

Gas Chromatography/
Mass Spectrometry

Torion T-9 Portable GC/MS



System Specifications

Dimensions	15" x 15.5" x 9" (38.1 cm x 39.4 cm x 22.9 cm) without handle
Weight	32 lbs (14.5 kg), including battery
Operating Temperature	5° to 40° C continuous operation with vent ports closed Up to 45° C continuous operation with vent ports open
Operating Humidity	Up to 100% RH non-condensing
Power Supply	Rechargeable Lithium Ion batteries or AC converter (100-120 V/220-240 V, 50/60 Hz, 2.0A) with power source and level indicators
Sample Introduction	Solid phase microextraction (SPME), Needle trap, and SPS-3 Sample prep station for air sample processing and internal standard addition
Carrier Gas	High purity helium (99.5%) or Ultra-high purity (99.995%) helium
User Interface	Color touch screen with on-board operating menus and navigation key pad
User Software (PC/Laptop)	Chromion for method & library development, also data processing and evaluation
Training	Beginner/Advanced operator and maintenance courses available
Communication Interface	Ethernet or RF (2.4 GHz) Wireless
Battery Lifetime	Rechargeable, up to 2.5 hours lifetime
Helium Cylinder Lifetime	Typically 100 - 150 analyses per disposable cylinder
SPME Lifetime	Over 50+ analyses (depending on sample type)
Display	5.7" color touch-screen display
Operating System	Windows CE Operating System
Data Format	net.CDF
Detection Limit	PPT to PPB for most analytes
Peak Power	~120 W peak power and ~60 W average power
Memory	On-board removable SD flash card; standard and On-the-go mini USB ports

Low Thermal Mass Gas Chromatograph (LTM GC)

LTM GC Column	MXT-5, 5 m x 0.1 mm x 0.4 μm d_f
Temperature Program (typical)	Adjustable between 40° to 300°C
Temperature Ramp Rate	Up to 2.5 °C/sec or 150 °C/min.
Split/Splitless Injection	Splitless or Selectable Split; (~10:1), (~50:1) and (~60:1)
Septum Purge	5 mL/min.
Flow Rate	Constant flow rate mode

Toroidal Ion Trap Mass Spectrometer (TMS)

Mass Analyzer	Toroidal ion trap
Mass Range	41-500 m/z
Resolution	Better than unit mass resolution from 41 – 300 amu and nominal mass resolution up to 500 amu
Ionization Mode	In-trap electron impact ionization
Detector	Electron multiplier – novel dual rectangular configuration
Vacuum	Dual stage vacuum system: diaphragm roughing and turbo molecular pumps; nominal operating pressure 10^{-3} to 10^{-4} Torr
Heated Ion Trap	Adjustable from 100 ° to 180 °C

Chemical Libraries

Target Analysis	Chromion deconvolution software automated on on Torion T-9; user defined target libraries using GC retention times and mass spectral data; NIST and AMDIS Library search software.
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KEY DESIGN FEATURES

- Portable, lightweight GC/MS
- Low thermal mass GC
- Toroidal ion trap mass analyzer
- Operates under harsh conditions
- Routine calibration
- Automated performance validation
- 5 min. startup and cycle times
- 12 samples per hour
- Battery power for 2.5 hours
- On-board helium cartridge

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