MAESTRO-αMS
Data Sheet

The MAESTRO-αMS Gas Chromatograph / Mass Selective Detector (GC/MSD) builds on classical principles of single quadrupole mass-spectrometer technology, embracing most recent advances in electronics and novel materials to result in with the world's best performance and productivity features including:

- The Instrument Detection Limit (IDL) and S/N abreast with the world market leaders
- Exceptionally broad industry leading extended dynamic range
- Inert Isothermal Ion Source designed for high matrix extracts of biological samples and plant extracts
- Extended life of electron multiplier
- Ergonomic design for easy access to ion source and electron multiplier.
- Built-in UPS, a self-sustaining module to protect the instrument against power instability, interruption, surges and spikes.
- One window user interface Software with method set-up wizard
- Unique productivity tools **SIM-Wizard** for optimal SIM acquisition parameters set-up, algorithm **iDwell®Time**
- Novel post-run processing algorithm **FlexSIM** for accurate quantitation of trace targets in challenging matrices

Mass-Selective Detector

Ionization sources	Three supported sources: Stainless Steel, Inert Isothermal Ceramic, Inert Titan
Ion source temperature	150–350 °C
Mass range	upto 1200 amu (for confident PBDE analysis)
Scan speed	up to 20,000 u/sec
Mass axis stability	Better than 0.10 u/48 hours
Detector	Off-Axis Detector with high energy dynode and long life electron multiplier operating under low voltage.
Dynamic range	>5*10e6
Application autotunes	Push-the-button autotune for BFB, DFTPP
Spectral libraries (optional)	NIST, Wiley/NIST, Maurer/Pfleger/Weber, Rosner
Data system	Proprietary Software modules: Operator - for data acquisition and Analytic - for data analysis
Deconvolution	Proprietary integrated deconvolution algorithm for identification and quantitation of low level targets in complex matrix
Maintenance access	Ion source on removable front flange for cleaning and filament replacement, detector on removable rear flange.

Instrument Detection Limit (IDL)

- Based on eight replicate injections and their statistical analysis of precision (%RSD)
- Measured at an analytical amount near the detection limit
- IDL statistically derived at 99 % confidence level from the area precision (< 5% RSD) of eight sequential splitless injections of OFN

- IDLs measured using 100 fg, 1-µL injection with Automatic Liquid Sampler
- 15 m × 0.25 mm ID, 0.25 µm film column is used for IDL checkout
- Helium carrier gas

Instrument detection limit (IDL)	EI SIM, 1-µL injection of 100/µL OFN standard at m/z 272
Turbomolecular pump 85 L/sec	<10 fg
Turbomolecular pump 300 L/sec	<10 fg

Installation checkout specification.

EI scan, 1-µL injection of 1 pg/µL OFN standard scanning from 50 to 300 amu at m/z 272.	S/N
Turbomolecular pump 85 L/sec	2000:1 or higher
Turbomolecular pump 300 L/sec	2000:1 or higher

Operational Conditions

Operating environment	15–35 °C, 40–80% relative humidity – noncondensing (operational) –40 °C– +70 °C, 0–95% relative humidity – noncondensing (storage)
Power	220–240 V, 50/60 Hz,

Physical Requirements

Dimensions (MSD)	41.6 cm (w) × 59.0 cm(d) × 41.2 cm (h) Additional space should be added for the auto injector, sample tray, data system, and printer.
Weight (MSD)	30 to 35 kg (depending on configuration)

Gas Chromatography

Gas chromatograph	Q-Tek MAESTRO
Supported Inlets	Max two inlets installed simultaneously, including Split/Splitless (S/SL); Packed Purged(PP); Cool On Column(COC)
S/SL Inlet max operated temperature	350℃
S/SL Inlet max operated pressure	EPC controlled in range 0-100 psi
Inlet operating modes	Constant pressure; constant flow; ramped pressure; ramped flow
Oven operating temperature range	Ambient temperature+5℃ to 450℃
Oven Ramps/ ramp rate	11 oven ramps/ max temperature ramp rate 120℃/min
Oven dimensions	28.5 × 30.5 × 16.5 cm