outstanding performance and high reliability design of the Agilent 5975C. It is

seamlessly integrated with LTM GC technology to be a fast, high performance, high reliability, transportable GC/MSD system.

The Agilent 5975T LTM GC/MSD with the Triple-Axis HED EM Detector provides the flexibility, capabilities, and performance demanded by modern applications in all industries. The mass selective detector (MSD) is configured for electron ionization.

The autosampler systems can be selected to meet different requirements. Injection systems can range from an injector tower to a flexible CTC-PAL autosampling system. Other sampling devices are available from Agilent and third parties.

The 5975T LTM GC/MSD provides high performance and high productivity with features that improve analyses for both transportable and laboratory usage.

Trace Ion Detection technology helps to detect low-level compounds in complex matrices. In combination with the Deconvolution Reporting Software add-on, it is possible to detect lower level compounds that coelute, which is a difficult analysis without Trace Ion Detection technology.

The programmable 350 °C source increases the signal intensity for later eluting compounds. This improvement in signal is compound dependent. The Gain Normalization Autotune sets the MSD in the best operating conditions, consistently across instruments. The 5975T electronics allow a combination of both SIM and scan acquisitions, even for sub-one-second chromatographic peaks. The SIM ions and switching times can be automatically set up with the MSD ChemStation software, making this capability practical.



Retention time locking (RTL) maintains the retention times so that method maintenance is minimized when columns are clipped or the methods are transferred to other instruments. Method transfers are further simplified with eMethod capabilities. Multisite laboratories can easily transfer and run the same methods with the same retention times.

The MSD ChemStation software provides an extensive set of tools for different applications. It can estimate concentrations of noncalibrated compounds based upon calibrated compounds (SemiQuant). For complex samples, Deconvolution Reporting Software (DRS) combined with the unique Agilent RTL libraries provide quick screening capabilities for classes of compounds. An extensive macro language is provided along with a flexible report writer for custom operations. Agilent GC/MSDs are known for their reliability, ruggedness, and long life. The Agilent ten-year use guarantee provides greater assurance for a low cost-of-ownership throughout its life.

The Agilent 5975T LTM GC/MSD System features:

- Agilent proprietary LTM technology
- Proven ruggedness and reliability
- eMethods for simple method transfer
- SemiQuant for estimating concentrations of noncalibrated compounds
- Inert electron ionization (EI) source for better performance on active compounds
- Higher sensitivity with the Triple-Axis HED-EM Detector
- Mass range up to 1050 u
- High performance SIM/scan with automated SIM setup
- Mass stability with better than 0.10 u over 48 hours
- Performance electronics for 12,500 u/s scan speed (8,000 u/s write-to-disk)
- DRS and RTL ready
- Inlet turntop for quick and easy inlet maintenance
- Proprietary hyperbolic gold coated quadrupole
- Heatable quadrupole to 200 °C
- Easy access to full ion optics
- Compatibility with many third party sampling devices
- Oil-free mechanical pumps (Oil pump as option)
- Ten-year use guarantee

Agilent 5975T LTM GC/MSD System Specifications

Mass Spectrometer

Mode	EI (Electron Impact Ionization)
Ion source type	Noncoated inert EI source
Ionization energy	5–241.5 eV
Ionization current	0–315 µA
Transfer line temperature	100–350 °C
Ion source temperature	150–350 °C
Quadrupole temperature	106–200 °C
Filaments	Dual for EI
Mass filter	Monolithic hyperbolic quadrupole
Mass filter protection	Entrance lens
Maximum mass	1050 u
Mass resolution	Unit mass adjustable by tune
Mass axis stability	Better than 0.10 u/48 h
Detector	Triple-Axis Detector with long life EM
Dynamic range (electronic)	10 ⁶
Scan rate (electronic)	Up to 12,500 u/s
Write-to-disk	Up to 8,000 u/s
SIM	60 ions × 100 groups
Pumping system	70 L/s turbomolecular pump with 3.6 m ³ /hr standard dry pump
Total flow	2 mL/min (standard turbo)
Instrument control	MSD ChemStation Data system, local user interface
Maintenance access	Source, filaments, lenses, mass filter, and detector on removable plate
Maintenance scheduling	Early maintenance feedback
EI scan sensitivity	1-µL injection of a 1-pg/µL OFN standard scanning from 50–300 u will give 400:1 at nominal <i>m/z</i> 272 ion (He) 1-µL injection of a 1-pg/µL OFN standard scanning from 50 to 300 u will give 100:1 at nominal <i>m/z</i> 272 ion (H ₂)

LTM Gas Chromatograph

Column type	LTM capillary column
Column temperature control	LTM technology
Column temperature range	Ambient +8 °C-350 °C
Column temperature ramps/plateaus	20/21 with negative ramps allowed
Max heating rate	1200 °C/min (depends on column length and temperature)
Autosampler	Agilent 7693A (G4513A only), CombiPAL, Headspace, Purge & Trap
Liner replacement	Turntop system
Inlet	Split/splitless (standard)
Inlet max temperature	350 °C
Carrier gases	Helium or hydrogen
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
Pressure range	0–100 psi (standard) with 0.001psi resolution
Retention time locking	RTL ready
Instrument control	MSD ChemStation Data system, LTM GC remote control panel software

MSD ChemStation software

SIM/Scan	Automated SIM setup and synchronous SIM/scan operation
Application reports	Environmental, drugs of abuse, aromatics in gasoline
File import/export	Sequence file/quant and custom report
Customization	Macro language, report writer
Spectral libraries	NIST
Spectral DRS and RTL	Pesticides and endocrine disrupter databases, volatiles, PCBs, toxicology, FAMES, flavors, organotin compounds, hazardous chemicals, indoor air toxics, Japan Positive List, forensic toxicology, and environment semi-volatiles

Automation Features

- The system can automatically tune.
- The system can automatically create a SIM method from a scan data file of an injected standard.
- The system can automatically screen for compounds in the DRS and RTL libraries database based on spectra and RTs.
- With the DRS, the system can produce a combined report showing library search results based on deconvoluted spectra along with quantitative results.

Ease-of-Maintenance

- The LTM GC S/SL inlet liner can be replaced in less than 1 minute with a turntop inlet.
- A glass window simplifies column positioning, and provides easy observation of filament operation and electrical connections.
- The source, filaments, lenses, quadrupole, and EM can be removed from the instrument as one unit in less than 1 minute after venting.

Safety, Regulatory Compliance, and Operational Conditions

The instrument is designed and manufactured under a quality system registered to ISO 9001. The instrument complies with international regulatory, safety, and electromagnetic compatibility requirements. In addition, further testing was done under Agilent standards to ensure operation after delivery and longterm usage.

Antivibration	MIL-STD-810F:514.5C-3 method
Safety	Canadian Standards Association(CSA): CAN/CSA-C22.2 No.61010-1-04 Electrotechnical Commission (IEC): 61010-1 EuroNorm (EN): 61010-1 Electromagnetic compatibility CISPR11/EN55011: Group 1, Class A Sound emission EN 27779:1991 sound pressure Lp <70 db
Power	Max power consumption <1.45 kW 120 VAC(-10%/+10%); 50/60 Hz+5% 230 VAC(-10%/+10%); 50/60 Hz+5% 200 VAC(-10%/+10%); 50/60 Hz+5%
Operating environment	10 °C~40 °C with 40%~80% relative humidity noncondensing(operational) -20~70 °C, 0~90% relative humidity – noncondensing (storage)

Physical Requirements

Dimensions	65 cm (L) × 60.8 cm (W) × 49.1 cm (H), Additional space should be added for the data system and printer.
Weight	56.5 kg (without dry pump), 67.5 kg (with dry pump)

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